Energy and Geostrategy 2018

Spanish Institute for Strategic Studies

Spanish Committee of the World Energy Council
Spanish Energy Club

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ÍNDICE

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Introduction

Claudio Aranzadi

Along the same lines as in previous publications of «Energy & Geostrategy» this fifth issue features four articles focusing on geographical areas (Russia, Turkey, India, Sahel), whose authors are José Pardo de Santayana with his work, «Energy in the Russian Federation Strategy», Melike Janine Söknen & Eduard Soler, with «Beyond the Pipelines: Energy Geopolitics in Turkey and Neighbouring Countries», Sanjay Joshi & Lydia Powell, with «India: Geopolitics of Energy», and Beatriz Mesa, with «Security, Development and Energies: the Three Challenges for the Future of the Sahel», and on the other hand one global article, «Challenges and Opportunities of Climate Governance. Implementing the Paris Agreement and Increasing Ambition», whose author is Lara Lázaro. This fifth issue also contains an interview with the person responsible for energy policy in the European Union, the Energy Commissioner Arias Cañete.

At the time this issue went to press (early 2018) the general geopolitical scenario was fraught with uncertainty. The annual report from the Eurasia Group[1], considers that «if one had to select a year for a serious and unexpected crisis (the geopolitical equivalent of the financial disaster of 2008), it would be 2018». In a rather less alarmist tone and with a longer-term vision, Torres (2018)[2], also reveals the uncertainties of the current process of transition from the geopoliti-

[1] Eurasia Group (January 2018).«Top Risks 2018».

[2] J. Torres Sospredra (January 2018). «Relaciones entre E.E.U.U. y Rusia. ¿Una nueva guerra fría? El momento Trump». (Instituto Español de Estudios Estratégicos).

cal framework of the last decade of the 20th Century (characterised by the end of the Cold War and the establishment of a unipolar world) towards a new framework in which the decline of US dominance is increasingly leading the world towards multi-polarity, but whose arrangement (the possibly asymmetrical distribution of power among the main agents: the USA, China, Russia, India, etc.) is far from being clearly defined. Therefore, it should come as no surprise that in this general geopolitical context, the network of multidirectional causality encapsulating the purely geopolitical factors and the purely energy related factors, whose complexity has been examined in previous issues of this publication, is also tinged with uncertainty.

The perception of the geopolitical risks involved in the energy area has also been subject to rapid fluctuations in recent years. In the preceding issue of «Energy & Geostrategy» reference was already made to the downward correction of the moderately optimistic expectations to which some events registered in 2015 had led (mainly the Paris Agreement between the members of the UNFCC (COP 21) signed on December 2015 and the Agreement reached in July 2015 concerning Iran's nuclear programme between the latter and the members of the UN Security Council plus Germany (P5+1)). Throughout 2017 it could be considered that uncertainty, and, thus, geopolitical risk in the energy scenario, have increased.

Donald Trump's coming into office as US President in January 2017 was undoubtedly a decisive factor in changing not only the general geopolitical panorama but also the geostrategic energy framework. The initiatives taken during the first year of his Presidency paved the way for a scenario of greater uncertainty while at the same time amounting to a turning point in US strategy. The withdrawal from the Paris Agreement on climate policy and the application to make modifications to the Nuclear Agreement with Iran, go far beyond fulfilment of his rash campaign promises or the flurry of gestures indicating a rupture with the period of Obama's Presidency. They are decisions that amount to a new strategic orientation that will also lead to a chain of further actions, not yet known, but which through the mechanism of path dependence, are already conditioned to a large extent by these initial moves. The following is indicated in the document «National Security Strategy of the United States of America (December 2017)»: «Climate policies will still give shape to the global energy system. US leadership is essential to counteract the anti-growth energy agenda that is harmful to the US economy and US interests in energy security matters». This statement is nothing more than a thinly-disguised euphemism for giving the US Government a blank cheque to lead a global climate policy confronting the Paris Agreement of December 2015, which D. Trump has described on numerous occasions as a commitment that is detrimental to the US economy and US energy security. Another such euphemism would be the laxity in environmental policy to be found in the following sentence from the same document: «The USA will promote the clean and secure development of energy resources, while at the same time limiting the regulatory burdens that slow up energy production and

restrict economic growth». In much the same way as the withdrawal from the Paris Agreement means the beginning of a climate-sceptic policy mixed into the USA's new national security strategy, D. Trump's noisy criticisms of the Nuclear Agreement with Iran and his call for a reform, are likewise consistent with the new strategic orientation with a greater anti-Iranian bias in the regional rivalry scenario in the Middle East. The fact that the USA's new stances regarding the Paris Climate Agreement and the Nuclear Agreement with Iran respond to a new course of action consisting of a new geostrategic vision for the USA, by no means amounts to a reduction in the degree of uncertainty affecting the energy geopolitical scene. The uncertainty is associated with the potential variability in a particular reference scenario, and this variability has been constantly increasing in view of greater unpredictability regarding the reactions of the US Executive to the inevitable critical situations that it is going to have to face up to.

There is also an additional uncertainty factor. Withdrawal from the Paris Agreement and the hostile attitude to the Nuclear Agreement with Iran, are consistent with the Republican Political Agenda. However, they do not form part of a prepared doctrine that sustains the US diplomacy and defence policy. As Jacob Heilbrunn (2018)[3] points out, unlike R. Reagan, who could rely on «think tanks» such as «The Heritage Foundation» (publisher of «Mandate for Leadership» that Reagan sent to every member of the Federal Government), or George W. Bush, whose foreign intervention strategy received the backing of the Neocons. D. Trump does not appear to count with a similar framework of reference; Heilbrunn indicates that there is only the work of one think tank (Claremont Institute) that, taking its inspiration from the work of the political philosopher Leo Strauss and from a lecture given by the «founding fathers», in view of its line of thought, is endeavouring to bring about a so-called reinstatement of Republican values where D. Trump's policy could seek intellectual refuge. This vision would make it possible to accommodate Trump's political stances, such as trade protectionism or the migration policy which do not fit so easily into the traditional Republican way of thinking. In his article, Heilbrunn quotes John McCain («we live in a country made of ideals, not blood and soil») and G.W. Bush (condemning «a nationalism distorted into nativism» and indicating that «the intensity of support for democracy has faded away»), which reveal the divorce of part of the Republican establishment regarding Trump's «America First» vision. The latent conflict among those Republican intellectual tendencies (including important Neocons) and some of D. Trump's political reflections could come to the surface if the next general election results prove to be unsatisfactory for the Republicans, obviating a scenario for the second half of the presidential mandate, which from the current perspective is very difficult to foresee. Whatever the case may be, it is possible that the «Straussian» followers from the Claremont Institute have devised a conceptual framework into which D. Trump's political initiatives can coherently fit or, at least, have imbued these policies with a «serious» ref-

[3] J. Heilbrunn (2018). «Donald Trump´s brains» The New York Review of Books (Dec. 2017/ Jan. 2018).

erence for propagandistic purposes. However, it is doubtful that Leo Strauss, whose thinking, regardless of the consideration it might be worth, denotes a sophisticated construction, has any real influence over D. Trump or over the members of his Cabinet. Trump's political notions tend to regard the world as a rivalry zone akin to competition between companies, where skill in bilateral bargaining is the main virtue, and multilateral governance is normally a nuisance. The more widespread this view becomes in the geopolitical arena, the weaker the applicability of the rules becomes, and the greater the responsibility of the State agents, all of which logically leads to an increase in geopolitical risk.

The change in direction of the US climate policy will lead to an energy policy that, as D. Trump has already announced, should give expression to deregulatory initiatives in the hydrocarbons sector, incentives to use and produce coal and to promote nuclear energy. Yet, there are drawbacks regarding the impact of this policy on the medium-term profile of CO_2 emissions in the USA and it is possible that the deviations with respect to the national commitments taken on by the USA in the Paris Agreement will be limited. Firstly, the Federal Government's own energy policy initiatives are hardly consistent. As David Schlissel (2017)[4] points out, D. Trump's declared support for developing natural gas, which will tend to keep down the prices of this fuel and therefore be conducive to favouring the use of natural gas instead of coal to generate electricity is inconsistent with a policy that promotes coal. Furthermore, establishing aids for coal because of its supposed contribution to energy security could come up against some kind of correction because it affects competition defence regulations. Neither does it seem very coherent to keep the system of tax-credits for using renewable energies to generate electricity until 2020, while at the same time subjecting the import of solar panels to an extra tax. What is more, as David Robinson[5] indicated, although the cancelling of President Obama's initiatives, such as the «Climate Action Plan» or the «Clean Power Plan», are clearly detrimental to the continuity of the US decarbonisation policy, the opposition of other Authorities in the US Administration (cities and States) to Trump's climate policy will take the form of regulatory initiatives that will go against the current President's approach: the pro-renewable energy regulations will remain and be developed in most States, and some of them will develop means for setting a price for the right to emit CO_2 (using the cap and trade mechanism or imposing a tax). At the same time, market mechanisms themselves will foreseeably encourage replacing coal with natural gas for generating electricity (in the likely scenario of low natural gas prices) and the increasing inroads being made by wind and photovoltaic renewable energies (which, at present, enable the average cost of generating electricity to compete with the generation of conventional thermal generation). Trump's new energy policy is thus likely to lead to the shaping of a regulatory framework

[4] D. Schlissel (2017). «Can the U.S. coal industry come back?» en What's next for U.S. energy policy (Forum). (The Oxford Institute for Energy Studies).

[5] D. Robinson (2017). «The U.S.A. and climate change: the importance of Electricity» in the What´s next for U.S. Energy Policy (Forum). (The Oxford Institute for Energy Studies).

that is internally inconsistent, with regional variations within the USA and with market signals at loggerheads with the Federal Government's objectives. Apart from this, a large number of US firms are in favour of complying with the Paris Agreement. Despite this, and as D. Robinson points out, US withdrawal from the Paris Agreement could have a significant effect on a global scale. Firstly, because it has a great impact on the moral leadership that the major CO_2 emitters should have. Secondly, it will predictably mean that the USA will refuse to finance part of the contribution it has already committed to the GCF and refuse to participate in the GCF's funding programme (2 thousand million dollars planned until 2020 to finance climate policies in developing countries).

The manifold aspects of the policy aimed at combating global warming have been studied in all the issues of «Energy & Geostrategy», and this one features a systematic analysis of the Paris Agreement and its foreseeable development written by Lara Lázaro. The attention paid is easily explained given that the global decarbonisation policy is undoubtedly a core issue in the area of energy geopolitics.

First of all, as was mentioned in the previous issue of this publication, the Paris Agreement (signed by 195 countries) is an extraordinary diplomatic success and a triumph for multilateralism, which universally establishes the importance of climate policy and internationally isolates the basics of climate-sceptical groups. Global warming of the atmosphere caused mainly by CO_2 emissions is a global negative externality and, therefore, has to be tackled with a genuinely global cooperation policy, which was not achieved with the Kyoto Protocol (amongst other reasons because of US withdrawal, when the legislative body did not ratify President Clinton´s decision to sign that protocol). Apart from being the only possible way of achieving the energy and environmental targets set, the multilateral and cooperative approach to the search for a global warming correction policy is also the model for action that ought to become a reference for making progress in other areas, (not only environmental but also associated with energy security, technological innovation and operational efficiency) where there are global and regional coordination economies. Secondly, the global decarbonisation policy deserves priority attention because it is the main restriction that the energy policies of the countries that signed the Agreement impose on themselves. This restriction imposes structural requirements on the final energy demand (radical increase in electrification) and on the demand for primary energy (increase in decarbonised energy resources and, above all, renewable energies, together with a drastic reduction in the use of fossil fuel energies) and it requires a significant reduction in energy intensity where economic growth is concerned (improvement in energy efficiency). These restrictions are conditioning the many national regulatory frameworks and the evolution of the national regulatory frameworks and the technology policies, bringing about major changes on energy geopolitical scene (associated with a new paradigm in the world oil industry, the new and uncertain role of natural gas, and the modifications of a geostrategic nature caused by the increasing weight of renewable energies and the uncertainty surrounding the future of nuclear energy).

The USA's position as a free rider in the development of the global climate policy will have geopolitical effects, albeit difficult ones to determine. The void left by the USA's withdrawal from the global co-leadership in decarbonisation is being filled by China owing to the importance of its domestic climate policy initiatives and its constant statements in defence of the Paris Agreement. Furthermore, India (the other major emitter of CO_2 in the long term) has also clearly declared itself in favour of global climate agenda continuity.

China is already playing a central role in energy geopolitics and its energy structure is being subjected to a rapid process of transformation as a result of an economic growth that is less energy intensive and the implementation of an ambitious decarbonisation policy. The WEO 2017[6] points out that «the predominance of coal and, to a certain extent, oil products in the energy consumption structure, is being taken over by other cleaner forms of energy. The utilisation of coal has been in decline in the past three years, since 2013. China is now the world's greatest investor in renewable generation, a leader in energy efficiency policies, new technologies and in other areas where energy overlaps with the digital economy, as well as being the biggest market in the world for electric vehicles». WEO 2017 goes on to say that «China's influence on the global energy markets also applies to all fuels and technologies. China is a pivotal country for coal markets, accounting for around half the world's production and consumption; it is the world's biggest importer of oil, a growing force in the global gas markets, the main exporter of solar equipment and a prominent stakeholder in virtually all low-carbon technologies. Chinese companies have become major investors in a wide range of energy projects beyond the country's frontiers».

Furthermore, in the medium- and long-term, the «13th 5-Year Plan» and the «China Energy Technology Innovation Action Plan, 2016-2030» sets out ambitious targets for the Chinese decarbonisation policy. CO_2 emissions must begin to descend in 2030 (an effort being made to reach this peak beforehand), the percentage of non-fossil fuels will have to reach 20% of the energy mix and an attempt must be made to achieve 50% in the electricity generation mix. Although (according to the WEO 2017 central scenario) the electricity generating plants still have a high proportion of installed capacity, this will stabilise by about 2030. Generation using natural gas will rise significantly until 2040, as will low-carbon technologies (which will overtake fossil fuel users in 2020 and account for 60% of the total capacity in 2040). In this WEO 2017 scenario, nuclear energy plays a vital role in the decarbonisation of electricity generation in China. Nuclear generation capacity will rise from 34 Gw. in 2016 to 145 Gw. in 2040, making the country the world leader in nuclear electricity generation capacity, above Europe and the USA.

If this WEO 2017 scenario and these hypotheses are confirmed, China could claim to have an exemplary decarbonisation policy and join Europe in the global co-leadership of climate policy, thus weakening one of the potential influences

[6] World Energy Outlook 2017. International Energy Agency.

of US soft power (assuming that in the medium term the USA does not rectify its climate policy). What is more, China, with its massive investment in renewable energies and nuclear power, together with its large-scale development of electric vehicles, could become the world leader in low-carbon technologies midway through the century, which would cast aspersions on the «energy dominance» objective that the USA has set in its National Security Strategy[7]. D. Trump focuses this «dominance» on the advantageous position that developing unconventional oil and natural gas development has guaranteed the USA on the global hydrocarbons market. According to the WEO 2017, «by 2020 the USA will have become the world's top exporter of liquid natural gas (LNG) and, a few years later, a net exporter of oil (the country is still a major importer of heavy unrefined oil adapted to the features of its refineries, but is a major exporter of light oil and refined products) and, it is soon become the world's greatest producer above Saudi Arabia and Russia. However, China, which has set an energy self-sufficiency target of 80% by 2020, is not only planning to significantly reduce its dependence on foreign hydrocarbon supplies, but, as has already been mentioned, is also poised to achieve «dominance» in the field of low-carbon energies whose weight will increase in the long-term (as the weight of fossil fuels decreases in the energy mix). China is likewise in a good position with regard to the extraction of rare materials needed to facilitate the penetration of renewable energies and transport electrification[8,9] and has made greater progress than Europe and the USA in the learning curve for third generation nuclear reactors (the average cost of generating electricity with the new nuclear reactors, measured by the levelised costs of electricity, are in China, about half the estimated cost for the United Kingdom, France or the USA[10]. The balance of power (at least in the foreign investment capacity and technology export) in the energy geopolitical scenario will tend to move towards China to the detriment of the USA and the latter will also find that the international perception of its leadership will be on the wane because it has excluded itself from the process of combating global warming.

As S. Joshi & L. Powell have indicated in their article in this issue, India has also modified its previous position and taken on a proactive role in the global climate policy. In its national commitment, by accepting the Paris Agreement, India has set itself a target to reduce emissions by 33% to 35% in 2030, when compared to the percentage in 2005, and to increase its percentage of non-fossil fuels by up to 40% in the same year, this being subject to the availability of the technology and financial aid. India's decarbonised technology development aims are very ambitious: increasing the generation capacity with renewable energies by 175 Gw. (of which

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7 «National Security Strategy of the United States of America». December 2017.

8 Gonzalo Escribano (2017). «Energías renovables y renovación de la geopolítica». (Energía y Geoestrategia 2017. Ministerio de Defensa).

9 M. O´Sullivan, I. Overland, D. Sandalow (2018). «The geopolitics of renewable energy» (W.P.). (Center for Global Energy Policy (COLUMBIA/SIPA); Belfort Center for Science and International Affairs (Harvard Kennedy School); Norwegian Institute of International Affairs).

10 I.E.A./N.E.A. (2015). «Projected Costs of Generating Electricity». (International Energy Agency/Nuclear Energy Agency).

100 Gw. would be solar energy) by 2022 and multiplying the nuclear capacity tenfold (up to 63 Gw.). Joshi & Powell consider that the associated targets in the Paris Agreement area attainable but they also point out the difficulties involved. Firstly, replacing coal (which is utilised for 80% of electricity generation), with cleaner resources, would cause great social problems, in view of the large number of families whose incomes are associated with coal mining. And secondly, technological dependence is a fragile strategy where decarbonised technologies are concerned. Solar panels are imported basically from China and the nuclear programme is not clearly defined. According to Joshi & Powell, the official documents still rely on the strategy drawn up in 1955 by H. Bhabba, the aim of which is to adapt to the limited supplies of uranium and the availability of thorium in India, outlining three development phases (using uranium, plutonium and thorium). However, there is no general consensus among experts about the advisability of this policy. Whatever the case may be, India's proactive decarbonisation policy as adhered to in the Paris Agreement, guarantees that the two major emitters (China and India) have a long-term commitment to the global decarbonisation policy.

Therefore, the continuity of the basic imperatives of the global climate policy agreed upon in the Paris Agreement seem to be assured, even with US withdrawal from the Agreement. However, this does not mean that the great uncertainties affecting the long-term geopolitical energy scenario have been dispelled. The rate at which the main requirements of the decarbonisation policy (efficiency, use of electric vehicles, decarbonisation of electricity generation, etc.) will be incorporated is unknown. The same applies to the medium- and long-term role of natural gas for transport and electricity generation. Uncertainty likewise surrounds the extent to which low-carbon energies from nuclear sources will make inroads and where they will be deployed. Furthermore, technological progress (and the way the learning curve will evolve), for which accurate predictions are difficult, in core areas such as the development of batteries (and other electricity storage mechanisms) CO_2 capture and storage (and other CO_2 conversion technologies), efficiency improvements, how the cost of generating electricity with natural gas, wind, photovoltaic and nuclear energy, etc. will evolve, could have a decisive bearing not only on the decarbonisation process schedule, but also on the energy structure that goes with this process. Moreover, uncertainty still surrounds the optimum deployment of regulatory instruments for curtailing CO_2 emissions (e.g.: regarding the optimum combination of command & control, cap & trade, and emission tax mechanisms) and the effects that the evolution of the regulatory frameworks for gas and, above all, electricity, will have on the decisions taken by the agents that establish how the energy structure is arranged. All of these unknown factors have an effect on the geopolitical scenario, and their different potential paths also provide their own feedback about the factors that are exclusively of an energy nature, thereby shaping the geopolitical energy scenario as an extremely complex and difficult system to model with precision.

One clear sign of the uncertainty inherent to long-term global energy scenarios is the growing insistency of the bodies responsible for preparing them to warn

that they must not be regarded as forecasts (the WEO 2017, for example, devotes over a page to explaining this). O´Sullivan, Overland & Sandalow (2018)[9] establish a subtle distinction between «forecasting scenarios» (which often include a «best guess» about the future) and «backcasting scenarios», which define a future profile for the energy system (normally considered to be desirable) and, show the political and technological changes needed for this future to materialise (the scenarios prepared by the International Energy Agency would fall into the second category).

The oil sector which for some decades to come will carry on conditioning energy geopolitics, would continue to create uncertainties in the short-, medium- and long-term. As Dale & Fattouh[11] indicate, there are a wide variety of forecasts concerning the way in which the long-term global demand for oil will evolve. Yet all of them show a paradigm shift in the oil market, from a perception of shortage to an anticipation of abundance. That is why the traditional discussion about the moment when a «supply peak» would occur has become a question of anticipating the «demand peak» in the long-term profile for this variable. Even if this «demand peak» (or rather «ceiling») is placed at different times depending on the hypothesis used by the bodies that prepare long-term energy scenarios, it appears to be clear that fulfilment of the Paris Agreements is only compatible with a considerable reduction in the long-term demand for oil. According to the International Energy Agency (WEO 2016, WEO 2017), if the temperature increase is to be limited to 2ºC, the demand for oil should fall to below 75 million barrels/day by 2040, and to below 40 million barrels/day if the 1.5ºC limit (the target the Paris Agreement adherents are still striving to achieve) is not to be exceeded.

As was made clear in the previous issue of Energy & Geostrategy, this long-term decline in oil demand (if the Paris Agreements are adhered to) ought to lead to low oil prices in the long-term. The I.E.A. (WEO 2012) estimated the remaining recoverable resources (which include reserves verified, plus the projected increase in already known reserves in oilfields, and hitherto undiscovered resources whose extraction is considered to be likely with the technology available at the moment) at 5.9 billion (Spanish) barrels, which would amount to over a century and a half of consumption at current levels and four centuries for an estimated oil demand in 2040 compatible with the temperature limit of 1.5ºC. Even if a margin of error is admitted for these estimations, the relentless advance of both conventional and unconventional oil extraction technologies will tend to consolidate a future context of oil abundance with the necessary impact on prices. With an oil demand consistent with fulfilling the Paris Agreements, stranded investments in new upstream projects could be avoided (with planning adapted to the replacement of wells as they run dry), but it seems difficult to prevent part of the oil resources from producing countries from becoming stranded assets. Faced with this situation, and as indicated by Dale & Fattouh,

[11] S. Dale & B. Fattouh (2018). «Peak oil demand and long-run oil prices». (The Oxford Institute for energy studies).

the rational strategy to be adopted by countries with low extraction cost would be to bring forward their production programmes to minimise their stranded resources. Dale & Fattouh, consider that this competitive higher-volume/lower-price strategy implemented by those countries will be delayed as long as necessary to enable the diversification strategies (such as the one envisaged in Saudi Vision 2030) to materialise (in 20 or 30 years), which would prevent a major impact on their incomes (and thus creating a major budget imbalance) caused by prices that, within a competitive strategies context, should be guided by the long-term marginal costs of extraction: (average marginal exploitation cost). Dale & Fattouh, quote the estimates of Rystad Energy that establish for the average extraction cost, the five biggest producers in the Middle East (Saudi Arabia, U.A.E., Iran, Iraq and Kuwait), which account for about 30% of world production, a figure less than $10/barrel. Rystad also considers that in 2017, 40% of the oil available will have been produced at an average cost of less than $15/barrel. Dale & Fattouh, believe that there is an additional «social cost» of production to be taken into account by these countries (which is the tax revenue needed to keep their health, education and other social services operating) and that that break-even price would, according to the International Monetary Fund, have a value of approximately $60/barrel.

It can be deduced from these figures that, at least from the perspective of the low-extraction-cost countries, the $60/70 per barrel would amount to the rock-bottom price to try and conserve until production diversification reduced its fiscal break-even price. As has already been pointed out, this would make it necessary to delay the higher-volume/lower-price strategies, more consistent with a minimisation strategy for «stranded resources», but which would lead to oil prices that would be incompatible with taxation sustainability in those countries. However, it is possible that if the oil abundance context were to worsen, the oil market would also become more competitive, regardless of strategic interests of some producing countries, forcing all of them to adopt competitive strategies. It is clear that if this scenario were to arise in the near future, the economic effect on consuming countries would be positive, but this would cause a political crisis in a considerable number of producing countries.

Furthermore, even if the continuity of the climate policy led to a «peak in global demand» and to low oil prices in the long term, short-term fluctuations in both demand and prices cannot be ruled out. At the beginning of 2018 (when this issue of Energy & Geostrategy went to press), and as the IEA indicated[12], the evolution of stocks over the past quarterlies suggests that the oil market is strained, the price of Brent oil reaching $70/barrel, i.e. going back up to its December 2014 price. The experts' forecast included by Reuter (quoted by the IEA) opts for a price profile of $60/70/barrel throughout 2018; this figure is in keeping with the forecasts for oil prices in the medium term ($50/70 barrel) that is offered in the WEO 2017 and that coincides with the taxation break-even price

[12] I.E.A. "Oil Market Report" (Highlights. January 2018).

for producing countries with low-extraction costs. Yet the short-term forecasts are uncertain, given that they depend upon a large number of factors that determine the response to the supply in the short term. Adhering to the Agreement to reduce production that came into force in January 2017, which was led by the OPEC (plus Russia and other countries not members of the Organisation) will undoubtedly serve to raise prices. An initiative from the USA concerning the Nuclear Agreement with Iran affecting the expectations regarding a gradual recovery of its production capacity would also have the same effect. On the other hand, a rapid response from unconventional oil production in the USA (a shorter investment cycle) would tend to stabilise prices. This ability to play a swing-producer role (albeit via market mechanisms) that some experts attribute to unconventional production in the USA, was clearly and symbolically reinforced with the USA oil production data in November 2017, showing that production stood at more than 10 million barrels/day, thus exceeding the all-time peak production recorded in 1970.

As has been stated, the fact that the USA has become the world's top oil producer (above Saudi Arabia and Russia) will augment the country's energy security (making it self-sufficient) and could even serve as a propaganda weapon for «America First». However, what is not clear is whether this is going to be utilised as a new weapon in the geopolitical game, whereas it is true to say that Saudi Arabia and Russia have used their position in the global supply of hydrocarbons as a geopolitical lever. Yet in the case of the USA, with a decentralised oil supply, and a host of decision-making centres whose behaviour is determined by market signs, it would appear difficult for oil to be used as a geopolitical weapon. Oil production in its unconventional form, like the production occurring in the USA, with short investment cycles and rapid decline rates, could be a stabilising factor for rising and falling markets, merely responding automatically to price movements. Yet it seems unlikely, for geopolitical reasons, that it could become a centralised instrument where market intervention is concerned. Nevertheless, for the American oil sector, these characteristic features of unconventional oil production in the USA can also be regarded as a natural protection against stranded investment risks for the American oil sector, in view of the swiftness and capacity with which they can react to the rise and fall supply adjustments.

The uncertainties that affect the short-, medium- and long-term natural gas scenarios are different from the ones affecting the oil sector. Compliance with the climate policy restrictions approved at the Paris Agreement, has a very different impact on the long-term global demand for natural gas. In the most demanding scenario (out of the three main ones) of the IEA (WEO 2017), from an environmental viewpoint, the global demand for natural gas will increase until 2030 and then descend slightly until 2040, when it will still account for more than 15% above the current demand. In fact, although it is only to be expected that there will be a reduction in the use of natural gas in the very long term for climate policy reasons (natural gas, is also a CO_2 emitter, albeit to a lesser extent than oil and coal, and its extraction process also involves the risk of methane emis-

sion and other negative environmental impacts), other characteristics that set this fuel apart make it a potential transition energy resource for a few decades. Firstly, its environmental impact concerning the emission of particles, carbon dioxide and nitrogen oxides is considerably lower than the effects caused by oil and coal. Given that these types of emissions constitute a more immediately toxic form of pollution where the population is concerned, the utilisation of natural gas as a replacement for coal to produce electricity and to replace oil products for transport will, for at least two decades, make it a resources that helps the decarbonisation energies (renewable and nuclear).

Furthermore, in the USA, keeping natural gas prices low in the medium term (WEO 2017 considers average prices of around 3 dollars/million B.T.U. until 2020) will make it easier to replace coal with gas to generate electricity, even in the context of a lax political climate. In view of the heavy reliance that China and India have on coal, compliance with their decarbonisation targets (and reduction in the emissions of particles, sulphur dioxide and nitrogen oxides) will largely depend on the extent to which they use natural gas.

In Europe, WEO 2017 forecasts (in its central scenario) a major presence of natural gas until 2040 (a 7% growth in demand compared to 2016); there would be an increase in the use of natural gas to generate electricity because it would take over from coal and nuclear energy and owing to the need for back-up power to accommodate the intermittency of renewable energies. As European production would decrease sharply, the European Union's dependence on external supplies would rise considerably. According to the WEO 2017, in 2040 European imports would still depend basically on Russia (40%), but foreign supply via gas pipelines would be down from 85% in 2016 to 66% in 2040, and diversification (Middle East and Caspian Sea countries, mainly Azerbaijan) would likewise be greater; imports in the form of LNG would increase correlatively, to about the same level as imports from the USA, 10% in 2025.

Several question marks hang over natural gas imports to Europe. Firstly and logically, a heavy dependence on Russian gas that is shown by the WEO 2017 scenario, involves a considerable risk in view of the uncertainty surrounding the framework of Russia-Europe-US relations. However, from the perspective of the cost of supplying the resource, Russia has obvious advantages and the USA, in view of its protectionist trading policy and its Executive's reluctance to accept multilateral rules, would not be a low-risk alternative (albeit partial). Applying the weight of LNG supply and diversifying not only by supplying LNG, but also changing the source of the supply via gas pipeline, as the IEA scenario suggests, are clear principles of action open to the EU. Yet developing this policy, as can be seen from the analysis in the articles by José Pardo de Santayana and by Melike Janine Söknen & Eduard Soler, in «Energy in the Russian Federation Strategy» and «Beyond the Pipelines: Energy Geopolitics in Turkey and Neighbouring Countries», is interlinked with a complex network of geopolitical interests involving Russia, Turkey, gas pipeline transit countries, gas producing countries in the Middle East and around the Caspian, etc. that, in this complicated context,

requires a European diplomacy initiative that can minimise the geopolitical risks associated with gas supply, while abiding by the geopolitical restrictions imposed by the dictates of European foreign policy.

Global dependence on hydrocarbons (oil and gas) will still be considerable in the coming decades (48% of the total global demand for primary energy in 2040, according to the WEO 2017 hypothesis, consistent with a temperature rise of 2ºC). This means that hydrocarbon supply will continue to be a basic geopolitical variable from the viewpoint of energy security and defence policy. However, as has already been mentioned, the long-term restrictions imposed by the global decarbonisation policy mean ever-increasing electrification (especially for transport purposes) and the greater use of decarbonised energies (renewable and nuclear) for electricity generation. This evolution makes it necessary to add new reflections to energy geopolitics, not only in the field of the «geopolitics of renewable energies» [8 and 9] but also in the area of the «geopolitics of nuclear energy»[13], as well as the new technologies and regulatory requirements needed to accommodate a new paradigm in the way the electricity sector operates and in road transport (electric vehicles). This new paradigm means the large-scale replacement of fuel costs with investment costs, but as some items of equipment (e.g. batteries) depend on rare minerals, such as lithium, there are still supply risks (or cartelisation risks)[7 and 8]. What is more, this new paradigm (electrification + renewables) also means greater interdependence between electrical systems, as well as a move towards complex interaction systems between the traditional utilities and the new distributed resources»[14]. This could lead to a greater risk, but it may also lead to new forms of international cooperation, as G. Escribano[7] points out. Rivalry for hydrocarbon supply has more zero-sum game characteristics than the relationship between countries within the new paradigm, where it is easy to find positive opportunities As was mentioned above, China already has major advantages when it comes to disputing «dominance» with the USA within this new energy paradigm (good positioning in the production of rare minerals, renewables and electric vehicles).

Throughout the Cold War, the military aspect of nuclear energy was an essential factor in geopolitical analysis, but plans to utilise it in the civil area raises new geopolitical questions. Although the IEA expects nuclear energy to play a significant role in shaping the decarbonised economy (according to WEO 2017, 15% of the global demand for primary energy in 2040 under the most demanding environmental scenario, compared to 10% at present), it is likely that there will be a major concentration of investments in new nuclear electricity generation capacity in China, Russia, India and, possibly, the Middle East, but at the same time there will be a trend towards reducing nuclear presence in most industrialised countries. Nevertheless, as has already been indicated, what can also be expect-

[13] N. de Blasio & R. Nephew (March 2017). «The geopolitics of nuclear power technology». (Centre of Global Energy Policy. Columbia/SIPA).

[14] MIT Energy Initiative 2016. «Utility of the future».

ed is not only that China will make major breakthroughs in the learning curve for this technology (the cost of nuclear electricity generation in that country is already considerably lower than in Europe and the USA) in view of the massive programme of investment in nuclear generation capacity that it plans, but also an active policy abroad (China has already participated in the Hinckley Point 2 Project in the United Kingdom), with a higher technological and investment profile (in the Middle East, for example). Although this active geostrategy in the field of nuclear energy is as yet incipient, it also forms part of the Russia's geopolitical use of energy (the country has already taken initiatives in the Middle East). Therefore, in this scenario, Russia and, above all, China would seem to have obtained strategic advantages over the USA and, particularly Europe, where the only existing third generation technology (French) is still fraught with cost problems and the only country that is clearly proactive in the civil development of nuclear energy (United Kingdom) has decided to leave the European Union[15].

As has already been seen, the European Union is faced with many unanswered questions in the field of energy geopolitics. In his interview for this issue of «Energy & Geostrategy» the EU Energy Commissioner Arias Cañete gave his opinions in this respect. Some of these geopolitical challenges concern the EU's positioning as a unit in the global energy scenario. The complexity of a European strategy that minimises price and risk in supplying natural gas to the countries of the Union and the uncertainties involved, have already been mentioned. Reference has also been made to the lack of a joint policy for developing civil nuclear energy, a question that cannot be completely evaded given that there are two EU countries with nuclear weapons (although one of them is in the process of leaving the Union) and the very unlikely scenario of continuing to pursue this military option while at the same time giving up the civil nuclear programme. In the field of new renewable energy geopolitics, questions must be asked about opportunities for cooperation in areas, such as Africa, that are in a good position to develop these energies because of the resource availability advantages they have (e.g., the Sun) or the needs of African countries to access electrification, when the best way to do this is through distributed generation with renewable energies. Another matter is the US decision to withdraw from the Paris Agreement, which imposes on the European Union the need to take on the co-leadership of the global climate policy, jointly with the two major emitters, China and India, not only to make up for the potential quantitative effects of the US's free-rider attitude, but also to limit its impact on financing the mechanisms envisaged to implement the developing countries' decarbonisation policy and, above all, to guarantee that global culture, in general, steers well clear of climate scepticism.

In the case of the European Union, there is also a need to put into practice «internal» energy geopolitics. That is to say, it is necessary to reconcile positions of the Member States that are not always identical, when it comes to preparing

[15] C. Aranzadi (2017). «La opción nuclear en la estrategia energética del Reino Unido». (Real Instituto Elcano. D. T. 2/2017).

a joint energy policy. Approval of the so-called «Winter Package» (Clean Energy for All) has meant further progress in developing far-reaching European regulations that perfect the regulatory framework and introduce new governance mechanisms to facilitate the implementation of European energy policies. Yet many barriers still remain. Firstly, there is no real European regulator for the gas and electricity sector that permits, in the area of regulation, operability similar to that of the competition policy responsibility of the European Commission. Secondly, the difficulties involved, even with the new governance mechanisms, in proposing initiatives quickly enough for taking effective actions and for improving security standards in the electricity and gas sectors, such as investing in connection infrastructures. Thirdly, it is worth considering the «inertia» effect with respect to retaining certain policies. The «Winter Package», for example still proposes a regulatory framework for the electricity sector that is kept to a large extent subject to the «energy only market» model, when as the low or almost negligible variable-cost technologies make greater inroads into electricity generation, the wholesale electricity markets make the «missing money» phenomenon worse, i.e., the wholesale market prices are insufficient to recoup the total generation cost of the new projects. This trend, which will tend to get worse in the medium- and long-term, prevents the wholesale market prices from playing their role as indicators for investment in generation and storage. This means that these investments will depend increasingly on the price indicator in capacity markets (that the European Commission tends to consider under the «assumption» that they are masking public aid) or in tenders for awarding new renewable energy capacities[16]. The United Kingdom has devised a regulatory framework for the electricity sector that approaches in a more pragmatic way, the new technological and environmental reality in the sector, but which moves away from the regulatory paradigm defined in the «Winter Package» and which has similar characteristics to the single-buyer model. Moreover, defining a regulatory model in keeping with regarding the electricity supply as a set of services (not only the energy services), as proposed by «MIT Energy Initiative», is better adapted to the new environment of coexistence between the traditional utilities and «distributed resources». A second example of the difficulty involved in radically reorienting the design of institutions whose functions have not been adequate is becoming clear in the market initiatives to reform the CO_2 emission rights devised on applying the cap and trade mechanism. The average prices of CO_2 on this market have been substantially lower than are considered necessary to give an indicator to long-term investments that are consistent with the decarbonisation policy. Attempts to reform (by using stabilisation funds) could allow for a reduction in the volatility of these prices but would find it difficult to correct a trend (unless there is a clearly directional intervention). However, there is an accepted estimation of the «social cost» of CO_2 emission, which has to lead to a price, and it would seem simpler to fix this price of CO_2 directly in the

[16] C. Aranzadi (2017). «La evolución del sistema de formación de los precios eléctricos». (ESADE. Informe económico y financiero. 2.º Semestre 2017).

form of a tax, instead of conserving a mechanism with a higher transition cost, such as the cap and trade system. The UK has also sought a pragmatic solution in this case (keeping the cap and trade system but establishing a rock-bottom in the form of a tax) and, it is only to be expected that this will be the path to be followed by other EU countries. As a last resort, the mechanism that will be used in the future is most likely to be a combination of cap and trade, tax and command and control (especially for buildings and transport in cities).

Interview for the Commissioner for Climate Action and Energy D. Miguel Arias Cañete (as a result of a questionary previously sent)

1) Europe has assumed the moral leadership of the global climate change strategy. Won't the announcement by the US that it plans to withdraw from the Paris Accord require additional diplomatic efforts by the European Union to fill the void, along with China and India?

The US' decision to withdraw from the Paris Accord poses a major challenge in the fight against global warming given that the US is the second largest contributor of greenhouse gas emissions in the world, second only to China, with around 15% of total emissions. While we deeply regret the decision of the United States, the European Union is determined to move forward with the Paris Accord, the most effective instrument we have to combat climate change. And to that end, in recent months we have increased our diplomatic efforts with our international partners to advance the negotiations in order to conclude am ambitious agreement at COP24 in Katowice.

First of all, on 6 October of last year a historic joint declaration was signed in India on clean energy and climate change at the EU-India summit in Delhi to reinforce our commitment to cooperation in these areas. The first ministerial meeting on climate action with China, Canada and the European Union was held in Montreal on 15 and 16 September of last year to intensify the fight against climate change and advance international climate change negotiations. The second meeting of that initiative will take place on 20 and 21 June of this year, drawing ministers from 45 countries that are leading the charge on climate changes

to discuss the most important political points of the negotiations and guarantee an ambitious agreement regarding the rules for implementing the Paris Accord at COP24 in Katowice.

Finally, the European Union is committed to helping the most vulnerable countries in their fight against climate change. We are the largest contributor of climate financing to developing countries. Our public financial support grew to €20 billion last year, which accounts for one-half of the world's total climate funding and an increase of 15% over 2015. We have made a global commitment to mobilise €100 billion dollars per year in climate funding starting in 2020 to support developing countries. And at least 20% of the European Union's foreign aid Budget in developing countries between 2014 and 2020 will go to the fight against climate change, which translates into approximately €14 billion in public subsidies.

2) The cap and trade mechanism implemented by the European Union to achieve the CO_2 emission reduction targets seems to be the benchmark for decarbonisation policies in other geographical areas (such as China and the US, for example). However, the operation of the CO_2 emission rights market in Europe has turned out to be incapable of forming CO_2 prices that act as an efficient signal for long-term investments that would favour the decarbonisation process. What reforms should be introduced by the European Union to ensure that CO_2 prices emit the correct signal for a long-term decarbonisation policy?

It's true that the European Union's emission rights system currently has a considerable surplus of emission rights. This surplus, which stood at nearly 1.7 billion in emission rights in 2017, also affects the price of coal and obstructs investments in low carbon emission technologies.

We've taken a number of steps in recent years to correct the surplus. First of all, for the short term, in 2012 the member states decided to auction 900 million fewer emission rights than had originally been budgeted for the period 2104-2016. Secondly, in 2015 a Market Stability Reserve was set up to deal with the excess and to make the system for trading emissions rights more flexible. If he surplus of emission rights in the market exceeds 833 million, the auction volumes for the next year are reduced by a fixed percentage and those volumes are placed in the Market Stability Reserve fund. Conversely, if the surplus falls below a certain threshold (400 million) additional emission rights are released from the Reserve Fund (in shares of 100 million rights). The Market Stability Reserve provides more stability and reduces the volatility of greenhouse gas emission prices.

During a recent review of the rules governing emission trading after the year 2020, the provisions of the Market Stability Reserve were reinforced to guarantee that market balance was restored more quickly. The percentage rate at which the emission rights are placed in the Market Stability Reserve was tem-

porarily doubled from 12% to 24% for the period 2019-2023. In addition, starting in 2023, emission rights in the reserve that exceed the volume auctioned the year before will be invalidated. With these measures it is hoped that the Market Stability Reserve will establish an accurate price signal in the coming years that will be more closely aligned with our long-term emission reduction objectives and will guarantee that emissions are reduced in the most profitable way possible.

3) The European Union lacks a common position regarding the role of nuclear energy in the configuration of a decarbonised electricity generation mix, given the disagreements among member countries on the subject. However, Russia and China are not only considering an expansion of their nuclear capacity but also exporting their technology to other countries. In Europe, there is only one nuclear power generation technology (French) and the only member country with a clearly proactive nuclear programme (United Kingdom) has decided to leave the Union. Is the European Union losing ground?

Nuclear energy accounts for nearly 30% of the electricity produced in the European Union and it is a source of electricity that is low in carbon emissions which contributes to Europe's energy security and our efforts to diversify in order to reduce our dependence on fossil fuel imports.

The political basis for the civilian use of nuclear power is the Euratom Treaty and its secondary legislation. Although one of the original objectives of the Euratom Treaty, adopted in 1957, was to foster the development of nuclear power, the decision to use and develop this energy source falls under the jurisdiction of each individual country.

Europe, and in particular France, continue to be technological and industrial leaders in the global nuclear power field, although it is true that in recent years other players from Asian countries in particular have become serious competitors. The European commission is aware that several of the large-scale projects currently under construction in Europe have experienced delays and that the nuclear industry in the European Union is currently undergoing a reorganisation process. However, this is not happening only in Europe but in other developed countries as well such as the United States, as demonstrated by the recent bankruptcy of Westinghouse Electric. Nonetheless, new construction projects in China - the European Pressurized Reactor (EPR) – and Westinghouse's AP1000 reactor, are proceeding on schedule.

The future of the European nuclear industry depends to a large extent on the way in which it confronts the current and future technological, industrial and social challenges, whether in terms of developing new designs or efficiently updating existing facilities for long-term operation. Dismantling and safe management of waste, along with the development of technologies, in particular fusion technology, are also major challenges where public support is critical.

4) How does the revolution in shale fracking and renewable energies affect the balance of power between producers and consumers?

Unlike fossil fuels, renewable energy sources are well distributed throughout the world and are autochthonous sources of energy for all, thereby facilitating universal access to energy. Now, the impact which the growth of renewable energies will have is an extremely complex issue, since it will be much more complex to alter the balance of power between producers and consumers.

There is high likelihood that producers will export fewer energy products. Therefore, one of the objectives of Europe's renewable energy policy consists of reducing our dependence on energy imports. The data show that we are successfully achieving this objective: compared to 2005, in 2015 renewable energies contributed to reducing the demand for fossil fuels in an amount greater than the gross internal consumption of fossil fuels in Italy.

Renewable energy is also presenting new opportunities for producer and consumer countries. For example, Saudi Arabia is developing renewable energy to reduce its own oil consumption and possibly as an export. At the same time, renewable energies can support economic development in consumer countries.

5) In the coming decades, natural gas is likely to maintain its position as a transitional energy source as we move toward a horizon of null or negative CO_2 emissions. Do you believe that liquefied natural gas exports from the United States can play a role in reducing our dependence on Russian natural gas and thereby increase Europe's energy security?

Diversifying the sources of natural gas is one of the priority goals of the Energy Union that will contribute to a higher level of energy security and more competition in the domestic gas market. It may also contribute to our decarbonisation efforts in the medium-term. Access to the global liquefied natural gas (LNG) market, along with the of the Southern Gas Corridor (SGC) and the Mediterranean liquefied natural gas hubs are therefore priority projects for the European Union.

LNG offers an excellent opportunity for Europe to become more diversified in areas where the dependence on a small number of suppliers continues to be a problem. LNG can be a real catalyst for diversity in the European Union and also a path to boosting our energy security. Right now, Western European countries that have access to LNG terminals and liquid gas markets are much more resistant to potential supply interruptions than those that depend on a single gas supplier. Moreover, the world LNG market is undergoing a sweeping transformation with the entrance of new suppliers like the United States and Australia.

Since its appearance on the global market, LNG from the United States has had a positive impact on the European market, making the market more competitive while driving prices down and introducing more flexible contractual conditions. The United States is now our fifth largest supplier of LNG, accounting for 6% of

the net gas imports into the European Union. LNG from the US is also reaching the ports of Poland and Lithuania, countries that have historically depended partially or entirely on a single supplier.

Now, the volume of LNG that we import will ultimately depend on the price of gas in Europe and other world markets (primarily Asia). We are aware that what NLG suppliers find most appealing about Europe is the way our internal market operates. We are therefore interested in eliminating any regulatory or trade barriers that may exist in order to guarantee competitive and liquid markets, as well as diversified gas supplies for all member states of the European Union in order to satisfy the needs of our citizens and industries.

6) Is there sufficient coordination within the European Union to optimise the gas infrastructure (regasification plants, gas pipelines connected to non-European suppliers, gas pipelines connecting European countries)? Is diplomacy being used to its fullest extent in the negotiations between Europe and its suppliers? And for electricity infrastructure?

Infrastructure planning is complex and requires the careful coordination of all parties involved. The importance of coordinated action is particularly relevant if we consider that the useful life of energy infrastructure is 40 to 50 years and involves considerable cost. Furthermore, because of the growing interrelationship between the gas and electricity sectors, long-term cross-sectoral planning is crucial.

At the European level, infrastructure planning for gas and electricity transmission (including electrical gas lines, gas pipelines, liquefied natural gas (LNG) terminals and tanks) is a recurring exercise that takes place every two years. This year, we are analysing our infrastructure to see if it can effectively guarantee the daily supply of power to all consumers, identifying infrastructure needs and bottlenecks, and verifying whether our infrastructure is well prepared to face unplanned crisis situations such as episodes of extremely low temperatures or interruptions in gas supplies such as the ones experienced in 2006 and 2009.

The gas and electricity assessments are known as 10-year network development plans (TYNDP). TYNDPs are prepared by the European Network of Transmission System Operators for Electricity and Gas (ENTSOE and ENTSOG), in cooperation with the Commission, national authorities, national regulators and ACER. The process is open to the participation of a broad spectrum of stakeholders.

TYNDPs form the basis for the selection of strategic energy infrastructure projects in the European Union, known as Projects of Common Interest (PCIs). PCIs are infrastructure projects that the European Union needs to achieve its energy and climate policy objectives, including security of supply and economic decarbonisation, in keeping with our commitments under the Paris Accord. A new PCI list is drawn up at the European level every two years.

Effective coordination is also crucial at the implementation stage. To this end, the Commission has created four high-level groups to regularly monitor the implementation of PCIs and, if necessary, take preventive measures to ensure their proper implementation.

7) Are the European Union's current energy governance instruments sufficient for a genuine internal market? And to achieve the non-binding targets of each member country, compatible with the EU's targets for 2030 (e.g., the preponderance of renewable energies)?

The instruments in the Commission's proposed Governance Rules are sufficient to achieve a genuine internal energy market. The proposal encompasses the five dimensions of the energy union which are closely related to each other.

One of the goals of the governance system proposed by the Commission is to collectively achieve the objectives of the Energy Union as set out in the 2030 Climate and Energy Agreement. The Commission's proposal provides for a number of governance mechanisms to ensure that the 2030 targets can be met, in particular those at the EU level for renewables and energy efficiency. For example, it requires Member States to draft Comprehensive Energy and Climate National Action Plans and proposes a clear timetable for submission of the National Plans to the Commission, as well as the production of biannual progress reports to assess progress.

Moreover, the governance system will provide Member States with enough flexibility to contribute to these objectives according to their possibilities and circumstances. Generally speaking, the idea of governance is based on national plans rather than detailed rules at the EU level and the need to achieve the 2030 objectives through a set of coordinated measures at the EU and national levels.

8) In the European energy sector, competition policy essentially follows a common pattern, but regulatory decisions are mainly taken by the Member States. Would it be possible to move towards a genuine European regulator in the gas and electricity sectors?

The competencies of the European Commission and the Member States inasmuch as energy is concerned are clearly regulated by Article 194 of the Lisbon Treaty. While it is the Union's sole responsibility to establish the competition rules that apply to the operation of the internal market, energy policy is a shared responsibility of the European Union and the States.

This difference between competition and energy policies has a significant impact on the content and scope of the European Union's actions. Where there are shared competencies, the European Union can only act when the object of a given action cannot be satisfactorily achieved by the Member States but can be effectively achieved at the European level. Furthermore, the content and scope of the European Union's actions cannot go beyond what is strictly necessary to achieve the objectives of the Treaties.

When we adopted the Clean Energy for All Europeans legislative package in November 2016, it was not deemed necessary or advisable to move towards a European regulator for the gas and electricity sectors to address regulatory challenges arising from the growing integration of energy markets. Indeed, the Agency for the Cooperation of Energy Regulators (ACER) is already playing and will continue to play an important role in providing regulatory solutions to cross-border problems, while safeguarding the general interests of the European Union. To this end, the Clean Energy Package proposes that certain additional tasks be assigned to ACER in relation to assessing adequacy at the European Union level, as well as configuring and monitoring regional security coordinators in the future.

9) Traditionally, the European Union's policy regarding coal has been contradictory (setting goals to reduce the use of coal while persistently offering direct public subsidies and allowing this fuel to account for up to 15% of the electricity generation mix under nonmarket conditions). Is it politically possible to design a more coherent European policy for the future, given the resistance of a significant number of member countries?

The European Union's commitment to the Paris Accord and the total decarbonisation of our economy is unwavering. But to achieve it efficiently while at the same time ensuring a stable supply of electricity, we must first devise a stable and coherent regulatory framework that facilitates the transition to a low-emission economy. That is precisely what we are doing with the Clean Energy for All Europeans Package.

After nearly two decades of market liberalisation, we know that the best way to ensure a secure and stable supply of electricity for European consumers is to have well-designed energy markets that promote transparency and competition. Therefore, the first thing we must do is remove the barriers that may prevent the markets from functioning properly. Only then, and as a last resort, should one even think about the need to subsidise electricity generation.

What is clear is that it is no longer possible to offer selective and environmentally harmful support for electricity producers. If support is needed, it should be provided in the form of capacity mechanisms using schemes that are open and transparent and that take the broader climate objectives of the European Union into account.

The Clean Energy for All Europeans package proposes removing the 15% rule, a rule which the Council of European Union has ratified vis-à-vis the three-way negotiations with the European Parliament and the Commission. I am convinced that our proposal is positive for the vast majority of Member States, as it provides them with enough wiggle room to implement measures to safeguard supplies.

Parallel with these legislative proposals that will bring greater equity and limit subsidies on fossil fuels, we are also increasing our support for coal regions.

One of our priorities for the energy transition is to ensure that no region is left behind and that all citizens can benefit from the opportunities that a low emission economy creates.

To that end, we have created the Coal Regions in Transition Platform and have already started working with pilot regions in Slovakia, Poland and Greece over the last six months. The Platform, which will be up and running in Brussels at the end of February, will discuss regional strategies and priority projects in pilot regions, focusing on the post-coal economy, structural transformation, clean air projects and advanced coal technologies.

10) Achieving a more decarbonised energy mix depends to a large extent on the electrification of road transport and this, in turn, depends on technological progress in battery development. The same is true of new storage technologies in the electricity sector, largely associated with battery development. Is there a strong enough technology policy in Europe to alleviate the current dependence on foreign technology?

The decarbonisation of the transport sector poses a dilemma: in the absence of infrastructure for clean vehicles, there is no incentive to develop clean technologies. At the same time, the authorities are wary of investing in infrastructure for alternative fuels since clean vehicle technologies are not yet firmly established in the market.

To break this dynamic and reduce emissions in land transport - a sector that accounts for 22% of total EU emissions - two mobility packages were presented in 2017. The new reduction standards require that emissions from new passenger cars and vans be 30% lower in 2030 than in 2021. And in May, the Commission will present an additional proposal to reduce emissions from lorries. The proposal will help manufacturers to encourage innovation and supply the market with low-emission vehicles through an innovative incentive scheme that will reward producers who invest more in clean vehicles. These two legislative packages will be supplemented before the summer with a third and final legislative package to reduce carbon emissions from heavy vehicles (including lorries and buses).

However, if we want to bring more clean vehicles into the market, setting targets will not be enough. The success of zero-emission vehicles depends on two things: the availability of charging infrastructure and how quickly batteries are available at competitive prices.

We want to break this vicious circle with the new Energy Efficiency in Buildings Directive by encouraging the construction of charging points for electric vehicles in private buildings. At the same time, we have presented an €800 million action plan to support infrastructure projects, including those for charging electric vehicles.

We have also launched a €200 million battery initiative to ensure that the next generation of batteries is produced and developed in Europe. And we are work-

ing with Member States, industry, stakeholders and innovators to develop a "European Union Battery Alliance" to support the manufacture of the next generation of batteries and battery packs in the European Union. The idea behind this project is to bolster the battery value chain so that Europe maintains a competitive edge in this area. It will also promote an integrated European battery ecosystem in support of electric mobility and energy storage.

11) Do you believe that the Commission's new proposal on foreign investment supervision could trigger a trade war?

The European Union has one of the most open investment regimes in the world and we want to make sure it stays that way. However, as President Juncker clearly stated in his annual State of the European Union address on 13 September, choosing free trade does not mean that we should be naïve. Europe must and will defend its strategic interests.

In some cases, foreign investors could acquire strategic assets that would allow them to control or influence European companies whose operations are critical to our security and the public order. This includes activities related to the operation or provision of advanced technologies, power transmission or storage, infrastructure, or the use of sensitive information. Such acquisitions could make it easier for third countries to use these assets to the detriment of the European Union, impacting our technological advantage or jeopardising our security and public order.

The European Commission has therefore proposed a new EU framework to control foreign investment. If a foreign state-owned company wishes to buy a European port, part of our energy infrastructure or a defence technology company, the process must be transparent and subject to close scrutiny and debate. It is our political responsibility to know what is happening in our own market so that we can protect our collective security as needed.

The supervisory framework proposed by the Commission is similar to the investment supervision mechanisms that a number of our international partners, including Australia, Canada, China, India, Japan and the United States, use to protect themselves from potential direct foreign investment risks. Under the new supervisory framework, the European Commission will monitor foreign investments that may affect projects or programmes of interest to the European Union in the field of research (Horizon 2020), space (Galileo) and transport, energy and telecommunications networks (TENs). The new framework will also ensure transparency and predictability for investors and national governments.

Chapter I

Challenges and opportunities of climate governance. *Implementing the Paris Agreement and ratcheting up ambition*

Lara Lázaro Touza

Abstract

The Paris Agreement formally marks the beginning of a transition towards a low-carbon development model. It has been almost universally endorsed. Said endorsement is based on the analyses of costs and opportunities behind a transition to a low-carbon economy, the risks resulting from insufficient action and the countries' energy resource endowment. The complexity of the climate challenge requires action at all levels, from international institutions to individuals. This transition also requires the use of all policy instruments in a coordinated manner. As regards climate policy instruments, command and control is still by and large the instrument of choice, although economic instruments, voluntary agreements and moral suasion are being increasingly used in the fight against climate change. Countries or regions that are vital in the transition to a lower carbon development model will be analysed in the text. These include: China with its 'new normal' economic model that is less intensive in emissions, the US after the announcement of withdrawal from the Paris Agreement; the EU as a leader by example and mediator with diminishing greenhouse gas emissions; and India, one of the fastest growing economies and one of the most populated countries.

Keywords

Climate change, climate governance, Paris Agreement, Paris Rulebook, transparency, climate finance, energy transition

Introduction

Current political and scientific consensus shown in the Paris Agreement indicates that if we are to prevent a dangerous anthropogenic interference with the climate system, the average global temperature rise must be kept below 2ºC when compared with the pre-industrial era. Historical anthropogenic emissions will lead to average temperature increases of 1.5ºC[1] compared to pre-industrial times, so the scope for increasing greenhouse gas emissions is small if we want to ensure future economic and social development.

However, full implementation of the current climate commitments taken on by the countries within the framework of the international climate negotiations (better known as Nationally Determined Contributions (NDCs)) would cause global mean temperature increases of about 3ºC, clearly exceeding the target of keeping such rises to less than 2ºC. The eighth and most recent report available from the United Nations Environment Programme (UNEP) about the gap between the target of increasing the temperatures by less than 2ºC and the expected emissions if the national commitments were fully implemented is quite categorical. The current commitments only envisage 1/3 of the reductions in emissions needed to prevent a dangerous interference with the climate system. In terms of emissions, the difference between the aim of reducing emissions and the commitments (NDCs) ranges from 11 gigatonnes of carbon dioxide equivalent ($GtCO_2e$) to 13 $GtCO_2e$[2]. Furthermore, the studies available indicate that current climate actions taken by countries are not even aligned with the complete implementation of the commitments established at a national level.

The expected impacts in a scenario with an average temperature rise of 3ºC are significant and are unevenly distributed. They will affect the less developed countries, which are the most vulnerable, much more than the developed countries. On a global level, and apart from the average temperature increases themselves, these impacts include a rise in the sea level, the acidification of the oceans, an increase in the frequency and severity of extreme meteorological phenomena and the loss of biodiversity. Since 1990, the Intergovernmental Panel on Climate Change (IPCC) has been warning that forced displacements and migrations could be one of the most serious impacts of climate change.

Current international climate action takes place at several levels, ranging from international negotiations to national, subnational, company and indi-

[1] In 2016 the global average temperatures were 1.1ºC higher than the global average in the Pre-Industrial Era, according to the World Meteorological Organisation. See WMO (2016), Statement on the State of the Global Climate in 2016. Available at: https://library.wmo.int/opac/doc_num.php?explnum_id=3414 (latest access 6 November 2017).

[2] UNEP (2017).The Emissions Gap Report 2017. United Nations Environment Programme (UNEP), Nairobi.

vidual actions. It is also characterised by making use of climate policy tools of two different types: the **interventionist** (*non-market* based such as the command and control, and *market-based instruments that* include taxes, emission trading, subsidies, deposit and refund schemes, etc.), and the **non-interventionist** ones**,** which include assigning property rights, voluntary agreements or moral suasion[3]. Thus, we are faced with a problem of governance[4], going beyond the area of decision making by national governments as subjects of public international Law, and beyond command and control as the instrument of environmental policy *par excellence*. And all of this is done to internalise the external effects (especially the negative ones) of the emission of greenhouse gases, which derive from virtually all production, distribution and consumption activities.

As is generally the case in the field of Law, the Paris Agreement collects *ex post* underlying socioeconomic trends. In favour of climate action are an 80% reduction in the cost of photovoltaic solar panel modules and between 30% and 40%[5] in the cost of turbines for wind energy since 2009. What is more, hydroelectric power, biomass, geothermal and onshore wind power are competitive in a large number of locations[6]. Therefore, there are business opportunities arising from the low carbon goods and services market, estimated at €4.2 trillion by the European Commission[7]. Furthermore, the financial sector is starting to ask firms to disclose information about their exposure to climate risk and their strategies for adapting to scenarios where there is a temperature increase of 2ºC[8], with a view to allocating capital efficiently. China, amongst other countries, is leading the global market for green technologies. A significant amount of political capital has also been invested in securing the Paris Agreement. Furthermore, there is a growing social demand for climate action as a result of direct expe-

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[3] LÁZARO TOUZA, Lara and del RÍO, Pablo. (2015), 'Energy transition for a stable climate'. *Foreign Policy.* November-December. No. 168: 138-148.

[4] Kooiman, Jan. (2003), *Governing as Governance.* London: Sage; JORDAN, Andrew, WURZEL, Rüdiger and ZITO, Anthony (2005). 'The Rise of 'New' Policy Instruments in Comparative Perspective: Has Governance Eclipsed Government?' *Political Studies,* 53: 477-496.

[5] IRENA (2016), The Power to Change: Solar and wind cost reduction potential to 2025. Available at: http://www.irena.org/DocumentDownloads/Publications/IRENA_Power_to_Change_2016.pdf (latest access 6 November 2017).

[6] US Energy Information Administration (2017), Levelized Cost and Levelized Avoided Cost of New Generation Resources in the Annual Energy Outlook 2017. Available at: https://www.eia.gov/outlooks/aeo/pdf/electricity_generation.pdf (latest access 6 November 2017); IRENA (2016), The Power to Change: Solar and wind cost reduction potential to 2025. Available at file:///Users/laralazarotouza/Downloads/IRENA_Power_to_Change_2016.pdf (latest access 6 November 2017).

[7] http://ec.europa.eu/environment/eussd/smgp/facts_and_figures_en.htm (latest access 6 November 2017).

[8] FINANCIAL STABILITY BOARD (2017), Recommendations of the Task Force on Climate-related Financial Disclosures. Final report. Available at: https://www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-TCFD-Report-062817.pdf (latest access 6 November 2017).

rience with the negative effects of climate change[9]. In view of the pre-existing driving forces of climate action, it could be argued that the Paris Agreement has transcended the climate area to become a commercial agreement and a social contract with present and future generations.

One of the factors limiting climate ambition is the uncertainty regarding regulations governing renewable energies. Current climate financing is also insufficient to speed up the transition towards a low-emission development strategy. The climate policy has not been integrated into other sectorial policies. The economic policy after the crisis directly or indirectly penalises the transition towards a lower emissions strategy, withdrawing subsidies for renewable energies, establishing macroprudential criteria that make renewable energy projects less appealing, etc.[10] We also find countries and economic sectors whose future depends on burning fossil fuels that demand a fair transition. The levelised cost of electricity from renewable sources is not competitive in all locations. We still have a Paris Agreement short of operating rules, especially with respect to monitoring, transparency, financing and loss & damage, which is a drawback that will have to be rectified during 2018 and at COP24 in Katowice, Poland. Finally, and despite social demand for action in climate matters, there is a gap between concern over climate change and citizens' actions to decarbonise demand for goods and services. We are undoubtedly facing a wicked problem[11].

Where action in different countries is concerned, it must be pointed out that the major powers are tackling the systematic risk arising from climate change with varying degrees of ambition depending on their own natural resources, their own energy security situations, their exposure to the impacts of climate change, the expected consequences on the health of their own citizens, the influence of the traditional energy companies on the national decision-making processes, and their strategic positioning on the world low-carbon goods and services market, amongst other factors.

Therefore, this chapter will analyse the causes and impacts of climate change in the following section. Thought will be given below to the process of global climate governance by analysing international climate negotiations and the most important agreements; namely, the United Nations Framework Convention on

[9] PEW (2017), Globally, People Point to ISIS and Climate Change as Leading Security Threats. Available at: http://www.pewglobal.org/2017/08/01/globally-people-point-to-isis-and-climate-change-as-leading-security-threats/ (latest access 6 November 2017).

[10] CAMPIGLIO, Emanuele (2014), Beyond carbon pricing: The role of banking and monetary policy in financing the transition to a low-carbon economy. June 2014 Centre for Climate Change Economics and Policy Working Paper No. 181. Grantham Research Institute on Climate Change and the Environment Working Paper No. 160. Available at: http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2014/06/Working-Paper-160-Campiglio-20142.pdf (latest access 6 November 2017).

[11] JORDAN, Andrew. *et al.* (2010), *Climate Change Policy in the European Union. Confronting the Dilemmas of Mitigation and Adaptation*. Cambridge: Cambridge University Press.

Climate Change (UNFCCC), the Kyoto Protocol (KP) and the Paris Agreement (PA). Once this has been done, the chapter will go on to analyse the climate policies of four of the main emitters: China, USA, the European Union and India, which jointly emit over 56%[12] of the world's emissions. After analysing national and regional policies, the chapter will focus on the non-governmental stakeholders as essential elements for climate action, whose interaction with the UNFCCC Secretariat is being enhanced. The last section will conclude.

Causes and consequences of climate change

The analysis of the anthropogenic sources of greenhouse-effect gases that has given rise to the development of the IPCC climate scenarios is based upon the Kaya Identity[13] formulated in 1990. This identity indicates that CO_2 emissions are a result of four variables: the population, *per capita* economic growth, energy intensity and emission intensity. See Equation 1 below:

$$Emissions = population * \frac{GDP}{Population} * \frac{Energy}{GDP} * \frac{Emissions}{Energy}$$

Equation 1. Kaya Identity. Source: Rosa and Dietz (2012: 2).

The Kaya Identity is useful in helping to understand the sources of greenhouse-effect gases of anthropogenic origin. However, this Identity has its limitations. The variables are not independent, so the of the impact of the variables should be jointly undertaken. Furthermore, by definition, the changes on one side of the equation generate changes of the same magnitude on the other side of the equation. For example, if the Kaya Identity holds, a population increase of 1% would mean a 1% rise in emissions. Yet empirical studies indicate that population increases rise more than proportionally to greenhouse-gas emissions[14]. Not only that, but not all population increases contribute to emissions in the same way. Population in developed countries contribute to greenhouse-effect gases much more than populations in developing countries. Finally, it must be stressed that the Kaya Identity does not analyse other variables that might be significant in determining the emissions of greenhouse-effect gases, such as: the institutions, culture (more or less consumerism), the structure of the cities (more or less compact, connected and multifunctional) or international trade,

[12] FRIEDERICH, Johannes, GE, MENGPIN and DAMASSA, Thomas (2015), Infographic: What Do Your Country's Emissions Look Like? World Resources Institute. Available at: http://www.wri.org/blog/2015/06/infographic-what-do-your-countrys-emissions-look (latest access 29 October 2017).

[13] ROSA, Eugene and DIETZ, Thomas (2012), Human drivers of national greenhouse-gas emissions. *Nature Climate Change*. DOI: 10.1038/NCLIMATE1506.

[14] *Ibid.*

accounting for 23% of global emissions in 2004, coming to a large extent from China[15].

There are two major sectors that contribute to greenhouse-gas emissions. Firstly, the energy sector, and secondly land use. According to the International Energy Agency[16] and the IPCC[17], the energy sector is responsible for two-thirds of anthropogenic greenhouse-gas emissions, while agriculture, forestry and land-use changes account for somewhat less than one quarter of the emissions. Figure 1 shows greenhouse-gas emissions by countries and sectors between 1970 and 2016.

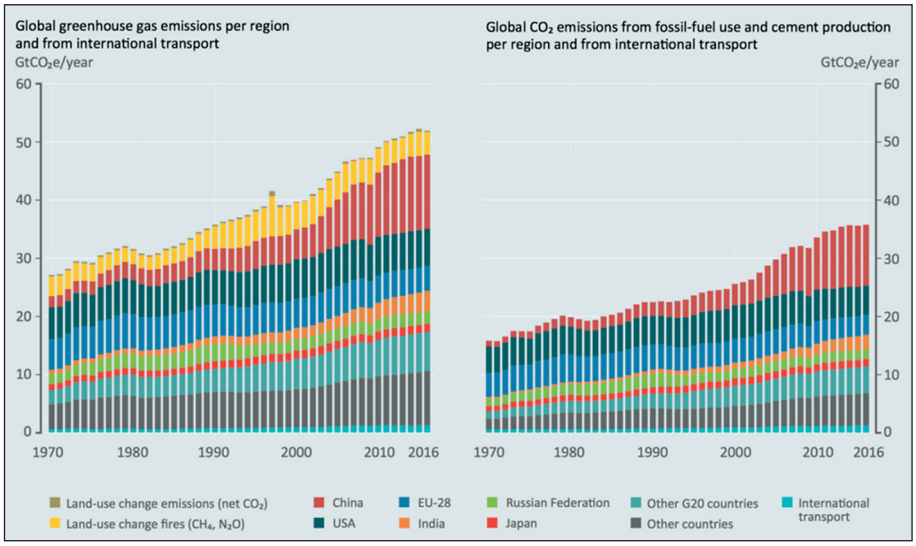

Figure 1. Greenhouse-gas emissions per country and sectors (1970 – 2016). Source: UNEP (2017: xvi).

The analysis of emissions by countries varies on the basis of the period analysed. From Industrial Revolution, when greenhouse-effect gases began to be emitted on a major scale due to the burning of fossil fuels, until the beginning of the 21st Century, developed countries were the main responsible for anthropogenic emissions. Indeed, depending on the studies conducted, the developed

[15] WEI, Ting (2012), Developed and developing world responsibilities for historical climate change and CO2 mitigation. *Proceedings of the National Academy of Science* (PNAS). Vol. 109. No. 32: 12911–12915.

[16] INTERNATIONAL ENERGY AGENCY (2015a), Energy and Climate Change. Paris: OECD.

[17] SMITH, Pete and BUSTAMANTE, Mercedes (2014), Agriculture, Forestry and other Land Use (AFOLU) in Climate Change 2014: Mitigation of Climate Change. Contribution of WGIII to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Chapter 11: 811-922. Available at: https://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_chapter11.pdf (latest access 5 November 2017).

countries contributed to historical emissions from somewhat less than 60%[18] to 80%[19], compared to 20% to 40% emissions being released into the atmosphere by developing countries. From 2006 onwards, China became the greatest emitter in absolute terms, although these emissions include all the products manufactured in China and consumed in the rest of the world. In 2010, the developed countries were responsible for 60% of the anthropogenic emissions of greenhouse-effect gases[20]. In 2100 it is expected that there will be less of a divergence between the emissions by developed and developing countries. Ward and Mawhowald (2014) estimate that in 2100 the developed countries will emit 55% of the greenhouse-effect gases and the developing countries will emit 45%.

If we analyse the emissions per person between 1990 and 2013 of the main emitters in absolute terms, we can see that the USA, followed by Russia and Japan, are the biggest emitters. The emissions *per capita* in China in 2015 were higher than in the European Union, as can be observed in Figure 2, which

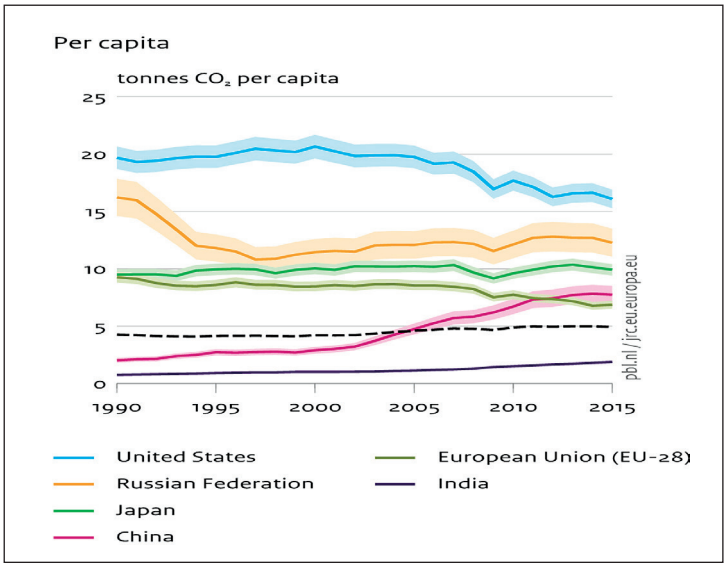

Figure 2. Emissions per capita from the biggest emitters 1990-2015. (Emissions caused by the use of fossil fuels and cement production). Source: PBL Netherlands Environmental Assessment Agency (2016: 44).

[18] WARD, D. S. and MAHOWALD, N M. (2014), Environmental Research Letter 9 074008. Available at: http://iopscience.iop.org/article/10.1088/1748-9326/9/7/074008/pdf (latest access 8 November 2017).

[19] WEI, Ting (2012), Developed and developing world responsibilities for historical climate change and CO2 mitigation. *Proceedings of the National Academy of Science* (PNAS). Vol. 109. No. 32: 12911–12915.

[20] ALTHOR, G., WATSON, James and FULLER, Richard (2016), Global mismatch between greenhouse gas emissions and the burden of climate change. *Nature. Scientific Reports.* Available at: https://www.nature.com/articles/srep20281.pdf (latest access 5 November 2017).

also shows that China's emissions were considerably lower than those of the USA. In *per capita* terms, only the emissions in India would be compatible with limiting the temperature increases to 2°C when compared to the pre-industrial era.

Every five years, the Intergovernmental Panel on Climate Change (IPCC) summarise the scientific knowledge about climate change. So, for nearly three decades, thousands of scientists have been compiling and informing, *pro bono*, about peer reviewed findings on climate change and its impacts. The IPCC Fifth Assessment Report, published between 2013 and 2014, indicates that climate change is unequivocal, that the anthropogenic element is clear and that its effects are already starting to be felt in the natural and socio-economic ecosystems[21]. Figure 3 shows how as from the end of the 1970s, in 20th Century, if the climate models do not include greenhouse-gas emissions of anthropogenic origins (light green band), it is not possible to reproduce the temperature changes observed (black line). Yet when the greenhouse-effect gases of anthropogenic origin are included, in addition to the greenhouse-effect gases that occur naturally, climate models (represented by the purple band) are able to reproduce the variations in the temperatures observed.

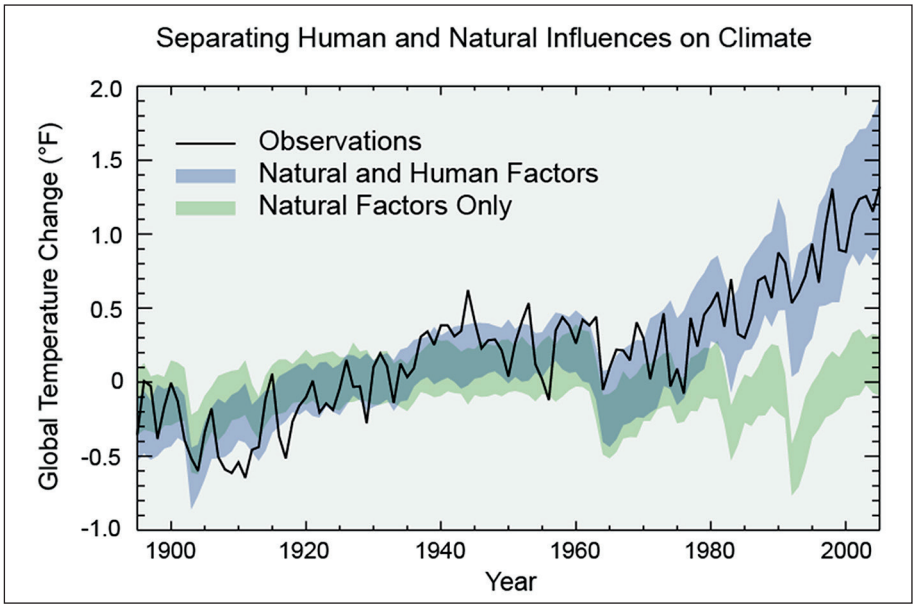

Figure 3. Anthropogenic and natural climate change factors. Source: EPA (2017)[22].

[21] IPCC (2014a), Climate change 2014. Summary Report. Available at: http://ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_FINAL_full_es.pdf (latest access 5 November 2017).

[22] EPA (2017), Causes of Climate Change. Available at: https://19january2017snapshot.epa.gov/sites/production/files/2016-07/models-observed-human-natural.png (latest access 5 January 2018).

When studying the risks[23] involved in climate change, it is advisable to take the analysis framework used by the Intergovernmental Panel on Climate Change (*IPCC*) and updated by O´Neill *et al.* (2017). This framework is known for its bar diagrams that illustrate the Reasons for Concern (RFC) for different levels of temperature rise[24]. These risks include: *Reason for Concern 1, (RFC1)*: impacts on unique and endangered ecosystems and those that contain endemic species; *Reason for Concern 2 (RFC2)*: risks associated with extreme climate events such as heat waves, floods or droughts; *Reason for Concern 3 (RFC3)*: risks arising from the distribution of impacts that particularly affect social groups that because of their characteristics –geographical location, income bracket, age, education level, sex, etc.- are more vulnerable to climate change; *Reason for Concern 4 (RFC4)*: risks associated with global impacts such as loos of life on a world scale, etc.; *Reasons for Concern 5 (RFC5)*: risks associated with singular events that mean reaching tipping (non-return) points, such as the thawing of Greenland, the Western Antarctic or changes to the coral and Arctic ecosystems.

More specifically, the main impacts caused by climate change can be summarised as: a worsening of health and living conditions, damage to infrastructures and loss of land or aquatic ecosystems. O´Neill *et al.* (2017) summarise these Key Risks (KR) in Chart 1.

- KR i. Loss of life, disease, accidents, loss of ways of living in coastal areas and in Small Island States, as a result of storms, coastal flooding and rising sea levels.
- KR ii. Severe deterioration in health and loss of ways of living in urban environments due to inland flooding in some regions.
- KR iii. Systemic risk arising from extreme climate events that involve loss of infrastructures and critical services, including electricity supply, water supply, health & emergency services.
- KR iv. Mortality and morbidity during heat waves, particularly for vulnerable population living in urban environments and for people who work outdoors.
- KR v. Risk of food insecurity associated with temperature increases, flooding, variability in rainfall patterns and extreme rainfall that will affect the poorest populations disproportionately.
- KR vi. Loss of income and way of living in farming zones owing to a lack of access to drinking water and irrigation water. Reduction in farming productivity, especially for livestock and grazing in semi-arid zones with limited access to capital.

[23] Risk is to be understood as the product of the likelihood of occurrence of a hazardous event multiplied by the impact that event would have (IPCCb, 2014).

[24] O'NEILL, Brian. C. *et al,* (2017), IPCC reasons for concern regarding climate change risks. *Nature Climate Change*. Vol. 7: 28-37.

- KR vii. Loss of marine and coastal ecosystems, loss of biodiversity and ecosystem goods and services that provide the populations in coastal zones with a way of living, particularly for communities that depend on fishing in tropical zones and the Arctic.
- KR viii. Risk of losing terrestrial and inland ecosystems. Loss of biodiversity, and losses in ecosystem services that provide livelihoods for the affected population.

Chart 1. Key risks associated with the reasons for concern. Source : O´Neill *et al.* (2017: 31).

Figure 4 shows the reasons for concern and the respective risks listed above.

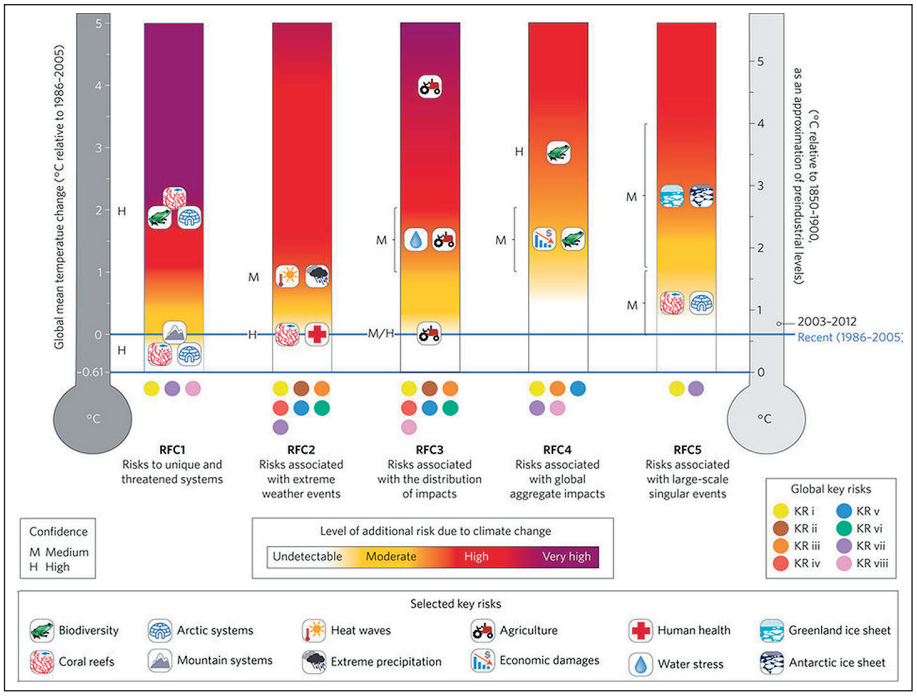

Figure 4. Reasons for concern: temperatures and associated impacts. Source : O´Neill et al (2017: 30).

If we observe Figure 3 and we remember that implementing the Nationally Determined Contributions (NDCs) will lead to average global temperature increases of around 3ºC when compared to the pre-industrial era, we can see that the risk caused by climate change is high or very high for all the RFCs and for all the risks described KR i - KR viii. What is more, it must be borne in mind that the climate and economic models do not generally include socially contingent impacts such as migrations or conflicts that can be ignited or exacerbated due to climate change. Models underestimate the impacts of climate change.

From an economic perspective, climate change is a market failure, in the words of Nordhaus[25], is the Goliath of externalities[26]. Climate change also means facing up to the tragedy of the horizons; the most sever effects of climate change will materialise in the future, but the exact intensity of the impacts and their locations is partly uncertain. Therefore, the incentives to reduce greenhouse-gas emissions are limited in the short term. Nevertheless, the impacts could be significant for global welfare. Climate change could pose a systemic risk to the global economy, according to the Governor of the Bank of England[27]. Henry Paulson, the ex-Secretary of the US Treasury during the George W. Bush era[28], also stated that climate change was the biggest risk to the economy.

In what concerns, not only the cost of climate change, but also the cost of limiting the impacts of climate change, the literature and the narrative have evolved significantly in the last 30 years. Even so, the analysis of the cost of climate change and the cost of limiting it (the cost of the transition to a low-emission economy), are still subject to debate. This is partly because as Martin Weitzman states, climate change has put the discipline of economics to test, hitherto accustomed to marginal analysis and market decisions (that are generally focused on the short term). Climate change could mean, as described in the key risks above, sudden changes affecting both the natural and socioeconomic systems. Furthermore, the consequences of greenhouse-gas emissions will materialise in the very long term[29].

As William Nordhaus (2012) commented, until the publication of the Stern Report in 2006, the economics of climate change conducted relatively simple cost-benefit analyses, implicitly or explicitly assuming there to be a rather flat marginal damage curve. That is to say, the damage caused by emitting an extra tonne of greenhouse-effect gases was limited. This led to recommending gradual climate action, what is known as the climate policy ramp, which involved limited mitigation actions (i.e., actions to reduce emissions) in the short term, yet more ambitious climate actions as the damages arising from climate change increased.

The Stern Report on the other hand used more updated scientific knowledge than preceding economic analyses, it also included in its analyses the impacts

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[25] NORDHAUS, William (2013), *The Climate Casino. Risk, Uncertainty and Economics for a Warming World.* New Haven: Yale University Press.

[26] The term «negative externality» is to be understood as meaning the (unwanted) collateral effects of production, distribution and consumption activities that have an impact on third parties (other people, companies or States) that receive no compensation for such impact.

[27] CARNEY, Mark (2015), Breaking the Tragedy of the Horizon – climate change and financial stability. Available at: http://www.bankofengland.co.uk/publications/Documents/speeches/2015/speech844.pdf (latest access 10 November 2017).

[28] CAMBONE, Daniela (2014), Climate Change Is Single Biggest Risk To Global Economy - Paulson At CGI2014. Forbes, 22 September 2014. Available at: https://www.forbes.com/sites/kitconews/2014/09/22/climate-change-is-single-biggest-risk-to-global-economy-paulson-at-cgi2014/#48e5c1b3c344 (latest access 11 November 2017).

[29] WEITZMAN, Martin (2009), On modelling and interpreting the economics of catastrophic climate change. *Review of Economics and Statistics,* 91(1): 1-19.

arising from the reasons for concern and discount rates that were lower than the discount rates used in other analyses –arguing that the damage caused by climate change would affect future generations and that there was no valid reason for discriminating against said future generations–. Hence, the results indicated there was an economic case for early and decisive action. Stern indicated that the damage stemming from climate change could amount to GDP losses ranging from 5% to 20% *ad infinitum*. Yet the cost of climate action amounted in Stern's analyses to 1% of global GDP. The economic argument for acting decisively and promptly seemed irrefutable. However, as Chris Hope pointed out[30], the incentives for action are not so clear. This is the case because the costs of mitigation occur now and are borne (to a great extent) by a particular group of countries, most of them developed, and by economic sectors highly dependent upon the use of energy and thus emitters of large quantities of greenhouse-effect gases. The benefits on the other hand will materialise in the future, in the form of prevented damage, the beneficiaries being dispersed globally and uncertain. The incentives for action in purely economic terms were therefore limited.

An additional element that affected the recommendations to implement a gradual climate policy pre-2006 was the analysis of the tipping points, which means the 'critical thresholds at which a minimum disturbance can lead to an alteration to the state or development of a system' (Lenton, 2008: 1786)[31]. Those tipping points include the destruction of the Amazonian rainforest, a potential collapse of the Athlantic thermohaline circulation (THC), or the thawing of Greenland, amongst others. An analysis of the tipping points, combined with a statistical distribution of the occurrence of such events that is fat-tailed[32], transform the analysis of the costs and benefit of climate action. Therefore, to prevent irreversible damage with non-negligible likelihood of occurring, climate actions recommended are more like taking out an insurance policy to prevent extreme risks, rather than following the recommendations of a simple cost-benefit analysis.

Finally, the IPCC warned in the Fifth Assessment Report (5AR) about the difficulties involved in accurately estimating the costs of climate change and of the actions taken to counteract it, given that the estimates do not include either the impacts of catastrophic events, or the effects of exceeding the tipping points or the socially contingent events referred to above. Therefore, the estimates shown below underestimate the costs of climate change. It must also be remembered that at the time of publication of the most recent IPCC assessment report there were not so many economic impact studies for stabilising global average temperatures at 3ºC. Taking into account all the above, The IPCC estimates that

[30] HOPE, Chris and NEWBERRY, David (2007), Calculating the Social Cost of Carbon. Available at: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.320.6580&rep=rep1&type=pdf (latest access 12 November 2017).

[31] LENTON, Timothy *et al.* (2008), Tipping elements in the Earth's climate system. *PNAS. V*ol. 105. Num. 6: 1786–1793.

[32] That is to say, the likelihood of extreme events is considerable.

income losses (on a global level) if mean temperature increases reach 2ºC globally, when compared to the pre-industrial era, would be between 0.2% and 2%[33].

Global Governance: international climate negotiations

Given that climate change is an externality affecting the entire planet, and that providing a stable climate is a global public good, we are faced with market failures that transcend national boundaries. What is more, however active a State might be in the fight against climate change, we know that national management of global public goods is insufficient. Joint management by all governments seems, *a priori,* to be the best way to tackle a problem of this magnitude and complexity. Yet States are used to the unilateral management of environmental problems and are reluctant to transfer their sovereignty in matters concerning how to choose the economic development model, which affects their competitiveness. We are hence bound to negotiate an international development model with countries that have diverging interests and development status and that will not agree to any such model that contravenes its national priorities.

There are many elements that foster environmental agreements (and thus climate agreements). These facilitators range from the existence of scientific certainty about the problem being analysed, to the aforementioned limited sovereignty transfer, and also include the existence of cheap and close substitutes, the existence of fair burden sharing agreements, the flexibility granted to those countries that need it, or support (compensation) for the actions taken or for the damage suffered. Table 1 below, lists the main facilitators when it comes to reaching international environment agreements, explaining the extent to which these facilitators can be observed in international climate negotiations.

Facilitators of international environment agreements	Facilitators in the area of climate change	Presence of facilitators in the climate change
Scientific certainty.	Yes. The IPCC is convincing in its latest report.	☑
Visibility of the problem	Increasingly, but the worst consequences will materialize in the future.	☑
Demand for action from society.	Yes. 61% of the population sampled globally thinks climate change is a major problem. It is also the second foreign policy priority citizens in the USA, Germany, France and Spain	☑
Political leadership.	Political leadership depends on the political, economic, social and environmental circumstances.	☐

[33] IPCC (2014), Chapter 10. WGII. Key Economic Sectors and Services. Available on-line at: http://www.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-Chap10_FINAL.pdf (latest access 20 September 2017); STERN, Nicholas (2013), The Structure of Economic Modeling of the Potential Impacts of Climate Change: Grafting Gross Underestimation of Risk onto Already Narrow Science Models. *Journal of Economic Literature.* 51(3), 838–859.

Existence of institutions that specialise in dealing with the problem.	More and more countries now have institutions specialising in climate change, but the power and resources vary greatly.	▯
Legislation that regulates the problem.	Since 1994, climate legislation has multiplied twentyfold worldwide. It is expected that the Paris Agreement will entail an increase in the number of climate laws and policies.	☑
Regulatory certainty.	Depends on the country. Regulatory certainty is not however the norm at present across a range of jurisdictions.	☒
Alignment of interests of the key economic sectors with the environmental objectives.	There is not yet any general alignment between economic and environmental targets. However, this alignment is clear in the renewable energies sector.	▯
Existence of close and cheap substitutes.	Renewable energies can replace fossil fuels to produce electricity, especially with the expected development of batteries in areas with good renewable resource. However, there are uses where fossil fuels cannot be replaced at present.	▯
Mainstreaming the environmental problem (in public and private institutions).	With few exceptions, so far there has not been an effective integration of climate considerations in public and private decisions on a global scale.	☒
Domino effect: when the major countries begin to act, the rest follow suit.	Yes. The fact that the USA and China, and later the EU, ratified the Paris Agreement brought forward its coming into force. On the other hand, the USA's subsequent withdrawal announcement has not yet caused other countries to follow suit. Greater ambition is needed however.	☑
Negotiations between small groups (bilateral or "mini lateral" agreements').	No. At present, 170 Parties have ratified the Paris Agreement and the decisions are taken by consensus. Negotiations are long and complex.	☒
Repeating negotiations to instil trust between the parties to the agreement.	Yes. We have been meeting every year for over two decades in the context of the UN Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol and the Paris Agreement.	☑
Existence of net benefits from the agreement to encourage participation.	Given that the Paris Agreement is based on voluntary contributions made by the Parties (their NDCs), it is reasonable to assume that those contributions amount to net benefits.	☑
Fair burden sharing agreement (BSA), with compensation for the losers.	According to Climate Action Tracker, there are only a few countries whose voluntary contributions (NDCs) constitute a fair contribution regarding the target of limiting the average temperature increase to less than 2ºC.	☐

Incentives and penalties to prevent non-fulfilment and deter free-riders.	Not in the Paris Agreement. After the failed attempt to impose penalties in the first period of the Kyoto Protocol, a preference has been shown for voluntary contributions reviewed periodically and to share information about practical improvements.	☒
Similar level of development, skill and resilience between negotiating States.	No. The levels of development, capacities and resilience vary greatly between the 170 Parties that have ratified the Paris Agreement.	☒
Flexibility: enabling the vulnerable to adapt[34].	Yes. Since the UNFCCC came into force in 1994, one of the main aspects of this framework agreement is communal but diverse responsibilities, depending on the capacities of the Parties and taking into account national circumstances. This principle was kept for the Kyoto Protocol and is still present in the Paris Agreement.	☑
Flexibility: enabling the vulnerable to adapt .	Yes. Since the UNFCCC came into force in 1994, one of the driving principles of this framework agreement is the common but differentiated responsibilities and respective capabilities (CBDR-RC) and taking into account national circumstances. This principle was kept for the Kyoto Protocol and is still present in the Paris Agreement.	☑
Flexibility: use of economic tools to increase static and dynamic efficiency.	Yes. Both the Kyoto Protocol and the Paris Agreement envisage market and non-market mechanisms that grant flexibility with regard to the stakeholder and the location of the emission reductions.	☑
Flexibility: allowing asymmetric climate efforts	Yes. The UNFCCC, the Kyoto Protocol and the Paris Agreement envisage this distinction.	☑
Flexibility: allowing differentiated monitoring and information.	Yes. The UNFCCC, the Kyoto Protocol and the Paris Agreement envisage this distinction.	☐
The States are subjected to a limited loss of sovereignty.	The NDCs are decided unilaterally by the Parties to the Agreement, so there is no transfer of sovereignty in the commitments. Nevertheless, as it is necessary to inform about the emissions and to assess the progress made periodically, it could be argued that there is a loss of sovereignty, a concern expressed by China on numerous occasions.	☒
Legend: ☑ Facilitator currently available. ☐ There is no conclusive response to this facilitator as yet. ☒ This facilitator at present.		

Table 1. Facilitators for reaching international environment agreements. Source: own elaboration.

[34] Adaptation is to be understood as meaning all measures that are taken to accommodate to the impacts caused by climate change, such as the construction of dykes in zones where the sea level is likely to rise.

As it can be observed in Table 1, in the case of climate change there are a considerable number of facilitators involved in international agreements that are either not met, or only partially met, which could explain why climate action is insufficient and why reaching climate agreements has been so complex.

Climate Summits and Climate Agreements: UNFCCC, the Kyoto Protocol and the Paris Agreement in context

Annual international meetings have been held for more than two decades in which discussions have taken place about how a coordinated effort should be made in climate change matters. The three basic milestones achieved since the 1990s are: the adoption of the UN Framework Agreement on Climate Change (UNFCCC) at the Rio de Janeiro Earth Summit in 1992 that came into force in 1994; the adoption of the Kyoto Protocol in 1997, which came into effect in 2005; and, finally, the Paris Agreement in 2015, which came into force just one year after its adoption, on the 4th November 2016.

Amongst the most detailed analyses available on the history of international climate negotiations are probably those prepared by Bang, Underdal and Andersen (2015)[35], Barrett (2005)[36] and Gupta (2010)[37]. The main phases through which international climate negotiations have developed are analysed below. This description is based upon the aforementioned analyses, amongst others[38]. The way in which the three international climate action frameworks have evolved is put into context below.

1. Before 1990

   Climate change during this period was regarded as a merely environmental problem. It is an era when scientific knowledge about climate change was being structured. Important events during this period included the celebration of the first two World Climate Conferences, in 1979 and 1990, the establishment in 1988 of the Intergovernmental Panel on Climate Change (IPCC) and the publication of IPCC's First Assessment Report, in 1990. It was at this time that political recognition was first given to the climate change problem and when the principle of common but differentiated responsibilities for the action. It was a period when climate action began to revolve around three main axes: mitigating or reducing emissions, adapting to the effects of climate change and cooperation.

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35 BANG, Guri, UNDERDAL, Arild and ANDERSEN, Steinar (2015), *The Domestic Politics of Global Climate Change. Key Actors in International Climate Cooperation*. Cheltenham: Edward Elgar.

36 BARRETT, Scott (2005), *Environment and Statecraft*. Oxford, Oxford University Press.

37 GUPTA, Joyeeta (2010), A history of international climate change policy. *WIREs Clim Change*. 1: 636–653.

38 LÁZARO, Lara (in print), Governing the geopolitics of climate action after the Paris Agreement. In CONSIDINE, Jennifer (Ed.), *Handbook of Energy Politics*. Cheltenham: Edward Elgar.

2. Between 1991 and 1996

Climate change was still an environmental problem, although its importance was such that it was the United Nations General Assembly and not the United Nations Programme for the Environment that concerned itself with the problem on an international level. It was a period of optimism after the Cold War, which is why it is thought that the United Nations Framework Convention on Climate Change (UNFCCC), adopted at the Rio de Janeiro Earth Summit in 1992, which entered into force only two years later. Chart 2 below, shows the targets, principles and basic characteristics of the UNFCCC.

This is the phase at which the discourse of leadership by the developed countries starts taking place. These countries have been historically responsible for burning fossil fuels. Furthermore, it is assumed that the developed countries must support the developing countries, at present, basically in the form of helping them to adapt, since it will not be until the second decade of the 21st Century that the developing countries formally commit themselves to voluntarily reduce their emissions.

1. Objectives:
   To stabilise the concentrations of greenhouse gases in order to prevent a dangerous interference with the climate system, enable the ecosystems to adapt, guarantee food production and allow for sustainable development.

2. The UNFCCC Principles:
   - Differentiation: the Parties must protect the climate system and have joint yet distinct responsibilities, depending on their capacities.
   - Fairness: the needs of the developing countries must be catered for, especially the needs of the most vulnerable ones.
   - Precaution principle: the Parties must act against climate change. Lack of complete certainty must not be used as an excuse for inaction. However, it is necessary to take into account the cost of climate action.
   - Sustainable development: the Parties have the right to sustainable development, economic growth being a key aspect in the fight against climate change.
   - Promoting international trade: the economic system must be open to encourage the fight against climate change. Actions in climate matters must not be used as a pretext to limit international trade.

3. Commitments
   - The Parties shall provide information about their emissions via the national emission inventories.
   - The Parties shall draw up, publish and update their climate action programmes, including actions in the energy, transport, industry, agriculture, forestry and waste management sectors.

- The Parties shall encourage the conservation and increase of sinks, including woodland and oceans.
- The Parties shall cooperate in adapting to climate change.
- The Parties shall incorporate climate change into the sectorial policies, minimising the potential negative effects of mitigation policies.
- The Parties shall promote research into climate change and will exchange information about it. They shall also promote public awareness.
- The developed countries shall take the initiative in reducing emissions and shall support the developing countries in presenting the information required by the UNFCCC. Furthermore, the developed countries shall support technology transfer to the developing countries.
- The action taken by the developing countries will depend on the technology and financial aid coming from the developed countries.

Chart 2. The UNFCCC. Source: United Nations (1992)[39]

The UNFCCC is hence an agreement that sets out the climate action framework and principles, but it does not require specific emission reductions. It does however require developed countries to lead climate action. In the following phase, the Kyoto Protocol will, for the first time, be imposing emission reduction commitments on the developed countries.

3. Between 1997 and 2001

   As usually occurs after periods when a problem has been discovered and of optimism regarding the possibility of solving it[40], this stage is characterised by actors beginning to understand the magnitude of the challenge involved in keeping the climate change problem and the cost of the mitigation actions under control. Climate change is a problem of planetary proportions that involves all production, distribution and consumption activities. It is a problem caused basically by burning fossil fuels and by land use. At the present time, there are close and cheap rsubstitutes for fossil fuels on a world scale. People are now becoming aware of the fact that the worst consequences will be felt in the future, which limits the incentives to take early and decisive action at present.

   During this period[41] the USA, amongst others, questions the lack of mitigation action being taken by developing countries. According to some authors, the developed countries' leadership model is being diluted because the Kyoto

[39] UNITED NATIONS (1992), United Nations Framework Convention on Climate Change. Available at: http://unfccc.int/resource/docs/convkp/convsp.pdf. (latest access 13 December 2017).

[40] DOWNS, Anthony (1972), Up and Down with Ecology-the Issue-Attention Cycle , *Public Interest*, 28: 38-50.

[41] This is a stage where the first USA climate default occurred, when this country decided not to ratify the Kyoto Protocol.

Protocol contains objectives that are limited in time and targets set are insufficient to solve the climate conundrum. The Protocol also allows the use of flexibility mechanisms (the clean development mechanism, joint implementation mechanism and the development of emission trading systems). These mechanisms were, at least theoretically, justified by their static and dynamic efficiency features[42]. Yet flexibility mechanisms have been criticised in the past by certain countries and social sectors. One of the reasons for these criticisms is that flexibility mechanisms are an escape valve for those countries that can afford to pay to emit greenhouse gases instead of reducing their emissions and transforming their development models.

As far as regulations were concerned, there was also a considerable divergence at this time between developed countries and developing countries regarding what climate action they would have to take. This divergence can clearly be seen in the way the Kyoto Protocol was finally drawn up, the obligations to reduce emissions being only applied to the developed countries.

4. Between 2002 and 2007

   At this stage, the climate change question began to be viewed not only as an environmental problem but also a development problem. The EU became the driving force in international climate negotiations after the USA did not ratify the Kyoto Protocol. Furthermore, the EU, which had initially taken a stand against the emission trading systems ended up by becoming the first region in the world to have an international emission trading system, known as the European Emission Trading System (EU ETS). The European emissions trading system is the largest in the world, until China sets in motion its own national emission rights market.

   The US decision to abandon the Kyoto Protocol not only slowed down its ratification and coming into force, but also complicated matters where mitigation ambitions were concerned. Margot Wallstrom, the European Commissioner for the Environment in 2004, and Vladimir Putin, stated that the withdrawal of the European objections to Russia becoming a member of the World Trade Organisation had paved the way for Russia ratifying the Kyoto Protocol[43]. That ratification was essential to ensure compliance with the twofold condition that 55 Parties that accounted for 55% of the world emissions had ratified the protocol. In 1990, the USA emitted over one third of the global emissions, making Russian support vital to ensure that the Kyoto Protocol came into force. Chart 3 below, shows the main characteristics of the Kyoto Protocol in summarised form.

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[42] Static efficiency means achieving efficient emission levels at the lowest possible cost. Dynamic efficiency refers to the incentives to innovation of the market instruments. Whenever the innovation costs are less than the profits, the taxes to be paid or the price of the permits that would have to be acquired for emissions, these instruments can potentially provide an incentive to technological innovation.

[43] HENRY, Laura A. and MCINTOSH SUNDSTROM, Lisa (2005), Russia and the Kyoto Protocol: Seeking an Alignment of Interests and Image. *Global Environmental Politics* 7: 47-69.

1. Objective
   - Promoting sustainable development through reducing greenhouse gas emissions.
2. Recommended policies:
   - Increasing energy efficiency, protecting carbon sinks (woodland and oceans), developing sustainable farming, promoting renewable energies, developing technologies for the capture and storage of carbon, gradual elimination of subsidies, tax exemptions and customs duty exemptions as well as subsidies contrary to the UNFCCC, the use of market instruments (emissions trading systems, taxes, etc.), promoting mitigation policies, limiting the emissions coming from the transport sector, limiting and reducing methane emissions, cooperating with those who were party to the agreement with a view to exchanging experiences and controlling air and maritime transport emissions through the International Civil Aviation Organisation (ICAO) and the International Maritime Organisation (IMO), respectively.
3. Commitment:
   - The developed countries will reduce greenhouse-gas emissions by no less than 5% in the first commitment period of the Kyoto Protocol (2008-2012) when compared to the 1990 emission levels[44] (generally the base year, except for fluoride gases, whose base year could be 1995).
   - The countries must show the progress made in 2005.
4. Characteristics: flexibility, monitoring, instruments and penalties
   - The Parties considered to be transition economies were allowed a degree of flexibility when choosing the base year (the reference for their emissions).
   - The Parties that made a joint agreement to that effect, could also comply as a whole. If joint compliance was not achieved, every Party was responsible for complying with its own reduction obligations.
   - The emissions not released in the first commitment period could be used in subsequent periods (banking).

[44] The reductions of those parties to the Kyoto Protocol are contained in Annex B of the Protocol. The EU, as a whole, undertook to reduce its emissions by 8% between 2008 and 2012. However the sharing of efforts between the EU Member States made it possible for some countries to increase their emissions while others had the obligation to reduce their emissions. Spain, for example, was allowed to increase its emissions by 15% between 2008 and 2012, when compared to its emission level in 1990, a target that it was able to reach thanks to the climate policies, the lower emissions arising from a reduction in economic activity during the crisis and from purchasing emission rights. See: EUROPEAN COMMISSION (2017), Kyoto 1st Commitment Period. Available at: https://ec.europa.eu/clima/policies/strategies/progress/kyoto_1_en. (latest access 13 December 2017).

- Market instruments could be used to comply with emission reduction obligations. These instruments include carbon markets (the largest to date being the European Emissions Trading System that has recently been reformed to overcome the past problems of oversupply), the clean development mechanism and the joint implementation mechanism[47].
- For the transfer of emission reduction units between the Parties, the condition of additionality had to be met in those units. The use of market instruments had to complement (not substitute) national emission reduction efforts.
- Emissions accounting and the contribution made by the sinks to emission reductions was carried out following the IPCC methodology, and would be assessed by experts. The warming potential of the greenhouse-effect gases would be revised periodically.

Chart 3. Key elements of the Kyoto Protocol. Source: United Nations (1998)[46].

At this stage, a 4th IPCC Report was published, which further stressed the message concerning the urgent need for action, the responsibility of humans to face up to the climate change phenomenon and the expected impacts. Moreover, Lord Nicholas Stern published his report on the economics of climate change, in which he stated that urgent and decisive action was necessary, partially breaking away from pre-existing recommendations regarding the economics of climate change that were in favour of gradual actions (the climate policy ramp) consistent with levels of damage that were expected to be manageable.

5. Between 2008 and 2015
   The 2008 economic crisis brought about a change in priorities on the global action agenda, with economic matters taking precedence on political agendas. Furthermore, the *Climategate* scandal and the disproportionate hopes for the Copenhagen Climate Summit - expected to result in a climate agree-

[45] The most usual emissions market (cap-and-trade) is based upon creating a limited amount of emission rights that are allocated – either free of charge (grandfathering), or by auction-, to companies in the sectors that participate in the market. Those companies, depending on their cost curves, decide whether to use the emission permit to fulfil their emission reduction commitments, whether to reduce their emissions and sell the permits, or, if they do not reduce their emissions, whether to resort to the market to purchase emission rights. The clean development and joint implementation mechanisms are based upon the development of projects that reduce emissions, either in developing countries (in the case of clean development mechanisms, (CDMs)) or in other countries that appear in Annex B of the Kyoto Protocol (in the case of the joint implementation mechanism, (JI)). In the projects developed using the CDM and JI instruments, the emission reductions are counted in the developed country and the latter pays for the reductions that take place beyond its frontiers. Part of the funds allocated by the developed countries to pay for projects carried out in developing countries and in other countries that appear in Annex B must be given over to financing adaptation to climate change in those developing countries.

[46] UNITED NATIONS (1998), Kyoto Protocol by the United Nations Framework Convention on Climate Change. Available at: http://unfccc.int/resource/docs/convkp/kpspan.pdf. (latest access 9 December 2017).

ment that would replace Kyoto- were thwarted when this meeting came to an end without an agreement, all amounted to a major setback for global climate action. The UNFCCC Secretariat could only take note of the Copenhagen Agreement. However, the essential elements of the Copenhagen Agreement were included in the Cancun Agreements and still feature in the Paris Agreement adopted in 2015, which has been described as a diplomatic success.

Perhaps the most significant aspect of the Copenhagen Agreement was the realisation that a hybrid system was emerging in international climate negotiations. Until 2009, national climate negotiators took their national positions to annual climate summits but the goals and the burden sharing was decided at the Conference of Parties (COPs) and the States ratified commitments at a national level. It was a top-down system. All of this was to change after Copenhagen and from then on, the States were to propose (bottom-up) their national contributions (now known as Nationally Determined Contributions, NDCs), which would in turn be subject to international monitoring and analysis by the United Nations (top-down).

New key elements were forged at the Climate Summits following COP15 (Copenhagen), which eventually led to the Paris Agreement in December 2015; once again containing essential inputs of the climate science. The Fifth IPCC Assessment Report was published between 2013 and 2014, stating that there was no doubt about climate change, that the anthropogenic component was clear and that the consequences for ecosystems and societies could now be discerned.

Some of the key elements when drawing up the Paris Agreement were:

- The resurgence of climate multilateralism at COP16 held in Cancun in 2010. The Cancun Agreements were adopted at this Climate Summit, including the results of the Copenhagen Agreement as part of the United Nations Framework Convention on Climate Change. The Cancun Adaptation Framework was also adopted, in which the concept of migration as a strategy for adapting to climate change was included in Article 14 f)[47].
- At COP17 held in Durban in 2011, a platform was established for developing a legally-binding agreement intended to replace the Kyoto Protocol.
- At COP18 held in 2012 in Doha, the Doha Amendment was adopted to extend the Kyoto Protocol to a second period of commitment between 2013 and 2020. At present, 95[48] Parties have ratified the Doha Amendment, but 144 ratifications are necessary before it can come into force.

[47] In contrast to a narrative of 'climate refugees' which prevailed in the literature ever since the UNEP Report in 1995, with the IPCC already warning since 1990 about the potential seriousness of climatic migrations. See: ARENAS HIDALGO, Nuria (2015), Populations Displaced from their Natural Habitat due to the Effects of Climate Change. The Planned Transfer of the Arctic Communities as a Study Case. Yearbook on Human Rights Courses in San Sebastian. Vol. 15: 203- 232.

[48] The number of ratifications is as published by the Secretary of the UNFCCC on 22nd November 2017. See: http://unfccc.int/kyoto_protocol/doha_amendment/items/7362.php (latest access 13th December 2017).

- At COP19 held in Warsaw 2013, the Warsaw International Mechanism for Loss and Damage was adopted, and the Parties were urged to prepare their national contributions to reduce emissions (the Intended Nationally Determined Contributions or INDCs) for 2015.
- At COP20 held in Lima, a first assessment was made of the mitigation activities of 17 Parties (developed countries) as part of the new commitment assessment system, known as International Assessment and Review (IAR). Progress was made in developing the negotiation texts that were to lead to the Paris Agreement, although they revealed the pre-existing differences of opinion between developed countries and developing, in matters concerning differentiation, commitments and financing. The initial financing for the Green Climate Fund (GCF) exceeded $10,000 million. The Lima-Paris Action Agenda was launched to give a higher visibility to the actions taken by non-state actors (NSAs) who are being increasingly recognised as key players in global climate action. Furthermore, the Non-State Actor Zone for Climate Action platform (NAZCA) was set in motion; it contained the commitments from the aforementioned non-state actors.

Barely two months before the COP21 was held in Paris, the Governor of the Bank of England, Mark Carney, delivered a famous speech that brought to light the position of another major movement. The economic and financial world admitted that climate change posed a systematic risk to the world economy. It was not only a physical risk (direct exposure to the impacts of extreme climate events, for example) but also a risk arising from liability and claims for compensation put in by those affected by the impacts of climate change, and finally, the risks involved in the transition towards a lower-emission economy (risk of more stringent climate regulations, technological risk, market risk and reputational risk).

The argument used by Carney to explain the risk involved in climate change is as follows: if the target consists of limiting average temperature increase to less than 2ºC, then, according to the IPCC, there is a maximum amount of greenhouse gases that we can emit, we have a carbon budget. That budget assumes that only between one fifth of fossil fuel reserves and one third of those reserves can be used. The rest of them become stranded resources (i.e. fossil fuel reserves that cannot be burnt in a 2ºC scenario). This means that we have to face up to a risk in the transition towards a lower-emission economy. These transition risks are due to the fact that companies will have to comply with stricter climate regulations, the emergence of new technologies, fluctuations in the demand for products and services, and the companies that emit the most are putting at risk their reputations. According to Carney, in 2015 one third of the fixed income and of funds from the capital markets in the world are invested in the extraction of natural resources, in extraction industries, in the electricity sector or in chemical industries.

Therefore, the climate risk must be taken into account in investment decisions (as material risks) if we are to transition towards a lower-emissions economy

in a gradual and orderly manner. Mark Carney's proposal for the correct allocation of capital was to increase the information concerning the exposure of companies' to climate risk, how they manage that risk and the plans for those companies to ensure that they adapt to a 2ºC scenario. This has materialised in a report recently published by the Task Force on Climate-related Financial Disclosures of the G-20´s Financial Stability Board (FSB).

6. As from 2016

   The year 2016 marked a turning point in climate negotiations. The Brexit vote would leave Europe without one of its most skilful negotiators in climate matters, given that the United Kingdom has been one of the most ambitious Member States when it comes to supporting emission reductions, a country that has developed one of the most innovative pieces of legislations on a national scale, the Climate Change Act (2008), and one that has been a driving force in the development of the European Emissions Trading System (EU ETS). Additionally, countries that have been less ambitious in climate matters, such as Poland, increase their influence in future climate policy decisions. Furthermore the United Kingdom will no longer be able to use the European loudspeaker. Europe therefore will have to invest part of its political capital on internal negotiations, at a time when international climate commitments are becoming increasingly urgent. Despite the above, the EU has remained steadfast in reinforcing its climate leadership role in climate summits post Brexit. For instance, although symbolic, the EU's ratification of the Doha Amendment will send a clear message about Europe's short-term commitment in climate matters.

   The Paris Agreement, adopted on 12th December 2015, came into force on 4th November 2016 (see Chart 3 below, where details are given about the main characteristics of the Paris Agreement). A few days later, Donald Trump was elected President of the USA. A President who stated in 2012, in the face of all existing scientific consensus, that climate change was invented by the Chinese to damage America. After he was elected, Donald Trump published his energy plan 'America First Energy Plan' in which it was stated that any unnecessary and harmful environmental regulations would be removed. So far, this Plan has materialised with initiating the dismantling of President Obama's key initiatives: the Climate Action Plan, the Clean Power Plan or the methane regulation. Furthermore, he began the process whereby the Keystone XL and Dakota Access oil pipelines will be constructed or completed. Trump has also recently announced several national parks will be reduced in size so that extraction activities, amongst other things, can go ahead.

   President Trump also stated that the *Environmental Protection Agency* (EPA) would see significant budget and personnel cuts. Its focus would also be redirected away from climate change. Trump has also restricted the publication of information that has not been reviewed beforehand by members of his Administration. Information was recently published about the possibility of US judges questioning US climate scientists on the uncertainties in their findings. If science is the keystone on which we base agreements

and actions in the fight against climate change, the post-factual drift of the Trump Administration could have more serious consequences than the announced withdrawal from the Paris Agreement and the cessation of US contributions in the area of international climate financing. If political leaders make their decisions without taking into account scientific knowledge, it is highly unlikely that climate actions will be efficient and aligned with climate targets.

That was the state of affairs in November 2016, when a climate leadership void could theoretically have been occupied by China. If we focus on Chinese investments in renewable energies and in the installation of renewable power coming from China, we could say that in fact there is a leader in low-carbon investment. What is more, Xi Jinping's speech at the World Economic Forum Annual Meeting (2017) reaffirmed his commitment to implementing the Paris Agreement. Yet during the COP23, the Chinese attitude did not appear to be consistent with its investment leadership. At the COP23 in Bonn, China's historical demand for limiting monitoring and accountability has complicated progress in these matters, which are vital for making progress in drawing up the rules that will enable the Paris Agreement to be operational.

1. Objectives
   - To limit the average increase in mean global temperatures to less than 2°C when compared to the preindustrial era, trying to keep the average temperature increases to a maximum of 1.5°C.
   - To improve resilience and the ability to adapt.
   - To guarantee financial flows sufficient to achieve the aims of the agreement.
   - To reach the emission maximum as soon as possible.
   - To achieve carbon neutrality (i.e., emissions are made up for by absorptions from sinks such as forests and oceans) by the second half of the 21st Century.
   - To reduce the losses and damage caused by climate change.
2. Characteristics
   - Differentiation: joint responsibilities but differentiated on the basis of the Parties' capacities and taking into account their national circumstances.
   - Universality: all Parties must contribute to the objective of the agreement.
   - Asymmetry: the developed countries must lead the climate action effort.
   - Transparency: all Parties must inform clearly about their efforts and do so in accordance with criteria of environmental integrity, accuracy, exhaustiveness, comparability and coherence, ensuring that there is no double counting of efforts.
   - Ambition: the efforts shall become increasingly ambitious. This ambition can be increased at any time.

- Solidarity: support will be given to the developing countries to enable them to comply with the agreement commitments.
- Inclusion: the concern of the Parties affected by the Agreement, especially those of the developing countries, must be taken into account.
- Flexibility: as was the case with the Kyoto Protocol, the Parties that agree to do so, may comply jointly. Joint compliance involves fulfilment by each one of the Parties. If there is no joint compliance, each Party will be responsible for complying with its own reduction obligations.

3. Resources
   - The Parties undertake to develop their Nationally Determined Contributions (NDCs) and they are encouraged to implement domestic measures in order to comply with their commitments.
   - The Parties shall inform about their NDCs every five years.
   - All Parties should formulate and inform about their long-term emission reduction strategies.
   - The use of cooperative market mechanisms (it being understood that it will be possible to use the market mechanisms utilised in the Kyoto Protocol or similar ones) and not market mechanisms is considered, for achieving the objectives of the agreement. A part of the funds from these mechanisms will be given over to financing climate action in the developing countries.
   - It is planned to develop a sustainable development mechanism.
   - The Parties shall develop adaptation plans in which they will assess the effects of climate change and the vulnerabilities.
   - Parties that are developed countries must provide developing countries with financial aid to implement their mitigation and adaptation activities. This aid shall amount to $100,000 million per year since 2020 (an amount agreed upon in 2009 in the context of the Copenhagen Agreement). This amount will be reviewed upwards in 2025. Financing sources will be both public and private. Developing countries that are in a position to do so are also encouraged to help other developing countries. The Parties are urged to allocate international climate financing in a balanced way between mitigation and adaptation.
   - A technological framework is established to encourage technology transfer.
   - The Agreement establishes that the Parties must boost their capacities for achieving its targets.

[49] MARCU, Andrei (2016), Carbon Market Provisions in the Paris Agreement (Article 6). CEPS. Available at https://www.ceps.eu/system/files/SR%20No%20128%20ACM%20Post%20COP21%20Analysis%20of%20Article%206.pdf (latest access 13 December 2017).

- The Paris Agreement establishes a framework of transparency to encourage trust between the Parties. This framework of transparency will be flexible depending on the level of development of the Parties and will be based upon the UNFCCC transparency system. The information to be submitted includes: the greenhouse-effect gas inventories, progress in complying with the commitments (NDCs), the effects of climate change, actions taken in matters concerning adaptation and the support given or received (financial, of technology transfer, or for enhancing capacities), whichever is relevant. The information received will be assessed by experts.
- A Global Stocktake (GST) examination will be conducted to assess progress towards the objective of stabilising the mean global temperature in the long term. The first Global Stocktake will be carried out in 2023. A Facilitation Dialogue (renamed the Talanoa Dialogue after the COP23) will take place in 2018, before the first Global Stocktake, for the purpose of helping to analyse during the COP24, the evolution towards the long-term target with a view to being even more ambitious in the next round of NDC commitments, which have to be submitted in 2020.

4. Actions
   - It is recommended that carbon sinks (oceans and forests) should be conserved and their number increased.
   - Greater importance is attached to adapting to climate change, with recognition of the efforts made by the developing countries in this field as part of the NDCs.
   - Cooperation is recommended between the Parties, to enhance climate science with a view to ensuring that climate awareness is used to inform the decision-making processes.

Chart 4. The Paris Agreement. Source: UNFCCC (2015)[50]

The future of the Paris Agreement: developing the Work Programme, implementation and increase of ambition

The Paris Agreement referred to above, provides the general framework for long-term international climate action. The rules for implementing the Agreement have yet to be defined. This is a huge task that began after COP21. Both the Marrakech Climate Summit (COP22) and the Bonn Climate Summit (COP23) were hence to be technical conferences concerning regulatory development and development of the assessment processes. The technical nature of these meetings should not lead us to think that they were any less important. Without clear rules for measuring our emissions, without a comparison and aggregation of

[50] UNITED NATIONS (2015), Paris Agreement. Available at: http://unfccc.int/files/essential_background/convention/application/pdf/spanish_paris_agreement.pdf. (latest access 13 December 2017).

our commitments, and without exhaustive analyses of the progress made, we will not be able to prevent a dangerous interference with the climate system.

At the time of writing the most significant progress made regarding the implementation guidelines and the evaluation procedures of the Paris Agreement can be summarised by the main results of the COP23 held in Bonn under the Fiji presidency. On a political level, the most important result is the almost unanimous political support, asymmetrical but without cracks, for the Paris Agreement. The USA has isolated itself from the rest of the world by being the only country, so far, to have announced its intention to withdraw from the Agreement.

The main results of the Bonn Climate Summit are:

- Progress in the Paris Agreement Work Programme. Advances were made Paris Agreement implementation guidelines due to the inclusion of negotiating positions from all Parties in the agreed texts. Therefore, we now have very lengthy texts that will have to be reduced in 2018 in order to get to COP24 in Katowice with implementation rules that can be approved at the next Climate Summit. The works that has to be completed in one year is such that an additional work session has been scheduled to refine the texts, reach consensuses and rule out options.

  More specifically, where mitigation is concerned, the discussions have focused on what the NDCs should be like, on their presentation format and how to account for commitments. Bonn saw a resurgence of the eternal debate revolving around differentiation between the developed countries and the developing countries, with the OPEC countries pressing for a distinction to be made regarding transparency obligations. There was progress in the communications involving adaptation and recognition of the efforts the Parties made to adapt. Where cooperative mechanisms are concerned, there has been greater progress with Internationally Transferred Mitigation Outcomes (ITMOs) than with non-market mechanisms. A dialogue of experts is being considered for Losses and Damage in 2018. Furthermore, the Task Force on Displacement and the Clearing House for Risk Transfer are being set up so that the Parties can access information about how to develop their risk management strategies.

  The question of financing, both given and received, has always been one of the most controversial aspects at Climate Summits. In Copenhagen, $100 billion a year were promised for climate financing (from both public and private sources) from the developed countries to the developing countries, to support mitigation and adaptation initiatives. Over the past eight years there have been heated debates about the financing that is actually being disbursed. Developed countries argue that in 2020 the committed amount will be reached[51] whereas the developing countries doubt that the financing is going to reach

[51] OECD (2016), Roadmap to US 100 billion. Policy Paper. Available at: https://www.gov.uk/government/publications/climate-finance-roadmap-to-us100-billion (latest access 14 December 2017).

this figure[52]. To date, there has not been a generally accepted definition of climate financing[53] and the way for the financing to be accounted differs between developed and developing countries. Furthermore, according to Article 9.5 of the Paris Agreement, the developed countries were to inform *ex ante* about the financing they would contribute to implementing the NDCs of the developing countries. One information commitment that the developed countries have not fulfilled because, they argue, domestic budget cycles do not allow them to provide this information in advance. In view of this, the question of climate financing was, as in earlier Climate Summits, one of the most controversial.

Advances in transparency were also made in Bonn, although work will still have to be done in 2018 to deal with all the outstanding questions, albeit without reopening the differentiation debate if possible. Regarding the assessment of Party efforts (Global Stocktake) that will take place in 2023, progress was made with respect to the principles that must govern this assessment, including fairness, and it was reaffirmed that this ought to be an inclusive and constructive process, not a punitive one. Advances were also made regarding the structure of the stocktaking exercise, which initially would have three phases: preparatory, technical and political.

- The design of the Talanoa Dialogue was completed in Bonn, with a technical phase during which the various actors could provide information. One of the most relevant inputs at this technical phase is the IPCC report on the impacts of a world that is 1.5ºC hotter and the pathways for limiting the mean temperature rise. The second phase of the dialogue, the political one, will be completed at COP24 in Katowice, Poland. The aim of this first global assessment of climate action is to know where we are, how far we want to go and how we can comply with our objectives of stabilising temperatures in the long term. What is more, as the second round of climate commitments (NDCs) must be submitted in 2020, and as the deadline for these commitments has been set for 2030, and as we have to be more ambitious and reduce the emissions (if we want to prevent a hazardous interference with the climate system) the Talanoa Dialogue is vital when it comes to ratchet up ambition in the new round of commitments.
- Significant progress was also made as regards the Vulnerability Agenda in Bonn. A Gender Action Plan was approved to incorporate gender considerations not only the UNFCCC negotiation process but also into the national climate plans and strategies. Approval was also given to the Local Communities and Indigenous People's Platform, whose main objectives are to help increase

[52] ARUN, S. (2015), India questions OECD claim on climate finance. Available at: http://www.thehindu.com/news/national/oecd-report-on-climate-change-fund-flows-flawed-finance-ministry/article7930104.ece (latest access 13 December 2017).

[53] LAZARO TOUZA, Lara (2017), Climate finance: definition, integration, alignment, scaling and disclosure imperatives. Real Instituto Elcano. Available at: https://blog.realinstitutoelcano.org/en/climate-finance-definition-integration-aligment-scaling-disclosure-imperatives/ (latest access 10 December 2017).

awareness of these actors, to improve their access to the international climate negotiations processes and to facilitate communication between local communities and indigenous peoples and other actors. Moreover, an Ocean Climate Platform was launched to give the seas a higher profile as carbon sinks and regulators of the climate system, although this was not included in the scope of the negotiations.

Finally, and after years of stagnation, negotiations were unblocked in the area of agriculture. Meetings of experts were held to deal with such subjects as improving carbon capture and storage in soils, improving adaptation to the impacts of climate change, increasing food security and resilience. The way the methane emitted by the farming sector is calculated was, once again, a controversial issue. It must be remembered that an overwhelming majority of the NDCs currently have agricultural commitments, and that this sector is under-regulated. Therefore, an increase in climate legislation affecting the agricultural and farming sector can be expected in the future.

- After many years of demanding a more important role in international climate negotiations, non-state actors had their first formal dialogue at the COP23 in Bonn, presided by Frank Bainimarama, Chairman of the COP, even though it was not part of the negotiations. This first dialogue recognised the growing importance of subnational governments, the private sector and civil society in global climate action, and it is hoped that this dialogue will continue in the future.

National and Regional Action: the climate quartet

After analysing climate action on a global level we will now go on to analyse the climate action taken by the four countries that emit the most greenhouse gases. These four together release more than half of the global emissions into the atmosphere. As States are the subjects of public international law, their actions are one of the pillars of global climate action, because they define, adopt, ratify and implement the international climate agreements. They also comply with the international commitments through their national policies.

It could be argued that the climate action taken by States is determined, amongst other factors, by the availability of energy resources (fossil fuels and renewable resources), the institutional frameworks in which national climate action is inserted, political consensus regarding the need to act and the call for action from the general public. Each one of these variables will be analysed for China, the USA, the European Union and India.

China

Context

China has been the greatest emitter of greenhouse-effect gases in absolute terms since 2006. China is also one of the biggest producers of fossil fuels. To be specific, China has been the biggest producer of coal ever since 1985 and is

the largest consumer of this fossil fuel[54], apart from being its biggest importer. The country is also the sixth largest producer of gas and the second biggest importer in the world[55]. China is the world's sixth largest producer of oil and the second biggest importer. As far as energy coming from renewable sources is concerned, China is the world's top producer of hydroelectric power and was the country with the greatest hydroelectric net installed capacity in 2015 amounting to 332 GW. What is more, China is the world's second greatest producer of wind energy, and the first in terms of net installed capacity, with 129.3GW in 2015. The country was also the world's leading producer of solar photovoltaic energy and the first in net installed capacity with 43.2GW in 2015.

China's spectacular economic growth in recent decades has been based on the economic sectors that are most intensive in greenhouse-gas emissions, such as cement and steel production; a development model that is becoming exhausted and that is opening the door to another model with lower emissions. The country's economic growth has saved millions of people from poverty but has had collateral effects, such as the deterioration of the environment and increased health problems for China's population.

In view of the above, it can be observed that one of the main driving forces behind climate action in China are the *co-impacts* (side effects: environmental and health problems), which have led the population to demand better environmental management. Furthermore, in view of the amount of fossil fuels that China imports, one of its targets is to reduce its dependence on foreign countries for energy, which heavily conditions its energy policy. Moreover, since 2006, when China became the biggest emitter of greenhouse gases, it has been under international pressure to increase its climate commitment. China has specialised institutions such as the Meteorological Administration and the National Development and Reform Commission for developing and implementing climate regulation. Be that as it may, it must be stressed that in China, local governments, often dependent on activities that are responsible for releasing a great deal of greenhouse-gas emissions, a key factor in putting climate policy into action.

Domestic Policy

Since 2013, China has had its own Air Pollution Prevention & Control Plan as a regulatory instrument. This plan limits the activity of heavy industries as well as coal consumption. China has also prohibited the construction of coal power stations in extremely polluted areas and has imposed a moratorium on giving approval to new coal mines. Additionally, China has planned to reduce its coal production capacity by 500 million tonnes until 2020, as part of its structural reform measures.

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54 INTERNATIONAL ENERGY AGENCY (2017a), Coal Information: overview. Paris: OECD.

55 INTERNATIONAL ENERGY AGENCY (2017b), Key world energy statistics. Paris: OECD.

The country also has a National Climate Change Plan (2014-2020). As China has room for significant improvement in energy efficiency, the aim of the plan is to reduce energy intensity in the industrial sector and stabilise CO_2 emissions from the cement and steel sectors at their 2015 levels. Finally, and perhaps the best-known aspect, since 2016 China has embarked in its 13th Five-Year Plan[56], which ends in 2020. Apart from the goal of attaining an economic growth of 6.5% per year, the Plan contains significant climate measures. Such measures include reducing energy intensity and CO_2 intensity per unit of GDP, increasing the use of renewable energy sources, improving air quality and reducing its emissions.

Regarding the use of market instruments to limit greenhouse-gas emissions, it must be pointed out that China had 7 emission trading systems operating at the pilot stage. Those markets were heterogeneous in both cover and design. At the end of 2017, China launched its national emission trading system, which will become the world's largest, leaving the EU ETS in second place, and which will cover the electricity sector during the initial operating phase.

Finally, and with respect to the general public's concern over climate change, the report issued by the *China Centre for Climate Change Communication* in November 2017,[57] indicates that nearly 80% of the respondents in a sample of 4,250 individuals, was very worried (16.3%) or somewhat worried (63.5%) about climate change; 16.2% was not very worried about climate change and 3.9% were not at all worried.

In matters regarding Chinese foreign policy priorities, Figure 5 below, shows that climate change comes fourth on a list, for citizens' priorities, after increas-

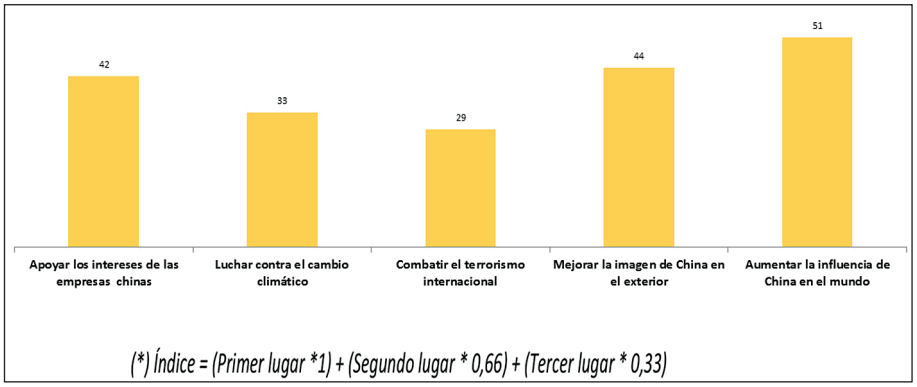

Figure 5. Priorities of foreign policy in China. Source: Real Instituto Elcano (2017).

56 PARRA PÉREZ, Águeda (2016), China's 13th 5-Year Plan: geopolitical challenges for global governance. IEEE. 96/2016: 1-15. Available at: http://www.ieee.es/Galerias/fichero/docs_opinion/2016/DIEEEO96-2016_PlanQuinquenal_China_AguedaParra.pdf (latest access 14 December 2017).

57 Wang, Binbin *et al.* (2017), *Climate Change in the Chinese Mind. Survey Report 2017*. Beijing: China Centre for Climate Change Communication. Available at: http://i.weather.com.cn/images/cn/index/dtpsc/2017/11/07/Climate_Change_in_the_Chinese_Mind_2017_English_Version.pdf (latest access 27 December 2017).

ing China's influence in the world, improving China's image abroad and supporting the interests of Chinese companies.

So, there is a significant demand for climate action, although it could be argued that that demand is conditioned by the *co-impacts* of climate change (health problems) and the problems associated with greenhouse-gas emissions such as air pollution.

International Commitments

On an international scale, China was one of the first countries to ratify the UNFCCC in 1994; it also ratified the Kyoto Protocol in 2002 and the Paris Agreement in 2016. However, that fact that it ratified the UNFCCC early, in 1994, does not mean to say that China has traditionally been a leader in global climate action. Its status as an emerging country, concerned about economic development and historically less concerned over climate change as a way of projecting itself abroad, has limited its leadership in climate negotiations in the past.

In fact, it could be argued that China started to become more constructive since the Copenhagen Climate Summit. Initially, this more constructive approach took the form of its first commitment to reduce its emission intensities by between 40% and 45% by 2020, when compared to its 2005 emission levels.

In 2014 China committed to reduce its emission intensity by between 60% and 65% by 2030 when compared to its 2005 emissions. What is more important, is that China has committed to reach a peak in its emissions by 2030 or before, albeit with the intention of this maximum being reached earlier, which could happen[58] given the 'new normality' to which China aspires with the changes in its development model. China has also committed to source 20% of its primary energy from non fossil fuels sources. Apart from its commitments on an international level, Chinese leadership at present comes from its investments in renewable energies. For the past eight years, China has been the biggest investor in renewable energies for the electricity and heating sectors[59].

Although China's climate commitments have been considered ambitious by some studies, other studies have found them insufficient to limit the mean temperature rises to less than 2ºC, if other countries undertook similar efforts to those of China. Whatever the case may be, China is expected to have to face up to several challenges if it is to comply with its climate commitments and is to increase its ambition. The barriers it faces include its heavy reliance on fossil fuels, the potential limitations when it comes to reducing its emissions in the industrial sector or its dependence on local governments to implement its climate policy.

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[58] GREEN, Fergus and STERN, Nicholas (2016), China's changing economy: implications for its carbon dioxide emissions. *Climate Policy*. Doi: http://dx.doi.org/10.1080/14693062.2016.1156515

[59] REN21 (2017), Renewables 2017 Global Status Report. Paris: REN21 Secretariat. ISBN 978-3-9818107-6-9. Available at: http://www.ren21.net/wp-content/uploads/2017/06/17-8399_GSR_2017_Full_Report_0621_Opt.pdf (latest access 1 November 2017).

The United States

Context

The USA is the second biggest emitter of greenhouse-effect gases in absolute terms and one of the largest *per capita* emitters. Its abundant fossil resources make the USA one of the main oil, gas and coal producers and consumers. In 2016, the USA was the world's third largest coal producer, after China and India[60], the third biggest oil producer, behind Saudi Arabia and Russia, and the top gas producer[61]. Moreover, in 2015 the USA was the world's biggest oil importer. This abundance of fossil fuels is supplemented by good renewable resources in several States. Globally, the USA is ranked fourth in the production of energy from hydraulic sources and second in net installed capacity, with 102GW in 2015. The country is also the top producer of electricity coming from wind energy and second in installed capacity, with 72.6 GW in 2015. Finally, the United States is the fourth producer of photovoltaic energy and also ranked fourth for net installed capacity, with 21.7GW in 2015. Renewable energies in the USA account for nearly 15%[62] of the power provided.

Taking into account the foregoing energy panorama, academic studies[63] point out that the most important factors in the development of US climate policy are: the abundance of fossil fuels, dependence on oil imports[64], technological breakthroughs in the form of hydraulic fracturing (*fracking*), the crisis of 2008, the development of climate legislation in the Obama Era, the impact of the traditional operators –with the political influence that they have in some US States-, and citizens' concern, variable in time, but growing, owing to the consequences of climate change.

As regards climate politics what can be observed is a deeply polarised and politicised debate between the Democratic and Republican Parties. This polarisation has not always existed. For instance it was Theodore Roosevelt (a Republican) who created the US National Parks[65]. However, the division between the two parties widened as from the Reagan Era onwards. There was a move

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60 INTERNATIONAL ENERGY AGENCY (2017a), Coal Information: overview. Paris: OECD.

61 INTERNATIONAL ENERGY AGENCY (2017b), Key world energy statistics. Paris: OECD.

62 US ENERGY INFORMATION ADMINISTRATION (undated), What is U.S. electricity generation by energy source?. Available at: https://www.eia.gov/tools/faqs/faq.php?id=427&t=3 (latest access 1 December 2017).

63 BANG, Guri, UNDERDAL, Arild and ANDERSEN, Steinar (Eds.) (2015). The Domestic Politics of Global Climate Change. Key Actors in International Climate Cooperation. Cheltenham: Edward Elgar.

64 In 2014 the USA consumed 18% of world energy and in 2016 imported 14% of the energy it consumed, basically oil, according to the US Energy Information Administration. See: https://www.eia.gov/energyexplained/?page=us_energy_home (latest access 1 December 2017).

65 DUNLAP, Riley and McCRIGHT, Aron M. (2008). A Widening Gap: Republican and Democratic Views on Climate Change. *Environment: Science and Policy for Sustainable Development*. 50(5): 26-35.

towards deregulation and in favour of the use of market instruments as a means for internalising the externalities (i.e., taking into account all the impacts of the activities in the decision-making process).

At present, the polarisation of the climate debate has led the Democrats to be more favourable than the Republicans to developing renewable energies, to encouraging a transition to a lower-emissions energy model and to implementing climate policy measures. The Republicans have generally been more in favour of exploring all the energy options (which during the last election campaign was called the *all-of-the-above* energy strategy), explicitly supporting coal.

The aforementioned polarisation of the climate debate in the USA has limited climate action at federal level. The consequence of this climate action limitation has in fact delegated climate action to those States most in favour of it, such as New York or California, amongst others. This is true to such an extent that when Donald Trump delivered the speech in the White House Rose Garden on 1st June 2017, in which he announced his intention to withdraw from the Paris Agreement, initiatives like «*America's Pledge*» and «*We Are Still In*» emerged, in which non-state actors undertook to fight climate change and to comply with the Paris Agreement objectives. See Table 2 below, which summarises some of the most important initiatives.

Actor	Jurisdiction	Interim emissions reductions target(s)[a]	Long-term emissions reductions target
US	Nation state	26–28% below 2005 levels by 2025 (equivalent to − 14% to 19% on 1990 levels)	83% below 2005 by 2050 (equivalent to approximately 80% below 1990 levels)
Austin	City	Make all City of Austin facilities, fleets, and operations carbon neutral by 2020	Carbon neutral by 2050
California	State	Reduce to 1990 levels by 2020. 40% below 1990 levels by 2030	80% below 1990 levels by 2050
New York City	City	N/A	80% on 2005 levels by 2050
New York State	State	Reduce GHG emissions from the energy sector by 40% by 2030 based on 1990 levels	80% on 1990 levels by 2050
Seattle	City	Previously 7% below 1990 levels by 2012	Carbon neutral by 2050

[a]Emission targets are in GHG emissions unless stated otherwise. All targets are based on data gathered from the Carbonn database, the NAZCA database and cross-referenced against existing official documentation (where available).

Table 1. Comparison of the emission reduction commitments in the USA. Source: Kemp (2017: 90)[66].

Although it is possible to perceive significant differences between those who vote Democrat and those who vote Republican, the US citizens' concern over climate change and its consequences has increase through time. Thus, the most recent survey conducted by the *Pew Research Centre*, published on the 1st

[66] KEMP, Luke (2017), US-proofing the Paris Climate Agreement. *Climate Policy*. 17:1, 86-101, DOI: 10.1080/14693062.2016.1176007.

August 2017[67], showed that climate change was the greatest third concern for American citizens, preceded by ISIS and cyber-attacks from other countries. In terms of foreign policy priorities, US citizens state that the fight against climate change is their second priority[68] together with supporting US companies and after combating international terrorism (Figure 6).

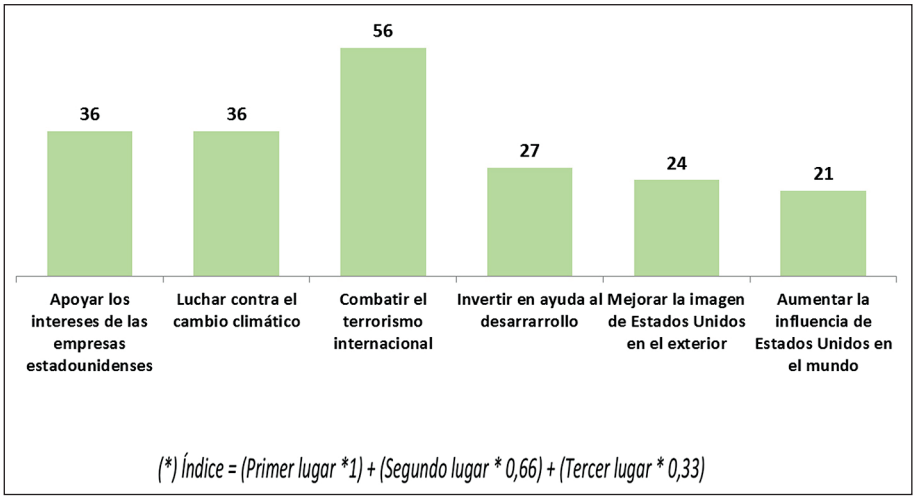

Figure 6. Priorities of foreign policy in the USA. Source: Real Instituto Elcano (2017).

Domestic Policy

The polarisation of the Democrats' and Republicans' positions, has led to a legislative gridlock where climate matters are concerned. Litigation is often used to regulate climate action, which is not infrequent in other parts of the world. Laws that were in force before the Reagan Era, such as the Clean Air Act of 1970 and its modifications, constitute the framework under which greenhouse-gas emissions are regulated in the USA.

One of the most recent regulatory initiatives was taken by Barack Obama in 2013, when he approved the *Climate Action Plan*. The aims of this Plan were threefold: reduce greenhouse-gas emissions, provide help in adapting to cli-

[67] POUSHTER, Jacob and MANEVICH, Dorothy (2017), Globally, People Point to ISIS and Climate Change as Leading Security Threats Concern about cyberattacks, world economy also widespread. Pew Research Centre. Available at: http://www.pewglobal.org/2017/08/01/globally-people-point-to-isis-and-climate-change-as-leading-security-threats/ (latest access 14 August 2017).

[68] REAL INSTITUTO ELCANO (2017), Barometer of the image of Spain. 7th Wave. Results for February-March 2017. Available at: http://www.realinstitutoelcano.org/wps/wcm/connect/7cb3a69f-1f93-4dd3-b0dd-0b7c0d7d6672/7BIE_Informe_mayo2017.pdf?MOD=AJPERES&CACHEID=7cb3a69f-1f93-4dd3-b0dd-0b7c0d7d6672 (latest access 5 November 2017).

mate change and lead the fight against climate change internationally. Two years later, in August 2015, Obama presented the *Clean Power Plan*, an initiative to reduce the emissions in the power sector by 32%[69] by 2030, when compared to the levels in 2005.

In 2016, Donald Trump was elected US President. During the election campaign Trump had announced that he would withdraw from the Paris Agreement; that he would dismantle the «unnecessary» climate policy from the Obama Era; that he would support the US coal industry, and; that he would severely limit the powers of the Environmental Protection Agency, amongst other actions. After hardly one year in office, the initiatives announced by Trump, partly via the publication of his *America First Energy Plan*, are taking effect, although the complete dismantling of the progress in climate matters is unlikely, given the time remaining until the end of Trump's term of office.

One of the potentially most harmful actions, not only for US policy but also for international climate negotiations and, thus, for global climate action, is the attack on climate science that we have been witnessing in the USA. As soon as he arrived in the White House, Trump removed information from the EPA (*Environmental Protection Agency*), restricted interaction between the scientists at this institution and civil society, and also imposed a review of the texts to be published by the Trump Administration's personnel. Trump's post-factual drift has been such that in April 2017 scientists from all over the planet demonstrated to demand respect for rigorous and independent scientific activity. Undermining the production and diffusion of US climate science, a benchmark on a global level, could cause damage to global climate action in the long term. In response to these actions, the EU, with Emmanuel Macron leading the charge, is providing financing for research into climate change[70].

International Commitments

The USA ratified the UNFCCC in 1994, with the approval of the Senate. However, although it adopted the Kyoto Protocol and adopted and ratified the Paris Agreement, the USA committed two consecutive climate «defaults». The US never ratified the Kyoto Protocol and announced its intention to withdraw from the Paris Agreement as soon as possible. This withdrawal can take effect, according to Article 28 of the Paris Agreement, after the next US elections.

Even so, it is worth pointing out that between 2008 and 2016, the USA was one of the key architects of the current international climate regime. It has had a significant influence on the approaches, principles and instruments of the Paris Agreement. All countries have emission reduction targets, a historic

[69] Which amounts to one third of US emissions.

[70] https://www.theguardian.com/environment/2017/dec/11/macron-awards-grants-to-us-scientists-to-move-to-france-in-defiance-of-trump?CMP=share_btn_tw (latest access 15 December 2017).

demand of the USA. It achieved the acceptance and generalisation of the use of economic instruments, such as emissions trading, by members who were initially reluctant to accept their use (the EU). Furthermore, the US managed to modify the Paris Agreement to get around the US political gridlock. The USA, amongst other countries, supported the idea that the Paris Agreement be legally binding only in procedural aspects, an essential condition to ensure that the adoption and ratification would not have to be approved by the US Senate. Moreover, the possibility of claiming responsibilities for the losses and damage suffered was excluded from the Paris Agreement, a prerequisite for the USA to adopt the Agreement.

Finally, two key moments must be mentioned with regard to US commitments. Firstly, in 2010, after the Copenhagen Summit, the USA pledged to reduce its greenhouse-gas emissions by 17% by 2020, when compared to 2005 levels (equivalent to reducing emissions by 4% in 2020 when compared to 1990 emission levels). The second one, in 2014, the USA announced that it would reduce its emissions by between 26% and 28% by 2025 when compared to the 2005 levels (equivalent to reducing emissions by between 14% and 16% by 2025 when compared to the emission levels in 1990). With the current Administration it is difficult to make predictions, but it would seem reasonable to think that, *ceteris paribus*, fulfilment of the commitments made will be more complex and costly, because it will be the non-state actors who make the mitigation efforts.

The European Union

The EU-28 is currently the third greatest emitter of greenhouse gases in the world. It is also a region that has to import fossil fuels to cover over 50% of its energy needs. This dependence rises to 90% where oil is concerned, and the EU imports approximately two-thirds of its gas needs. Moreover, except in countries like Spain[71], the fact that the EU depends on a relatively small number of suppliers (especially Russia and Norway) is significant. The EU-28 imports more than a quarter of its fossil fuels from Russia. This high dependence on Russia shapes the current narrative concerning the need to increase energy independence, despite not having achieved success as yet regarding diversification. See Table 3 below.

Two of the driving forces behind EU-28's support for lower emissions' development model are to increase energy independence and guarantee access to en-

[71] ESCRIBANO, Gonzalo (2014), Spanish energy security in a scenario in transition, in *Energía y Geoestrategia 2014. Cuaderno de Estrategia 166. Instituto Español de Estudios Estratégicos*. Available at: http://www.ieee.es/Galerias/fichero/cuadernos/CE_166.pdf (latest access 14 July 2017).

						Solid fuels				
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Russia	20.2	21.4	21.5	22.7	26.2	22.8	22.9	23.0	25.9	25.9	25.8
Colombia	10.0	9.7	11.0	10.7	15.2	16.9	20.7	21.7	19.6	18.8	21.3
United States	6.5	6.7	7.9	12.2	11.8	14.2	15.7	20.6	19.5	18.3	14.0
Australia	11.2	10.3	11.3	10.2	6.5	8.9	7.7	6.6	6.7	5.6	8.1
South Africa	21.4	19.8	17.4	14.4	13.7	8.2	6.9	5.7	6.0	8.7	6.9
Indonesia	6.2	7.9	6.8	6.3	6.1	4.7	4.4	4.0	2.8	3.0	3.1
Canada	2.7	2.4	2.6	2.3	1.2	1.7	1.9	1.5	1.6	2.2	1.4
Mozambique	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.4
Ukraine	1.9	1.4	1.5	2.0	1.5	1.6	2.1	1.5	1.4	1.3	0.4
Others	19.9	20.4	20.0	19.2	17.8	20.9	17.6	15.5	16.2	15.8	18.6
						Crude oil					
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Russia	30.5	31.2	31.2	29.8	31.5	32.4	32.8	31.8	31.9	28.9	27.7
Norway	15.6	14.2	13.8	14.0	14.2	12.8	11.7	10.6	11.1	12.4	11.4
Nigeria	3.0	3.3	2.5	3.7	4.2	3.9	5.7	7.7	7.7	8.7	8.0
Saudi Arabia	9.8	8.3	6.6	6.4	5.3	5.5	7.6	8.3	8.2	8.5	7.5
Iraq	2.0	2.7	3.2	3.1	3.5	3.0	3.4	3.9	3.5	4.3	7.2
Kazakhstan	4.1	4.2	4.3	4.5	5.0	5.1	5.4	4.8	5.4	6.1	6.2
Azerbaijan	1.2	2.1	2.7	3.0	3.8	4.1	4.6	3.6	4.5	4.2	4.9
Algeria	3.2	2.3	1.7	2.4	1.5	1.2	2.4	2.7	3.7	4.0	4.0
Angola	1.1	0.7	1.9	2.4	2.5	1.5	2.0	1.9	2.8	3.2	4.0
Others	29.5	30.9	32.0	30.8	28.4	30.5	24.4	24.5	21.1	19.8	18.9
						Natural gas					
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Russia	34.6	33.0	32.1	31.2	27.6	26.8	28.3	27.8	32.4	29.7	29.4
Norway	20.2	21.7	23.3	23.7	24.5	22.9	22.1	24.9	23.6	25.0	25.9
Algeria	15.0	13.6	12.7	12.3	11.9	11.7	10.7	10.8	10.1	9.7	8.8
Qatar	1.3	1.5	1.8	1.9	4.6	8.1	9.6	6.8	5.2	5.5	6.1
Libya	1.4	2.1	2.5	2.4	2.4	2.2	0.6	1.5	1.4	1.7	1.7
Nigeria	2.9	3.6	3.8	3.3	2.0	3.4	3.6	2.8	1.4	1.2	1.6
Trinidad and Tobago	0.2	1.0	0.7	1.4	1.9	1.2	0.9	0.7	0.6	0.7	0.5
Peru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.4	0.3	0.2
Turkey	0.0	0.0	0.0	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.2
Others	24.5	23.5	23.1	23.5	24.8	23.5	24.2	23.9	24.8	26.0	25.5

Table 2. Sources of the EU-28's primary energy imports (in %). Source: Eurostat (2017)[72].

ergy at affordable prices (augmenting energy security)[73], thereby aligning both the climate and energy objectives.

Furthermore, the EU with a climate narrative focused on directional leadership (i.e. by setting an example) can demonstrate, for the moment, the success of its decision to opt for a lower-emissions development model. Since 1990, the GDP of the EU-28 has risen by 53% whereas greenhouse-gas emissions have fallen by 23%. This decoupling between emissions and illustrates of the opportunities brought about by the energy transition. However, the efforts required to comply with future climate commitments are going to require, amongst other things, significant short-term investments, which could make this compliance more difficult.

Concerning its institutional framework, the European Commission has a stable body of civil servants that generally support the development and implementation of ambitious climate commitments. What is more, in the past the Parliament and the most ambitious Member States have fostered increasingly demanding climate policies to be adopted. Thus, the Member States with a more highly developed renewable energy sector and without fossil resources, such as Germa-

[72] EUROSTAT (2017), Energy Production and Imports. Available at: http://ec.europa.eu/eurostat/statistics-explained/index.php/Energy_production_and_imports. (latest access 31 November 2017).

[73] Averchenkova, Alina *et al.* (2016), Climate policy in China, the European Union and the United States: main drivers and prospects for the future In-depth country analyses. Policy paper. Grantham Research Institute on Climate Change and the Environment. Available at: http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2016/11/Averchenkova-et-al_2106-in-depth-country-analysis-v2.pdf (latest access 14 July 2017).

ny[74], have been more inclined to support ambitious climate policies, whereas the Member States with abundant fossil resources, like Poland[75], have been less ambitious, hindering the approval of climate measures and policies and negotiating exemptions to their obligations (for example, State aid for coal). As Poland is the fifth greatest emitter of greenhouse-effect gases, the way it develops its climate policy also significantly affects the emission reduction rate of the rest of the EU. This fact becomes even clearer if one takes into account that after the Brexit, Europe will no longer be able to rely on a Member State that is ambitious in climate matters, and Poland will be given a greater say in future climate decisions. So, there is a strong need for a more distributed leadership within the EU-27, if Europe wants to remain a leader as regards climate ambition.

Although it is true that European commitments will not be sufficient to comply with the target of stabilising the long-term temperatures in an equitable manner, the EU-28 has a legislative package and a route towards reducing emissions by 2050. Furthermore, the reduction in the relative weight of European emissions in the global emission count, and the aforementioned internal divisions regarding the future of the energy transition, will probably make it difficult for Europe to continue to occupy the position of climate leader.

Finally, analysing the concern over climate change and the demand for climate action from European citizens, the most recent Eurobarometer, published in 2017[76], indicates that there is significant concern over this subject. Although there are considerable differences between countries, climate change does seem to be considered the world's third most serious problem after international terrorism, poverty, famine and the lack of access to drinking water. Yet if we analyse priorities in foreign policy matters, we find that for Germany (Figure 7), France (Figure 8) and Spain (Figure 9) the fight against climate change comes second only to the fight against international terrorism[77]. For the United Kingdom or Italy, climate change comes fifth and fourth, respectively, as a foreign policy priority. European citizens are demanding climate action on both a domestic and an international level.

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[74] A statement that is nuanced by the rise in the use of German coal after the scheduled closure of the nuclear power plants and the fact that Germany has stated that it is not going to achieve its emission-reducing targets by 2020.

[75] EUROPEAN PARLIAMENT (2017), Climate and energy policies in Poland. Policy Department A. Economic and Scientific Policy. Available at: http://www.europarl.europa.eu/RegData/etudes/BRIE/2017/607335/IPOL_BRI(2017)607335_EN.pdf (latest access 1 December 2017).

[76] European Commission (2017), Special Eurobarometer 459. Available at: https://ec.europa.eu/clima/sites/clima/files/support/docs/report_2017_en.pdf (latest access 30 November 2017).

[77] Elcano (2016), Barometer of the Real Instituto Elcano Barometer. 38th Wave. Available at: http://www.realinstitutoelcano.org/wps/wcm/connect/3cac8f2b-85f3-441d-9acc-5be7c3a696f5/38BRIE_Informe_December2016.pdf?MOD=AJPERES&CACHEID=3cac8f2b-85f3-441d-9acc-5be7c3a696f5 (latest access 2 December 2017); Elcano (2017), Barometer of the image of Spain. 7th Wave. Available at: http://www.realinstitutoelcano.org/wps/wcm/connect/7cb3a69f-1f93-4dd3-b0dd-0b7c0d-7d6672/7BIE_Informe_mayo2017.pdf?MOD=AJPERES&CACHEID=7cb3a69f-1f93-4dd3-b0dd-0b7c0d7d6672 (latest access 6 December 2017).

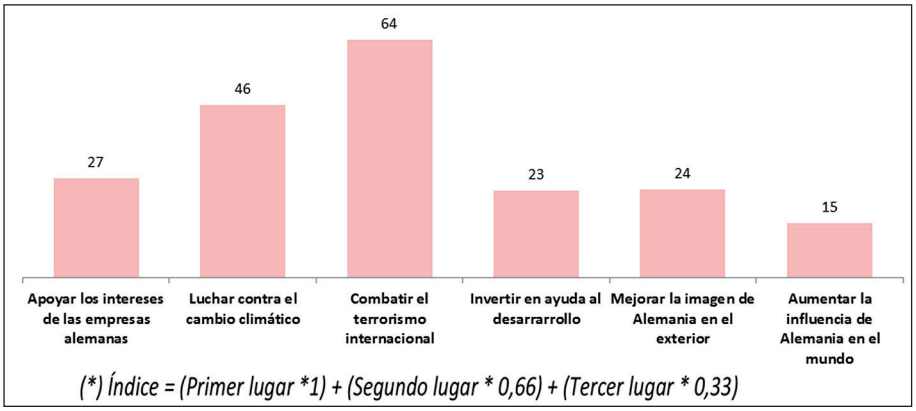


Figure 7. Priorities of foreign policy in Germany. Source: Real Instituto Elcano (2017).

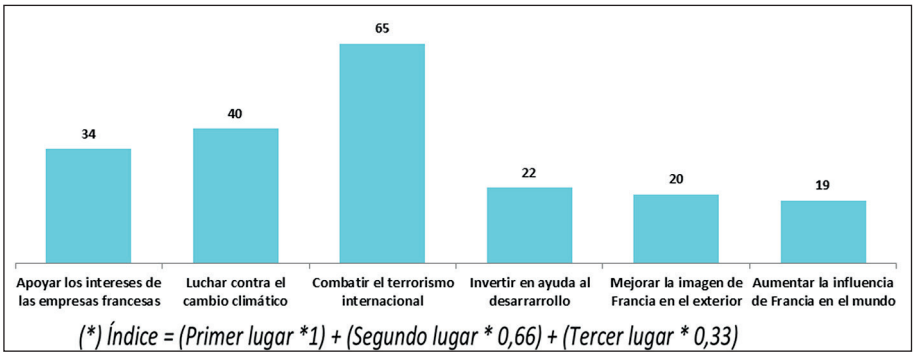


Figure 8. Priorities of foreign policy in France. Source: Real Instituto Elcano (2017).

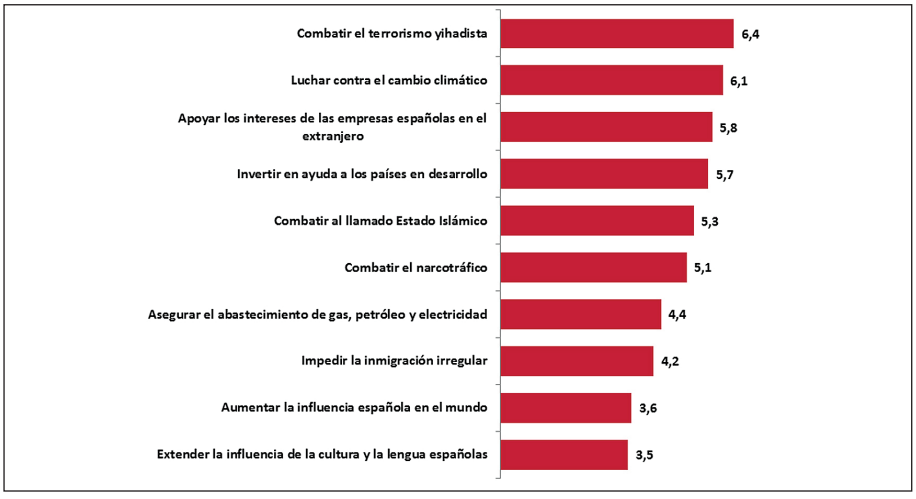
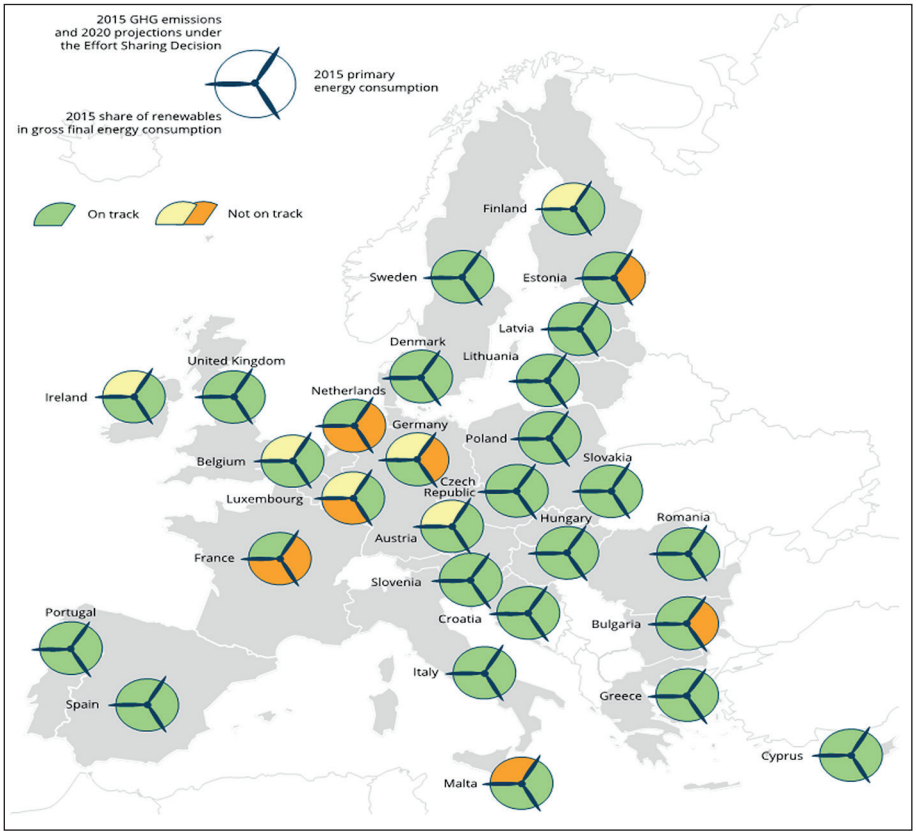


Figure 9. Priorities of Spanish foreign policy. (Values from 0 to 10. Weighted Index). Source: Real Instituto Elcano (2016).

According to 2020 Climate & Energy Package, in the short term Europe must cut down its greenhouse-gas emissions by 20%, increase the consumption of renewable energies to 20% and improve energy efficiency by 20% (i.e., reduce expected energy consumption in 2020 by 20%)[78]. The progress made by member states in fulfilling the emission reduction targets varies greatly (see Map 1 below)[79], and although Europe is expected to more than comply with its emission reduction commitments, the 2017 Report issued by the European Environment Agency indicates that insufficient progress has been made in energy efficiency to comply with this objective.



Map 1. Compliance with the 2020 Climate & Energy Package[80] goals. Source: EEA (2017: 11).

78 https://ec.europa.eu/energy/en/topics/energy-efficiency (latest access 5 January 2018).

79 EEA (2017), Trends and projections in Europe 2017 Tracking progress towards Europe's climate and energy targets. Report 7/17. Available at: https://www.eea.europa.eu/publications/trends-and-projections-in-europe-2017 (latest access 15 December 2017).

80 In Map 1, the expression 'on track' means that the country is «on course» for fulfilling the established climate targets.

In 2014, Europe established in its 2030 Climate & Energy Framework[81], the goal of reducing greenhouse-effect gases by 40%[82] when compared to the 1990 levels, increase the consumption of energy coming from renewable sources by 27% and increase energy efficiency by 27%. In November 2017, the Industry and Energy Committee agreed to cut down on energy consumption by 40% in 2030 and to increase the consumption of energy coming from renewable sources to 35% by 2030. According to this proposal, 12% of the energy consumed for the transport sector would have to come from renewable sources. In January 2018, the European Parliament will vote on this proposal to augment the ambition of EU in climate and energy matters[83]. It must be stressed that for the moment EU actions are not consistent with fulfilment of the 2030 targets.

A new energy governance system was also announced in 2014 that was to materialise in 2016 with the publication of the clean energy package for all Europeans, known as the Winter Package. This Package is based on five pillars: diversification of the energy sources, integrating the European energy market[84], increasing energy efficiency, energy transition and augmenting support for innovation and low-carbon technologies.

Europe also has a roadmap towards a competitive low-carbon economy by 2050[85]. The aim of this roadmap is to reduce greenhouse-gas emissions by between 80% and 95% when compared to the 1990 emissions. Furthermore, intermediate targets are set for reducing emissions. In 2030 the EU will have to cut down its emissions by 40% when compared to the 1990 emissions, a goal that has come to form part of the first European NDC. In 2040, emission reductions must be 60% of the emission values for 1990. According to this roadmap all sectors have to sharply reduce their emissions, and the electricity sector has to be virtually decarbonised.

The EU also has an energy roadmap for 2050[86], which shares objectives with the aforementioned roadmap for decarbonisation by 2050. It states that the coordinated decarbonisation of the European energy system is not only technically viable but also economically feasible. It is stressed that an efficient use of re-

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81 http://europa.eu/rapid/press-release_IP-14-54_en.htm (latest access 6 December 2017).

82 The sectors that operate in the European emissions trading system would reduce their emissions by 43% whereas the diffuse sectors (transport, commercial and residential sectors) would do so by 30% by 2030, when compared to their 1990 emission levels.

83 EUROPEAN PARLIAMENT (2017b), Cleaner energy: new binding targets for energy efficiency and use of renewables. Available at: http://www.europarl.europa.eu/news/en/press-room/20171128IPR89009/cleaner-energy-new-binding-targets-for-energy-efficiency-and-use-of-renewables (latest access 6 December 2017).

84 This integration involves encouraging the free circulation of energy in Europe, removing technical and regulatory barriers, to achieve greater competition, lower prices and developing the EU's renewable potential.

85 EUROPEAN COMMISSION (2011), Roadmap towards a competitive low-carbon economy by 2050. Available at: http://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=CELEX:52011DC0112&from=EN (latest access 6 December 2017).

86 EUROPEAN COMMISSION (2011), Energy Roadmap 2050. Available at: http://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=CELEX:52011DC0885&from=EN (latest access 6 December 2017).

sources and an increase in renewable energies is essential. Early investment on low-emission infrastructures to replace existing energy infrastructures is encouraged. It is also clearly stressed that delays in making these investments will multiply the cost of replacement.

Finally, with respect to the EU climate policy instruments, reference is made to the EU Emissions Trading System (EU ETS). At present, the ETS covers approximately 45% of EU greenhouse-gas emissions in sectors regulated by Directive 2003/87/EC. Since it started out at the pilot phase between 2005 and 2007, the EU Emissions Trading Scheme has suffered from a structural surplus that has led to reforms being made. Two instruments have been devised to limit an excessive supply that prevents the price of CO_2 from giving a clear sign for emission reduction: *backloading*, which involves temporarily withdrawing the emission permits, and the *Market Stability Reserve*, which establishes the injection or the withdrawal of permits to limit the supply surplus. Furthermore, the number of emission permits (the cap) will be gradually reduced in a linear way between 2021 and 2030 by 2.2% a year. In the diffuse sectors (transport, buildings, agriculture and waste sector), Effort Sharing Regulations are being negotiated. The ultimate aim is to comply with the commitment to reduce emissions by 30% by 2030.

International Commitments

The EU has ratified not only the UNFCCC but also Kyoto Protocol and the Paris Agreement. The EU's historical leadership in the area of international climate negotiations is based, amongst other matters, on the support and encouragement it has given to the negotiation process over the past 25 years. In the UNFCCC, Europe helped to increase ambition. In the Kyoto Protocol it adopted the most ambitious emission-reduction commitment and enhanced the negotiations and the coming into effect of the Kyoto Protocol after the announcement that the USA would not ratify the Protocol. Despite the diplomatic fiasco in Copenhagen, the EU was a key actor in the development of the Paris Agreement and in its coming into effect, because it was the ratification by the EU that eventually meant that the conditions for the entry into force of the Paris Agreement were fulfilled.

The EU is a reliable climate partner, which mediates between the Parties and encourages the management of a global public good, like a stable climate. Although European preferences for the development of the key features of the international climate architecture have not always been included in the climate agreements[87], the EU has played a major mediation role in the current global climate framework.

It can be said that the commitments taken on by the EU are among the most ambitious, albeit being sufficient to comply with our aim of stabilising the mean global temperature increase to less than 2ºC when compared with the Pre-In-

[87] The preferences of the USA or Japan for a system of voluntary reviews and commitments ended up by being accepted to the detriment of the approach preferred by Europe regarding the legally binding objectives and dates.

dustrial Era,. The above-mentioned commitment to jointly reduce emissions by 40% by 2030 is reflected in the European NDC. A commitment that will have to be reviewed and increased in order to meet the goals of the Paris Agreement.

India

India is currently the fourth greatest emitter of greenhouse gases after China, USA and the EU. In the past, the country has been responsible for 3% of the cumulative emissions. It must also be pointed out that nearly a quarter of the Indian population lives below the poverty line, which is important when it comes to analysing India's climate actions, given that economic development is one of the country's main priorities.

India's energy matrix is mainly fossil, 58% of its energy consumption coming from coal, 28% from oil, 7% from gas, 4% from hydroelectric power, 2% from other renewable sources and 1% from nuclear power in 2015[88]. India is also highly dependent upon importing fossil fuels from abroad. It is the second greatest producer and second greatest importer of coal in the world. India is also the third highest importer of oil, after the USA and China.

Moreover, India is the fifth biggest producer of electricity coming from renewable sources[89]. The country is among the top 10 producers of hydraulic power (being ranked seventh in TWh installed with 3.5% of the world production. It is also seventh in net installed capacity, with 40GW, and eighth in terms of hydraulic energy contribution to its electricity production, 10% thereof). India is likewise one of the world's leaders in wind power production. It is ranked fifth as a producer in TWh with 5.1% of the world total, and fourth in terms of net installed power with 25.1 GW and tenth in the world rankings for the percentage of wind energy in its electricity matrix. Also worth mentioning is its electricity production coming from photovoltaic energy. In 2015, it was the tenth largest producer with 2.3% of the TWh produced in the world. India is ranked eighth in the world with 5.1 GW net installed capacity coming from photovoltaic energy. Furthermore, the country comes tenth with respect to the penetration of photovoltaic solar energy in its energy matrix, with a value of 0.4%[90].

Therefore, India's climate policy is conditioned by a growing energy demand, dependence on coal and oil from abroad and its objective to reduce energy poverty.

Climate action in India

According to Bang, Underdal and Andersen (2015), some of India's main challenges in climate change are: increasing awareness of the expected impacts

[88] BP (2017), BP Energy Outlook Country and Regional Insights – India. Available at: https://www.bp.com/content/dam/bp/pdf/energy-economics/energy-outlook-2017/bp-energy-outlook-2017-country-insight-india.pdf (latest access 26 December 2017).

[89] INTERNATIONAL ENERGY AGENCY (2017b), Key world energy statistics. Paris: OECD.

[90] *Ibid*.

of climate change, especially at a local level, augmenting the availability of resources for adapting to those impacts and guaranteeing that the climate policies are compatible with economic development in a country where 24% of the inhabitants live below the poverty line.

It must be mentioned that on a general level the impacts of climate change can be summarized in an increase in the variability of monsoons, which can cause considerable losses (up to 40%) in agricultural production (*Ibid.*), variations to the Himalayan ecosystems affecting water availability, impacts also on health, derived amongst other causes from extreme weather events and from the air pollution associated with greenhouse-gas emissions.

Thus, India's domestic climate policy is basically focused on adaptation aspects. However, a determined effort is indeed being made in the field of renewable energies, as part of the country's climate action. Furthermore, the concern for nature that is imbued in the Indian culture has led to policies to protect woodland and biodiversity that fulfil the twofold function of helping to reduce emissions and adapt to the impacts of climate change.

Article 21 of the Indian Constitution establishes the basic right to a «clean, decent and healthy» environment. India has three climate laws, eight climate policy measures and one case of climate litigation[91], now closed. The 2008 National Action Plan on Climate Change is the framework legislation that provides for both the mitigation actions and the adaptation actions in India[92]. This Plan is structured into eight missions, including: objectives associated with the development of solar energy (at present, this means having a solar capacity of 100GW installed by 2022), protecting biodiversity, habitats and forests, conserving the Himalayan ecosystem and preventing the thawing of its glaciers, increasing resilience in the agricultural sector to encourage food security, and achieving a 20% increase in water use efficiency to combat the effects of water shortage arising from climate change[93].

Some of the most outstanding climate laws are the Finance Bill (2010-11) and the Clean Energy Cess Rules (2010) which finance up to 40% of the cost of innovative projects for developing clean energies. In 2003, the Electricity Act was passed, with a view to developing the electrical sector, stressing efficiency measures and encouraging environmentally-friendly policies. That Act also contained taxation measures for optimising the use of a variety of energy sources.

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91 http://www.lse.ac.uk/GranthamInstitute/research-theme/governance-and-legislation/ (latest access 27 December 2017.)

92 The rest of India's policies include: the 2012 National Electricity Generation Plan, the 2009 National Policy on Biofuels, the Energy Conservation Code for the Construction Section in 2007, the 2006 Comprehensive Energy Policy, the 2006 Tariff Policy to encourage renewable energy, The 2005 National Electricity Policy to enhance the use of unconventional energies and the 2003 National Policy on Auto Fuels to enforce the air quality standards and make them compatible with Euro III and Euro IV Standards. For further details see http://www.lse.ac.uk/GranthamInstitute/country-profiles/india/#executive (latest access 27 December 2017).

93 PANDVE, Harshal T. (2009), India's National Action Plan on Climate Change. *Indian J Occup Environ Med.* 13(1): 17–19.

The Energy Conservation Act was also passed in 2001, whereby energy-saving certificates were granted to consumers whose consumption level was below the agreed standards. Consumers that used more energy than stipulated could purchase energy-saving certificates to comply with the standard. The aim of this Act was to save 10,000 MW until 2012.

In August 2017[94], it must be pointed out that Indian citizens regarded climate change as the second biggest threat to national security after the self-named Islamic State. Nevertheless, it must be remembered that according to Bang, Underdal & Andersen (2015), there are major differences between the degree of concern shown by the inhabitants who live in rural areas and those who live in urban zones. In built-up areas local pollution problems stand out as the main environmental worry. Although there is a close relationship between air pollution and greenhouse-gas emissions, the population did not link the two problems in 2015. In any case, there is no significant climate change denial movement. On the other hand, in rural zones, the farming sector's need for a predictable climate that facilitates people´s subsistence, the greater experience with extreme climate events and the recurrent problem of farmers committing suicide, have pushed climate change into political territory where adaptation is concerned.

Finally, it has to be pointed out that in foreign policy priority matters, and according to the study conducted by the Real Instituto Elcano in 2016, Indian citizens considered climate change to be the fourth priority, after combating international terrorism, improving India's image abroad and supporting the interests of Indian firms. Figure 10 below shows the priorities of India's foreign policies.

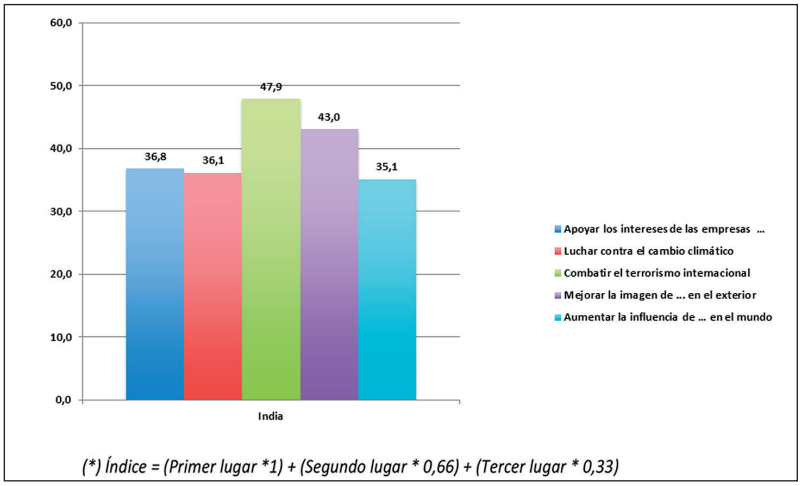

Figure 10. Objectives of foreign policy in India. Source: Real Instituto Elcano (2016).

[94] PEW (2017), Globally, People Point to ISIS and Climate Change as Leading Security Threats. Available at: http://www.pewglobal.org/2017/08/01/globally-people-point-to-isis-and-climate-change-as-leading-security-threats/ (latest access 6 November 2017).

Future climate policy in India is expected to prioritise economic development and access to energy, above all other challenges. Yet the strong commitment to renewable energies, which are becoming increasingly competitive cost-wise, a wish to reduce the energy sector's dependence on imports, the expected impacts of climate change, together with certain politicians' favourable attitude towards climate action, could lead to an increase in climate action in India.

International Climate Commitments

In 2010, after the COP15 in Copenhagen, India plegded to reduce the intensity of its greenhouse gas emissions per unit of GDP, between 20% and 25% by 2020 compared to 2005, exception made of the emissions in the agricultural sector[95]. The information available at present suggests that India will easily comply with the climate commitments it undertook for 2020.

Towards the end of January 2015, President Obama and the Indian Prime-Minister Modi agreed to work jointly in favour of an ambitious agreement in Paris, to collaborate with research into renewable energies and storage via the PACE-R Programme, gradually stop using hydrofluorcarbons (HFCs), promote financing for purchasing clean technologies, share knowledge to improve air quality and efficiency in the transport sector. They also agreed to collaborate to augment resilience to the effects of climate change[96].

Finally, in its first determined contribution on a national scale (NDC), and within the framework of the Paris Agreement, India pledged to reduce the intensity of its emissions by between 33% and 35% by 2030 when compared to its levels in 2005. India has likewise set itself the target of increasing the generation of electricity coming from sources other than fossil fuels by up to 40% and of increasing woodland cover in order to augment its absorption capacity between 2.5GtCO_2e and 3GtCO_2e. According to Climate Action Tracker, India's current objectives are not only attainable, but also among the few that are aligned with the aim of limiting the mean global temperature increase to less than 2ºC, yet there is still room for increasing its ambition. Moreover, greater ambition in its next NDC could lead India to having goals that are compatible with limiting the mean temperature increase to 1.5ºC, making this country a global climate leader.

Climate change and non-State stakeholders

The host of climate laws, policies and initiatives that are being implemented by non-state actors (subnational governments, headed by cities, the private sec-

[95] FEKETE, Hanna *et al.* (2013), Analysis of current greenhouse gas emission trends. Available at: http://climateactiontracker.org/assets/publications/publications/CAT_Trend_Report.pdf (latest access 27 December 2017).

[96] The White House (2015), Fact Sheet: U.S. and India Climate and Clean Energy Cooperation http://www.whitehouse.gov/the-press-office/2015/01/25/fact-sheet-us-and-india-climate-and-clean-energy-cooperation (latest access 27 December 2017).

tor and civil society) are of growing importance where the fight against climate change is concerned, in view of the insufficient rate at which governments are taking action to reduce emissions.

Cities, for example, consume two-thirds of the energy at a global level and emit approximately that same amount of greenhouse-gas emissions[97]. Therefore, cities are one of the key actors in the transition to a lower-emission development model. Furthermore, over two-thirds of the world GDP is concentrated in cities and more than half of the population lives in urban zones, a trend towards urbanisation that will become more marked in the future[98]. Finally, local governments have the power to legislate on a large number of activities related with transport, consumption, waste, etc. The design of compact, connected and multifunctional cities (where 70% of the demand for infrastructure investments in the world will take place in 2050) is the aim of those cities pioneer in the fight against climate change[99].

Many international initiatives have been taken that connet cities of different sizes into networks for sustainability and for climate action. Some outstanding examples include: *ICLEI,* a network of cities for sustainability; *C40,* a megacities initiative that includes over 550 million people and 25% of the world GDP, and the *Compact of Mayors*, which is an alliance of networks of cities to fight against climate change launched by the previous Secretary-General of the United Nations, Ban Ki-Moon.

It must be stressed that the importance of the commitments of non-state actors in international climate negotiations has been increasing. Since the Lima-Paris Action Agenda was launched in 2014 and the NAZCA platform was established to compile the climate actions of non-state actors, 12,459 commitments have been registered by cities, regions, companies, investors and social organisations. Cities themselves had been demanding a greater presence at international negotiations since at least the COP16 in Cancun[100]. However, the roadmap for Global Climate Action was not drawn up until 2015. One year later, the Marrakech Partnership for Global Climate Action by 2020 was established, as was the platform for 2050 to encourage long-term action from both State actors and non-state actors in the COP22 (known as *2050 Pathways Platform)*[101].

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[97] LÁZARO TOUZA, Lara. and LÓPEZ-GUNN, Elena. (2012), *Climate change policies: mitigation and adaptation at the local level. The example of the city of Madrid (Spain)* in Tortora, M. (ed.), *Sustainable Systems and Energy Management at the Regional Level: Comparative Approaches*, pages 261 – 287. Hershey: IGI-Global.

[98] STERN, Nicholas, ZENGHELIS, Dmitri & RODE, Phillip (2011), City solutions to global problems en (BURDETT & SUDJIC Eds.), *Living in the Endless City*. London: PHAIDON.

[99] THE GLOBAL COMMISSION ON THE ECONOMY AND CLIMATE (2016). The Sustainable Infrastructure Imperative. Financing for Better Growth and Development. The 2016 New Climate Economy Report. Available at: http://newclimateeconomy.report/2016/wp-content/uploads/sites/4/2014/08/NCE_2016Report.pdf (latest access 29 December 2017).

[100] VON LEHE, Art. (2011), Cities, climate and COPs. *Southeastern Environmental Law Journal*. Vol. 19 (2): 217-229.

[101] http://newsroom.unfccc.int/unfccc-newsroom/high-level-climate-champions-launch-2050-pathways-platform/ (latest access 11 December 2017).

The first yearbook on Global Climate Action (the *Yearbook on Global Climate Action* 2017[102]) was presented during the COP23. It contains most of the initiatives taken by the non-state actors. According to this Yearbook, more than one million people have undertaken to reduce their greenhouse-gas emissions by 80% by 2050. As there is not yet an internationally accepted methodology for measuring and comparing the progress made in fulfilling the non-state-actors' commitments, it is difficult to estimate the impact of those commitments. It is hoped that once the rules for implementing the Paris Agreement have been decided, advances will be made in defining the rules for measuring and comparing the actions taken by the non-state actors.

An increase in the importance of non-state initiatives in fighting climate change leads one to believe that the dialogue produced at the COP23 between the Parties of the Paris Agreement and the non-state actors will take place again at future COPs. However, it must be pointed out that if the initiatives taken by the non-state actors are to develop all their potential, it is essential for the Marrakech Partnership for Global Climate Action to be properly financed. Experts are demanding an improvement in the capacity for analysing and measuring the results of the actions, in order to verify that the non-state actors are fulfilling their commitments. Improvements should also be made to the NAZCA Platform that collects the commitments, to ensure that this platform becomes a rigorous and useful tool for monitoring progress and assessing the extent to which the goal of the Paris Agreement is being achieved.

Complementary to the analysis of the non-state actors' commitments, the importance of the individual citizen in appropriating the transition to a lower-emissions development model must be stressed. Citizens are becoming increasingly concerned about climate change. In fact, climate change is now seen as the second biggest threat to security after the self-named Islamic State. In the most recent survey conducted by Pew in August 2017[103], climate change was seen as a significant threat to the country by 61% of the approximately 42,000 respondents in 38 countries.

Yet, the emissions per person are still not alined with the target of limiting the mean temperature increase to less than 2ºC, as can be observed in Figure 11. If there is a wish to enhance climate action, helping to change citizen's behaviour, experts indicate that the individual actions that will have the greatest impact of emission reduction include: limiting the number of children, which is expected to have the most effect in the USA, Russia and Japan; living without a vehicle, with the USA, Australia and Canada (with less compact urban

[102] UNITED NATIONS (2017), Yearbook of Global Climate Action 2017. Marrakech Partnership. Bonn: The United Nations Climate Change Secretariat. Available at: http://unfccc.int/tools/GCA_Yearbook/GCA_Yearbook2017.pdf (latest access 27 December 201).

[103] Second only to the self-named Islamic State. See: http://www.pewglobal.org/2017/08/01/globally-people-point-to-isis-and-climate-change-as-leading-security-threats/ (latest access 29 December 2017).

models) holding the greatest potential savings; not taking transatlantic flights; purchasing energy from low-emission sources, a measure that would bring the greatest emission savings in Canada, Australia or the USA; purchasing more efficient vehicles, especially in the USA; and changing eating habits towards plant-based diets.

Actions with moderate impact include replacing petrol-driven vehicles with hybrids, washing clothes in cold water, separating different types of waste for recycling or drying clothes in the open air instead of using a drier. Finally, a low-impact action would consist of changing to more efficient light bulbs. See Figure 11 below.

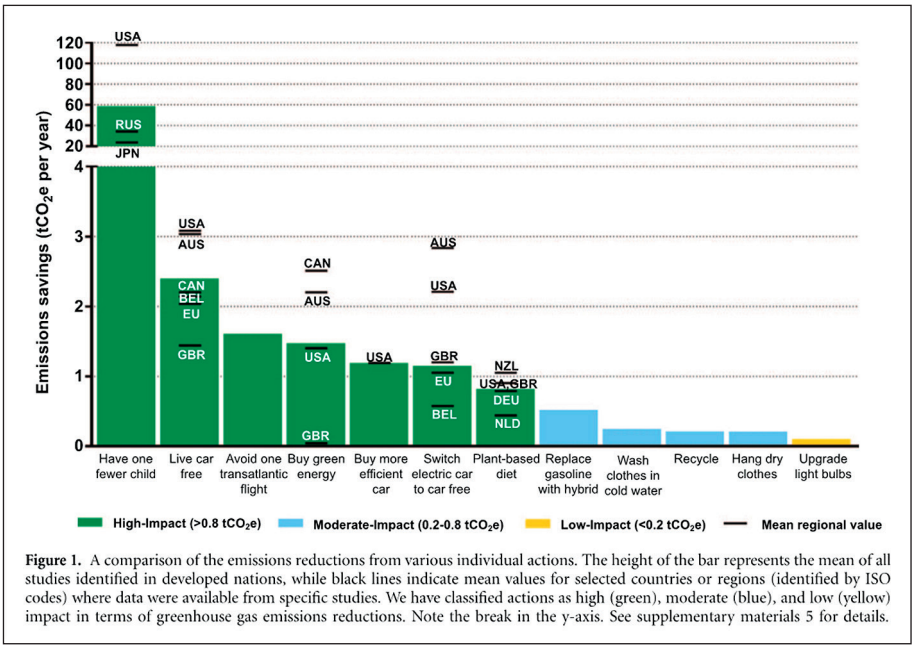


Figure 1. A comparison of the emissions reductions from various individual actions. The height of the bar represents the mean of all studies identified in developed nations, while black lines indicate mean values for selected countries or regions (identified by ISO codes) where data were available from specific studies. We have classified actions as high (green), moderate (blue), and low (yellow) impact in terms of greenhouse gas emissions reductions. Note the break in the y-axis. See supplementary materials 5 for details.

Figure 11. Emissions reduction potential. Source: Wynes & Nichols (2017: 4).

As a final reflection, it could be interesting for the forthcoming Climate Change and Energy Transition Act in Spain, to think of government initiatives that have been taken in other countries in the area of citizen mobilisation to reduce emissions. By way of example, one such initiative is the «4Es» behaviour change model (*Enable*, *Engage*, *Encourage*, *Exemplify*) developed by academics in the UK for the Government[104].

[104] HM GOVERNMENT (2005), Securing the future delivering UK sustainable development strategy. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69412/pb10589-securing-the-future-050307.pdf (latest access 29 December 2017).

It thus makes it possible to include actions such as providing information about the actions described in Figure 11, Enabling the population and the public and private institutions. Engaging would mean carrying out the co-production of actions that reduce emissions together with residents' associations, non-governmental organisations, etc. Encouraging would involve devising awareness campaigns for diffusion in the media, or the use of climate champions to create appealing narratives about emission reductions, that highlight the potential of saving, improving human health and increasing welfare.

Exemplifying could include such measures as the Administration taking the lead by setting an example, including measures like purchasing and investing in low-emission assets and applying the climate policy measures in all ministries, councils and departments. In order to encourage change, governments can use all the environmental regulation tools where economic instruments are concerned. These measures could include a green fiscal reform that reduces taxes on the labour force and increases them on high-emission activities, or gradually removing the subsidies for fossil fuels, while establishing measures for protecting the most vulnerable social groups.

Conclusions

Climate science demonstrates that the mean temperature increase that we can expect, mainly as a result of the burning of fossil fuels since the Industrial Revolution, is sufficient to trigger a fast change in the climate system. If a stable climate allows life on Earth as we know it, climate change will require a swift adaptation to changing climate conditions, with the implications that such an adaptation involves, *inter alia,* for national security.

Furthermore, to limit the future effects of climate change, we have to embark on an unprecedented reduction of greenhouse-gas emissions. This reduction means changing the current production, distribution and consumption models. We are facing the 21st Century´s industrial transition, a transition that will have its winners and losers.

The business opportunities arising from a low-carbon economy revolve around reducing the cost of renewable energies, the regulatory changes that internalise the effects of greenhouse-gas emissions, a new wave of innovation based on sustainability, a growing demand for lower-emission products and services and an access to financing that takes into account the exposure of companies to climate risk.

The barriers to climate action include, amongst others, unforeseen changes to regulation, the penalising of climate investment as a result of the restrictive economic policies implemented after the 2008 economic crisis, the interests of sectors that are intensive in greenhouse-gas emissions and a demand for climate action from individuals that is contrary to their own consumption decisions.

The international community has responded to the climate change challenge with the entry into force of the Paris Agreement. An agreement that should be understood as an economic agreement and a new social contract with present and future generations. An agreement that is based upon voluntary and heterogeneous actions to be taken by both developed countries and developing countries. An agreement that is almost universal in coverage, but which is insufficient (at present) to prevent a dangerous interference with the climate system.

Therefore, an increase in ambition and action by State actors, non-State actors and local governments is essential if the mean temperature increases are to be limited to less than 2ºC when compared to the Pre-Industrial Era.

If national governments ratchet up ambition countries' climate actions will be evaluated within the framework of the Paris Agreement. The first examination will take place in 2018. China and the EU will show that they are on track to meeting their climate pledges. There is therefore scope for increasing the level of of ambition in time for the next round of commitments, which have to be presented in 2020. However, the USA is unlikely to fulfil its pledge at a federal level because of Trump's climate policy. On the other hand US civil society and some local governments have shown that they are determined to comply with the Paris Agreement´s mandate.

The actions taken by companies and citizens, of growing importance in recent years, will be essential to prevent a dangerous interference with the climate system. Distributed climate leadership, with long-term objectives and laws, will be of essence in the construction of a low carbon economic and social development model model that allows humans to inhabit a liveable planet.

Bibliography

— ALTHOR, G., WATSON, James and FULLER, Richard (2016), Global mismatch between greenhouse gas emissions and the burden of climate change. *Nature. Scientific Reports.* Available at: https://www.nature.com/articles/srep20281.pdf (latest access 5 November 2017).

— ARENAS HIDALGO, Nuria (2015), Las Poblaciones Desplazadas de su Hábitat Natural por Efecto del Cambio Climático. El Traslado Planificado de las Comunidades del Ártico como Caso de Estudio. Anuario de los Cursos de Derechos Humanos de San Sebastián. Vol. 15: 203- 232.

— ARUN, S. (2015), India questions OECD claim on climate finance. Available at : http://www.thehindu.com/news/national/oecd-report-on-climate-change-fund-flows-flawed-finance-ministry/article7930104.ece (latest access 13 December 2017).

— Averchenkova, A., S. Bassi, K. Benes, F. Green, A. Lagarde, I. Neuweg and G. Zachmann (2016), Climate policy in China, the European Union and the United States: main drivers and prospects for the future in-depth country analyses. Policy paper. Grantham Research Institute on Climate Change and

the Environment. Available at: http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2016/11/Averchenkova-et-al_2106-in-depth-country-analysis-v2.pdf (latest access 14 July 2017).

— BANG, Guri, UNDERDAL, Arild and ANDERSEN, Steinar (Eds.) (2015), The Domestic Politics of Global Climate Change. Key actors in International Climate Cooperation. Cheltenham: Edward Elgar.

— BARRETT, Scott (2005), Environment and Statecraft. Oxford, Oxford University Press.

— CAMPIGLIO, Emanuele (2014), Beyond carbon pricing: The role of banking and monetary policy in financing the transition to a low-carbon economy. June 2014 Centre for Climate Change Economics and Policy, Working Paper No. 181. Grantham Research Institute on Climate Change and the Environment, Working Paper No. 160. Available at: http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2014/06/Working-Paper-160-Campiglio-20142.pdf (latest access 6 November 2017).

— EUROPEAN COMMISSION (2011), Energy Roadmap for 2050. Available at: http://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=CELEX:52011DC0885&from=EN (latest access 6 December 2017).

— DOWNS, Anthony (1972), Up and Down with Ecology-the Issue-Attention Cycle, *Public Interest*, 28: 38-50

— DUNLAP, Riley and McCRIGHT, Aron M. (2008), A Widening Gap: Republican and Democratic Views on Climate Change. *Environment: Science and Policy for Sustainable Development*. 50(5): 26-35.

— ELCANO (2017), Barómetro de la Imagen de España. 7ª oleada. Available at: http://www.realinstitutoelcano.org/wps/wcm/connect/7cb3a69f-1f93-4dd3-b0dd-0b7c0d7d6672/7BIE_Informe_mayo2017.pdf?MOD=AJPERES&CACHEID=7cb3a69f-1f93-4dd3-b0dd-0b7c0d7d6672 (latest access 2 December 2017).

— ELCANO (2016), Barómetro del Real Instituto Elcano. 38ª oleada. Available online at: http://www.realinstitutoelcano.org/wps/wcm/connect/3cac8f2b-85f3-441d-9acc-5be7c3a696f5/38BRIE_Informe_Diciembre 2016.pdf?MOD=AJPERES&CACHEID=3cac8f2b-85f3-441d-9acc-5be7c3a696f5 (latest access 6 December 2017).

— EPA (2017), Causes of Climate Change. Available at: https://19januaryy2017snapshot.epa.gov/sites/production/files/2016-07/models-observed-human-natural.png (latest access 5 January 2018).

— ESCRIBANO, Gonzalo (2014), *La seguridad energética española en un escenario en transición, in Energía y Geoestrategia 2014. Cuaderno de Estrategia 166. Instituto Español de Estudios Estratégicos*. Available at: http://www.ieee.es/Galerias/fichero/cuadernos/CE_166.pdf (latest access 14 July 2017).

— EUROPEAN COMMISSION (2017a), Kyoto 1st Commitment Period. Available at: https://ec.europa.eu/clima/policies/strategies/progress/kyoto_1_en (latest access 13 December 2017).

— EUROPEAN COMMISSION (2017b), Special Eurobarometer 459. Available at: https://ec.europa.eu/clima/sites/clima/files/support/docs/report_2017_en.pdf (latest access 30 November 2017).

— EEA (2017), Trends and projections in Europe 2017 Tracking progress towards Europe's climate and energy targets. Report 7/17. Available at: https://www.eea.europa.eu/publications/trends-and-projections-in-europe-2017 (latest access 15 December 2017).

— EUROPEAN PARLIAMENT (2017), Climate and energy policies in Poland. Policy Department A. Economic and Scientific Policy. Available at: http://www.europarl.europa.eu/RegData/etudes/BRIE/2017/607335/IPOL_BRI(2017)607335_EN.pdf (latest access 1 December 2017).

— EUROPEAN PARLIAMENT (2017b), Cleaner energy: new binding targets for energy efficiency and use of renewables. Available at: http://www.europarl.europa.eu/news/en/press-room/20171128IPR89009/cleaner-energy-new-binding-targets-for-energy-efficiency-and-use-of-renewables (latest access 6 December 2017).

— EUROSTAT (2017), Energy Production and Imports. Available at: http://ec.europa.eu/eurostat/statistics-explained/index.php/Energy_production_and_imports (latest access 31 November 2017).

— FINANCIAL STABILITY BOARD (2017), Recommendations of the Task Force on Climate-related Financial Disclosures. Final report. Available at: https://www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-TCFD-Report-062817.pdf (latest access 6 November 2017).

— FRIEDERICH, Johannes, GE, MENGPIN and DAMASSA, Thomas (2015), Infographic: What Do Your Country's Emissions Look Like? World Resources Institute. Available at: http://www.wri.org/blog/2015/06/infographic-what-do-your-countrys-emissions-look (latest access 29 October 2017).

— GREEN, Fergus and STERN, Nicholas (2016), China's changing economy: implications for its carbon dioxide emissions. *Climate Policy*. Doi: http://dx.doi.org/10.1080/14693062.2016.1156515

— GUPTA, Joyeeta (2010), A history of international climate change policy. *WIREs Clim Change.* 1: 636–653.

— HENRY, Laura A. and MCINTOSH SUNDSTROM, Lisa (2005) Russia and the Kyoto Protocol: Seeking an Alignment of Interests and Image. *Global Environmental Politics* 7: 47-69.

— HM GOVERNMENT (2005), Securing the future delivering UK sustainable development strategy. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69412/pb10589-securing-the-future-050307.pdf (latest access 29 December 2017).

— HOPE, Chris and NEWBERRY, David (2007), Calculating the Social Cost of Carbon Available at: http://citeseerx.ist.psu.edu/viewdoc/download?-doi=10.1.1.320.6580&rep=rep1&type=pdf (latest access 12 November 2017).

— https://ec.europa.eu/energy/en/topics/energy-efficiency (latest access 5 January 2018).
— http://ec.europa.eu/environment/eussd/smgp/facts_and_figures_en.htm (latest access 6 November 2017).
— http://newsroom.unfccc.int/unfccc-newsroom/high-level-climate-champions-launch-2050-pathways-platform/ (latest access 11 December 2017).
— http://unfccc.int/kyoto_protocol/doha_amendment/items/7362.php (latest access 13 December 2017).
— http://www.lse.ac.uk/GranthamInstitute/countries/ (latest access 14 December 2017).
— http://www.lse.ac.uk/GranthamInstitute/research-theme/governance-and-legislation/ (latest access 27 December 2017.)
— https://www.theguardian.com/environment/2017/dec/11/macron-awards-grants-to-us-scientists-to-move-to-france-in-defiance-of-trump?CMP=share_btn_tw (latest access 15 December 2017).
— INTERNATIONAL ENERGY AGENCY (2017a), Coal Information: overview. Paris: OECD.
— INTERNATIONAL ENERGY AGENCY (2017b), Key world energy statistics. Paris: OECD.
— INTERNATIONAL ENERGY AGENCY (2015a), Energy and Climate change. Paris: OECD. Available at: https://www.iea.org/publications/freepublications/publication/WEO2015SpecialReportonEnergyandClimateChange.pdf (latest access 2 November 2017).
— INTERNATIONAL ENERGY AGENCY (2015b), India Energy Outlook. World Energy Outlook Special Report. Paris: OECD.
— IPCC (2014a), Climate change 2014. Summary Report. Available at: http://ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_FINAL_full_es.pdf (latest access 5 November 2017).
— IPCC (2014b), Annex II: Glossary [Mach, K.J., S. Planton and C. von Stechow (eds.)]. In: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, pages: 117-130. Available at: https://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_Glossary.pdf (latest access 9th November 2017).
— IPCC (2014c), Chapter 10. WGII. Key Economic Sectors and Services. Available on-line at: http://www.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-Chap10_FINAL.pdf (latest access 20 September 2017).
— IRENA (2016), The Power to Change: Solar and wind cost reduction potential to 2025. Available at http://www.irena.org/publications/2016/Jun/The-Power-to-Change-Solar-and-Wind-Cost-Reduction-Potential-to-2025 (latest access 6 November 2017).

— JORDAN, Andrew. *et al.* (2010), *Climate Change Policy in the European Union. Confronting the Dilemmas of Mitigation and Adaptation.* Cambridge: Cambridge University Press.

— JORDAN, Andrew, WURZEL, Rüdiger and ZITO, Anthony (2005). 'The Rise of 'New' Policy Instruments in Comparative Perspective: Has Governance Eclipsed Government?' *Political Studies,* 53: 477-496.

— KEMP, Luke (2017), US-proofing the Paris Climate Agreement. *Climate Policy*. 17:1, 86-101, DOI: 10.1080/14693062.2016.1176007.

— KOOIMAN, Jan (2003), *Governing as Governance.* London: Sage.

— LÁZARO, Lara (shortly to be published), Governing the geopolitics of climate action after the Paris Agreement. In CONSIDINE, Jennifer (Ed.), *Handbook of Energy Politics*. Cheltenham: Edward Elgar.

— LÁZARO TOUZA, Lara (2017), Climate finance: definition, integration, alignment, scaling and disclosure imperatives. Real Instituto Elcano. Available at: https://blog.realinstitutoelcano.org/en/climate-finance-definition-integration-aligment-scaling-disclosure-imperatives/

— LÁZARO TOUZA, Lara and del RÍO, Pablo. (2015), 'Transición energética para un clima estable'. *Política Exterior.* November-December. No. 168: 138-148.

— LÁZARO TOUZA, Lara. and LÓPEZ-GUNN, Elena. (2012), *Climate change policies: mitigation and adaptation at the local level. The example of the city of Madrid (Spain)* in Tortora, M. (ed.), *Sustainable Systems and Energy Management at the Regional Level: Comparative Approaches*, pages: 261 – 287. Hershey: IGI-Global.

— LENTON, Timothy *et al.* (2008), Tipping elements in the Earth's climate system. *PNAS.* vol. 105. Num. 6 1786–1793.

— MARCU, Andrei (2016), Carbon Market Provisions in the Paris Agreement (Article 6). CEPS. Available at https://www.ceps.eu/system/files/SR%20No%20128%20ACM%20Post%20COP21%20Analysis%20of%20Article%206.pdf (latest access 13 December 2017).

— UNITED NATIONS (2017), Yearbook of Global Climate Action 2017. Marrakech Partnership. Bonn: The United Nations Climate Change Secretariat. Available at: http://unfccc.int/tools/GCA_Yearbook/GCA_Yearbook2017.pdf (latest access 27 December 2017).

— UNITED NATIONS (2015), Paris Agreement. Available at: http://unfccc.int/files/essential_background/convention/application/pdf/spanish_paris_agreement.pdf (latest access 13 December 2017).

— UNITED NATIONS (1998), Kyoto Protocol of the United Nations Framework Convention on Climate Change. Available at: http://unfccc.int/resource/docs/convkp/kpspan.pdf (latest access 9 December 2017).

— UNITED NATIONS (1992), United Nations Framework Convention on Climate Change. Available at: http://unfccc.int/resource/docs/convkp/convsp.pdf (latest access 13 December 2017).

— NORDHAUS, William (2013). *The Climate Casino. Risk, Uncertainty and Economics for a Warming World.* New Haven: Yale University Press.

— NORDHAUS, William (2012), Economic Policy in the Face of Severe Tail Events. *Journal of Public Economic Theory,* 14(2): pages: 197-219.

— OECD (2016), Roadmap to US 100 billion. Policy Paper. Available at: https://www.gov.uk/government/publications/climate-finance-roadmap-to-us100-billion (latest access 14 December 2017).

— PARRA PÉREZ, Águeda (2016), XIII Plan Quinquenal de China: desafíos geopolíticos para la *global governance*. IEEE. 96/2016: 1-15. Available at: http://www.ieee.es/Galerias/fichero/docs_opinion/2016/DIEEEO96-2016_PlanQuinquenal_China_AguedaParra.pdf (latest access 14 December 2017).

— PEW (2017), Globally, People Point to ISIS and Climate Change as Leading Security Threats. Available at: http://www.pewglobal.org/2017/08/01/globally-people-point-to-isis-and-climate-change-as-leading-security-threats/ (latest access 6 November 2017).

— POUSHTER, Jacob and MANEVICH, Dorothy (2017), Globally, People Point to ISIS and Climate Change as Leading Security Threats Concern about cyber-attacks, world economy also widespread. Pew Research Centre. Available at: http://www.pewglobal.org/2017/08/01/globally-people-point-to-isis-and-climate-change-as-leading-security-threats/ (latest access 14 August 2017).

— REAL INSTITUTO ELCANO (2017), Barómetro de la imagen de España. 7ª oleada. Findings for February-March 2017. Available at: http://www.real-institutoelcano.org/wps/wcm/connect/7cb3a69f-1f93-4dd3-b0dd-0b7c0d-7d6672/7BIE_Informe_mayo2017.pdf?MOD=AJPERES&CACHEID=7cb3a69f-1f93-4dd3-b0dd-0b7c0d7d6672 (latest access 5 November 2017).

— REN21 (2017), Renewables 2017 Global Status Report. Paris: REN21 Secretariat. ISBN 978-3-9818107-6-9. Available at: http://www.ren21.net/wp-content/uploads/2017/06/17-8399_GSR_2017_Full_Report_0621_Opt.pdf (latest access 1 November 2017).

— ROSA, Eugene and DIETZ, Thomas (2012), Human drivers of national greenhouse-gas emissions. *Nature Climate Change*. DOI: 10.1038/NCLIMATE1506.

— SMITH, Pete and BUSTAMANTE, Mercedes (2014), Agriculture, Forestry and other Land Use (AFOLU) in Climate Change 2014: Mitigation of Climate Change. Contribution of WGIII to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Chapter 11: 811-922. Available at: https://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_chapter11.pdf (latest access 5 November 2017).

— STERN, Nicholas (2013), The Structure of Economic Modelling of the Potential Impacts of Climate Change: Grafting Gross Underestimation of Risk onto Already Narrow Science Models. *Journal of Economic Literature.* 51(3), 838–859.

— STERN, Nicholas, ZENGHELIS, Dmitri and RODE, Phillip (2011), City solutions to global problems in (BURDETT and SUDJIC Eds.), *Living in the Endless city*. London: PHAIDON.

— THE GLOBAL COMMISSION ON THE ECONOMY AND CLIMATE (2016), The Sustainable Infrastructure Imperative. Financing for Better Growth and Development. The 2016 New Climate Economy Report. Available at: http://newclimateeconomy.report/2016/wp-content/uploads/sites/4/2014/08/NCE_2016Report.pdf (latest access 29 December 2017).

— UNEP (2017), The Emissions Gap Report 2017. Nairobi: United Nations Environment Programme (UNEP). Available at: https://wedocs.unep.org/bitstream/handle/20.500.11822/22070/EGR_2017.pdf (latest access 2 November 2017).

— US Energy Information Administration (2017), Levelized Cost and Levelized Avoided Cost of New Generation Resources in the Annual Energy Outlook 2017. Available at: https://www.eia.gov/outlooks/aeo/pdf/electricity_generation.pdf (latest access 6 November 2017).

— US ENERGY INFORMATION ADMINISTRATION (undated), What is U.S. electricity generation by energy source?. Available at: https://www.eia.gov/tools/faqs/faq.php?id=427&t=3 (latest access 1 December 2017).

— VON LEHE, Art (2011), Cities, Climate and COPs. *Southeastern Environmental Law Journal*. Vol. 19 (2): 217-229.

— Wang, Binbin *et al.* (2017), *Climate Change in the Chinese Mind. Survey Report 2017*. Beijing: China Centre for Climate Change Communication. Available at: http://i.weather.com.cn/images/cn/index/dtpsc/2017/11/07/Climate_Change_in_the_Chinese_Mind_2017_English_Version.pdf (latest access 27 December 2017).

— WEI, Ting (2012), Developed and developing world responsibilities for historical climate change and CO2 mitigation. *Proceedings of the National Academy of Science* (PNAS). Vol. 109. No. 32: 12911–12915.

— WEITZMAN, Martin (2009), On modelling and interpreting the economics of catastrophic climate change. *Review of Economics and Statistics,* 91(1): 1-19.

— WMO (2016), Statement on the State of the Global Climate in 2016. Available at: https://library.wmo.int/opac/doc_num.php?explnum_id=3414 (latest access 6 November 2017).

— WYNES, Seth and NICHOLAS, Kimberly A. (2017). The climate mitigation gap: education and government recommendations miss the most effective individual actions. Environmental Research Letters. 12: 1-9.

Chapter II

The Role of Energy in the Russian Federation's Geostrategy

José Pardo de Santayana

Abstract

The Russian annexation of Crimea and its military intervention in Ukraine have ended up by making relations between Moscow and the Western capitals even worse, bringing about a new geostrategic context that resembles a cold war situation. In response, President Putin has adopted an assertive strategy against the US and the EU that contains a major energy vector, seeking to strengthen the Russian Federation's position as a world power. By looking towards Asia, to both China and the Middle East, the Kremlin is endeavouring to reduce its energy and political dependence on the EU, while at the same time attempting to play a major role not only in reshaping global energy geopolitics, but also in a symbiosis where the limits separating the energy aspects and the purely strategic aspects are becoming increasingly blurred.

Keywords:

Energy, geopolitics, Russia, the West, China, the Middle East, India, oil, natural gas, nuclear energy.

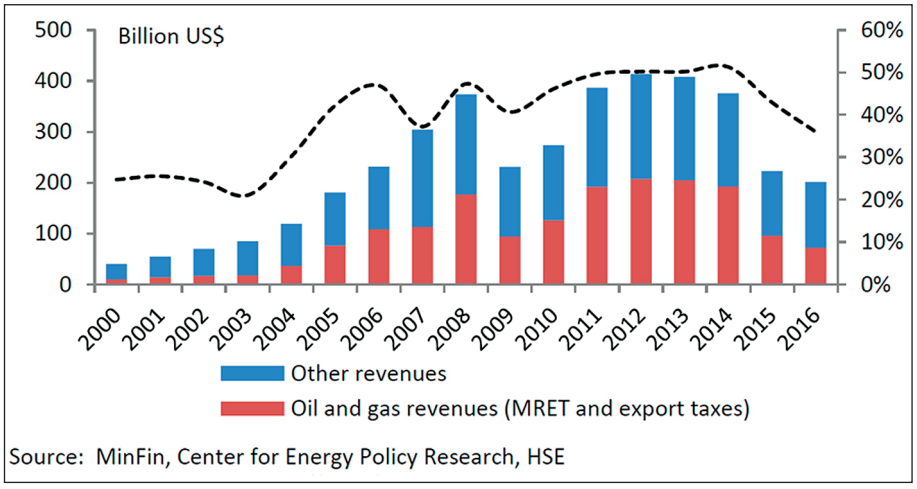
Introduction

In an international context where growing economic centrality of Asia on a worldwide scale, technological transformations in the energy sector and concern over environmental issues are all altering global energy geopolitics at a dizzy pace, the tense geostrategic relations between the Russian Federation and the West have become one of the major factors in rearranging the general energy order.

This circumstance is of great importance, both because of the effects of the Kremlin's decisions on global energy geopolitics, and as a result of the crucial influence that energy has on the development of the Russian State and the Russian economy and, thus, on Russia's ability to carry on being a world power.

Traditionally, economic power has been used to boost one's own strategic interests and to hinder those of one's rivals. The energy sector has played a major role in this geostrategic game, Russia finding itself in a privileged position in this respect, the Kremlin having repeatedly used gas and oil to its own advantage in its struggle with the countries in its geopolitical environment. Furthermore, the effectiveness of Russia's energy policy is enhanced by the fact the Russian President and Prime Minister are directly involved in the decision-making process of the State-owned oil and gas producing and distribution companies. Putin's familiarity with energy policy and the energy industries is unrivalled when compared to his European counterparts[1].

Moscow is the world's greatest exporter of energy, which before the drop in oil prices in 2014 amounted to 70% of the value of its exports. Moreover, in the Russian Federation the energy question takes precedence over economic factors

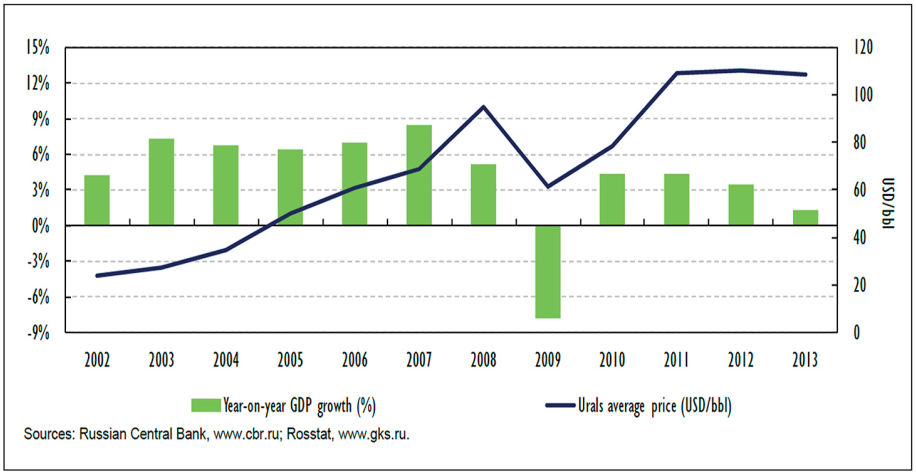


Graph 1: Russian Federation revenues and per cent values for oil and natural gas.

[1] *SŁOBODIAN, Natalia,* «Russian Energy Diplomacy: instruments and approaches», Analysis, IM Foundation. Kazimierza Pulaskiego, February 2017.

and is closely associated with the wielding of power, not only in the capital, but also in its territorial structure, so the major energy monopolies (Gazprom and Rosneft) are closely interwoven into the political and social elites. What is more, as can be seen in *Graph 1*, when the oil and gas sectors were experiencing their best moments, they were providing the State's federal budget with almost half its revenue. In 2016, the earnings from oil and natural gas came to 36% of the federal budget revenue[2].

After the fall of the Berlin Wall, in just one decade Moscow went from being the power centre of one of the two superpowers to being the capital of a ruined and demoralised country. In the first decade of the 21st Century, coinciding with Vladimir Putin's coming to power, Russia underwent almost uninterrupted economic growth, once again positioning itself as a world power. Thanks to the sustained growth of oil prices (*Graph 2*), the Russian economy grew at an average of 4.7% from 2001 to 12, peaking at 6.6% between 2001 and 08. Nevertheless, the economy slowed down to an annual growth of 1.3% in 2013 even though the oil price levels were still very high, almost 110 dollars per barrel, which revealed the existence of basic impediments to growth that required structural economic reforms[3].



Graph 2: Russian GDP growth and Urals average prices from 2002 to 2013.

2014 was not only a negative economic milestone for Russia as a result of the sharp drop in oil prices, it was also the year that, as a consequence of annexing Crimea and the war in the Ukraine, the Kremlin confronted NATO and the European Union (UE) turning a relation that had become progressively more difficult yet free-flowing, into the one that has been described above as a new cold war.

[2] Russian Federation Ministry of Finance, «Annual Federal Budget Report».

[3] International Energy Agency, «Russia 2014: Energy Policies Beyond IEA Countries», June 2014.

Trying to find alternatives to the economic sanctions imposed by the United States and the EU, and in order to reaffirm its status as a great power and reduce its energy dependence on the EU, the Kremlin has responded by turning sharply towards Asia. The energy sector is playing a major role, increasing its exports and economic ties not only over the Siberian frontier and the Pacific, but also via the Middle East, where Moscow is creating a network of economic-strategic interests that strengthens it geopolitically and gives it access to the extremely important Indian market.

This document describes the process that has led to the current situation of hostility between Russia and the West and examines the complex structure of economic and strategic interests that constitutes the driving force behind the new Russian energy strategy, together with the consequences that this is having on the dynamics that are transforming global energy geopolitics.

Background

How strategic relations are evolving between Russia and the West

Once the Berlin Wall had fallen, the Warsaw Pact came to an end and the dissolution of the Soviet Union, at first, the Russian population, fully aware of the overwhelming superiority of the Western way of life when compared with what their former existence had been like, enthusiastically welcomed the westernisation of their society, hoping to be able to enjoy the material advantages of Western European countries. «I myself witnessed (states Álvaro Gil-Robles) in those years, the great enthusiasm shown by the Russians in the hope that the possibility of success would be made available to them and they would be able to enjoy Western-style development and the Welfare State, together with a genuine democracy»[4].

However, before the end of the decade, in 1999, the general situation affecting society and the Russian Nations could not have been more discouraging: there was a real state of economic collapse. A country that contained the largest oil reserves in Europe found itself forced to ration fuel for heating, and there was even a repetition of the supply problems for staple products that had already taken place in the 1980s. Yeltsin's fragile Government, failing to pay its foreign debt and faced with problems to meet its commitments where pensions, subsidies and public sector salaries were concerned, found itself having to apply for a loan of 22,600 million dollars from the extremely unpopular IMF. As if that were not enough, NATO completed its first expansion into Eastern Europe with the membership of Poland, Hungary and the Czech Republic. Society's rejection of

[4] IEEE, Strategy Document 178, Russia under Putin's leadership. The new Russian strategy in the search for its regional leadership and its consolidation as a global actor, GIL-ROBLES, Álvaro. Introduction, November 2015.

the new economic model and the nature of the new relations with the West and the EU reached their highest levels since the end of the cold war[5].

The interpretation made by major sectors of Russian society was that the West's main interest in promoting its own interests and values in Russia, was no more than a pragmatic policy for weakening the Russian Federation and excluding it from European space, which meant that the spectres of the past reared their ugly heads again. The Balkans conflict, with the NATO bombing of Serbia –one of Russia's traditional allies– and the independence of Kosovo, also made it clear that the Russian perspectives were not being taken into account and that nothing remained of its status as a major power.

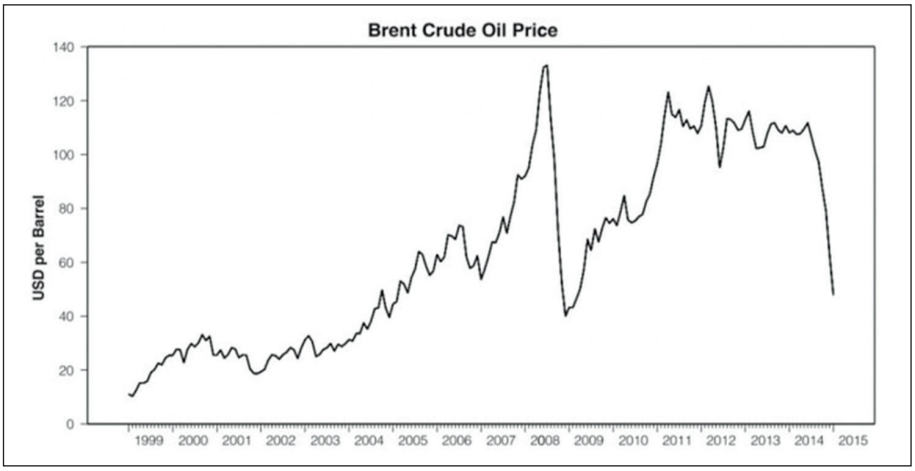
When Putin became President of the Russian Federation in 2000, he came to power with the idea of reversing the situation affecting the bleak domestic outlook; this was in stark contrast to the great satisfaction with which the EU viewed Russia, a nation that had finally ceased to be a cause for concern for its former cold war adversaries.

First of all, the Russian President put an end to the Chechen War, which strengthened his position as the leader of the nation. He then set about dealing with the oligarchies that had taken over the country's wealth and were unscrupulously challenging the Kremlin. Finally, he had to set in order the administration of the State and the economy. He thus dealt with the most urgent measures required to take a tight rein over power, give coherence to the State and gain the respect of the Russians. The rise in oil prices (*Graph 3*) made it possible to increase the revenue of the Russian State threefold during the first two presidencies of Vladimir Putin (2000-2008) and, therefore augment his room to move internally and externally. Domestic supply problems now became a thing of the past, unemployment fell sharply and wage-earners and pensioners began to recover their purchasing power, while at the same time giving form to a new middle class. Throughout this period, Russia was identified by international investors as one of the so-called emerging powers (together with Brazil, India and China (BRIC)[6].

At first, the Russian President adopted a strategic collaboration attitude towards NATO, which became apparent at the beginning of the military operations in Afghanistan. However, during President Putin's first two terms of office certain events occurred that seriously inconvenienced the Kremlin: the ongoing eastward expansion of NATO and the EU, isolating Russia from Europe; the *Colour Revolutions*, which brought instability close to its doorstep and threatened Moscow with the domino effect; and the USA deploying the anti-missile defence system close to the Russian border, even though this system was formally aimed

[5] IEEE, Strategy Document 178, Russia under Putin's leadership. The new Russian strategy in the search for its regional leadership and its consolidation as a global actor, LEÓN AGUINAGA, Pablo and ROSELL MARTÍNEZ, Jorge, «Economic relations between Russia and the European Union», November 2015.

[6] Ibid.



Graph 3: Evolution of Oil Prices.

against Iran, as it also had a direct impact on the nuclear balance between the USA and the Russian Federation in Europe.

The first serious disagreement took place with the rapprochement between NATO and Ukraine and Georgia, which set the Russian alarm bells ringing and caused indignation. Moscow wondered where NATO would stop, denying the Russian Federation its entire sphere of influence and reinforcing the feeling of being surrounded. In August 2008, the Kremlin reacted with the military intervention in Georgia. This was a warning to the West for it was treading on dangerous ground. It also served to let Russia learn the fact that the West lacked a strategy when faced with the use of force beyond its frontiers.

Despite the considerable tension that was created at the time, the economic interests shared between the Russian Federation and the EU countries, plus the major changes affecting international leadership –the Russian presidency of Dmitry Medvedev in May 2008 and Barack Obama's coming to power in January 2009– joined forces to redirect the understanding between Moscow and the Western capitals.

Medvedev and Putin –who had stepped down to take on the post of Prime Minister and still retained a dominant position of the Russian political scene– embodied two different approaches to redirecting the Russian situation after the financial crisis that coincided with the strategic tensions. President Medvedev, who was much more in line with the modernisation partnership agreed to with the EU, considered that restructuring the economy was a priority in order to reduce dependence on the energy sector. Putin, who was much more preoccupied with geostrategic rivalry with the West, considered that the economy ought to be at the service of Russia's major strategic interests and was in favour of the country's role as an energy superpower. Russia's rapid economic recovery, which was a result of the recovery in oil prices and the consequent foreign investments, backed up Putin's thesis.

Subsequently, the attitude of the West towards the Arab Spring, which at first enthusiastically received the popular movements, toppled Gaddafi in Libya and lent its support to the Syrian rebels, greatly displeased the Kremlin, which was now casting a worried eye at Jihadist terrorism to the south and the Western preference for regime changes.

On his return to the presidency in 2012, Putin explicitly rejected the EU's model of international relations in Eastern Europe and that western values be imposed on Russia as being central to its political and strategic actions. Furthermore, the Russian President also wished to put a stop to the internal protests and opposition that proposed policies that were more akin to the Western style, which in his opinion weakened Russia's strategic position and could pave the way for a domestic *Colour Revolution*.

Finally, the Ukraine Crisis ended up by severing the unstable relations between the Russian Federation and the West. The Ukrainian President, Victor Yanukovich, had been playing a dangerous game by flirting with Russia and the EU at the same time. Putin, who viewed with caution Kiev's negotiations to sign a Free Trade & Association Agreement with the EU because it might prevent Ukraine form participating in the Eurasian Economic Union, put pressure on Ukraine's President. The demonstrations in Maidan Square degenerated into violent confrontations between Yanukovich's followers and pro-European Ukrainian nationalists. Russia and the EU adopted opposing positions. The seriousness of the situation lay in the major imbalance between the strategic priorities of the stakeholders. It was a vitally important question for the Kremlin, but not for the EU.

President Putin did not mince his words in the speech he gave to the Russian ambassadors and permanent representatives: «All of us Europeans need some kind of security network to ensure that those coming from Iraq, Libya, Syria and, unfortunately, I have to include Ukraine in this group, do not act like infectious diseases. This is particularly dangerous in the post-Soviet era, given that these States are not politically or economically consolidated and neither do they have politically stable systems»[7]. Furthermore, if Ukraine came into the NATO and EU sphere of influence, the naval base at Sebastopol in Crimea, which is strategically the most important of all and the only South-facing one, would be isolated.

The Kremlin intervened and proceeded to annex Crimea in March 2014. As Crimea had come to form part of Russia without the international community being able to prevent this and without the Russian Federation finding itself seriously threatened at any moment, Eastern Ukraine became the scene of the next confrontation. The EU and the USA reacted with a series of sanctions that have gradually become more extensive with the passage of time and on the basis of

[7] Quoted by BALLESTEROS, Miguel Ángel, «Ukraine and the new strategic Russian leadership», Geopolitical Panorama of Conflicts 2014, IEEE. Available at http://www.ieee.es/Galerias/fichero/panoramas/Panorama_geopolitico_2014.pdf.

further developments. The effects on the Russian economy of the drop in oil prices as from June 2014 must be added to the consequences of the sanctions. In 18 months, oil was to lose three quarters of its value. Yet the most serious thing of all was that all the progress that had been made in East-West relations since the fall of the Berlin Wall was sent right back to square one.

Energy as the driving force behind the Russian economy

During the cold war, economic relations between the Soviet Union and the West were kept at very low levels, although as tensions eased between the two blocks economic exchanges gradually increased. That was when the foundations were laid for the exchange model dominated by the export of raw materials and hydrocarbons from Moscow to the Central European countries. As far as the West was concerned, the first steps were taken towards exporting consumer goods, financial services and technical and technological exchange.

Once the Berlin Wall had fallen, followed by the dissolution of the USSR, ties with the European Union became the nucleus for their political and economic development, there being a marked political instrumentalisation of the economic relations and an expansion of the energy connection between Russia and the countries of Western Europe. The enormous difficulties involved in the economic restructuring in the 1990s led to a widespread social crisis characterised by a shortage of supplies, salary devaluation and high unemployment. The low price of hydrocarbons and the huge cost of maintaining the ageing nuclear arsenal did nothing to help matters. At the same time, the main defects of the Soviet Era, such as the demographic and ecological crises or corruption, merely got worse, instead of being rectified[8].

As has already been pointed out, when Putin came to occupy the presidency of the country, he inherited a genuine economic collapse. The sustained rise in hydrocarbon prices that occurred during the first decade of the new century came to Russia's aid just when it was needed most. At that period of time (*Graph 3*) the price of a barrel of oil leapt from less than 20 dollars to over 110. The economy grew at a yearly average of more than 7%. The State revenue doubled and the volume of credit for consumers increased 45-fold. In those years, the Russian Federation even had budget surpluses. The poverty rates fell from 30% in 2000 to 14% in 2008. Although inflation was still a problem, in 2007 the World Bank praised Russia for achieving «unprecedented macroeconomic stability»[9].

However, Russian exports were still determined by primary energy products and, so, closely linked to international energy prices. Only a quarter of the total

[8] IEEE, Strategy Document 178, Russia under Putin's leadership. The new Russian strategy in the search for its regional leadership and its consolidation as a global actor, LEÓN AGUINAGA, Pablo and ROSELL MARTÍNEZ, Jorge, «Economic relations between Russia and the European Union», November 2015.

[9] http://www.economywatch.com/world_economy/russia.

export value came from non-energy products[10]. The percentage of State revenue financed by hydrocarbon exports rose sharply from 50% in the Yeltsin Era to 70% midway through the last decade[11]. Given the strategic importance of the sector, Putin set about gradually increasing State control over the energy companies. In 2003, after the arrest of Mikhail Khodorkovsky, the main focus of opposition to Putin and the President of Yukos, the company was taken over by Rosneft. Two years later, the Russian State became the majority shareholder in Gazprom. In spite of all this, what proved to be Brussels' greatest concern was Moscow's use of the gas supply in its disputes with Kiev.

The strong energy-dependence relationship between the Russian Federation and the EU aroused distrust in Washington and in some European capitals, all the more so after the Russian military intervention in Georgia in 2008. Nevertheless, and as a counter-effect, the consequent major energy interdependence led to greater strategic «pragmatism» in the relations between the EU and Russia. The most tangible results to emerge from this relationship were a series of major infrastructure projects that, much to the taste of Vladimir Putin, were aimed at increasing exploitation and making it easier for hydrocarbons to be conveyed from Russia to the EU. Three projects were of particular importance: the *Nord Stream* Gas Pipeline, the exploitation of the gas reserves in the Sakhalin Sea (Sakhalin-II) and the setting up of consortiums to explore new fields, which included the Total explorations carried out with Gazprom in 2007 with a view to exploiting the Shtokman gas field, one of the largest gas deposits in the world[12].

The financial crisis of 2008 seriously affected Russia, and at the end of the year there was a major, albeit brief, recession. Nevertheless, towards the end of 2009, when the oil and gas prices had risen again *(Graph 3),* the country made a rapid recovery. Once the moment of tension caused by the Georgia crisis had passed and with high prices for a barrel of oil, the normalisation of relations between Moscow and the Western capitals gave a new impetus to European investments in the Russian energy sector. The French companies EDF and Total, the British BP and other multinationals all made major investments. In 2011, Russian exports exceeded the maximum reached before the crisis and the purchasing power of the Russian middle classes also recovered. The first branch of *Nord Stream* was opened that year, to be followed a year later by the second one, although the *South Stream* project had to be given up in 2014.

In spite of all of this, many analysts had already detected the serious structural problems that were adversely affecting the Russian economy and that by

10 IEEE, Strategy Document 178, Russia under Putin's leadership. The new Russian strategy in the search for its regional leadership and its consolidation as a global actor, LEÓN AGUINAGA, Pablo and ROSELL MARTÍNEZ, Jorge, «Economic relations between Russia and the European Union», November 2015.

11 TUCKER, Aviezer, «Russia and its Middle East and China Policy», Vanguardia Dossier. Energy Geopolitics (October/December 2014).

12 INOZEMTSEV, Vladislav, KUZNETSOVA, Ekaterina: «Economic Relations between the European Union and Russia: Before and after the Crisis».

2012 were beginning to show obvious signs. The slowing down of the economic growth levels were mainly due to insufficient labour productivity and capital, a complex investment and business climate, the negative demographic trend, a lack of economic diversification, an inefficient public sector and capital outflow[13].

Pivot to China

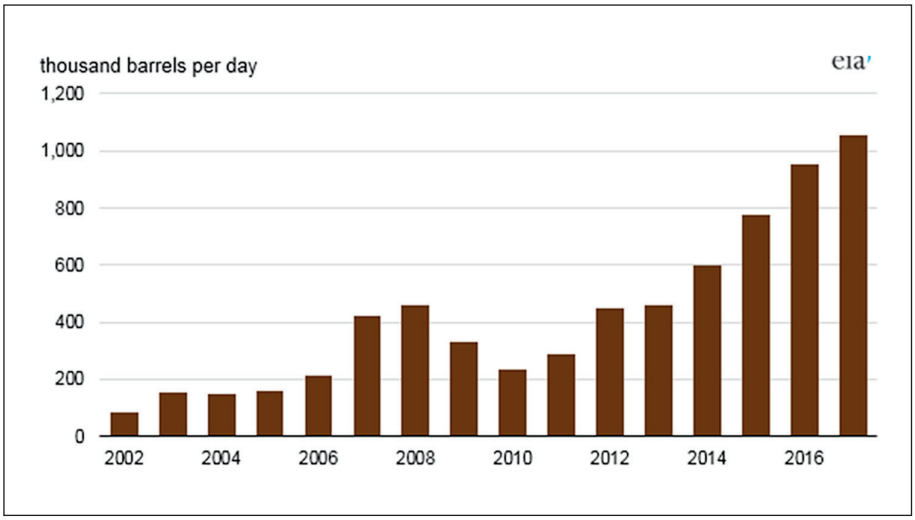
As the 2008 crisis jeopardised what had hitherto been the Kremlin's strategic priority –guaranteeing the continuity of its sphere of influence in the former Soviet Republics–, Russia consolidated its ties with China. Moscow needed a major ally and counterweight that could serve as an alternative to the EU, should the latter and NATO continue their expansion further eastward. China has become the main customer of Russia's military industry. In 2001, the country was purchasing large amounts of low-tech light arms and military material but over the years started to acquire sophisticated anti-aircraft missiles and fighter planes.

Relations between Russia and China are long, complex and characterised by the extensive frontier that they share, the complementary nature of their economies, the geostrategic ambitions of the two powers and their mutual mistrust. Russia's concern over the demographic pressure exerted by China in the Far East and the country's ever-increasing presence in Central Asia, which displaces Russia as the dominant power in the region, is of particular importance. What keeps this unnatural alliance together is the fact that the two powers reject the impositions of the West and its values.

From a strategic perspective, the Kremlin's pivot to China has also added a new dimension to the Russian economy. The 2008-2009 crisis had revealed Moscow's great dependence on the European Union, basically in three economic sectors: the energy market, access to financing and obtaining technology –especially where hydrocarbon and liquefied natural gas (LNG) offshore extraction rigs were concerned. China was the only real alternative in all these areas and amounted to an expanding market of great geo-economic importance. In 2009, China became the Russian Federation's top trading partner, while Beijing offered cheap loans to Russian financial institutions and Russia opened up to Chinese investors. In October 2013, China and Russia announced in an unprecedented agreement between the two countries, that they were setting up a firm with a capital of $85,000 million for the joint exploitation of the oil reserves in Eastern Siberia and exporting those reserves to China. This was followed by a major 30-year gas agreement with Gazprom worth $400,000 million dollars, announced in May 2014, just when tension was running at its highest between the West and the Kremlin over the annexing of Crimea[14].

[13] Oxford Institute for Energy Studies, «Gas and Taxes: The impact of Russia's Tinkering with Upstream Gas Taxes on State Revenues and Decline Rates of Legacy Gas Fields», October 2017.
[14] MALIK, Mohan, «The new world energy map», Vanguardia Dossier. The geopolitics of energy (October / December 2014).

Thanks to the construction of the Eastern Siberia-Pacific Ocean (ESPO) oil pipeline, which linked the Siberian fields with China via the Skovorodino-Daqing branch and with the Port of Kozmino in the Pacific via the other branch, the amounts of oil sent to China have grown constantly since 2010 (*Graph 4*), albeit at the expense of oil exports that used to go formerly to Japan and Korea.



Graph 4: Russian oil and condensate exports to China (2002-17).

The *Power of Siberia* Gas Pipeline, currently under construction, will convey the gas as far as the Chinese frontier in the Russian Far East. It is expected to be operational after 2020, reaching its total capacity of 38 bcm midway through that decade. However, it must be pointed out that for Russia the profitability of this project is low, not only because of the high construction costs and the relatively low volume, but also owing to the very tight gas price that the Chinese impose, It is possible that the capacity of the gas pipelines heading for China will be increased, both in the case of the latter and the Altai (or *Power of Siberia 2*), which would reach the western part of the country. However, before this may occur, the *Power of Siberia* will have to come into operation and the performance of both the LNG prices and the exports of Russian LNG to Eastern Asian countries, have to be seen. In the latter case, the performance could be greatly enhanced by the opening of new sea routes in the Arctic Ocean brought about by the thawing of the ice.

Initially, bilateral energy cooperation always seemed to leave a bitter taste in the mouth. The catalyst for improving relations was the Ukraine Crisis in 2014. Moscow was facing major outflow of capital and uncertainty about its energy exports to the EU. Since then, Moscow has opened up to Chinese investments in

energy, by removing a series of restrictions on investing in oil and gas resources on Russian soil[15]. In November 2014, the China National Petroleum Corporation (CNPC) bought from Rosneft a shareholding in the Vankor oilfield. Several Chinese electricity companies also obtained authorisation to construct plants in Eastern Siberia and in the Russian Far East.

China is thus becoming increasingly important to Russia as a trading partner. Between 2013 and 2016, Russian crude oil exports to that country increased from 491,000 b/d to 1.051,000 b/d, which amounts to 14% of the total crude oil imports to China, meaning that Russia has replaced Saudi Arabia as China's main provider of crude petroleum[16]. In just 2016 and 2017, the volume transported via oil pipeline to China, rose from 475,000 b/d to 600,000 b/d.

New Geostrategic Panorama, resembling Cold War

The Kremlin goes on the defensive and broadens its geostrategic ambitions

Until 2014 relations between the West and the Russian Federation had had their ups and downs, growing slightly tenser, yet invariably with close ties, whereas after that year, Moscow radically changed its strategic position and adopted a defensive approach, albeit with a major expansive component.

President Putin showed clear signs that he was not prepared to give way in the face of economic sanctions and military measures. For the Kremlin, any possibility of Ukraine joining NATO or the EU was clearly overstepping the mark. From that time on, the Authorities in Moscow began to put into practice an open or covert and rather unscrupulous strategy, as a consequence of its considerable conventional military weakness when compared to NATO countries[17], which aims to highlight the Kremlin's ability to challenge its Western rivals and has generated an alarming amount of mutual mistrust.

Russian military intervention in Syria (September 2015) and its involvement in other scenarios in the region, such as Libya (beginning of 2017), has caused Western States to regard the Russian Federation as a major priority where geostrategy is concerned. Russian strategy in the Middle East, featuring a complex diplomatic-economic-strategic dimension that completes the Kremlin's pivot to Asia, is intended to reassert itself as a major power and reduce its vulnerability

[15] ÖĞÜTÇÜ, Can, ÖĞÜTÇÜ, Mehmet, «China's Expanding Energy and Geopolitical Linkages with Central Asia and Russia: Implications for Businesses and Governments», OCP Policy Center, Policy Paper, September 2017.

[16] AVIS, Patrick, «The Impact of Oil and Gas Sanctions on Russia», energy analyst, 8th November 2017. Available at http://energyanalyst.co.uk/impact-oil-gas-sanctions-russia.

[17] The GDP of the Russian Federation in nine times smaller than that of the EU and similar in relation to the USA, the difference in wealth –and thus military capacity– conditions a rivalry in which Moscow needs to overact and show great aggression to make itself respected.

to the USA-EU alliance, as well as to force an encounter scenario with the USA, retaining its freedom of action while at the same time not surrendering a return, as Foreign Minister Sergei Lavrov stated[18], to East-West estrangement.

The Kremlin has paid a great deal of attention to the words of President Obama when in March 2014 he defined the Russian Federation as «a regional power». Referring to restrictions on trade, finances, energy and the armaments sector, he accepted that «these measures will have an impact on the global economy» but in any case the consequences will be greater for Russia[19].

Moscow's renewed geostrategic interest in the Middle East was enhanced by the USA's own actions in the region: the Iraq War in 2003 which brought the Shiites to power in Baghdad, followed by Washington's changing policy towards Iran, have modified the geopolitical balances in the Middle East; the withdrawal of American troops from Iraq as from 2011 left a question mark hanging over the great Western power's commitment in the region and helped the Islamic State to rise; the operational links between the US forces and the Kurdish militias and Syrian rebels, on the one hand, have distanced the USA from Turkey and the Iraqi Government, and, on the other hand, have indirectly strengthened some factions of Jihadist terrorism in Syria. Recently, the decision to transfer the US Embassy to Jerusalem has distanced the Arab allies from Washington, while at the same time irritating Turkey and Iran and adding yet another destabilising factor.

Apart from the aforementioned main objective, the Russian Federation is also trying to: demonstrate what it considers to be the failure of the US strategy in supporting the «*Colour Revolutions*» and the regime changes, linking this to an increase in the terrorist threat; distract countries of the West from the Ukraine conflict; place itself in the Mediterranean zone to serve as a counterweight to NATO's eastern flank (Baltic Sea-Black Sea); establish at least a minimum amount of Russian military presence in the region; increase arms sales after demonstrating their efficiency in warfare (Russian arms sales increased by 5% in 2016); protect the Russian Naval Base on the Mediterranean Coast (Tartus); keep Islamic extremism in check there, because if not, it could spread to Russia and the former Soviet Republics; and also to demonstrate to its regimes-clients that it is a loyal and reliable ally and to establish long-lasting geopolitical alliances with them[20].

From an economic perspective, the Kremlin aims to help Russia to make greater inroads into the nuclear, oil and gas markets in the region; to attract invest-

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18 LAVROV, Sergei, «Russia's Foreign Policy: Historical Background», Russia in Global Affairs Journal, 3rd March 2016». See at http://www.mid.ru/en/foreign_policy/news/-/asset_publisher/cKNonkJE02Bw/content/id/2124391.

19 GALLEGO, Javier G., «Barack Obama treats Russia with contempt, saying that it is a regional power», El Mundo, 25th March 2014.

20 MILOSEVICH, Mira, «Russia's ultimate strategic aim in Syria and the prospects for fulfilment of the Astana Agreement», Real Instituto Elcano, 23rd May 2017. TRENIN, Dmitri, «Russia in the Middle East: Moscow's Objectives, Priorities, and Policy Drivers», Carnagie Moscow Centre, 5th April 2016.

ments in Russia, especially from the richest Gulf States and to support energy prices by coordinating policies with the main oil and gas producers in the Persian Gulf. On the domestic front, the Syrian War is serving to consolidate President Vladimir Putin's leadership[21].

Russian policy in the region is based upon the following premises: security must prevail over development; only stability can provide security and development; stability is obtained with strong institutions; strong institutions cannot be imposed from abroad; strong sovereignty of the States can bring security; unilateral decisions are negative and the principle that International Law –from the Russian viewpoint– is the only way to create sustainable development[22].

The Kremlin aims to divide the Western Allies and insist on two conditions for a *détente*: that the Russian Federation be regarded as having the status of a major power and that its right to decide about domestic policy questions is accepted, together with its right to have its own system of values without foreign interference. Meanwhile, from the Russian perspective, time and the *Fait Accompli* principle must put an end to the Crimea conflict, i.e. Crimea is a territory that Moscow considers to have been definitely re-incorporated into Russia.

In Russia, at first there was optimism about managing to reach an understanding with the new White House resident. However, in the USA, relations between Washington and Moscow have become a thorny issue of domestic policy that could even lead to confrontation. The EU countries consider that relations with Putin have turned into a sort of minefield that could damage cohesion between NATO and the EU.

Russia's commitment to Syria is beginning to bear fruit and, as Blas Moreno states, «Russia has turned the tables and become an indispensable actor»[23]. Bashar al Assad's Government, supported by Russia and Iran, has successfully quashed the armed rebellion backed by the USA and its allies. The result of this conflict could be indicative of a new balance of power that is beginning to emerge in the Middle East. As Western participation has come unstuck the determination shown by Vladimir Putin has been making the Saudis and other countries in the region reconsider how to balance up relations between Russia and the United States. The Russian position is further strengthened by Russia's participation in the Libyan Civil War, the investment agreements signed with the Government of the Regional Autonomy of Kurdistan in Iraq and an improvement in relations with the Sunni States in the Persian Gulf, Israel and other parties in Palestine[24].

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21 Idem.

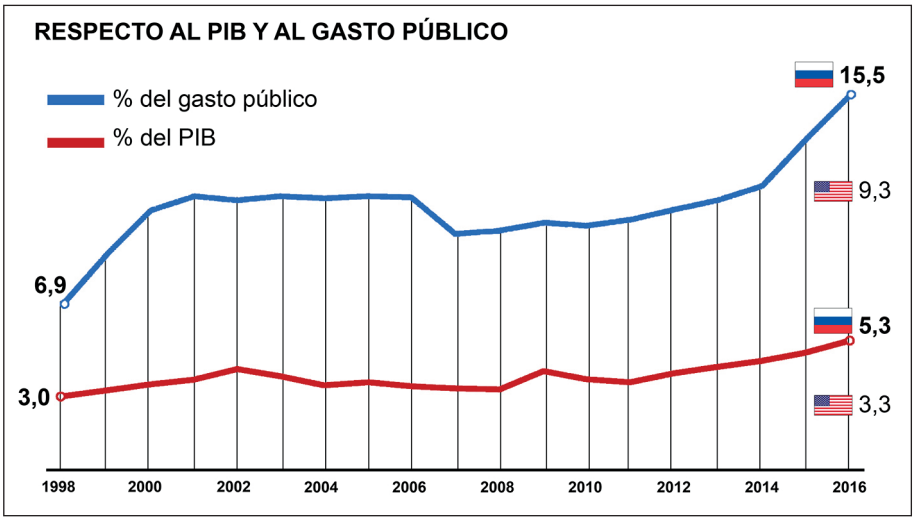
22 KUZNETSOV, Vasily, «What is Russia's thinking on Libya?», ALMONITOR, 5th March 2017.

23 MORENO, Blas. World Order in the 21st Century: «Russia in 2017: the return of an essential actor», 27th February 2017.

24 CHOW, Edward C., STANLEY, Andrew J., Russia and Saudi Arabia: A New Oil Romance? CSIS, 3rd November 2017.

The eyes of the stakeholders in the region have turned towards the Russian Federation. The country's tried and proven military capacity, its demonstrated skill in uniting wills in coordination with Turkey and Iran, the sympathy and influence that it is winning over in the Arab and Islamic World, its advantageous position when it comes to dealing with nuclear proliferation matters and its firm position against Jihadist terrorism, have all come together to ensure that the Russian Federation cannot be dispensed with either in the Middle East or to mitigate many of the main conflicts that are affecting us at the present time.

Moscow's new geostrategic positioning has required major political and economic backing for its Armed Forces (*Graph 5*). «Throughout the 1990s, Russia reduced its military expenditure in absolute and percentage terms, but as from 1999, the year that Putin was appointed Head of the Government, the trend has been reversed and has since shown a constant rise. According to the SIPRI's calculations, in 1999, military expenditure amounted to 3.3% of the GDP and 9% of Government expenditure. By 2014, the budget now amounted to 4.5% of the GDP and 11.8% of Government expenditure, increasing further in 2016 (to 70,345 million dollars, 5.3% of the GDP and 15.5% of Government expenditure)»[25]. Economic development with its essential energy component is thus essential to enable Russia to keep up its geostrategic commitment. Furthermore, as will be seen later, the Russian energy companies have a role that is just as important as the one played by the troops deployed in Syria to achieve the interwoven strategic plan that the Kremlin is developing in the Middle East.



Graph 5: Evolution of Russian Defence Expenditure.

[25] BONET, Pilar, «*The metamorphosis of the Russian Armed Forces*», El País, 17th May 2017.

Impact of the sanctions and drop in oil prices

Before 2014, the Russian Government had offered special tax reductions or tax holidays to encourage investment in zones where resources were difficult to extract. Attracted by these terms and resources that were potentially very extensive, many multinationals had formed associations with Russian companies to explore unconventional and Arctic placed resources. ExxonMobil, Shell, BP and Statoil signed agreements with Russian companies to explore unconventional resources, whereas ExxonMobile, Eni, Statoil and China National Petroleum Company (CNPC) formed associations with Rosneft in 2012 and 2013 to explore deposits in the Arctic[26].

In 2014, and in response to the annexation of Crimea by Russia and the latter's military intervention in Ukraine, Washington imposed sanctions on Russia by executive orders, these sanctions becoming progressively more stringent. They were originally aimed at Russian individuals, firms and authorities, and pressure was brought to bear on the EU to apply similar sanctions. They were not directly targeting the gas and oil industry, but they did impose restrictions on the financing of energy projects in Russia that amongst other measures, limited the access of Russian companies to their capital market, directed specifically against Russian energy companies. These sanctions also banned the export of goods, services or technology that could be used in deep-water projects, Arctic projects or unconventional projects. Taking into account the fact that there is hardly any energy trade between Russia and the USA, the intention of the sanctions was to damage the Russian economy and to reduce European dependence on Russian oil and gas. The drop in oil prices was added to the sanctions as an impediment to Russian firms in developing new high-cost projects such as those in deep-water, offshore, Arctic and shale.

Moscow responded with counter-sanctions, which amounted to approximately 10% of European exports to Russia, and included a complete ban on food imports from the United States, Norway, Canada and Australia. The sanctions imposed by the West affect Russia in three ways: massive capital outflows, difficulty in accessing international financial markets and a lack of business and consumer trust.

In spite of all this, Russian energy exports to Europe remained very stable. In 2013, Russia provided 38% of European oil imports. In 2016, the total supplied still stood at 38%[27]. As the Russian energy industry was not suffering from any actual short-term damage, in July 2017 the US Congress voted in favour of a new and much more severe package of sanctions against Russia and its energy industry. These new measures included prohibiting US firms from investing in energy projects

[26] HENDERSON, James and LOE, Julia, «The Prospects and Challenges for Arctic Oil Development» Oxford Institute for Energy Studies, November 2014, p. 34.

[27] AVIS, Patrick, «The Impact of Oil and Gas Sanctions on Russia», energy analyst, 8th November 2017. Available at http://energyanalyst.co.uk/impact-oil-gas-sanctions-russia.

in the Arctic, in deep waters and also from participating in oil shale consortiums anywhere in the world if Russian firms had a shareholding of 33% or more. The Bill also enabled the US president to impose sanctions on any companies involved in financing or constructing ducts for the purpose of exporting Russian oil or gas.

After the sanctions were imposed, nearly all Western company involvement in the Arctic offshore and unconventional projects ceased. The sanctions also have a major effect in that they create a climate of uncertainty where future investments are concerned and will have a much greater impact in the medium- and long-term than they are having in the short-term. Future production, especially unconventional and Arctic offshore production, whose resources are not expected to enter into production before 5 or 10 years, will be severely restricted without foreign investment and the technology that cannot be utilised because of the sanctions[28].

The new US measures have a much greater potential impact in Europe and on European companies than in the USA and on US companies, and some European leaders have lodged protests against the Congress Bill. *Nord Stream 2* is clearly in the line of fire and there is also an implicit threat to the gas pipelines whose purpose is to supply Southern Europe. The European Commission has also expressed its concern that EU companies could be the target of the new US sanctions and that their impact on the EU's energy security could be jeopardised if one or more of the Russian gas pipelines cannot be constructed as a consequence of the sanctions[29].

It can be deduced from the speeches in the Congress supporting the sanctions that the USA also has economic reasons for wanting to reduce the volume of gas imports from Russia to Europe. Such a reduction would enable the USA to sell as Liquefied Natural Gas (LNG), its own gas surplus coming from the huge growth in its unconventional production[30].

There are those who think that the leaders of the Euro-Atlantic Community are trapped in a cold war mentality. Strengthening the persistence of the sanctions against Russia gives the impression there that the United States are an external enemy against whom Russian society must unite[31]. Aspersions are also being cast upon whether the intended objectives will not be achieved because of unforeseen or unwanted consequences. For example, the Russian companies in the energy sector are finding themselves forced to take a much more disciplinary approach before making major investments[32].

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28 «Global energy dialogue: Russian oil and gas», Columbia SIPA Center of Global Energy Policy, July 2017.

29 AVIS, Patrick, «The Impact of Oil and Gas Sanctions on Russia», energy analyst, 8th November 2017. Available at http://energyanalyst.co.uk/impact-oil-gas-sanctions-russia.

30 Idem.

31 FRYE, Timothy, Do Economic Sanctions Cause a Rally around the Flag? Columbia SIPA Center of Global Energy Policy, 3rd August 2017.

32 Global energy dialogue: Russian oil and gas, Columbia SIPA Center of Global Energy Policy, July 2017.

The sanctions had their effect, but what made the Russian Federation suffer most was the drop in oil prices, which commenced in June 2014, at the same time as the first sanctions were being imposed by the West. They fell from an average of 109 dollars per barrel in the first half of the year, to 52 dollars per barrel in 2015, and then to below 40 dollars per barrel midway through 2016. The Russian economy went into recession and there was a very sharp reduction in revenues in the Federal Budget, increasing the deficit. In 2014, the real GDP grew by only 0.4%. In 2015, the official annual inflation rate increased from 6% to 9% and food prices went up by 25%. Between June and December 2014, the Russian Rouble was devalued by 59%. Growth was negative for the next two years (-3.7% in 2015 and -0.8% in 2016). The banking situation worsened and to balance public finances, the Government privatised part of Rosneft[33]. Whatever the case may be, the Russian economy has not collapsed in the way the prophets of doom predicted, and as Thane Gustafson states: «Russia is never as weak nor as strong as it appears to be». At the time this document was being written, it would seem that the recession is over and, thanks to the boost given by private consumption, a growth of 1.1% is forecast for 2017[34].

In the energy sector, the Russian Federation has been obtaining better results than expected in the last two years. On devaluing the Rouble to keep it on a par with the way oil prices were evolving, there was also a reduction in the actual cost of exploitation, which made Russian hydrocarbons highly competitive –extraction prices only being battered by Saudi Arabia–, which meant that Russia managed to increase the volume of production and exports not only of oil and gas, but also of coal[35].

Moscow has not stood idly by in the face of its energy challenges. Where its gas exports to Europe are concerned, and with a view to obtaining revenue in the long term, in 2014 Gazprom reduced its prices in order to guarantee its share of the market[36]. In an attempt to keep oil prices higher, it entered into major undertakings with OPEC - so far successfully- and, in order to counteract US and EU policies, it is turning even further towards Asia. Russia's largest oil company, Rosneft, is establishing a series of long-term relations with refinery consortiums in Asia, by investing in new refinery projects to which it will subsequently supply crude oil[37].

Furthermore, as the demand for oil and natural gas in Europe tends to stagnate, Russia sees Asia as an opportunity for diversifying and broadening its export horizons. Therefore, the Kremlin is not looking more towards Asia for purely geostrategic reasons, energy being merely a major contributing factor.

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33 Santander Trade Portal, «Russia: Politics and Economy».

34 Santander Trade Portal, «Russia: Politics and Economy».

35 MITROVA, Tatiana, «Russia's Transitioning Role in the Global Energy Sector»,

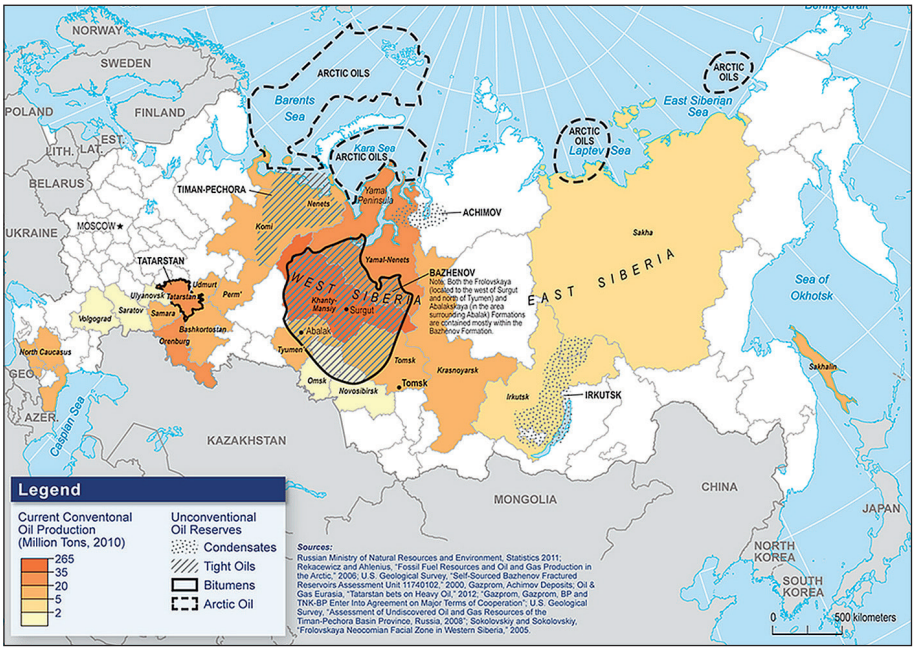
36 BROS, Thierry, «Energy Darwinism: Evolution of the Energy Industry», Vanguardia Dossier. The Geopolitics of Energy (October/December 2014), p. 20.

37 AVIS, Patrick, «The Impact of Oil and Gas Sanctions on Russia», Energy Analyst, 8th November 2017. Available at http://energyanalyst.co.uk/impact-oil-gas-sanctions-russia.

Current Situation and Prospects for the Energy Sector in the Russian Federation

Oil and other Liquids

The Russian Federation possesses the sixth largest oil reserves in the world with 109.5 billion tonnes[38]. The locations of these reserves (*Map 6*) are of great geopolitical importance in view of the Russia's large surface area and the many countries to which it exports. Most of the oil lies in Western Siberia and in the Volga-Urals region. It also has deposits in Eastern Siberia and the Far East, including the island of Sakhalin, which are increasing their production –going from 5% to 12% between 2009 and 2016– and gaining importance where the Eastern Asian market is concerned.



Map 6: Oil production and reserves in the Russian Federation.

Hardly explored Russian Arctic reserves have great potential whose development depends on technological, economic and geostrategic factors. Other regions with major deposits are the Caspian Sea and the Timan-Pechora Basin in the North of Russia. The Bazhenov shale layer has been located in the Western Siberia Region, underlying resources that were already known to exist, and these show great potential.

[38] BP Statistical Review of World Energy 2017.

In 2016, Russia was the world's third biggest producer of oil and other liquids (after Saudi Arabia and the USA), with an average production of 11.2 million b/d of liquid, which amounts to 12.2% of the total world production[39].

The devaluation of the Rouble and the investments made in the past ensure that oil production will continue to grow until 2020, after which it will follow a downward trend[40]. The WEO 2017 predicts that in the most likely scenario it will carry on declining, to the extent that in 2025 it will decrease to 10.5 thousand b/d, to 9.7 thousand b/d in 2030, and fall to 8.6 thousand b/d by 2040.

Region	Thousand b/d
Western Siberia	6,294
Volga-Urals	2,498
Eastern Siberia & Far East	1,338
Krasnoyarsk	426
Irkutsk	364
Sakhalin	344
Yakutia	204
Arkhangelsk	328
Komi Republic	284
Caspian Sea	41
Arctic Offshore	36
Others	57
TOTAL	**10,875**

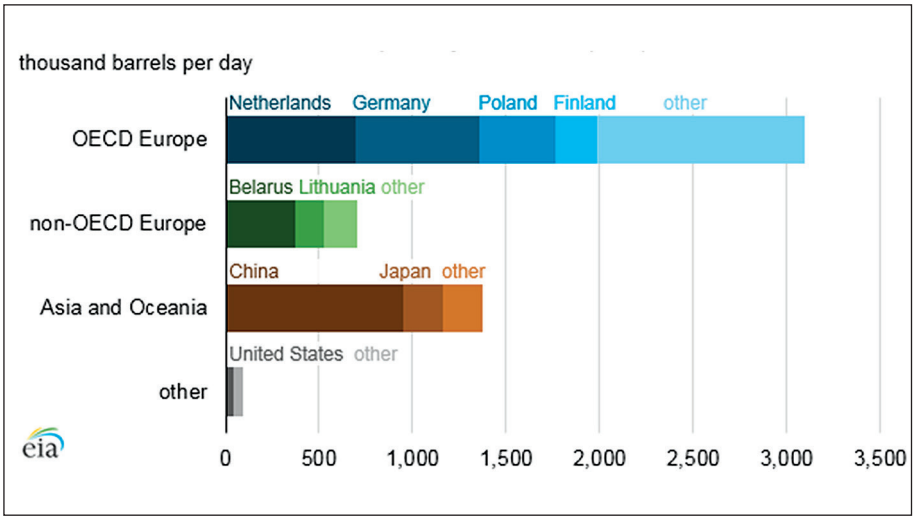
Table 1: Production by Regions in 2016. Source: U.S. Energy Information Administration.

Some major unknown questions that could modify these predictions are basically, whether or not Russia will be able to obtain or develop the technology to exploit the immense Bazhenoc shale resources. Another question mark hangs over whether the demand for oil will be greater than expected, because if it is, the unexploited resources in the Arctic, Eastern Siberia, the Far East or other places may be more tempting. It would also be important to know if Russian companies could make inroads into the emerging bunker fuels market, especially in the Baltic Sea Region[41].

[39] Idem.

[40] MITROVA, Tatiana, «Russia's Transitioning Role in the global Energy Sector», audio.interview in Columbia SIPA Center of Global Energy Policy, 14th August 2017.

[41] Global energy dialogue: Russian oil and gas, Columbia SIPA Center of Global Energy Policy, July 2017.



Graph 7: Exports of crude oil and condensates in 2016 by destinations.

There are more than 30 refineries in the country, many of which are obsolete, with a total refining capacity of 5.7 million b/d[42].

In 2016, Russia exported over 5.2 million b/d of crude petroleum and condensates and more than 2.4 million b/d of petroleum by-products, which amounts to approximately 70% of its production, making the country the second biggest

Map 8: Network of Russian oil and gas pipelines linked to China and Pacific.

[42] *Oil & Gas Journal*, «Worldwide Refining Survey,» 7th December 2015.

net exporter of oil in the world after Saudi Arabia. 70% of the exports (*Graph 7*) go to Europe. China, which receives 18%, heads the list of importing countries. In 2015, the oil sector accounted for 46% of the export revenue[43] and in 2016 more than 80% of Russia's crude oil exports were sent by sea.

The company Transneft has a virtual monopoly over the Russian network of oil and gas pipelines, which apart from being utilised for domestic distribution have to be used to convey most of Russia's crude oil resources to neighbouring countries or the ports from which they are exported. Some smaller volumes are sent by rail and ships, which are loaded at independently owned terminals.

Map 8 shows how the oil pipeline networks link Russia and China, and the ports on the Asian Coast. Russia exports crude petroleum to China via the ESPO pipeline and the oil pipeline connections across Kazakhstan. Russian ESPO crude oil exported from the Russian port of Kozmino on the Pacific Coast, can reach Chinese ports in a shorter period of time than the crude oil sent from the Middle East, which makes it possible for smaller volumes of crude oil to be sent, using a more flexible programme[44].

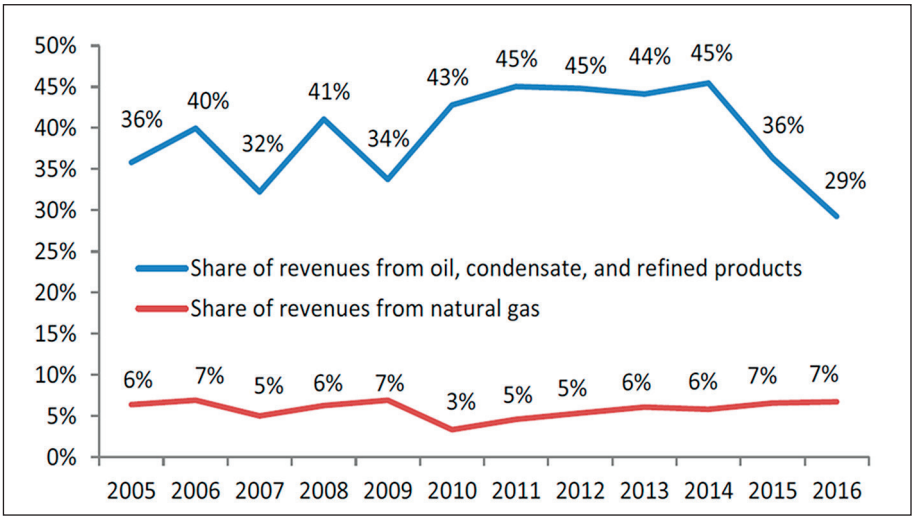
Company	Thousands of b/d
Rosneft	4,021
Lukoil	1,679
Surgutneftegaz	1,225
Gazprom (including Gazprom Neft)	1,117
Tatneft	570
Bashneft	423
Slavneft	300
Novatek	247
Russneft	150
PSA operators	290
Others	853
TOTAL	**10,875**

Table 2: Russian oil production by companies in 2016.
Source: U.S. Energy Information Administration.

Russian companies dominate most of the production. After the collapse of the Soviet Union the Russian Federation initially privatised its oil industry, but in recent years both the oil and gas sectors have reverted to a greater State control. Five companies, including their shareholdings as joint ventures, monopolise

[43] US Energy Information Administration, «Country Analysis Brief. Russia», October 2017.
[44] Idem.

75% of the total Russian oil production, the State directly controlling more than 50% of that production[45]. Rosneft, which is facing major challenges, is currently the biggest oil producer and an international company that the State utilises for geopolitical purposes.



Graph 9: Proportion of oil compared to gas in the federal budget.

The Russian taxation authorities have decided to tax the gross income rather than the profit, because it is easier to administrate and the total tax revenue is more predictable and easier to calculate. In the past, such revenue has been transferred to the national industries and the population through low petrol prices. At the same time (*Graph 9*), tax collection from the oil sector is much greater than from the gas sector[46]. Therefore, the oil companies receive for the sale of crude oil an amount that varies little on the basis of the price. However, the State, receives the part affected by the variation in prices, so it is the State that loses most when oil prices fall and, the State that gains most, if the prices rise[47].

Natural Gas

The Russian Federation has the largest proven reserves of natural gas in the world with 47,799 bcm, which amounts to one quarter of the world reserves[48].

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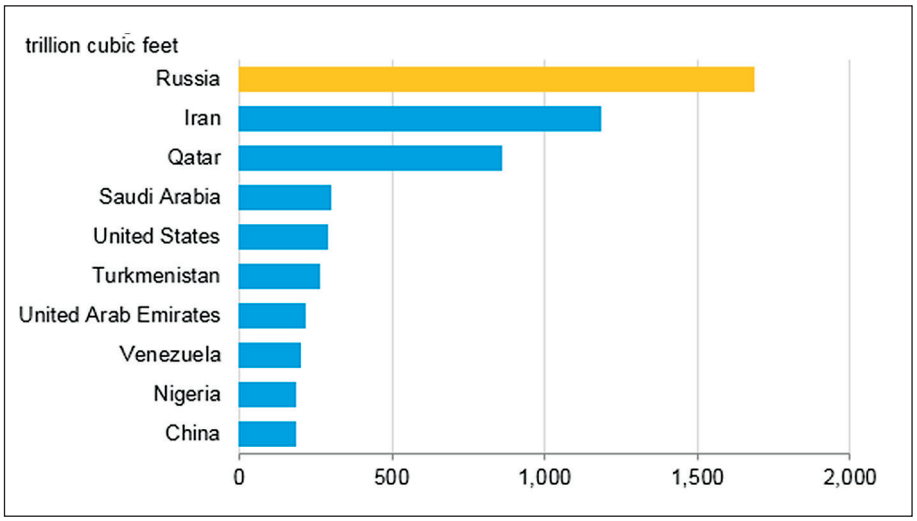
45 HENDERSON, James, «Key Determinants for the Future of Russian Oil Production and Exports,» Oxford Institute for Energy Studies, (April 2015).

46 Oxford Institute for Energy Studies, «Gas and Taxes: The impact of Russia's Tinkering with Upstream Gas taxes on State Revenues and Decline Rates of Legacy Gas Fields», October 2017.

47 MITROVA, Tatiana, «Russia's Transitioning Role in the global Energy Sector», audio interview in Columbia SIPA Center of Global Energy Policy, 14th August 2017.

48 US Energy Information Administration, «Country Analysis Brief. Russia», October 2017.



Graph 10: Proven reserves of natural gas, January 2017.

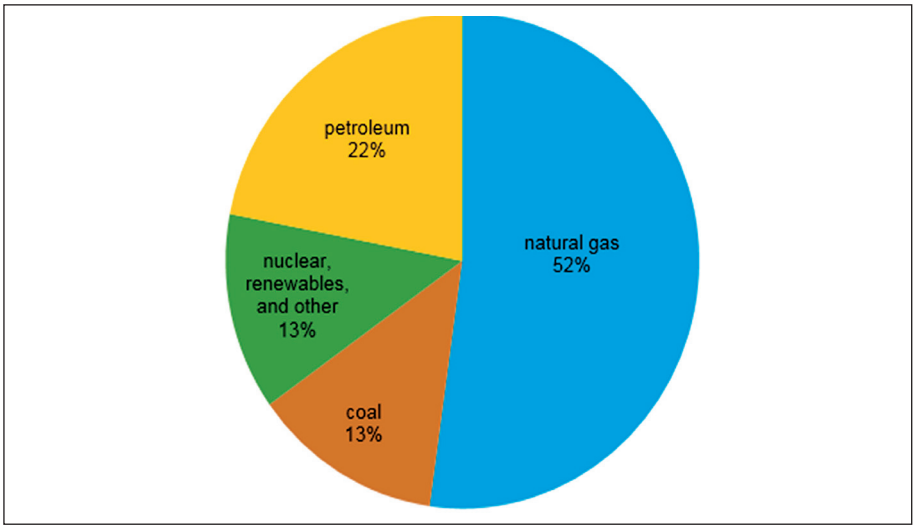
Most of these deposits are in North of Western Siberia, where 85.4% of Russian gas production was concentrated in 2016. Russia is also the second largest producer of natural gas in the world –after the USA–, with 640 bcm, which amounts to 16.3% of world production[49].

In view of their importance to the Asian market, greater priority is being given to the reserves on the Yamal Peninsula and in Eastern Siberia (7.5% of production in 2016), the Island of Sakhalin alone produced 24.8 bcm. Gazprom and other producers are increasingly investing in Eastern Siberia and the Island of Sakhalin and are developing two large natural gas projects, one in Chayadinskoye in the region of Yakutia, and the other in Kovytka in the region of Irkutsk. The two fields are connected to the *Power of Siberia* gas pipeline and cater for the demand in Eastern Russia and China. Furthermore, ways of monetising the reserves from the Sakhalin 1 Project are being considered; such ways include the construction of a new LNG export plant[50].

In 2016 (*Graph 11*) the gas sector accounted for over half Russia's primary energy demand, with 391 bcm[51], it being considered that slight improvements to energy efficiency in electricity generation, industry and house construction would be enough to contain future growth. WEO 2017 projections predict an increase of only 3% until 2040.

In 2016, almost 90% of the 212 bcm of Russia's natural gas exports were sent to Europe by gas pipeline, the main customers being Germany, Turkey, Italy, Bela-

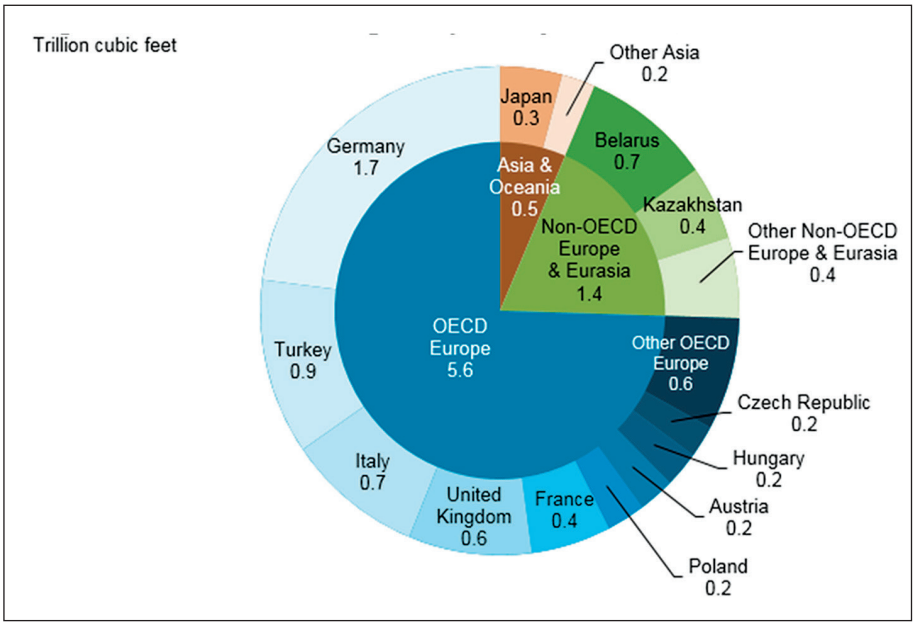
[49] BP Statistical Review of World Energy 2017.
[50] US Energy Information Administration, «Country Analysis Brief. Russia», October 2017.
[51] BP Statistical Review of World Energy 2017.



Graph 11: Primary energy consumption in the Russian Federation.

rus and the United Kingdom (*Graph 12*). Most of the rest was transported to Asia as LNG. In 2015, the revenue from natural gas exports amounted to approximately 13% of Russia's total income from exports.

Europe, also depends on Russia for its natural gas supply. In 2015 and 2016, natural gas imports from Russia came to about one third of the natural gas



Graph 12: Russian gas exports by destinations in 2016.

consumed in OECD Europe. What is more, some European countries, especially Finland, the Baltic States and most of South-East Europe, receive nearly all their natural gas from Russia.

Map 13: Russia's Western Gas Pipelines.

In 2016, the gas pipeline network was 172,000 km long and contained more than 20 underground storage facilities. Gazprom owns virtually all the Russian gas pipelines. Since the end of the noughties (2000-2009) Russia has been building gas pipelines in response to the new supply sources, which not only include the Yamal and Eastern Siberia fields, but also the new export routes of great geopolitical impact (*Maps 8 and 13*): the *Power of Siberia 1* under construction (planned to come into operation at the end of 2019), which will connect Central Siberia with China via Manchuria, the *Power of Siberia 2* (Altai), at the planning stage, which will link up with China via Sinkiang, the *Nord Stream 2*, also at the planning stage, increasing the direct flow to Germany, currently conveyed by *Nord Stream 1*, and the *Turkish Stream*, under construction (planned operating date, 2019), which will reinforce the gas flow from the South.

The Russian oil and gas pipeline network has a greater capacity than required, which has economic and geopolitical implications. Although the network operators would rather that it were used close to its maximum capacity in order to make the most of the potential revenue, the Russian oil/gas industry does benefit from the surplus capacity, because this gives greater flexibility when choosing an optimum export route and guarantee lower import duties. From a geopolitical perspective, the surplus export capacity combined with the existing route options, means that Russia is less dependent on the transit countries and strengthens Russia's negotiating position, as it is able to channel the hydrocarbon flows to one country or another on the basis of strategic plans[52]. The new export infrastructures will be put to better use, regarding their maximum capacity, than the existing European ones, with an increase in their utilisation from 55% in 2015 to nearly 60% in 2040.

The traditional strategic approach made by the Russian gas industry to European markets and the use of gas pipelines has meant that at present Russia has few alternative infrastructures for exporting its gas to other regions and depends on the vicissitudes of European demand. Excessive expectations for an increase in European demand and excessive expectations for an increase in Russian demand, which led to investment in the Yamal Peninsula midway through the noughties, have left the country with more than 150 bcm of unused production capacity[53].

In spite of this, the Russian Federation is in a good position to benefit from the growing world demand for natural gas. It has huge resources and relatively low production costs. The remote geographical locations of the country's main gas fields is the only problem faced when transporting the gas to the main emerging markets. Not only is Russia in the process of constructing the *Power of Siberia* Gas Pipeline to convey gas to China, but it is also diversifying by fully developing LNG exports, and now has two operational gas liquefaction terminals: one is on the Island of Sakhalin, which has been functioning since 2009 and in 2016 exported around 14.2 bcm of gas. 65% is transported to Japan, 23% to South Korea, 10% to Taiwan and 3% to China. The first liquefaction line at the second plant on the Yamal Peninsula, planned mainly for exports to Asia[54] has just been opened. The second line will come into operation in the third quarter of 2018, and the third and final line will be opened in 2019. Each one of the lines will have a production capacity of 6 bcm[55]. Other potential sites for new terminals are remote and the construction and operating conditions are extreme, thus the process of expansion for Russian LNG export will be slow.

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52 VATANSEEVER, Adnan, «Is Russia building too many pipelines? Explaining Russia's oil and gas export strategy», Elsevier Energy Policy, Volume 108, September 2017.

53 International Energy Agency, World Energy Outlook 2017.

54 US Energy Information Administration, «Country Analysis Brief. Russia», October 2017.

55 MAÑUECO, Rafael, «The plant that will transport liquid gas from the Russian Arctic to Spain comes into operation», ABC, 8th December 2017.

According to WEO 2017 in the most likely scenario, Russian gas exports will grow by two thirds, reaching 314 bcm in 2040 and dependence on European markets will be about 60%. Russia is and will continue to be the main net exporter of natural gas, ahead of the Middle East and North America, with 201 bcm and 192 bcm, respectively, in 2040.

The State-owned company Gazprom dominates the Russian upstream sector, having been responsible in 2014 for 70% of its production. Natural gas producing companies not owned by the State and oil companies seeking to develop their gas reserves, have been increasing their production percentages, and they are expected to carry on doing so in the future, in such a way that Gazprom will not be in quite such a predominant position.

Company	bcm
Gazprom	419
Novatek	68
Rosneft	68
Lukoil	20
Surgutneftegaz	8,5
PSA operators	28
Others	280
TOTAL	**640**

Table 3: Russian natural gas production by companies in 2016. Source: U.S. Energy Information Administration.

In 2013, Moscow modified its gas export legislation to allow Novatek and Rosneft to export LNG, putting an end to Gazprom's export monopoly. Furthermore, the drop in prices over the past year is bringing the Russian Government into confrontation with the gas companies over the distribution of the profits and the model to be adopted to face a future reduction in revenue from gas taxes. The conflict is over the very nature of the rules whereby the composition of the natural gas tax collection will evolve and how this will affect the long-term gas production trends in Russia[56].

Electricity

The Russian Federation has the capacity to generate over 240 gigawatts installed. Fossil fuels, where gas accounts for 50%, generate two thirds of Russian electricity, followed by hydroelectricity (18%) and nuclear energy (16%). In 2013 electricity generation reached approximately one billion kWh, of which Russia

[56] Oxford Institute for Energy Studies, «Gas and Taxes: The impact of Russia's Tinkering with Upstream Gas taxes on State Revenues and Decline Rates of Legacy Gas Fields», October 2017.

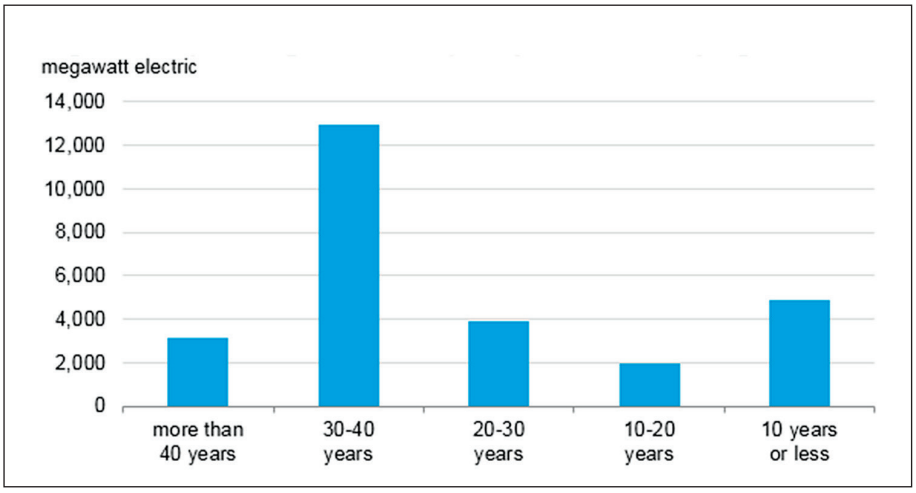
consumed 900,000 million kWh while around 18,000 million kWh were exported and about 3,000 kWh were imported[57].

Although renewables currently play only a very limited role in the Russian electricity mix, President Putin has stated that over the next 20 years, the national energy strategy plans to implement a manifold increase in the amount of electricity produced from renewable sources[58]. Chinese collaboration in this sector will be essential.

The electricity sector is mostly privatised and consists of seven separate regional systems. The Siberia and Far East systems are only weakly connected to the rest. The grid is equipped with over 2.4 million kilometres of electrical lines.

Nuclear Power

The Russian Federation has an installed nuclear capacity of more than 26 million kilowatts distributed in 35 operational reactors at 10 sites, all but one of which are to the West of the Urals. 24 of these reactors, amounting 57% of the nuclear capacity, are obsolete and have been functioning for over 30 years (*Graph 14*). The Government has granted them a further lease of life of 15 years[59].



Graph 14: Operational nuclear capacity by age.

Rosatom is the State-owned company that comprises over 350 nuclear companies and the R&D institutions that operate in the Civil and Defence sectors. It is also the regulating body for the Russian nuclear complex.

57 US Energy Information Administration, «Country Analysis Brief. Russia», October 2017.
58 Transcript of Vladimir Putin's speech given on 4th October at the inauguration of Russian Energy Week 2017. Available in English at: http://thesaker.is/russian-energy-week-forum.
59 US Energy Information Administration, «Country Analysis Brief. Russia», October 2017.

The Federal Government's target is for nuclear energy to reach 45-50% of the electricity mix in 2050 and some 70-80% in 2100. This can only be achieved if the ageing nuclear installations are replaced. In view of this, 7 new reactors were being built in 2016 and a further 26 were at the planning stage. Furthermore, Rosatom has received applications to construct 34 nuclear plants abroad[60].

Constructing nuclear power plants abroad clearly enhances the Kremlin's geopolitical plans, and raises Russia's profile as a major role player in the effort to stop nuclear proliferation in regions that are particularly sensitive.

In Hungary and Belarus, projects are under way that consolidate their ties with two European countries that are particularly close and vital in the counter-fence strategy. In Egypt, Moscow has agreed to construct facilities that will contain four 1,200 megawatt reactors that are expected to be completed by 2028 or 2029[61]. In 2010, an intergovernmental agreement was signed by Russia and Turkey for cooperation in the building and operation of the first Turkish nuclear plant in Akkuyu, whose construction should commence in 2018. In Iran, Rosatom has already built a nuclear reactor in Bushehr and is constructing two more[62]. These countries: Iran, Turkey and Egypt, are becoming priority partners in Russia's positioning in the Middle East. Moscow has also signed agreements with Tunisia and Algeria. There are Russian nuclear projects in Vietnam and Bangladesh, and also in China and India, the main targets in the Russian turn towards Asia, where new reactors are to be added to those that already exist[63]. Russia and Nigeria have signed agreements for the latter to construct and operate a nuclear power plant and a research centre that will house a multipurpose nuclear research reactor in Nigeria[64].

Coal

Russia, with 177,000 million tonnes, has the second largest recoverable coal reserves in the world (after the USA) and is the sixth largest producer and third largest exporter. In 2014 it consumed 60% of its production and exported the rest. Consumption is highest in Siberia, which is where most of the mines are.

Most of the Russian coal is extracted from mines in the Kuzbass (*Map 15*), from which it has to travel long distances by rail to the ports of export, which makes it rather uncompetitive, even though the devaluation of the Rouble has made it more competitive and it is expected that the exports, which have doubled in

60 Transcript of Vladimir Putin's speech given on 4th October at the inauguration of Russian Energy Week 2017. Available in English at: http://thesaker.is/russian-energy-week-forum.

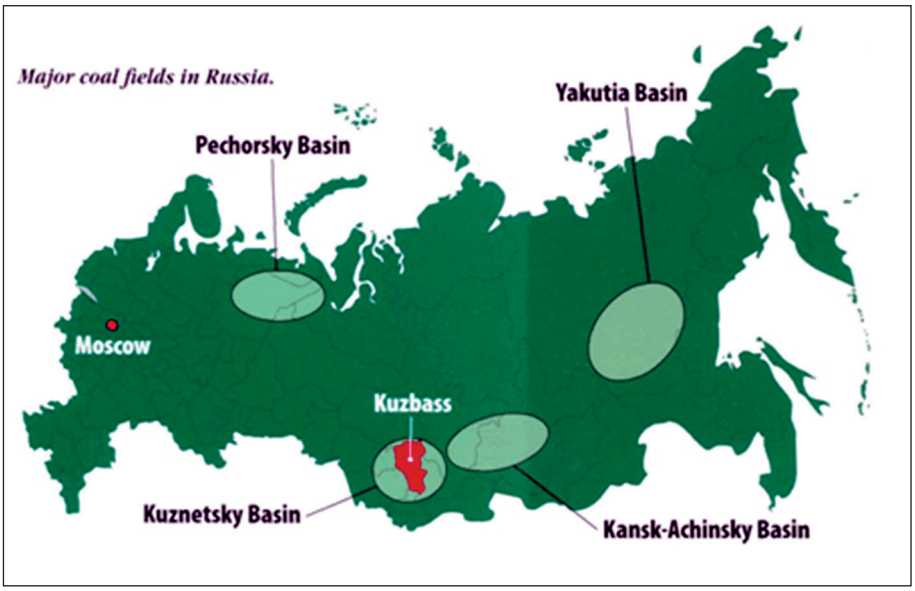
61 LENOIR-GRAND PONS, Ricardo, «It is not economy, it is strategy: the diplomacy of Russia's nuclear power plants», El Confidencial, 12th December 2017.

62 Njaa Oskar, «The future of Russian nuclear power plants: Rosatom abroad», Bellona, 13th October 2017.

63 Ibíd.

64 http://allafrica.com/stories/201711080401.html.

the past decade, continue to grow. In 2015, 45% of Russian coal was exported to Asia, which is the market that is growing fastest. China and some European countries receive the coal directly by rail[65].



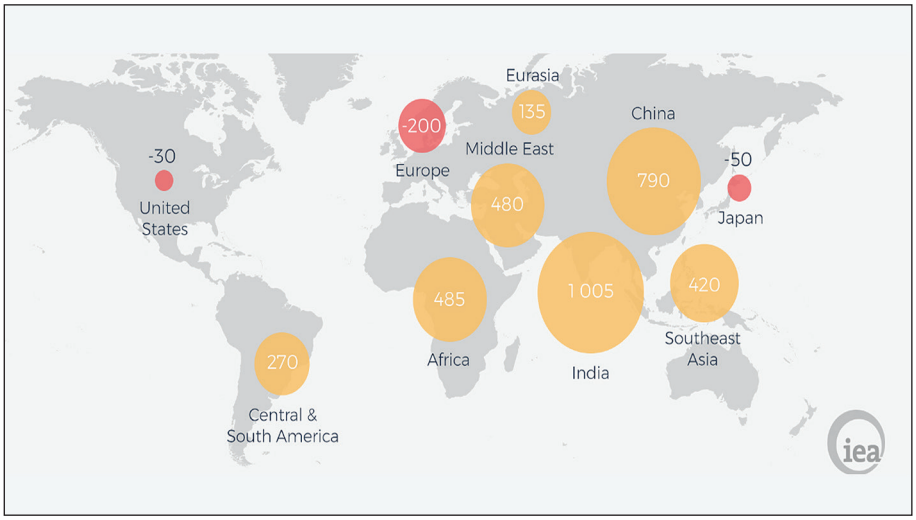
Map 15: Major Russian Coalfields.

Transformation of the World Hydrocarbon Trade

In our times we are witnessing a dramatic transformation of the world energy panorama. Three factors are having a particular effect on Russian geostrategic interests: the rearrangement of the world hydrocarbon import-export flows, the transformation of the world gas market as a result of the LNG boom and the gradual rise of the USA to becoming the world's main producer and exporter of hydrocarbons.

Thanks to energy efficiency measures and environmental awareness, there is a well-established trend whereby, despite the fact that the developed countries are continuing to grow, their energy consumption is stabilising or even slightly decreasing. That is why, on a global level, and as can be seen in *Map 16*, it is the energy markets in the developing countries that are expected to grow. According to the WEO 2017, in its most likely scenario (New Policies Scenario), the developing countries in Asia will be accounting for two third of the world energy growth.

[65] US Energy Information Administration, «Country Analysis Brief. Russia», October 2017.



Map 16: Changes in primary demand from 2016 to 2040.

In the decade prior to 2016, the demand for oil in Asia grew by 8.3 million b/d up to 32.4 million b/d. However, the demand in the EU decreased by 2.2 down to 12.9 million b/d[66]. In the aforementioned New Policies Scenario, Europe will reduce its oil demand by 4.3 million b/d between 2016 and 2040, whereas during the same period, the Asian Pacific region will increase its demand by 9.6 million b/d, India will account for 5.3 million b/d and China will account for 4 million b/d. However, the demand in Japan will fall by 1.6 million b/d. The biggest growth will take place up to 2025. Natural gas is the energy source that will grow faster between now and 2040, and in that year it will amount to a quarter of the world energy demand and become the second largest component in the world energy matrix after oil. The EU will still be the main importer of natural gas, rising from 590 bcm to 631 bcm between 2016 and 2040. However, the Asian Pacific region as a whole, will be responsible for 85% of the net growth of imports, led by China, India and other Asian countries, the growth during this period being from 732 bcm to 1,472 bcm[67].

The «fracking revolution» in the USA, which increased its natural gas production growth by almost 50% in a decade, plus the spectacular growth of LNG, are leading to a new gas order with a market that is more flexible, liquid and globally integrated[68]. LNG will account for 90% of the growth in the long-term gas trade until 2040. The transformation of the gas market is being boosted by the liberalisation of the market in Japan and other Asian economies as well as by

66 AVIS, Patrick, «The Impact of Oil and Gas Sanctions on Russia», energy analyst, 8th November 2017. Available at http://energyanalyst.co.uk/impact-oil-gas-sanctions-russia.

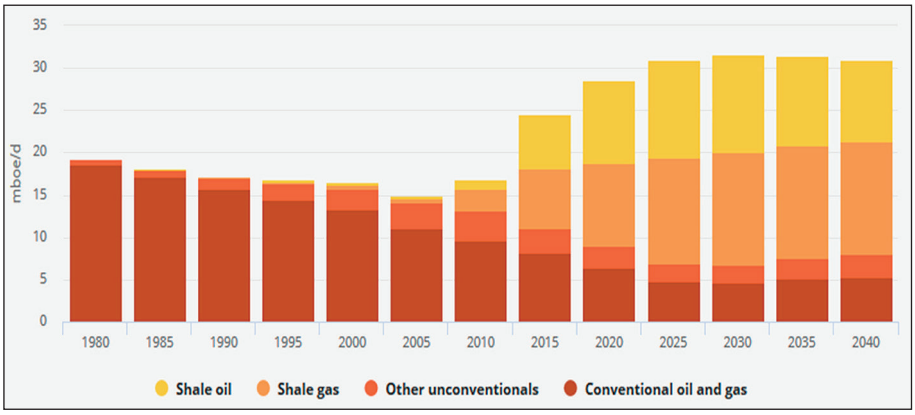
67 International Energy Agency, World Energy Outlook 2017.

68 LADISLAW, Sarah, NAKANO, Jane, SIEMINSKI, Adam and STANLEY, Andrew, «U.S. Natural Gas in the Global Economy», CSIS, October 2017.

an increase in the number of participants in the equation: major companies with a very wide range of supply options. New purchasers are also appearing on the scene, many of them on a minor scale. The number of LNG importing countries rose from 15 in 2005 to 40, at present. Supply has also diversified; the number of liquefaction plants will double from now to 2040, the biggest increase taking place in the USA and Australia, followed by Russia, Qatar, Mozambique and Canada. Gas prices are increasingly being based upon competition between a variety of suppliers, rather than being determined by indexation to oil prices. US LNG acts as a catalyst for many of the changes announced on the world gas market, thanks to destination flexibility, competitive prices and resource availability. Although the new gas order tends to improve supply security, there is a risk that keeping prices low will end up affecting investments and that this, in turn, will limit the supplies in relation to the demand[69].

Reference must also be made to the Russian Federation's role in readjusting the world gas market if it contracts below the demand, because Russia can swiftly increase exports through its gas pipelines, replacing the countries connected to the LNG, which could be redirected to other places.

The USA has revolutionised the world hydrocarbon market, having gone from being the main world importer just one decade ago, to a situation where it will soon be the main exporter. It is already a net exporter of natural gas, but in the 2020s it will become the world's top exporter of LNG, and by 2040 it will have increased its overall production of natural gas by 309 bcm. Furthermore, in a decade it could be a net exporter of oil and by 2040 it will have become the world's second largest exporter, ahead of Latin America and Russia, and only behind the Middle East. The fracking boom could make production rise from 12.5 mb/d in 2016 to 16.9 mb/d in 2025[70].



Graph 17: Oil and gas production in the USA from 1980 to 2040.

[69] International Energy Agency, World Energy Outlook 2017, p. 28.
[70] International Energy Agency, World Energy Outlook 2017.

The amazing growth in unconventional oil production in the USA (*Graph 17*) is becoming the major oil price regulator, preventing a return in the medium term –and perhaps the long term – to the price situation before the crisis. For Russia, and for the other main oil producers, the way oil prices evolves will determine the extent to which they are going to develop their resources with the highest exploitation costs.

With its new-found status as an exporter, Washington will no longer depend strategically on the Middle East and will be able to compete with Moscow for the Asian and European markets, which are two key pieces in the geostrategic chessboard: Europe as the bridgehead and major ally against Russia, and Asia as the battlefield for world supremacy, with China as Russian ally and rival, while the other Asian powers are allies attempting to hold China back. In Asia, the relative distance plays in Russia's favour, whereas in Europe, interest in replacing Russian gas with North American gas will add economic interests to the strong strategic argument in favour of weakening the ties between the Russian Federation and the EU. However, where Europe is concerned, Russia has the advantage of already possessing gas pipelines that enable it to offer more competitive prices.

Strategic rivalry and vying for the hydrocarbon markets are reasons for straining the geostrategic relations between Washington and Moscow. The EU, which will carry on depending heavily on Russia for its gas and oil supplies, will keep its distance from the USA where the latter's relations with Russia are concerned, which might affect the soundness of the transatlantic bond.

Challenges on Russia's Energy Geostrategy

Gas pipeline geopolitics and natural gas exports to Europe

Europe was, is and will continue to be, at least for some time, the Russian Federation's main energy partner. Since the Soviet Union collapsed, Russian energy diplomacy was excessively contaminated by geopolitical principles, which was a constant cause for concern in European capitals. The Russian Government tried to exert its influence over its immediate neighbours retaining or threatening to hold back the oil and gas shipments that are vital to them. The prices, payment and transport of Russian gas through Ukraine was the reason for the main disputes. The shady interests of the Ukrainian oligarchs made an understanding between Kiev and Moscow even more difficult.

The Kremlin's policy was dominated by bilateralism, in order to weaken the EU's position, given that its member countries had different viewpoints regarding the energy policy they should adopt with Russia. Berlin, in President Schröder's term of office, and with major interests at stake, was the main advocate of rapprochement with Moscow. At the end of 2005, the controversial announcement was made that the *Nord Stream* gas pipeline was to be constructed, this being

an infrastructure that directly links Russia with Germany below the Baltic Sea. In 2007, and along similar lines, the mutual understanding between Berlusconi and Putin gave a boost to *South Stream*, a similar project through the Black Sea, although this plan never saw the light of day.

The Russian annexation of Crimea and the war in Ukraine led to a drastic reduction in the importing of Russian gas to Ukraine. In 2013, these imports had reached 22.6 bcm, whereas by 2016, Ukraine was only importing 11.3 bcm of natural gas, none of which was purchased from Russia. Nevertheless, Ukraine still acts as a transit country for deliveries of natural gas from Russia to Western Europe, and most of the natural gas that Ukraine purchases in Western Europe comes from Russia[71]. Meanwhile, Moscow is trying to reduce its dependence on Ukraine for gas exports to Europe.

Gazprom has made a major effort to find a solution to the long-standing tensions between Moscow and Brussels and realises that, if it wants to be an active participant in the European gas market, it has to operate within the regulatory framework established by Brussels. However, the EU institutions are involved in a dispute with Gazprom because of the latter's excessive predominance on the market and certain practices that fly in the face of free competition. Russia currently has an extensive network of gas pipelines with four main arteries for shipping gas to Europe: via Ukraine, via Belarus, directly to Germany (*Nord Stream*) and directly to Turkey (*Blue Stream*).

The EU predicts that in 2035 its demand for Russian gas could increase by 140 bcm. This is a result of a 100 bcm reduction in its own production plus a moderate increase of 40 bcm in consumption. To cater for this demand, the Kremlin has two additional projects via the Baltic Sea and the Black Sea that manage to by-pass transit countries. The two projects are *Nord Stream 2* (NS2), which will augment by 55 bcm Russian gas exports to Germany and neighbouring countries, and *Turk Stream* (under way) which will consist of four chains each with a capacity of 15.75 bcm, which will be constructed in phases. The first chain would supply gas from Russia to Turkey, whereas the other three would serve the European market. Russia and Greece also signed an agreement to send all the gas from *Turk Stream* heading for the EU directly to Greece (South Europe Pipeline), which would make Greece the Southern Europe gas distribution hub[72].

NS2, due to its geopolitical and economic implications, is the subject of considerable debate. The EU Commission and several Member Countries, in keeping with the EU's wide support to the Ukraine Government in Kiev, are trying to obstruct it because it provides an alternative to the Ukrainian oil (gas) pipeline. Nevertheless, as a trading operation that mostly takes place beyond the territorial jurisdiction of the EU Member States, it is difficult to prevent. Ever since

[71] US Energy Information Administration, «Country Analysis Brief. Russia», October 2017.

[72] CHOW, Edward C., «Nord Stream 2 – Part of a long-term solution for European energy security», CSIS,

the beginning of the controversy, Chancellor Angela Merkel has referred to the project as a commercial activity that must be treated in the same way as similar projects under EU Regulations, and has withstood the Commission's attempts to consider that she is exceeding her powers or to arbitrarily modify the legal framework of the project[73].

On 8th November 2017, the European Commission published a legislative proposal to modify the 3rd EU Gas Directive (2009/73/EC) which could affect the NS2 Project, because the connectors with third countries could be covered by the European Regulatory Framework. When this document was finally drawn up, (December 2017), the European Parliament had already begun to discuss the proposal, and voting will take place in the coming months, before this document is published.

It is vital for the Kremlin to win this battle, because victory would do a great deal to guarantee its European market percentage. The serious consequences of a gas shortage caused by the recent explosion at the Austrian distribution hub in Baumgarten affecting the pipeline conveying gas from Russia, adds fuel to the argument in favour of diversifying the gas pipeline network. From an economic perspective, NS2 would bring about a lowering of gas prices in all EU countries, but the extent would vary from one State to another. In the case of a low overall demand for LNG, the price would drop between 4 and 13%. If the overall demand for LNG goes up, the reduction would be even greater[74]. Be that as it may, Germany would ultimately have the final say, and a delay to the start of the project cannot be ruled out.

Central Asia

Moscow traditionally regarded Central Asia as a potential rival for the European hydrocarbons market and it was in Russia's interests to control the outflow of gas and oil from that enclave across Russian territory. Greater importance is gradually being attached to China's expansion in the region and, until the Ukraine crisis, Moscow's position was ambivalent in this sense. On the one hand, the Kremlin approved of China looking for cheap gas there, if that would help Gazprom to protect its European market share. On the other hand, Moscow and Beijing joined forces to oppose US military presence in the region after the start of the Afghan campaign and collaborated to remove the US bases in Uzbekistan and Kyrgyzstan. To complicate matters, the Kremlin was concerned over the fact that the former Soviet Republics were becoming increasingly more dependent on Beijing than they were on Moscow and covertly torpedoed Chinese proposals to integrate the region economically.

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73 FISHER, Severin, «Lost in Regulation: The EU and Nord Stream 2», CSS ETH Zurich, Policy Perspectives Vol. 5/5, November 2017.

74 HECKING, Harald, WEISER, Florian, «Impact of Nord Stream 2 on the EU Gas Market», EWI, 13th September 2017.

However, Moscow now accepts Beijing's new role as a major economic power in Central Asia and hopes to be able to cash in on the financial resources available for the development of Central Asia. Putin also gave the go ahead for the new silk route after Xi Jinping agreed to include the Trans-Siberian and Baikal-Amur railway lines in the plan. Russia hopes to conserve its role in Central Asia not as the greatest external economic power, but as the provider of security through the Collective Security Treaty Organisation and by economic integration through the Eurasian Economic Union[75].

The restructuring and channelling of the outflows of energy resources from the Caspian and Black Sea Regions is an issue that is central to Russian energy geopolitics and an essential part of its pivot to Asia. Turkey and Iran –Russia's two main allies in the Syrian Civil War– are the countries whose geographical location gives access to Southern Europe and the Mediterranean, in the first case, and to the Indian Ocean and Southern Asia, in the second case. This circumstance greatly enhances Russian presence in the Middle East.

Middle East

As has already been pointed out, the convergence of strategic and economic-energy factors has gradually been shaping the Russian Federation's pivot to Asia, which was originally directed towards China. The Ukraine Crisis in 2014 added a new dimension that via the Middle East, beyond the associations already existing with Iran and Qatar, links up with the Mediterranean and India. Moreover, the strategic decisions taken by Washington in the Middle East, some of which are contradictory, have opened up a breach that Putin has managed to use to his own advantage, to make Russia an essential actor in the region's future. The military intervention in Syria, the understanding with Turkey, and the rapprochement with Saudi Arabia are all new cogs in the complex geostrategic machine. The agreements reached with Egypt and Libya have led to the Kremlin establishing itself firmly in the region.

Making the most of the lower prices of Kurdish crude oil, Russian companies have been involved in commercialising these resources for their European refineries, The company Lukoil has been operating in the West Qurna oilfield in Iraq since 2009 and is negotiating with a view to expanding production both in that country and Iran. In recent years, Gazprom Neft has purchased three exploration blocks that will enable the company to drill for hydrocarbons in Kurdistan while also running the Badra field in the south of Iraq. Rosneft has signed cooperation agreements in Kurdistan and Libya and has acquired a 30% shareholding in the vast Zohr gas field in Egypt. Its new subsidiary, Bashneft, has begun drilling in Block 12 in Iraq. Furthermore, four Russian oil companies have started to negotiate opportunities in Syria, these projects being undertak-

[75] GABUEV, Alexander, *A «soft alliance»? Russia-China relations after the Ukraine crisis*, Policy Brief, European Council on Foreign Relations, February 2015.

en more for political reasons than commercial interests given that the likelihood of finding major deposits is relatively low. Gazprom has been negotiating in Iran with a view to investing in a possible LNG development in the North Pars field and in the Farzad B underwater gas field, with the stated intention, albeit exaggerated, of providing gas for export to Pakistan and India. Moreover, Gazprom Neft has signed a Memorandum of Understanding with the National Iranian Oil Company for two potential developments in the area of oil, while the companies Zarubezhneft and Tatneft have also signed two agreements. At Government level, the Russian Ministry of Energy has signed an oil agreement in exchange for goods that should enable it to purchase 100,000 b/d of crude Iranian oil. All of this activity makes it patent that Russia is using energy diplomacy and its powerful companies to play a negotiating role between several parties, especially between Iran and Saudi Arabia[76].

Moreover, rapprochement between Saudi Arabia and Russia is potentially a sign of a more incisive foreign policy under the new Crown Prince, Mohammed bin Salman, who has met President Putin four times since 2015. The new Crown Prince could be indulging in a geopolitical readjustment and opting for a firmer alliance with the Kremlin, in view of the withdrawal of US influence in the region[77].

In the Middle East, Russia has likewise sought alternative sources of funding through energy marketing and trading companies like Glencore, Vitol and Trafigura, all three holding strong ties with the Middle East and ready to offer oil pre-purchase agreements. More important still, oil traders have also been able to present Russian companies with fresh sources of capital. The clearest example of this is the investment by Glencore and the Qatar Investment Authority in the purchase of 19.5% of Rosneft in December 2016, which strengthened Russian energy ties still further with the Middle East, making it clear that the region's investors are welcome to invest directly in Russia's assets. Inadvertently, this agreement may also position the Kremlin at the heart of another regional diplomatic triangle, in view of the recent move by Saudi Arabia and three other Gulf States to break off relations with Qatar.

In spite of Russia's successful incursions over the past three years, how long it can keep up its triangulation role is uncertain. Both Moscow and Riyadh seem to be willing to establish a long-term association, with conversations to formalise relations and encourage bilateral cooperation, begging the question as to whether Russia and Saudi Arabia could be preparing to make oil exchanges and even share the Asian market to prevent excessive competition.

In the event of a change in Russia's attitude to the agreement with OPEC, other political tensions could emerge between Iran, Qatar and Syria, perhaps ag-

[76] HENDERSON, James, MEHDI, Russia's Middle East Energy Diplomacy. How the Kremlin Strengthened Its Position in the Region, Foreign Affairs, 20th June 2017.

[77] CHOW, Edward C., STANLEY, Andrew J., Russia and Saudi Arabia: A New Oil Romance? CSIS, 3rd November 2017.

gravated by the possible return of US influence in the region, given President Donald Trump's recent attempts to re-establish a close relationship with Saudi Arabia (quite enhanced already by his anti-Iranian stance)[78].

Mediterranean

Russia's increased presence in the Middle East is conducive to the Russian Federation's greater involvement in the Mediterranean and, particularly, North Africa. Reference has already been made to the links the Kremlin is establishing in Libya and Egypt. In 2016, Russia and Tunisia signed a cooperation agreement in the area of nuclear energy for peaceful means that includes aid for the development and improvement of the Tunisian infrastructure so that it complies with international regulations, designing and constructing nuclear reactors for producing electricity and research, and conducting research into Tunisian mineral resources in order to develop the nuclear industry[79].

On the Russian Prime Minister Dmitry Medvedev's visit to Algeria in October 2017 (the first visit by a Russian Prime Minister since 1971), he stated that Russia was prepared to offer Algeria its technology and its technical solutions if the country decided to establish a nuclear industry there[80.] Several documents were signed including a memorandum between Rosatom and the Algerian Atomic Energy Commission and a cooperation agreement between Transneft and the Algerian State-owned oil company Sonatrach. So far, most of the bilateral cooperation has been in the military area, 90% of Algerian arms coming from Russia. Dmitri Medvedev and his Algerian counterpart, Ahmed Ouyahia, also raised the subject of oil, stressing their common position with respect to the OPEC+ Agreement.

Russian Agreement with OPEC

In December 2016, OPEC met with a group of oil-producing countries non-members of the organisation –including Russia– and agreed to reduce crude oil production by 1.8 million b/d in an attempt to restore the world oil market balance. The agreement marked a change in tactics by Saudi Arabia and Russia, the leaders of the two groups. Saudi Arabia distanced itself from its original plan to increase its market share and reduce the impact of shale production in the USA. At the same time, Russia agreed to the production cutbacks in spite of the fact that only two years earlier it had openly questioned the relevance of OPEC

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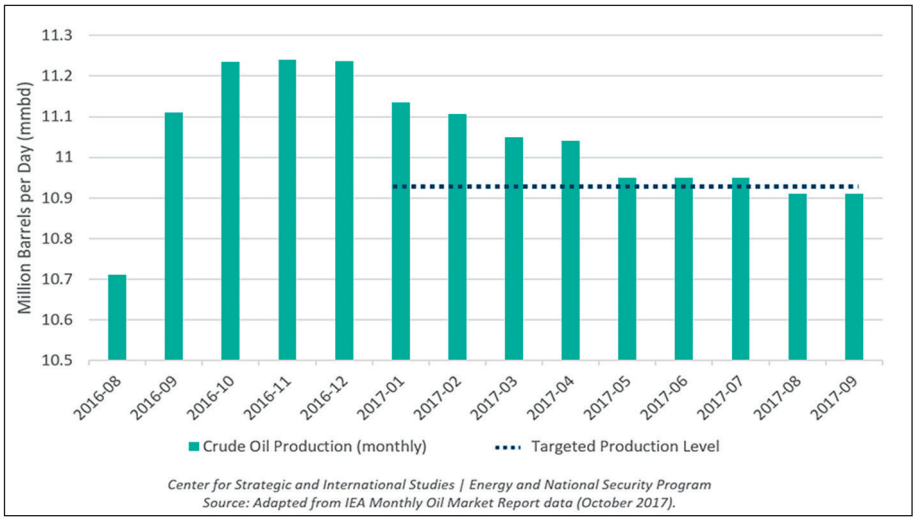
78 HENDERSON, James, MEHDI, Russia's Middle East Energy Diplomacy. How the Kremlin Strengthened Its Position in the Region, Foreign Affairs, 20th June 2017.

79 Rosatom. «Tunisia and Russia signed an Intergovernmental Agreement on Peaceful Use of Atomic Energy», 26th September 2016.

80 Sputnik International. «Russia ready to offer nuclear technology to Algeria». 9th October, 2017.

in the short-cycle shale oil era. Since 1998, Russia had been a party to three other OPEC agreements, and in each case it had failed to keep its promises or implement its proposals.

Both countries needed oil prices to rise above 50 dollars per barrel, with Russia prepared to maintain its budget before the Presidential Elections in March 2018 and Saudi Arabia desperate to finance a costly war in Yemen, to carry on paying out the social provisions to prevent domestic disturbances and to support the initial public offer put forward by its most important company, Saudi Aramco[81]. In May 2017, after the agreement had been extended for a further nine months, the Saudi Oil Minister Khalid Al-Falih stated that the aim was to reduce the global stocks of oil to their 5-yearly average.



Graph 18: Russian production of crude oil and degree of compliance with the agreement.

Russia committed itself to reducing in stages, 300 mb/d of its crude oil production. With 11 million b/d, this amounted to less than 3% of Russia's total oil production. According to the International Energy Agency, Russia managed to achieve full compliance in August and cut back its production by 318 mb/d in September. Nevertheless, as is indicated in *Graph 18*, it must be pointed out that Russia –together with most of the other countries that signed the agreement– increased production to a record high in the months before the agreement. Although the monthly production volumes fell below the 2016 levels for the first time in September 2017, Russia hardly made any market share sacrifice while at the same time enjoying the economic benefits and political advantages of being part of the agreement. At the end of October 2017, the agreement to reduce oil production finally achieved its objective of raising oil prices to 60 dollars per

81 Ibid.

barrel. Success was mainly due to Saudi Arabia's overzealous observance of the agreed production cutbacks, together with Russia's fulfilment, whereas the rest of the OPEC countries exceeded their combined quotas[82].

The Kremlin demonstrated that it had the oil sector well under control. Russia reduced its production and managed to comply regardless of operational difficulties, objections lodged by the Russian oil companies and medium-term doubts about Russia's commitment. More than 50% of production is controlled by the State through its shareholding in Rosneft and several other companies, and it could be said that Putin has a greater shareholding in the oil sector than ever. The Russian companies responded to the cutbacks mainly by reducing their drilling activities, instead of closing wells. The key to achieving compliance was to drill less intensively in more mature fields with natural decline.

At the end of November 2017, the 14 members of OPEC plus another 10 oil-producing countries agreed to carry on applying the cut-backs until the end of 2018, and to review the situation in June. The agreement was accepted despite Russia not appearing to share the same aims and the last-minute stance adopted by the Russian Oil Minister, Alexander Novak, who warned that oil prices above 60 dollars per barrel could lead to a revival in the US shale industry production boom[83].

When this document was completed (December 2017) it was still not known whether Russia really had the will required to keep its promise, in spite of the fact that Saudi Arabia and Russia would appear to be duplicating their commitment to carry out the task, with King Salman visiting Moscow and announcing that the two countries are still working to stabilise the market[84].

The data at the end of 2017 would tend to suggest a resurge in drilling activity. In fact, Rosneft, which contributes with approximately 100 mb/d to the Russian production cutback, has stepped up production drilling. This adds a degree of uncertainty in Russia in view of the technical difficulties associated with imposing cutbacks in the winter months, coupled with the fact that Russian production volumes usually increase towards the end of the year. Several Russian companies have stated that they cannot reduce their production without running the risk of causing irreversible damage to their wells as a consequence of the extreme temperatures in Siberia. Furthermore, companies like Rosneft are heavily in debt and have already sold off large portions of their future production[85]. The true extent of the Russian companies' commitment to the agreement will be made known in 2018.

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82 CHOW, Edward C., STANLEY, Andrew J., Russia and Saudi Arabia: A New Oil Romance? CSIS, 3rd November 2017.

83 BURNS, Stuart, «OPEC's Latest Agreement May Not Stabilize Oil Prices», Oilprice.com, 5th December 2017.

84 CHOW, Edward C., STANLEY, Andrew J., «Russia and Saudi Arabia: A New Oil Romance?» CSIS, 3rd November 2017.

85 Ibid.

Opening up to India

Since 2016, India and Pakistan have also come under the sights of Russia. India has promoted a diplomatic strategy model aimed at implementing an energy prospection plan linked to obtaining Russian oilfield exploitation rights and constructing safe oil transport facilities from Iran to India[86]. In recent years there has been a rapid growth in all aspects of the bilateral relations, involving political, strategic and defence acquisition aspects –including the joint development, design and production of military material–, nuclear energy, including the construction of nuclear power plants, hydrocarbons –oil, gas and coal–, as well as cooperation in space, science and technology.

A consortium comprising three Indian companies, Indian Oil Corporation (IOC), Bharat Petroleum Corporation Ltd and Oil India Ltd purchased a 23.9% shareholding (2 billion dollar) in Vankorneft, a subsidiary of Rosneft that produces oil in one of the largest fields in Eastern Siberia, and a 29.9% (1.25 billion dollar) in the Taas-Yuryakh gas and oil company, which operates the 240 MMBbl Srednebotuobinskoye field. In 2017, IOC, India's largest enterprise, purchased from Russia the oil cargo of 6 Suezmax carriers for its Koyali refinery in Gujarat, when before 2017 India hardly imported any oil from Russia[87]. In August 2017, a consortium headed by the Russian oil company Rosneft (ROSN.MM) clinched a 12.9 billion dollar deal to purchase the private Indian refinery Essar Oil.

At the trilateral summit held between Russia, Iran and Azerbaijan in Teheran in November 2017, Russia announced that it intended to supply gas to Northern Iran via pipelines from Azerbaijan and to construct the *South Asian Stream* gas pipeline from Iran to Pakistan and India, which for Russia could mean not only a good alternative for the outflow of Russian gas to the South, but also a first-class diplomatic success, because this would make a major energy diplomacy contribution towards stabilising the conflict between India and Pakistan[88].

Conclusions

Once the cold war came to an end, the Russian Federation steadily constructed an increasingly close energy relationship with the EU countries. Russia became the first gas and oil supply source for the EU, while at the same time Russian firms received from the EU countries, the technology and financing they needed to develop the Russian energy industry. Gas and oil exports served as the driving force behind the Russian economy and as an instrument of its foreign policy.

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86 QINHUA, Xu, «The thirst of China, Japan, India and South Korea: geostrategic consequences in the coming years», Vanguardia Dossier. The Geopolitics of Energy (October/December 2014).

87 KATONA, Viktor, «What Is Behind The Surge Of Russian Oil Exports To India?» Oilprice.com, 25th May 2017.

88 KORYBKO, Andrew, «Russia's Iranian Energy Deal Killed Four Birds with One Stone», Global Research, 4th November 2017. See at: https://www.globalresearch.ca/russias-iranian-energy-deal-killed-four-birds-with-one-stone/5617192.

After Putin came to power in 2000, relations between Moscow and the Western capitals gradually cooled.

The first major setback came in 2008 as a result of Russia's military intervention in Georgia. The Kremlin reacted by turning towards China on both a diplomatic-strategic level and an energy level. The subsequent Ukraine crisis in 2014 led to a serious deterioration in East-West relations and to sanctions being imposed on the Russian Federation by North America and Europe. This time, Putin responded with an ambitious and risky strategy in the Middle East, sustained by a military arm in the Syrian War and an energy arm through the powerful Russian companies, led by Rosneft. This new geostrategic plan, known as *the pivot to Asia*, completed the earlier *pivot to China*, encompassing the continent via the Pacific Ocean and the Indian Ocean, which are where the large energy markets of the future lie.

The vicissitudes affecting leadership in Washington and the crisis caused by *Brexit* in Brussels have paved the way for Moscow, which has found its position as a global power enhanced by having positioned itself skilfully in the Middle East, the Gordian Knot for hydrocarbon production and distribution. The Kremlin's turn towards Asia is opening up the doors to China and India, two great nations hungry for energy resources that are destined to reshape the world's geopolitical balances.

The USA, which has gone from having been the world's main importer of hydrocarbons a decade ago to be about to become the greatest exporter, is not standing by idly and passively. The four main powers in the coming decades–with permission from the EU–, the USA, China, India and Russia, will have to readjust their respective positions in a global energy geopolitics that is undergoing major transformations; and this will not be exempt from tensions.

The USA and Russia will be immersed in a rivalry for the energy markets as well as their deep strategic differences. Washington and Brussels may well have divergences in the way to approach energy relations with the Kremlin. Serious tensions for the same reason could well affect the EU internally. Moscow will be lying in wait to take advantage of any disagreements between its Western rivals. China and India attempting to form an oligopoly to affect the energy market from a demand perspective cannot be ruled out either.

The Russian Federation, harassed by the West, has made a virtue of necessity, and its President, Vladimir Putin, has done well at the helm and steered the State through the storm with amazing grit and determination. The economy and, consequently, the development of its energy industry will be crucial factors when it comes to the Kremlin being able to hold onto its position of strength when facing the West.

It will be necessary to wait and see if Russia, overcoming the effects of the sanctions, will be able to obtain the technology required to fully develop its energy potential. If it manages to overcome the medium-term challenges, time could

enable Russia to receive this technology from China or, to a certain extent, develop it by itself.

Yet there are also other serious question marks hanging over Russia: Firstly... Will it be able to successfully cope with the structural reforms that are undeniably necessary, and without which the Russian economy would be immersed in a prolonged period of stagnation?

After years of sanctions, recession and economic difficulties, it is quite clear that the weak domestic consumption cannot play a significant role. Therefore, economic growth will depend on investments. However, the uncertainty surrounding property rights is still a major stumbling block preventing large-scale private investment to come. Only one thing is clear: in the foreseeable future, the oil and gas industry will still be of essence with regard to economic development, revenue from exports and the budget[89].

Secondly... What will happen when Putin relinquishes his power? Will his successor also be able to pull as many strings in an increasingly complex context of growing tension?

Finally... How will prices and technological breakthroughs affect the way in which the great energy scenario evolves? Reasonably higher prices will benefit Russia, whereas the opposite would be to the USA's advantage. When all is said and done, there is absolutely no doubt that energy geopolitics in the coming years, especially in the Middle East, will be a cause for concern and dispute between the major powers, Russia included.

[89] Global energy dialogue: Russian oil and gas, Columbia SIPA Center of Global Energy Policy, July 2017.

Chapter III

Turkey: geopolitics, energy and political survival

Melike Janine Sökmen and Eduard Soler i Lecha

Abstract

This paper presents the geopolitics of energy in Turkey both at the domestic and international level. It first analyses the growing energy needs in Turkey and looks at Turkey as a transit country, assessing the role of pipelines. It then focuses on Turkey's energy diplomacy vis-à-vis its neighbours and its relevance for domestic politics. This paper argues that Turkey's aim is to turn energy from a vulnerability to leverage through becoming a regional energy hub. This requires better managing its energy dependency, and mediating for a peaceful region by isolating politics from energy in its neighbourhood.

Keywords

Energy; oil; gas; hub; Turkish foreign policy; Turkey; European Union; Russia; Iran; Iraq; Eastern Mediterranean.

Introduction

Turkey's energy demand grows in parallel with a growing economy and population. Energy is both a tool for and driver of Turkish domestic and foreign policy, with an ever increasing impact on Turkey's economics and politics. This paper aims to analyse the role of energy and the energy sector in Turkey, and to what

extent it shapes Turkey's inclusion in international affairs. Turkey's dependence on energy supply for stability in the domestic scene, its struggle to secure energy resources in a volatile neighbourhood and its long-term goal become an energy hub all make energy a pivotal issue for Turkey, heavily intertwined with the politics and economics of the country.

The paper first goes through the energy sector in Turkey, looking at demand, supply and diversification. It continues with an analysis of Turkey's goal of becoming an «energy hub», and the international pipeline projects Turkey is involved in. Then, it looks at Turkey's energy diplomacy with its neighbours, and the role of energy in Turkey's international affairs. At the end, the paper investigates politics around energy in the domestic scene of Turkey.

Overview of the energy sector in Turkey

With a population of 79.3 million people[1] and a territory of 783.562 square kilometres, Turkey has a low population density except its big cities, namely Izmir, Ankara and Istanbul, where consumption in the country is also heavily concentrated. Turkey has a relatively young, urbanising population with increasing energy needs[2].

It is not only Turkey's growing energy demand, but also its neighborhood that shapes the sector. Next to a region with the largest known oil and gas reserves in the world plays a prominent role in Turkey's geostrategic position. Turkey aspires to be an energy hub between the Middle East, Caucasus, Central Asia, Russia and the European market. Due to its geographical and climatic conditions, the country has the potential to utilize more renewable sources for energy production, particularly hydro, wind, solar and geothermal power[3].

From a state-controlled and owned industrialization to a liberal market economy, the energy sector in Turkey opened to the private sector as part of the economic liberalization process that started in the 1980s. The first law to set a framework for private investment came into effect in 1984. The first legislative changes to respond to this opening, securing sovereign guarantees for private companies' investment in electricity came in 1994 and 1997. With the membership prospect for the European Union (EU) on the table, the Turkish government relied on the directives and reforms of the EU to set its roadmap for the energy sector.

As part of a comprehensive response by the Turkish government to the 2001 financial crisis with the support of the World Bank and the IMF, the energy market reforms, namely the Electricity Market Law and a Natural Gas Market Law were launched the same year. The main aim of these laws was to provide high quality,

1 World Bank (2016), *Turkey Country Overview*.
2 International Energy Agency (2016), *Energy Policies of IEA Countries: Turkey 2016 Review*, p. 21.
3 International Energy Agency (2016), *Energy Policies of IEA Countries: Turkey 2016 Review, p. 21-22.*

uninterrupted and low cost energy. These laws provided for sectoral restructuring, the establishment of electricity and gas markets, market opening, electricity suppliers, bilateral contracting, open access to networks, and the establishment of an Energy Market Regulatory Authority (EMRA)[4]. Yet the development of the gas market is well behind electricity, and gas demand exceeds supply especially during winter, resulting in supply curtailments[5].

Policy-making in the energy sector in Turkey is guided by five-year plans. The 10th Development Plan launched in 2013 for the years 2014-2018 states the goals such as increasing energy efficiency and renewable energy, decreasing import dependence, diversifying sources, building pipelines, natural gas storage facilities and nuclear power plants[6]. Turkey's longer term energy ambitions are envisaged as stated in the Vision 2023, Turkey's economic development strategy for 2023, the centenary anniversary of the Republic of Turkey. Vision 2023 sets targets such as developing Turkey into one of the ten largest economies in the world with annual exports of 500$ billion. In the area of energy, it aims to promote indigenous energy resources (mostly lignite), raising the share of wind and geothermal energy to 30% in electricity production; reducing energy consumption by 20%, improving efficiency and setting up nuclear power plants[7].

Turkey's dependency on energy import, mainly on oil and natural gas, is increasing due to this growing energy demand. Currently, Turkey is able to meet only around 26% of its total energy demand from its own domestic resources[8], and the dependency on energy import, most significantly on oil and natural gas, is increasing because of growing demand. The energy import bills make up around 50% of Turkey's foreign trade deficit[9]. Energy security has become one of the main driving factors behind Turkish foreign policy, with the aim of diversifying resources. In 2016, on a resource basis, 32.1% of the electricity was produced from natural gas and LNG[10]. Yet Turkey produces less than 1% of the natural gas it consumes and relies completely on imports.

Natural gas an coal are the biggest components of Turkey's energy mix. Turkey is aiming to diversify its mix by increasing the share of domestic nuclear and renewable energy; on the other hand, it is also increasing the share of coal use, which is a cheap and domestically available resource, but contradicting with Turkey's environmental commitments.

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4 World Bank (2015), *Turkey's Energy Transition: Milestones and Challenges*, p. 13.

5 World Bank (2015), *Turkey's Energy Transition: Milestones and Challenges*, p. 14.

6 Official Gazette (2013), «Decision for the Approval of the 10th Development Plan», no. 28699, p. 15 (6 July 2013).

7 International Energy Agency (2016), *Energy Policies of IEA Countries: Turkey 2016 Review*, p. 28.

8 Ministry of Foreign Affairs, *Turkey's Energy Profile and Strategy*.

9 International Energy Agency (2016), *Energy Policies of IEA Countries: Turkey 2016 Review*, p. 30.

10 Republic of Turkey Ministry of Energy and Natural Resources (2017), *Dunya ve Turkiye Enerji ve Tabii Kaynaklar Gorunumu*, nº. 15, p. 16.

While energy reliance is both an important leverage and vulnerability for Turkey –leverage because of the providers' dependence on energy export and vulnerability because of the buyer's dependence on energy regardless of the social, political economic conjuncture–, securing affordable energy domestically is crucial for stability, both economically and politically. Hence, Turkey's energy efficiency policies are not a choice but a need. Turkey is aiming to turn energy from a vulnerability to leverage through its efforts to become a regional energy hub. The results of the efforts, as well as the process will most likely have significant impact on the socio-political realities of the regions that Turkey neighbours.

Turkey: an energy producer, an energy consumer

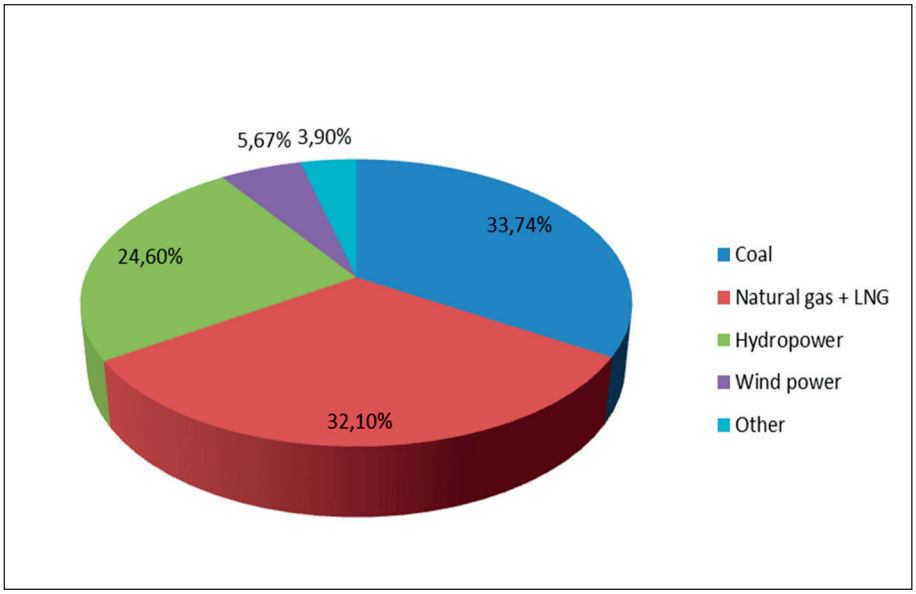

Figure 1. Electricity energy production in Turkey on a resource basis, 2016. Source: Own elaboration on Republic of Turkey Ministry of Energy and Natural Resources (2017), Dunya ve Turkiye Enerji ve Tabii Kaynaklar Gorunumu, no. 15, p. 17.

Resources

Oil

Turkey's indigenous oil production is small and in decline, and crude oil imports are increasing. The domestic petroleum reserves in the first half of 2017 were 332.8 million barrels, with a lifespan of 18 years in case there are no new discoveries, based on the current production level[11]. Most of the oil reserves in the

[11] Republic of Turkey Ministry of Energy and Natural Resources Info Bank (2017), «Petrol».

country are located in South-east Anatolia, and the largest share of production is carried out by the Turkish Petroleum Corporation (TPAO), the oil and gas exploration and production company in Turkey.

Turkey relies heavily on oil imports. In 2015, indigenous production accounted for only 9.4% of domestic supply[12]. Countries with the biggest share of oil export to Turkey in 2016 have been Iraq, Russia and Iran[13].

From 2005 to 2015, net crude oil imports have increased by more than 7% and net imports of oil products by 260%. While the current political situation in Syria and northern Iraq challenges the security of oil transportation, supplies to Turkey have generally been unaffected[14]. On the other hand, the Kurdish issue in Turkey has posed challenges to the domestic oil sector, given that most of the oil reserves in the country are located in the majority-Kurdish populated South-east of Turkey.

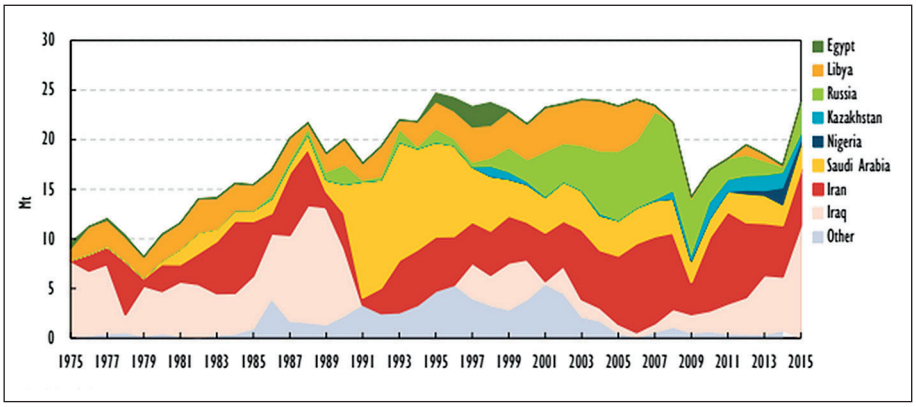

Figure 2. Crude oil imports by source, 1974-2015. Source: International Energy Agency (2016), Energy Policies of IEA Countries: Turkey 2016 Review.

Natural Gas

Among the biggest importers in Europe, Turkey' main fuel is natural gas. With growing demand since its first use in the 1980s, gaining momentum in the 2000s, gas has become the fuel of choice in industrial, residential and power generation sectors, mainly for two factors: rising concerns about air pollution in big cities due to coal fired power plants, and economic efficiency, due to short construction period of plants and high thermal efficiency[15]. As a result,

[12] International Energy Agency (2016), *Energy Policies of IEA Countries: Turkey 2016 Review*, p. 72.
[13] Republic of Turkey Energy Market Regulatory Authority (2017), *Turkish Petroleum Market Report 2016*, p. 8.
[14] International Energy Agency (2016), *Energy Policies of IEA Countries: Turkey 2016 Review*, p. 71.
[15] Tagliapietra, Simone (2016), *the Changing Dynamics of Energy in Turkey*, Fondazione Eni Enrico Mattei, p. 4-5.

issues related to natural gas, e.g. supply and price, directly influence the industry, especially the electricity market that relies heavily on natural gas. Also, as mass-imported product, natural gas plays a significant role in Turkey's foreign trade balance.

The use of natural gas is relatively new in Turkey. Its consumption began in 1987 with imports from Russia to diversify electricity production and prevent air pollution in big cities because of coal use for heating. The first important projects were the natural gas pipeline from Malkoçlar on the Bulgarian border to Ankara (1988), the Hamitabat CCGT Power Plant (1989) and natural gas delivery to Istanbul and Bursa (1992). The Marmara Ereğlisi LNG Terminal project was commissioned in 1994[16]. In the last quarter of the 20th centrury, the consumption of natural gas in Turkey's energy supply boomed.

Prior to the passage of the Natural Gas Market Law in 2001, the state-owned BOTAŞ (Petroleum Pipeline Corporation) was the only company operating as main supplier, importer and transmission company. In line with the EU's 1998 gas directive, the efforts to liberalise the gas market started in late 1990s. The aim of the Natural Gas Market Law signed in 2001 was to establish a legal framework for a fair, transparent and competitive natural gas market under an independent regulator, so cancelling out BOTAŞ's monopoly in the market[17].

While the Natural Gas Market Law entered into force in the same year as the Electricity Market Law, progress in the natural gas market stayed behind electricity. This was due to a dilemma between continuing with reforms for liberalisation as an EU candidate country versus creating a hub and corridor in Turkey to Europe through BOTAŞ, assuming liberalisation would prevent Turkey from becoming a major energy player and would endanger the supply security. As a result, unlike for the electricity market, the implementation of reforms did not succeed; BOTAŞ is still the dominant supplier in the market[18].

Given that it has almost no domestic natural gas resources, Turkey has to import gas from producing countries in the region. By the end of 2016, the total number of natural gas consumption was 46.1 bcm (billion cubic metres); from 2002 to 2016, natural gas consumption has increased by 2.7 times[19]. In 2016, within the total amount of natural gas supply, the rate of supply from domestic resources was as low as 0.8%. As natural gas production in Turkey is decreasing by year, import is increasing vastly.

The three biggest natural gas exporters to Turkey are Russia, Iran and Azerbaijan, all in Turkey's neighbouring regions. As much as import sources are in-

16 World Bank (2015), *Turkey's Energy Transition: Milestones and Challenges* (July 2015), p. 127.
17 World Bank (2015), *Turkey's Energy Transition: Milestones and Challenges* (July 2015), p. 133.
18 World Bank (2015), *Turkey's Energy Transition: Milestones and Challenges* (July 2015), p. 143.
19 Republic of Turkey Ministry of Energy and Natural Resources (2017), *Dunya ve Turkiye Enerji ve Tabii Kaynaklar Gorunumu*, no. 15, p. 38.

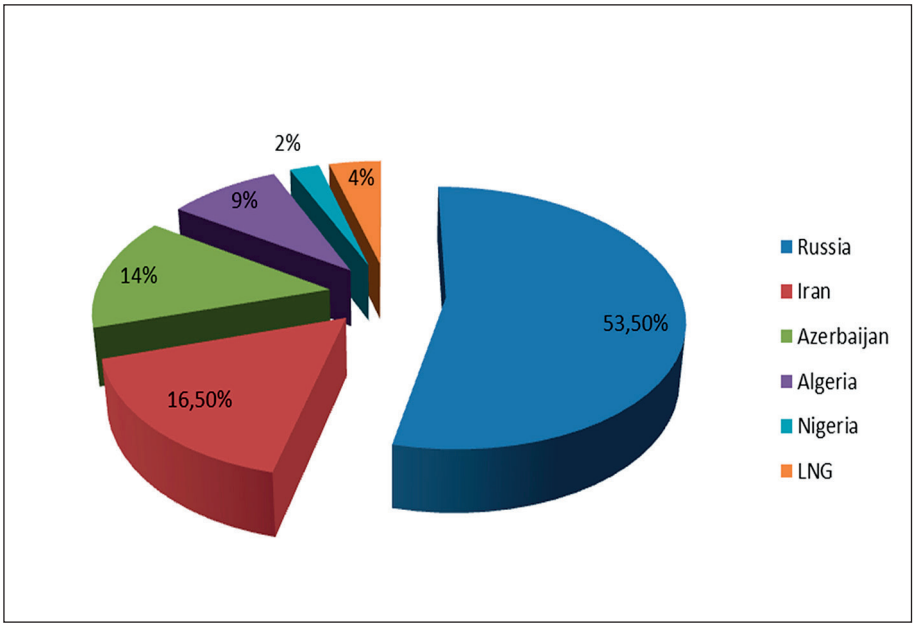

Figure 3. Turkey's natural gas import on country basis, 2016. Source: Own elaboration on Republic of Turkey Ministry of Energy and Natural Resources (2017), Dunya ve Turkiye Enerji ve Tabii Kaynaklar Gorunumu, no. 15, p. 40.

creasingly diverse, Russia's share in the total import is still more than half[20]. In addition to gas imports through pipelines, LNG imports were liberalised through legal arrangements made in 2008; BOTAŞ and private sector company EGEGAZ have been importing LNG since 2009.

Turkey imports LNG from Nigeria, Algeria and Qatar. Despite Turkey and Qatar's strong bilateral relations ranging from politics to economics and Turkey's efforts in the past, Turkey has not managed to sign long-term LNG import contracts with Qatar, which would have allowed Turkey to import LNG at cheaper prices. Amidst the Qatar diplomatic crisis, the most Turkey could get was a medium-term agreement between the state-run Qatargas and Turkey's BOTAŞ in September 2017 to deliver 1.5 million tons of LNG for the next three years[21]. Despite Turkey's interest in further developing its LNG market, 84.2% of the natural gas imports still enter Turkey via pipelines. Turkey's share of LNG is not comparable with countries such as Spain or Portugal (more than 40% of their total natural gas imports) for whom it is a key component of their diversification strategy.

[20] World Bank (2015), *Turkey's Energy Transition: Milestones and Challenges* (July 2015), p. 127.
[21] *Hurriyet Daily News* (2017), «Qatargas to sell 1.5 mln tons of LNG a year to Turkey's Botaş» (20 September).

Exploratory drilling for potential shale oil and gas deposits are taking place in the Dadaş formation in the Diyarbakir Basin, as a joint venture of Shell and TPAO. The expected unconventional oil reserves in the area are around 4.7 billion barrels . Most of the exploratory activities coincide with periods of high oil prices; the current low oil price environment could limit Turkey's oil/gas exploration activities. Exploration drilling is still at a low level and uncertainties remain high with regard to the potential .

Although Turkey is highly dependent on natural gas imports, the Turkish government is progressing slowly regarding the extraction of shale gas, and there is no comprehensive project or plan on the agenda. The agenda of the government regarding shale gas is determined by the initiatives of private companies just as with other energy investments.

Turkey's reliance on pipeline delivery is problematic because of terrorist activity and security problems stemming both from the country itself and some of its Middle Eastern neighbours [22]. Security of natural gas supply has been a top energy policy priority for Turkey, and perceived as the most geopolitically vulnerable resource, more than oil –which has a flexible global market- or coal –which is domestically more available-[23]. On the other hand, positioned between source regions and consuming regions, Turkey is making efforts to turn this vulnerability into an asset through diversifying its own gas supply and becoming a regional gas hub. Yet progress to create a gas trading hub in Turkey and the development of gas storage and transportation capacities has been much slower than expected. One major reason is the state-owned Turkish oil and gas pipeline operator and importer BOTAŞ dominating the import, supply, trade and transmission activities[24].

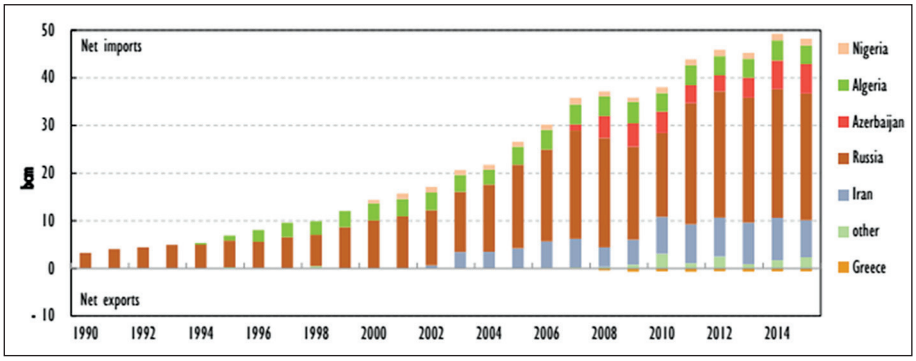

Figure 4. Turkey's natural gas net trade by country, 1990-2015. Note: Other includes spot LNG. Source: International Energy Agency (2016), Energy Policies of IEA Countries: Turkey 2016 Review.

[22] CEFTUS (2016), *Turkey's energy (in)security and energy ambitions: A review of energy issues in Turkish foreign policy*, p.3.

[23] Tagliapietra, Simone (2016), *the Changing Dynamics of Energy in Turkey*, Fondazione Eni Enrico Mattei, p. 5.

[24] International Energy Agency (2016), *Energy Policies of IEA Countries: Turkey 2016 Review*, p. 125.

Coal

Turkey has large reserves of lignite and some hard coal. It holds about 3.2% of the total world reserves of lignite/sub-bituminous coal. Yet because of lignite's low-energy content, the reserves are mostly used in thermal plants. Approximately 46% of the lignite reserves in the country are located in the Afsin–Elbistan basin, and the biggest hard coal reserves are in Zonguldak and the surrounding regions.

As of end 2016, lignite reserves in Turkey equated to 12.712 million tons and hard coal reserves to 1.297 million tons; 27 million tons of lignite 1.5 million tons of hard coal was produced[25]. Again, as of end 2016, the amount of electricity generated from thermal power plants within the total amount of electricity production were 67.6%; 33.74% of electricity production from thermal power plants is from coal-burning power stations, holding the biggest share[26].

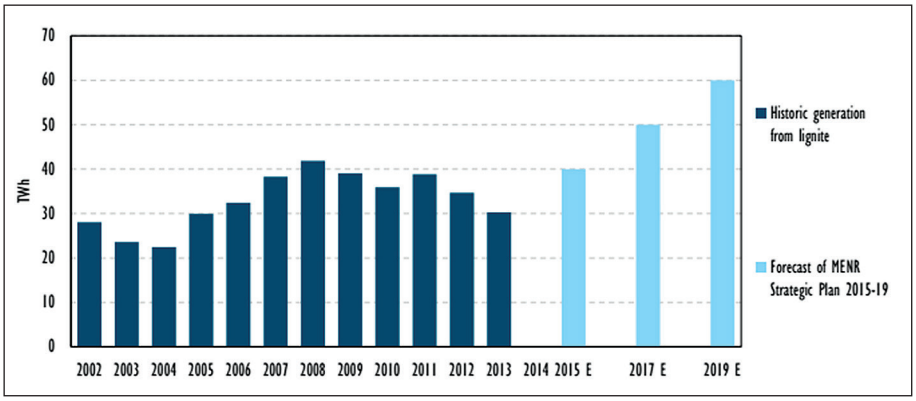

Figure 5. Planned increase in the use of domestic coal in power generation. Source: International Energy Agency (2016), Energy Policies of IEA Countries: Turkey 2016 Review.

Turkey has one of largest coal power plant development programmes, following India and China. However, most of the hard coal consumed in Turkey has to be imported, as domestic coal is of low-energy and lignite fields are only partially developed. The International Energy Agency considers lignite, the only indigenous fossil fuel with significant reserves, to be the main component for future energy demand, together with nuclear energy and renewable sources. Given the price advantage of coal over natural gas, the government aims for increased use of imported hard coal and lignite in securing supply in the future[27].

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[25] Republic of Turkey Ministry of Energy and Natural Resources (2017), *Dunya ve Turkiye Enerji ve Tabii Kaynaklar Gorunumu*, no. 15, p. 41.

[26] Republic of Turkey Ministry of Energy and Natural Resources (2017), *Dunya ve Turkiye Enerji ve Tabii Kaynaklar Gorunumu*, no. 15, p. 16.

[27] International Energy Agency (2016), *Energy Policies of IEA Countries: Turkey 2016 Review*, p. 89.

On another note, the use of coal comes with several issues in Turkey. It has very negative implications on climate change; working conditions and workers' safety in Turkish coal mines have been and still is a major public concern[28]. Also most of the new projects, equating to more than 30 GW in total, are still pending[29].

Compared to international patterns, coal use in industry and residence is very common in Turkey, where the share of coal consumption in these sectors is higher than China. Coal is still a common base fuel for space heating[30]. In 2015, imports accounted for 96% of the total hard coal supply in Turkey, and from 2005 and 2015, imports have increased more than 95% because of increasing demand and low prices[31]. At the same time, domestic coal production is going through steady decline as imported hard coal has become the key source to meet energy demand[32].

Electricity

From public monopolies until the 1990s, the electricity market in Turkey has gone through vast change in the 21st century. The restructuring and privatisation of the electricity sector from 2008 to 2013 attracted major private investments in power generation; and since 2014, the Turkish electricity system has been synchronised with the Continental European system[33]. A long-term agreement was signed between TEIAS (Turkish Electricity Transmission Company) and ENTSO-E (European Network of Transmission System Operators for Electricity) on permanent synchronous operations between TEIAŞ and the continental European members of ENTSO-E on April 15, 2015, through which Turkey became permanently connected to the European electricity system[34].

Turkey's over-dependency on natural gas imports for electricity generation creates supply deficiencies, where the lack of sufficient storage and daily send-out capacity is an important risk for electricity supply security. Also, hydroelectric generation depends mostly on varying hydrological conditions[35]. Growth in coal-fired capacity may also be compromised due to safety concerns over mining accidents and Turkey's contribution to the COP21, which requires capping the

[28] Some major mining accidents covered widely by the media were, in 2011, when a landslide killed ten workers in Elbistan-Cöllolar; in 2014, the worst mining accident ever recorded in Turkey when a fire killed 301 workers in Soma; and again in 2014 in Ermenek, when 18 miners died in a coal mine after a flood followed by a landslide.

[29] International Energy Agency (2016), *Energy Policies of IEA Countries: Turkey 2016 Review,* p. 92.

[30] International Energy Agency (2016), *Energy Policies of IEA Countries: Turkey 2016 Review,* p. 93.

[31] International Energy Agency (2016), *Energy Policies of IEA Countries: Turkey 2016 Review,* p. 95.

[32] International Energy Agency (2016), *Energy Policies of IEA Countries: Turkey 2016 Review,* p. 99.

[33] International Energy Agency (2016), *Energy Policies of IEA Countries: Turkey 2016 Review,* p. 131.

[34] ENTSO-E (2016), «Turkish grid operator, TEIAS, joins ENTSO-E as observer member»,

[35] World Bank (2015), *Turkey's Energy Transition: Milestones and Challenges* (July 2015), p. 122.

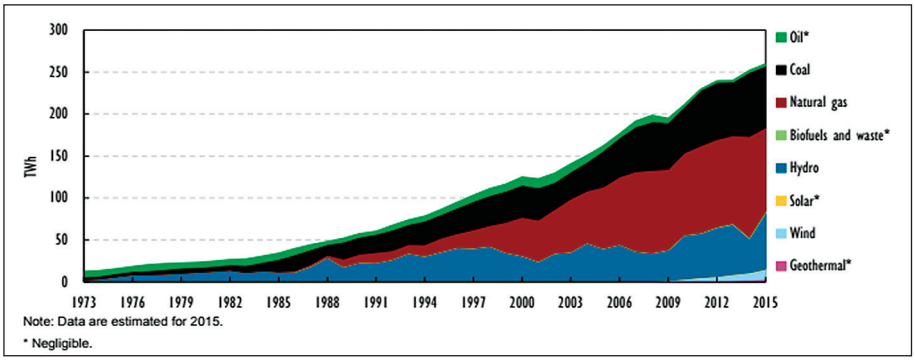

Figure 6. Turkey's electricity generation by source, 1973-2015. Source: International Energy Agency (2016), Energy Policies of IEA Countries: Turkey 2016 Review.

rise in greenhouse gas emissions by 21% over the period 2021 to 2030[36]. As a result, diversification of energy sources is a necessity.

On a different note, the availability of energy supply differs greatly from installed capacity. If the addition of nuclear and renewable energy capacities are delayed because of slow licensing, public acceptance and other issues, the prospects of increasing the share of renewable and nuclear energy in electricity production will be challenged.

Renewable energy

Turkey has a high potential of renewable energy production, particularly in solar, wind and geothermal power[37]. By end 2016, 67.6% of the total electricity production in Turkey was provided by thermal power plants (%33.74 from coal-based, and %32.1 from natural gas and LNG-based thermal power plants), 24.6% from hydroelectric power plants, and 7.8% from other renewable energy sources (5.67% from wind, 1.74% from geothermal, 0.36% from solar power and 0.8% from wastes)[38]. By the end of July 2017, the distribution of installed power in Turkey by resource was as following: 33.6% hydraulic, 28.1% natural gas, 21.5% coal, 7.7% wind, 1.1% geothermal and 7.4% other sources[39].

In theory, energy generation from renewable energy sources is deemed an important energy goal in Turkey, with the plan to diversify energy resources, reduce import dependence and greenhouse gas emissions[40]. While geothermal

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36 International Energy Agency (2016), *Energy Policies of IEA Countries: Turkey 2016 Review*, p. 155.

37 Moraleda, Pedro (2017), «Geopolítica de la energía en el Mediterráneo» in *Energía y Geoestrategia 2017*, p. 166.

38 Republic of Turkey Ministry of Energy and Natural Resources (2017), *Dunya ve Turkiye Enerji ve Tabii Kaynaklar Gorunumu*, no. 15, p. 15-16.

39 Republic of Turkey Ministry of Energy and Natural Resources Info Bank (2017), «Electricity»,

40 International Energy Agency (2016), *Energy Policies of IEA Countries: Turkey 2016 Review*, p. 177.

energy is used in electricity generation, the geothermal heat potential of Turkey, e.g. the use of biomass for district heating and industrial processes or solar power given the high rate of solar irradiation, remains undeveloped.

Compared to thermal power generation, renewable energy enjoys wide support; yet development in renewable energy has significant environmental and social impact. While developers complain about complicated procedures and delays, environmentalists and citizens express concern about inconsistent environmental permitting procedures and the lack of consultation and transparency in terms of the information provided to the public, which has caused public reaction in many cases, particularly hydroelectric power plants in Turkey[41].

The multi-dam hydropower project as part of GAP (Southeast Anatolian Project) -a regional development project for Turkey's underdeveloped and mainly Kurdish populated Southeast, with plans for agricultural, industrial, infrastructural, social development and employment- has been central to the hydropower development process, with a projected 22 dams and 17 hydroelectricity plants. The Euphrates and Tigris rivers have been pivotal in this project, but this has also created tensions between Turkey and downstream countries like Syria and Iraq[42]. Also, the hydropower project has been marked by social conflict between the state and the opposition to private control over water. The environmentalist demands against not only the GAP project but most private hydropower projects have to a large extent been ignored by the state.

Nuclear Energy

Turkey has had no production or consumption of nuclear energy yet. Although first studies to install nuclear energy facilities in Turkey were carried out in 1965, steps to construct two nuclear power plants were only launched in the 2010s following Turkey's increasing energy need[43].

Akkuyu power plant is the first facility expected to become operational. For Akkuyu, an intergovernmental agreement was signed in May 2010 between Turkey and Russia, ratified by their parliaments the same year. The project company registered by Russia will be responsible for designing, building, maintaining, operating, and decommissioning the plant for 60 years and the Turkish Electricity Wholesale Company (TETAŞ) will buy the energy for the first 15 years; buy 70% of the electricity generated by the first and second units, and 30% of the electricity generated by the third and fourth units at an average price of 12.35 USD cents/kWh, with the remaining electricity to be sold by the company at the market price[44]. While there have been many delays in the project, the construc-

41 World Bank (2015), *Turkey's Energy Transition: Milestones and Challenges* (July 2015), p. 37.
42 Islar, Mine (2012), «Privatised hydropower development in Turkey: A case of water grabbing?» *Water Alternatives*, vol. 5, no. 2, p. 381.
43 Ülgen, Sinan, ed. (2012), *The Turkish Model in Transition to Nuclear Energy II*, Istanbul: EDAM.
44 World Bank (2015), *Turkey's Energy Transition: Milestones and Challenges* (July 2015), p. 120.

tion is expected to start until end 2018, the first unit to operate by 2023 and the other units to operate by the end of 2026.

Turkey aims to build another plant in the Sinop area on the Black Sea coast. An Intergovernmental Agreement between Turkey and Japan was signed in May 2013 and ratified in May 2015, which states that Turkey will be responsible for securing 49% of equity in the Project Company while a consortium consisting of Mitsubishi Heavy Industries Ltd., Itochu Corporation (Japanese) and GDF Suez SA (France) will hold 51% of equity as long as the Power Purchase Agreement is in force[45]. The construction is expected to start by end 2019, the first two units to operate in 2023 and 2024, and the other units to operate by 2027 and 2028.

From 2020 on, nuclear power is expected to be available in Turkey after the completion of the first units of the Akkuyu nuclear power plant aiming to reach at least 10% of the total electricity mix by 2023 and the first units of the Sinop nuclear power plant projected to be active in 2023.

Contrary to many countries reconsidering their nuclear energy programme after the Fukushima disaster, the Turkish government has persistently carried on with its nuclear agenda with Russia and Japan and, more recently, through an agreement with China in 2016 to construct a third nuclear power plant. The Turkish government justifies its nuclear power agenda with increased energy security, lower costs, reduced carbon emissions and the availability of nuclear technology to accompany the construction and use of nuclear power plants[46].

Yet nuclear power projects come with many setbacks. The Akkuyu power plant project was repeatedly delayed, including after Turkey's downing of a Russian jet near the Syrian border in November 2015[47]. The project is back on track once again, but Erdoğan's decision to award the $20 billion-worth contract of the project to the Russian state-owned Rosatom and granting Russia control over Turkey's electricity production, as well as the environmental concerns about the safety of all the planned reactors regarding seismic, radioactive risks, risks to marine life and security issues vis-à-vis potential terrorist attacks remain issues of controversy.

Climate Change

Turkey became a signatory of the UN Framework Convention on Climate Change (UNFCCC) in 2004, the Kyoto Protocol in 2009 and the Paris Agreement in 2016,

[45] World Bank (2015), *Turkey's Energy Transition: Milestones and Challenges* (July 2015), p. 120.
[46] Colantoni, Lorenzo et al. (2017), «Energy and Climate Strategies, Interests and Priorities of the EU and Turkey», *FEUTURE Online Paper*, No. 2, p. 42.
[47] Baev, Pavel and Kirişci, K. Kemal (2017), «An ambiguous partnership: The serpentine trajectory of Turkish-Russian relations in the era of Erdoğan and Putin», *Turkey Project Policy Paper*, no. 13, p. 7, Brookings.

yet the country does not have a specific climate change legislation. On the basis of the NCCAP (National Climate Change Action Plan), Turkey submitted its intended nationally determined contribution in October 2015 to the UNFCCC, ahead of the Conference of the Parties (COP21) meeting in Paris. Under its COP21 pledge, Turkey aims to cap greenhouse gas emissions by up to 21% during 2020-30. The 2030 pathway includes renewable energy targets such as increasing the solar and wind capacity, and utilising the full hydroelectric potential[48].

Turkey was classified as an Annex I/II country under the UNFCCC in 1992 because of its OECD membership, meaning that it is obliged to take up measures combating climate change and provide financial resources to support developing countries. Turkey has been fighting against this, arguing that it is not fully industrialised and should be receiving climate finance instead of having to pay, as emerging countries with similar economies, such as Brazil or China, are not Annex I countries either[49].

Even though Turkey is still an Annex I/II country, Turkey persuaded other parties at recent COPs to not have an emission reduction obligation and, since 2010, the country has been able to receive funding from the Global Environmental Facility (GEF). It has lately been requesting to be eligible for financial support also from the Green Climate Fund, the financing mechanism under the Paris Agreement[50]. At the G20 Summit in Germany in July 2017, Turkish President Erdoğan even threatened to abandon the Paris Agreement unless the country became eligible for funding[51].

During the last decade, Turkey worked on developing clean coal solutions. There are some new coal-based power plants which have adopted supercritical technology; however, there are still many sub-critical thermal plants that emit heavy metals. On the other hand, high emission rates and low air quality is an increasing concern in the country. More than 90% of the urban population in Turkey is exposed to levels of particulate matter - the highest in Europe and higher than the EU and WHO (World Health Organization) limits[52].

Climate change scenarios for Turkey show an increase in the average temperature and a decrease in rainfall. Turkey's power sector relies largely on hydropower, which means that natural disasters, drought and other impacts from climate make energy security extremely vulnerable in Turkey, particularly in electricity production.

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48 International Energy Agency (2016), *Energy Policies of IEA Countries: Turkey 2016 Review,* p. 30.

49 Appunn, Kerstine (2017), «COP23 - German negotiator will try to keep Turkey on side», 6 November, *Clean Energy Wire*.

50 Appunn, Kerstine (2017), «COP23 - German negotiator will try to keep Turkey on side», 6 November, *Clean Energy Wire*.

51 Wagstyl, Stefan and Clark, Pilita (2017), «Turkey push for climate funds adds to concerns about Paris accord», 9 July, *Financial Times*.

52 International Energy Agency (2016), *Energy Policies of IEA Countries: Turkey 2016 Review,* p. 38.

Turkey: An Energy Connector

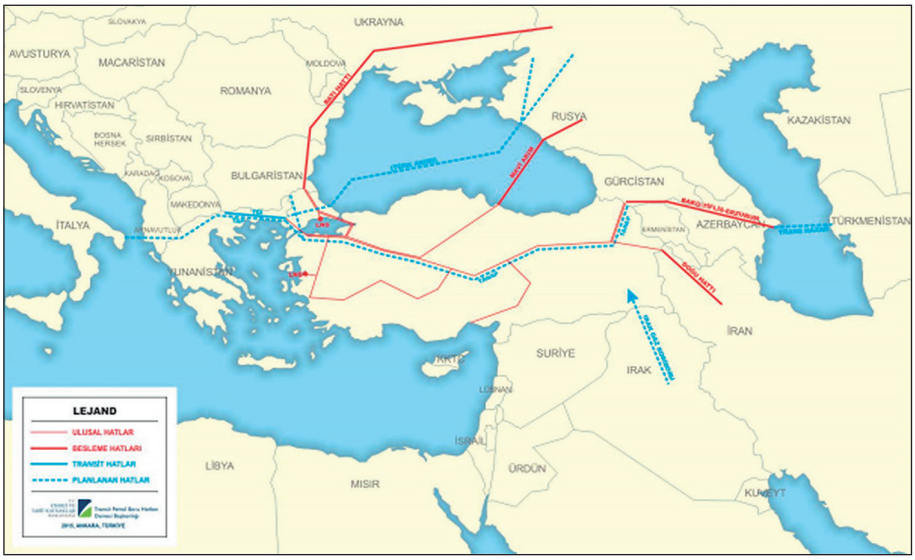

Figure 7. International natural gas pipelines and pipeline projects. Source: Republic of Turkey Ministry of Energy and Natural Resources (2017), Dunya ve Turkiye Enerji ve Tabii Kaynaklar Gorunumu.

Figure 8. International oil pipelines. Source: Republic of Turkey Ministry of Energy and Natural Resources (2017), Dunya ve Turkiye Enerji ve Tabii Kaynaklar Gorunumu.

The maps above reflect the proliferation of gas and oil pipelines converging into the Turkish territory, supplying energy from there to the global markets. There are significant differences between the pipelines in terms of trade or geopolitical value. Before moving into the analysis of energy as part of Turkish foreign policy, this section offers an overview of the development of those infrastructure plans.

Middle East

Iraq-Turkey Crude Oil Pipeline

This pipeline transports crude oil produced mainly in the Kirkuk field in Iraq to the Ceyhan (Yumurtalık) Marine Terminal in Turkey, within the framework of the «Crude Oil Pipeline Agreement» between Turkey and Iraq signed in 1973. The construction of the pipeline began in 1975 and went into operation one year later; the second pipeline was finished in 1987, and the annual transportation capacity of the pipeline increased to 70.9 million tons. The pipeline was not operational from 1991 to 1996, when Turkey enforced the UN sanctions on Iraq. The «Crude Oil Pipeline Agreement» was renewed in 2010, extending the agreements for 15 years. BOTAŞ owns and operates the part of the pipeline in Turkey[53]. Both transit oil pipelines in Turkey, namely the Iraq-Turkey and the Baku-Tbilisi Ceyhan routes, are for export and are important for the oil supply security of third countries rather than Turkey's own energy supply security[54].

Security threats and political instability have been a major challenge. The Turkish part of the pipeline has been a frequent sabotage target of the PKK. The Iraqi part of the pipeline has had similar security issues since the US-led invasion of Iraq in 2003. It has also been affected by the prolonged tension between the Baghdad government and the KRG (Kurdish Regional Government) regarding the fulfilment of their agreement on the share of Iraqi oil revenues.

The emergence of the organisation Islamic State (IS) in Iraq was a game-changer. Baghdad's retreat from the north in the face IS advance allowed the KRG's Peshmerga forces to seize control of Kirkuk and its oil reserves. The Baghdad-run Kirkuk-Ceyhan pipeline was blown up in March 2014. The KRG seized the opportunity to make profit of its own pipeline, built in 2013 and running from Khurmala (close to the Kirkuk field) to Ceyhan. This pipeline merges with the original Kirkuk–Ceyhan pipeline on the Turkish side of the border, and has been exporting crude oil to Turkey independently from Baghdad. In 2014, Peshmerga forces consolidated control over additional oil fields, including Bai Hassan and Avana Dome in Kirkuk and by 2015, Iraqi Kurdistan supplied 45.6% of total oil imports to Turkey[55].

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[53] Republic of Turkey Ministry of Energy and Natural Resources Info Bank (2017), «Oil Pipelines».

[54] International Energy Agency (2016), *Energy Policies of IEA Countries: Turkey 2016 Review,* p. 112.

[55] Bowlus, John V. (2017), «A crude marriage: Iraq, Turkey, and the Kirkuk–Ceyhan oil pipeline,» *Middle Eastern Studies,* p. 17.

The KRG secured the pipeline on the Iraqi side, but the outbreak of war between the Turkish state and the PKK in 2015 led to occasional cuts in the oil flow, particularly in March 2016[56].

Shortly after the independence referendum held in Iraqi Kurdistan on September 2017, Iraqi forces took over Kirkuk. This led to a halt in the oil flow to Turkey and a decrease in oil flows from the region to Turkish ports. Ankara and Baghdad have been communicating since the latter re-established control over Kirkuk. Baghdad is planning to repair its pipeline to continue shipping crude oil to the Ceyhan port.

Tabriz-Ankara Natural Gas Pipeline

In August 1996, a Natural Gas Purchase-Sale Agreement was signed between Iran and Turkey to supply an annual 10 bcm natural gas from Iran via the pipeline. The Eastern Anatolian Natural Gas Main Transmission Line, also known as the Iran-Turkey or Tabriz-Ankara line, runs from Doğubayazıt in East Turkey to Ankara. At the end of June 2001, the pipeline was in operation and the first import started on 10 December 2001[57].

There have been problems of supply cuts due to various conditions, such as PKK sabotage attempts, unilateral supply cuts from Iran to priotise its own energy demands as well as infrastructural problems.

Another major problem is the gas prices. The price of Iranian gas for Turkey is higher than average international market prices, due to Turkey's import dependency on Iran for natural gas. In 2012 Turkey took Iran to an international court for the arbitrary high price Iran charges on natural gas exports to Turkey. This problem mainly derives from the «take-or-pay» condition in the 1996 Natural Gas Purchase-Sale Agreement, which is valid for 25 years, and requires Turkey to import 10 bcm per year, with an obligation to pay regardless of the amount of import or consumption[58].

Caucasus and Central Asia

Baku-Tbilisi-Ceyhan Crude Oil Pipeline

The design of this pipeline shows Turkey's willingness to strenghten links with Georgia and Azerbaijan while isolating Armenia. This pipeline transports crude oil produced in the Azeri-Chirag-Guneshli oil field in the Caspian Sea from Azer-

[56] Bowlus, John V. (2017), «A crude marriage: Iraq, Turkey, and the Kirkuk–Ceyhan oil pipeline,» *Middle Eastern Studies,* p. 3.
[57] Republic of Turkey Ministry of Energy and Natural Resources Info Bank (2017), «Natural Gas Pipelines and Projects».
[58] Okumuş, Olgu (2014), «Why is Turkey buying more gas than it needs from Iran?», *Al-Monitor*.

baijan to the Ceyhan port via Georgia, and from there to the world market by tankers. An Intergovernmental Agreement was signed between the three countries on 18 November 1999, and a Host Government Agreement as an appendix of the Intergovernmental Agreement was signed between Turkey and Main Export Pipeline Participants on 19 October 2000[59].

As part of the pipeline agreement between the three countries, military forces from Georgia, Turkey and Azerbaijan receive regular training to develop measures to ensure the security of pipeline. These exercises have been in place since 1998[60].

The pipeline is owned and operated by BTC Co., a consortium of eleven energy companies managed by BP (British Petroleum). BOTAŞ operates as the contractor and operator of the part of the pipeline in Turkish territory, which in total is 1076 km. The pipeline is operating since June 2006. Next to Azerbaijan, crude oil from Turkmenistan and Kazakhstan is also transported[61]. The project acts as a major counterbalance of the West against Russian, and to a lesser extent, Iranian, economic and military influence in Caucasus and Central Asia. On the other side, as much as the project has contributed to the economies of the countries hosting the pipeline, it does not have the potential to be an alternative to Middle Eastern oil for the Western markets because of the limitations on supply.

Baku-Tbilisi-Erzurum Natural Gas Pipeline (South Caucasus Pipeline)

The Baku-Tbilisi-Erzurum Natural Gas Pipeline supplies natural gas from the Shah Deniz field to Turkey. The Intergovernmental Agreement between Turkey and Azerbaijan for this project to transport an annual 6.6 bcm natural gas to Turkey and a 15-year Natural Gas Purchase-Sale Agreement between Turkey's BOTAŞ and Azerbaijan's SOCAR was signed on 12 March 2001. The pipeline uses the same corridor as the Baku-Tbilisi-Ceyhan Crude Oil Pipeline in the territories of Azerbaijan and Georgia. The construction was started on 16 October 2004 and has been operating since July 4 2007[62].

There are plans to further develop the pipeline by increasing the capacity of Baku-Tbilisi-Erzurum's part in the Azerbaijan and Georgia territory in parallel with the second stage of the Shah Deniz project and to connect the South Caucasus pipeline to TANAP on the border of Turkey and Georgia. The project activities were launched in 2015 and the planned completion date of the gas supply of Baku-Tbilisi-Erzurum to TANAP is end of 2018.

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[59] Republic of Turkey Ministry of Energy and Natural Resources Info Bank (2017), «Oil Pipelines».

[60] Cornell, Svante E. and Ismailzade, Fariz (2005), «The Baku-Tbilisi-Ceyhan Pipeline: Implications for Azerbaijan» in *The Baku-Tbilisi-Ceyhan Pipeline: Oil Window to the West,* p. 76.

[61] Republic of Turkey Ministry of Energy and Natural Resources Info Bank (2017), «Oil Pipelines».

[62] Republic of Turkey Ministry of Energy and Natural Resources Info Bank (2017), «Natural Gas Pipelines and Projects».

Trans-Anatolia Natural Gas Pipeline Project (TANAP)

Figure 9. Map of the Southern Gas Corridor. Source: BP, https://www.bp.com/en_az/caspian/press/features/BP-shareholder-of-TANAP.html.

TANAP is part of the Southern Gas Corridor, which aims to connect the Shah Deniz field in Azerbaijan to Europe, together with South Caucasus Pipeline and Trans Adriatic Pipeline projects. It is a central project to reducing Europe's dependency on Russian natural gas as well as Turkey's aim to become a regional energy hub. The EU's Southern Corridor initiative was first materialised in 2008 in response to the energy crisis between Russia and Ukraine, under the EU Energy Security and Solidarity Action Plan.

An agreement with the Azerbaijan government and the Shah Deniz Consortium was signed on 25 October 2011 to supply an annual 6 bcm of natural gas from Azerbaijan to Turkey starting from 2018. An Intergovernmental Agreement between Azerbaijan and Turkey and a Host Governmental Agreement annex to the Intergovernmental Agreement between Government of Turkey and the project company was signed on 26 June 2012 to transport 10 bcm of natural gas to Europe via a new pipeline through Turkey[63]. In June 2013 the Shah Deniz consortium announced that it had chosen the Trans Adriatic Pipeline project over Nabucco for its gas exports, which also brought an end to the Nabucco project. In November 2014, Turkmenistan signed an outline deal with Turkey to supply gas[64]. The construction of TANAP started on 17 February 2015.

[63] Republic of Turkey Ministry of Energy and Natural Resources Info Bank (2017), «Natural Gas Pipelines and Projects.

[64] Hurriyet Daily News (2015), «Foundation laid for pipe to carry Azeri gas to EU».

The State Oil Company of Azerbaijan SOCAR holds a 58% stake in TANAP, while BOTAŞ holds a 30% BP a 12% stake. The first gas flow to Turkey is planned to be achieved in 2018, and the gas supply to Europe to start in 2020.

The Trans-Adriatic Pipeline (TAP) will connect TANAP to Greece at the Greek-Turkish border, crossing Northern Greece, Albania and the Adriatic Sea, then Southern Italy to connect to the Italian natural gas network. The construction of TAP started in 2016, and is currently in its construction phase. The goal of the project is to provide a direct and cost-effective route to the Southern Gas Corridor, a 3500-kilometre long network from the Caspian Sea to Europe[65].

Europe

Interconnection Turkey-Bulgaria (ITB)

The project is part of the Southern Gas Corridor and is important in terms of the security and diversification of the sources and routes of natural gas supply to European markets through Bulgaria[66]. Thus, it aimis to secure access to all entry points and sources between Turkey and Azerbaijan. Largely dependent on Russian gas supplies via Ukraine and constantly affected by the Moscow-Kiev price disputes and cuts in gas flow, Bulgaria has been looking for alternative gas suppliers. This project should allow Bulgaria to diversify its gas import and bypass the political issues around its current gas supply and security.

Interconnector Turkey - Bulgaria aims to develop the interconnectivity of the gas networks of Bulgartransgaz EAD (Bulgaria) and BOTAŞ (Turkey), through the Bulgarian-Turkish border in parallel to the existing gas pipeline of about 75 km length. The Turkish part of the interconnection is expected to connect with the transmission network of BOTAŞ in the gas pipeline section Önerler - Şarköy. The new pipeline is planned to be about 200 km, with 75 km in Bulgaria and 130 km in Turkey, and with a daily capacity of 3 bcm annually. Currently the project is still at the stage of feasibility studies[67].

Turkey-Greece Natural Gas Interconnection (ITG)

Although Greece and Turkey have multiple bilateral disputes, they have willingly engaged in improving their energy connections. This pipeline interconnects natural gas systems in Turkey and Greece and is part of the Southern Europe

[65] Trans Adriatic Pipeline, «TAP at a glance».

[66] Multiple interconnections have been proposed in recent years between the northern and southern shores of the Mediterranean, but currently the only transcontinental interconnections in the Mediterranean are that of Greece and Bulgaria with Turkey, and of Spain with Morocco. See: Escribano, Gonzalo (2017), «Energías renovables y renovación de la geopolítica» in *Energía y Geoestrategia 2017*, p. 47.

[67] Bulgartransgaz, «Interconnection Turkey – Bulgaria», *Connecting Europe Facility*.

Gas Ring project, developed within the scope of the INOGATE (Interstate Oil and Gas Transport to Europe) Program of the EU Commission. The total length of the Turkey-Greece interconnection is to be 296 km, with 211 km of the pipeline in Turkey and 85 km in Greece. The Intergovernmental Agreement between Greece and Turkey for the project was signed on 23 February 2003 and the Natural Gas Sale Purchase Agreement to export natural gas for 15 years has been signed between BOTAŞ and DEPA (Public Gas Corporation of Greece) on 23 December 2003[68]. The construction of the South European Gas Ring started in July 2005 and the pipeline has been operating since November 2007[69].

The plan that followed was to extend the pipeline from Greece to Italy and as such, an Intergovernmental Agreement was signed between Turkey, Greece and Italy on 26 July 2007. Although feasibility studies were conducted in 2003 with funding from the EU Commission, there has been no progress on gas transportation between Greece and Italy through this project due to the conflicting interests with the Trans-Adriatic Pipeline (TAP) project.

Russia

Turkish Stream Gas Pipeline Project (TurkStream)

TurkStream is a pipeline system running from Russia through the Black Sea to the receiving terminal in Kıyıköy, Turkey, crossing the border between Turkey and Greece in İpsala as a delivery point for the European market, with two parallel pipelines, approx. 900 km per line and with an annual capacity of 15.75 bcm each. The construction and operation of the two offshore pipelines is planned to be carried out by Russian PAO Gazprom. One pipeline in the onshore section will be constructed by BOTAŞ and only supply natural gas to Turkey. The second pipeline on the onshore section will supply gas to Europe; hence, the construction will depend on the gas purchase commitments of the EU member states[70].

The project was proposed by Russia in 2014 after the South Stream gas pipeline project, planned to run from Russia through the Black Sea to Bulgaria to enter the European market and funded by Russia's Gazprom, was dropped on the eve of Russian intervention in Ukraine, when the EU Commission stated that the project was breaking EU competition rules and Bulgaria had to suspend the project[71]. Following a temporary suspension of the project in the aftermath of the downing of the Russian fighter jet by Turkey in November 2015, the Intergovernmental Agreement for the project was signed on 10 October 2016 between

[68] Republic of Turkey Ministry of Energy and Natural Resources Info Bank (2017), «Natural Gas Pipelines and Projects».

[69] Atiyas, Izak et al. (2012), *Reforming Turkish Energy Markets: Political Economy, Regulation and Competition in the Search for Energy Policy*, Springer, p. 94-95.

[70] Republic of Turkey Ministry of Energy and Natural Resources Info Bank (2017), «Natural Gas Pipelines and Projects».

[71] BBC (2014), «Russia drops South Stream gas pipeline plan».

Turkey and Russia. Construction of the offshore section started on the Black Sea coast of Russia on May of 2017 and the planned date for its operation is end 2019. While the project would help Russia decrease its transit dependence on Ukraine to a large extent, it is not clear if the second pipeline running towards the Balkans and Italy via Greece will be finished before the projected deadline[72].

Blue Stream Natural Gas Pipeline

The pipeline project was launched with a 25-year Natural Gas Purchase-Sale Agreement for the supply of an annual 16 bcm natural gas supply to Turkey, signed Turkey's BOTAŞ and Russia's Gazexport on 15 December 1997. The aim of the project for Russia was to diversify its energy export routes to Turkey directly. The pipeline runs from Russia through a pipeline under the Black Sea to Turkey. The Turkish part of the project runs from Samsun to Ankara. The pipeline started operating in February 2003 and the official opening ceremony was held in November 2005.

Russia-Turkey Natural Gas Pipeline (West Line)

This pipeline enters Turkey from Malkoçlar on the Bulgarian border, then continuing to Istanbul and Ankara, with a total length of 845 km. The Intergovernmental Agreement for the project was signed between Turkey and the Soviet Union in 1984. A Natural Gas Purchase-Sale Agreement was signed between BOTAŞ and Soyuzgazexport on 14 February 1986 to be in effect for 25 years. Natural gas imports started in 1987 and gradually reached the maximum amount of an annual 6 bcm in 1993. With later additions, the capacity has increased to an annual 14 bcm, 4 bcm of this amount imported to Turkey by BOTAŞ and 10 bcm by the private sector[73].

Turkey and Energy Diplomacy

Russia and the Post-Soviet Space

Turkey relies heavily on Russian energy. The country imports around 55% of its natural gas and more than 10% of its oil from Russia; a potential interruption would cause serious energy shortages in space heating and energy production in Turkey, given that there is also not enough storage capacity for natural gas or reserves for electricity generation[74]. In relation to this, the two countries' energy

[72] Mikhelidze, Nona et al. (2017) «The Moscow-Ankara Energy Axis and the Future of EU-Turkey Relations», *FEUTURE Online Paper,* nº. 5, p. 5.

[73] Republic of Turkey Ministry of Energy and Natural Resources Info Bank (2017), «Natural Gas Pipelines and Projects».

[74] Mikhelidze, Nona et al. (2017), «The Moscow-Ankara Energy Axis and the Future of EU-Turkey Relations», *FEUTURE Online Paper,* no. 5, p. 4.

relations have continued without interruption since 1997 -when the intergovernmental agreement for the Blue Stream project was signed-, independently from bilateral political disputes.

While energy relations are the solid base of Turkey-Russia bilateral relations, geopolitics of energy trade has politicised relations[75]. Nevertheless, Moscow has refrained from using its energy exports to Turkey as an element of threat, while Ankara has refrained from being involved in Russia's conflictual relations with its neighbours.

While Turkey is trying to decrease its energy dependency on Russia by looking for alternative routes to diversify import, Russia is giving efforts to prevent the making of a pipeline carrying Caspian gas through Turkey, the «hub», to Europe. Yet shared interests predominate these issues: Russia needs Turkey and the TurkStream project in order to bypass Ukraine for Russian energy exports. This project, in turn, will increase Turkey's dependency on Russia by shifting Turkey's «gas hub» plan to a «transit avenue» for Russian gas[76]. Again, the geopolitics of the region pushes Russia and Turkey to a deadlock of energy interdependency.

TurkStream is also one of the factors that explains why Turkey and the EU responded differently to the annexation of Crimea. Turkey and Russia have found themselves in opposite camps in relation to Crimea, the Donbas, Abkhazia and South Ossetia. However, Turkey has not been as belligerent as the European Union despite being a candidate country for membership. Ankara supports the territorial integrity of Ukraine and Georgia but, by not applying sanctions, sent the message that it does not want to choose between its Western allies and Russia.

TurkStream is not the only project part of Russia's aim to bypass Ukraine. Nord Stream, a pipeline running from Russia to Germany via the Baltic Sea, goes into the European market directly. Nord Stream and the construction plans for its second pipeline is a highly debated issue among EU member states that are for or against the project due to the increased dependence and security problems it will bring along, together with the issue of the project's compatibility with EU sanctions on Russia because of the Ukraine conflict.

Regarding these projects, member states have diverging opinions. For example, both Greece and Italy see more interest in easing sanctions on Russia, and Greece considers TurkStream an opportunity to receive transit revenues. While these examples reveal the divergence among EU states regarding their economic, political and security priorities regarding Russia, they also show how Turkey's position is empowered as a non-EU member regarding its energy re-

[75] Baev, Pavel and Kirişci, K. Kemal (2017), «An ambiguous partnership: The serpentine trajectory of Turkish-Russian relations in the era of Erdoğan and Putin», *Turkey Project Policy Paper*, no. 13, p. 6, Brookings.

[76] Baev, Pavel and Kirişci, K. Kemal (2017), «An ambiguous partnership: The serpentine trajectory of Turkish-Russian relations in the era of Erdoğan and Putin», *Turkey Project Policy Paper*, no. 13, p. 7, Brookings.

lationship with Russia, to the disadvantage of member states that are willing to have energy ties with and economic benefits from Russia[77], and also that debates in the EU about sanctions on Russia have close to no impact on Turkey's energy outlook in its neighbouring regions.

The two projects not only allow Russia to bypass Ukraine, but also work to hamper the Southern Gas Corridor, a project bypassing Russia with the aim of decreasing Europe's dependence on Russian gas. Turkey's transit position in both TurkStream and the Southern Gas Corridor project might seem as a win-win situation for Turkey, but TurkStream overshadowing the Southern Gas Corridor for Turkey means less diversification of energy supply and more dependence on Russia[78].

The dissolution of the Soviet Union created the space for Turkey to enter the markets in the post-Soviet space, particularly in the Black Sea region and the Caucasus[79]. Turkey's economic cooperation in the region has been most evident in the area of energy. Turkey was both supportive of Iran's inclusion in the Nabucco project and the resolution of the dispute between Azerbaijan and Turkmenistan, but even the joint efforts of Europe and Turkey to resolve this dispute taking place in the middle of the route of a potential Trans-Caspian Gas Pipeline (TCGP) did not stop Russia from being strongly opposed to the TCGP plan[80].

Russia's opposition to Nabucco and the TCGP derived from preventing states in the post-Soviet space to be suppliers to Europe rather than being dependent on Russia for their hydrocarbon exports, having a pro-Western political stance, and eventually entering the Euro-Atlantic space, which would limit Russia's control over these states. The political objective of the US and Europe is the opposite: to provide autonomy to these States through exports. [81]. The policy of the West regarding the Southern Gas Corridor is also for the benefit of Turkey, on the lookout for diversifying suppliers and already on good terms with Georgia, Turkmenistan and Azerbaijan.

Turkey's priorities regarding energy lie in its economic interests before politics. This is the main reason why it remains in between different energy agendas. Turkey aims to decrease dependency on Russian gas, and looks towards Europe for alternative projects such as TANAP, or, more broadly, the Southern Gas Corridor; at the same time, it cooperates with Russia through TurkStream, avoiding any confrontation with Russia that would endanger the functioning bilateral en-

77 Stein, Aaron (2017), «An Independent Actor: Turkish Foreign and Energy Policy Toward Russia, Iran, and Iraq», *Atlantic Council*, p. 3.

78 Stein, Aaron (2017), «An Independent Actor: Turkish Foreign and Energy Policy Toward Russia, Iran, and Iraq», *Atlantic Council*, p. 4.

79 Balacer, Adam (2012), «An Audit of Power: Turkey's Leverage in the Post-Soviet Space», *EDAM*.

80 Mikhelidze, Nona et al. (2017), «The Moscow-Ankara Energy Axis and the Future of EU-Turkey Relations», *FEUTURE Online Paper,* no. 5, p. 9.

81 Mikhelidze, Nona et al. (2017), «The Moscow-Ankara Energy Axis and the Future of EU-Turkey Relations», *FEUTURE Online Paper,* no. 5, p. 10.

ergy cooperation and ignoring the problems this cooperation brings to Turkey's relations with the EU, yet knowing the great economic benefits the project will bring Turkey if it starts operating and manages to enter the European market.

By no means does the cooperation in the energy area indicate to an alliance in politics for Turkey and Russia, or even mutual trust. Yet the stalled EU membership talks gives Turkey the capability to maneuver autonomously to cooperate easily with various energy partners.

The European Union

For its energy supplies, the EU largely depends on regions that are outside of the European Economic Area (EEA): Russia, the Former Soviet Union and North Africa. Alternatives for diversification are suppliers in the Middle East and Central Asia. In all these attempts to diversify, Turkey comes up as the energy corridor to connect a variety of regions and suppliers to Europe[82].

Turkey and the European Union's (EU) energy security are tightly linked to each other mainly because of the high volatility of energy in the regions the two are neighbouring. As mentioned before, since 2015, the Turkish electricity system has been formally synchronised with ENTSO-E Continental European system. In the natural gas sector, Turkey plays a pivotal role in the Southern Gas Corridor since 2003, mainly through TANAP[83]. In response, Ankara put «contribution to Europe's energy security» among its four key priorities of national energy strategy[84], revealing Turkey's aspiration to play big in European energy supply.

Energy has played a big role in Turkey's EU accession process. From the start, the pro-Turkish accession camp within the EU has repeatedly brought up the geostrategic advantages Turkey's membership would bring to the EU; in their 2007 piece, Carl Bildt and Massimo D'Alema, then-foreign ministers of Sweden and Italy, wrote that «Turkey is a key actor in the realm of energy security. Given the uncertain state of energy markets, and the stakes involved, it is our shared interest to incorporate Turkey in a functioning integrated system[85]». Nevertheless, energy has not been among the opened negotiations chapters, since Cyprus has threatened to block any attempt to deepen negotiations on energy issues[86].

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82 Tekin, Ali and Williams, Paul A. (2009), «Europe's External Energy Policy and Turkey's Accession Process», *Center for European Studies Working Paper Series*, no. 170, p. 15.

83 International Energy Agency (2016), *Energy Policies of IEA Countries: Turkey 2016 Review,* p. 13.

84 Koranyi, David and Sartori, Nicolò (2013), «EU-Turkish Energy Relations in the Context of EU Accession Negotiations: Focus on Natural Gas», *Istituto Affari Internazionali Working Paper*, no. 5, p. 3.

85 Bildt, Carl and D'Alema, Massimo (2007), «It's time for a fresh effort», The New York Times.

86 Koranyi, David and Sartori, Nicolò (2013), «EU-Turkish Energy Relations in the Context of EU Accession Negotiations: Focus on Natural Gas», *Istituto Affari Internazionali Working Paper*, no. 5, p. 4.

The reforms in the energy sector in Turkey have been driven by the objective of becoming an EU member state, as well as to attract investment. Hence, Turkey has been making moves to establish a liberal and competitive energy market in line with EU rules. Despite the positive approach from Turkey and the mutual interests in Turkey's energy market reforms, negotiations on the energy chapter are blocked, and political tensions between the two sides overshadowed progresses in the area of energy. This undermines the energy coordination between Turkey and the EU, particularly regarding the natural gas sector that lacks a stable, transparent legal and regulatory framework in Turkey. To move forward and avoid obstacles, alternative institutional initiatives were set to continue energy cooperation outside the accession talks, such as the Energy Community, the Positive EU-Turkey Agenda and the Turkey–EU High Level Energy Dialogue and Strategic Energy Cooperation[87].

The aim of the Positive EU-Turkey Agenda, launched in May 2012, was to support Turkey's integration into the EU energy system and enhancing economic integration between the two, with a focus on energy[88]. This initiative was, despite statements emphasising on the initiative not being an alternative to accession negotiations, perceived from the Turkish side as way to dissociate energy cooperation from Turkey's stalled accession process. This was followed by the Turkey–EU High Level Energy Dialogue and Strategic Energy Cooperation in March 2015, aiming to revitalise energy cooperation and supporting Turkey's accession process[89]. Turkey is among the five strategic partners with whom the European Commission established such a cooperation framework, together with Algeria, Canada, Norway and the US[90].

The Energy Community, on the other hand, is a different story. The Energy Community contracts members to commit themselves to implementing the EU *acquis* on energy. Turkey has repeatedly refused to join the Community or to unilaterally align with EU energy legislation, which means that it wants to keep the flexibility to decide on its alignment with specific legislations, rather than being fully committed.

The development of the Southern Gas Corridor (SGC) has been a key objective of the EU to diversify oil and gas routes, which has also opened extra room for cooperation between Turkey and the EU. While the plan for the SGC has been renewed many times over the years for various reasons, Turkey has remained as the transit country in the project. The original plan for the SGC was the Nabucco project, which was a 3825 km-long pipeline connecting Erzurum,

87 Colantoni, Lorenzo et al. (2017), «Energy and Climate Strategies, Interests and Priorities of the EU and Turkey», *FEUTURE Online Paper,* No. 2, p. 44.

88 European Commission (2012), «Turkey-EU Positive agenda: Enhanced EU-Turkey Energy Cooperation».

89 Colantoni, Lorenzo et al. (2017), «Energy and Climate Strategies, Interests and Priorities of the EU and Turkey», *FEUTURE Online Paper,* No. 2, p. 45.

90 European Commission (2015), «State of the Energy Union 2015, Commission Staff Working Document on the European Energy Security Strategy», p. 9.

Turkey with Baumgarten in Austria, delivering 31 bcm/year of gas to Southeast and Central Europe. Nabucco was to be regulated by intergovernmental agreements that complied with EU rules, which was a strategic advantage for the EU. The project eventually ceased mainly due to financial issues and in July 2013 the Shah Deniz consortium decided to continue with the Trans-Adriatic pipeline (TAP) project[91].

The problem for the EU was Turkey's active engagement with Russia: the parties made a deal in December 2011 allowing the South Stream pipeline to run through Turkey's Exclusive Economic Zone (EZZ) in exchange for securing price concessions from Gazprom and renegotiating long-term oil-indexed gas contracts. This was not received well from the EU's side: South Stream was perceived as a risk for the SGC, and Turkey's reliability as an energy partner was questioned[92].

Turkey played an active role in the TANAP project, signed in December 2011 as well, which was the «ultimate killer» of the Nabucco project. Azerbaijan's national energy company SOCAR was the founding member of the TANAP consortium owning 80% of the stakes, while Turkey's BOTAŞ and TPAO own 15% and 5% percent, respectively[93]. Thinking that increased energy cooperation with the EU would not be as beneficial –certainly not in terms of reducing gas prices- and frustrated with the deadlocked accession talks, Turkey chose to follow its own interests by playing along with its diminished role and supporting Azerbaijan's enhanced role in the project in return for securing Azeri gas at lower prices. TANAP gave impetus to the SGC, but ruled out the EU's central role that it would have enjoyed, had Nabucco been realised[94].

The EU, to a large degree, was responsible for Turkey's choices: the state of the accession talks and the energy chapter reduced the EU's influence over Turkey. While the EU always has had interests in Turkey's position as a potential «hub», the conflicting priorities of the two sides make their cooperation partial and, eventually, short-term. Turkey is not as determined in its natural gas market reform process as the EU expects it to be. Contrary to the EU, energy demand is growing quickly in Turkey; hence, the two sides diverge on climate policies. A clear perspective on EU membership would be one of the few incentives for Turkey to review its priorities. Without this perspective, Turkey willingness to

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91 Koranyi, David and Sartori, Nicolò (2013), «EU-Turkish Energy Relations in the Context of EU. Accession Negotiations: Focus on Natural Gas», *Istituto Affari Internazionali Working Paper*, no. 5, p. 5-6.

92 Koranyi, David and Sartori, Nicolò (2013), «EU-Turkish Energy Relations in the Context of EU. Accession Negotiations: Focus on Natural Gas», *Istituto Affari Internazionali Working Paper*, no. 5, p. 5.

93 R. Deni, John and Smith Stegen, Karen (2016), *Transatlantic Energy Relations: Convergence or Divergence,* p. 73.

94 Koranyi, David and Sartori, Nicolò (2013), «EU-Turkish Energy Relations in the Context of EU Accession Negotiations: Focus on Natural Gas», *Istituto Affari Internazionali Working Paper*, no. 5, p. 5-6.

cooperate with the EU in this field will be limitent and restricted to a utilitarian cooperation allowing Ankara to act beyond the limitations of the EU's energy policies.

How can EU-Turkey energy relations move forward? The first is the maintenance of the current situation. The second is a more than unlikely revitalization of negotiations for Turkish access. If it were to take place, it would be a great step to diversify the energy suppliers to the EU. The third would be an abrupt divorce between Turkey and the EU that would entail an increase in energy security risks for both sides and could push Turkey to further cooperation with Russia[95] to form an «axis of the excluded»[96]. A fourth scenario would involve the implementation of a model of «differentiated integration» within the EU that would open new and more flexible frameworks with states that do not aspire to be at the core of the European construction. For Europe, energy is one of the fields where a differentiated integration would be a convenient solution for both parties. This would allow Turkey and the EU to have synchronized energy frameworks, depoliticize the energy agenda and shield it from the negative consequences of the stagnation of the accession process.

Iran

Iran is the second biggest oil and natural gas supplier to Turkey; the country imports 20% of its oil and around 15% of natural gas from Iran. Despite the long-standing legal disputes around their energy relations as well as conflicts arising from the two countries' foreign policy towards their shared neighbourhood, Iran and Turkey have solid economic ties, with energy as the main pillar. Even the most pressing dispute of the two countries regarding their support to conflicting parties in Iraq and Syria since 2011 has not undermined bilateral energy relations.

This attitude of insulating energy relations from both bilateral and external conflicts dates back to the 1980s when Turkey opposed the application of US sanctions on Iran. During the Iran-Iraq war, Turkey also decided to be neutral, followed by talks with Iran on an oil pipeline to carry Iranian oil to the Mediterranean. This project did not materialise, but in 1996 the Turkish government made a $20 billion natural gas deal with Iran, which, again, faced the obstacle of US sanctions on Iran, and failed[97].

However, the terms of the bilateral agreements have been a source of contention. As mentioned before, the Natural Gas Purchase-Sale Agreement signed in 1996 and valid for 25 years has a «take-or-pay» condition, and requires Turkey

[95] Tekin, Ali and Williams, Paul A. (2009), «Europe's External Energy Policy and Turkey's Accession Process», *Center for European Studies Working Paper Series*, no. 170, p. 15.

[96] Hill, Fiona and Taşpınar, Ömer (2006), «Turkey and Russia: Axis of the Excluded?», *Brookings*.

[97] Stein, Aaron (2017), «An Independent Actor: Turkish Foreign and Energy Policy Toward Russia, Iran, and Iraq», *Atlantic Council*, p. 5.

to import 10 bcm per year and pay even if the total amount is not exported to Turkey[98]. The price Turkey pays for Iranian gas is higher than all its other suppliers, and Iran acts like it has the upper hand in the bilateral energy relationship, aware of Turkey's over-dependence on energy imports and on Iran. Since this agreement was signed, Turkey has accused Iran for cutting off exports during several winters and overpricing gas purchases. Turkey took the issue to the International Court of Arbitration in 2012 claiming that the prices were way above the international prices and had to be reduced by 35.5 percent. The Court agreed to a reduction of 13.3 to 15.8 percent on gas purchased from Iran in 2011- 2015, and Iran will pay $1.9 billion in compensation to Turkey[99].

Yet Turkey, despite these ongoing tensions, resisted US pressure to apply sanctions designed to push Iran to negotiate over its nuclear program. The Turkish government took advantage of a legal loophole in the US sanctions framework to pay for its energy imports from Iran in gold[100], which is now a major point of contention in US-Turkey relations.

Collaboration has also intensified in terms of business. In June 2016, Turkish energy company Unit International made a $4 billion deal with Iran's energy ministry to build seven natural gas power plants in Iran, which was the biggest investment in the country since the lifting of sanctions[101]. In August 2017, the same company signed a $7 billion agreement with Russia's state-owned Zarubezhneft and Iran's Ghadir Investment Holding to drill at three oil fields to produce 100,000 barrels per day and one large natural gas field in Iran with a capacity of 75 billion m3/year, according to the company[102].

Energy relations are one of the main pillars of bilateral relations between Iran and Turkey, and Turkey will resist international sanctions against Iran as much as it can. High level official visits between the two countries took place in October 2017, with Turkish President Recep Tayyip Erdoğan and Iranian President Hassan Rouhani stressing on the goal of meeting a $30 billion trade target, strengthening banking cooperation, increasing energy import from Iran to Turkey and using local currency in bilateral trade[103].

Yet disagreements on official energy trade agreements will most likely remain as a dispute. The US case on the evasion of sanctions involving an Iranian/Turkish businessman Reza Zarrab can have ramifications on Turkey-US relations in

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98 Okumuş, Olgu (2014), «Why is Turkey buying more gas than it needs from Iran?», *Al-Monitor*.

99 AzerNews (2017), «Iran to pay $1.9B to Turkey in gas dispute» (25 January 2017).

100 Stein, Aaron (2017), «An Independent Actor: Turkish Foreign and Energy Policy Toward Russia, Iran, and Iraq», *Atlantic Council*, p. 6.

101 Reuters (2016), «Turkey's Unit International says agrees $4.2 billion deal to build Iran power plants» (4 June 2016).

102 Reuters (2017), «Turkey's Unit International, Russia's Zarubezhneft and Iran's Ghadir sign drilling deal» (15 August 2017).

103 Okumuş, Olgu (2017), «Kurdish crisis could benefit Iran-Turkey-Russia energy deal», *Al-Monitor* (30 October 2017).

the longer term[104]. Even if the EU decides to consider Iran as an investment opportunity in terms of energy and economy and is willing to make progress with the nuclear deal negotiations, the reintroduction of US sanctions against Iran is a possibility. If Turkey insists on avoiding sanctions on Iran, this will undermine its already troublesome relations with Washington, and potentially US support on Turkey's goal to become a regional energy hub.

Iraq

Iraq has been a long-time crude oil and, more recently, a natural gas supplier to Turkey. The Kirkuk-Ceyhan crude oil pipeline is key to Turkey for oil supply security and to its target of becoming an energy transit country. As much as the region provides diversification for Turkey's energy dependence on countries such as Russia and Iran, infrastructural, political and security issues on the ground hamper Iraq's potential.

In Iraq, Turkey has invested in building strong ties with the Kurdish Democratic Party (KDP), the ruling party in the Kurdistan Regional Government (KRG) under the leadership of the Barzani family. The internal disputes between the KRG and the central Baghdad government have strongly shaped Turkey's Iraq policy, and this policy has fluctuated over the years. Through its strong ties with the KDP and the Barzani family, Turkey has also been actively involved in Iraq's domestic politics.

After the invasion of Iraq in 2003, the KRG seized the chance to consolidate economic and political power in Iraqi Kurdistan. In 2005, Iraq passed a new constitution, which also defined the parameters regarding control over energy reserves and KRG's position in Iraq: it guaranteed some degree of autonomy for the three Kurdish-dominant regions and a statute for resolution for the disputed areas, including Kirkuk. Both the KRG and the central government depend on hydrocarbon export revenues, which makes the status of Kirkuk a major source of dispute between the two[105]. Kirkuk is the «red line» of Turkey, too, due to its perception that the capital oil revenue of the region can drive the process to an independent Kurdish state[106].

Control over energy resources as stated in the 2005 constitution has repeatedly caused disputes between Erbil and Baghdad. The agreement between Baghdad and Erbil for the allocation of 17% of the total federal budget to the KRG in

[104] In an ongoing federal trial in the US, Turkish government officials and Turkish President Erdogan have been accused of evading U.S. sanctions against Iran and corruption, after Reza Zarrab, the Iranian-Turk carrying out gold-for-cash scheme to evade sanctions, admitted his involvement.

[105] Üstün, Kadir and Dudden, Lesley (2017), «Turkey-KRG Relationship: Mutual Interests, Geopolitical Challenges», *SETA*, No. 31, p. 12-13.

[106] Stein, Aaron (2017), «An Independent Actor: Turkish Foreign and Energy Policy Toward Russia, Iran, and Iraq», *Atlantic Council*, p. 8.

exchange for the KRG managing oil exports through Iraq's central State Organization for Marketing of Oil came into force in 2008, but, shortly after, Baghdad started accusing Erbil for bypassing the agreement and exporting oil illegally and independently[107].

Iraqi Kurdistan became an increasingly attractive investment opportunity for international oil companies. In November 2011, the KRG allowed American Exxon Mobil to purchase 6 oil blocs around the Kurdistan region, three of them along disputed areas. The agreement was directly negotiated with Erbil. The Turkish government-backed Turkish Energy Company owned 20% equity in these blocs[108]. In 2012, Turkey became the first international actor to enclose an agreement with Erbil, which allowed Erbil to directly export natural gas to Turkey. This was the first time that Erbil was trading energy independent from Iraq's national pipeline infrastructure and Baghdad's control[109].

The solidifying cooperation between Turkey and Erbil came at the expense of Turkey's relations with Baghdad, which were already tense due to the sectarian policies of then-Iraqi Prime Minister Maliki and his alliance with Iran and the Assad regime. Continuous disputes over oil revenue shares and a permanent halt to the fund allocation in 2014 pushed Iraqi Kurdistan to increase direct oil exports to Turkey; yet the lack of funds from Baghdad and cheap crude oil prices drove it to the edge of a financial crisis. Growing dependence on exports to Turkey and a growing presence Turkish companies in Iraqi Kurdistan gave considerable leverage and influence to Turkey over Iraqi-Kurdish authorities.

This began to change when the Iraqi Kurdish Peshmerga forces acted as the main ground troops in the fight against the Islamic State (IS), which enhanced the international credibility and recognition of the KRG. This led to a serious turn in Turkey's Iraq policies. Military and political recognition, as well as economic independence were all the necessary ingredients for more autonomy, if not independence for Iraqi Kurdistan, which was the «red line» of primarily Baghdad and the neighbouring states. The then-Iraqi Kurdistan President Massoud Barzani's decision to hold an independence referendum on September 25, 2017 was widely opposed by all regional and Western states. Turkey was no exception. The response to the referendum was harsh: Iraqi forces took over Kirkuk and oil flows from Iraqi Kurdistan to Turkish ports decreased dramatically. Russia, having suffered from low oil prices since 2014, seized the opportunity to make an agreement through Rosneft with the KRG to add around $400 million in oilfield investment in the region[110].

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[107] Üstün, Kadir and Dudden, Lesley (2017), «Turkey-KRG Relationship: Mutual Interests, Geopolitical Challenges», *SETA*, No. 31, p. 13.

[108] Stein, Aaron (2017), «An Independent Actor: Turkish Foreign and Energy Policy Toward Russia, Iran, and Iraq», *Atlantic Council*, p. 9.

[109] Üstün, Kadir and Dudden, Lesley (2017), «Turkey-KRG Relationship: Mutual Interests, Geopolitical Challenges», *SETA*, No. 31, p. 14-15.

[110] Okumus, Olgu (2017), «Kurdish crisis could benefit Iran-Turkey-Russia energy deal», *Al-Monitor* (30 October 2017).

This rather unexpected turn of events made space for a speedy cooperation between Ankara and Baghdad. What brings them together is primarily their «red lines» regarding the establishment of an independent Kurdish state in the region. It is very unclear how long will this new friendship between Ankara and Baghadad last and whether Turkey will re-engage with the KRG authorities when independence is no longer on the agenda. What is certain is that in the future Turkey's relations with Baghdad and the KRG are likely to combine periods of cooperation and conflict, and that Turkey's stakes in hydrocarbon exports from this region will not allow Turkey from isolating itself from Iraq and its domestic politics.

Eastern Mediterranean

The first attempts in the Eastern Mediterranean for offshore gas exploration started several decades ago, but the major explorations only came in the 2000s: Tamar (2009) and Leviathan (2010) fields in Israel's and the Aphrodite field (2011) in Cyprus's Exclusive Economic Zones (EEZ). While these explorations at first led to hopes for catalysing better cooperation between Eastern Mediterranean states through mutual economic benefits, they have been complicated by existing political contentions among the countries involved[111].

Turkey's relations with Egypt has been in a low in recent years, strained ever since the ousting of then-Egyptian President Morsi in 2013. Relations with Israel also went through multiple crises, particularly after the Mavi Marmara incident in 2010 that paralyzed the the «Medstream» project from 2008 connecting Turkey and Israel via five pipelines to carry water, electricity, fibre optics, gas and oil[112]. The project was revived in June 2016 following a bilateral reconciliation agreement; but in order to export Israeli gas to Turkey via pipeline, new bilateral agreements are necessary between Israel and Cyprus as well as Cyprus and Turkey, which is a major barrier for the implementation of the project[113].

The conflict on Cyprus dates back to the Turkish invasion following an attempted Coup D'Etat in 1974 on the island has not been solved despite many rounds of peace talks[114]. The politics of the conflict also spill over to border and resource disputes. Turkey opposes any offshore resource development activity by the Republic of Cyprus, an EU member state not recognised by Turkey, as long as

[111] Richert, Jörn (2016), «Turkey's Energy Leadership Ambitions and Their Implications for Energy Governance in the Eastern Mediterranean» in ed. Angelos Giannakopoulos, «Energy Cooperation and Security in the Eastern Mediterranean: A Seismic Shift towards Peace or Conflict?», p. 60.

[112] Richert, Jörn (2016), «Turkey's Energy Leadership Ambitions and Their Implications for Energy Governance in the Eastern Mediterranean», p. 61.

[113] «Energy: a shaping factor for regional stability in the Eastern Mediterranean?» (2017), Directorate-General for External Policies Policy Department, p. 32.

[114] Richert, Jörn (2016), «Turkey's Energy Leadership Ambitions and Their Implications for Energy Governance in the Eastern Mediterranean», p. 61.

it does not benefit Northern Cyprus, a self-declared state only recognised by Turkey[115].

For Israel, securing an export agreement with Turkey would guarantee full-scale production from the Leviathan field, hence boosting the economy and making Israel a regional gas exporter, increasing prospects for future exports to the EU through Turkey. Yet the maritime dispute between Turkey and Cyprus would need to be solved for the purchase of Leviathan gas from Israel, as any pipeline running from the Leviathan field to Turkey would need to cross Cyprus' EEZ[116]. As a result, the prospect of Turkey buying and connecting Israeli gas is not feasible unless the Cyprus issue is resolved.

Meanwhile, Cyprus signed border delineation agreements with Egypt in 2003, Lebanon in 2007, and Israel in 2010. It also made efforts to mediate on the Lebanon and Israel border issue to facilitate solution for the political disputes overshadowing energy cooperation[117]. Turkey has often countered these moves. It submitted a complaint to the UN about the agreement between Cyprus and Egypt, which it claimed to affect its sovereign rights. Following the rapprochement between Cyprus, Greece, and Egypt in 2015, it declared any agreement concerning natural gas exploration offshore Cyprus invalid[118]. This shows to what extent geopolitical concerns, rather than economic ones, shape Turkey's energy policies in the Eastern Mediterranean.

The position of Syria in the energy equation in the Eastern Mediterranean is still unclear. Up until the war, Syria had been an onshore gas producer for more than 30 years. While there is no indication that Syria has enough resources to act as an exporter, it has the potential to be a transit country connecting Eastern Mediterranean gas to Turkey, and even the EU; but these prospects depend on the trajectory and outcome of the war.

When it comes to role of political disputes in energy relations in the Eastern Mediterranean, Turkey does not seem to be on the winning side. A pipeline project connecting Cypriot and Israeli gas to Europe through Greece, Eastern Mediterranean Natural Gas Pipeline or EastMed, was declared by the European Commission in May 2015 as a Project of Common Interest (PCI) to be completed by 2025. While Turkey is an alternative and easier transit to connect Eastern Mediterranean gas to Europe, it is bypassed in the project due to its political disputes with the countries involved. Also, amidst the the diplomatic «cold war» between Turkey and Egypt, Egypt, Cyprus and Greece signed several coopera-

115 Karbuz Sohbet and Baccarini, Luca (2017), «East Mediterranean Gas: Regional Cooperation or Source of Tensions?», *Nota Internacional 173*, CIDOB.

116 «Energy: a shaping factor for regional stability in the Eastern Mediterranean?» (2017), Directorate-General for External Policies Policy Department, p. 32.

117 Richert, Jörn (2016), «Turkey's Energy Leadership Ambitions and Their Implications for Energy Governance in the Eastern Mediterranean», p. 60.

118 Richert, Jörn (2016), «Turkey's Energy Leadership Ambitions and Their Implications for Energy Governance in the Eastern Mediterranean», p. 62.

tion agreements at the end of 2014, and Egypt is strongly interested in buying gas from Cyprus[119]. The current state of relations with Israel and Egypt as well as Turkey's chronic disputes with Cyprus and Greece[120] pushes Eastern Mediterranean states to build cooperation to the diplomatic and economic detriment of Turkey.

Politics of Energy in Turkey

Energy is heavily linked with domestic politics in Turkey, and this has been more evident under the AKP government since 2002. Privatisation of previously state-owned industries, and later gigantic infrastructure projects such as large dams, highways, and pipelines in cooperation with the private sector has been a major gain for the AKP[121]. According to Sevket Pamuk, this growth model has prioritized low-tech, polluting, energy-inefficient, and natural resource-dependent industries such as construction, steel, cement, coal and hydropower, shipyards, and mining[122].

Fossil fuel subsidies have negative economic outcomes; they are costly in that they conflict with sustainable development targets, hinder the development of low carbon technologies, and weaken public finance. On the other hand, these subsidies create employment, are more accessible for poor social groups as cheap fuel and also a shorter-term and easier way to increase energy security[123]. Voters of lower socio-economic background have been the core of the AKP's electorate since the start, and the AKP has actively targeted this group: handing out coal in rural and poor residential areas has been a signature campaign by the AKP. These successful campaigns and the trust the party has built among itself and its core electorate is one important reason for the AKP's political endurance.

Coal is the most exploited domestic energy source in Turkey. The use of coal in Turkey has been, more than anything, a political decision of the AKP government that has based its development on heavily on coal. The pressure to expand the economy after the 2008 crisis and the public support and incentive programs for coal have increased the share of low technology, polluting, and low value coal production in Turkey. In addition to its negative environmen-

119 Giannakopoulos, Angelos (2016), «Energy Cooperation and Security in the Eastern Mediterranean: A Seismic Shift towards Peace or Conflict?», p. 14.

120 Tsakiris, Theodoros (2016), «The Gifts of Aphrodite: The Need for Competitive Pragmatism in Cypriot Gas Strategy» in ed. Angelos Giannakopoulos, «Energy Cooperation and Security in the Eastern Mediterranean: A Seismic Shift towards Peace or Conflict?», p. 31-32.

121 Mert, Ayşem (2016), «The trees in Gezi Park: environmental policy as the focus of democratic protests», *Journal of Environmental Policy and Planning,* p. 1-15.

122 Pamuk, Şevket (2008), «Globalization, industrialization and changing politics in Turkey. New Perspectives on Turkey», No. 38, pp. 267–273.

123 Acar, Sevil (2016), «Coal Investments and Current Subsidies in Turkey», in *Coal Report,* ed. Ümit Şahin, p. 48, Istanbul Policy Center: Istanbul.

tal and health impact, this also had very negative social costs, especially given the underdeveloped workers' safety and health regulations in the country. While Soma and Ermenek have probably been the most widely covered incidents, there have more than 10 mining disasters in Turkey since 1983. Yet even though Soma and Ermenek have shed light on the extent of the social cost of coal use, especially in the last decade, the exact number of occupational deaths is unknown due to the lack of available official data on the issue since these two major incidents[124].

A similar push by the AKP to expand the economy has been in the area of hydropower. Under the AKP government, there has been a vast privatisation in the energy sector: in terms of hydropower, hundreds of private companies have been given permits to meet the target of 4000 hydroelectric schemes by 2023, the centenary of the Turkish Republic[125].

The government and business sector in Turkey see privatisation as a progressive solution to Turkey's energy dependence as well as complementing to its «energy corridor» position[126]. Unlike coal, hydropower is in line with EU goals on renewable energy. The main reason for hydropower development is the low costs of electricity production, which is expected to increase Turkey's competitiveness in the industrial sector[127].

Private hydropower development since the start of the 21st century in Turkey has been a very political and controversial issue. An amendment to the Turkish Electricity Market Act in 2001 allowed private companies to lease the rivers' rights of use for 49 years for the production of hydroelectricity. Many concerns have been voiced regarding the private hydropower development process: at the level of environment, privatisation of rivers prevents public use of these waters, leads to deforestation, loss of biodiversity; at the social level, this process has come at the expense of the eviction of villages and the expropriation of land in Turkey. Other concerns have been about the granting of licenses to companies on extremely favourable terms and matters of accountability due to the opaque nature of the licensing processes, and the lack of the competent monitoring of the state over the private sector[128].

Hydropower has also been utilised by the state for the purpose of security in the southeast of Turkey. More than ten dams on the Tigris River were constructed in the Kurdish-majority Hakkari and Şırnak provinces close to the Turkey-Iraq bor-

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124 Aşıcı, Ahmet Atıl (2016), «The Economics of Coal Mining in Turkey», in *Coal Report,* ed. Ümit Şahin, p. 36, Istanbul Policy Center: Istanbul.

125 Gibbons, Fiachra and Moore, Lucas (2011), «Turkey's Great Leap Forward risks cultural and environmental bankruptcy», *The Guardian* (29 May 2011).

126 Coskun, Orhan (2011), «Eurasian energy bridge», *Revolve*, nº. 2.

127 Islar, Mine (2012), «Privatised hydropower development in Turkey: A case of water grabbing?», *Water Alternatives*, vol. 5, no. 2, p. 378.

128 Islar, Mine (2012), «Privatised hydropower development in Turkey: A case of water grabbing?», *Water Alternatives*, vol. 5, no. 2, p. 378.

der, an area with strong PKK presence. The projects partly aim to prevent PKK interaction with locals and attacks on Turkish military stations in the region[129].

There have been continuous protests against many of the state projects in the energy sector as well as the privatisation efforts under every AKP government, concerning a variety of issues mentioned above. While these protests were very diffused, localised and fragmented, the only occasion where all environmental demands united was the Gezi protests. When a sit-in protest against the urban development plan for the Gezi Park in Taksim, İstanbul was violently evicted in May 2013, mass protests against the government followed, happening across Turkey and calling for not only environmentalist but also democratic demands, such as freedom of press, speech, assembly. Demands for such policies and democratisation were merged, turning environment into a political subject[130]. The Gezi protests, due to its calls for universal values and the transnational ties it built, modulated the EU perspective towards the AKP government, from supportive to critical. The AKP government has not managed to reverse this perspective ever since.

That the current Minister of Energy and Natural Resources is the son-in-law of and a very close name to President Erdoğan evidences the significance of the energy sector for the AKP government. Energy has also been politicised by opposition parties, drawing attention to issues such as environmental, social and labor risks as well as the lack of transparency in the bureaucratic processes. While the opposition's criticism has damaged the AKP's reputation, particularly after the coal mine disasters, they were not strong enough to mobilise the AKP's core electorate against the government party.

The energy agenda is a key element for the AKP's success. Privatisation of the energy sector has been central to the AKP's policy of attracting foreign investment and hot money flow to keep the economy alive, leading to the attribution of the so-called «Turkish economic miracle» to the AKP during the early 2000s. Energy is one factor that affects the AKP's mainly economic and also political success.

Conclusion

Turkey is heavily dependent on energy supply. In the domestic scene, available and affordable energy is key to the government's political support and stability. In the international scene, Turkey is constantly aiming for securing and stabilising its energy resources, surrounded by regions that are politically and economically volatile. Turkey's long-term goal in the energy sector is to become an energy hub.

[129] Galip, Özlem Belçim and Özkahraman, Cemal (2016), «Unchanging state security policies in southeast Turkey», *OpenDemocracy*.

[130] Mert, Ayşem (2016), «The trees in Gezi Park: environmental policy as the focus of democratic protests», *Journal of Environmental Policy and Planning,* p. 1-15.

Turkey's energy goals in its surrounding neighbourhoods are diverse. Regarding Russia, it is trying to mitigate its energy dependency and have more leverage in bilateral energy relations through acting as a transit for Russian energy. Regarding the EU, energy is not only a business transaction but part of the EU accession negotiations; hence the question of accession has become intertwined with both sides' energy security. Regarding Iran, Turkey is willing to upgrade energy relations but mutual distrust vis-à-vis energy trade as well as wider regional policies hampers more cooperation. Regarding Iraq, Turkey is trying to secure supply despite turbulent politics. Regarding the Caucasus and Central Asia, Turkey is willing to exploit these alternatives but has to confront Russian influence if it does so. Regarding the Eastern Mediterranean, political disputes still overshadow potential cooperation with Turkey, even though the region offers opportunities for energy diversification, and eventually becoming an energy hub.

Becoming an energy transit country would provide Turkey with a high degree of economic and diplomatic influence over its neighbouring regions. Yet Turkey's politicised energy policies and relations –as evidenced by Turkey's relations with Cyprus- makes this a difficult quest, and hardly possible for Turkey to find stable allies in the process.

The construction of pipelines where Turkey becomes a transit country is a boost to Turkish economy and political leverage both domestically and internationally. Turkey is profiting from a period of low oil prices. An eventual rise of oil prices could have serious ramifications on the domestic scene, particularly on the AKP government that has built its reputation on economic success.

The energy scenarios for Turkey are uncertain. One thing that is foreseen, though, is a still increasing trend in energy consumption and high energy dependence. Trends in the area of energy that will likely continue are Turkey's efforts for diversification in an environment of low oil prices. The EU accession process is still very likely to be in a deadlock, at least in the near future, and Turkey will continue to have complicated relations with neighbours including the EU, who will still be willing to cooperate with Turkey in the energy area to diversify suppliers. Deepening energy ties will be a win-win situation for both the EU and Turkey.

Turkey's will continue to have an interest in the de-escalation of conflicts in its Southern and Eastern neighbourhood, be it in terms of energy, economics, or politics. Turkey's grander ambitions of becoming an energy hub require overcoming this vulnerability, mediating for a peaceful region and isolating politics from energy.

References

«Energy: a shaping factor for regional stability in the Eastern Mediterranean?» (2017), *Directorate-General for External Policies Policy Department*. http://www.europarl.europa.eu/RegData/etudes/STUD/2017/578044/EXPO_STU(2017)578044_EN.pdf.

Acar, Sevil (2016), «Coal Investments and Current Subsidies in Turkey», in *Coal Report*, ed. Ümit Şahin, Istanbul Policy Center: Istanbul. http://ipc.sabanciuniv.edu/wp-content/uploads/2016/01/Coal-Report-Turkeys-Coal-Policies-Related-to-Climate-Change-Economy-and-Health.pdf.

Appunn, Kerstine (2017), «COP23 - German negotiator will try to keep Turkey on side», 6 November, Clean Energy Wire. https://www.cleanenergywire.org/news/cop23-german-negotiator-will-try-keep-turkey-side.

Aşıcı, Ahmet Atıl (2016), «The Economics of Coal Mining in Turkey», in *Coal Report*, ed. Ümit Şahin, Istanbul Policy Center: Istanbul. http://ipc.sabanciuniv.edu/wp-content/uploads/2016/01/Coal-Report-Turkeys-Coal-Policies-Related-to-Climate-Change-Economy-and-Health.pdf.

Atiyas, Izak et al. (2012), *Reforming Turkish Energy Markets: Political Economy, Regulation and Competition in the Search for Energy Policy*, Springer.

AzerNews (2017), «Iran to pay $1.9B to Turkey in gas dispute» (25 January), https://www.azernews.az/region/107964.html.

Baev, Pavel and Kirişci, K. Kemal (2017), «An ambiguous partnership: The serpentine trajectory of Turkish-Russian relations in the era of Erdoğan and Putin», *Turkey Project Policy Paper*, no. 13, Brookings. https://www.brookings.edu/wp-content/uploads/2017/09/pavel-and-kirisci-turkey-and-russia.pdf.

Balacer, Adam (2012), «An Audit of Power: Turkey's Leverage in the Post-Soviet Space», EDAM. http://edam.org.tr/en/an-audit-of-power-turkeys-leverage-in-the-post-soviet-space/.

BBC (2014), «Russia drops South Stream gas pipeline plan», http://www.bbc.com/news/world-europe-30283571.

Bildt, Carl and D'Alema, Massimo (2007), «It's time for a fresh effort», *The New York Times*, http://www.nytimes.com/2007/08/31/opinion/31iht-edbildt.4.7335844.html.

Bowlus, John V. (2017), «A crude marriage: Iraq, Turkey, and the Kirkuk–Ceyhan oil pipeline,» *Middle Eastern Studies*. http://www.tandfonline.com/doi/abs/10.1080/00263206.2017.1283489.

Bulgartransgaz, «Interconnection Turkey – Bulgaria», *Connecting Europe Facility*. https://www.bulgartransgaz.bg/files/useruploads/files/ITO/118-pcis/PCI_Public_info_ITB_ENGVersion_june2017.pdf.

CEFTUS (2016), «Turkey's energy (in)security and energy ambitions: A review of energy issues in Turkish foreign policy». http://ceftus.org/wp-content/uploads/2016/11/CEFTUS_Turkey-Energy-Security-and-Foreign-Policy_White-Paper.pdf.

Colantoni, Lorenzo et al. (2017), «Energy and Climate Strategies, Interests and Priorities of the EU and Turkey», *FEUTURE Online Paper,* no. 2. http://www.feuture.eu/.

Cornell, Svante E. and Ismailzade, Fariz (2005), «The Baku-Tbilisi-Ceyhan Pipeline: Implications for Azerbaijan» in The Baku-Tbilisi-Ceyhan Pipeline: Oil

Window to the West. https://www.silkroadstudies.org/resources/pdf/Monographs/2005_01_MONO_Starr-Cornell_BTC-Pipeline.pdf.

Coskun, Orhan (2011), «Eurasian energy bridge», *Revolve*, no. 2. http://revolve.media/turkey-eurasian-energy-bridge/.

Energía y Geoestrategia 2017 (2017),Instituto Español de Estudios Estratégicos, Spain. http://www.enerclub.es/extfrontenerclub/img/File/indexed/cecme/2017/ENERG%C3%8DA%20Y%20GEOESTRATEGIA%202017.pdf.

ENTSO-E (2016), «Turkish grid operator, TEIAS, joins ENTSO-E as observer member». https://www.entsoe.eu/news-events/announcements/announcements-archive/Pages/News/turkish-grid-operator-TEIAS-joins-ENTSO-E-as-observer-member.aspx.

European Commission (2012), «Turkey-EU Positive agenda: Enhanced EU-Turkey Energy Cooperation». https://ec.europa.eu/energy/sites/ener/files/documents/20120622_outline_of_enhanced_cooperation.pdf.

European Commission (2015), «State of the Energy Union 2015, Commission Staff Working Document on the European Energy Security Strategy». https://ec.europa.eu/energy/sites/ener/files/documents/3_EESS.pdf.

Galip, Özlem Belçim and Özkahraman, Cemal (2016), «Unchanging state security policies in southeast Turkey», *OpenDemocracy*. https://www.opendemocracy.net/zlem-bel-im-galip-cemal-zkahraman/unchanging-state-security-policies-in-southeast-turkey.

Gibbons, Fiachra and Moore, Lucas (2011), «Turkey's Great Leap Forward risks cultural and environmental bankruptcy», *The Guardian* (29 May 2011). https://www.theguardian.com/world/2011/may/29/turkey-nuclear-hydro-power-development.

Gürbüz, Özgür (2015), «Shale gas in Turkey: An Equation with multiple variables», *Heinrich Böll Stiftung*. https://tr.boell.org/de/node/2221.

Hill, Fiona and Taşpınar, Ömer (2006), «Turkey and Russia: Axis of the Excluded?», Brookings. https://www.brookings.edu/articles/turkey-and-russia-axis-of-the-excluded/.

Hurriyet Daily News (2015), «Foundation laid for pipe to carry Azeri gas to EU», http://www.hurriyetdailynews.com/foundation-laid-for-pipe-to-carry-azeri-gas-to-eu---79790.

Hurriyet Daily News (2017), «Qatargas to sell 1.5 mln tons of LNG a year to Turkey's Botaş», 20 September. http://www.hurriyetdailynews.com/qatargas-to-sell-15-mln-tons-of-lng-a-year-to-turkeys-botas-118188.

International Energy Agency (2016), Energy Policies of IEA Countries: Turkey 2016 Review. https://www.iea.org/publications/freepublications/publication/energy-policies-of-iea-countries---turkey-2016-review.html.

Islar, Mine (2012), «Privatised hydropower development in Turkey: A case of water grabbing?», *Water Alternatives*, vol. 5, no. 2. http://www.water-alternatives.org/index.php/allabs/175-a5-2-11/file.

Karbuz, Sohbet and Baccarini, Luca (2017), «East Mediterranean Gas: Regional Cooperation or Source of Tensions?», *Nota Internacional 173*, CIDOB. https://www.cidob.org/en/publications/publication_series/notes_internacionals/n1_173/east_mediterranean_gas_regional_cooperation_or_source_of_tensions.

Koranyi, David and Sartori, Nicolò (2013), «EU-Turkish Energy Relations in the Context of EU: Accession Negotiations: Focus on Natural Gas», *Istituto Affari Internazionali Working Paper*, no. 5. http://www.iai.it/sites/default/files/GTE_WP_05.pdf.

Mert, Ayşem (2016), «The trees in Gezi Park: environmental policy as the focus of democratic protests», *Journal of Environmental Policy and Planning*. http://www.tandfonline.com/doi/full/10.1080/1523908X.2016.1202106.

Mikhelidze, Nona et al. (2017) «The Moscow-Ankara Energy Axis and the Future of EU-Turkey Relations», *FEUTURE Online Paper*, no. 5. http://www.iai.it/en/pubblicazioni/moscow-ankara-energy-axis-and-future-eu-turkey-relations.

Ministry of Foreign Affairs, Turkey's Energy Profile and Strategy. http://www.mfa.gov.tr/turkeys-energy-strategy.en.mfa.

Official Gazette (2013), «Decision for the Approval of the 10th Development Plan», no. 28699, p. 15 (6 July 2013). http://www.resmigazete.gov.tr/eskiler/2013/07/20130706M1.pdf.

Okumuş, Olgu (2014), «Why is Turkey buying more gas than it needs from Iran?», *Al-Monitor*. https://www.al-monitor.com/pulse/originals/2014/02/turkey-iran-gas-import-consumption-erdogan-price.html.

Okumuş, Olgu (2017), «Kurdish crisis could benefit Iran-Turkey-Russia energy deal», *Al-Monitor* (October 30 2017). https://www.al-monitor.com/pulse/originals/2017/10/turkey-iran-russia-energy-deal-emerges-from-crisis.html.

Pamuk, Şevket (2008), «Globalization, industrialization and changing politics in Turkey. New Perspectives on Turkey», No. 38, pp. 267–273. http://www.ata.boun.edu.tr/faculty/Faculty/Sevket%20Pamuk/publications/NPT%2038%20Pamuk.pdf.

R. Deni, John and Smith Stegen, Karen (2016), *Transatlantic Energy Relations: Convergence or Divergence*, Routledge: New York.

Republic of Turkey Energy Market Regulatory Authority (2017), *Turkish Petroleum Market Report 2016*.

Republic of Turkey Ministry of Energy and Natural Resources (2017), *Dunya ve Turkiye Enerji ve Tabii Kaynaklar Gorunumu*, no. 15.

Republic of Turkey Ministry of Energy and Natural Resources Info Bank (2017), «Petrol». http://www.enerji.gov.tr/en-US/Pages/Petrol.

Republic of Turkey Ministry of Energy and Natural Resources Info Bank (2017), «Electricity», http://www.enerji.gov.tr/en-US/Pages/Electricity.

Republic of Turkey Ministry of Energy and Natural Resources Info Bank (2017), «Oil Pipelines», http://www.enerji.gov.tr/en-US/Pages/Oil-Pipelines.

Republic of Turkey Ministry of Energy and Natural Resources Info Bank (2017), «Natural Gas Pipelines and Projects», http://www.enerji.gov.tr/en-US/Pages/Natural-Gas-Pipelines-and-Projects.

Reuters (2016), «Turkey's Unit International says agrees $4.2 billion deal to build Iran power plants» (4 June 2016). https://www.reuters.com/article/us-turkey-iran-energy/turkeys-unit-international-says-agrees-4-2-billion-deal-to-build-iran-power-plants-idUSKCN0YQ0BV.

Reuters (2017), «Turkey's Unit International, Russia's Zarubezhneft and Iran's Ghadir sign drilling deal» (15 August 2017). https://www.reuters.com/article/turkey-energy-russia-iran/turkeys-unit-international-russias-zarubezhneft-and-irans-ghadir-sign-drilling-deal-idUSL8N1L13IZ.

Richert, Jörn (2016), «Turkey's Energy Leadership Ambitions and Their Implications for Energy Governance in the Eastern Mediterranean» in «Energy Cooperation and Security in the Eastern Mediterranean: A Seismic Shift towards Peace or Conflict?», ed. Angelos Giannakopoulos. https://www.ceps.eu/system/files/Energy%20Cooperation%20and%20Security%20in%20the%20Eastern%20Mediterranean%20small%20file.pdf.

Stein, Aaron (2017), «An Independent Actor: Turkish Foreign and Energy Policy Toward Rus-sia, Iran, and Iraq», *Atlantic Council*. http://www.atlanticcouncil.org/publications/reports/an-independent-actor.

Tagliapietra, Simone (2016), *The Changing Dynamics of Energy in Turkey*, Fondazione Eni Enrico Mattei. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2887898.

Tekin, Ali and Williams, Paul A. (2009), «Europe's External Energy Policy and Turkey's Accession Process», *Center for European Studies Working Paper Series*, no. 170. https://ces.fas.harvard.edu/uploads/files/Working-Papers-Archives/CES_170.pdf.

Trans Adriatic Pipeline, «TAP at a glance», https://www.tap-ag.com/the-pipeline.

Tsakiris, Theodoros (2016), «The Gifts of Aphrodite: The Need for Competitive Pragmatism in Cypriot Gas Strategy» in «Energy Cooperation and Security in the Eastern Mediterranean: A Seismic Shift towards Peace or Conflict?», ed. Angelos Giannakopoulos. https://www.ceps.eu/system/files/Energy%20Cooperation%20and%20Security%20in%20the%20Eastern%20Mediterranean%20small%20file.pdf.

Ülgen, Sinan, ed. (2012), The Turkish Model in Transition to Nuclear Energy II, Istanbul: EDAM. http://edam.org.tr/wp-content/uploads/2011/10/edamreportnuclear.pdf.

Üstün, Kadir and Dudden, Lesley (2017), «Turkey-KRG Relationship: Mutual Interests, Geopolitical Challenges», *SETA*, No. 31. https://www.setav.org/en/turkey-krg-relationship-mutual-interests-geopolitical-challenges/.

Wagstyl, Stefan and Clark, Pilita (2017), «Turkey push for climate funds adds to concerns about Paris accord», 9 July, Financial Times. https://www.ft.com/content/bbef9a42-64c0-11e7-8526-7b38dcaef614.

World Bank (2015), Turkey's Energy Transition: Milestones and Challenges (July 2015). http://documents.worldbank.org/curated/en/249831468189270397/pdf/ACS14951-REVISED-Box393232B-PUBLIC-EnergyVeryFinalEN.pdf.

World Bank (2016), Turkey Country Overview. http://www.worldbank.org/en/country/turkey/overview#1.

Chapter IV

Security, Development and Energy: the three challenges facing the Sahel

Beatriz Mesa

Abstract

In the past decade great importance has been attached internationally to security in the Sahel, not only because armed groups have firmly established themselves in a zone that is ideologically «deterritorialised», but also as a result of economic «deterritorialisation». It is a zone indeed where ideological struggles (Jihadist and territorial ones) and economic plunder combine to threaten stability in what has come to be known as Europe's Southern Flank. Degradation of social and economic areas in the Sahel strip has meant that young people without means have been finding themselves caught up in political violence or perhaps in the criminal economy business. New development policies are urgently needed in the Sahel States. These countries have considerable human resources and great economic potential that, if properly managed, could create a new climate of hope for the future generations of Africa. Along these lines, opportunities are opening up in the renewable energies sector that are being studied as essential niches for the future of these lands.

Key Words

Security, Sahel, renewable energies, Jihad, terrorism, Tuareg, criminal economy.

Introduction

Over a decade has passed since the Millennium Declaration[1] in which political leaders expressed their *good faith* in humanity's ability to achieve progress over the coming years in matters concerning peace, security, disarmament, respect for human rights, greater levels of democracy and good governance. This Declaration spawned a world network whose ambitious targets were to eradicate poverty and encourage development in the near future, which was estimated as being in early 2015. The international leaders undertook to protect the most vulnerable and to respond particularly to Africa's needs. They also decided that the United Nations ought to participate more actively in the collective tasks for a common future. However, as far as the Sahel is concerned, numerous unexpected events that occurred in the region have not only prevented progress from being made towards achieving the targets, but have also caused a considerable deterioration after the disintegration of the Libyan regime of Muammar Gaddafi in 2011.

Thus, the networks of non-State related actors associated with organised crime, political violence, terrorism, the new forms of waging war, or any other kind of violent extremism, have unbalanced the State powers, also responsible for the Sahelian inhabitants' drift towards violence. Furthermore, the emergence of natural phenomena such as climate change is also having a greater negative impact in the Sahel region, already affected by spells of droughts that are now becoming long-term droughts as a consequence of these climate changes. All of the aforementioned factors are causing the experts to think seriously about options that will enable to reduce the intensity of conflicts and give fresh hopes and expectations for future generations.

In this sense, renewable energies appear to be an undeniable resource for development and their utilisation is becoming vital in the quest for solutions to the climate circumstances associated directly with CO_2 emissions, while a premise for neutralising the impact of poverty and its effects.

The energy insufficiency problem has yet to be solved in Africa. The energy situation in most African countries is chaotic if one takes into account the fact that at most, only 10% of the rural population has access to electricity. By way of illustration, Africa accounts for 15% of the world population, yet it is only responsible for consuming 3% of the world energy consumption. If we focus on Sub-Saharan Africa and the Sahel, we can see that the use of renewable energies is currently very low. However, utilising such resources would provide immediate response to urgent needs such as rural electricity in a context of domestic comfort and production. The sun and wind provide renewable energies that African countries can enjoy. With an average sunlight of 1,200 kW/m^2/year, their inclusion in the strategies of the economic policies of the Sahel and Sub-Saharan Africa

[1] United Nations Report, «*Dans une liberté plus grande: développement, sécurité et respect des droits de l'homme pour tous*», 24th March 2005. Available on the Internet.

would have great positive effects. Such benefits would be particularly positive for farming and timber production, which many of these countries rely on to a great extent.

The Energy Security Regime versus the Challenges of the Sahel

As we have already explained, the political representatives for the Sahel region and the International Community are currently facing simultaneous challenges such as extreme poverty, frequent food crises or a dramatic demographic explosion. In political terms, this leads to fragile governance, weakened armies, failed areas within the Sahelian States, corruption, domestic and neighbouring tensions, risk of violent extremism and radicalisation, not to mention the threats posed by the activities of organised crime and its link with terrorist groups. Every Sahel State has to try and deal with these risks and threats, especially three of them, Mauritania, Mali and Niger, with a direct impact on Burkina Faso and Chad. Many of these challenges also affect neighbouring countries in North Africa (Algeria, Libya and Morocco) or countries bordering on the Sahel to the South (Nigeria). This latter is an oil giant, yet it has extreme levels of underdevelopment and has one of the largest populations on the African continent. It is also the country where the main mafia networks grow and indulge in all sort of criminal activities. A stable Nigeria is essential for the region.

There is interdependence between security, development and energy in each one of these countries. The need to reorganise 1) the security in the Sahel going beyond the strictly military aspect, i.e., programmes aimed at training armies or preparing and indoctrinating other security bodies and forces must also be accompanied by strategies to guarantee *SECURITAL* regimes like societal, political and food security regimes. The food security regime is a priority for reducing poverty levels that have a direct impact on uncontrolled migration movements or in nurturing militias or insurgency groups. Only 2) the development permits genuine humanitarian aid, a fundamental value for people settlements, taking precedence over «physical security», which is a priority for the States concerned but not for the citizens. Within this context comes 3) the energy diplomacy as a future variable and one that provides a solution for the growing pockets of deprivation. Therefore, this chapter analyses firstly the new threats to stability in the Sub-Saharan Africa and the Sahel region, the zone referred to as «Europe's Southern Frontier» that is establishing itself as a strategic zone for international agendas and, secondly, future prospects in the energy field as a solution to a multidimensional crisis of a political, security, economic and social nature.

Although the International Community has focused on the growing insecurity in the Sahel as a result of conflicts involving political violence— especially in Northern Mali where armed groups of separatists and jihadists are active in the areas where Mali shares a frontier with neighbouring countries, competing with the State for new levels of political and economic power— the uncertainty concerning social and food related matters, together with a lack of development

policies for the time-honoured nomadic inhabitants appear to be what is causing the different crises to flare up.

Bearing the above-mentioned factors in mind, we are going to analyse a large number of theorists and social agents that, thinking ahead to 2030, are already considering renewable energies to be a development force, necessitating an effort to be made by private companies (what will encourage private initiative) in order to promote economy and energy efficiency in countries that could appeal to this sector. Oil used to be regarded as one of the classic energies, but is now under question as a perennial economic model since it is a finite resource, serious thought being given to promoting clean and renewable energies, highly available in view of the number of hours of daylight, the wind, the warmth of the ground and the water.

Most of these renewable energies are being generated naturally and in a frame of respect for the environment – wind, solar, geothermal, biomass, hydraulic — although the inability to mobilise public financial resources has required governments to resort to private capital. In this regard, the World Bank has earmarked a certain number of actions concentrating mainly on giving support to client countries to promote, amongst other things, the decentralisation of the energy services, the development of the energy networks within the framework of regional cooperation and, finally, the use of energy as a pillar for economic growth[2]. Despite the planned reforms, the energy sector is faced with greater difficulties, for example the access to modern energies and, of course, the ability to securing them. The big question that is currently being asked is ... How can the process be speeded up to make low-cost energy available to the general public in Africa while safeguarding the environment? It must not be forgotten that the demographic growth rate is very rapid in Africa as a continent and in the Sahel in particular, around 15 million inhabitants per year; this means that development has to take place urgently through new energies and the ability to provide security, these being the challenges of this century. Development is all the more urgent now, when the challenges facing the Sahel States revolve around managing the grey and failed areas where groups of insurgents have established themselves with impunity to compete with the central powers in controlling territories that contain not only natural resources of all kinds but also unnatural resources. Without development, the new generations will still be tempted either by criminal business models or by armed groups where the young can find social recognition and a decent living.

The historic strategic context of Sub-Saharan Africa and the Sahel. Source of fear or hope?

For a very long time, The African continent in general and the Sahel in particular, have been victims of deep-rooted prejudices in the Western collective subconscious, because it has been believed that these societies were constructed in

[2] Ibid

a homogeneous way and that the challenges faced by the peoples themselves are inherent to peoples «without a history»[3], producers of social injustices, underdevelopment, institutionalised corruption, political violence and insecurity. References to Africa come usually from a hostile context without taking into account the historical features of each one of the societies in the Sahel, and both the domestic and the external variables that have affected the way the countries studied have evolved. In fact, the region that we are studying became a strategic zone at the beginning of the 15th Century, when the first Europeans arrived interested in purchasing slaves from the African Kingdoms in the Gulf of Guinea, however six hundred years earlier Arab troops were already making armed incursions realising that the zone was of interest from a trading perspective.

All of this was to mark the beginning of a depreciated portrayal of Africa[4] in which the Negro ethnic groups were likened to savages, pagans, living in natural conditions, without written language or technological innovation. The view of the German philosopher, Friedrich Hegel, clearly captured the Western ethnocentric attitude when he stated that «the Negro condition is not open to any kind of development or education. As we see them now, Africans do not have their own language or their own history. They do not form part of the historic world and neither do they show movement nor development»[5].

This line of thought prevailed throughout the 19th Century when the empires in Africa already had a long experience with trade or political management. The effects of colonisation at the beginning of the 20th Century and the discovery on natural resources gradually transformed the societies in the Sahel that led to new resistance struggles, the emergence of new elites and, of course, the constant adaptation of the peoples to new ways of living, as a result of the boost given to the incipient industrialisation through the exploitation of the natural resources. From then on, another economic boost was to affect the ancient nomadic peoples, who replaced ways of subsistence with others resulting from the creation of infrastructures and the implementation of modern forms of employment that were to coexist with agriculture, livestock and trans-Saharan trade, the three means of living for peoples with a historical tradition. All of this meant that the Sahel not only became a strategic region for the colonial powers, but also a zone where geopolitics was to play an undeniable role in the creation of the modern States.

The transition of peoples experienced in the use of plant and animal resources into the field of agriculture and livestock— especially in the savannah region— and into the exploitation and commercialisation of natural resources such as minerals, shows that the population has been able to adapt to new methods for survival and new ways of living until the present time. Such a variety of resourc-

[3] BOLLEY, P and CHRETIENE JP (2010): «*Histoire de l'Afrique ancienne VIIIe-XVIe siècle*». The French documentation.

[4] Ibíd.

[5] Ibíd.

es serve as a source of revenue for the States and their strategic partners in the West, but these are slow to take effect on the development of the societies themselves. The ability of the ancient nomadic populations of the Sahel to adapt is so great that they also started to indulge in a parallel activity that emerged towards the end of the 20th Century, using this as a new source of financing necessary for survival. The arrival of this crime-based economy—it began with contraband cigarettes, vehicles and, later, routes were utilised for trafficking drugs, arms and humans— which was carried out at the same time as the legal economy, has been a cause of instability in the Sahel ever since. In fact, these economic activities have evolved, particularly in border areas, under the dualism legal/illegal of frontiers, these borders still being an invisible line for many of the local and regional stakeholders. That is to say, frontiers are measured not by their jurisdiction, but determined by whichever tribe happens to be influential in the zones through which the activities in question take place.

However, the difficulties involved in managing each one of the resources that emanate from this lands or that arrive there from abroad, contribute to the power games of the State and non-State stakeholders to such an extent that they destabilise human groups and every day's life. Crime-based economy as a last resort for survival has made it possible for networks of *mafia* racketeers to set themselves up and be involved in arms and drug trafficking, and has also permitted armed structures to establish themselves using particular political identities that are in conflict with the central powers in the Sahel, intending to compete in the fields of the legal and illegal economies. These armed organisations, which are secessionist and Jihadist in nature, constitute an alternative to young and dispossessed Sahelian people, deprived of their human dignity. The armed ranks therefore become a haven and a place of privilege for them, because recognition is given to them in the form of the tribal identity of combatant and a new social status is bestowed upon them. The force of the armed organisations in the Sahel, such as the groups belonging to the Coordinator of Azawad National Liberation Movements (CMA) or the Jihadist groups (AQMI, the brigades (*katibas*) led by Mojtar Belmojtar, Ansar Dine or Macina) lies mainly in the attractive appeal of fighting for a tribal cause against social unrest, the wish for justice, together with ethnic aspirations, a demand for greater fairness in the redistribution of wealth and, at present, they are struggling against foreign occupation since the French intervention in 2013.

The future of the Sahel is a cause for concern, in view of the demographic predictions we have already analysed. To prevent an increase in the number of armed organisations challenging the States, that have managed to finance themselves through criminal business, while at the same time trying to control the emigration flows from those societies that have no other alternative, it is essential to find a new way of managing the economic resources and a way to exploit other sources of wealth in Africa as they appear. Renewable energies are one such resource that could make a major contribution to the growth of national economies and would help, of course, to generate energy in villages, towns and cities

where electricity is deficient. It is this lack of electricity that is preventing the States concerned from rising to the category of emerging countries.

The never-ending adaptation of the political and economic Sahel

The passage of time has shown that the events over the last two decades on the Sahel Coast, which have transformed the social, political and economic reality of the autochthonous population, can be explained by the relationships between the space, the individual and greed. Firstly, the term space is to be understood as meaning an identity or being through which different legal or illegal economic activities take place; then the individual being subjected to a constant adaptation of the space itself, crossed by different phenomena ever since the pre-colonial era, and finally greed, as a new resource in which local, regional and international stakeholders all play a part. This interdependent relationship between individual-space and greed is what prevails in the wars that are currently being waged in our area of study (Mali, Libya). And to understand why this state of affairs has come about, it is important to consider the history of the Sahara, which has been characterised by the circulation of all kinds of goods and people. During the pre-colonial period, the hubs were marked by salt and soda (*natron*) caravans connecting, for example, the Bilma and Fachi Oases in Niger, whereas in the City of Kano (Nigeria), or Timbuktu (Mali), other trans-Saharan caravans were organised to transport provisions or herds (cows, camels, goats...)[6]. The commercialization of slaves, victims of an intensive trading carried out on a large scale in the Sahel, was also very common. All these activities generated large fortunes[7] in the territory[8]. In this sense, the nomadic inhabitants invariably managed to find ways to overcome difficulties in those extensive tracts of desert, go on their transnational journeys and earn a living[9], loaded with their flocks and herds and any other merchandise that could be traded. And they also knew how to get around the difficulties caused by French colonialism, which was the first obstruction to the way of life of the nomadic families for whom transit or movement constituted the basic foundations of trans-frontier trade[10]. The arrival of colonial administration brought with it urban methods that transformed the parameters on which the different tribal communities were founded[11]. As from 1930, the automobile made its

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6 GREGOIRE, Emmanuel (1986) : «*Les Alhazi de Maradi» (Niger). Histoire d'un groupe de riches marchands sahéliens*». Editions de l'ORSTOM.

7 BOURGEOT, André and GREGOIRE, Emmanuel (2011) : *«Désordre, pouvoirs et recompositions territoriales au Sahara».* Heredote, 3, No.142.

8 BRACHET, Julien (2009) : «*Migrations transsahariennes. Vers un désert cosmopolita et morcelé (Niger)*». Editions du Croquant.

9 KOHL, Ines (2013) : «*Afrod, le business touareg avec la frontiére : nouvelles conditions et nouveux defis*». Politique Africaine. No.132.

10 E.F GAUTIER (1910) : «*La conquete du Sahara. Essaye de psychologie politique*». Paris, Librairie Armand Colin.

11 Ibid.

appearance and revolutionised Saharan transport and traders invested in the purchase of lorries that would save them time when transporting their goods. They could thus cover greater distances and the result was fruitful because it made their businesses more profitable.

However, the occupying colonial power[12] imposed restrictions on free movement, which meant the territory would no longer be a coherent concept. Frontier lines were plotted that after some time created barriers in the form of custom duties, invariably in what had been a free space where the locals considered to be themselves completely free, linked only with the commercial exchange across borders. Regardless of these difficulties, this product exchange over the borders carried on, after the independence of Mali in 1962, as an illegal yet tolerated activity, always organised to a greater or lesser extent[13]. Control over the commercial flows has invariably been in the hands of families that belong to the predominant tribes, which run and authorise any activity that takes place within their territorial zone, so it is those families that are responsible for authorising the circulation of the transport lorries or making any other trading, administrative or moral arrangements. The responsibility of the tribe to keep order over each one of the matters has been kept up until the present time, without there having been any direct intervention from the State[14].

The new restrictions that colonial domination brought with it, led to a decline in MOBILISM and the flexibility inherent to nomadic populations, although these were not the only drawbacks affecting the economic activities of the autonomous population[15]. New adversities appeared of a climatic and geographic nature, which forced the nomads to look for other ways to survive. Thus, in the 1970s, for example, and as a consequence of the severe droughts that destroyed the self-sufficiency economy, the local inhabitants looked to tourism as a new source of income and vital survival. The vicissitudes of a territory characterised by the roughness of its lands, where the rainy periods are scarce and the ways of surviving involve self-sufficiency through livestock, sometimes supplemented by importing consumer goods, have enabled the autochthonous population to constantly adapt[16]. That ability to adapt to new situations, thus accounts for the rapid incorporation of trafficking with illegal products such as cocaine and hashish into the economy of Northern Mali.

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[12] The French Administration developed technology to set in motion European oil and mineral prospecting campaigns in the 1950s, the Sahara being highly prized for the wealth found in the subsoil (oil, uranium, iron, coal and magnesium). See BOURGEOT, A and GREGOIRE, *E. «Desordre, pouvoir et recompositios territoriales au Sahara».* Herodote, 2011/3 (No. 142).

[13] SCHEEL, Judit (2009) : *« Tribus, etats et fraude : la region frontalera algero-malienne»*. Études rurales, July-December 2009, 184: 79-94.

[14] Interview between the author and Tuareg from Kidal, Djibril Koné. January 2016.

[15] BOLLEY, P : « *Les Kel Adagh. Un siecle de dépendances, de la prise de Tombouctou (1893) au pacte national (1992)*». Etude des évolutions politiques, sociales et economiques d'une population touarègue (Soudan francais, république du Mali). Doctoral Thesis in History, under the direction of Catherine Coquery-Vidrovitch.

[16] Ibíd.

The networks of traffickers, finding that the weaknesses of the system -especially the weaknesses of the traditional social control and solidarity structures (lineage, tribal chiefs or caciques)-, provided them with suitable zones to set up business[17], were to make the traditional economy seem less appetising than the informal economy (contraband) or criminal economy (drug transiting). In this sense, it can be seen how certain tribal communities in Northern Mali that were once involved in a flourishing traditional Sahelian economy—ownership of herds of camels and lambs for sale, and control over water wells, that have traditionally symbolised the wealth of the local inhabitants—are moving on to another form of parallel economy. This modern economy, such as cocaine trafficking, has been developed at a very fast rate, because it is a source of bigger and quicker profits[18]. All of this enables inactive subjects in the Sahel to become active by forming part of an «industrial» chain that opens the door to a new future. The clear lack of agriculture on land smitten with drought, or the absence of any other traditional self-sufficiency trading, have caused the transit of drugs along the different routes in the Sahel to become a priority activity as a source of income, more importance being attached to this activity than to farming and livestock.

TRIBES	FRAUD	STATE	***TRANSFORMATION INTO***
ARMED GROUPS	CRIMINAL ECONOMY	PARASTATAL PREDATORS	

Image 1.

Traders, fraudsters[19] or traffickers[20]. These are types and concepts that many observers and journalists use to define the stakeholders in Northern Mali that have evolved as a result of a regional and international context. In practice, they are «temporary economic operators». It does not matter whether they commercialise, transport or sell supplies, livestock, arms, people or drugs, because what it all boils down to is survival in hostile lands. In the desert, at the frontier

[17] LEONARD, E (1998) : *«Drogue et reproduction social e dans le Tiers Monde»*. Autrepart.

[18] Numerous sources in the tribal field during the years that the empirical research was conducted soon realised the amount of money that could be made from drugs and how quickly it could be made. See also in SCHELLE, J: *«Tribus, États et fraude: la region frontalera algero-malienne»* that the fraudsters talk about «reaping the real harvest», in reference to the cocaine coming from Colombia via Mauritania. Études rurales, July-December 2009, 184: 79-94.

[19] The use of the term «fraudster» comes from fraud «*al fraud*» which means trade and in Mali, in the opinion of the researcher Judith; it is «the driver of a 4x4 who knows the trails and the life of the desert without being aware of the concepts of legal and illegal trade. With regard to this, in trade between Algeria, Niger and Libya, reference can also be made to BRACHET Julien, Trans-Saharan Migrations: vers un désert cosmpolite et morcelé (Niger), Paris, Éditions du Croquant, Collection Terra, 2009, 322.

[20] The concept of «trafficker» is relatively recent in Northern Mali. In the past, they were known as traders, but with the arrival of cocaine, towards the end of the 1990s, the ancient tribal nomads and also the rest of the stakeholders involved, police, customs officers or gendarmes, coined the term drug traffickers.

posts or in the urban zones, they never cease to be temporary stakeholders, who adapt to new ways of life, which means new forms of economic activity (unregulated trade[21]) entering into criminal trading activities, owing to the high level of violence that has emerged in the region since the stakeholders of organised crime appeared on the scene and because of the high number of cases of settling scores[22].

The sphere of economic activity in Northern Mali is what is really shaping the idiosyncrasy of the local inhabitants and their disposal to resorting to violence, invariably linked to criminal activities. Therefore, with organised crime, new jobs appear and new products can be found to trade with, between the visible and invisible lines of trans-Saharan trade, and all of this causes the stakeholders to undergo a major transformation as well, which is the central aspect of this research work. The inroads that the criminal economy has made in Northern Mali have created a niche in a land of traditional trade, in itself controversial because of the territorial conflicts between the local communities. The two economies seek to reach an understanding so they can coexist productively, yet tensions do not cease to mount and disputes continue to rise between the traditional leaders and the powers of the central authorities. Despite the difficulties involved in managing an increasingly coveted economic space, the various elites are required to find those pockets of understanding to carry out commercial exchange. All of this is possible via two negotiation fronts, one in the classic economy between State powers and traditional powers, and the other in the criminal economy, between on the one hand, State powers and traditional powers, and on the other hand, rebel secessionist politicians, Jihadist refugees and economic operators from abroad. Apart from the internal agreements between armed groups, there are also other agreements between States, especially with Algeria, because staple supplies come from the latter to the inhabitants of Northern Mali, especially those living in the settlements close to the Algerian border[23].

In time, Northern Mali ceased to be a space for nomads to become an area for *refugees* (Jihadists) and political insurgents (secessionists) and a space regulated by both foreign and domestic economic operators. The classic and criminal economic activities will coexist, always disputed by the traditional leaders and the powers of the central authorities. The legal staple products, subsidised by the Algerian Government, such as milk, cereals, flour, sugar, oil and semolina[24]

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21 ROITMAN, J (1998) : *«La Garnison-entrepôt: Une maniére de gouverner dans le basin du lac Tchad»*. Critique internationale, 19 (April): 93.115.

22 Interview with a Tuareg from Kidal, Djibril Koné, January 2012 and June 2016. This stakeholder gives an account of the high levels of criminal activity since the expansion of drug trafficking.

23 World Bank Report (2015): *«Commerce Algérie-Mali. La Normalité de l'Informalité».* Accessible at : http://documents.worldbank.org/curated/en/202591468195569460/pdf/101137-FRENCH-WP-P148610-PUBLIC-BOX393259B.pdf.

24 World Bank Report (2015): *«Commerce Algérie-Mali. La Normalité de l'Informalité».* Accessible at : http://documents.worldbank.org/curated/en/202591468195569460/pdf/101137-FRENCH-WP-P148610-PUBLIC-BOX393259B.pdf.

find their way through the contraband routes across the porous frontiers that separate Algeria and Mali. Other highly profitable products, such as petrol and drugs, cocaine and hashish[25] also find their own market in the strips between frontiers. These latter products are interdependent since the consolidation of the drug-trafficking networks, because transporting a new product also involves new necessities that the local inhabitants will come to provide. Thus, for example, the use of pickup trucks means consuming fuel, which will also lead to an increase in fuel contraband between Algeria and Mali. The impact of the criminal economy on traditional trade means that the paths used to transport legal products will be reutilised to carry other illegal and illicit products, and that new routes will be opened up exclusively for transporting cocaine. In this respect, it can be observed that not only do the two economic activities coexist, but they also become consolidated in the region and end up by creating new jobs[26]. Therefore, the traditional economy will carry on side by side with another modern, sophisticated and criminal economy. We can also state that the stakeholders on the TRANS-SAHARAN trading routes are not necessarily different from the ones that are involved in the current traffic that passes through this space[27].

By way of conclusion, the modern economy (criminal) has ended up by ensnaring ideological groups, independentists and extremists, as well as institutions. The interwoven network in which the political, armed and economic elites participate[28] does not give much cause for optimism.

The political-military approach in the Sahel. What is the threat?

The unsafe geographical characteristics of the country combined with certain weakened institutions out of touch with the concerns of civil society have made the Sahel much more unstable. The collapse of the traditional economy in the region, caused by the savage colonisation, as is described, for example, in the French African bulletins; the setting up of Nation-States and their negative effect on the way of living of the autochthonous peoples, namely the Tuaregs, Arabs, Peuls and Songhais[29]— together with the climate fluctuations—forced the nomadic inhabitants to emigrate to other destinations, or to look for alternative

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25 SCHEELE, J, (2013) *«Trafic ou commerce ? des echanges economiques au Sahara contemporain». Accessible at* http://www.sciencespo.fr/ceri/fr/content/dossiersduceri/trafic-ou-commerce-des-echanges-economiques-au-sahara-contemporain. Consulted in June 2013.

26 BRACHET, Julien (2012): *«Movements of People and Goods. Local Impact and Dynamics of Migration to and through the Central Sahara»*. Chapter contained in the collective work «Sahara Frontiers. Spaces and Mobility in North-West Africa», directed by James McDougall and Judith Scheele.

27 BOTTE, R, (2002) : «Économies trafiquantes et mondialisation. La voix africaine vers le développement?», Politique africaine, No. 88, Karthala, Paris.

28 Interview the author had with a number of high-ranking persons in the Arab community from the Telemsi and Kounta tribes in Northern Mali.

29 BERNUS, E. (1984), Les Touaregs, pasteurs et guerriers des sables. Paris. Berguer- Levrault.

ways of surviving in a zone where there has always been a sense of insecurity and fear. The activities inherent to the criminal economy were first carried out in this context, and soon spread across the Sahel and in what came to be known as «grey areas», territories that were extremely sensitive because they were not under the States' control, which made them ideal places for organised crime and terrorist groups to establish themselves.

The criminal economy phenomenon evolved to a greater or lesser extent depending on the amount of force that each armed group or tribe could exert, prompted by their own interests, until the process of consolidation was stretched to the limit and eventually snapped, which meant the balance of power in the zone was also breached beyond repair. Control over the criminal economy became a priority for the political-military elites in the Sahel States (especially in Northern Mali, because that is one of the main sources of wealth). The region is the main pass through point for the commercialisation of legal and illegal products and, according to the prospecting campaigns conducted[30], it is also rich in natural resources which have not yet been exploited. All of this has helped to increase criminal activity, political violence and the appearance of new political-economic businessmen who have already formed part of traditional contraband groups and organised crime. As a result, the territory became a strategic enclave that served as a haven for those involved in organised crime. However, the insecurity question in the region is mainly evoked so it can be related to international terrorism as a phenomenon independent of the criminal economy networks.

From 2003, the USA started to construct the first military bases in the Sahel, with a view to anticipating the terrorist threat. At that time, the defenders of the *jihad* coming from Algeria, with experience on other fronts such as Afghanistan, had already been taking refuge for a few years in Adrar des Ifoghas, North from Mali, after a bloody war against the Algerian military regime. However, the alleged terrorists swearing allegiance to the flag of *salafia jihadia*[31], (Roy, 2002) did not show any signs of their presence either by issuing propaganda in the form of speeches or by criminal activities, until 2003, when the first kidnapping

[30] Interview the author had with a high-ranking security official employed by the Mali Government, who preferred to remain anonymous. June, Bamako (2016). He said that the north of the country is «a land of interests» because, on the one hand, Algeria, has its eye on the oil and gas discovered in Taoudenni, on the border between Mali and Mauritania, to the west (in fact, Algeria, with Mali's consent, already controls 250,000 kilometres of Mali territory via its army). And, on the other hand, its main rival in terms of strategy is Morocco, which is closer to the oil reserves in Tauoudenni (only 800 km away), whereas Algeria is about 2,000 kilometres away. Mali is a zone that is strategic to the interests of the two neighbouring and rival countries (Morocco and Algeria) that seek to occupy a strategic position in the zone.

[31] Salafists insist on a literal interpretation of the religious texts and a return to the caliphate as in the times of the prophet. They call for the use of arms to protest against Arab regimes and Western societies because they are infidels, and also for a re-islamisation. They also call for the need to create an Islamic State through violence. That is to say, these groups form part of the armed struggle.

operation took place (32 hostages were taken) and in 2006[32] after the regional Salafist organisation joined the parent group Al-Qaeda global.

Yet the ideology that they advocated soon began to show the first seeds of transnational crime that helped to stabilise the armed elites in Northern Mali while at the same time destabilising the institutions, amongst other reasons, because the State constituted a powerful competitor. Violence was no longer monopolised by central power, splitting up into rival factions that are still competing against each other today. As far as the armed groups in the Sahel are concerned, wealth and violence live off and nourish each other, specifically in the triangle that encompasses Southern Algeria, Northern Mali, the northern part of Burkina Faso and the north of Niger, great military skill being required by these groups to guarantee their *subsistence economy,* whether this be formal or informal/illegal.

This is the case to such an extent that the guerrillas[33] in the ranks of the *azawi* (from Azawad) insurgency and the Algerian group hitherto known as the Salafist Group for Preaching and Combat (GPSC), in spite of having arisen from political exclusion and social-economic exclusion, in time became fighters in an armed struggle prompted by new incentives, in this case economic gain, as we shall see on analysing what happened during the regime of Amadou Toumani Touré (ATT). This regime was in power from 2002 to 2012, the date on which the ex-President of Mali (ATT) was ousted after the military coup orchestrated by Captain Amadou Haya Sanogo, head of the Military Junta that on the night of 21st to 22nd March 2012 decreed a curfew and announced on television the end of ATT's regime[34] on behalf of the National Committee for the redirection of democracy and the restoration of the State (CNRDRE), changing the future for Mali and the neighbouring countries.

From the 1990s— the beginning of a new period of armed uprisings with secessionist ambitions—until the war in 2012 in Northern Mali, the interests of the armed groups, which during an initial period included political ideology, clearly turned towards economic objectives. The appearance of Algerian combatants returning from Afghanistan—currently known by the initials Al Qaeda in the Islamic Maghreb (AQIM)—joining a scenario of great exaltation with the presence

[32] In 2006, elements of the Salafist Group for Preaching and Combat (GSPC) joined Al-Qaeda to form a new group, Al-Qaeda in the Islamic Maghreb (AQIM). During an interview with a reformed Mauritanian ex-member of AQIM in Nouakchott, the capital of Mauritania, in December 2010, it was stated that a citizen of Mauritanian nationality had held direct conversations with Bin Laden with a view to joint collaboration, exchanging information and candidates for combat. That is how the first foundations were laid for what was to become the Be'ya Pact (an act of subservience to the Al-Qaeda Organisation).

[33] We use the term «guerrilla» because, firstly, that is the word they use among themselves and, secondly, we make a distinction between them and «military», which means belonging to an army, which is not the case when we refer to the armed movements in Northern Mali.

[34] The military coup was justified by the lack of material equipment that was suitable for the defence of the State's territory made available to the Army to fight against armed groups in the north of the country. The Junta undertakes to restore civil power and form a Government of National Unity.

of the insurgency movements (Tuaregs, Arabs and others), would cause a considerable increase in violence as a consequence of the control over what was a flourishing area in economic terms. Meanwhile, what was seen from outside the Sahel was the supposed war against the West promoted by AQIM, a terrorist organisation that is analysed as the only threat[35] to Western security and interests, especially France's energy interests, given that the latter country depends heavily on the uranium plants in the neighbouring Niger[36].

We find it inappropriate to reduce the problems in Northern Mali and its instable neighbourhood exclusively to the terrorism of AQIM, given that there are other essential variables that give explanation for the increase in the number of armed groups. These are: the residue of colonisation that recovers from the historical memory how the former European colonisers *energetically* survived in the past in the inhospitable lands of the Sahel; the inseparable relationship between violence, multi-tribal space/territory[37] and the share-out of the proceeds from criminal activities, putting this relationship into a specific social and political context as if it was a major problem. Furthermore, it would also seem to be incomplete to research into the ideological references without giving thought to the internal clientist and tribal conduct, and without carrying out a detailed study of the State and non-State stakeholders, how these all interact, and their temporary or long-lasting alliances, depending on the circumstances at any given time.

Having said this, we believe that in order to conduct a thorough study of the Sahel, it is essential to take a critical look at the security question that will enable us to understand the overall context in which the conflict is taking place, the complicated behaviour of the guerrillas and the intricate networks in which they move. The need to look at security from that critical perspective is required because now, more than ever, it is an extraordinary political and media *enjeux* [issue]. The speeches of the politicians responsible, the intellectuals and journalists are full of references to security, and they systematically refer to the sense of physical insecurity of the inhabitants and the need to attain higher security levels, as security is a top priority for freedom[38]. However, we have observed that the security/insecurity dichotomy is very difficult to be defined in a scenario like Mali and its Sahel´s neighbours because, if for a young autochthonous person from Northern Mali his insecurity comes from a lack of water, animals

[35] An extensive journalistic and academic production has considered terrorism to be the main threat to Mali. See numerous articles in the newspapers of reference, such as *«Le Jeune Afrique».*

[36] Interview the author had with Abdoulaye Mohamadou, professor-researcher, and Director of the Social Science Research Laboratory researching into social dynamics and local development (LASDEL). Niamey (Niger), 2015.

[37] During the research we use the terms space/territory in Northern Mali, the research zone and source of violence without distinction. However, we wish to point out that in this sense certain authors make a distinction between «space» as a geographical place, and the concept «territory», which has a specific political connotation.

[38] GROSS, F (2012): Le Principe Sécurité. Paris Gallimard.

or cereals to eat, guerrilla instead feels insecure when his territorial-economic space is being occupied by other rival forces.

Where Europe is concerned, insecurity on its borders is caused by the presence of «jihadist» groups in Northern Mali, but for the State of Mali, its insecurity is not brought on as much by the encampments set up by «jihadists» arriving from Algeria, as long as their interests are not under attack, as it is brought on from the autochthonous separatists, because it is secessionism what is endeavouring to undermine its sovereignty and economic power in the region. We can thus observe how the meaning of the term «security» is an ideological, political or even philosophical idea, given that although in the 1950s the French regarded the members of the National Liberation Front (FLN) as terrorists, they have now signed with them several gas and oil collaboration contracts; along the same lines, the «jihadists» in Northern Mali are currently a target for the State, but in the previous decade they were cooperating with drugs and kidnapping. Bayart (Bayart, 2013) is of the opinion that «sometimes when we want to provide security, we are causing the opposite effect, insecurity». For the people of Mali, what could at one moment mean the arrival of security thanks to an intervention led by France, might later become a source of insecurity because although their presence has caused one enemy to move away, France has indirectly collaborated in bringing other enemies or new enemies into the scenario. The appearance of *kamikazes* in the zone is a new phenomenon in the Sahel, and the same applies to the new types of violence, such as attacks using mines or rockets.

The armed stakeholders that are the subject of the research are characterised not only by their constant mobility, but also by the fact that they often suddenly change from one group to another, which cannot always be accounted for by shifts in ideological feelings, but more from a viewpoint of protection from one community or tribe, their interests and circumstances. So, we can establish an initial scheme enabling us to clearly identify their positions and the interests they serve. There are basically two categories of armed groups that must be clearly singled out if we are to comprehend the Sahel threat: on the one hand, the nationalist movements of a secessionist nature whose sphere of activity lies in a strip that crosses the borders of several countries (Algeria, Mali, Niger, Southern Libya, Burkina Faso) and, on the other hand, the Jihadist insurgency that operates in the same area. The secessionists include such groups as the MNLA, CPA, MAA, HCUA, whereas the Jihadist groups are the AQIM, MUJWA, ANSAR DINE and the recently-formed Macina Liberation Front, amongst others. The latter organisations are the ones that really pose a regional and international «threat», in view of the fact that they refused to sit down at the political negotiation table after the territorial crisis affecting Mali, unlike the armed groups with a secessionist ideology, who were prepared to negotiate.

The agendas of the Jihadist groups are unpredictable, which is why new military programmes have been set in motion in five years, since the French international intervention in 2012, aimed to achieve «military» cohesion and to back up the

security corps and forces[39] thus contributing to the region's stability. Yet this aim is difficult to achieve in countries that are highly sensitive because of the social and economic problems that make many young people opt for the armed struggle or criminal activities instead of integrating the State as ordinary citizens. So far, the challenge has led to a proliferation of *katibas* associated with the AQIM organization whose survival depends upon their ability to carry on with their recruitment campaigns targeting young people from West Africa, attracting them not only with ideas but also with economic opportunities. At present, the combatants in the Jihadist ranks in Mali are almost exclusively Malians and Mauritanians from near the frontier with Timbuktu (to the west of Mauritania). As far as leadership is concerned, after the death of the AQIM leaders, and with the emergence of new battalions supporting the Jihadist slogan (MUJWA , Al-Mourabitoun, Ansar), Jihadism revolves around the figure of Mokhtar Belmokhtar, who leads a *katiba* comprising mainly Malians, together with the *katiba* of the Tuareg, led by Ifoghas and Iyad Ag Gali.

So, Mokhtar Belmokhtar[40] and Iyad Ag Gali have established themselves as the figureheads of the Sahelian Jihad, ousting Abdelmalek Drukdel, the Algerian founder of the parent organisation, who was responsible for much of the Jihadist argument. The last to be heard of him appears in a manuscript found at the public radio and television facilities in Timbuktu in February 2013 by two French journalists. The manuscript is entitled «General instructions concerning the Jihadist Islamic project in Azawad» in which Drukdel asked his katibas in the south, referring to Mali, not to fall into vanity and gradually impose the Sharia Law (Islamic Law in its most rigorous form) in Northern Mali[41].

However, in practice, not only the *katibas* (local) but also the followers of Ansar al-Din have operated in an increasingly independent way, guided by their local objectives (economic), ignoring warnings from supposedly superior hierarchies, taking into account their own influence in the region, greater than that of the founders of the movements. This organisation, Ansar Dine, did not apply Sharia Law in the region it controlled, Kidal, however in 2012, the mass media contained a lot of information about the punishments that MUJWA or AQIM inflicted on the inhabitants of the zones under their control (Timbuktu and Gao), that being used «politically» to terrify the locals:

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[39] Since the French intervention, approval has been given to the EUTEM, a multinational training mission from the European Union with its headquarters in Bamako, Mali, which is training and advising the Malian Armed Forces. Spain is also participating in the Marfil detachment located in Dakar (Senegal), which is supporting the French operation Berkan in air transport. Another mission, this is civilian, under the EU flag, is the one used to train *in situ*, the security corps and forces in Mali (EUCAP).

[40] Sources close to his *katiba* in Mali state that Mojtar moved to Southern Libya, where he became involved with the organised crime network. Legal and illegal products pass through Southern Libya, where they are managed by Arab and Tuareg tribal elites.

[41] MÉMIER MARC (2013) : « Que reste-t-il d'AQMI au Nord-Mali ? Évaluation des conséquences de l'Opération Serval. GRIP.

> «They only amputated one hand to some Negros (Peuls), this being an act of racism, rather than a divine punishment as they said. The Algerian Secret Services sent a Mauritanian to the territory to carry out the amputations. Algeria wanted to justify its intervention and control policy in order to force the Tuareg separatists bothering the Algerian State to retreat[42]».

> «Northern Mali shows no signs of being Islamized, because the traditions of the autochthonous groups and local culture prevail before a new vision of Islam coming from abroad. It is easier for the South to be Islamized, because the young people have no opportunities, so stakeholders like Diko, an Islamic leader financed by Saudi Arabia has managed to gain a lot of support from the people. The North is interested in drugs[43]».

In response to these testimonies, local investigators such as Boukary Sangaré have compiled other statements *in situ* from ethnically black Malians, the Peuls and the Songhai, who were direct victims of the actions of Jihadist groups in the cities during 2012. The attitude of the MUJWA followers (composed of Arabs) is prompted by racism against black ethnic groups, who were punished according to a rigid interpretation of Islamic Law. A story was told by Abdoul Wahidou Cissé, a young Songhain, who was accused of possessing pornographic videos on his telephone. It was a Wednesday in December 2012 when a member of the Jihadist groups gave him a severe reprimand:

> «A chief whipped me five times and I was imprisoned in the central jail in Ansongo, which had been turned into an Islamic prison. I spent five days there and my relatives brought me food. I was freed on the sixth day but I can still feel the pain in my ribs from the tortures[44]».

With the French intervention in 2013 in Mali and its extension to the Sahel region, with all it amounted to (an end to the non-aggression pacts with Mali and Burkina Faso), the Jihadists found what they considered to be a new «ideological territory» to carry out unprecedented offensives such as the one that occurred in In Amenas (Algeria), in January 2013[45]. This operation was undertaken by the «Al-Mulathamun Battalion»—one of the names coined by Mojtar's *katiba*—although shortly after they changed their name and set up the organisation Al-Mourabitoun[46], the platform used to implement new acts of terrorist vengeance against France, on a hitherto unprecedented scale, on Malian soil and in

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42 Interview the author had with the political wing of MUJWA. Bamako, 2013.

43 Interview the author had with General Kone, Deputy to the Minister of Defence. He was the Governor in Gao for six years. He currently occupies the post of Ambassador in China. Bamako, 2012, 2013, 2014.

44 NIEVAS, D and SANGARÉ, B (2012): «Social and territorial control over Northern Mali by Jihadism in a crisis context», publication for the journal «Police and Public Security», 2016.

45 In Amenas is a gas base in South-East Algeria where operators from many countries work. About 800 people were taken hostage for four days (as from 16th January 2013), which led to the death of 39 civilians.

46 Belmojtar left AQMI in December 2012 and later set up a new group: Al Muwaqqui'unbi-dam (the signatories of blood)». He later made contact with another group that splintered from AQIM,

the rest of the Sahel region. Meanwhile, MUJWA, the organisation that split from AQIM and was led for a time by Mojtar, since it was formed, still conserves its *katibas* for kidnapping and drug operations. The last armed group to emerge, again in the name of the Jihad, cashing in on the interests and the proliferation of armed stakeholders that survive in a highly competitive scenario where the tribes can find their respective umbrella organisations to protect them, is the *Macina Liberation Front***,** under the leadership of Amadou Koufa[47], which is operating in the centre of the country (in the Macina region).

This new insurgent group of the terrorist spectrum is mainly composed of combatants from the Peul ethnic group and, as is the case with the Mauritanian Arabs in the ranks of MUJWA, it justifies its existence from a marginalization and social exclusion perspective. This community did not feel protected either by the central power or by other social groups with which it coexists in its spheres of influence, so the decision to form an armed organisation or to set up a new group with its own identity is associated with acquiring a new social status to challenge the Tuaregs and Arabs who used to exert great power over them; the Macina Liberation Front falls into the secessionist category[48]. Throughout their history and in spite of forming part of the predominant black ethnic groups in the region under our study, the Peuls have suffered from being subjected to the power of the Whites, the Tuaregs and the Arabs. That is why they consider that the situation in Northern Mali, where armed groups proliferate, is conducive to establishing their own structure that defends their own interests.

The *Macina Liberation Front* tried to bring off an attack similar to the one carried out by its counterparts, by taking hostages on 20th November 2015, in the Hotel Byblos in the City of Sevare, in North-East Mali, where members of the French military forces were staying. The attempted abduction caused the deaths of five soldiers, two hotel employees, one civilian from MINUSMA, and four attackers[49]. Numerous hostages were also freed, including four foreigners, one Russian and three South Africans. Since then, the *Macina Liberation Front* has not led an operation on a similar scale.

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the Movement for Unity and the Jihad in West Africa (MAUJAO) with which he joined forces in 2013 to form Al Murabitun (The Almoravids). Currently, Mojtar Belmojtar.

47 «Koufa» is a Muslim preacher who comes from the same religious school as Iyad Ag Gali (Dawa).

48 See at PELCHMANS, L (2015), in his chapter «Intra-ethnic fragmentation and the emergence of new (in-)security actors» from the collective work «Protection and (in) security beyond the State» Risk & Violence at the Danish Institute for International Studies.

49 It was the first time a Jihadist attack had taken place on this scale in the City of Sevaré, a communications hub and strategic point between the north and south of the country. Nevertheless, the violence unleashed in Mali with the emergence of the *katibas* fighting for their community interests, has enabled the Peuls to lay a foundation on which to defend their own interests. The violence in which Mali has been immersed since 2012 has increased in recent months, with terrorist attacks and skirmishes spreading to the centre and south of the country, almost invariably aimed at military personnel.

The failure of that operation did not give them the international publicity that they were seeking, in contrast to their counterparts, MUJWA, who earned international notoriety with a multi-million dollar ransom demand for the release of the Spaniards kidnapped in Tinduf (Algeria). Neither the two above-mentioned examples, MACINA and MUJWA, nor AQIM, have officially stipulated standards putting across the classic message concerning re-instauration of the l'Oumma or the community of Muslims, in opposition to secularism. Unlike Al Qaeda, the «parent company», the regional organisations in the Sahel (Mali) have not promoted *in situ*, the idea of boosting religious COMMUNITARIANISM in order to bring all Muslims together under one single nation presided by Islamic Law[50].

The Salafist logic, on which they are supposedly based, can only be seen in the name they use, and the implementation of an Islamic State in the northern region would only be achieved with support from the local tribal elites in Northern Mali. However, it is a conservative region, under moderate Islamic governance. The proliferation of *katibas* and the organisations that appeared after AQIM, is indicative of a loss of CENTRALITY of the terrorist structure in the Maghreb. In fact, its splits, such as Al Mourabitoun, MUJWA (these two have merged) or Ansar Dine, are the new protagonists for the «Jihad» project, or, at least, the ones that are identified as being behind the *Holy War* slogan.

As a result, the organisation AQIM is finding itself in decline, not only were leadership is concerned, but also with regard to the number of combatants. concerning the sister organisations, MUJWA, ANSAR DINE, which exist for specific objectives (economy and power) and which adapt to the context and the situation at any given time —what could be called circumstantial Jihadism—they will either grow or disappear depending on whether their economic interests in the zone are really fulfilled. We cannot forget that these organisations are made up of people who are native to the region of Adrar (Eastern Mali). At present, Ansar Dine is represented by a strong *katiba* located at Inerkech, on the frontier between Mali and Algeria, in the Boghossa zone, where 95% of the population identifies with Ag Gali as head of the Tuareg federation of clans, Ifoghas. His right-hand man, Abdollah Ag Ouffota, keeps Gali's battalion going, and is the man who could play a major role on the other kindred *katibas*, as well as in the Mojtar[51] *katibas*.

A detailed analysis of the way in which the Jihadist groups have evolved shows how the Al Qaeda flag, in its regional version, played a symbolic role. The so-called «war against the West» was not a central issue either in the terrorist organisation's plans, whose crimes were committed on a local basis, i.e., within the context of a struggle against Algeria[52], in spite of its affiliation to the global Al Qaeda organisation. The main objective since the outbreak of the war against

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51 Interview the author had with a direct relative of Iyad Ag Gali, held in Bamako. July 2016.

52 LOUNNAS, D (2011) : «AQMI, filiale d'Al-Qaïda ou organisation algérienne ». Maghreb - Machrek. 2 (No. 208).

the Algerian military regime was to destabilise the Algerian State[53] and put an end to the Army's grip, where the power was concentrated. This was true to such an extent that no plan of attack was carried out against the military security programmes implemented by the USA[54] in Gao (Northern Mali), or against AFRICOM, which was stationed in the territory from 2003—when the Sahel strip became an insecurity zone— until the crisis in 2012.

Contrary to researchers who consider that the regionalisation of AQIM is growing[55], it can be observed that it is trending to be more localised. In fact, the lack of a real project to reconstruct an original caliphate through the Jihad, —which they could consider to be an absolute obligation, hence the conquer of a zone for themselves on which to establish a base for a Muslim community (oumma)— and their drift towards lucrative activities, has led to the «internationals» deserting the ranks. The natives remain, and under the auspices of AQIM still adhere, to a certain extent, to the statute of guerrillas and lifesaving (survival). That is to say, the candidates from West Africa, together with those from Morocco, Libya, Niger, Senegal or Nigeria, to swell the ranks of the Al Qaeda organisation[56], initiated a process of returning to their countries of origin after observing the questionable cause of reunifying Muslims in order to defend themselves, and the discrimination they faced for being Negros[57].

AQIM was fairly African-Negro in nature only for a short period, between 2010 and 2011. That was when the African Negros limited their links with the rest of the Arab and Tuareg communities –the predominant communities- strictly to religious questions (Islam as a common identity). These pseudo *fedayeens*[58], very young men and even minors, seemed to be oblivious to the terrain where they were acting, in spite of their vast experience in the rebel movements that had also arisen in their countries of origin[59]. Algeria was still feeling the effects

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53 LAREMONT, R (2011): «Al-Qaeda in the Islamic Maghreb: Terrorism and Counterterrorism in the Sahel». African Security. Volume 4, Issue 4.

54 Since the USA began fighting against the Islamic threat in the region, the country has launched the programme Pan Sahel (2002) and Trans Sahara (2005) in the struggle against terrorism and organised crime in the Sahel. The military base *Firhoun Ag Alincar* was located on the outskirts of Gao, where every day about a hundred US troops trained the natives who had joined the struggle against the enemies of Islam. US intervention was limited to training the natives and they were never directly involved in an ambush operation or similar.

55 DAGUZAN, JF, (2010) : *Al Qaida au Maghreb islamique : une menace stratégique?*, FRS.

56 Interview the author had with the Mauritanian, Mustafa Chafi, negotiator in the operation to rescue the Western hostages, and eye witness to the members of the AQIM organisation. In his statements, warnings are reiterated about the high Negro percentage in the *katibas* that wish to belong to a «supranational» cause, like Jihadism.

57 Interview with the Chief of Police in Bamako, June 2015.

58 *Fedayeen* literally means «he who sacrifices». This was the term coined to apply to the first Palestinian refugees expelled from Israel, who organised themselves into armed groups in Sinai and the Gaza Strip. Throughout the 1950s, the *fedayeens* never ceased to cross the frontier to attack the Hebrew State.

59 Interview the author had with former French hostage, Pierre Camatte, (6th October 2010) who for three long months of captivity was witness to the presence of Negro combatants in the

of the bloody civil war that took place in the 1990s. This country witnessed the birth of the terrorist organisation and gave it its *razon d'être*. The purpose of the numerous attacks against military targets in 2007 was to show that the organisation was still active and, above all, to demonstrate with specific deeds, GSPC's pact of adhesion to Al Qaeda, when until that time they were mainly involved in other economic activities of a criminal nature.

In this sense, and by way of conclusion, we consider that the apparent «globalism» of AQIM in 2006 gradually moved towards «regionalisation» (2009)[60] until the transition was completed by becoming an «autochthonous» movement (2013), being located within the confines of the region of Timbuktu, on the Mauritanian frontier, and inhabited by Arabs of the Berabich tribe. Their evolution towards becoming autochthonous can be accounted for from an economic perspective, because the ideological motivation was running out of steam, and combatants were increasingly returning to their own countries, to the extent that the ones that remained were, above all, natives of Mali, plus combatants from the north-east of Mauritania, whose Arab population is the same as in the region of Timbuktu (i.e. notables Arabs of the Berabich tribe). Throughout all those years, they concentrated on kidnapping operations beyond Malian borders, even though they were still based in Mali.

The French intervention in Northern Mali and Operation Berkhane, could lead to a revival of AQIM. However, so far, the large-scale attacks perpetrated in the zone, with national and western victims, are being carried out by armed men hired by the Tuareg, Iyad Ag Gali, and by the *katibas* of Mojtar Belmojtar who broke the balance of power with the Central Administration in March 2015 when, for the first time, they struck in the heart of Bamako, the capital of Mali[61]. This act of terrorism marked the beginning of a new era for Mali and its Sahelian neighbours. After this attack, others were perpetrated in a central hotel in Bamako, and in a restaurant and hotel in Burkina Faso, killing both locals and foreigners. They all bear the hallmark of Mojtar Belmojtar (MBM).

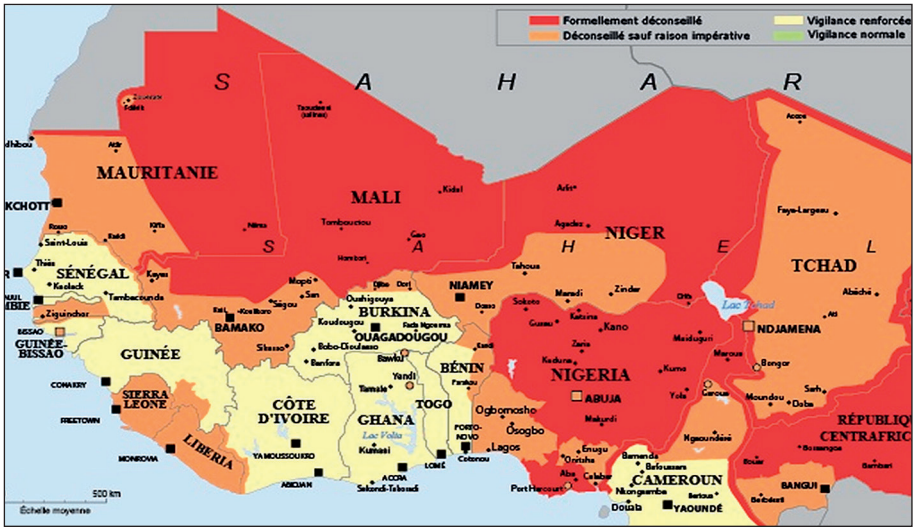
At present, the Algerian Mojtar Belmojtar receives local support from mercenaries. His recruitment process could increase since French soldiers took up positions in Malian territory, using arguments taken from former strong international leaders of Al Qaeda, such as: «when the enemy encroaches upon

AQIM network, with whom he had conversations in English (the Africans in English-speaking countries only speak their local language and the language of the colonisers). He perceived that the known «Jihadists» «acted on impulse, with violence and without thinking about political objectives. They merely plotted kidnappings and executions for money. They took advantage of anything to increase their coffers. Rather than being Jihadists, they are bandits. Professional criminals manipulated by false propaganda».

[60] Only the original members of the terrorist structure had Algerian nationality, plus a considerable number of Mauritanians. However most of the members during the study period came from the interior of Mali.

[61] https://www.nouvelobs.com/monde/20150307.OBS4099/attaque-d-un-restaurant-a-bamako-un-attentat-parfaitement-imprevisible.html.

Muslim soil», the Jihad becomes individually mandatory[62]».Jihadism in Mali[63] is currently represented by: an AQIM *katiba* established on the frontier between the north-west of Mali and Mauritania; by a *katiba* of the wrongly named Islamic State (IS) led by one of Mojtar's ex-combatants[64], located in a zone in the north-east of Mali at its limits with Niger, whose tentacles reach out into Libya; by Ansar Dine's group run by the Tuareg Iyad Ag Gali, lying on the border with Algeria and the guerrillas, mainly Peuls, of the Macina Liberation Front, an organisation commanded by Gali, whose sphere of activity is the centre of Mali. The *katibas* of AQIM, Ansar Dine and Macinas have merged to give rise to a new organisation under the name of Jamaat Nasar Al Islam Wa al Mouslimin (a front lending its support to Islam and Muslims), constituting Jihadism's first unification strategy in the Sahel after the French military intervention in 2012, which brought about a fragmentation of the terrorist groups in the zone. The following map shows the «red zones» within the Sahel:



Map 1.Source: https://burkina24.com/2013/06/22/risques-et-menaces-les-pays-quil-vaut-mieux-au-sahel-selon-le-quai-dorsay/.

62 CHALIAND, G, ARNAUD, B (2015) : «Histoire du terrorisme, de l'Antiquité a Daech», Fayard.

63 Once the Libyan regime has collapsed, the French Army's intervention in Northern Mali and the extension of the French military operation to the Sahel Region, together with the deployment of the UN International Peacekeeping Forces, caused some guerrillas from the different *katiba*s returned to their homes, while others went to Niger, and some sought refuge in the outlying zones of Arakcheche (Taoudenni Sector) or the Polisario Camps in Algeria. Some of them also headed for Libya, and a final sector remains in Mali.

64 Military intelligence sources in Mali state that the combatant Idnane Abou Walid Al-Sahraoui represents the bastion of the Islamic State in the Sahel. He served the interest of Mojtar Belmojtar until internal friction caused them to split. He had been a member of the Polisario Front in Algeria, in the 80s and 90s; he was spokesman for the MUJWA group in 2011—to which Mojtar also belonged— and he has ended up by leading his own *katiba* recognised by the IS itself in October 2016.

Regional Interference based on Geopolitical Interests: Libya and Algeria

Since the 1960s, the Tuareg rebellions and the military deterioration in Mali —especially on its northern part— have been conducive to a sense of both national and regional insecurity. These armed struggles have led to a «policy of violence» in the zones bordering on Algeria, Niger and Mauritania, together with an economy based on trafficking arms, humans and drugs that has had an impact on Algeria and Libya, two leading countries in the region because they are strong military and economic powers. For the last two decades, these two countries have endeavoured to contain any security imbalance. For example, Algeria has played a mediating role in every one of the armed insurgencies in Northern Mali and the north of Niger (the scattered Tuareg population is distributed throughout the different countries that constituted the Tuareg nation before the colonial period: Burkina Faso, Niger, Algeria, Mali and Chad). Apart from its diplomatic role in the regional leadership, the Algerian regime also caused the threat from the Jihadist groups that sprang up on its soil after a military coup curtailing the election processes that gave victory to Political Islam at the beginning of the 1990s, to cross its frontier towards Northern Mali. It was then feared by the Algerian Army to leave the country in the power of an Islamist party, as it might jeopardise the monopoly controlling the energy resources on which Algeria has depended ever since independence. Oil and the discovery of gas (Algeria is Spain's main supplier) have created elites within the Army and outside the Army but have not helped to develop the country, and it has not even managed to set up industries to create employment for the inhabitants. Now, 50 years after Independence, this matter is still unresolved and all the more so today, taking into account the experts' predictions that consider that the oil and gas reserves cannot guarantee more than 20 years of consumption at the current rate of exploitation. The Algerian regime faces serious domestic tension not only owing to the socioeconomic situation but also because the political scenario has stagnated. President, Abdelaziz Bouteflika, accused repeatedly of electoral fraud is confined to a wheelchair and incapable of actually governing. Manoeuvres to succeed him have been going on for some time, but the internal bickering in the Army shed no light on Algeria's future, which could lead to the emergence of new movements arising from popular unrest. Apart from having to face up a domestic problem, Algeria has taken on the role of being the «backyard» for the neighbouring countries by intervening as a mediator between the armed actors in the Mali conflict. The stability of the African country is essential for its neighbour to the north, Algeria, with which it shares thousands of kilometres of frontier, and the same applies to its other neighbour, Libya, which also played a historic role in the region when Muammar Gaddafi was in power, not only by containing the armed insurgencies of the Tuareg communities, but also through its relationship with Mali as «guardian of the nomadic populations in Africa», which prompted Libya to make major investments in Mali in the infrastructures sector, amongst others.

Gaddafi also took in a large number of inhabitants from Northern Mali who were fleeing from different spells of drought. This was particularly the case

with the Tuareg community, with which there were historical ties dating back to the pre-colonial period. It must not be forgotten that the southern part of Libya (Fezzan) formed part of the «Tuareg nation». In fact, after the fall of the leader Muammar Gaddafi and thus losing the leader's protection, many Tuaregs who had settled in Libya, decided to return to Northern Mali after plundering arms from Libyan arsenals and decided to form the first insurgency movement, the National Movement for the Liberation of Azawad (MNLA) and initiate a campaign of opposition to the central power in Mali.

Through the years, Libya has been «*el dorado*» for its neighbouring countries because its economy, also rich in petroleum resources, allowed the generation of employment for the emigrants coming from West and East Africa. With the toppling of Muammar Gaddafi (2012), within the context of the Arab Springs, and the lack of one single leader, Libya ceased to play a mediating role and, worse still, crime took over. This happened because with Gaddafi, all of the aforementioned activities were «organised» by the now dismantled central power, whereas now there are more than one central powers.

The new military elites opposing the totalitarian Libyan regime that killed the so-called «Prophet of the Green Book» and the elites linked to the previous regime became embroiled in an all-out war, basically to gain control over the economic routes and the oil resources, and that war is still lingering on. Oil is the country's main resource, and it has generated wealth and stability in Libya and the neighbouring countries —95% of Libya's revenue comes from producing and exporting crude petroleum (OPEC, 2016). Having said this, it must be pointed out that Libya, albeit one of the most conservative countries in North Africa, is not blighted with a religious conflict, i.e., it is not the case of a confrontation between «liberal» tendencies and «Islamic» ones; it is a matter of a struggle for power versus economic power.

The collapse of the regime presented a fresh opportunity for hydrocarbon monopoly, to the detriment of a process of political transition towards democracy in Libya. Armed groups have arisen in the territory, with their own political wings, to defend the economic interests of the zone under their sphere of influence, that depending on the specific tribe they belong to. Thus we find different power centres in the region of the Cyrenaica—which is itself split into the easternmost part (Benghazi, Tobruk) and the westernmost part (Misurata); the Tripolitan (the western part) and Fezzan (to the south). Each of these power centres is competing for the political influence that will enable them to control the hydrocarbons through the use of arms. This is true to the extent that power is measured by military force and the tribal question in each of these regions, so the fragility of the institutional structure left by the previous regime has had a significant effect upon the process of formalising the social and political networks. At present, the political scenario is characterised by tribes being replaced by militias, to the extent that we find a culture where arms are used as the absolute source of power beyond the legitimate institutions of the State. Then, the emergence of the militias to replace one National Army that would enable the country to lay the

first foundations of a State has generated a flourishing business model through arms. This has occurred to the extent that there is a complex network of mercenaries that makes it difficult to achieve genuine peace in Libya. Therefore, the proliferation of arms, together with the recruitment of mercenaries has turned this latter activity into a job (for the population), and this poses the real threat to the future of Libya. The role of the militias so far consists of responding to the interests of each of the aforementioned power centres into which the territory has been divided: Cyrenaica, Tripolitan and Fezzan.

In each one of the three regions into which Libya is *de facto* divided, the predominant tribes are represented politically, their ultimate aim being to conserve their economic interests in their sphere of influence. The creation of a Government of National Unity as a result of a negotiation process that lasted over one year in the Moroccan city of Skhirat in 2015, did not give the desired results, since the power centres conserve the armed structures they were founded on, which represent a professional outlet for the Libyans. In the past, the survival of the Libyans depended upon oil revenue, whereas now the dignity of Libyan citizens involves joining a militia and bearing arms. In this sense, eradicating the militia and arms has become Libya's main challenge for the near future.

The signing of the Libyan political agreement on 17th December 2015 in Skhirat (Morocco) with the support of the United Nations, which made possible the formation of a Government of National Unity, was however unable to overcome the existing division of the country into different political and military alliances founded on the basis of tribal membership. The Government of National Unity led by Fayez al-Serraj, which has only managed to gain control of one sector of the capital, Tripoli, due to the constant rivalry between the different factions, has found itself faced with a competitor in the easternmost part of Libya (dominated by the Zintan tribe), Jalifa Haftar. He is a powerful military leader —ex-General in the Libyan Army—who represents an important elite in post-Gaddafi era. The image he puts across abroad is that of a liberal force whose military campaign has been based upon the struggle against the Islamist groups that emerged in Derna and Benghazi (Cyrenaica) and in Sirte. The latter city was Gaddafi's birthplace, and also the place where the wrongly named Islamic State (IS) first reared its head, in the form of ex-coreligionists of Gaddafi who wanted to avenge the death or their leader.

The progress made by General Haftar in gaining territorial control over Cyrenaica has been achieved with the support of numerous factions, dissatisfied military units, security personnel from the former regime, anti-Islamist militants, Jadhran's Petroleum Facilities Guards (until 2016), plus eastern tribes, eastern federalists, as well as Zintan militias and brigades from other western cities. Haftar's army has also received arms and financing from countries like Russia and from Arab countries, mainly Egypt, Saudi Arabia and the United Arab Emirates, for whom the rise of the Muslim Brotherhood in Libya amounts to a threat to their internal security[65].

[65] WEHREY, F (2017): «Ending Libya's Civil War», Carnegie Endowment.

Haftar has managed to control the main oil wells in the east of Lybia. He is also being put forward as a suitable interlocutor for the West when it comes to making decisions concerning the future of this North African country. In fact, his presence in the oil sector has brought about an upsurge in oil production. From a maximum of 1.8 million barrels per day (bpd) in Gaddafi´s era, production fell to below 400,000 bpd throughout most of 2016. After Haftar took over, the levels began to increase again, rising to 1,000,000 bpd in July 2017, a figure that was not reached since 2013[66]. At present, Libya is still divided and not only elections would be required to structure the country's complex political map, but fresh negotiations are also necessary to be held with all the forces represented, so that it will be possible to both fairly share out the natural resources and to better manage the non-natural resources. On a basis of genuine trust, the disarmament of the Libyans could start, because while the country continues to have an anarchical layout in matters concerning the management of physical force, it will be difficult to define Libya as a State.

The Energy Approach in the Sahel

The need to produce in order to obtain income, to enable a country's national economy to grow and to generate development for growing populations, is a constant necessity in the countries of the Sahel. This strip of the Sahel (from the Arab: *coast*, *limits* and *bordering zone*) covering a surface area of 8 million kilometres and separating the desert from the African savannah to the south[67], which includes countries on the Atlantic Coast (Senegal), running through Mauritania, Southern Algeria, the north of Burkina Faso, the north of Niger, as far as Sudan, is currently influential in world geopolitics. In the first place, it has a great variety of natural resources, causing empires to clash in the past, secondly, it is important because the Sahel consists of transit zones for trading, where trans-Saharan trade has been the driving force, and thirdly, the discovery of natural resources such as oil, uranium and water reserves, made the zone be of geopolitical and geostrategic interest.

The availability of natural resources is vital to the economic development of nations, and it is energy the one that has among the greatest effects on the growth strategy. Natural resources are part of a country's natural heritage and as such can be regarded as capital assets in a strictly economic sense. However, not all countries produce classic energies, and even if they do have them not all have used their revenue to generate development and social welfare.

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[66] BOUAJAJ, Y, DOMINGUEZ T, A, LECUMBERRI, A, SOTO, J (2017): «The distribution of power in post-Gaddafi Libya: an analysis from a sociology of power perspective». REIM.

[67] It could be said that the Saharan part, composed of rocks and sand dunes, rather than being inhabited, has traditionally been transited by nomadic tribes with their herds and traders, whereas the Sahel part—which mainly coincides with the middle reaches of the River Niger—albeit with a semi-desert climate and terrain, was the area where from a historic perspective, the population not only became sedentary, but was also the zone where ethnic groups coming from the savannah settled.

Until the present time, the Sahel region has been characterised by having a major energy resource deficit, not due to a lack of such resources but because they have either not been exploited or badly exploited. Thus, for example, Niger —with which Mali shares 840 kilometres of frontier— has one of the largest uranium deposits in the world and is fifth in the world production rankings of this mineral for the generation of nuclear energy. The giant mining firm Arlit, owned by the French company Areva, is based in this country, yet its operations hardly have any impact on the economic and social development of the inhabitants. Another Sahelian country with major resources, albeit unexploited as yet, is Mali, where hydrocarbons (oil)[68] have been found in the northern zone (Taoudenni)—north-west frontier with Mauritania— as well as pockets of uranium. Other resources, phosphates, coal, magnesium and diamonds have also been discovered in the Adrar des Ifoghas, Gao, Bourem, Menaka, Tassiga and in the Ullimiden Basin (Mali). A technology has likewise been found in the north-east of the country near its border with Algeria, that the locals living in Northern Mali call «rare earth» and is also the subject of great interest. In fact, France cordoned off the zone as soon as it intervened in 2012 and, according to State sources, has extracted large amounts of this technology.

These zones, with such a rich subsoil, are the subject of power struggles between military-tribal elites and the central power, worsened by the presence of France which has increased instability in the region. The progress that had been made for the future exploitation of the resources has been halted until there are prospects for peace in Northern Mali. The fact is that these energy findings lie in the heart of the zone where the conflict broke out in 2012, a date on which companies such as the Algerian one, Sonatrach, or the Italian ENI-Sipex had already planned to make huge financial investments to explore and subsequently exploit. The war aborted any attempt to develop these or any future energies.

Energy Challenges in the 21st Century

The World Energy Council[69] has explained the energy elements of the future around three major questions: accessibility, availability and acceptability.

Accessibility means the capacity to be provided commercial energy between now and 2020, among other reasons because of the population increase. So, in view of the diversity of the demographic and economic situation and the unequal geographical distribution of energy in the world, there is no one single answer. All forms of energy have to be solicited, whether they are fossil or renewable sources. Decentralised production will complete the traditional centralised systems, but accessibility is not only a physical problem, it is also a question of financial resources allocated to the South.

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[68] DIARRA, B (2013): «Le conflit dans le nord du Mali: les éclairages de l'espace en jeu« dans Doulay K dir, 2013, Le Mali, entre doutes et espoirs. Editions Tombouctou.

[69] JAPSEU, DJONGAYANG,PETSOKO, AYUK MBI EGBE (2012): « Energies renouvelables en Afrique subsaharienne». Harmattan.

North-South cooperation can transfer technologies and financial resources from the North, in exchange for benefitting from the great potential involved in developing the South, which is unable to realise this alone based on its own resources.

Availability, is a question of guaranteeing the continuity and quality of the energy supply. Guaranteeing this availability also means simultaneously using all energy forms and, for each one of these forms, diversifying the sources and supplying routes. The oil and gas reserves are undoubtedly lower in this century, which is yet another argument for an all-round improvement in energy performance. Coal reserves will last for centuries, so there is less pressure to make this improvement. Where electricity is concerned, we cannot see how to avoid resorting to nuclear energy in the long term, unless an unforeseeable technological breakthrough is made. And then there is the question of its acceptability. The physical potential of renewable energies is almost unlimited, but the cost of exploiting them imposes limits. However, cost-reduction strategies are already being analysed as can be seen in the graph below:

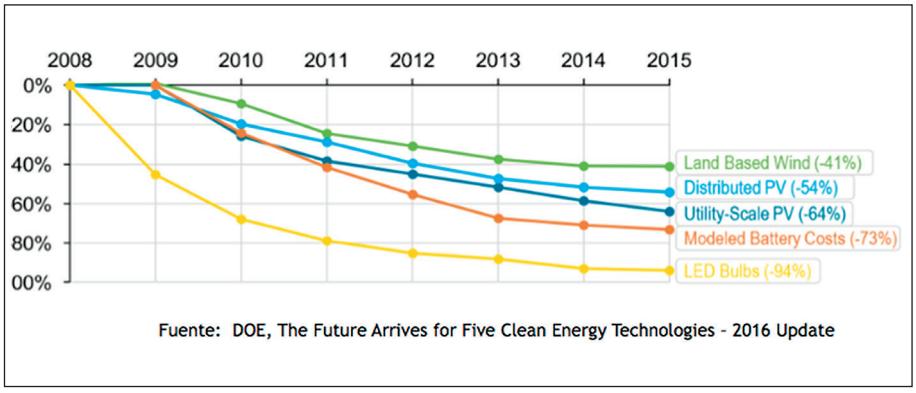

Image 2.- Fuente: DOE, The future arives for five clean Energy technologies – 2016 Update.

Nevertheless, in view of the needs, these are the only ones that can provide the best solutions, hence the on-going interest in considering research and experimentation to bring about cost reduction, considerable for wind and solar energy. The third energy challenge is acceptability. The concept refers directly to the various social, human and ecological aspects in the broadest sense. Gas springs to mind from among the different fossil fuels, because it is a clean network energy and is easy to use. For individual transport, petroleum substitutes currently only play a marginal role and the challenge for the future is formidable. Coal is still one of the most widely-used energies in Africa, because the cost is low, yet as a pollutant, this resource is very harmful.

Replacing the Traditional Energies

In Africa, the energy demand is on the increase in the Sahel, because their economies keep growing. This upward trend will continue, so energy dependence

on oil is being looked at closely given that the difficulty in finding alternative sources is now becoming a strategic challenge. Many countries will try to diversify and guarantee their crude oil supplies, and there will be strong competition between purchasing countries in view of the insufficiency of the oil offer. That is to say, the non-finite nature of fuels as a non-renewable energy source is now a prediction at global level. Therefore, a fall in world production will make it necessary to develop other clean energies, as the solution.

A Halt to Rural Exodus and Emigration

As we have been explaining, the energy policy must be aimed at alternative energies, ones that pollute less and are renewable. However, such energies can only supply a moderate percentage of the demand. Hydraulic, solar, wind and biomass are the most extensively used renewable energies, which makes Africa an area of interest once again, because it provides alternative energy sources. Thus, for example, solar energy helps to produce electricity via photovoltaic cells. At present, it is of limited use and it cannot yet supply the electricity required for consumption in large urban zones or industrial complexes. Nevertheless, there is an upward trend in solar energy and this renewable energy is already being developed in rural parts of West Africa—where most Africans live— as a solution for the settlements that lack sufficient electricity, but it does not reach an average of 3%. Developing solar energy in rural zones helps to improve the youth unemployment levels (a brief account of the consequences of migratory movements) and at the same time, helps to curtail the prevailing trend of leaving the rural zones and moving to the cities. So, it can be said that non-traditional commercial energies like renewable energies are a driving force for development in these settlements with rising populations that are expected to be industrialised.

«The Solar Belt» in the Sahel

The sun is an abundant and readily available energy source in Africa; however it has taken a long time to wake up to this fact. In the Sahel, solar energy has been used to dry animal hides and clothes, preserve meat, dry harvested produce and vaporise seawater to extract the salt. As it is a technology with great potential that enables one to produce electricity and extract water—two scarce resources in the countries concerned— it is already being exploited by Europeans. The ambition of countries with resources is to install the largest solar plant in the world in the Sahara Desert, with a twofold aim: on the one hand, to develop the towns in the south and put an end to the endemic problems brought about by social injustice, amongst other causes, and on the other hand, to use these facilities to provide Europe with 15% of the energy it consumes. In 2010, of the 3,500 solar projects under way, over 40 were in progress on African soil[70].

[70] Ibid.

Field	Specific Purpose	Environment	Beneficiaries
Construction (homes, offices, factories, industries, etc.).	Supplying electricity. Enabling solar electrical equipment and appliances to work.		Companies, public and private institutions.
Supplying drinking water.	Solar pump.	Rural & Urban.	
Electricity production.	Thermal power plant and solar power plant.		Companies, public and private institutions.

Table 1. Sectors using solar energy.

The Case of Senegal

Senegal is a country at the western end of the Sahel region, on the Atlantic Coast. It is one of the most stable countries because there are no settlements of terrorist cells or insurgency groups to destabilise this African State. Senegal has become one of the main actors in the international peace mission, MINUSMA[71], in Mali, in view of the fact that Senegal provided more UN Peacekeeping Force members than any other country. Likewise, It is also one of the Sahel and West African States with most experience in collaborating with Europe over questions such as controlling migratory flows. Furthermore, Senegal has signed bilateral agreements with European countries in the area of training and preparing the various security forces and corps in the fight against crime and terrorism[72]. In view of this, not only European partners but also the USA, are trying to prevent Senegal from the types of threats that have already affected other Sahel countries (Mali, Burkina Faso and the Ivory Coast).

With foreign aid, Senegal has managed to protect itself from the security threats affecting other Sahel countries. That is why Europeans attached particular im-

[71] Ibid.

[72] The author took part in the bilateral programme between Spain and Senegal in the training exercises as part of the Marfil Mission accompanying the Berkan Operation. Furthermore, an army corps is collaborating with Senegal in training Special Forces within the framework of bilateral cooperation.

portance to Senegal in October 2017 when they participated in a multilateral Forum to examine the potential for economic exploitation. That is to say, representatives from development partners, financial institutions, public services in the private sector and civil society organisations in the ECOWAS zone (Economic Community of West African States), have undertaken to create an environment suitable for investment in the renewable energies sector. The experts believe that this can only be achieved in an appealing regulatory and legal framework, removing the host of barriers that prevent general investment in renewable energies and energy efficiency in the region.

Regarding the energy infrastructure and human resources questions, the Forum recommended that solid and sustainable installations and facilities with highly-qualified staff be provided, and that they should implement good codes of practice such as technology transfer and the creation of capacity. The Forum observed that certain countries fared better than others in obtaining investments in the renewable energies sector and, so, it recommended more synergies and the exchange of experiences to the benefit of all the member States.

The Case of Mali

Although the security situation in Mali varies greatly from the situation in Senegal, given that the former contains grey zones uncontrolled by the State and occupied by armed groups of different kinds (currently in Northern and Central Mali), the settlements in Southern Mali are under State control, so security is guaranteed for international investors. Apart from the cotton industry, there are also niche markets in the renewable energies sector that are already being studied by Germany and, especially, China. Mali offers 365 days of sunlight, «it can provide energy for this African country and the entire Europe, but it requires foreign investment»—State sources have informed the author.

The German Government is one of the first EU countries to invest in promoting renewable energies in order to develop rural electrification, the challenge facing the African people. Recently, and as a pilot experience, the German firm Africa GrenTec commissioned a container and solar panels in Badougu-Djoliba, a town 50 kilometres from Bamako, the capital de Mali. Installing solar panels is «killing two birds with one stone», helping to overcome both the electricity and water deficits. At present, the panels are making it possible to generate electricity for homes and clinics, while also enabling the operators to extract drinking water from wells.

The Chinese Partner

China has done most in the race to exploit renewable energies. The relationship between the two countries is mainly based on trading and goes back to the 13th Century, although diplomatic relations did not formally begin until 25th October 1960, a month after Mali proclaimed independence from France. Ever since, Mali has been one of the African countries most open to Chinese influence. It is with

good reason that the first President of Mali, Modibo Keita, was known for his «opportunism» during the Cold War, using his skill to keep a degree of balance in his relations between the West, Russia and China. More recently, relations have focused on the Forum on China-Africa Cooperation (FOCAC), the win-win association on which China's foreign policy in Africa is based. China is the main importer of cotton and shea butter, and also exports manufactured and electrical goods, as well as pharmaceutical products. China's presence is essential for the development of the infrastructures and creating new employment opportunities. This close trading cooperation has been extended to include political, military, cultural and sanitary areas and, more recently it has been applied to the field of education. This is true to such an extent that the new university city of Kabala is the work of China, and the highway linking the airport to the university also bears the hallmark of China. Over 3,000 Chinese citizens currently live in Mali and the Chinese Government has opened its doors to more than 800 Malian engineers to receive training in China as a future strategy for continuing to invest in Mali and the rest of the Sahel. The reason why China has become a priority partner for Mali and other Sahel States to the detriment of Europe is because of the credit facilities, or «pre-financing». «China constructs, and we pay 20 years later, whereas European investors want immediate payment and in cash. If we've got to choose between one and the other, it's obviously going to be China», Government sources told the author.

China has now become extremely competitive in the renewable energies sector. In the northern city of Tausat, to the north of Gao, and in the south, it has begun to develop solar and hydraulic power plants. Apart from exploiting renewable energies, the Chinese Government is also considering establishing the 21st Century «energy belt» and the «maritime route» that will link Asia with the Middle East and Africa to promote the reform of the electricity, oil and natural gas system. With a view to this, great efforts are being made to explore and extract oil and gas and to speed up the construction of oil and gas-pipelines and to install stocks[73]. This energy security strategy is a priority for China's strategic plans as part of the country's economic and social development, improving the population's standard of living and perpetuating internal peace and stability of the society. In order to face up to the changes affecting the supply and demand situation and the new trend in international energy development, China must instigate a revolution in energy production and consumption in order to guarantee energy security in the country, and to achieve this it has chosen Africa as the top priority on its agenda.

The Case of Burkina Faso

Burkina Faso, together with Senegal, was a model of stability in the Sahel strip until it became a target for AQIM in 2016[74], after the unprecedented popular mo-

[73] XI JINPING (2014): «La Gouvernance de la Chine», Foreign Languages Press.

[74] Al Qaeda in the Islamic Maghreb (AQIM) attacked the Hotel Splendid in Ouagadougou, the capital of Burkina Faso, frequented by foreigners, UNO personnel and French troops leaving 30 dead of different nationalities. It was the first terrorist attack committed in that West African country.

bilisation that ousted Blaise Compaoré from Presidency, thereby putting an end to the balance of power established between the President and the *narco-Jihadist* opposition groups. A similar situation occurred in Mali between the deposed President Amadou Toumané Touré and the subversive groups.

The street protests that broke out just as Compaoré was considering making modifications to the Constitution to keep himself in power, demanded a change from military to civil rule and led to transparent and democratic elections being held, after more than two decades of military dictatorship under Blaise Compaoré. Throughout all that time, this man who governed with an iron fist pulled strings in the Sahel region to benefit from all the traffic that crossed from one point on the strip to another, where terrorism and organised crime are the main threat to the region. In fact, Compaoré played an indispensable role in the negotiations held to release the Sahel hostages[75].

At present, that mixture of crime and terrorism still threatens Burkina Faso's borders, to the north, at the frontier with Mali, where there is a grey area owing to the Army's absence, this void being filled by a new Jihadist-type *katiba* «Ansarul Islam», led by a Burkinabe, Ibrahim Malam Dicko. He is a radical preacher whose ability to act and recruit is so far dubious, in spite of the fact that several attacks on the security forces and corps have been attributed to him.

Burkina Faso not only has an incipient insecurity problem, but in its new political situation the country is also facing the urgent problem of being underdeveloped. To overcome this situation it is prepared to seize any economic opportunity offered by its soil — this country is the fourth poorest in the world according to the United Nations Human Development Index (HDI) — By now, the World Bank has granted the country one loan amounting to about 80 million dollars to improve the electricity sector by encouraging renewable energies. Its representative in Burkina Faso, Cheick Kanté, has stated that the Government hopes to cover 100% of urban electricity requirements and 40% of rural needs with reliable electricity between now and 2025.

The first operations have already commenced, with the construction of a solar energy plant at Zagtouli, on the outskirts of the capital, Ouagadougou, which will have a production capacity of 33 megawatts and considered to be largest one in West Africa´s Sahel countries. These facilities are fruit of a commitment taken on during the internal conference on climate change COP 21 in Paris, and an investment of 47.5 million Euros is required to build the plant. The project plans to install 130,000 photovoltaic solar panels over a period of two years. The European Commission (EC) began the delivery deadlines for 25 million Euros last year, as a subsidy for that project which, when concluded will increase the volume of electricity injected into the national electricity company to the Burkina Faso grid, Sonabel, and will reduce the State billing. This African country

[75] During her research years in the Sahel, the author discovered the chain of «operators» paid by Compaoré in the kidnapping industry and other criminal activities.

has been registering a major deficit in electricity generation so power cuts are frequent, to the extent that sometimes half the capital is brought to a standstill for several hours. One of Sonabel's main missions is the electrification of the country and, although the target for 2015 was to supply 60% of the State, at present the rate has not yet exceeded 30%. The State-owned company is also responsible for developing major interconnection projects with the neighbouring countries that supply Burkina Faso with energy.

National Energy Plan 2016 - 2020

Sonabel has also put out to tender the participation of consultants interested in working towards the development of the Strategic National Energy Plan for the period 2016-2020, in order to audit fuel consumption at the State power plants, which is being financed by the World Bank.

The objective of those consultants will be to cope with the actual financial situation with a view to stabilising the operations, making the system more efficient and cutting losses, as well as optimising investment planning, speeding up customer management and conducting a study of consumption, non-technical losses and administrative efficiency.

Conclusions

The population of the Sahel is expected to double by 2030. A greater population means an increase in food insecurity, lower education rates, higher youth unemployment, higher levels of migration, and an upward trend in organised crime. The Sahel countries also face growing urbanisation that requires more resources to be deployed, so the renewable energies are being thought of as a solution for the future. These are being studied as short-term goals to help the African people to escape from the stagnation of underdevelopment and exclusion in the new era of globalisation. The countries must find cheaper energy sources for the future development of Africa that minimise risks to the environment and guarantee their viability. That is where renewable sources will play a vital role. Energy development must also take place along with State backing for local production using the raw materials that the Sahelian countries offer, making it possible to create industry as a way of generating employment. All of this must go hand in hand with greater security, reforming the armies so that they become really operational, and the same applies to the rest of the security corps and forces.

Chapter V

India: Energy Geo-Politics

Sunjoy Joshi and Lydia Powell

Abstract

In the last four decades, India's geo-political identity has evolved from being the leader of the non-aligned movement - a representative of the developing poor nations of the world to becoming a member of the G-20, the world's leading industrialized and emerging economies. The change has also been evident on its evolving position on climate change as it became a signatory to The Paris accord. However, the paper argues that key tenets of self-reliance, economic progress with equity and social justice, embedded in the political economy continue to not only impact India's energy policy but also influence external strategic vectors such as dependence, resilience and identity to inform India's position in multilateral bargaining environments.

Key Words

India, energy, geo-politics, self-reliance, resilience, import dependence, subsidies, deregulation, decarbonisation, climate change, Paris Agreement.

Introduction

Having adopted a state led Planned Economy Model, the Indian economy between 1947 and 1980 – in spite of its ambitious Five Year Plans – had grown at an annual average rate of 3.5 percent. Given an annual population growth of over 2 percent, the country's per person income, consequently, had lumbered on at a sub 2 percent rate of growth. The economic reforms initiated in the early 1990s changed the picture. India's economy now began to grow at an annual average of over 6 percent. Population growth having declined to under 2 percent per year, per capita income grew at an average over 4 percent in the last three decades[1].

Between 2000 and 2014, India's energy consumption doubled implying an improved quality of life for an increasing number of Indians[2]. India too caught the world's attention as a region of rising energy consumption. India's rising economic heft also saw energy demand rise in tandem with its neighbour, China, making comparisons between the two common.

However, geo-politically, given its long legacy as the leader of the non-aligned movement, India remained a reluctant power, hesitating to imagine a larger geo-political role for itself even as it came to terms with its increasing economic clout. Even so, in the face of a rising energy demand, several forays for acquiring energy assets abroad – were acts bound to lead to a wide range of interpretations as to its actions and motives.

The geo-political narrative of the nineties tended to frame the Indian approach to securing energy supplies, particularly oil supplies as 'mercantile' and 'realist'[3]. Meanwhile, in spite of the much-touted economic reforms, the interference of the State in energy pricing continued, leading most to conclude that India's half-hearted economic reforms would continue, along with China's, to threaten the emergence of a rule based multilateral order for global energy governance. The dominant role of the state in the domestic energy sector as well as the competition between Indian and Chinese national oil & gas companies (NOCs) to acquire hydrocarbon assets around the world only served to strengthen this belief[4].

But then came 2008. Global growth stagnated. Even as China and India continued to grow, albeit slower, a deceleration in energy demand growth and the collapse of oil and gas prices globally, reduced the strategic as well as commercial value of the hydrocarbon assets held by Indian and Chinese NOCs overseas. Simultaneously,

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1 International Energy Agency (2015), «India Energy Outlook», Paris.

2 Ibid.

3 Advisory Council on International Affairs (2005), «Energised Foreign Policy», The Netherlands quoted in Mohan, C & Powell, L (2015), «Energy Rivalry between India and China: Less than Meets the Eye?» in Steven, D, O'Brien, E & Jones, B (*ed.*), The New Politics of Strategic Resources: Energy and Food Security Challenges in the 21st Century, Brookings Institution Press (pp. 144-167).

4 Collins, Gabe, et al (2011), «Asia's Energy & Resource Nationalism: Implications for the United States, China and the Asia Pacific Region», NBR Special Report, The National Bureau of Asian Research.

global pressure on reducing carbon-di-oxide (CO_2) emissions, and the emergence of competitive low carbon technologies further eroded the validity of this narrative.

In the emerging energy geo-political narrative, India now is the key to global energy decarbonisation plans. The hope is that much of India's yet-to-be installed energy infrastructure could be based on low carbon energy sources. India's energy demand is still projected to account for 30 percent of the world's incremental energy demand over the next two decades. However, the emphasis has shifted to how this demand can be met from non-fossil fuels[5].

This chapter seeks to examine the core values that inform geo-political narratives on energy and contextualize them in the framework of the political economy that the authors insist, will eventually shape India's energy policy. The paper will argue that key values such as self-reliance (in resource and in technology), development (economic progress) and social justice (energy justice) embedded in the local dimensions of energy policy, have historically influenced, and will continue to influence strategic vectors such as dependence, resilience and identity and inform India's position in multilateral bargaining environments.

Strategic Vectors in India's Energy System

Resilience

Resilience, the ability to adapt to changes in the energy markets, is among the key goals of any energy security policy. Notwithstanding the characterisation of 'energy security' as a public good, well integrated markets have shown remarkable capability to adapt to unexpected changes in the fundamentals of demand and supply, thereby delivering energy security to nations.

India, however, has traditionally prioritised bureaucratic regulation and control over markets to mediate changes in the supply of and demand for energy. A recent energy policy document authored within the Government accepts that the Indian approach has been 'uncritically pro-state' and 'reflectively anti-market'[6]. This approach, however, has constrained the resilience of the Indian energy system. Energy choices determined by the immediate demands placed upon it by the political economy, have often been in conflict with long term energy planning. These in turn have nurtured systemic rigidities that inhibit India's ability to respond to changes in global, regional and domestic energy markets, or to attract investment in energy production and energy infrastructure such as gas pipelines, or leverage favourable energy price environments (as in the years between 2014 to 2018) to the country's benefit.

Difficult to believe as it may be, when India became an independent country in 1947, the Indian energy sector was dominated by the private sector. However a

[5] International Energy Agency (2017), World Energy Outlook 2017, Paris.
[6] Government of India (2015), «Annual Economic Survey 2015-16», Ministry of Finance.

looming food grain shortage nudged the country into favouring policies that saw energy as a means for food security. The consequence was that the state began intervening to become the dominant player in the energy sector[7].

When India was partitioned in 1947, 85 percent of the population of erstwhile undivided British India, was left with only half of the 400,000 cubic foot per second (cusecs) of water carried by its canals[8]. Of the 24 million hectares of land irrigated by state owned canals, India's share fell to less than half. Food security now became the foremost concern for Indian planners.

In the first five-year plan, the planning commission of India recommended doubling of the area under irrigation through the provision of 'cheap electricity' so that water could be pumped from wells and tanks to irrigate all arable land for food production. Five, 'five-year' plans along with two annual plans in the first three decades after independence (1947-80)[9] devoted themselves to policies that focused on increasing electricity generation and distribution just to increase land areas that could be irrigated by pumping ground water or through canals[10].

The focus on food ensured that electricity sector policies were loaded to favour the state led strategic objective of food security. The objectives of efficiency, commercial viability and profitability of the sector became secondary. To be fair, the overall policy thrust did ensure that India's food security increased dramatically on account of input (water and fertiliser) intensive agriculture during the period that came to be labelled as the 'green revolution. However, it embedded certain rigidities in the Indian energy system that continue to contribute to some of India's macro-economic distortions. To this day agriculture and energy policies have got locked in an embrace that has not only worked to the detriment of both sectors, but also put paid to India's potential as a possible manufacturing power.

The political economy of food production, farm employment and the socio-economic stability of rural India became inseparable from the supply of cheap electricity, making tariff reform extremely challenging. It also meant that coal would remain the fuel of choice for power generation; and that high industrial and commercial power tariffs would subsidize agriculture as well as domestic consumption of electricity. Even today, coal accounts for over 44 percent of pri-

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7 Mohan, C & Powell, L (2015), «Energy Rivalry between India and China: Less than Meets the Eye?» in Steven, D, O'Brien, E & Jones, B (ed.), The New Politics of Strategic Resources: Energy and Food Security Challenges in the 21st Century, Brookings Institution Press (pp. 144-167).

8 Government of India, (1948): First Five Year Plan, Planning Commission, New Delhi.

9 Until the sixth five year plan (1980-85) India's five year plans (1951-80) along with two annual plans (1966-69 & 1979-80) did not contain a chapter on energy but discussed plans for electricity generation for irrigation in a chapter titled 'Power & Irrigation'.

10 1978 to 1980 had been a Rolling Plan introduced by the Janata Government instead of the Sixth Plan. The Congress reintroduced the Sixth Plan which ran from 1980 to 1985, and which for the first time had a chapter on energy which had become a burning subject post the oil shock of the 1970s.

mary energy supply[11] and generates over 80 percent of all electricity supplied in India[12]. This critical dependence of most of the more productive rural regions on energy for ground water extraction has also determined and constrained India's position in multilateral bargaining environments, particularly those related to trade and climate change.

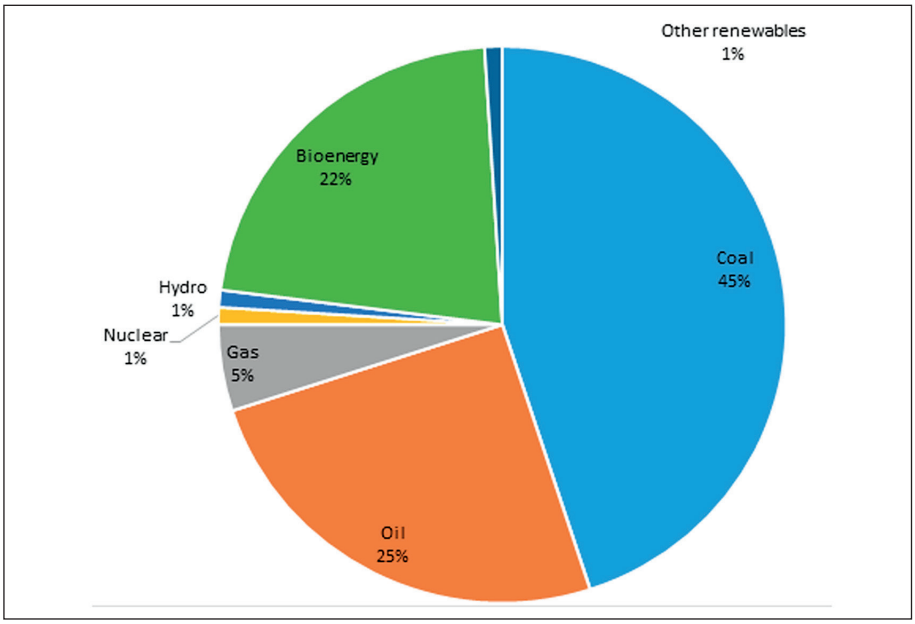

Chart 1: India's Primary Energy Basket (897 mtoe) by share of fuels 2016. Source: world energy outlook 2017.

Low productivity, a disproportionately large population dependent upon agriculture (subsisting on small farms or as labour) has limited the ability of the farm sector to generate surplus. Policy makers have had to work overtime to ensure adequate farm produce prices, while simultaneously keeping food price inflation under control. Theses twin problems have been resolved by holding back the price of inputs such as electricity and fertiliser[13]. In the process, regulated

[11] International Energy Agency (2017), World Energy Outlook, Paris. The data is for the year 2015. The share of coal in the primary energy basket is calculated including non-commercial energy forms such as wood and dried animal dung that constitutes the third largest share of India's primary energy supply. If traditional non-commercial firms of energy are not counted the share of coal in India's commercial energy basket increases to over 57 percent.

[12] Government of India (2017), Central Electricity Authority, Ministry of Power, Data bulletins that are updated on a daily basis.

[13] The government of Telangana, a newly created state (regional or provincial unit) declared in December 2017 that free electricity will be available for agricultural consumption 24 hours of the day https://economictimes.indiatimes.com/news/politics-and-nation/telangana-farmers-to-get-24-hour-free-electricity-from-dec-31/articleshow/62284021.cms.

non-market pricing has been the guiding principle governing the sale of fuels such as domestic coal, diesel and natural gas.

The use of domestic coal strengthens 'self-reliance', one the most consistent energy security values reiterated most in India's energy policy documents. This has continued even as investment promotion policies admit that regulated prices compromise the resilience vital for energy security and jeopardize transition towards a low carbon economy.

Under normal circumstances, natural gas would be expected to be promoted as the bridge fuel towards low carbon growth. However, unskilled labour in coal mining supports over 7 million households[14] in impoverished eastern Indian provinces of India. The employment of unskilled contract labour, at the cost of economic efficiency, ensures that low quality domestic coal of ash content as high as 45% remains the fuel of choice. True, that the Union's budget for financial year 2015-16, doubled the environmental cess on coal to Rs 400 per tonne of coal mined (equivalent to $10 per tonne of CO_2)[15]. However, low labour costs for mining allow the Indian coal industry to absorb additional social and environmental costs and still deliver electricity at acceptable tariff levels from older state owned power plants operating on depreciated assets.

Yet, close to 300 million people yet have no access to power. Cross subsidies ensure that average electricity tariff in India is above that in similar countries (i.e. countries having coal based electricity). High industrial and commercial tariffs partially compensate for lower (in many cases zero) agricultural tariffs. Thus electricity tariffs in India are burdened by the incorporation of several costs attributable to the political economy even when they translate into inefficiencies in distribution and supply of power[16].

The dependence on a single fuel for 80 percent of electricity generation means that even a small temporary shortfall in coal production or transport can impose costs on the Indian economy. Diversification of the fuel basket for power generation has been a part of energy policy since the 1960s when coal based thermal capacity exceeded hydro power generation. However the share of thermal coal based power generation has continued to increase at the expense of generation using other fuels.

Cleaner burning natural gas currently may accounts for about 8 percent of power generation capacity, but feeds only 5 per cent of India's electricity[17]. The price

[14] Ghosh, R, Sharma, N & Subramanian, A (2017), «Renewables may be the Future but are they the Present?» Coal, Energy, and Development in India, Sixteenth Darbari Seth Memorial Lecture August 17, 2017, The Energy & Resources Institute, New Delhi.

[15] The cess also partially compensates for cross-subsidies in rail transport.

[16] According to the Central Electricity Authority (CEA, Executive Summary of monthly reports for 2017) all India annual average Transmission and Distribution (T&D) losses for 2014-15 was over 22 percent. The government of India aims to bring down T&D losses to 16 percent by 2021-22 (Government of India, (2017), 19th Electric Power Survey of India, Central Electricity Authority, Ministry of Power, New Delhi).

[17] International Energy Agency (2017), «World Energy Outlook 2017», Paris.

of imported gas is high compared to domestic coal on heat value basis which means that gas cannot accommodate additional costs. This substantially reduces the ability of natural gas to commercially compete with domestic coal in power generation. Over 25 GW of gas fired capacity installed for supplying cleaner power runs far below capacity contributing just about 5 percent to India's total power generation[18]. Typically the average tariff for imported natural gas based power is 70-80 percent higher than the average tariff for domestic coal based power[19]. Renewable energy (solar and wind) based generation benefits from provisions such as capital and import subsidies, inter-state transmission subsidies, 'must run' status and renewable purchase obligations (RPOs). Natural gas has not received a comparable policy push[20]. Unlike renewable energy, for which the integration and intermittency costs are socialised, natural gas is left open to competition from low cost coal. The value of natural gas is essentially evaluated primarily on the basis of the criterion of affordability rather than environmental acceptability. Consequently the prospect of India becoming a 'gas based economy'[21], as suggested by some policy pronouncements, remains rather limited.

While solar powered water pumps are being introduced as a low carbon alternative, the economic viability of this scheme in the long term remains uncertain especially on a national scale. The cost of solar pumps may be higher than those of standard electric or diesel pumps by at least an order of magnitude[22]. It is conceivable that subsidies on power tariffs can be recast as capital subsidy for solar pumps to incentivise the production of the public good of lower CO_2 emissions. However, in that case, the low marginal cost of pumping water with solar pumps would continue to exacerbate ground water depletion just as it has with electric pumps at zero or negligible electricity tariffs[23].

By some estimates the socialised cost of integrating intermittent renewables is greater than the cost of accommodating natural gas as a low carbon bridge fuel that could provide spinning reserve to allow for better integration of inter-

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[18] Gas based power generation was 25150 MW as on December 2017 while renewable power generation capacity was more than twice gas based capacity at 60157 MW (Government of India (2017), Executive Summary for the month December 2017, Central Electricity Authority, Ministry of Power, New Delhi.

[19] PHD Chamber of Commerce & ORF (2016), «India Vision 2022: From Scarcity to Abundance», Observer Research Foundation, Special Report.

[20] Government of India (2017), «Draft National Energy Policy», Niti Aayog.

[21] Government of India (2016), «Steps Being Taken to Make India a Gas Based Economy», Press Information Bureau, Ministry of Petroleum & Natural Gas 21 November 2016.

[22] Kishore, A, Shah, T & Tewari, N.P. (2014), «Solar Irrigation Pumps: Farmers' Experience and State Policy in Rajasthan», Economic & Political Weekly, March 8, 2014 Vol XLIX no 10.

[23] Most of the pump owners (electricity or solar) are relatively affluent large farmers who are net sellers of water to the large majority of small subsistence farmers. In the last 40 years ground water extraction increased from 20 Km^3/year in 1960 to 250 Km^3/year now which is more than twice the withdrawal of USA the second largest user of ground water user. Ground water extracted by small electric and diesel pump account for 80% of residential and 60% of agricultural water consumption.

mittent renewable power into the grid.[24] This raises the question as to whether the normative value assigned to adding on renewable capacity is driving India's low carbon pursuits rather than rational calculations on balancing the grid. The question is best answered by referring to India's Nationally Determined Commitments (NDC) following the Paris Agreement.

India's commitments on CO_2 emissions reduction from energy supply and use as per it's NDCs[25] include

(a) An offer of a non-conditional reduction in CO_2 emission intensity by 33-35 percent by 2030 from 2005 levels, and
(b) An increase in the share of non-fossil fuel energy capacity to 40 percent by 2030, conditional on the availability of technology and financial assistance.

India's offer is presented within the context of its low per person emissions of 1.56 tonnes[26] per capita - attributable to a lifestyle based on conservation of resources and moderation in resource use. India's low per person emissions arise primarily from India's low per person energy consumption levels, These, at 690 tonnes of oil equivalent (mtoe) in 2016 were only about a fourth of that of China[27].

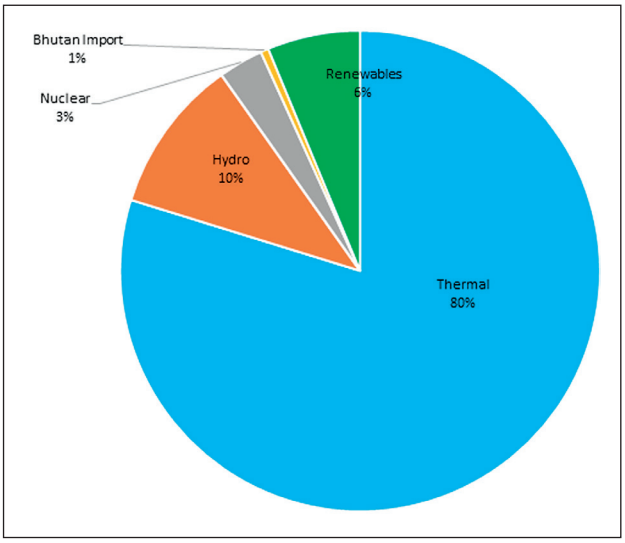

Chart 2: Power generation share by fuel 2016-17. Source: central Electricity.

[24] Social costs of solar power is estimated to be about 6-8/kWh. Ghosh, R, Sharma, N & Subramanian, A (2017), «Renewables may be the Future but are they the Present?» Coal, Energy, and Development in India, Sixteenth Darbari Seth Memorial Lecture August 17, 2017, The Energy & Resources Institute, New Delhi.

[25] Government of India, (2015), «India's Intended Nationally Determined Contribution» available at http://www4.unfccc.int/submissions/INDC/Published%20Documents/India/1/INDIA%20INDC%20TO%20UNFCCC.pdf.

[26] in contrast with an average emission of 7-15 tonnes per person in developed countries.

[27] International Energy Agency (2017), World Energy Outlook 2017, Paris.

The probability of India meeting both commitments with or without external technical or financial assistance is reasonably good.

India's CO2 emission intensity for energy use has been increasing (from 2 kg/kgoe of energy use in 1990 to about 2.5 kg/kgoe in 2016) as more and more households gain access to modern energy sources viz. electricity (for lighting) and liquid petroleum gas (LPG, for cooking).

India's CO_2 emission intensity per unit of Gross Domestic Product (GDP) has been decreasing (from 0.6 kg/GDP[$-PPP] in 1990 to 0.3 kg/GDP in 2016) on account of improvements in efficiency of energy use and an economic growth that so far has come from an expansion of the services over the more energy intensive manufacturing sector[28].

As long as services dominate India's economic activity (currently services account for over 50 percent of India's GDP), this trend is likely to continue as gains in efficiency are expected from all energy consuming segments. On the other hand if the policy to 'make in India' succeeds with a substantial increase in the share of manufacturing in India's gross domestic product (GDP), India's CO_2 intensity per unit of GDP could increase. The push to catch up with the rest of the world in building physical infrastructure such as roads, ports and railway lines will have the same effect. The IEA estimates that if the 'make in India' policy succeeds in increasing the share of manufacturing in India's GDP to 30 percent from the current 16 percent, energy demand would be 15 percent higher than the business as usual (service dominated) case with concomitant increase in CO_2 emissions[29].

However, the prospects for energy intensive manufacturing to take-off in India are limited. Production factor costs, particularly energy and land costs are not favourable for developing a globally competitive traditional manufacturing sector. About 15 million job seekers enter the labour market each year but India's record in creating jobs in this sector is not very encouraging. Out of a workforce of over 600 million in 2013-14, only about 17 million had formal jobs while about 300 million were self-employed[30]. It can even be argued that with global supply chains coming under threat from protectionist trade policies as well as the advent of automation and additive manufacturing under the Fourth Industrial Revolution, countries like India can no longer ride the Chinese model of manufacturing cum export led growth to prosperity. Alternative modes for growth and employment, with a lower carbon footprint, will need to be explored[31].

As of 2016, 30 percent of power generation capacity was based on non-fossil fuels (hydro, nuclear, biomass, wind and solar). Going forward, in terms of anticipat-

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28 World Bank database various years http://databank.worldbank.org/data/databases.aspx.

29 International Energy Agency (2015), India Energy Outlook, Paris.

30 Government of India (2015), 'Fourth Annual Employment & Unemployment Survey 2013-14, Labour Bureau, Ministry of Labour & Employment. Those who are self-employed are largely in the agricultural and related sectors such as dairy farming.

31 See http://www.orfonline.org/research/remaking-make-in-india/.

ed capacity addition by 2040, solar photovoltaic is expected to make the second largest contribution after coal[32]. The target of 40 percent of non-fossil fuel based capacity in power generation is thus well within reach. However, after making allowance for low plant load factors[33] the contribution of India's ambitious renewable capacity towards reduction in emission intensity will depend on the actual energy non-fossil sources can eventually put into the grid. As it is, given the state of the electricity grids, producers of intermittent renewable power, such as wind and solar, experience considerable difficulty in finalizing power purchase agreements with distribution companies. Electricity demand peaks five to six hours after sun-set and development of storage and balancing capacity is yet to take off. The integration of intermittent renewable sources into the electricity grid would thus require concomitant investments in one or all of the options below:

(i) Creation of sufficient spinning capacity to compensate for intermittency.
(ii) Creation of sufficient storage capacity.
(iii) Creation of intelligent smart grids that could respond to fluctuations in supply.

All of these would entail capital investments raising the cost of supply and putting a question mark on the goal of affordability[34].

Large capacity additions apart, India's contribution to reduction in CO_2 emissions is expected to arise primarily from reduction in emission intensity. A 33 percent reduction in CO_2 emission intensity is expected to reduce CO_2 emissions from 4.3 giga tonnes ($GtCO_2$) to 4.2 $GtCO_2$ in 2030[35]. Overall this does not constitute too significant a deviation from the business as usual path and thus India seems to have followed most nations in committing business as usual decarbonisation in response to the non-binding Paris Agreement. It thus seems that the optimism generated by the Paris Agreement pins its hopes on countries 'ratcheting up' their carbon reduction ambitions as called for by the agreement. Expectedly, India's move in this regard will also depend on the extent to which other large economies are prepared to walk the talk.

In 2016 fossil fuels accounted for over 75 percent of India's primary energy basket (including traditional fuels such as fire wood)[36]. Paradoxically, even as

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[32] International Energy Agency (2017), World Energy Outlook, Paris. In the New Policies Scenario of the IEA, by 2040 solar PV power generation is expected to account for 28 percent of the total from a capacity of 422 GW and coal account for 36 percent of total generation from a capacity of 542 GW.

[33] The plant utilisation factor for solar and wind plants is estimated to be in the range of 20-35%, Government of India, (2017), 'Report Of The Technical Committee On Study Of Optimal Location Of Various Types Of Balancing Energy Sources/Energy Storage Devices To Facilitate Grid Integration Of Renewable Energy Sources And Associated Issues', Central Electricity Authority, Ministry of Power, New Delhi.

[34] From a speech by member of the Indian Prime Minister's Advisory Council on Climate Change, Government of India at a side event in Bonn, COP 23.

[35] Global Carbon Project (2015), Global Carbon Budget, http://www.globalcarbonproject.org/carbonbudget/index.htm.

[36] International Energy Agency, (2017), «World Energy Outlook 2017», Paris.

present decarbonizing policies continue, 2040 is likely to see the share of fossil fuels increase marginally to 77 percent. This must be understood in the light of the fact that in the event these policies being rolled back, the share of fossil energy would become 82 percent.[37] The increase would be due to 60 million new households gaining access to grid based electricity for the first time.

India's CO_2 emission intensity for energy use crawled from 2 kg/kgoe of energy use in 1990 to about 2.5 kg/kgoe over 25 years. The slow rate of growth of modern fuels by Indian households had to some extent been the result of low income levels. However, India's subsidy regimes also contributed their share by making any expansion of energy supply difficult in situations where the production and distribution of energy became a loss making enterprise for both private as well as state-owned commercial entities[38]. Non supply of power actually helped trim the losses of many of India's state owned distribution companies.

This dilemma is now being addressed more and more through the provision of energy subsidies directly as cash payments to consumers. Despite initial hurdles, the implementation of schemes of Direct Benefit Transfer (DBT) reduces the burden of commercial entities of mediating uncertain energy subsidies. To the extent these methods free commercial entities from price interventions, they will certainly have an interest in expanding the supply of energy.

A lower carbon intensity means that more primary energy must be converted to high quality carriers such as electricity even if it means incurring the economic costs and the inevitable conversion losses[39]. Conversion deepening and increasing conversion losses of the energy system is not necessarily unique to the current low carbon energy transition. The problem for India is that it has to pursue the transition at relatively low levels of per person income. This further limits India's ability to use markets as an instrument of change.

Therefore, energy policy is constrained to use top down regulatory control rather than market-led choices to make the transition towards a low carbon economy. On the positive side, these interventions have led to the enforcement of setting developed country regulatory standards for emission of pollutants from coal based power plants and for emissions from transport vehicles. While the modalities for these may need strengthening, however, the trend towards higher quality fuel use is unmistakable.

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[37] Even under the sustainable development scenario, the share of fossil fuels is still pegged by the IEA at 66 percent by 2040.

[38]

[39] Energy transitions across the world have been driven by changes in end use devices and not necessarily by changes in primary energy supply. In 1900 most of the primary energy (coal and oil) was used directly. Today about half of total primary energy is converted into electricity because of the proliferation of devices that use electricity which is a more convenient form of energy and also cleaner at the point of use. Use of electricity will be less carbon intensive only when the primary energy is a low carbon energy source. The debate on the introduction of electric vehicles using electricity generated from coal is relevant here. Electric vehicles powered by fossil fuel based electricity will reduce local CO_2 emissions but increase overall CO_2 emissions.

At the same time regulating energy prices to maintain them at «affordable» levels determines domestic political choices as well as calls for intense multi-lateral bargaining. The dominant policy discourse remains that economic progress is impossible without affordable energy because energy demand is a consequence of economic progress rather than its cause. Energy is presumed to remain unaffordable to large majority of Indian consumers indefinitely even at projected economic growth rates above 7-8 percent[40].

However, since the country remains dependent on energy imports, the problem of affordability is resolved through cross subsidies. High energy tariffs are imposed on industrial and commercial energy consumers even if it reduces the competitiveness of industry and commerce that is vital for economic development. It also constrains investment in energy supply and energy delivery infrastructure limiting access to energy for the most deprived sections of society. The perverse outcome of this contradiction is that 'no energy' or 'minimal energy' consumption has emerged as the only affordable option for millions of households.

Dependency: Resources

Dependence on imported energy sources has always been seen as a source of strategic weakness by Indian policy makers. Energy imports accounted for over 32 percent of India's primary energy basket in 2015[41]. The import of fossil fuels

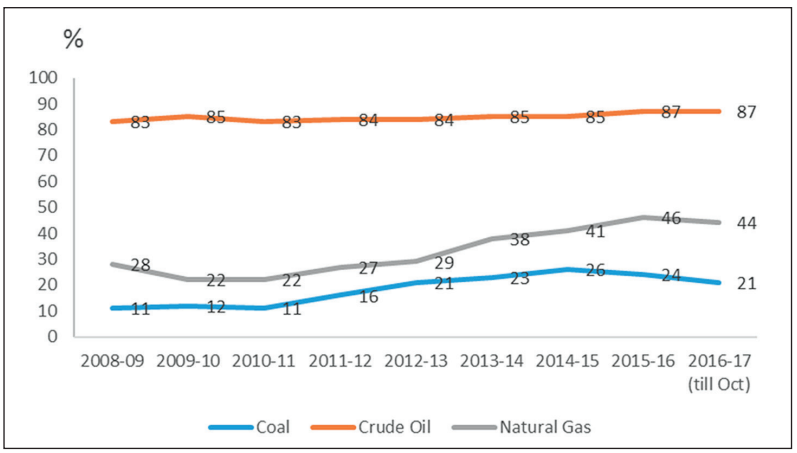

Chart 3: Share of Imports in Energy Supply (Fossil Fuels). Source: Websites of respective government ministries.

[40] The draft national energy policy released in 2017 by Niti Aayog of the Government of India assumes an annual average growth rate of 8.2 % until 2040.

[41] Calculated using data from IEA, BP statistical review of world energy and Government of India (2016), «Energy Statistics 2016», Central Statistics Office, Ministry of Statistics and Programme Implementation.

accounted for over 27 percent of total imports by value in 2016. Out of this oil accounted for nearly 67 percent[42]. India is currently the third largest importer of oil behind China and the United States, the fourth largest LNG importer after Japan, South Korea and China and the second largest importer of coal behind China. Roughly 80 percent of India's oil consumption, 50 percent of natural gas consumption and 15 percent of thermal coal consumption is imported.

India's policy response to limit risk arising from imported energy is predicated on the rather dubious presumption of market failure. Essentially markets are assumed to be incapable of delivering energy security. Equity oil investments, diversification of import sources, increasing domestic production and reducing overall demand for energy through efficiency improvements are strategies emphasised in policy documents to hedge against market risks.

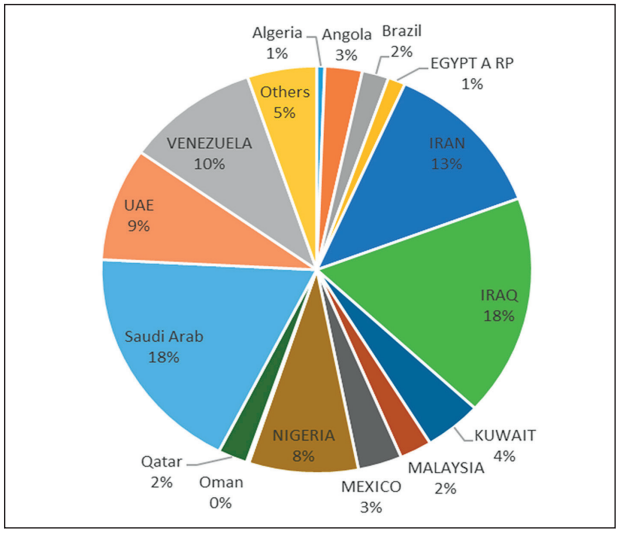

Chart 4: Oil Import Sources 2016-17. Source: Ministry of Commerce & Industry, Government of India.

In the early years as an independent country, India was eager to consolidate its hold over the oil & gas industry dominated by a few Anglo-American companies[43]. This was in line with India's industrial policy resolution of 1948 and 1956 which clearly underlined the Government's aspiration and future plans for core

[42] Compiled from Ministry of Commerce & Industry & Petroleum Planning and Analysis Cell, Government of India.

[43] Visvanath, S N. (1997), «A Hundred Years of Oil. Oil India Limited, New Delhi: Vikas Publishing House» quoted in Mohan, C & Powell, L (2015), «Energy Rivalry between India and China: Less than Meets the Eye?» in Steven, D, O'Brien, E & Jones, B (*ed*), The New Politics of Strategic Resources: Energy and Food Security Challenges in the 21st Century, Brookings Institution Press (pp. 144-167).

industries like petroleum with all future development reserved for public sector undertakings[44]. However until the oil crisis of the 1970s, import and distribution of petroleum products remained under the control of the International Oil Companies (IOCs). As oil consumption began to grow in India, the first energy survey committee report submitted in 1965 warned against a pro-oil shift of the Indian economy and advised caution over continuing with an 'imported energy' trend[45]. Low oil prices had entrenched the use of oil in India even where it could have been substituted by domestic coal. Oil and oil based feedstock use continued in rail transport, agriculture and fertilizer industries. The subsidisation of diesel resulted in widespread use of inefficient and outdated diesel motors and engines in agriculture and road transportation.

When the organisation of petroleum exporting countries (OPEC) raised prices overnight in 1973 following the geo-political crisis in the Persian Gulf, India's import bill increased by a billion dollars[46]. India just recovering from the war with Pakistan was also coming to terms with the termination of US aid. So the shock was severe. However all pronouncements about reducing oil imports in policy documents did little to dent India's increasing dependence. Higher duties imposed in 1973 on the consumption of oil proved ineffective with consumption being inelastic to price increases. They did, however, have the unintended consequence of generating 'wind-fall' revenues for the government that came in handy to make up for national fiscal deficit. Thus began an addiction that has stayed since[47].

With the direct tax base not expanding at the required level, these duties have become the preferred means for governments at both the federal and regional level to garner revenues for cash strapped administrations. Today petroleum product prices in India are among the highest in world even at market exchange rates and much higher at purchasing power parity rates. The tax on petrol (gasoline) equalled a carbon price of $60 per tonne of CO_2 in 2014[48]. The average Indian has to spend over 80 percent of a day's wages to buy a litre of petrol in 2017 which is high even when compared to that of an average Nigerian who has to spend about 30 percent of a day's wages[49]. High prices are also the reason why per person petroleum consumption is among the lowest in the developing world.

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44 Bhatia, R. (1983). «Planning for Petroleum & Fertilizer Industries: Programming Model for India», Oxford University Press, New Delhi.

45 Cisler, W L, Bush, A E & Tauber, H (1966), 'Review of the Report of the Energy Survey of India Committee, IEEE Transactions on Power Apparatus and Systems, Volume: PAS-85, Issue: 8, Aug. 1966.

46 *Ibid.*

47 Observer Research Foundation (2007), «What do Falling Oil Prices Mean for Fiscal Deficit', ORF Policy Brief No 8.

48 Government of India (2015), «Economic Survey 2014-15», Ministry of Finance.

49 Bloomberg (2017), «Gasoline Prices Around the World: The Real Cost of Filling Up», August 15 available at https://www.bloomberg.com/graphics/gas-prices/#20173:Nigeria:USD:g.

In the last decade (2006-16), crude oil production increased by 15 percent while consumption increased by 62 percent. In the same period, gas production remained stagnant barring a short spurt between 2009 and 2012; however, consumption increased by 38 percent. In spite of sufficient coal reserves, thermal coal imports grew 3 times faster than imports of coking coal, rising from 8.7 million tonnes (MT) in 2004 to 212 MT in 2014[50]. While the import of hydrocarbon resources was driven largely by inadequate resource endowment coupled with inadequate exploration, coal imports rose due to the inability of the domestic coal mining industry, dominated by state owned Coal India Limited (CIL), to meet growing demand for coal. With domestic coal production not keeping pace, a reduction in import duty on coal was necessary to keep price of imported coal low[51]. A reduction of ash content in imported coal enabled import of coal from certain countries[52].

India's attempt to attract world class mining companies to invest in coal mining has not had the desired outcome. The manner of auctioning coal blocks, the small size of the blocks put up for auctions, the control on coal prices along with the absence of long term leases were among the many reasons why Indian coal blocks did not attract long term risk capital from overseas investors[53].

The key factor that differentiates India from other large importers of energy is that India, remains a country with a perpetual trade deficit. Its ability to import energy is limited by its trade earnings and foreign currency reserves. Low oil prices since 2015 have substantially reduced India's exposure to oil price risk. But the spectre of 1974, 1991 and 2008 continues to haunt policy makers. In 1991 high oil prices along with inadequate foreign exchange reserves pushed India to the brink of a serious economic crisis. The lesson was a difficult one. So enhancing domestic production of energy and reducing import dependence remains an article of faith.

The government has set a target for reducing oil imports by 10 percent and increasing coal production to 1.5 billion tonnes (BT) by 2022[54]. Given current global oversupply of oil and gas, the prospects for new domestic discoveries or production do not seem very bright. Nevertheless, State owned upstream companies are being pushed to increase domestic oil production through enhanced oil recovery technologies in existing wells[55]. The Government has recently come out with an integrated Hydrocarbon Exploration Licensing Policy (HELP) that

[50] Compiled from data available with the Ministry of Commerce & Industry, Government of India & the Petroleum Planning and Analysis Cell (PPAC) Ministry of Petroleum & Natural Gas, Government of India.

[51] Low import duty has been necessitated to meet shortfall in domestic production and keep imported coal prices low.

[52] Bam. S, Powell, L & Sati, A (2016), «Coal Beneficiation in India: Status and Way Forward», ORF Special Report.

[53] Powell, L & Sati, A (2016), «Modernising India's Coal Sector», ORF Special Report.

[54] Powell, L & Sati, A (2016), «Modernising India's Coal Sector», ORF Special Report.

[55] Financial Express, (2017), ONGC plans to raise oil output by 4 million tonne by 2020, October 22.

aims to reduce the regulatory burden of the previous policy to make it more attractive. However, given low international oil and gas prices and the perception of high exploration as well as regulatory risks in India, interest remains muted. The government has also announced that it will stick to its 1.5 BT target for domestic coal production even though the growth in demand for domestic coal is stagnant on account of lower than expected demand growth for electricity. The 32 MT increase in coal production achieved in 2014-15 which was more than the cumulative increase in production of 31 MT during the previous four years provides the spur for such a «target»[56]. It is also testimony to the fact that production and supply of energy are driven more by state interventions rather than market led forces of demand and supply. Production targets, an inheritance from the planning era are of little relevance if the goal were to build a competitive modern coal industry.

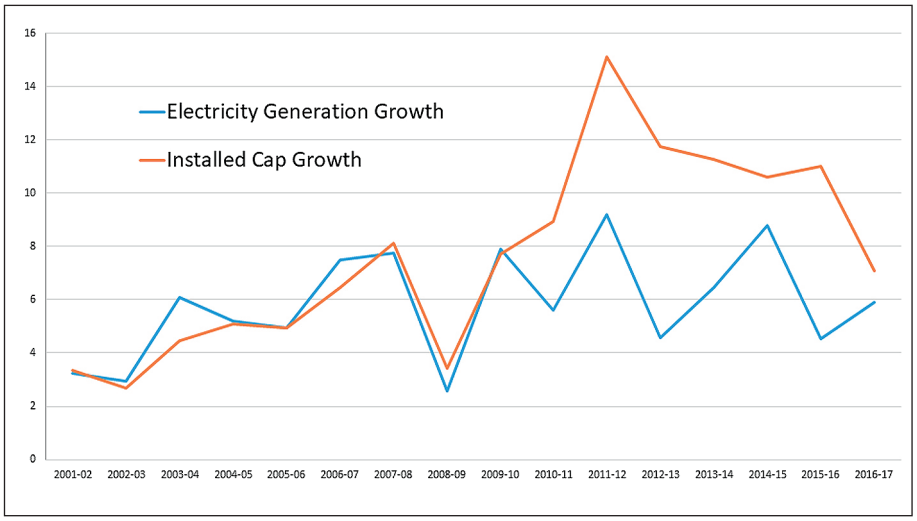

Chart 5: Year on year growth rate of electricity capacity and generation.

Investment in equity oil has probably been the most visible and consistent policy response for hedging against market failure. A report commissioned by the Prime Minister of India to address the issue of energy security in 2000 recommended the 'intensification of exploration efforts and securing acreages in countries having 'high attractiveness for ensuring sustainable long term supplies' such as Russia, Iran, Iraq and North Africa[57]. The Integrated Energy Policy Report released in 2006 did comment that 'obtaining equity oil, coal and gas abroad only contribute towards diversifying supply sources and not towards energy security' but then went on to recommend 'investing in equity oil' to enhance

[56] Powell, L & Sati, A (2016), «Modernising India's Coal Sector», ORF Special Report.
[57] Government of India (2000), Hydrocarbon Vision 2025 quoted in Powell & Mohan.

energy security in subsequent sections[58]. A new division on 'energy security' was created in the Ministry of External Affairs (MEA) of the Government of India in 2011 and designated as 'the nodal point for energy security related matters involving coordination with line ministries, the Planning Commission, Indian missions and posts abroad, international organizations and foreign missions' also emphasized facilitation of energy equity investment and bilateral energy deals in energy exporting countries in Africa, Latin America, Central Asia and South East Asia[59].

The quest for self-reliance through equity oil investments by India can hardly be said to be an original approach devised to pursue material interests. India was merely following 'classic moves' deployed by industrialised nations when their share of imported oil was growing[60]. India's policies towards oil equity investments as stated in its Five Year Plans in the early 2000s also show marked similarity with policies of China, suggesting both might have been drawing from the same sources.

The presumption that 'equity oil' produced outside the country was equivalent to oil produced domestically and therefore secure and available at lower prices is itself questionable[61]. As the world market prices oil according to its opportunity cost, the opportunity cost of oil would be roughly the same as that of purchasing globally traded oil whether produced domestically or obtained through equity oil. 'Equity oil' belonging to Indian NOCs is almost entirely sold into the global oil market and thus makes no contribution to security of supply[62]. Foreign oil assets acquired under low oil price scenarios have benefited its NOCs commercially when prices swing the other way. But by the same token they have also exposed the same NOCs to serious political and market risks in adverse circumstances[63]. But since India accounts for a significant share of marginal demand for oil,

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58 Government of India (2006), Integrated Energy Policy, Planning Commission.

59 Government of India (2011), Background information circulated among bidders to become consultant to the MEA, Department of Energy Security.

60 Collins, Gabe, et al (2011), «Asia's Energy & Resource Nationalism: Implications for the United States, China and the Asia Pacific Region», NBR Special Report, The National Bureau of Asian Research quoted in Mohan, C & Powell, L (2015), «Energy Rivalry between India and China: Less than Meets the Eye?» in Steven, D, O'Brien, E & Jones, B (*ed*), The New Politics of Strategic Resources: Energy and Food Security Challenges in the 21st Century, Brookings Institution Press (pp. 144-167).

61 Rajan, R (2008), «The Resource Security Trap.» Mint. August 9 quoted in Mohan, C & Powell, L (2015), «Energy Rivalry between India and China: Less than Meets the Eye?» in Steven, D, O'Brien, E & Jones, B (*ed*), The New Politics of Strategic Resources: Energy and Food Security Challenges in the 21st Century, Brookings Institution Press (pp. 144-167).

62 India's share of equity oil from Sakhalin I field in Russia and the Greater Nile Operating Company of Sudan is sold in the oil market instead of being shipped to India at prevailing market prices.

63 India's equity oil production declined dramatically on account of adverse geo-political conditions in Sudan and South Sudan and force majeure situation in Syria in 2012-13. India's property rights over hydrocarbon assets in these countries may not be as secure as originally thought. Evacuating oil produced in South Sudan, a land locked country may also pose a problem in the future.

oil prices and therefore profits from equity oil investments would be high only when the Indian economy is growing strongly and consuming large quantities of oil. In other words equity oil will add to economic income when it is least needed by India and subtract from it when it is most needed. This is the opposite of what a hedge is supposed to do.

Furthermore as most of India's equity oil investments are in countries that are not considered to be democratic or transparent, India's property rights in foreign oil assets are most at risk as oil prices increase. If the host country is economically sophisticated, it can appropriate rents from an increase in oil (energy) prices through windfall or other taxes[64]. This was the case in Indonesia where India had equity investments in thermal coal. Though equity investments were held by private companies, the unexpected increase in the regulated price of thermal coal by Indonesia had a national impact on India as it substantially altered the viability of imported coal based ultra-mega power plants (UMPPs) that were being jointly developed under a private public partnership model. If the host Government of the country in which India has oil or coal equity investments is non-transparent and autarkic it can nationalise India's hydrocarbon assets. This may be the outcome of oil equity investments made in South Sudan.

Despite the insufficiency of the concept of 'equity oil' as a measure of energy security, it continues to find favour in policy circles. Vaguely defined concepts of 'national security' and 'energy security' offer commercial interests an excellent allegory for using state power to bolster and protect commercial interests – whether of NOCs or private companies. Government diplomatic support reduces transaction costs in accessing resources overseas also increasing the possibility of success. NOCs probably understand quite well that their equity oil supplies are no more secure from political or logistical disruptions than long-term contract supplies or market purchases. In fact, for State owned companies, investments abroad provide considerable commercial merit if they can help safeguard investments and profits from predatory rent or tax seeking Governments at home.

Given India's challenging geological prospects and declining production from existing fields, it also makes commercial sense for Indian NOCs to throw their weight behind any policy that encourages investments abroad. With prices for domestic gas (and even oil until 2004) being regulated, investments in the upstream sector outside India have had better prospects for profits. Expansion abroad helps diversify their portfolio and can also help increase international competitiveness through the development of new capabilities in areas such as extraction of shale oil and gas or ultra-deep water drilling.

In the mid-2000s there was fear that Indian (and Chinese) investment in equity oil was 'locking up' resources and therefore contributing to global energy inse-

[64] Mohan, C & Powell, L (2015), «Energy Rivalry between India and China: Less than Meets the Eye?» in Steven, D, O'Brien, E & Jones, B (*ed*), The New Politics of Strategic Resources: Energy and Food Security Challenges in the 21st Century, Brookings Institution Press (pp. 144-167).

curity. There was also fear that hydrocarbon equity investments in politically turbulent countries were offering a sense of legitimacy to repressive regimes. This may not, however, have been an accurate portrayal. India had to work with the 'late-comers dilemma' in the global upstream oil industry where most of the low hanging fruit in terms of attractive hydrocarbon prospects were taken IOCs. Indian NOCs were forced to settle for few 'leftover' assets in politically and economically difficult regions that western companies had shunned. These assets often had little upside profitability and thus they were of minimal interest to IOCs[65].

Diversification of sources of oil supply to increase supply security is yet another strategy that has received geo-political interpretations. India's dependence on oil imports from Persian gulf countries has historically accounted for over 60 percent of total imports. This has hardly changed in the last two decades. In 2001, the Persian Gulf accounted for 66 percent of oil imports and in 2016 the region accounted for 64 percent of imports[66]. However there has been a shift by way of rising imports from Africa and South America. In 2001 South America accounted for 7 percent of oil imports but in 2016 the region accounted for 15 percent of Indian oil imports. South America's gain has come at the expense of Africa whose share in imports fell from 22 percent in 2001 to 13 percent in 2016. The largest gain in import share from South America was Venezuela whose share increased from just over 4 percent in 2001 to 10 percent in 2016.

Though there is some change in the relative shares of import sources (by region and by country) the total number of countries from which oil is imported into India has remained stable at about 15-20 for the last two decades. Lack of significant change in the pursuit of diversification does not necessarily compromise India's energy security at least in the context of oil. When there is a threat of disruption or instability in the Persian gulf, the price of oil would rise sharply well before the crisis actually unfolds and the oil market would make no distinction between oil from the Gulf and oil from supposedly secure places. A disruption somewhere is a disruption everywhere as far as the oil market is concerned and would be reflected in the global price of oil. India with oil from 'secure' or 'diverse' regions cannot beat the oil market as far as access and prices are concerned[67].

It is more likely that marginal changes in diversification of oil import sources by India reflects economic rationalisation at the refinery level rather than geo-political securitisation at the country level as it is commonly believed. In contrast to the electricity sector, down-stream petroleum operations are driven by commercial rationality primarily because most of the crude oil is sourced from international markets. Furthermore the complex refining capacities added by the private sector enabled India to increase the share of relatively cheap inferior grade crude from countries such as Venezuela. State control over sourcing

[65] Ibid.

[66] Data quoted is from the Ministry of Commerce and Industry, Government of India.

[67] Powell, L (2008). «Oil in US Energy Policy: Searching for Clues of Influence», New Delhi: Sanskrithi.

decisions, especially on the private sector that has 40 percent market share in refining is anyway limited[68]. Investments in refining by the private sector have enabled India to not only become self-sufficient in petroleum refining but also emerge as a major exporter of petroleum products to industrialised nations that have stringent environmental standards for petroleum products. It has also aided India's own push for cleaner transport fuels.

Dependence: Technology

Historically nuclear energy has been portrayed as the source of energy that would liberate India from its strategic weaknesses such as dependence on imported energy resources, dependence on imported technology (for power generators or upstream oil and gas exploration and production technologies) and take India into a future of abundant and cheap energy. The limited potential of hydro-power which was and the finiteness of coal resources were emphasised to promote nuclear energy. In 1955 Homi Bhabha the father of India's three stage nuclear programme stated that:

> «We have come to the inescapable conclusion that the resources of hydro-electric power and conventional fuels in India are insufficient to enable it to reach a standard of living equivalent to the present US level»[69].

Bhabha's three stage programme involved using uranium to fuel pressurised heavy water reactors (PHWRs) in the first stage followed by reprocessing spent fuel to extract plutonium. In the second stage plutonium was to be used in fast breeder reactors (FBRs) and the third phase involved the use of thorium in breeder reactors. The primary goal was to develop nuclear energy based on thorium of which India had abundant resources and replace uranium that was relatively scarce in India. In 1970 the Department of Atomic Energy (DAE) set up to carry out the three stage plan projected that India would have 43 GW of nuclear generating capacity by 2000[70]. In 2008 after India signed the '123 nuclear agreement' with the United States, the DAE made the case for import of Light Water Reactors (LWRs) under the '123 agreement' even though it signalled a departure from the three phase programme that was rooted in self-reliance. The DAE argued that 'India would face a shortfall of 412 GW of electricity by 2050 and the only way to address the shortage was to import LWRs[71].

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[68] Government of India, (2017), Petroleum Planning & Analysis Cell, Ministry of Petroleum & Natural Gas (private share in refining capacity includes share of joint venture with the government).

[69] Bhabha, Homi, J (1955), «The Role of Atomic Power in India and its Immediate Possibilities», in the first international conference on the Peaceful uses of Atomic Energy, 103-09, Geneva, United Nations.

[70] Sethna, Homi N (1972), «India's Past Achievements and Future Promises», IAEA Bulletin 14 (6): 36-44.

[71] Kakodhkar Anil (2008). «Evolving Indian Nuclear Energy Programme: Rationale and Perspective», Indian Academy of Sciences.

As of 2016, installed capacity of nuclear energy is still at 6780 MW which contributed roughly 3 percent of electricity supply. Apart from a version of LWRs imported from Russia[72] no LWRs have been imported from western companies under the 123 agreement so far and the prospects for such imports in the future remain uncertain. For western nuclear companies that are commercially oriented, even if the economics were favourable, the legislation on liability in India makes the compliance burden too onerous.

Despite these setbacks, Indian policy documents continue to emphasise the three phase plan. For example India's NDC to the Paris Agreement indicates that nuclear capacity would be increased tenfold to 63 GW by 2030. Going by statements by the DAE, it is likely that most of the additional nuclear energy capacity will be indigenously developed PHWRs but the draft energy policy of 2017 states that import of LWRs from western companies will be pursued to 'increase nuclear capacity in the short term taking advantage of foreign credit'. It also argues that 'nuclear energy must be promoted even if its share in the overall energy mix is not high enough now as it is the only base load power source offering green energy'. The plan to import of LWRs is justified as a short term measure that would eventually accelerate India's shift to the second phase of its three phase programme based on thorium based FBRs that would use domestic thorium. India's first FBR of 500 MWe has failed to meet the target date set for it to 'go-critical' many times in the past. 2017 was the last target that was missed which has since been revised to early 2018. Despite persistent setbacks to the fast breeder programme, the draft energy policy of 2017 brims with optimism for India's nuclear future with the expectation that 'the second stage has the potential for a 500 GWe power base that would supply energy for a few centuries'.

Experts are divided on whether India's thorium based FBR dream will be realised. According to some experts, FBRs are seen to be economically unviable, susceptible to accidents and abandoned by industrialised countries that invested heavily in the technology. According to others, especially those from the Indian nuclear fraternity, India possess unique and exceptional indigenous knowledge on FBRs and has a very high probability of success.

The divergence between the promise and reality of nuclear energy may be overlooked as it is a feature that India shares with most of the countries in the World but the compromise on the value of self-reliance in both resource and technology that India has emphatically reiterated to justify investment in nuclear energy raises some questions.

From an economic stand point, moving out of the idea of self-reliance has benefitted the nuclear industry. India's import of uranium which accounted for only 0.2 percent of energy imports (in terms of value in US$) has substantially improved the plant load factor (PLF) of indigenously developed reactors. Today nuclear energy has the highest specific generation value (gigawatthours of energy

[72] Negotiated before the 123 agreement.

generated for megawatt of capacity) which makes it the most efficient mode of power generation in India. Renewable energy that accounts for 33 GW or 14 percent of installed capacity contributes less than 6 percent of power generation while nuclear power that accounts for less than 2 percent of capacity contributes over 3 percent of power generation[73].

Yet another dilemma is apparent in India's much admired solar programme. India has set itself a target of installing 175 GW of renewable energy capacity by 2022 out of which 100 GW is expected to come from solar energy. The emphasis is on self-reliance as solar energy freely available in the country for almost 365 days in a year. However over 80 percent of the solar panels that are required to capture freely available solar energy and convert it into electricity are from China or Chinese owned companies based elsewhere[74].

The domestic solar energy industry involved in installing solar energy generation capacity prefers imported low cost solar panels that are often available with low cost financing. Low cost imported panels and low cost financing are said to be driving what has come to be labelled 'strategic-under bidding' for solar projects that generate head-line grabbing low tariffs.

'Strategic-under bidding' for projects put up for competitive bidding has already undermined the economic viability of power generation projects in the past. Ultra mega power projects (UMPPs), awarded under competitive bidding under a public private partnership model, not only failed to take-off on the scale expected, but also saddled lending institutions with a trail of non-performing assets. While the bidders failed to factor in fuel price risks, the broken electricity distribution sector ensured that anticipated demand or electricity did not materialize. 'Strategic Underbidding'[75] only ends in protracted post award re-negotiation, allegations of malfeasance, and eventually the cancellation of contracts and awards that have plagued India's efforts to privatize its coal and thermal power sectors in the not too distant past. Is it possible that some of the solar projects with very low tariff bids end up suffering the same fate?

The small group of local solar manufacturers producing solar modules with imported silicon ingots and wafers would have high import duties on solar panels. The government has imposed import duties on solar panels and made domestic content in solar installations mandatory. However, these provisions are contested at the World Trade Organisation (WTO). So far most of the WTO rulings related

[73] Government of India (2016), Central Electricity Authority, Ministry of Power.

[74] Jai, S. (2018), «70% duty on solar imports: How serious is China dominance in Indian market?» Business Standard, 12 January, http://www.business-standard.com/article/economy-policy/70-duty-on-solar-imports-how-serious-is-china-dominance-in-indian-market-118011100565_1.html.

[75] The chief economic adviser to the Government of India observed that' coal and renewables led to transparency and avoided rent-seeking, although they «may have led to a winners' curse, whereby firms overbid for assets, leading to adverse consequences in each of the sectors...'in a press conference on the release of the Economic Survey 2017-18 on 29 January 2018.

to the import of solar panels have gone against India. The claim by Indian manufacturers that imported panels compromise on quality has not substantially reduced the import of solar panels. India's dilemma here reflects the conflict between its geo-political ambition to be counted as a leader in addressing climate change and its domestic compulsion to revive domestic manufacturing and create jobs.

By taking on high capacity installation targets, has India inadvertently chosen to become a consumer rather than a producer of new energy technologies. India's green energy goals have thus come to be framed rather restrictively as a narrow energy policy rather than a more comprehensive industry and technology policy. By contrast China's pursuit of low carbon growth insists on positioning the country as a producer of low carbon energy technologies. India's bold ambitions on addressing climate change suggest the influence of a more pro-active foreign policy over its still reticent energy policy. However, as far as India's unmistakable domestic messaging goes, raising its coal production to 1.5 BT by 2022[76] and the determined acceleration of projects to increase rural energy access through grid based electricity and petroleum based cooking fuels (LPG)[77] suggest that India is well aware of the limits and may be deftly playing a two level strategic hedging game[78]. At home the goal of development and access to energy cannot be compromised, even as it continues to reassure international audiences that it is a responsible emerging power prepared to punch above its weight in addressing climate change.

Identity

India's position in climate negotiations and other multilateral negotiating platforms such as the WTO is followed with interest across the world as its stand is expected to influence the future of the emerging multilateral world order[79]. Though India's early positions in climate negotiations were regarded as destabilising, India's position in the last decade, culminating in its commitments to the Paris Agreement are held up as models for the rest of the world. This has also followed the altered perception of India from being a part of the global trade union campaigning for the establishment of economic and social justice to one associated with the pursuit of power and prestige.

At the United Nations Conference on Human Environment in 1972, Prime Minister Indira Gandhi had squarely blamed poverty for pollution. The idea that

[76] More than twice current production levels.

[77] Pradhan Mantri Ujjwala Yojana scheme (roughly translated as Prime Minister's Plan for Brightness) http://www.pmujjwalayojana.com/.

[78] Betz, J & Hanif, M (2010), «The Formation of Preferences in Two Level Games: An Analysis of India's Domestic & Foreign Policy», German Institute of Global & Area Studies.

[79] Arguments in this section were used in Powell, L (2015), «India's Approach to Climate Negotiations - From the South to the North?» Asie. Visions 79, September, Institut français des relations international.

addressing poverty will also address pollution defined India's position in climate negotiations until a decade ago. India sought to be exempted from action on reducing CO_2 emissions that would compromise on its policies for poverty alleviation. This included but was not limited to providing grid based electricity to millions of households. India's claim that it had the right to development through increased access to modern energy sources was not appreciated by the international community. India found itself labelled a 'nay-sayer' in multilateral negotiations and its stand was criticised as being based on 'third world moral imperatives'[80]. India was also accused of acting against its own interests because a significant part of India's population were exposed to natural calamities such as floods and droughts – apparent manifestations of climate change.

It was only in 2005 that India indicated a shift in its position where it expressed willingness to discuss efforts to reduce emissions subject to availability of financial resources and technology. At a G8 forum in 2008 India endorsed a statement that the maximum permissible global temperature increase was 2°C above pre-industrial levels[81]. This was despite the fact that there was a possibility of the statement being used to enforce commitments on limiting CO_2 emissions. In 2009, India announced that it was ready to reduce carbon emission intensity by 25-30 percent from 2005 levels[82]. In 2015 India's NDCs consolidated voluntary offers made earlier with a new commitment on the share of non-fossil fuels that was subject to availability of finance and technology[83].

The gradual shift in India's positions at climate negotiation reflects the change in its identity as a non-aligned 'leader of the poor' (G 77) to 'member of the affluent club' aligned with the interests of industrialised nations (G 20).[84] In this new 'avtar' India seeks to find commonalities with industrialised nations that allow it to pursue its own interests rather than allow itself to be overwhelmed by interests of industrialised nations. It is a conscious choice made to enhance prospects for India's strategic quest towards power and wealth even if it may at times impose certain domestic costs. The ultimate determinant for India, however, remains whether its 1.3 billion people can be taken along a low carbon path leading to a better quality of life or will they be left behind.

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80 Michaelowa, K & Michaelowa, A (2011), «India in the International Climate Negotiations: from Traditional nay-sayer to Dynamic Broker», CIS Working Paper, No 70.

81 Declaration on 'Responsible Leadership for a Sustainable Future' made at the G 8 summit available at http://www.g8italia2009.it/static/G8_Allegato/G8_Declaration_08_07_09_final%2c0.pdf.

82 Prime Minister's Statement on his departure to Copenhagen on 17 December 2009 available at http://pmindia.nic.in/pressrel.htm.

83 Government of India, (2015), «India's Intended Nationally Determined Contribution» available at http://www4.unfccc.int/submissions/INDC/Published%20Documents/India/1/INDIA%20INDC%20TO%20UNFCCC.pdf.

84 Mukerjee, Rohan & Malone, David M (2011), 'From High Ground to High Table: The Evolution of Indian Multilateralism', Global Governance 17, pp 311-329.

Within the South Asian context, India's identity is more of a regional hegemonic power rather than a responsible global economic power. In the eyes of India's relatively small South Asian neighbours India's unresolved conflicts in the region particularly its conflict with Pakistan constrains the development of regional energy security options such as shared cross-border infrastructure and cross border energy trade that can contribute not only to regional economic progress but also strengthen national energy security. India's hegemonic power over decision making in institutions such as the South Asian Association for Regional Energy Cooperation (SAARC) is seen as the primary reason for the slow pace of progress in regional energy initiatives.[85]

Significant differences in energy resource endowments and consumption patterns among countries in South Asia make a strong case for regional integration through trade. Historically the strongest case for regional trade is made for electricity particularly import of hydro-electricity by India (the largest market accounting for over 80 percent of electricity consumption in the region) from small neighbours such as Bhutan and Nepal which have abundant hydropower resources. Bilateral agreements between India & Bhutan, India & Bangladesh and India & Nepal facilitate electricity trade between the respective pairs of countries. The share of electricity traded across borders remains small. Electricity flow from Bhutan and Nepal account for less than 0.5 percent of India's electricity demand and very often India is a net electricity exporter to these countries[86].

Critics of electricity export to India from Bhutan and Nepal tend to focus on the narrative of a large hegemonic power sucking up their natural resources leaving environmental costs behind. In reality India is more of a 'benevolent hegemon' as it procures electricity from Bhutan at relatively high tariffs that are not justified commercially. India's purchase of hydro-electricity from Bhutan accounts for 27 percent of government revenue and 14 percent of Bhutan's GDP[87]. More recently the flow of relatively cheap coal based electricity from India to Bhutan, Bangladesh and Nepal has invited criticism as India is seen to be expanding markets for coal based power. The fact is that itmis 'everyday economic rationality' driving the direction of flow of electricity in South Asia. In the absence of thermal power from India, the alternative for hydro-power based Nepal and Bhutan during seasons of lean river flows is either 'no-power' or 'expensive power' from oil fuelled generators. For Bangladesh which is facing a growing deficit of gas supply for power generation, the oil based alternative is about three times more expensive than coal based power from India[88].

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85 Kapila, S (2016), «SAARC Should be Disbanded», http://www.eurasiareview.com/13092016-saarc-need-to-be-disbanded-analysis/14 September 2016.

86 Calculated from data available with the Central Electricity Authority, Ministry of Power, Government of India.

87 International Hydropower Association, Country Profiles, Bhutan, https://www.hydropower.org/country-profiles/bhutan.

88 Statement made by a senior official from the Power Trading Corporation of India at a conference in 2017.

Economies of scale arising from shared infrastructure for bulk crude oil and LNG procurement and large scale refineries leading to significant cost reductions for countries in South Asia have been pointed out by many development funding agencies but none have gone beyond the drawing board. India's supply security concerns on account of the presence of Pakistan on the pipeline map in the proposed Iran-Pakistan-India (IPI) or the Turkmenistan-Afghanistan-Pakistan-India (TAPI) pipelines have been labelled 'deal breakers' in negotiations. The criterion of affordability imposed by India in early negotiations on gas delivered through the IPI pipelines was interpreted by Pakistan as a deliberate attempt by India to stall progress. During negotiations on the IPI pipeline in 2000, Iran is said to have offered a price of less than $1/mmbtu but this was seen as unaffordable by India[89].

The low carbon era may in fact open up new strategic opportunities for regional cooperation in South Asia. Unlike the era dependent on fossil fuels that required natural endowment of resources, the transition to low carbon energy sources requires a knowledge intensive industrial production base (quality) and a large energy consumption base (quantity) both of which are necessary to reduce the cost of the transition. Consumers as controllers or enablers of the quantity and quality of energy flows will matter more than producers of energy. This would put India at a significant strategic advantage over its small neighbours in South Asia.

The scale of India's grid capacity and the scale of its electricity consumption is larger than that of its neighbours by orders of magnitude. As the dominant holder of grid capacity as well as electricity demand India could potentially control the grid with adequate balancing and storage capacity.

Conclusions

India has initiated the transition from an energy path that was focussed on primarily increasing the quantity of energy resources to one that also seeks to improve the quality of energy resources. This necessarily means that the influence of new values on environmental quality and energy use efficiency will increase on India's energy choices in the future.

However the historic emphasis on values such as economic progress, self-reliance and the quest for social justice are likely to remain dominant influences on India's stated strategic preferences. The draft energy policy of 2017 for example reiterates traditional core values even when it makes the case for investment in renewable energy:

> «Improved energy security, normally associated with reduced import dependence is also an important goal of policy. Today India is heavily depend-

[89] From the speech of a former Energy Minister of Pakistan in 2013 in New Delhi. In the later part of that decade India imported LNG at over 20/mmbtu.

ent on oil and gas imports while also importing coal. In so far as imports may be disrupted, they undermine energy security of the country. Energy security may be enhanced through both diversification of the sources of imports and increased domestic production and reduced requirement for energy. Given availability of domestic resources of oil, coal and gas and the prospects for their exploitation at competitive prices there is a strong case for reduced dependence of imports. In due course, we may also consider building strategic reserves as insurance against imported supplies'. 'Reduction of imports and in emissions can be both be achieved through an expansion of renewable energy consumption».

The influence of contextual factors such as domestic resource endowments and existing bilateral relationships in the draft energy policy suggest continuation of a reactive rather than proactive rationality in evaluating policy options. The policy emphasis on core values such as self-reliance that associates increase in energy security with decrease in imports may also be read as an extension of reductionist focus on securitisation.

In pragmatic terms, as in all other countries, domestic compulsions and contradictions embedded in the political economy temper Indian policies when it comes to actual action limiting the range of options available. Growth in the share of imports of both resources and technology dilutes the policy of self-reliance. Then, in a world defined by trade and inter-dependence, there is little or no value in the pursuit of self-reliance.

The value of affordability as a policy goal leads to the far greater salience of direct methods of addressing energy poverty (through subsidies and price controls) in a democracy characterised by inadequate levels of development. The indirect method of increasing energy supply and access through reliance on markets for economic growth finds little resonance with the large majority of the population given the context of relatively short electoral cycles[90].

The contradiction here is that direct methods of increasing energy access through subsidies cannot be financed without reliance on markets for growth. This is captured by the Indian electricity system, saddled as it is with large financial liabilities imposed by policies that seek to increase electricity access through subsidies. India's low carbon pursuit in the context of the commercial viability of the Indian electricity sector thus becomes a substantial economic challenge.

It would then be most appropriate to conclude with a question. As global energy, policies seek to consciously become more and more interventionist in the pursuit of a globally pursued energy transition, will attributes such as the entrenched role of the state in the energy sector, that had been portrayed as strategic weaknesses, become sources of strategic strength for the transition to a low carbon economy? India as a large consumer of renewable energy tech-

[90] Varshney, A (2013), «Battles Half Won: India's Improbable Democracy», Penguin, New Delhi.

nologies is already lowering the cost of using new technologies given that costs depend critically on scale of deployment. The entrenched role of the state in the energy sector in India is what will be counted upon to facilitate socialisation of the cost of integrating intermittent renewable energy into the gird. The role of the state in promoting the nuclear energy industry in India will be similar[91]. The 'soft power' of the narrative of a large, relatively poor developing country committing investments to address climate change is a compelling geo-political goal for the state. India is more likely than not to attain the goal. However, it will do so on its own terms and in its own time, negotiating all the contradictions and rigidities in its situation.

[91] Globally the competitiveness of nuclear power has come under scrutiny in open energy markets such as that of the United States but this has had little or no impact on the progress of the nuclear sector in state led energy markets such as that of India.

Composition of the working group

President	**Mr. Claudio Aranzadi** *Industrial Engineer and Economist.* *Ex Minister of Industry and Energy.*
Secretarie	**Mrs. Marta Camacho Parejo** *Director of Institutional Relations Spain and Global Affairs of Repsol.*
Coordinator and Member	**Mr. José María Pardo de Santayana y Gómez-Olea** *Army Colonel Spanish.* *Chief Analyst of the SISS.*
Members	**Mrs. Lara Lázaro Touza** *Principal Researcher, Real Instituto Elcano. Professor of Economic Theory, CES Cardenal Cisneros (attached to the UCM).*
	Mrs. Beatriz Mesa *Doctor. Researcher Maghreb / Sahel.*
	Mrs. Melike Janine Sökmen *Researcher at CIDOB (Barcelona Centre for International Affairs) and member of the FEUTURE project.*
	Mr. Eduard Soler i Lecha *Senior researcher at CIDOB and scientific coordinator of the MENARA project.*
	Mr. Sunjoy Joshi *Chairman. Observer Research Foundation.*

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