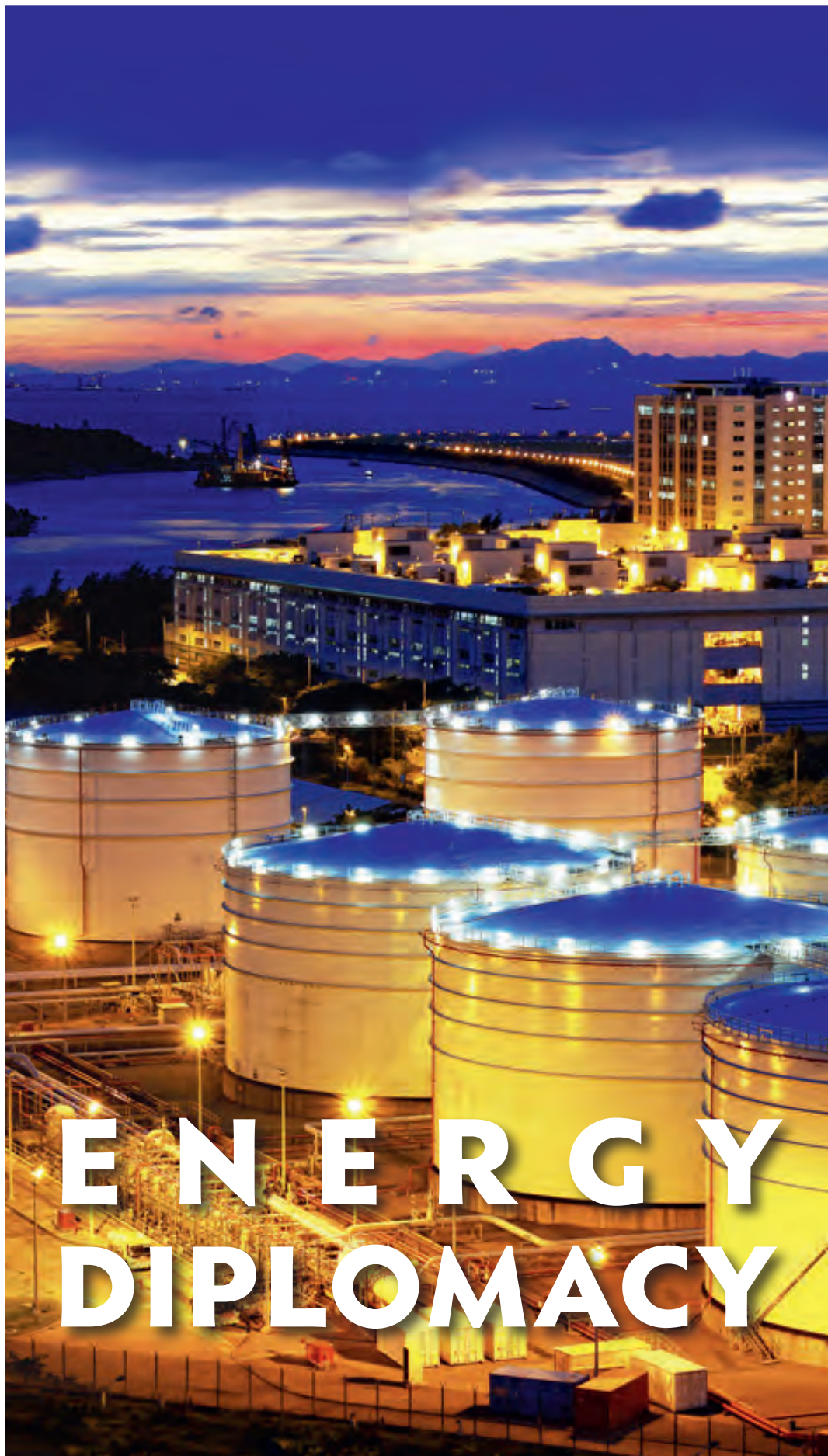




# THE EUROPEAN FILES

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# ENERGY DIPLOMACY







# EDITORIAL

## Energy diplomacy

European cooperation was founded on industrial and energy resource sharing principles. This shared interest became the driving force of our economy and of the creation of the European Union (EU). However, whereas productivity and stability were the watchwords of the past century, the present context calls for a stronger focus on security, optimization and sustainability. This evolution in objectives underline the European Union's ambition to secure a brighter future for its citizens. The new energy security package proposes to strike the perfect balance between a number of key issues. It reflects on the progress made by several national and regional organizations in a dynamic and constantly evolving geopolitical context. The agenda is set and the priorities ready to be scrutinized in this edition of *The European Files*.

The scope of national priorities spreads across differing opinions on security versus affordability. Simply put, national energy markets are healthiest when there is the balance between independence from imports and low prices for consumers. However Europe is divided on how to achieve this. Sources for cheap and cleaner energy are growing around Europe, spearheaded by countries like Norway and Cyprus. New energy suppliers are emerging, supported by new gas discoveries around the world and the development of liquefied natural gas. At the same time, new Russian gas export projects are being brought to the table. This is in addition to a new pipeline from Russia, though support for this

great increase in capacity falters as Europe's world vision differs greatly from Russia's.

Energy is an asset in determining geopolitical power and Europe rightly chooses to minimize its exposure to risk; firstly by joining forces and completing its internal energy market. It is Europe's market that will provide the strongest platform for the wisest decision in this case. The future of these large-scale projects rests on our ability to foster market solutions that are beneficial for each Member State.

Alternatively, there are non-market solutions that exist on all levels of the economy. The primary strategy employed by member states has been to improve the infrastructures and physical links between them. A more interconnected Europe brings more cooperation and raises its resilience to external shocks! However, these are costly measures and require innovative financing. Therefore the EU looks to its many financial institutions to drive investment in the right direction. Regional organizations such as the Union for Mediterranean are examples of investment for greater cooperation even across regional boundaries! This has proven very effective for both large- and small-scale projects. Producing yields that prioritize green investment, whether it's a new international grid or renovating a city borough, creates an entire new set of financial products. Several European funds are instrumental at pushing this capital in the right direction. The ambitions of Europe in this sector are matched by an enthusiasm

for exciting partnerships between public and private market players.

Globally, competitive advantage of the EU is its legislation. Energy producers across the continent are pushing for a framework that increases transparency and promotes access in energy markets. Negotiations for a more open and integrated energy market should champion the rights of citizens to energy. For example, the Baltic states have taken great steps towards a more secure energy future for its population by looking inwards and better connect with Europe's market. With the right motivations, the EU has all the tools to accelerate the creation of a more secure, optimized and sustainable energy market.

As the world's leading economies pioneer a move towards a "green model", Europe has an opportunity to lead the way in creating a sustainable energy infrastructure. This outlook can also promote the region's image as it evolves from internal market stability, to world market dynamism with projects in Africa and the Middle East. Developing positive exchanges abroad will further integrate the consensus made on climate change in Paris as an essential part of Europe's commitment to a sustainable global future. Leaders from a variety of political institutions, economy, and public organizations have come together in this edition of *The European Files* to share their priorities for a stronger energy market for Europe and its international partners.

**LAURENT ULMANN**

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# Energy Diplomacy

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# What's at stake for the Southern Gas Corridor?



**Maroš ŠEFČOVIČ**

*Vice-President and Commissioner of the Energy Union, European Commission*

As we all know, in a modern society energy is neither a luxury nor a privilege; it's a necessity, sometimes an existential one. And yet, while most of the EU energy is imported, it often originates from regions which are unstable, therefore putting Europe's supply at risk. As a Slovak, I will never forget the winter of 2009 when gas supply was entirely halted to my country as a result of the Russian-Ukrainian crisis. The risk is still looming to many EU countries, a situation we simply cannot afford to live with any longer.

That is why an important dimension of the Energy Union's Strategy revolves around energy diversification. By importing from a greater variety of sources, we can reduce the risk of supply disruption to our industry, we can generate more competition which would lower prices and improve services for our consumers, and we can provide Member States the reassurance of relying more on their neighbours in case of disruption. Energy diversification is therefore also at the cornerstone of the European Energy Security Strategy which we published in 2014, and the Security of Supply legislative package, which the Commission proposed three months ago.

This is the context in which the Commission gives its strong support to the Southern Gas Corridor, a highly ambitious project which aims to bring Caspian, Central Asian and Middle Eastern gas into our European markets. It may sound like any other project but the

Southern Gas Corridor is in fact the biggest construction project of our time and among the most complicated ones. Yet, its realisation will be a turning point for our economy: from centralised markets with single dominant suppliers to mixed and diverse energy markets; from a world where each country had its own energy plans into a coherent regional strategy where countries cooperate together along common interests; and from the assumption that the Caspian Sea is too far away for the European market to creating an integrated energy infrastructure linking Caspian resources to European consumers.

Given the benefits of the Corridor to the European market, the Commission has listed all segments of the Corridor in its list of Projects of Common Interest, which help facilitate their implementation. These include: the Trans Adriatic Pipeline (TAP) across Greece, Albania, and into Italy, the Trans-Anatolian Pipeline (TANAP) across Turkey; and the Southern Caucasus Pipeline (SCP) expansion.

The Commission is also ready to support the project financially. The Connecting Europe Facility, for instance, can help promoters prepare their projects well. Indeed projects of the Southern Gas Corridor have already received such assistance, including the EBRD. International Financial Institutions, including European Investment Bank or World Bank, are in advanced talks with promoters on financing conditions for the Southern Gas Corridor projects.

Yet, most importantly; the Commission is providing strong political support to the Southern Gas Corridor at international and inter-governmental level. Our main platform was through the creation of the High Level Group on Central and South Eastern Europe Gas Connectivity (CESEC), which brings together the governments of EU Member States from the region (Austria, Bulgaria, Croatia, Greece, Hungary, Italy, Romania, Slovakia, Slovenia) together with our eastern neighbours (Albania, Bosnia and Herzegovina, FYROM, Moldova, Serbia, and Ukraine).

The aim of the group is to facilitate projects that are key for diversification of gas supplies to the region and to implement harmonised rules on their operation. Very quickly CESEC has proven highly efficient for unblocking

important cross-border projects and removing remaining obstacles to the better integration of the region. Shortly after its establishment, CESEC published a Memorandum of Understanding which presents rigorous implementation of the most crucial gas infrastructure projects. For millennials such cooperation might seem logical and natural, as it serves the interest of all parties. But who would have imagined two decades ago, when South East Europe was in deep and fierce conflict that such cooperation and solidarity could ever possible?

Back to the here and now; in May I attended the ground-breaking ceremony in Thessaloniki, marking the beginning of the construction of the TAP section. The ceremony was hosted by Greek Prime Minister Tsipras with the presence of a very long list of Prime Ministers, ministers, and ambassadors from across the region and the whole world. Attending the event was interesting not only because it reflected level the enthusiasm throughout the entire region about the change we are bringing about. It was also a strong manifestation that this project is technically possible, that it's economically viable, and that it enjoys a very strong political support both in and outside the European Union.

Despite the complexity, we expect the route and the overall framework of the Southern Gas Corridor to be operational in four years. Once this happens, it will be easier to expand it beyond the initial volume of 10 billion cubic meters per year. The year 2020 is therefore the conclusion of the construction but not the end of it; I can already confirm our interest in scaling-up the Southern Gas Corridor swiftly, including with more gas originating from the Caspian and possibly Central Asia region. New energy is on its way to Europe.

# Energy transition in the EU post COP21



**Ségolène ROYAL**

*French Minister of Environment, Energy and the Sea, responsible for International Climate Relations, president of CoP21*

The number of signatures received in New York on April 22 for the Paris climate agreement – 175, an all-time record! – shows that the momentum launched in Paris and the engagement of all parties is irreversible.

Energy amounts for more than two thirds of global greenhouse gas emissions. Its contribution to reducing emissions is therefore crucial. Transition is well underway: in 2015, 90% of new electricity generation capacity across the world was based on renewable energies!

We are facing numerous joint challenges: improving energy efficiency, deploying renewable energies, organizing tomorrow's energy system and making it strong, resilient and carbon-free. This requires intense legislative work, which started with discussions on reforming the European Emission Trading Scheme (EU-ETS). This year, we are expecting several major legislative packages, including the effort-sharing decision for sectors not covered by the EU-ETS, and in the energy sector, pieces of legislation on energy efficiency, the organisation of the electricity market, and renewable energies.

All Member States should mobilise. In France, the Law of 17 August 2015 on Energy Transition that I have brought before Parliament is fully in line with the European objectives. We have set the targets of cutting GHG emissions by 40% by 2030, bringing the share of renewable energy in our energy mix up to 32% by 2030, reducing our energy consumption by 20% by 2030 (compared to 2012) and further halving it by 2050, and reducing our fossil fuel consumption by 30% by 2030. Controlling energy consumption is a major pillar in this regard, with ambitious measures aiming at improving energy efficiency in the most promising sectors of construction and transports.

The other major pillar of energy transition is the large-scale deployment of renewable energies. We have just set out targets for France aiming at developing various sub-sectors by 2023. For instance, increasing renewable energy installed capacity by 50%, more than doubling onshore wind energy; more than tripling photovoltaic solar power plants; fully tapping into the potential of renewable energy at sea (offshore wind energy: 3000MW). In order to do so, support mechanisms for renewable energy should continue to back technologies in need of such support, in accordance with the priorities and choices of each State. In particular, they will seek to preserve the need of organizing

technology-specific calls for proposals. The future European framework will have to be both ambitious and flexible enough for States to reach their national targets.

Finally, the matter of the carbon price is a topic requiring significant complementary work. A successful energy and climate transition calls for a predictable, stable and sufficiently high carbon price to direct investment towards carbon-free energies. In Europe, the market stability reserve, voted in October 2015, will only enter into force in 2019: it will be too late. Moreover, it doesn't give stakeholders any visibility on prices. I have therefore proposed a price bracket on the European carbon market. Today, it is priced at € 6. Enhancing carbon price visibility could significantly reduce our emissions: a trajectory towards a carbon price of € 30 would contribute to reducing emissions in the European Union by at least 100 million tons per year for the electricity sector alone (that is between 10% and 15% of the European electricity sector emissions). This would also allow to provide a return on the investment of renewable energies, thus relieving the burden of the support mechanisms for renewables. Of course, implementing this price bracket would be done in parallel with maintaining an enhanced and stronger instrument in order to prevent an impact on the competitiveness of the economy. In France, at the Environment

Conference held in Paris on April 25-26, the President of the Republic announced the country's commitment to providing a price floor for carbon for the electricity sector, with the aim of giving greater visibility to all investors. This will allow to promote, for the specific sector of electricity, the use of gas over that of coal. The French government will put forward the modalities for its implementation this year.

All of these actions will enable Europe to remain at the forefront of the fight against climate change and to be an engine for growth and job creation in the new green economy.



# Energy security in the Baltics – time for strong European energy diplomacy



**Rokas MASIULIS**

Minister of Energy, Lithuania

The importance of energy security for Europe cannot be overstated. This priority is most obviously reflected in the concept of Energy Union. European efforts have for quite some time been focused primarily on creating a fully functioning EU internal energy market, but lately we are more and more loudly speaking about the crucial role of energy diplomacy. This is not a coincidence as a true Energy Union inevitably means EU as a strong and active player on the international energy scene.

Until recently, Baltic States were a perfect example of an *energy island* having no alternative gas supply and only very limited access to the EU electricity networks. However, in the last several years Baltic States managed to change this status completely. One of the key significant achievements was the successful completion and start of operation of the LNG terminal in Klaipeda at the end of 2014. It has ended dependence on one single gas supplier in all three Baltic States by providing all regional market players with access to gas from alternative sources on the equal third party access basis.

Last year marked the realization of another significant milestone – launch of two cross-border power interconnections with Sweden (*NordBalt*) and Poland (*LitPol Link*). This was possible only because of the exemplary regional cooperation and strong support of the European Commission. Furthermore, several years before the links between Estonia and Finland (*EstLink I* and *EstLink II*) strengthened

interconnection capacities with the Nordic grid.

The Baltic States' integration into EU internal energy market is not yet a *fait accompli* and the mission of Baltic States' energy security enhancement still has remaining major issues to be tackled. While we have built strong hardware in our region and continue its development – such as gas interconnection Poland–Lithuania or Balticconnector between Finland and Estonia – we are still facing challenges of key importance for the Baltics and Energy Union as a whole, which are primarily of geostrategic and geopolitical importance.

Firstly, it is the need to implement the Baltic States' long-standing goal to de-synchronize from the Russian IPS/UPS electricity system and finally synchronize with the EU's power system. Secondly, to ensure that electricity generation in the neighboring third countries would be safe and sustainable and that level playing field between third countries and EU market participants established.

Regardless of the generally positive outlook presented before, the Baltic States face an energy security paradox – their electricity networks are already physically connected with the EU allowing participation in the EU energy market, but their power system has remained an integral part of the former Soviet Union system, operated and centrally controlled from Moscow. This dependency on unpredictable Russian system developments, operational planning, and loop-flows of electricity through the Baltic States creates a serious threat to the security of energy supply in the Baltics and can undermine all the efforts by the Baltic States to invest and strengthen their power networks and the significant European support allocated to that. Besides the technical threats, such situation is clearly politically and strategically unacceptable – in fact, the European Council has called upon the need to end this situation on numerous occasions.

Given all these political and technical circumstances, one year ago the Baltic States made a joint decision on the necessity to synchronize their electricity systems with Continental European Networks by 2025. Currently the Joint Research Centre is carrying out a study on cost-efficient and geopolitically secure synchronization option of the Baltic States. We are strongly expecting that 2016 will be the year of delivery not only considering the whole Energy Union, but also regarding its essential element – Baltic States synchronization with

EU networks – as the final decisions on the synchronization scenario are planned to be made already by the end of this year.

Whereas considering the electricity trade with third countries, Member States, especially those bordering with the third countries, are facing the risk of unfair competition, which undermines the investments into the EU energy infrastructure, including investments into renewables, technological development and innovations.

The ongoing Ostrovets nuclear power plant (NPP) construction in Belarus is being implemented under essentially different regulatory conditions. Situated just 20 km away from the EU external border and 50 km away from the Lithuanian capital Vilnius, this construction causes environmental and nuclear safety threats not only for Lithuania, but for the whole EU. While developing the Ostrovets NPP, Belarus violated the provisions of the Espoo and Aarhus Conventions as it is formally acknowledged by the bodies of these conventions. Moreover, major issues related to nuclear safety remain unanswered, e.g. site selection criteria, seismic and geological site assessment, heavy aircraft crash assessment and impact to transboundary waters, emergency preparedness and response plans, storage of spent nuclear fuel. Despite this, Belarus is planning to commission the first Unit of the NPP in 2018.

Let's remember that already one year ago – on 20 July 2015 – EU Foreign Affairs Council adopted the conclusions on Energy diplomacy. These conclusions are straightforward and regarding nuclear safety it explicitly states that „the EU remains committed to the promotion and continuous improvement of the highest level of standards in third countries“. Accordingly, the mandate for the EU action is more than clear. If the EU is serious about safeguarding its internal market that is costing enormous efforts for its Member States to be created and is truly committed to protecting health and security of its citizens, all EU energy diplomacy measures and actions should be mobilized to convert these words into reality.

Only a common and unified approach in solving the above mentioned issues would demonstrate that the region and the EU as a whole is able and capable to adequately respond not only to internal, but also to the external challenges. It is equally important that strengthening of the energy sector is of crucial importance both to economic and political impact of the EU in the global context.



# A strategy for increased energy security in Europe



**Tord LIEN**

*Royal Norwegian Minister of Petroleum and Energy*

**E**nergy security is a common concern for all European countries. Norway strongly supports efforts to increase security of energy supply, and will continue to be a reliable energy partner for the EU in the future. We also believe Nordic experiences can be useful when discussing the way forward.

A day without the possibility to charge the mobile phone is not imaginable for most of us. For our societies as a whole, energy disruptions have unacceptable consequences both economically and socially. Against this backdrop, it is hardly surprising that energy security is one of the key dimensions of the Energy Union.

## Norway and the EU – close energy partners

It is no exaggeration to claim that Norway plays a pivotal role for the EU's energy security. Norway is a large supplier of energy to the EU, and is part of the internal energy market through the EEA agreement.

Annually, Norway exports more than 100 bcm natural gas to the EU through pipelines. Most of the export goes to Germany, the UK, Belgium, and France. Norwegian gas accounts for between 20 and 40 per cent of total gas consumption in these countries. Through the pipeline system, Norwegian gas also flows to Eastern European countries. In addition,

Norwegian LNG goes to the Baltic countries through the LNG terminal in Lithuania.

Almost 100 percent of Norway's electricity production is renewable hydropower. The Norwegian electricity grid is closely connected with our neighbours, with a level of electricity interconnections well above 15 percent of installed generation capacity. The planned interconnectors to Germany and the UK will increase Norway's interconnection capacity by almost 50 percent.

## What kind of energy security?

There is a broad consensus about the need for increased energy security in Europe. However, there are divergent views on how to achieve it.

For some countries, energy security is mainly a question of external gas supplies. It is a well-known fact that the EU's import dependency is high and increasing. This might be a particular problem for countries relying mainly on one external gas supplier.

For other countries, energy security issues arise because of the large increase of intermittent wind and solar power. The challenge is securing enough energy for days with little wind and solar production. Some countries have tried to solve the problem by establishing capacity markets.

## Nordic experiences

Norway is a large producer of hydropower, and security of energy supply has been a key issue for decades. Energy security challenges arise in years with little rain and snow, followed by cold winters with high consumption.

Such a challenge could be handled in two ways: By establishing a national capacity market, subsidising over-capacity as backup for the cold winters. Alternatively, one could increase interconnections with neighbouring countries.

Norway has chosen the latter. With great success.

We know that we can rely on our neighbours when our consumption is higher than production. Similarly, our neighbours know that they can rely on us. The markets work, and energy flows where it is needed. The large share of wind power in Denmark's energy mix is possible because Norwegian regulated hydropower works as a backup.

## Infrastructure and well-functioning markets

Norwegian views on the Energy Union have been presented on several occasions. Our main message is that well-functioning and efficient energy markets – with adequate infrastructure and an effective legislative framework – are preconditions for security of supply, and for developing an effective climate policy in Europe. We believe that a reformed EU Emissions Trading System should continue to be the main climate policy tool in the EU.

For a successful and cost effective transition to a low-carbon energy system, gas should be taken more into account. Gas is the cleanest of the fossil fuels, and huge CO2 savings can be achieved by switching from coal to gas. Gas is also an efficient way of balancing intermittent renewable energy. Hence, gas can play an important role in reaching the EU's climate targets.

As Europe continues to develop its energy security policy, I strongly believe that Nordic experiences should be taken into account. They show that energy security can best be achieved by close cooperation, good infrastructure and mutual trust. Interconnections and a well-functioning market is a much more cost efficient approach than isolationism and national capacity markets. As the Nordic experience proves – this is true not only in theory, but also in real life!

# The United States and the EU: working together to shape the world's energy future



**Amos HOCHSTEIN**

*Special Envoy, Bureau of Energy Resources,  
US Department of State*

The longstanding partnership between the United States and Europe strengthens our economic prosperity, collective security, and the common values that sustain us. This is not a cliché, and in today's environment, it can't be overstated. Within that context, energy embodies all three of the abovementioned parameters. These shared principles anchor energy cooperation between the United States and Europe. That's why Secretary of State Clinton seven years ago established the U.S.-EU Energy Council – to serve as the framework for our joint efforts to enhance energy security. Over time, this relationship has moved beyond annual Council meetings and has blossomed into a close day-to-day collaborative working relationship based on our shared commitment to advancing energy diversification and security in Europe.

Our work over the past seven years is bearing fruit. Research and development has led to technological advances in clean and efficient energy, as well as in oil and gas. Advances in LNG technology now allow countries to bring floating import terminals online in as little as 12 months. The United States – thanks to the shale gas revolution – is now a gas exporter to Europe and many other countries around the world. These achievements have greatly contributed to Europe's energy security and diversification goals. This is no more evident than in the realization of key infrastructure projects such as the Southern Gas Corridor to deliver

gas to Europe from Azerbaijan and the Caspian through Turkey, LNG terminals in Lithuania and Poland, and critical interconnection projects such as the Interconnector Greece-Bulgaria throughout South Eastern Europe. In addition, we are working together outside of Europe to connect the world's energy markets. Our joint work in North Africa, particularly in Algeria and Libya, as well as the progress seen in development of off shore resources in Israel, Egypt and Cyprus will ensure gas supplies to Europe are secure.

Nowhere is this more important than in Ukraine, which has seen repeatedly the effects of reliance on a single supplier of energy. Ukraine in 2006, 2009, and 2014 experienced firsthand the consequences of Russia's use of energy as a weapon and tool for political leverage. And it has taken steps to reduce this vulnerability. As a result of our continued commitment, Ukraine last year purchased more gas from Europe than it did from Russia – the first time in Ukraine's history. This could only happen due to implementation of the Third Energy Package, along with developing the necessary infrastructure, to promote reverse flow capabilities – and thanks to a tremendous level of commitment and tireless effort of the EU and individual member states. This positive development will be built on for years to come, increasing Ukraine's and Europe's energy security.

Though the Ukrainian story is one of progress, the threats to Europe's energy security and prosperity couldn't be more real today. Projects such as Nordstream II not only undermine Europe's own energy unity and diversification goals, but could have a devastating effect on the economies and stability of South Eastern Europe. Additionally, Nordstream II could undermine the economic stability Ukraine, Slovakia, and other countries.

Despite the threats facing European energy security, we can mitigate the risks through our collaborative work with our European partners. For example, technical advances in floating LNG terminals can help alleviate these threats by enabling countries to diversify their energy supply away from onshore pipelines, with the added benefit of allowing consumers to benefit from affordable and reliable prices. Europe needs to develop the infrastructure

that allows all countries to have access to LNG supplies in order to make this a reality.

The European Commission should be commended for its Energy Union Framework Strategy, and in particular this year's LNG strategy, which seeks to bolster Europe's energy security by promoting the use of LNG and critical interconnection infrastructure for open and free movement of gas. Should Europe successfully implement these strategies, it will make energy insecurity a thing of the past. We need to continue our close cooperation on energy – focusing on making energy a tool of cooperation, not a tool of division. If we can do that, the United States and the EU together can achieve a Europe not just whole, free and at peace, but prosperous and secure, a leader in shaping the world's energy future.



# What strategy is needed for the security of gas supply in Energy Union?



**Janez KOPAČ**

*Director of the Energy Community Secretariat, Vienna*

In this article the term Energy Union refers to all states that formally share the same internal energy market: 28 EU Member States and 8 Energy Community Contracting Parties which I describe as Energy Community states (6 Western Balkan states, Moldova and Ukraine).

There are more than sufficient gas supplies on the Energy Union's market. So why should we care about the security of gas supply? The EU's import capacity is around 700 bcm annually but consumption is only in the range of 470 bcm and is partly being fulfilled by indigenous production. Even if we add approximately 30 bcm of import demand in the Energy Community states, the results are almost no different.

The problem is that the Energy Union consists of two very different zones: two thirds of its territory has a high or at least very good diversity of supply and one third, the one closer to Russia, has a very low one. These are Finland, Latvia, Estonia, Ukraine, Moldova, Slovakia, Slovenia, Hungary, Croatia, Serbia, Bosnia and Herzegovina, FYR of Macedonia, Greece and Bulgaria. This one third was designated as vulnerable in case of a disruption of Russian gas supply in 2014 stress tests. Europe, at the moment, is focusing on geopolitical risks to gas supply in connection to the geopolitical situation related to Russia, though there are other risks as well (for example the

Iberian peninsula's predominant reliance on LNG). European security of gas supply issue is predominantly a regional one.

The best security strategy is therefore diversity of supply together with strengthening the resilience and robustness of gas markets. This cannot be provided through big new pipelines as the economic justification of pipelines to Europe doesn't exist already today. Load factor of all existing pipelines from Russia is currently 55% and of all pipelines from Northern Africa only 51%. In addition, Europe, where consumption is stagnating, can take advantage of the dramatic expansion in global LNG supply when it comes to gas security and resilience. On top of approximately 250 existing mtpa around the globe, at least 100 mtpa of LNG capacity is currently under construction in the USA and Australia.

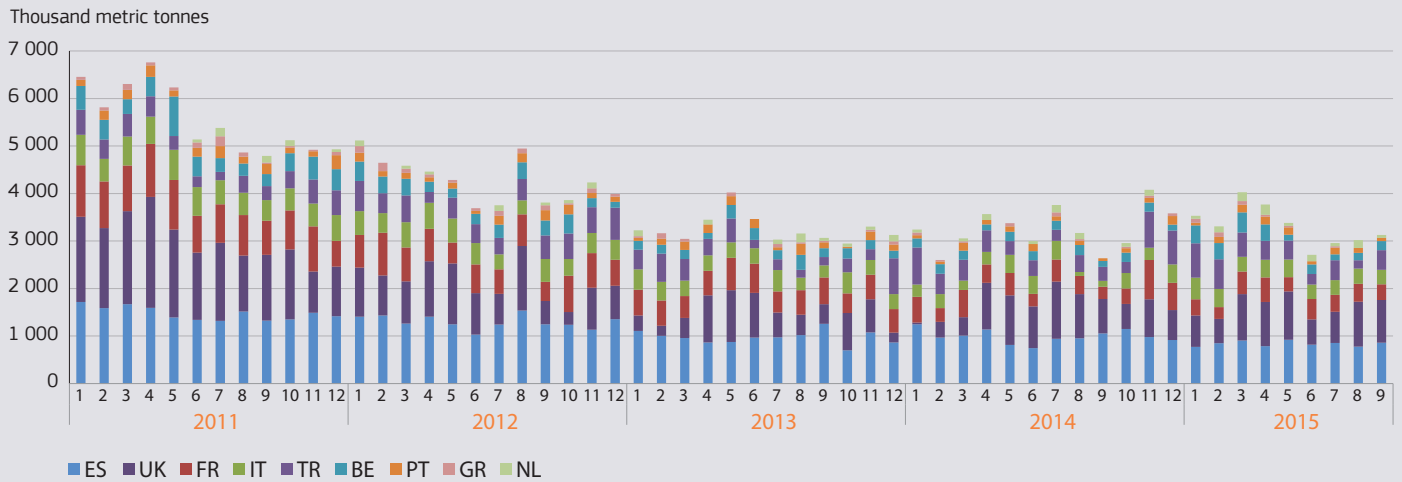
Some vulnerable countries were faster in solving the problem: Lithuania and Poland built their own LNG terminal to expand their options. Finland and Croatia will soon follow. Ukraine built additional interconnectors on its western border. On the other hand, a much needed interconnector between Greece and Bulgaria is still missing and some system enforcement in Bulgaria and Romania is needed as well. A few of these missing infrastructure projects are envisaged under the so-called CESEC initiative that emerged after the cancellation of the South Stream pipeline plans. However, almost no new infrastructure would be needed if the existing Trans Balkan Pipeline from Ukraine to Moldova and through Romania and Bulgaria to Turkey would apply third party access stemming from EU energy law. Today third party access is not possible on Bulgarian interconnections. New Ukrainian interconnectors on the country's western borders are sufficient for Ukraine's import demand but they would have not needed to be built at all if the majority of the country's EU neighbours allowed virtual reverse flows on all existing pipelines in their territory. Moreover, no big new pipelines like Nord Stream 2 are needed if Ukraine fully respects the third internal energy market legislative package (Third Energy Package).

An important element in the smooth functioning of internal energy market are Network Codes. They are obligatory in the EU but not

in the Energy Community since the European Commission hasn't proposed them for adoption in the Energy Community yet. But even when this will happen we will still have a huge problem: Third Energy Package application is obligatory in EU and in the Energy Community states but not between them. All Network Codes treat Energy Community states as third countries despite they are officially part of the internal energy market. The Commission's recent proposal for the adoption of the so-called switch-on clause in Article 15 of the new Gas Security of Gas Supply Regulation is a good example of how this legal gap could be bridged. Fully enforcing the Third Energy Package with the support of properly functioning institutions on the entire territory of the Energy Union would boost the security of supply and reduce the need for extremely costly infrastructure by liberating the potential of the pipelines already built that is currently blocked.

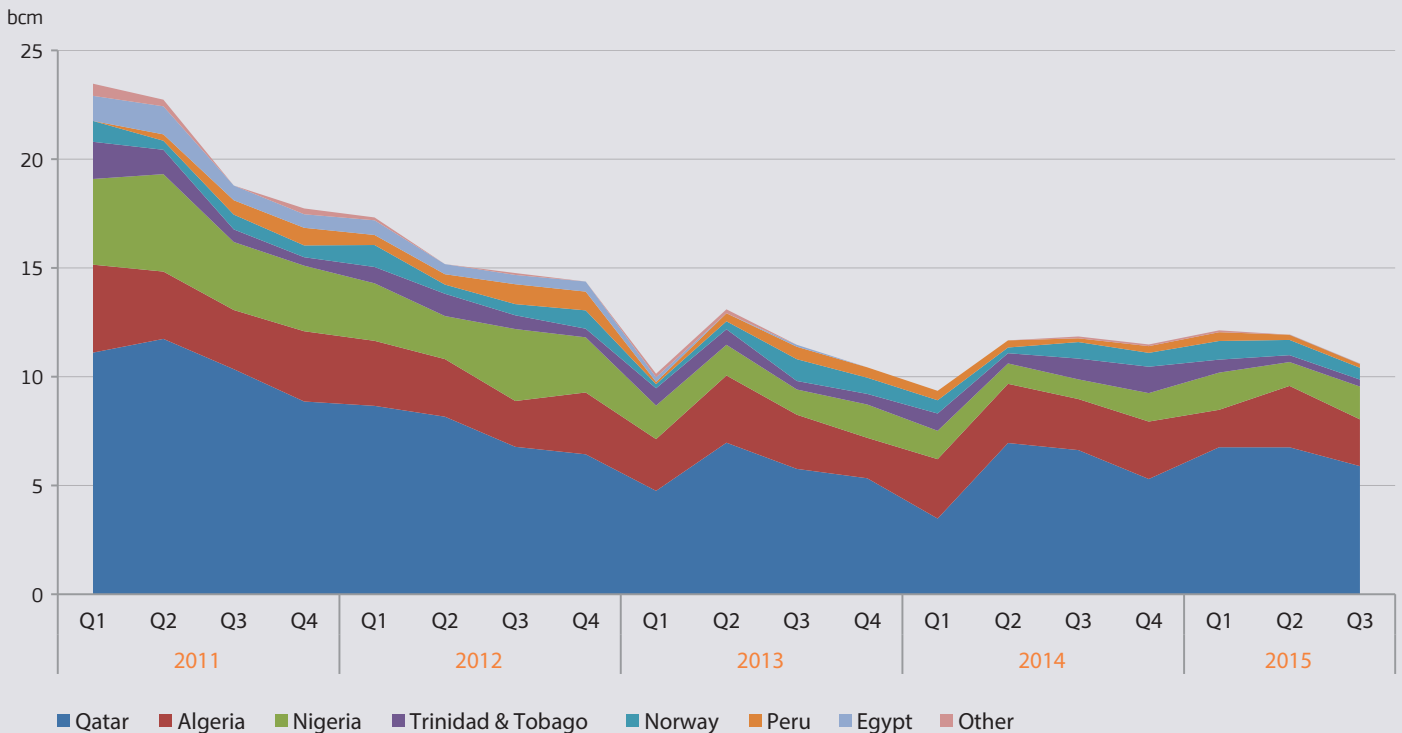
If I repeat the question from the title of this article: What strategy is needed for the security of gas supply in Energy Union? The answer is very simple: apart from a few small scale investments ensuring at least three supply sources of gas per country and keeping as low dependency on Russian supply as possible, all EU Member States must respect the EU *acquis* on all their borders with other Member States as well as with the Energy Community states and vice versa. Doesn't sound like much but this is still a universe away.

## IMPORTS OF LNG INTO EUROPE BY COUNTRY



Source: Thomson-Reuters Waterborne  
Lithuania is not included

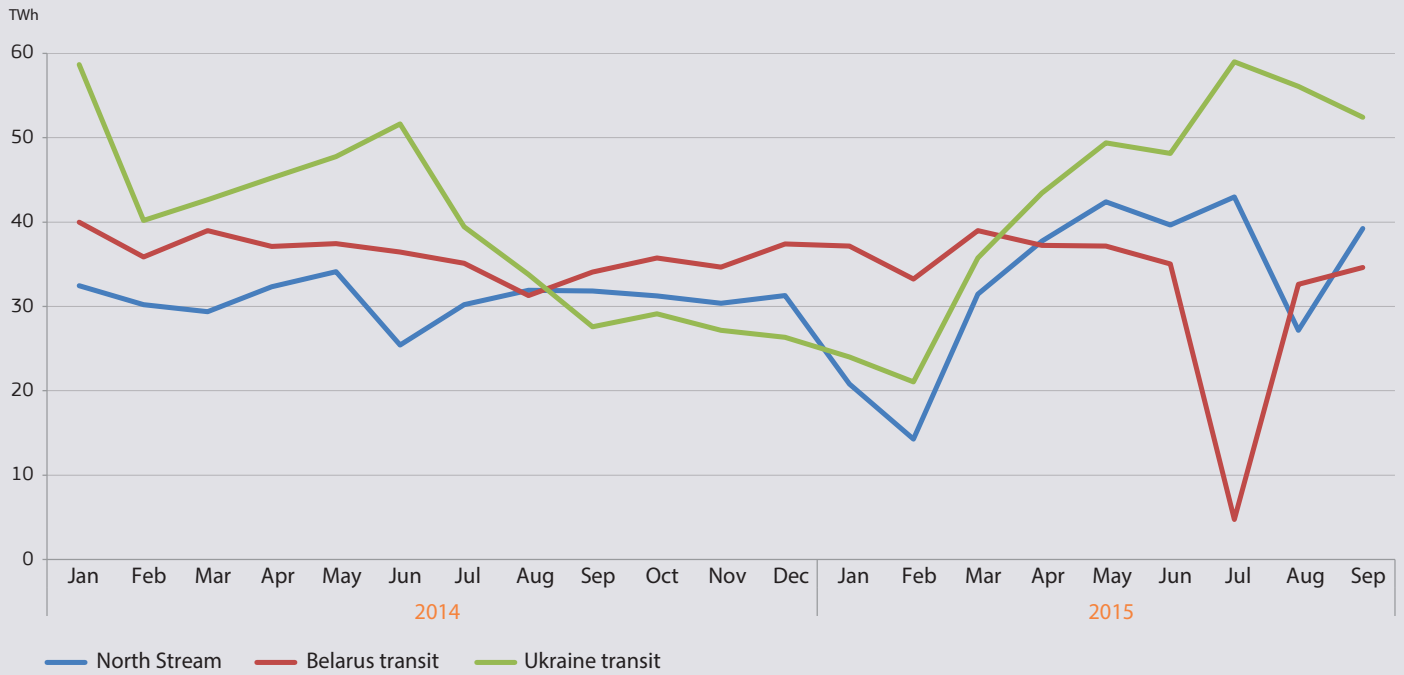
## LNG IMPORTS TO THE EU BY SUPPLIER



Source: Bloomberg/Poten & Partners  
Imports to Lithuania are not included



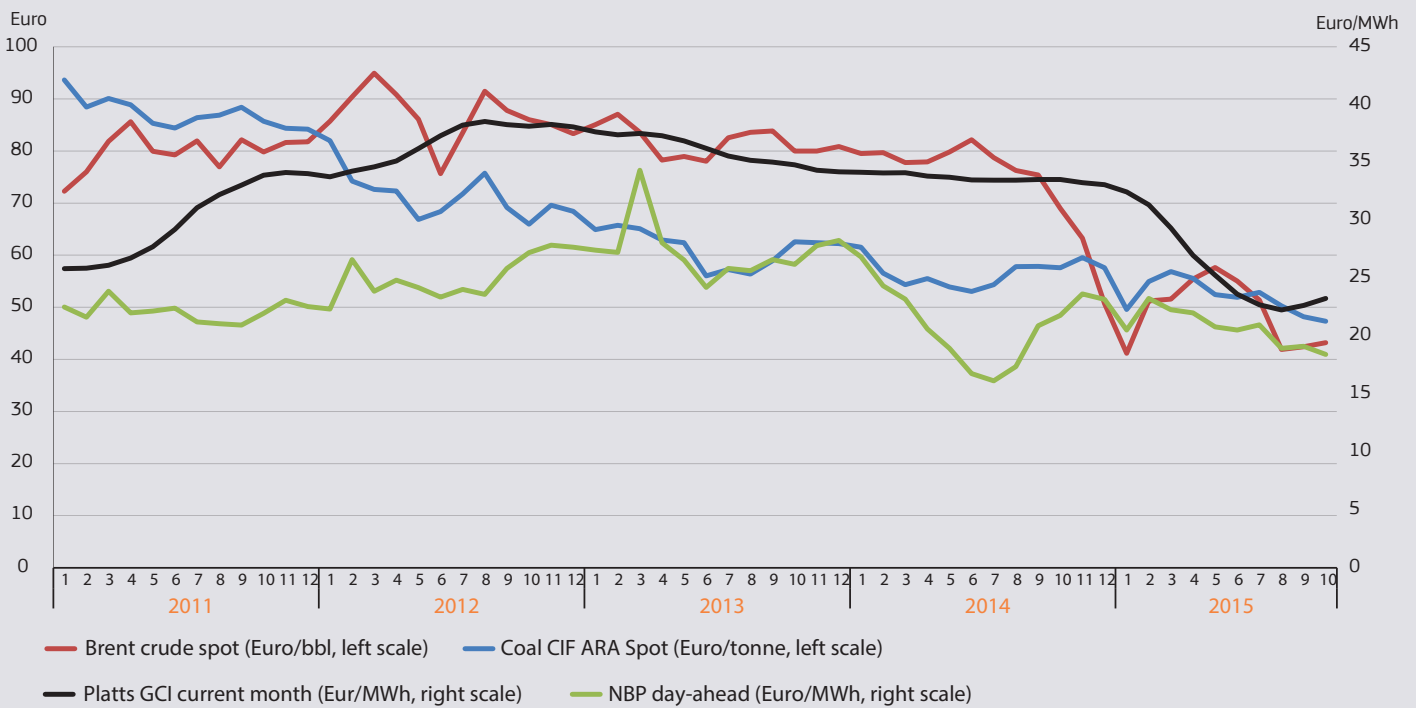
### EU IMPORTS OF NATURAL GAS FROM RUSSIA BY SUPPLY ROUTE, 2014-2015



Source: Based on data from the ENTSO-G Transparency Platform

Deliveries to Estonia, Finland and Latvia are not included; transit volumes to the Former Yugoslav Republic of Macedonia, Serbia and Turkey are excluded

### SPOT PRICES OF OIL, COAL AND GAS IN THE EU



Sources: Platts

# Why energy security is essential for peace and democracy in Europe



**Elmar BROK**

*MEP, Chairman of Committee of Foreign Affairs*

The European Union is facing a number of current challenges of which energy security is one of the most diverse ones, covering a broad range of issues that go far beyond energy supply as such. Nowadays, when we speak about energy we actually mean energy security. Since the external and internal dimensions of our energy security are closely interlinked, its role in safeguarding stability and peace in Europe will be increasing. Energy is one of the most important components in foreign policy-making and is considered a hard power. Regarding these aspects, it will be crucial for the EU to define a global energy strategy.

Primarily, the EU must strive for ensuring higher security of external energy supplies. We import more than half of our overall energy consumption; this is something to be changed. Amongst other challenges, the recent difficulties of our relations to Russia -- especially in the context of the crisis in Ukraine -- have proven the necessity of reducing our energy dependency on a single supplier. Therefore, it should be evident that the EU must increase its resilience to external geopolitical pressure. We should no longer allow our foreign partners to play us off against each other. We simply cannot continue to depend on an unreliable energy supplier, which is using energy as a political tool.

The creation of the Energy Union is an important step in this direction. It will help us to achieve stronger energy security as well

as to reduce energy prices and to increase the competitiveness of the European economy. However, this must not be the end of the line: The Energy Union has to lead to the creation of a genuine Common External Energy Policy, complementing the EU's Common Foreign and Security Policy. This will increase our geopolitical credibility, efficiency and consistency.

Unity and solidarity in external energy policy are of utmost importance. There must not be any competitive battles between Member States, because the security of energy is in our common interests, and this must be a priority for all. Consequently, only the Energy Union will allow us to speak to our partners with a single voice and thus to strengthen our position in negotiations. Building an internal energy market together will not only benefit the European citizens and industry, but it will also be a strong political signal to our external partners such as Russia or Turkey.

This development must go hand-in-hand with a better and more sustainable use of indigenous resources. Most notably, the expansion of renewable energy will decrease our external energy dependency and thus strengthen our position. Furthermore, while environmental and safety considerations must remain the highest priority, our Member States should also continue to explore possibilities in new technologies and the potential for unconventional oil and gas within the EU. In addition to these measures, an increasing energy efficiency across the EU would not only help to decrease dependency on foreign energy imports, but would also reduce energy costs for consumers and bring down EU emissions.

Regarding the meaning of energy security for peace and democracy in Europe, I want to highlight the enormous potential of international cooperation and energy diplomacy. Through cooperation in the field of energy, the EU can positively contribute to promoting and strengthening democracy as well as the rule of law and human rights in partner countries. Foreign policies, human rights policies and energy policies should be mutually reinforcing. In order to achieve this, we need greater institutional convergence and synergy. In particular, we should strive for an advanced integration of external energy security priorities in policies pursued by the EU High Representative for Foreign and Security Policy.

Better coordination between the HR/VP and the responsible Commissioners will lead to our goal of enhancing the coherence of EU external energy security policies.

The development of a global EU energy diplomacy should also aim at promoting more transparency in international gas markets, preventing market failures and increasing energy security for all. In addition to that, we should try to achieve greater synergy between energy security and climate change diplomacy. Climate change is, in fact, a security risk. The long-term effects on climate change (and other threats to the environment) are clearly geostrategic questions and are not only about energy security, but they affect our influence on the peaceful development of the world.

Speaking about a peaceful development, I would like to point up the pan-European dimension of the Energy Union. Given that the contracting parties of the Energy Community commit to implementing the EU energy acquis, a further enhancing of the functioning of the Energy Community and strengthening of its institutions deserve support. In the long-term perspective, (potential) candidate and neighbourhood countries, especially the countries of the Western Balkans that are not members of the EU yet, should be included in the Energy Union. Energy security could also become part of the European Neighbourhood Policy. These steps would be important measures to securing stability and peace in Europe.



# The Eastern Mediterranean corridor, a new deal for Europe



**Kornelios KORNELIOU**

*Ambassador - Permanent Representative of Cyprus to the European Union*

Natural gas discoveries offshore Cyprus, Israel and Egypt in the past decade have undoubtedly established the Eastern Mediterranean region as an area with immense potentials. One such potential, given the region's proximity to the EU market, is to become a complimentary source of supply to Europe. The reasoning is very simple. With roughly 2000 billion cubic meters (bcm) of natural gas having been discovered so far, the option of exporting to other destinations is a real possibility. At the same time, the EU, with a total natural gas consumption of 426 bcm in 2015, is looking to strengthen its security of energy supply.

Our vision is for Cyprus to be the driving force behind such a partnership which will provide the EU with a new and reliable source and route of natural gas supply. In a nutshell, we want to make the Eastern Mediterranean more important for the EU and the EU more important for the Eastern Mediterranean.

The 'Aphrodite' discovery of 127 bcm of natural gas in Cyprus' Exclusive Economic Zone (EEZ) in 2011 was the first decisive milestone. What was once considered probable became real, marking Cyprus' «coming of age» in terms of its energy aspirations. Four years later, we had a second 'transformational' milestone. The discovery of 'Zohr' in the Egyptian waters was a game changer, not only because of the substantial size of this natural

gas accumulation but because it marked the start of a new exploratory 'play' in the basin. Situated only a few kilometers away from Cyprus' EEZ, the 'Zohr' discovery reaffirmed and advanced our energy prospects. This has been manifested by an increased interest in Cyprus' EEZ, even at a time when the international oil and gas industry is experiencing challenging conditions. Ceasing the momentum, the Cyprus Government launched in March a new round for granting exploration licenses in three offshore areas in our EEZ with all signs so far pointing to yet another successful outcome.

Given our traditionally good neighbourly relations with the countries in the region and being the only EU member state to have already discovered natural gas resources in its EEZ, enabled us to lead the way in establishing regional cooperation.

The results so far have been remarkable with energy becoming the pillar of a network of cooperation frameworks, which are neither exclusive nor directed against any country in the region. Building on mutual trust and common interests, we have proudly seen our cooperation with regional partners like Israel, Egypt, Jordan and Greece progress and evolve from bilateral to trilateral level. Our aspiration is to continue on this path of ever closer cooperation and even using it as a tool for the much needed peace, stability and prosperity in the Eastern Mediterranean.

Building synergies is, in fact, key when it comes to developing the energy resources of our region in an efficient and mutually beneficial manner. While the quantities of natural gas discovered in our EEZ alone might not be substantial at a global level, merging all resources in the Eastern Mediterranean creates a whole new picture.

It is for this reason that establishing the Eastern Mediterranean corridor to Europe has become a long-term objective of Cyprus, one which we are determined to actively pursue together with the European Union and the countries in the region. While exports to Europe through the existing liquefaction plants of natural gas in Egypt currently seem to be the most cost efficient option, additional infrastructures are being assessed.

The EastMed pipeline, a Project of Common Interest for the EU, could also transfer gas from offshore Israel and Cyprus to Greece. Ultimately, when the quantities of gas are sufficient, a liquefaction plant in Cyprus could be another possibility. Exporting natural gas to Turkey, however, is not an option that can be examined prior to reaching a fair and viable settlement to the Cyprus problem.

The Eastern Mediterranean corridor presents a unique opportunity for the EU with not only economical, but also political benefits. While the Eastern Mediterranean gas can become a supplementary source and a stable route of supply, the EU's engagement can have positive political ramifications for the peace and stability in the turbulent Eastern Mediterranean region.

The EU has recognized the potential of our region and has been a steadfast supporter of Cyprus in this respect. Its firm stance on the need to respect international law, including sovereign rights, has been crucial and the Eastern Mediterranean initiative has been embraced with enthusiasm by Brussels.

We believe that more can be done. Cyprus, with its stable legal and political environment, has proven to be a reliable partner for both neighbouring countries and oil and gas companies alike. It is clear, though, that translating the East Mediterranean potential into reality requires further proactive and practical engagement from the European Union.

Our message to our EU partners is simple. An 'energy deal' is in the making in the Eastern Mediterranean. Whether political or economical, the benefits will be numerous, multifaceted with a real impact on the lives of all our citizens. This is an opportunity that Europe cannot - and should not - miss.

# The importance of regional cooperation for achieving the Energy Union



**Dominique RISTORI**

*Director General for Energy,  
European Commission*

**G**eopolitical challenges such as the on-going Ukraine-Russia tensions or economic challenges such as the impressive drop of the oil price make us realise every day that European energy security cannot be taken for granted.

Moreover, we have to tackle technical challenges as the uptake of renewables and the rise of decentralised generation, together with closer market integration, especially in shorter market time intervals, have made system operation much more interrelated than it was in the past. In Europe, 27.5% of the electricity generated comes from renewables. This figure is likely to reach 50% by 2030. Furthermore, ambitious energy and climate targets as well as the development of new technologies have an important impact on our power system.

In this rapidly evolving landscape, our main goal is clear: We need to provide Europe's citizens and businesses with the secure, sustainable, competitive and affordable energy they need.

In order to reach this goal, last year in February, the Commission adopted its Energy Union Framework Strategy built around five dimensions: Energy security, solidarity and trust; the internal energy market; energy efficiency as a contribution to the moderation of energy demand; decarbonisation

of the economy; and research, innovation and competitiveness.

Delivering on our Energy Union objectives will involve moving away from a purely national approach to a true internal market perspective.

In this context, regional cooperation is crucial to deliver energy to all consumers. It is already becoming a reality, notably thanks to market coupling and flow-based allocation, identification of projects of common interest (PCIs), coordination of auctions, and completion of almost all gas and electricity network codes.

However, regional cooperation must be increased in order to face the new challenges ahead, better coordinate investments, and raise efficiency and security of the system. In an integrated and fast evolving electricity market, security of supply cannot be considered as a only national issue anymore; it requires us to develop a more integrated and coordinated approach, based on the principles of solidarity and cross-border co-operation. This is one of the areas which are at the heart of the new Market Design Initiative that the European Commission is currently working on. The new market design means the redefinition of electricity market and to reconcile the integration of the increasing share of renewable energy sources with stability, investments and the growing role of consumers.

However, regional cooperation does not stop at the EU's borders. Our energy security depends on diversified energy supplies and routes. In this context, our focus is on increasing our interconnections, by accelerating the integration of our markets and by promoting better access to diversified energy supplies whilst maintaining significant import volumes from reliable suppliers. In this regard, first of all, the Energy Union strongly supports the timely development of the Southern Gas Corridor which should ensure the flow of gas from the Caspian region to the EU by 2020. Secondly, the liquefied natural gas (LNG) and gas storage strategy that has been adopted this February will focus on building the strategic infrastructure to complete the internal energy market and identify the necessary projects

to end single-source dependency of some Member States. Third, in Northern Europe, the establishment of liquid gas hubs with multiple suppliers is greatly enhancing supply security. This example should be followed in Central and Eastern Europe, and in the Mediterranean area, where a Mediterranean gas hub is in the making. Today, some of our South and East Mediterranean partners are major energy producers, such as Algeria (our N°3 gas supplier after Russia and Norway), Libya or Egypt where recent discoveries are very promising.

We can build our policy on successful frameworks such as the High-Level groups created to accelerate the implementation of critical energy infrastructure projects in the regions. For example, the South West group for better market integration of the Iberian Peninsula, and the Baltic Market Interconnection Plan (BEMIP) group extended its scope towards security of supply, energy efficiency and renewables. Another example is the High Level Group on Central and South Eastern Europe Gas Connectivity (CESEC) and its aim to coordinate efforts to facilitate cross-border and trans-European projects that diversify gas supplies to the region, as well as to implement harmonised rules.

Very recently, this month the political declaration for regional cooperation between North Sea countries was signed. The North Sea has an important potential for better and optimised interconnections, allowing for more trade and market integration. And thanks to new technologies, cheaper offshore electricity generation can be developed.

Today, the importance attached to enhancing regional cooperation is largely recognized by Member States, Council, European Parliament and stakeholders.

It is obvious that convergence of Member states' energy policies and enhanced regional cooperation - including with neighbouring countries - bring cross-border benefits in terms of security, sustainability and competitiveness. But most importantly, regional cooperation brings people and population closer together in the European Union.

# How will the East-Med gas resources be shared with the EU?



**Claudio DESCALZI**

CEO of ENI

**R**ecent discoveries of vast natural gas reserves off the coasts of Israel, Cyprus and Egypt may represent a game changer for the economies of the Eastern Mediterranean, for Europe's energy security and for the stabilization of the relations in the whole Mediterranean region.

These discoveries are a unique opportunity, to strengthen stability and cooperation from North Africa to the Middle East. Cooperation on gas export infrastructure is in the interests of all parties because it can lower the necessary investment levels, reduce costs and speed up the exploitation of available resources.

For Egypt, the most populous country in the Arab world, Zohr's discovery means the opportunity to satisfy a rapidly growing domestic demand at competitive prices and a return to energy independence.

Zohr is the largest gas discovery ever made in the Mediterranean and, even though it will mainly serve Egypt's domestic market, it will have an impact on the rest of the region. Existing and currently underutilized gas transport and export infrastructure and proximity to other significant gas fields such as Aphrodite (offshore Cyprus) and Leviathan (offshore Israel) make possible a very cost-effective the exploitation and export of these resources.

This could lead to the development of an entirely new gas hub in the Eastern

Mediterranean. For all countries involved, it will provide jobs and economic growth opportunities as foreign investments and industrial activities move to the region.

The involvement of industry leaders, such as Eni, in the exploration and development of energy resources has the additional benefit of fostering technology transfer in both conventional and cutting edge combined gas/renewables generation systems. This region is not only blessed with natural gas reserves, the development potential for renewable energies is also very high thanks to a favourable geographic location, especially for solar installations. Such renewable energy projects could free locally produced gas for profitable export opportunities, while contributing to reduce their carbon footprint.

A brighter economic and environmental future for the countries of the Eastern Mediterranean could help jump-start a virtuous circle in which positive perspectives and developments in the economy and geopolitics stimulate foreign investment, jobs and, ultimately, political stability.

On the other side of the Mediterranean, Europe will have to increasingly rely on imports to cover its gas demand due to decreasing domestic production. According to the International Energy Agency, EU gas imports are set to increase by almost one-third between 2014 and 2020 and potentially even more. The EU's ambitious climate goals require coal to be progressively abandoned in favour of more flexible, low carbon alternatives such as natural gas.

The discoveries in Cyprus, Israel and Egypt, as well as traditional energy flows from West Africa and emerging production in Mozambique, open up new gas import perspectives for Europe. This, in turn, will support the Energy Union's supply diversification strategy, thus increasing energy security and increasing gas to gas competition.

Europe should take this opportunity to revive Euro-Mediterranean relations, reinforcing the Union for the Mediterranean as well as the European Neighbourhood Policy towards its southern neighbours. In that sense, energy diplomacy initiatives such as the Euro-Mediterranean platform for cooperation on gas launched last year by EU Commissioner Arias Cañete, can help overcome the factors of instability currently affecting regional cooperation.

But a bidirectional South-North corridor between Europe and Africa should also help build a more stable and sustainable future for both shores of the Mediterranean. Closer cooperation will increase technological exchanges, employment, improve living conditions and create a more peaceful political and economic environment which brings more stability and positively impacts with the reduction of migration.

It is time for Europe to have a strategic approach to its relationship with Africa, which involves investing with the aim of developing the African economy, sustaining a different energy mix and extracting greater value from its domestic energy sources.

This must be the priority for both Africa and Europe.





# The benefits of a European energy policy



**Theresa GRIFFIN**

*MEP (S&D), Member of the ITRE Committee*

Energy is at the heart of the European Union. The signing of the European Coal and Steel Community in 1951 in Paris was the first step towards the construction of the European Union and today, developing the Energy Union is a major asset for all Member States.

From when we wake up in the morning, turn on the lights, prepare breakfast, switch on the heating or air-conditioning, go to work and come back home; energy is the one thing we take for granted and something we could never imagine disappearing. However, the EU is currently dependent on 65% of its gas from Russia, Norway and Algeria at a cost of €400 billion each year - a figure which is currently very high.

Whether it's about making us collectively more secure, bringing energy prices down, or dealing with climate change; we need to build a strong Energy Union to address these issues.

As the Energy Union develops, with 2016 earmarked as the year for delivery, we crucially need to remind ourselves of one key objective: the Energy Union must benefit all citizens by bringing energy prices down and making energy affordable for all consumers.

The EU will bring prices down through the development of more interconnections: European consumers can save up to €40 billion

through a fully integrated internal electricity market. In the UK, more specifically, the creation of the North Sea Electricity Grid is a fantastic opportunity to save consumers and businesses up to €13 billion per year by 2030. For this reason the Northern Sea Electricity Grid should be a priority for the 2017 UK Presidency of the EU Council.

Europe is also leading the fight against energy poverty. More than 50 million citizens live in energy poverty throughout Europe, having to choose on a daily basis between heating, cooling or eating. Very often the most vulnerable and poorest are paying double for their energy bills because they live in poorly insulated buildings. The EU is already investing in energy efficiency projects through different funds (EFSI, ERDF). However, more can be done through a strong legislative framework and energy efficiency targets aimed at our most vulnerable citizens. The review of the Energy Efficiency Directive and Energy Performance of Buildings Directive will give the EU the opportunity to achieve these goals. I strongly believe that Europe should set itself ambitious and binding targets on energy efficiency. Data shows that for every 1% improvement in our energy efficiency target more than 3 million households can be renovated. Renovating buildings – where Europeans spend 90% of their time – can vastly improve the comfort and health of citizens whilst bringing macro-economic benefits for society as a whole.

Building a stronger Energy Union is also key to the fight against climate change and responding to global challenges. Fossil fuel reserves are depleting, especially in the UK North Sea, and rising global energy demand means our energy security is at risk if we do not invest in renewables. Exploiting our renewable resources will make a strong contribution to our energy needs and make us less reliant on third countries like Russia.

Developing renewables furthers our ability to provide opportunities for investment in new industries and new technologies and the Energy Union is supporting this development through different streams of funding (EFSI, EEPR, ERDF). We need to up skill existing workers and have quality apprenticeships for young people and, for example, women

returned to the labour market to ensure that there is a real access to high growth green jobs.

Europe must lead with ambitious negotiations as was the case in Paris, where more than 200 countries signed the first global agreement on climate change. By working together, we can challenge and address geopolitical and economic challenges of tomorrow.

As previously mentioned, the high dependence on external resources, such as Russia, illustrates the need to implement strong EU safeguards to maintain our energy security further highlighting the need to diversify our energy mix and put a strong emphasis on energy efficiency and building renovation. In this regard, we need to keep in mind that there is no energy security without more solidarity.

In 2016 and beyond, no one in the EU should have to choose between heating, cooling and eating. By 28 Member States working together, we can achieve a just energy transition that protects the environment, secures energy supply and eradicates energy poverty.

# Solar leadership



**Isabelle KOCHER**

CEO of ENGIE

Chairperson of Terrawatt Initiative

## Climate is everyone's concern

On November 30<sup>th</sup> 2015, President Hollande, Prime Minister Modi and Secretary General Ban Ki-moon announced the creation of the International Solar Alliance, one of COP 21's key initiatives. They called for one trillion dollars of investment in solar assets in 121 countries between the two Tropics.

With the COP 21, something has changed: governments and NGOs were no longer alone on the stage. For the first time, the corporate sector stood by them, for real, for action.

Action, because for the first time no one can really say "it is not my problem".

Action, not only because the planet needs it, but also because the business case for the transition towards fully sustainable energy systems is now compelling. The interests have never been more aligned: this will drive private companies to sustainable growth and value creation.

Answering the COP 21 call, ENGIE took action and launched the *Terrawatt Initiative*, a non-profit organization bringing together a group of global energy and technology companies and financial institutions to mobilize the necessary investment firepower, and to engage with all stakeholders in order to concretely answer the International Solar Alliance calls.

## Solar is a massive game changer

So why have done it? Because we, as *Terrawatt Initiative*, believe solar is a huge and

powerful force for change: for the climate, for our energy businesses, and for society at large.

Solar is an unlimited resource, available everywhere, which can be mobilized quickly. It is distributed and empowers communities, as they strive to be active players in providing for their own energy needs and develop their own way.

It is true that solar is a variable energy; integrating it into existing power grids and markets will be challenging. But it is also clear that there is a critical need for the technologies and services that energy companies can provide: digital platforms, home energy management, green mobility, storage...

## A new strategic horizon

Affordable and clean energy access for all is key to a sustainable economic development. Smart cities, gender equality, education, migration and other social issues, cannot all be addressed without a massive increase in energy supply in emerging countries. This is a promising area for a renewed energy diplomacy toward developing countries. Not only in a government-led approach but through the expertise and the means of the private companies, in particular the European ones.

The energy that powers the world can no longer be loaded with carbon, if we hope to stick to the ambitious objectives of the Paris agreement. Solar can contribute to leapfrog the development of clean energy in the scale of what happened in the NICTs.

This type of transformation does not go without a drastic decrease in costs. As we have seen in recent tenders across the globe, solar is now often cheaper than conventional energy sources, and there is still room for improvement. Some people called for a technology miracle to happen to address climate change: it seems that, with solar, this is already happening.

This opens a new strategic horizon, and we see a huge wave of innovations coming through, with distributed energy services for consumers, businesses and territories. This is at the very heart of ENGIE's strategy in the coming years.

## Unlocking solar financing in emerging countries

*Terrawatt Initiative* idea is simple: if solar is this massive game changer, then the key issue is to make it happen wide enough and fast enough. And, as companies of the private sector, we should be driving it in close and renewed dialogue with local and global public bodies and non-governmental stakeholders.

This is what *Terrawatt Initiative* stands for: to provide the right conditions for energy companies and financial institutions to invest at a very large scale in solar projects, in cooperation with the solar industry and large consumers, to the benefit of economies and societies.

Our roadmap is to advise on efficient regulations, standardize contracts, and most importantly to mitigate risks and improve transparency and trust at all levels. This, we believe, will reduce the cost of capital and, thus, the cost of power generation in a virtuous cycle.

Solar has now become a very attractive asset class, especially in Europe and North America, because it provides for stable cash flows. It should be the same in developing and emerging countries.

To get there, standardization, aggregation, de-risking, rating, and securitization must be treated together in a redesigned value chain approach:

- › Standardizing solar development processes;
- › Aggregating solar assets in portfolios;
- › De-risking flows of portfolios;
- › Evaluating the financial and extra-financial quality of portfolios;
- › Structuring reliable investment products.

## Leading the energy revolution

As ENGIE CEO and Chairperson of *Terrawatt Initiative*, I believe that the private sector, especially in Europe, has the rare opportunity to be in a position to lead the energy transition the world is asking for. More than a transition, it is actually a revolution that energy markets are experiencing, based on a commoditized electron and a growing need for intelligence in the systems. I believe this revolution is the ground for a better and more sustainable world.

# How can the European Union reinforce its position in the energy negotiations?



**Ashley FOX**

*MEP (ECR Group), Member of the ITRE Committee*

Recently the European Commission has proposed new legislation that would require Member States to submit to them draft intergovernmental energy agreements with non-EU countries before they are signed in order to check their compliance with EU law. Since 2012 they have been submitted to the Commission after signature, and while subsequently over a third (17) have been found to be non-compliant with EU law, none have been renegotiated as it has proved to be virtually impossible to do so without the consent of the third party involved. As part of the same rules Member States may — but are not obliged to — inform the Commission of their intention to open negotiations on future agreements but to date has not been notified of any new negotiations.

It is without question that these agreements undermine the EU's internal energy market causing significant differences in prices between Member States and therefore distorting competition across sectors within the single market. The Commission's role is to prevent or correct anti-competitive behaviour within the internal market and the effects that IGAs have on competition should be considered within the context of both the energy sector and the single market.

Much has been made in the past of the Commission's potential role in intergovernmental energy negotiations, the gas crisis of

2009 highlighted the positive impact that collective EU action can have. Initial calls by Commissioner Maroš Šefčovič for an impractical EU collective gas purchasing mechanisms have given way to more pragmatic thinking on the Commission's role in Member State energy negotiations, and ultimately ensuring any agreements comply with EU law.

The revision of the 2012 IGA legislation was announced in February. Under the new proposals EU Member States would need to inform the Commission of their intention to enter in negotiations with a third country, provide them with draft of agreements for ex ante assessment and not concluding the agreement until the Commission has issued its opinion. Furthermore any non-binding instrument likely to affect the energy market or security of supply will be subject to ex post notification, without an obligation on the Member State to agree to any proposed revision.

The case of South Stream should serve as reminder of why more transparency is needed, for all parties. It is without question that there are suppliers in third countries, and countries themselves (from which you may conclude that I mean Gazprom and Russia), that seek

to undermine EU energy legislation. While in the new proposals the Commission have not sought to grant themselves a veto (or modification power) over IGAs, Member States would in practice not be able to ignore the Commission's opinion with impunity. Concluding an agreement in the knowledge that it breached EU law then they would be risking infringement proceedings and fines.

The proposals on ex post notification of non-binding agreements are proportionate and should prevent Member States being drawn into exchanges with the Commission unless there was a clear risk that EU law would be breached. There does need to be a degree of vigilance that IGAs do not start turning into non-binding agreements in order to circumvent the rules - and there is certainly a risk that this could happen.

Now the proposals will be scrutinised by the European Parliament and Council and we are clear that action is needed. The fact remains that at present these agreements skew competition and while up front checks will not solve all its problems they will go some way to improving the functioning of the EU internal energy market.





# Impact of the energy transition on Europe: the paradox



© Mikael Lafontan

**François BROTTE**

CEO of RTE

The world in which transmission system operators have to function is becoming increasingly complex. Stemming from the initial effects of energy management policies, power consumption is stagnating or showing a minimal increase. The growing foothold of renewable energy sources, most of which are connected to distribution networks, has brought about a decrease in the amount of power drawn from transmission grids, which are nevertheless still indispensable. The latter maintain a sense of energy solidarity among the different regions: firstly between generation facilities that do not operate simultaneously or that operate intermittently; secondly between consumption needs that change throughout the day. The number of players in the electricity system is growing: private individuals are becoming power generators; society is seeking ways to consume power more efficiently and in smaller quantities while at the same time, new applications are emerging such as electrical vehicles; regions are devising multi-energy solutions on their own scale. Last but not least, the time needed to design and build power grids is not compatible with the rampant increase in renewables that these grids have to accommodate.

Against this backdrop, the European energy market can and must be one of the solutions enabling transmission system operators to continue playing an active role as catalyst for a successful energy transition.

Advances being made with respect to technical protocols, capacity allocations and intra-day trading not only illustrate the constructive dialogue prevailing at European level but also highlight the capacity of transmission system operators to come up with compelling solutions.

The European market is now a reality. Prices are being harmonized throughout Europe. Suppliers purchase energy according to the price of electricity, regardless of origin. Price-based market coupling mechanisms are evolving. Introduced last May, the flow-based method simulates infrastructures more accurately, with the likelihood of even more sophisticated simulations in the future. This method is ultimately designed for the optimal use of rare and costly infrastructures, generating greater exchange capacity among like-for-like infrastructures.

The economic optimization driven by market mechanisms is the result of interconnectors that are making Europe the world's largest electricity hub, which is an asset for security of supply. Without interconnectors, we estimate that the French electricity system could be faced with an insufficient supply of electricity for 30 hours of the year. The power exchanges carried out through these interconnectors can reduce this period to 2 hours.

As the price gap between European countries becomes narrower however, the profitability of interconnectors decreases. This is compounded by increasing obstacles to the construction of power lines. This situation is hampering the European Commission's drive to step up the construction of interconnectors. Furthermore, setting quantified targets for the number of country-to-country interconnectors should be assessed against their socio-economic advantages if they are to be of added value for the European community while at the same time maintaining the closest bonds between all countries of the European Union.

Another paradox: Market prices do not reflect costs and electricity spot price fluctuations, nor are they directly reflected in electricity bills. In such conditions, how can one even conceive that market prices would be an incentive for consumers? How can

enough generation (or demand-reduction) capacity be maintained or created in order to balance supply and demand in tomorrow's electricity market? Improvements made to the functioning of short-term markets by involving renewable electricity generators in the management of the electricity system will not be enough to encourage investment in infrastructures (generation or transmission facilities), which take a long time to become profitable. Nor will they change consumer behaviours when it comes to moderating energy consumption.

Last but not least, this raises the question of harmonising the different energy policies within the European Union. Indeed, the European Commission intends to put an end to the status quo resulting from the Lisbon Treaty, which gives sole responsibility for the choice of energy sources to Member States. The question of a fully integrated market nevertheless begs the awkward question of Member State sovereignty: how will they respond to a transfer of energy skills in the light of their eminently strategic nature?

Transmission system operators cannot afford to wait. The energy transition is driving us to develop new solutions that cater for this world that is undergoing transition. We use our data as a key element in the search for solutions. Collected in real time, this data is used to observe and understand what is happening on the grid, including the effects of weather on consumption, generation and strain on equipment. When compiled, this data is used to produce a background history of various phenomena in order to address them proactively, as well as to produce comprehensive asset health assessments enabling greater control of maintenance programmes rather than being forced to carry out maintenance because of circumstances. When interpreted, this data is used to implement immediate work-arounds, maintain the safety of people and assets or ensure continuity of service. When properly monitored, it facilitates greater responsiveness.

We cannot successfully complete the energy transition with yesterday's solutions. We need to seize the opportunities offered by new technologies, including digital. That is what we mean by building tomorrow's grid.

# District Heating: A sustainable means to reach Energy independence



**Patrick LABAT**

CEO Veolia Northern Europe

In February 2015, the European Commission unveiled its Energy Union Strategy. Three interconnected key objectives were highlighted: (1) curb Europe's dependency on imported hydrocarbons, (2) reduce energy consumption and costs, and (3) reduce greenhouse gas emissions.

To help Europe achieve its energy goals, the contribution from the heat sector is essential. As a reminder, heating and cooling accounts for 50% of the EU's energy consumption. Moreover, it should be kept in mind that 75% of the gas imported in the EU is used for heating purposes.

As outlined in the Heating and Cooling Strategy published by the Commission in February 2016, "developing a strategy to make heating and cooling more efficient and sustainable is a priority for the Energy Union. It should help reduce energy imports and dependency..." **For this reason, addressing Europe's dependency on fossil fuel and changing energy consumption patterns on our continent should logically start with increasing recourse to high-efficiency heating and cooling running on renewable sources.**

For Veolia, district heating networks (DHN) provides one of the most efficient responses to help Europe tackle climate and energy challenges; this option should be favoured over others in most urban and semi-urban areas.

## Why is increasing the role of district heating a major option to deliver on the Energy Union objectives?

First of all, district heating networks can be designed or adapted to a flexible energy mix which includes biomass, waste incineration and refuse-derived fuel (RDF) waste heat from various sources processes: power plants, data centres or even sewage. On top of that, it is worth highlighting that more than a quarter of the EU population lives in areas where geothermal energy can be tapped in a cost effective manner and connected to DHN.

The relevance of district heating networks can be substantially enhanced by the combined production of heat and power (cogeneration). **DHN coupled with cogeneration is also particularly advantageous as it reduces the need to invest in electricity transportation networks and considerably improves the efficiency of electricity production.** Current systems combining production of heat and electricity provide overall much higher efficiency than the most modern cycles producing electricity output only.

Moreover, the exploitation of local renewables, and in particular biomass, generates the creation of local perennial jobs.

Thus, as opposed to intermittent sources, such district heating networks rely on **decentralized energy production as a substitute to imported hydrocarbons, while not being subject to weather conditions** (unlike solar and wind energy). Further, at time when intermittent renewable electricity is in oversupply, heat and cold storage can provide a very cost effective solution in balancing the grid and allowing energy storage.

DHNs as an energy infrastructure solution could substantially improve the resilience of the European energy system. It would thus contribute to the achievement of energy efficiency targets set for 2020 as well as to the **emission reduction** commitments pledged by the EU and the Member States during COP 21.

However, releasing the untapped DHN potential by upgrading and extending existing DHN, and building new ones, supposes several prerequisites are met:



*BORÅS (100.000 inhabitants, Sweden) has developed a program to eliminate all use of fossil fuels by the recovery of household waste for energy, heat recovery from sewage and wood energy. In order to optimize the use of these renewable energies, Borås has set up a heat storage system that eases peak demand for heat.*

*With a capacity of 37,000 cubic meters, the "thermos" is the largest hot water storage facility ever built in Europe. When more heat is being produced than is needed, the accumulator stores this energy produced from biomass and waste in the tank, when energy consumption is low, it then uses this energy to supply the district heating network (350 km of underground pipes and 4,000 substations throughout the city).*



## How to help high-efficiency and low carbon district heating grow in Europe?

### 1) Ensure new consumers connect to district heating networks and existing ones do not disconnect

The first priority therefore is to **limit user disconnection from networks** and prevent them from switching to individual heating solutions which are often more polluting, less efficient or rely on fossil fuels, perpetuating an unsustainable approach. This problem is particularly acute in certain cities in Central and Eastern Europe where the main trigger for these disconnections is energy poverty, a reality 54 million Europeans are facing.<sup>1</sup> Regional and local authorities must guarantee appropriate funding is available to ensure the most vulnerable remain connected to district heating services. This would also help DHN ensuring financial sustainability and their long term development and viability.

While there are more than 5000 district heating systems across Europe, their overall market share amounts to just 10% of the heating market with sharp contrasts<sup>2</sup>: In North, Central and Eastern Europe its market share reaches from 50 to 70%<sup>3</sup> while it barely reaches 6% in France<sup>4</sup> and 4% in the UK<sup>5</sup>.

In the case of Central and European countries, DHN are often associated with the

1 <https://ec.europa.eu/energy/en/news/energy-poverty-may-affect-nearly-11-eu-population>

2 [http://www.crossborderbioenergy.eu/fileadmin/user\\_upload/Sector\\_Handbook\\_DH.pdf](http://www.crossborderbioenergy.eu/fileadmin/user_upload/Sector_Handbook_DH.pdf)

3 *Ibid*

4 <http://www.dhcnews.com/marche-reseaux-chaaleur-france/>

5 [http://en.ru.is/media/reyst/Ingrid\\_Austin.pdf](http://en.ru.is/media/reyst/Ingrid_Austin.pdf)

legacy left by the Soviet system and therefore need to overcome reputational challenges to **rebuild confidence in district energy**.

Cross-subsidies of electricity and heat production<sup>6</sup> exist in several Central European Countries and put an additional burden on district heating networks operators by placing them at a competitive disadvantage as they have to sell heat at a loss and often end up facing tariff or market differentiation in selling the electricity they cogenerate.

### 2) Create a level-playing field between district heating and other heating solutions

Current energy efficiency calculations rules allow for including on-site energy produced from renewables (for instance from solar panels) to the definition and classification of building energy performance certification. In practice, it means poorly insulated and energy inefficient buildings can obtain a high energy performance grade just because they have a decentralized renewable-based energy production on site (photovoltaic or solar thermal) as in practice they continue using fossil fuels inefficiently. The upcoming revision of the 'Energy Efficiency' and 'Energy Performance Building' directives should ensure that **Energy efficiency target are expressed in terms of primary energy**. This would help for all heating solutions to compete on an equal footing, not discriminating efficient and environmentally friendly solutions.

Besides, ETS rules create a distortion in the sense that all district heating installations above 20MW, including those using cogeneration and biomass, are subject to the EU ETS while there is **no equivalent mechanism covering emissions from individual**

6 Revenues from an industrial tariff on electricity are used to cross-subsidize heating for households

**buildings**. This creates a *de facto* carbon tax on district heating which limits the growth of this virtuous technology. **DHNs should be submitted to the ETS in proportion to their reliance on fossil fuels**.

### 3) The need for appropriate investment and financing tools

Maintaining existing district networks and modernising them to allow their greening involves high costs and requires substantial investments. To this end, the contribution of public financing instruments will be crucial in helping investors and operators reap the potential of district energy and hence help Europe achieve its energy objectives.

The fact that the Horizon 2020 Program now specifically targets R&D investments in district heating as part of its priority sectors is indeed a positive development but **innovation in heat storage should be better encouraged**.

**EU Structural Funds could also facilitate the adoption of sustainable district energy solutions** locally by helping municipalities finance investments in the refurbishment and extension of existing district heating networks. Regarding the extension of existing networks or the creation of new ones, it is critical to provide the key stakeholders - local government, property developers and managers- the proper incentives or local regulatory framework to make **connection to DHN the by default option**, unless the existence of a more environmentally and economically beneficial one can be demonstrated.

**Renewable projects in the field of district heating should be further incentivized** thanks to EU financing instruments.



PÉCS (150 000 inhabitants, Hungary)

In Pécs, Veolia turns wood and straw into energy to power the city's district heating network and generate electricity.

With the entry into service of the largest cogeneration heat network in Europe, in November 2013, 400,000 metric tons of wood and 180,000 metric tons of straw from around twenty farms in the South-West of Hungary supply the city's heating network, avoiding the emission of 400 000 metric tons of CO<sub>2</sub>. More than 170 jobs have been created thanks to this activity alone. Pécs is one of the only cities in Europe making use of 100% local, renewable resources for its heating needs.



# Carbon Pricing as a Diplomatic Tool?



**Ian Duncan**

*MEP (ECR Group), Member of the ENVI committee*

**D**iplomacy; the art of telling people to go to hell in such a way that they ask for directions. The Paris climate change talks were a triumph of such diplomacy. Those who signed the accord on behalf of their governments - Francois Hollande, John Kerry, Zhang Gaoli, Amber Rudd MP - knew that Paris changed the debate; indeed, if fully enacted, it would change the world.

At present, human endeavour is on course to raise the Earth's climate by 3 °C. That's the consequence of the energy we generate, the cars we drive, the planes we take, the farming techniques we adopt, the things we make. I say 'we' but of course it's mostly us up north, Europe, North America, and of more than ever before, Asia. Our lifestyle is cooking the planet. Paris was a declaration that we would arrest the temperature rise at well below 2°C.

## Will we though?

As of 2014, the EU is responsible for 9.6% of global emissions. In the last decade the EU's share has declined by 19.8%. This compares with the US 15%, China 30%, India 6.6%.

Back in 2003 the European Commission floated the idea of EU-wide carbon tax. The idea kept floating because it has never been seen since. Instead a cap and trade scheme was proposed. A limit on carbon emissions would be set. Those who wished to emit

carbon would have to buy allowances on the market. Industry could innovate to reduce their emissions and by extension their need for allowances. In addition, carbon pricing avoids the challenges created by quixotic government intervention.

However, the global meltdown of 2008 saw the price of carbon, which had peaked at €30, plummet to €4 a tonne. Folks just weren't buying things and so other folks stopped making them. An oversupply of allowances grew into a glut. Despite its prolonged failure, the EU Emissions Trading Scheme inspired the development of cap and trade policies across the globe, all incorporating the lessons which so hamper the EU example. Today over 50 jurisdictions representing 40% of global GDP have carbon trading systems. When China's carbon trading scheme launches next year, nearly two thirds of the world's population will be covered by some form of carbon pricing.

The UN Paris Climate Agreement embraced the development of carbon markets, specifying the need for common accounting rules, transparent international targets, establishing and introducing a new international mitigation mechanism, all with the ambition of creating a framework to support cross border carbon trading.

A global carbon market would address the fundamental challenge found in all cap and trade schemes, the fear that industry will up sticks and move to a place where the costly rules do not apply - 'carbon leakage' in the jargon. Carbon trade is good. It fosters and strengthens trade and diplomatic links between nations and industrial sectors. It also means that climate change is addressed in a coordinated and coherent fashion.

That is the ambition. The reality of course is that we are all a long way off from that global market in carbon (just as we are in traditional trade). Linking across borders has been at its most successful within states and provinces, rather than between countries. California has managed to encompass 85% of all emissions in its trading scheme and is on track to reduce its overall emissions by more than 16% in 2020. It has linked fairly recently, with Canadian provinces Quebec and Ontario to reach greater emission reductions. Attempts to link

the EU scheme with Australia, another early adopter of carbon trading, fell through when Australia abandoned its cap and trade scheme entirely - a stark reminder that political will must underpin carbon trading.

As the lead negotiator for the reform of Europe's ETS, I am painfully aware that the scheme is not performing well. With a glut of allowances measured in the billions, the ETS plays second fiddle to other overlapping EU emission reduction measures issued by fiat, and with penalties for failure (notably the Energy Efficiency and Renewables Directives). Against a background of a failing ETS the UK adopted a carbon tax. Now France is talking about national measures too (the soft carbon collar).

This is probably the last chance to kick start the EU ETS. When it was instituted, the EU carbon price rose to €35. It has never been within a country mile of that level since. The main reason, oversupply of allowances. The EU recognised this, and adopted what it termed a Market Stability Reserve - in essence a cold store for the plethora of allowances.

My ETS reforms are all about further reducing oversupply. It is only by drying up the market that the price can actually begin to rise. I propose a triple lock of measures to tackle; overlapping EU climate policies (which reduce demand), allow member states to retire surplus allowances (which result in oversupply) and explicitly link EU ambition to the Paris global carbon stocktake.

My report is just beginning its journey that will take it through the Parliament's Environment Committee (where it will be amended) to the floor of the Parliament itself (where it will be amended) before it arrives for the real negotiations with the Council (brokered by the Commission) where compromise ultimately be the other of the day. It will be interesting to see what emerges.

In all of this I am guided by the maxim of a consummate diplomat, former US Secretary of State Dean Acheson: negotiating in the classic sense assumes parties more anxious to agree than to disagree.

# Investment for Energy Security



**Jonathan TAYLOR**  
Vice President of the  
*European Investment Bank*

Energy security is usually seen in a geopolitical context. Take, for example, the 110 km gas pipeline under construction in Klaipėda to connect the port's liquid natural gas terminal to Lithuania's gas network. The terminal and the pipeline—both funded by the European Investment Bank—make Lithuania, Latvia and Estonia, less dependent on Russian gas, because they can be supplied by sea. But at the EIB energy security isn't just geopolitics. Anything that makes you less dependent on an external source of energy supply automatically makes you more secure. That's why, for us, energy efficiency projects or the development of indigenous renewable energy sources can be an important factor in building energy security.

Since 2011, the EIB has funded around EUR 35 billion of projects contributing to energy security, most of them within the 28 member states of the European Union. All those investments are based on three pillars: growth, security, and sustainability. Security has to be one of these factors, because the EU is highly dependent on imported sources of energy. To reduce that dependence, the EIB prioritises investment in energy efficiency, renewable energy, and energy network projects, as well as energy RDI. In 2015 our projects contributed 3,400 GWh a year of energy savings. Every gigawatt hour saved is a concrete contribution to security of supply.

EIB finance for innovation goes hand in hand with its security of supply policy. The offshore wind industry, for example, could have been wiped out in 2008, when the global financial crisis made investors leery of risk. The EIB stepped in when private investment dried up, financing Belwind, a project to build Europe's biggest wind farm 46 km off the Belgian coast. The EIB's EUR 300 million funded half the cost of Belwind, which now produces enough electricity to power 160,000 homes in Belgium.

The move away from big, carbon-intensive power generation to decentralised renewable generation should cut reliance on imported oil and gas. Under the EU 2050 energy roadmap, exposure to fossil fuel price volatility would drop significantly with decarbonisation. The EIB is at the heart of that shift in focus, financing roughly two-thirds of all European offshore wind capacity. In May we made our biggest ever offshore wind investment with a GBP 525 million loan for the GBP 2.7 billion Beatrice Wind Farm off the Scottish coast.

That kind of massive investment gets headlines. But our attention is just as focused on smaller deals that have a significant impact on the lives of Europeans. In Bucharest we funded the energy efficiency renovation of around 65,000 apartments during the last six years. The total investment is EUR 460 million, which will result in yearly energy savings of over 500 GWh. Such projects fulfil another important piece of the security puzzle—they reduce energy expenditure for the residents of those buildings by cutting their bills. After all, you can build all the pipelines you like, but if people cannot afford to buy the energy they need once it arrives from some distant location, then you still lack energy security.

Innovative financing is key. To that end the EIB has a new card to play in the form of the Investment Plan for Europe's guarantee under the European Fund for Strategic Investments (EFSI). In June the EIB signed a EUR 40 million deal to finance three onshore wind facilities in Austria. EFSI allows the EIB to take a bigger position than usual (over 70% of Energiepark Bruck's expansion costs). Without EFSI, the deal would've been too leveraged for EIB participation. Now we'll be a big part of a project that will bring 39 MW and greater security of supply to two Austrian regions.

EFSI also backed a EUR 100 million loan in December to a semi-private company that renovates old apartment buildings in the Paris region. Énergies POSIT'IF met the criteria for an EFSI loan because it filled a market gap in bank financing for the renovation of condominium housing. Before this deal, Énergies POSIT'IF staff had to negotiate separate loan agreements for every single owner in a massive condominium with commercial banks—which were not terribly interested in making loans to the sector anyway.

Now the company can offer condo owners attractive financing quickly and easily, allowing it to renovate many more apartments in a shorter time. That is important in the Paris region, where three-quarters of the homes are either condominiums or social housing. Paris apartments built in the Sixties and Seventies—before the oil shock prompted energy efficiency regulations—simply leak heat. Énergies POSIT'IF renovations can save those buildings up to 75% of energy use.

The EIB's role here is not just to hand out cash. The Bank facilitates projects that might otherwise not be funded at all. It helps projects work faster and therefore cut energy bills sooner. We also constantly refine our methodology for calculating the cost-benefit of security of supply projects to be certain they provide a good deal for consumers. The benefit to EU citizens, after all, is the bottom line for us.

# “The role of Investment in a European Energy Strategy”



**Markus FERBER**

MEP (EPP), Vice-Chair of ECON Committee

**F**inance is key. This is not only true for the energy sector, but for projects of all kinds. Without sufficient funding even the smartest and most promising ideas will not materialise. The European Union’s ambitious agenda in the area of the Energy Union and the efforts necessary to achieve the EU’s targets to tackle climate change are certainly of a transformative scale. Such a project needs continuous and substantial efforts.

And obviously, implementing such a project does not come for free. On the contrary, it will require a considerable amount of funding by everyone involved – by the European Union, by Member States and by private actors alike. In order to get an idea of the scale of the project it is worthwhile to note that according to Commission estimates around €100 billion is needed per year to meet the EU’s 2020 energy efficiency objectives – and this is only one specific aspect of the European Energy Strategy. Reaching all the ambitious objectives would arguably require a multiple of this amount.

The magnitude of the task therefore has to be matched with an adequate degree of financial firepower. In order to fund and implement the Energy Union a range of options from various EU programmes including Horizon 2020, Connecting European Facility, the European Energy Efficiency Fund, the European Fund for Strategic Investments, regular EIB funding

and others will be available. However, even this broad range of public funding options will eventually not be enough to finance the entire European Energy Strategy. Member States however, while certainly expected to contribute, will not be able to make up the difference. Given the tight budgetary situations many Member States are in, now is not the time for big public expenditure programs.

So how to make sure that the ambition of the European Energy Strategy is actually matched by its implementation? Unlocking private capital will be one of the key aspects to consider. One of the biggest potential sources of such funding is the insurance sector, which has assets in excess of €9 trillion under management. Considering the long maturities of most insurance contracts and the current level of ultra-low yields that are achievable in most standard asset classes, the insurance sector seems to be the perfect partner to finance the Energy Union. Infrastructure projects as required by the Energy Union have long maturities, are a comparatively safe asset class and deliver a predictable and stable return over time – this is basically just what large institutional investors look for.

However, securities issued to finance such projects currently often come with unfavourable capital requirements for banks and insurers alike. Changing this prudential framework by amending the relevant framework within Basel III and Solvency II with a couple of targeted changes would therefore kill two birds with one stone: getting vital projects of the Energy Union on the way and providing insurers with safe and predictable asset class to invest surplus cash in.

But the Energy Union is not only about empowering institutional investors. Many of the most innovative projects in the area of energy efficiency, sustainability and decarbonisation start on a very small scale and first make a difference on a local level – but they have the potential to spread. In order to allow such a bottom-up-approach to take off, those innovative companies need financing too. And this becomes even more of an issue if such a project has proven to be successful and is likely to be scaled up. In this context, the Energy Union project has some important ties to the Capital Markets Union which aims at

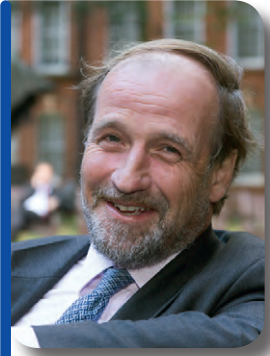
better interlinking European capital markets, improving their efficiency and transparency as well as opening up more financing options for smaller companies.

To provide smaller companies with the necessary toolkit to innovate, develop and scale up cutting-edge technology that helps making the Energy Union a reality, implementing the Capital Markets Union will be a key requirement. The top priority will be to lower the costs and administrative burdens for smaller companies to access capital markets. MiFID II has already paved the way by setting up a new type of trading venue dedicated to smaller entities. The next step should be to streamline the approval procedures for smaller entities and frequent issuers in the context of the revision of the prospectus directive. Furthermore, while more traditional ways of financing such as bank lending need strengthening, new ways of financing such as peer-to-peer-lending and crowdfunding need to be given a proper legislative framework.

Only if the financing framework for the European economy is futureproof, the Energy Union will be able to really kick-off. This notion, however, hints at a bigger idea, namely that European policy often needs a more holistic approach as there are strong links between various policy areas – and very often finance is at the heart of it.



# Nord Stream 2 – the route to a “greener”, more prosperous Europe



**Philip LAMBERT**  
CEO, Lambert Energy Advisory Ltd.

For 50 years, Russia and Europe have had a close, mutually beneficial relationship as leading gas exporter and leading gas customer. For 50 years, Europe has experienced unprecedented levels of economic prosperity and relative peace. Whilst it is impossible, empirically, to see cause and effect between these two historical facts, even the most caustic anti-gas, or anti-Russian sceptic will find it hard to deny the huge benefits for Europe of having a neighbour exporting vast amounts of relatively cheap energy, reliably day after day (17,500 days to be precise) into Europe’s economic base, both at residential, industrial and power generation customer level.

Energy input is the lifeblood today of any economy. Without affordable competitive energy sources, Europe’s economies will very quickly “lose ground” to other national economies with more affordable energy input. How does Europe compete effectively with the giant US economy with coal/gas input today at an energy equivalent price of under \$20 per barrel? How does Europe compete today with China, India etc. fed by coal at record low prices? How does Europe, in time, compete with the Middle East economies sitting on vast low cost gas reserves? “Losing ground” means losing cost advantage, losing competitive edge, losing millions of actual and potential jobs, losing tax revenue from economic activity to fund Europe’s welfare state structure etc.

Into a challenging scenario for Europe’s economic future, Europe’s longest standing and largest supplier of “affordable energy”, Russia, is now offering to build a huge new “energy motorway” directly into Germany, namely Nord Stream 2. This motorway will be filled with gas from, arguably, Europe’s cheapest source of non-coal energy, namely gas from Russia’s West Siberia heartland which can be sustainably and commercially exported at a price of \$5-6 per mcf (\$30-36 per barrel oil equivalent). This, in our view, is at least \$2-3 per mcf lower than US LNG will have to charge over a 10-15 year period to be viable.

“Europe’s economy could reduce its energy cost bill by up to \$40 billion over the next 10 years if Nord Stream 2 was built and used at full optimisation and yet many European leaders want it stopped!”

Moreover, as with Nord Stream 1, this project is a tangible Russian response to Europe’s concerns that the reliability of Russian gas had been questioned by the deteriorating Russia/Ukraine relationship over many years. Europe’s anti-gas and anti-Russian lobby chants over and over again that “Russian gas is unreliable, indeed all gas is unreliable, so let’s build more home-grown windfarms!” Yet Russia in nearly 50 years has only earned the sobriquet “unreliable” for two sad weeks when Ukraine/Russia tension boiled over. “2 weeks off, 2500 weeks on” sounds to me like the definition of reliability! This project will be funded, not by European citizens, already overburdened by the huge emerging cost of renewable subsidies, but as a commercial project by Gazprom and its cohort of European partners. Indeed, this project, like

“Nord Stream 1 is one of the most collaborative cross-border industrial partnerships ever seen,”

with Anglo/Dutch, German, Austrian and French participants invited to be main participants in various parts of this flagship, integrated Russian/European project.

And yet, rather than seeing Nord Stream 2 as a potential stimulus to Europe’s economy, burdened increasingly by unaffordable energy and other costs, Nord Stream’s opponents want to stop it and staunch the flow of affordable Russian energy into the European

economic bloodstream. Who benefits from such a decision? Various US and Asian industrial manufacturers will rub their hands with glee as European industrial competitors lose market share to areas with cheaper energy costs. The US and Middle East LNG exporters will rub their hands merrily as Russia, the lowest cost gas exporting competitor into Europe, is curbed. The heavily subsidised European renewable and nuclear industry will cheer as their main competitor (i.e. natural gas led by Russia) is again victimised. East European countries may cheer if their traditional income of billions of dollars over many years from Russia-Ukraine-Europe transit fees is preserved and their old coal industries are propped up.

Who suffers if Nord Stream 2 is abandoned? Ironically Europe’s environment and carbon targets may be the biggest victim, because

“110 bcm of gas flowing every year via Nord Stream 1 and 2 into Germany and East/NW Europe would be the quickest, most certain way of replacing “dirty, carbon-rich” coal in the European power system”

with reliable gas supply emitting no SO<sub>2</sub>, no polluting particulates and relatively small carbon.

Before Nord Stream 2 is killed, Europe’s politicians must confront three inconvenient truths - firstly that you cannot shut down one baseload power source, i.e. coal-fired, with intermittent renewables (until large scale battery storage technology dramatically improves). Baseload source must replace baseload source which means “coal to gas” or “coal to nuclear”, otherwise Europe’s electricity system may catastrophically fail sooner than expected. Secondly, Nord Stream 1 and 2, alongside Norway’s gas machine would quickly displace Europe’s remaining coal use and would possibly be the fastest solutions for reducing Europe’s carbon and other pollutant emissions. Thirdly, killing Nord Stream 2 and thereby denying hundreds of millions of European citizens access to Europe’s cheapest, large scale “clean energy source” will inflict unnecessary impoverishment economically both on Europe’s industrial base and its hard pressed citizens. Is that sensible or defensible?

# The importance of a cooperation with Russia



**Patrizia TOIA**

MEP (S&D),  
Vice-President of the ITRE Committee

Let's start with a fact: Russia is our neighbour, it has always been our neighbour and, whether we like it or not, it will always be. You can't change geography. The only thing you can change is the kind of relationship you have with your neighbour. We should know this, as Europeans, because our Nations fought each other for centuries until we realized that, since we can't change geography, peace is better than war and economic cooperation is better than a mutual distrust that doesn't benefit anyone.

We realized that following the horrors of the Second World War and we found that energy could be the first stone of an economic cooperation to build a community of peace. That's why in 1951 leaders from 6 European countries created the European Coal and Steel Community. It was not because they fell in love with each other overnight, but because they recognised they had a common economic interest in cooperating and integrating their energy markets, therefore reducing costs and achieving economies of scale. With cooperation came greater trust and with greater trust came more cooperation. Today in our relationship with Russia we don't have to start from scratch. Today Russia is already our economic partner in many sectors and above all on energy. Even if we come from decades of cold war and even if we have several disagreements with Russian leadership, this big country is still one of our main economic

partners and our economies are interdependent. Russia is the EU's biggest neighbour and its third biggest trading partner. This is not the problem, this is the solution. The level of economic interdependence that we have in the energy sector is a blessing and is our best protection against the risk that our disagreements with Moscow will lead us to a military conflict. As we have seen in the case of the Ukrainian conflict, economic sanctions are the first tool to turn to in case of diplomatic tensions. I am confident that in the future Europe and Russia will be able to find common solutions and restore a full economic cooperation to the benefit of everyone. But all this should make us think on our goals in the energy sector and in the cooperation with Russia. Diversifying the energy sources and supplies is a wise goal because that makes Europe safer and more stable. We cannot depend on one single energy source or on one single country, namely Russia, for energy supplies. But we have to be aware the Russia will still be our economic partner and our energy supplier for many years and this is a good thing. The EU imports a significant amount of oil, natural gas, uranium, and coal from Russia. At the same time, the EU also serves as an important energy market for Russia. In February 2011, the European Commission and the Russian government agreed to establish a long-term perspective to their mutual energy relations. Today more than 10,000 EU and Russian companies are developing activities in each other's markets, creating the firm basis for a positive interdependency. The experience on the ground would indicate that energy companies over the past ten years have often been ahead of their respective governments in establishing relations by advancing commercial ties at industrial level, thereby strengthening energy cooperation and security in Europe and contributing to the further economic integration of our subcontinent. The EU set a strategic target to achieve by 2050 a Pan-European Energy Space, with a functioning integrated network infrastructure, with open, transparent, efficient and competitive markets, making the necessary contribution to ensuring energy security and reaching the sustainable development goals of the EU and Russia. Such a result would have vast economic and political consequences. It would improve the energy security of the EU and Russia, and strengthen their positions on the global

energy market. According to current forecasts, natural gas will play an increasingly important role in the global energy economy. Russia is the world's largest producer and exporter of natural gas and, together with Saudi Arabia, also the largest producer and exporter of oil. Russia possesses more than 20% of the world's known gas reserves and 5% of proven oil reserves. By IEA projections, Russia will be the world largest gas producer in 2035 and make the largest contribution to supply growth over the projection period.

That's the scenario that we have to keep in mind when we discuss our economic and energy cooperation with Russia. So, together with economic sanctions and the demand to respect international law, we have to find ways to overcome our disagreements with Russia and, when there will be the right conditions, to launch initiatives to increase our economic and political cooperation with Moscow. A new EU-Russia agreement is still our strategic goal and we have to make sure that this new agreement include substantive, legally binding commitments in all areas of the partnership, underling the importance of human rights and civil and political liberties. We have to be able to look beyond the international tensions of today as they did the our fathers when they started the energy cooperation in Europe and build the conditions for a more stable relationship with Russia.

# Security of transit is indispensable part of energy security for 21<sup>st</sup> century



**Dr. URBAN RUSNÁK**

*Secretary General, Energy Charter Secretariat*

A global energy sector which relies on investments with sometimes multi-decade repayment conditions and long-term, fixed contract terms (for natural gas, particularly) is now dealing with rapid technological advances, COP21 and the complete paradigm change it entails, and transit security issues both old and new, such as piracy or pipeline flows disruptions, emergence of LNG trade, and ever growing cross-border grid connections. As such, traditional, typically bilateral diplomatic relations and trade agreements are becoming less and less adequate. It is widely accepted that global energy understanding should evolve as well. The energy investment required to fulfil COP21 objectives, for instance, is of such a enormous scale and involves so many diverse countries and regulatory regimes that multilateral frameworks must be adopted in order to meet the challenge in time.

The Energy Charter Process is one such multilateral framework. It involves the initial European Energy Charter declaration (1991), a legally binding Treaty (1998), complemented by a new political declaration, the International Energy Charter, which was signed in 2015 by 72 countries plus the EU, Euratom and ECOWAS. Adoption of the International Energy Charter is part of a modernisation effort the Charter Process is going through, with the express intent of updating it for the challenges of the 21<sup>st</sup> century. The Charter

Process is complementary to the Energy Union concept and provides partners with level playing field based on European born values and principles but applicable worldwide.

As the Secretary General of the Charter's Secretariat, I would like to highlight four key pillars of energy security: security of supply, demand, transit/transportation, and the elimination of energy poverty. This approach attempts to develop a more holistic understanding of the energy challenges faced today, focusing on all aspects and countries involved, instead of the more consumer-focused attitudes traditionally seen in the West. Energy diplomats, understandably, usually focus on the needs of their own country depending on the place in energy value chain, and see energy security and the balance of supply and demand through this lens. More and more, however, this is proving to be inadequate to deal with the rapidly evolving global situation. The world needs a common understanding of energy security that addresses the needs of all: producing countries, consuming countries, transiting countries, and the citizens (final consumers) in all of them that need stable and affordable energy supplies.

The concerns of transiting countries bear particular attention. Policymakers are usually focused on producers and consumers though events like the Ukraine-Russia crises of 2006 or 2009 have drawn attention to those in the middle. To this end, the Energy Charter constituency has been working to develop the 'transit' aspect of the four pillars of the energy security. Article 7 of the Treaty has always contained basic rules, such as provisions regarding favourable treatment and the principle of freedom of transit, but these are not always enough for complicated, modern situations. With this in mind, recently new work has been done on suggesting a scope for a Multilateral Framework Agreement on Energy Transit, a process which was originally started in 2000 in the form of a Transit Protocol, but has since been fundamentally re-envisaged. The original discussions were primarily centred on gas transit, while the new discussions are applicable to electricity, oil, and other energy flows—both seaborne and via fixed infrastructure.

In 2013 the idea of a universal transit agreement was given new impetus by United Nations General Assembly Resolution No. 67/263 "On reliable and stable transit of energy and its role in ensuring sustainable development and international cooperation", which was sponsored by Turkmenistan and adopted by 72 states. A series of meetings hosted by the Charter and Turkmenistan were held to discuss the reliable and stable transit of energy. If successful, this agreement would clarify complicated transit situations, with ample benefits for investment climates. Stakeholders also hope that it will facilitate stable and robust energy grids that are critical to climate change efforts, as interconnections with a wide variety of neighbours are important to transitioning to a modern energy mix.

Ultimately, these initiatives will succeed or failed based on the changing goals of energy diplomacy. Countries, and their diplomats, have historically preferred bilateral agreements, which do allow for greater control and specificity of trade provisions. This approach has worked since energy diplomacy began, but may be becoming inadequate. Patchwork bilateral agreements can lead to overly complicated situations and opportunities for electricity grids to be massively streamlined. Bilateral agreements also do not work well at resolving the international issues that result from sudden crises, such as in Ukraine.

Finally, and most importantly, bilateral deals may simply be too slow to address COP21 commitments. The massive scale of renewable and efficiency investments needed will be hampered by inadequate and/or missing investment frameworks. For better or worse, the private sector will be needed to develop infrastructure around the world, and the process will be far faster and streamlined with common, clear rules and regulations. Hopefully countries and diplomats will look towards this bigger picture, and work towards developing a common notion of energy security that works for us all.



# Funding the energy and ecological transition: the commitment of banks and national public financial institutions (NPBI)



**Laurent ZYLBERBERG**

*Caisse des Dépôts Group – Senior Executive Vice-president, Public, International and European Affairs*

The transition towards a carbon neutral economy is one of the main challenges facing our societies. The challenge, defined by the Paris Agreement on Climate (COP21), is to achieve, by the second half of the 21st century, a world which does not emit more greenhouse gases than we are capable of sequestering. To get there, we need to set up a virtuous cycle combining less energy consumption, less greenhouse gas emissions, more sustainable growth and greater social equality. We must do this within time, financial and budgetary constraints.

Tackling the imbalance in the climate system involves changing socio-economic environment. Each part of society is called upon to act. The financial sector obviously has to move forward. As a long-term investor, we are fully committed to this responsibility.

The transition towards a low-carbon economy requires considerable levels of investment, circa €60B per year for France alone. It is mainly about substituting these investments with those that are made today (whether it is about renovating real-estate, renewable energy infrastructure, heat networks or clean transport). Moreover, the difficulty lies in the fact that they target a large number of items, most often to be conducted on a local scale, as the United Nations Development Programme suggests.

**Within the financial sector, the banks and national public financial institutions (NPBI), which keep a long-term perspective in their management plans, are key stakeholders.**

These stakeholders stand out via their capacity to carry risk over the long term and to preserve assets in a portfolio during a crisis period, therefore playing a countercyclical role on the financial markets. They are also able to pool the risks between generations and therefore, to act on the crucial factors for growth. Our contribution is significant as it triggers a strong leverage effect on the economy.

We, Caisse des Dépôts, have decided to put on the top of our priorities the Ecological and Energy Transition.

**The Caisse des Dépôts group, a long-term investor devoted to France's economic development.**

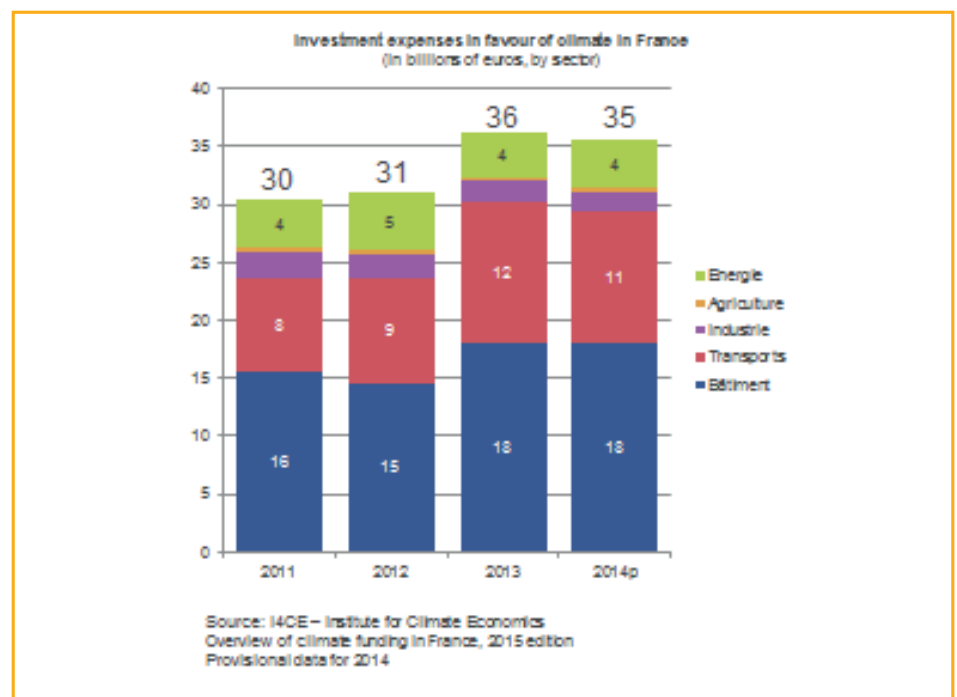
As an institutional and long-term investor, Caisse des Dépôts, with its long-standing commitment to the transition towards a low

carbon economy, has now established it as a strategic priority. As a comprehensive commitment, we mobilize all our means of actions.

Therefore, we give a strong priority to funding towards low carbon projects such as mobility and the sustainable city, renewable energy production, storage and smart energy grids, energy efficiency solutions for real-estate and industry, or support for companies in the ecological and energy transition. €15B will be earmarked to these projects between 2014 and 2017. After those three years, we will assess these commitments in order to set a new target for the 2018-2020 period.

It is also under this commitment that the Caisse des Dépôts group is reducing the carbon footprint of its investment portfolios:

- a 38% reduction in the energy consumption of its real-estate investment portfolio held in fee simple by 2030;
- investments in infrastructure with endorsement, in 2016, of a new dedicated strategy;
- investments in companies with a 20% reduction between 2015 and 2020 in carbon emissions generated by their portfolio of shares.



The group has also decided to gradually put a stop to its funding of the coal sector.

Lastly, the Caisse des Dépôts group is integrating climate and energy performance challenges into its shareholder dialogue, in order to encourage companies to have greater transparency and better environmental performance.

### The essential cooperation between long-term investors

The challenge requires a long-term vision and a resolute commitment to international cooperation.

In this regard, Caisse des Dépôts et Consignations is a key stakeholder of two transnational funds - "Marguerite" for sustainable infrastructure in Europe and its Mediterranean equivalent, "InfraMed" - which are examples of joint action of long-term investors at the service of sustainable growth.

Twenty five of these long-term investors, members of the European association of Long-Term Investors (ELTI), representing total assets of €2,200B, recently stated, in a shared declaration, that they recognise the risk that climate change represents and also the opportunities of the transition towards a low carbon economy. They have committed, by 2020, to measuring, publishing and growing their funding levels of the transition towards a low carbon economy, one which is more resilient to climate change, and to strengthening their actions to develop innovative funding instruments encouraging climate targets, as well as to ensuring that the carbon intensity of their asset portfolios are limited, to strengthening the climatic resilience of their investments and to encouraging companies which they invest in to integrate environmental and social impacts.

Lastly, they are choosing to make their action consistent with the "Five voluntary principles to integrate climate action within financial institutions".

The commitment of the NPBl will not be enough on its own to succeed in the ecological and energy transition. Yet we are convinced that we must not only participate in it, but also contribute to accelerating it. As it has been the case since its creation, 200 years ago, Caisse des Dépôts serves the public interest by taking into account the sustainable and long-term dimension in its projects and commitments.



*The 288 MW Butendiek Offshore Wind Farm, located in the North-Sea (Germany), co-financed by the 2020 European Fund for Energy, Climate Change and Infrastructure ("Marguerite")*



*The Toul-Rosières photovoltaic power plants, located in Lorraine (France), co-financed by the 2020 European Fund for Energy, Climate Change and Infrastructure ("Marguerite") - crédits : Pierre Gerbeaud*

# How to achieve a European Energy Policy



**Françoise GROSSETÊTE**  
MEP, Vice-President of the EPP Group

**D**isconnected and parcelled out, the current common energy policy offers major room for improvement. The energy union initiative, launched by the European Commission on 25 February 2015, is currently in its early stages. The objective now is to build a strong, integrated and consistent energy market. It goes without saying that such objective could only be met if all stakeholders from member states to the European institutions took actively part in those policies. To pave the way for the energy union, one may argue that it is necessary to think in a holistic way.

First and foremost, there is a need to adopt a holistic approach from a geographical point of view. It is of major importance to put an end to the coexistence of 28 different national regulatory frameworks in the field of energy policy. History has proved that convergence, coordination and harmonization of practices could deliver growth and employment, reduce the costs for businesses and citizens and create economies of scales.

One may hence create incentives for member states to act collectively instead of individually. Stressing the benefits of an internal energy market could be a first step in that direction. In actual fact, the diversity of energy sources in the European Union is an extraordinary opportunity for the member states to develop such a market by linking

the supply and demand sides of energies throughout the European Union so as to increase their energy independence.

In addition to incentives, there is also a need to use other policy tools to promote harmonization and cooperation between the 28. In this regard, the European Parliament should play a leading role in favouring better and stronger governance in terms of energy policy. The Parliament should give the impetus to the move from a fragmented and divided Europe to a coordinated system. The Parliament should also ensure that all member states take an active part in this policy and contribute to achieve globally defined objectives and targets. Other European institutions should also play a vital role in the implementation phase of the rules related to the energy union. Non-compliance, incorrect and late transposition of norms are major issues that need to be addressed by the European Commission.

Finally, another tool that could be used is through fostering the exchange of best practices and experiences and across the setting of benchmarks that could lead to the development of new synergies between the member states.

A holistic approach should also be developed from a politic standpoint. In order to give more chance to the energy policy to fulfil its objectives and to create incentives for member states to be actively involved in the energy union, it is of major importance to create connections with other policy areas. This is the case with the Emissions Trading System (ETS), a policy already in place since 2005 and that need to be further developed in the framework of the Energy Union to reduce emissions in line with our international commitments and which could be a tool to urge businesses to resort to low carbon technologies.

It is also necessary to put the latest technological developments such as the information and communication technologies at the service of the achievement of the energy union. The 28 should also be involved in European research projects. For instance, the ITER energy project could be a chance for the EU to be at the cutting edge of energy developments by building the world's largest

magnetic fusion device in order to use fusion as a new source of energy.

Thirdly, the European energy policy needs to be considered holistically in terms of sources of energies. A better integration of renewable sources of energy is necessary to deliver better results and to meet the carbon reduction targets. To do so, there is a need to build smart grids which interconnect all sources of energies.

Finally, one may stress holistic tools to achieve a common energy policy in the European Union. EU instruments should be in addition more focused and coherent. There is an urgent need for instance to address the fragmentation issue between private and public funds dedicated to research and development in the field of energy. The target priority should be infrastructure projects and cross-border projects that would contribute to market integration and security of supply.

Broadening our views in the energy policy would be the unique way to increase the competitiveness of the EU regarding energy. We, as a Union, need to act altogether for delivering to the European citizens a more efficient network and consequently energy security and to respect our commitments in terms of emission reduction without giving away our competitiveness.



# Towards 2040 climate policies and geopolitics will determine the global energy mix



**Eirik WÆRNES**

SVP and Chief Economist, Statoil

**T**he Paris climate agreement can be realized, but that requires new measures and much faster changes than we have seen so far. Towards 2040 the world will need a lot of renewable energy. Considerable investments in new production of oil and gas are also necessary to replace falling production from existing fields.

This is outlined in Statoil's Energy Perspectives report that was presented on June 9<sup>th</sup>. Statoil's annual Energy Perspectives report describes how the world economy, international energy markets and energy-related greenhouse gas emissions could develop, by means of three different scenarios: Reform, Renewal and Rivalry.

Irrespective of the scenario the analysis reveals a need for major investments within the whole energy sector – both in oil, gas, renewables, energy infrastructure and energy storage towards 2040.

It follows that global policy frameworks conducive of global energy system investments is key in addressing the twin challenge of tackling climate change and underpin the prosperity and improvement in living conditions necessary to safeguard security and stability worldwide.

## Three scenarios of the future – Three future worlds

The Reform scenario in this year's report is based on the national climate contributions

(the NDCs) of the Paris agreement (COP21), with further restrictive measures in the energy and climate policies over time. Energy related emissions consistent with the 2-degree target will not be reached in this scenario.

The scenario outlining a more ambitious energy and climate goals is Renewal, which notably assumes that nine out of 10 new private cars sold in 2040 will be plug-in hybrids or electric cars. It also assumes a transformation in the electricity sector, where sun and wind will account for around 40% of the global electricity generation in 2040, compared to the current 5%. In this scenario the oil and gas demand will be somewhat lower than the current level. The 2-degree target is met in this scenario, however as the Intergovernmental Panel on Climate Change is currently evaluating implications from the commitment in the Paris Agreement to pursue efforts to limit the temperature increase to 1.5°C with view to release a report only in 2018, it does not include speculations about policy measures needed to further limit temperature rises.

The third scenario, Rivalry, is more impacted by geopolitical conflict and larger differences in regional developments, both with regard to economic progress and transformation of the energy systems.

Geopolitics and prospects of global climate policy solutions are naturally closely interlinked, but their pathways are seen to differ quite significantly in the three scenarios. The follow-up to the Paris Agreement broadly and the COP 22 specifically as well as the speed at which the ratification process is progressing are important signposts in determining which scenario that will eventually play out.

## In the face of global uncertainties the industry must go on the offensive

So, if these scenarios describes the challenges, what are the solutions? The responsibility of Statoil and the energy industry is to square up to these new realities. As a company we have an ambition to actively shape the future of energy. This is also why we, in the words of our CEO Eldar Sætre, see "the Paris climate agreement as an important starting point for necessary changes, but not sufficient". Companies such as

Statoil will need to be a driving force for introducing stronger measures conducive of faster change, both being vital to provide the energy that the world needs in a sustainable manner.

Our oil and gas production has half the carbon intensity of the industry average and we are raising our ambitions to maintain our leading position combined with a gradual development of a profitable business in renewable energy and other low-carbon solutions, Statoil will be well placed to stay an important international energy provider also in a low-carbon future. Statoil is readying itself to lead and trail the transformation of our industry in embracing simplification, standardization – but also innovation – to lower both costs and emissions from our conventional oil & gas business, and ensure we make best use of transfer of technology and competences to new areas; be it offshore wind, CCS value chains, or GHG emission detection and management.

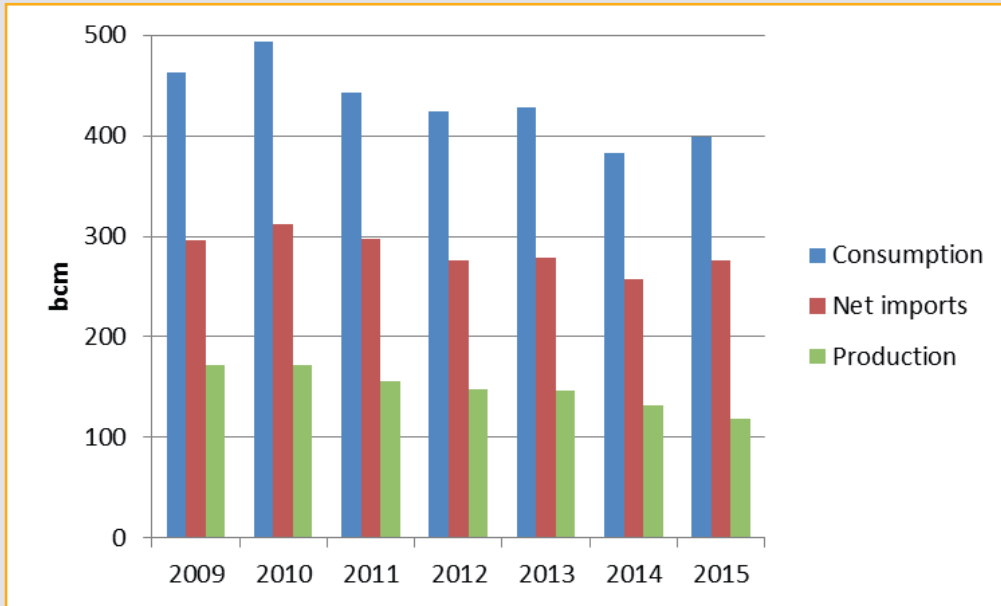
## And so must governments

Without doubt, most of the job of transforming our energy systems has to be done by business and consumers. But governments play a crucial role in setting the course through effective policies. In today's context, perhaps more than ever before, energy security depends on a carefully crafted and multidimensional policy response. Nonetheless we observe that links between energy, climate, foreign policy and hard security are often not so well aligned and there is a real risk that policy makers are trapped in silos. Agreeing on effective measures is significantly more difficult than agreeing on targets. Our recommendation is for policy makers to be more active, strategically coherent and long-term in their thinking, and to encourage greater dialogue between the defense, foreign and energy policy communities within governments. At the EU level, we hope that the EU Global Strategy will enable a more cohesive EU energy diplomacy and provide a long-term vision for the external dimension of the EU's Energy Union project.

Statoil Energy Perspectives 2016 is available to download on [www.statoil.com/energyperspectives](http://www.statoil.com/energyperspectives)

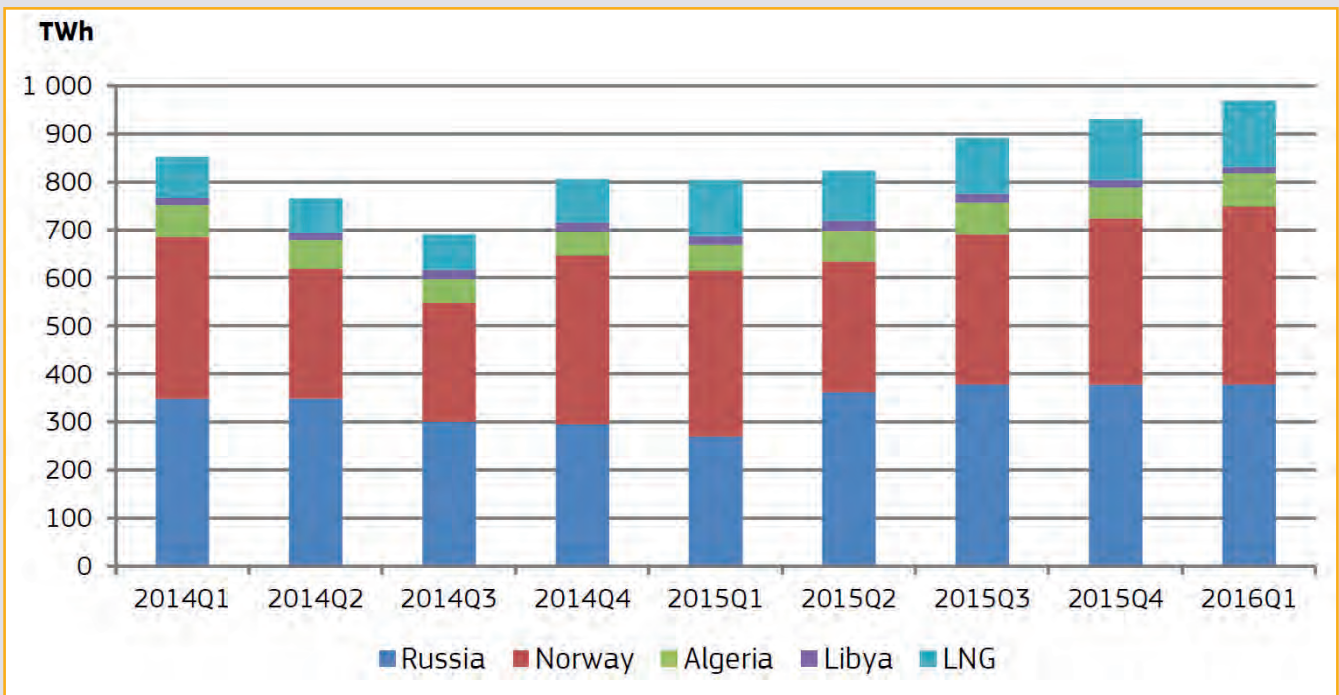
Key gas market data

# EU consumption, production and net imports of gas



Source: Eurostat

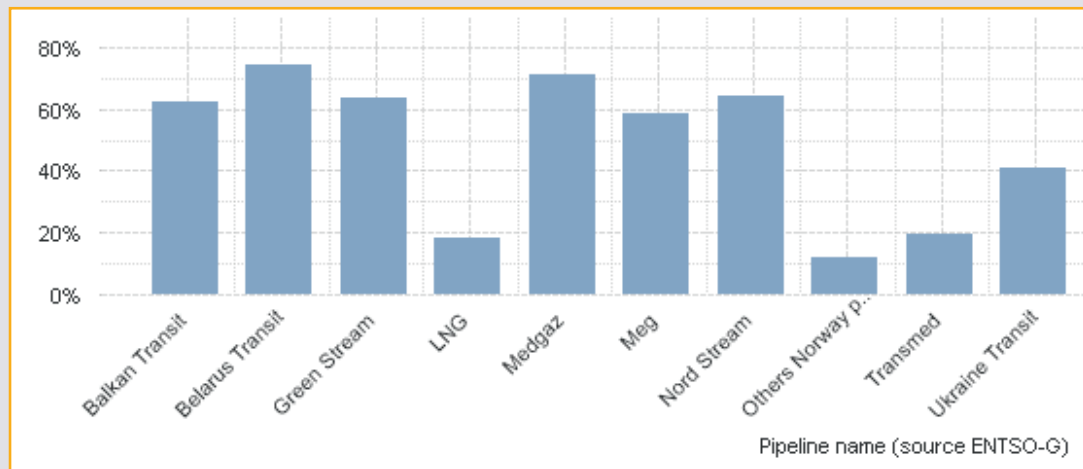
# EU imports of natural gas by source, 2014-2016



Source: Based on data from the ENTSO-G Transparency Platform



## Gas imports key pipeline capacity usage, 2015





# “The road out of darkness and into the light: electrifying Africa”



**Jean-Louis BORLOO**

*Former French Minister & President of Energies for Africa*

After retrieving from the national political life in France in 2014, I took my pilgrim’s staff and traveled across Africa for more than a year and flew over 750 000 kilometers to meet with Africans to discuss their prime source of worries: access to energy and, more specifically, access to electricity.

Energy, or more precisely, clean energy, has been at the center of my work, especially since I was Minister of Ecology, Energy,

Transportation, Sustainable Development and Seas, in charge of Green technologies and Climate negotiations. I was very proud to create the Grenelle of Environment during this time, allowing for a national multi-parties dialogue on the green transition in the French economy.

Creating Energies for Africa became an obvious commitment to achieve the most ambitious and life changing global plan: a Marshall plan for Africa to allow billions of people to access clean, renewable, and sustainable energy on the widest and richest for its natural resources continent on Earth.

Over a year ago, we launched the organization to promote a Growth and Peace plan for Africa, source of a second independence for the subsaharan States. From a 25% access to electricity today, we aim at reaching 80% in 10 years through public and private funding using a Fund of Support to Electrification in Africa.

## Access to electricity, the first fundamental right of all

Electrifying the African continent represents the priority of the 21st Century: today, three out of four children do not have access to electricity while, by the year 2050, Africa will account for 2 billion inhabitants including two thirds under 25 years-old, an unequalled

potential on the History of human resources and climate migrants, on the land of the first reservoir of the world’s greatest natural resources.

Electricity is the pre-requisite to other fundamental rights: access to water, drinking water, education, training, health, employment, etc.

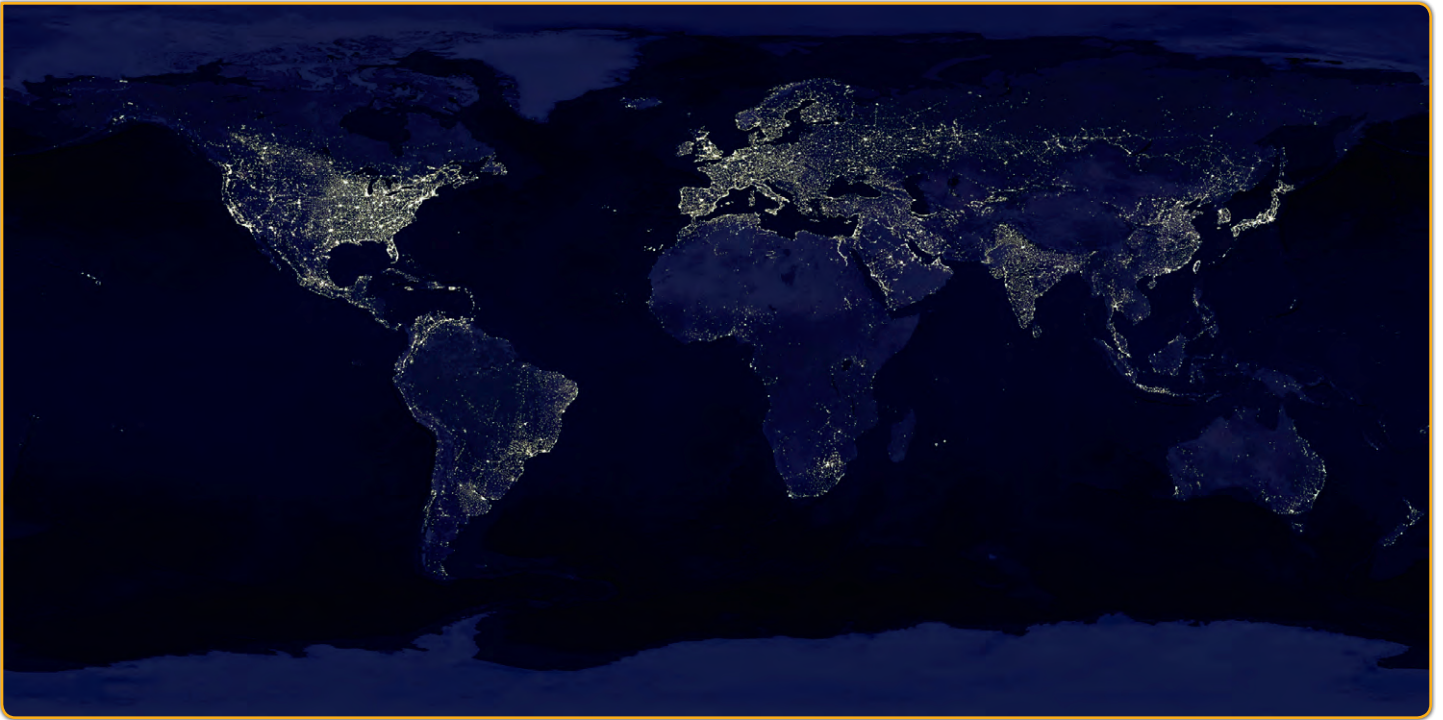
700 million Africans are today without electricity on a continent accounting for 800 million cell-phones, meaning 800 million potential journalists. 800 million upcoming journalists hold the power to change the face of society and the course of History. They have the ability to shake regimes and disrupt political immobilism as we witnessed over the course of History.

By the year 2030, there will be 1.3 billion inhabitants without electricity. Fourteen kilometers away from its borders, Europe is worried about the growing massive flows of migrants. The African youth migrates towards the points of light because they know a better future exists and is reachable. A massive electrification plan on the entire continent will allow Africans to respond to the challenges of urbanization, work-force, growth, etc.

The absence of light allows obscurantism and risks and destabilization factors. We must bring the young answers against terrorism and a global plan on a continental scale. Electrification represents the first key toward

*Meeting between Martin Schulz, President of the European Parliament, and a delegation of panafrikan parliamentaries and their President, Roger N’Kodo Dang (third from the left) at the European Parliament in Brussels, 19 April 2016, with Jean-Louis Borloo*





development. Africa will be either our greatest failure or our greatest chance: the Subsaharan continent represents an incredible potential of development.

### Building the first sustainable continent of Humanity

Africa is the continent first victim of climate change while it only emits 3 to 4% of the world's CO<sub>2</sub> emissions. Access to clean energies in Africa represents a major issue of our Century. In the next decades, Africa will account for over 2 billion inhabitants with a doubling urban population. Given no other option, Africa will massively industrialize to answer the new growing needs of its population.

The CO<sub>2</sub> emissions will then be outrageously damaging for the planet while Africa hosts the most stable wind, the widest solar exposure, and the most powerful hydropower in the world. Major source of the natural resources still available on the planet, subsaharan Africa represents our best chance to develop and improve existing clean and green technics to create energy.

If the cost of the green transition in industrialized countries is prohibitive, Africa would not be facing such challenges as the infrastructures would be emerging with the new technologies.

### A dedicated and unique tool: a Fund of Support to Electrification in Africa

Supporting the creation of the first sustainable continent of Humanity requires a

Fund of Support to Electrification in Africa, a repository of international funding in favor of climate and reduction of CO<sub>2</sub> emissions from industrialized countries, as well as a dedicated tool to develop sustainable and renewable energy sources. This specific tool will benefit from public free funds (loans), start-up for private funding (credits, loans, insurance, etc).

Gathering the efforts today active in electrifying Africa is necessary to end the cycle of a spread and ineffective development aid. Pooling the efforts of the different actors would empower each individual initiative: Sustainable Energy for All, Power Africa, ElectrIFI, Africa Renewable Energy Initiative, etc.

Partnerships between Africa and the main developed countries represent a win-win cooperation. Europe would be the first beneficiary of such collaboration in terms of growth, migrations, work-force, technologies exchanges, etc.

Europe has a clear role to play in the most important challenge of our Century. And Africans are expecting it to measure up to the challenge at stake.

### The next steps

This initiative received a large support, source of its legitimacy, since the beginning of 2015: the unanimous vote of the fifty-four Heads of State on June 15th 2015 during the Summit of the African union, the unanimous recommendation of the Panafrican Parliament on October 7th 2015, the letter addressed by thirty-three African Heads of State to the President of the COP21 in December, the commitment of the French President to support this plan in response, the vote before

the French National Assembly and Senate, the declaration of the G20, the New Commitments of the Millennium, the notification of electricity as a universal right in the final text of the COP21, the commitment of France to 6 billion euros in development aid including two for energy (meeting of December 1st in Paris), the European Fund of Valetta (Malta Summit, November 12th 2015), and finally the nomination of President Alpha Condé of the Republic of Guinea as spokesperson for the African continent in the matter of electricity.

The 22nd Convention of the United Nations is taking place during a strategic period in the History of UN Climate Conventions: one year after the COP21 in Paris. During the Paris COP, 150 Heads of State and Governments honored the opening ceremony: the Paris Agreement defines very general goals, which allowed for its success.

We managed to include in the preamble of the text signed on December 12th 2015 the following paragraph: "considering the necessity to promote universal access to sustainable energy in developing countries, and especially in Africa, by reinforcing the implementation, of renewable energies".

The COP22 must be the COP of solutions: we must act at implementing the commitments taken by the States in Paris and allow the creation of the Fund of Support to Electrification in Africa. The COP22 in Marrakech is the COP in Africa, for Africa, by Africa.



# Europe energy diplomacy: look south!



**Gilles PARGNEAUX**

*MEP (S&D), Vice-Chair of the ENVI Committee & DMAS Delegation*

Energy security is now a top priority for all main geographic blocs in the world. As a matter of fact, Europe is highly dependent on foreign imports; 65% of its consumption comes from outside sources: Russia (27%), Norway (21%), Algeria (8%) and Qatar (5%). Some EU member states such as Austria, Slovenia, Hungary or Finland are even 100% reliable on Russian gas imports.

Here electricity access and political pressure are closely linked. It is for these reasons that the EU Energy proposed by the European Commission is seeking to diversify energy sources in Europe. In this context, we must realize that one of our biggest opportunities is on the other side of the Mediterranean Sea, as regards electricity supply but also, and especially, our security.

## Providing electricity in Africa: a diplomatic challenge for Europe.

Access to energy is likely to be the challenge of the XXI century. Especially for the Africa. Today three African children out of four do not have access to electricity. By 2050, Africa population will raise to 2 billion people, of which two third under 25 years.

There are numerous consequences of this deficit: lack of access to basic needs such as access to clean water or health services, shorter reading time and thus deficit in public

education and employment as a consequence. Similarly, the deficit in economic and social matters is likely to carve out obscurantism and extremism.

Yet Africa in general and the Sahel in particular have huge natural resources that can definitely provide for its energy security. Hydraulic Central African basins, the fault of the Rift Valley, and the sunshine enjoyed by the continent in general are sources of hydraulic, geothermal and solar energy with no equal in the world. However, only a fraction of that potential is exploited: 7% of hydraulic capacity, less than 1% of geothermal capacity, and photovoltaic initiatives are still embryonic.

This situation is a pity when one knows the almost infinite resources of the continent. In Algeria, the average sunshine time is of around 2000 hours per year. With a territory composed of 86% of the Sahara desert, Algeria has the largest solar field in the world. If one were to compare the solar natural gas, Algeria's solar potential is equivalent to 8 times the natural gas reserves of the country!

Some countries have already realized the treasure he had at their disposal. Morocco, for example, is developing the largest solar thermal plant in the world in the city of Ouarzazate. The facility aims to provide energy to 1.1 million Moroccans by 2018 and reduce the country's dependence on oil by 2.5 million tons per year and reduce emissions of greenhouse gas from 760,000 tons per year.

## A matter of interest for Europe

However, the interest is not one-sided. If electrical interconnections are efficiently implemented, almost 15% of our energy will come from Africa! That's the whole point of the various platforms that are currently developing the European Commission in Morocco, Algeria and Egypt, and the work Medgrid on the subject.

This figures cannot be ignored at a time when energy can be used as a political tool. The energy independency of EU will not come from its own energy production, but from its ability to diversify its energy imports.

Energy partnership with the Southern Mediterranean must be our political horizon. That's why we need a Marshall Plan for Africa, to help its electrification. All European institutions should commit to support all initiative on that subject.

We have a unique opportunity to help our neighbours to develop their economy and a sustainable energy policy, in connection with the COP21. But we especially the ability to help ourselves. Beyond the economic aspect, it is the continent's stability, food security of Africa and the management of migration and terrorism issues are at stake!

That's the importance of this energy partnership with Africa. It is certainly our most ambitious political project but also one of the necessary years to come.





# The importance of energy interconnections in Europe and the strategic importance of energy cooperation in the Mediterranean. Italy - Tunisia project



**Matteo DEL FANTE**  
CEO Terna

Electricity interconnections play a vital role in the economic and social life of a country. This is the reason why the European Energy Policy progressively encourages more investments in electrical infrastructures and interconnections between neighbouring countries. An effective and forward-looking energy strategy is essential to support the most industrialised nations affected by the 2008 financial crisis downturn, and, at the same time, it is crucial to meet the growing demands in emerging economies. Such a strategy must be considered important also within a wider field, mainly due to the geopolitical evolution of the EU's neighbour countries that has caused an unprecedented phenomenon of growing migratory flows towards Europe

In light of the energy transition towards decarbonisation – and in compliance with EC targets as of 2020 and 2030 – enhanced interconnection levels and market integration are now key factors.

In fact, a highly interconnected grid is one of the key targets for the EC policy. The goal is to promote greater energy independence at European level and integrate increasing quantities of renewable generation, whilst ensuring security of supply.

On the other hand, internal market integration is an essential lever for Europe's competitiveness. An integrated and highly

technological developed network at continental level is also a strategic factor to increase the international electricity supply system efficiency and stimulate competition by reducing the costs borne by households and businesses.

As a direct consequence, Terna, the Italian Transmission System Operator, is going to focus more and more on innovative technological solutions and research activities aimed at increasing grid reliability. Security and quality of supply are the crucial elements today: Terna has made significant investments and has achieved important and encouraging results.

Electrical links and exchanges between European neighbouring countries are essential to diversify energy supplies, enhance Euro-Mediterranean countries security of supply, improve reliability of their electricity systems, reduce their import dependency and facilitate access to clean energy.

Terna has already made a lot. The company has invested 10 billion euros in the Italian national grid in order to become the largest independent grid operator in Europe, managing more than 72,000 km of power lines; thanks to the development of 25 cross-border lines, Italy has now become one of the most densely interlinked countries with a significant reduction in network congestion.

As Italian Transmission System Operator, we fully believe that reinforcing these infrastructures is an essential step on the path towards completing the growth of the Mediterranean region, where Italy, due to its strategic geographical position, can become a natural "electricity hub", the ideal candidate to promote the integration of Euro-Mediterranean electricity markets.

Terna can certainly pull its weight to build up a fully integrated network that can efficiently handle the surplus of European renewable energy and open up new potential markets (i.e. balancing market) for European energy generators. With the new "Sorgente-Rizziconi" submarine cable interconnecting Sicily with the mainland (project partially funded by EU's financial institutions), the last great 'bottleneck' in Southern Italy was finally fixed. We are strongly convinced that this high voltage power system can be further extended

by interconnecting Italy and Tunisia, in order to seize the opportunity to connect in a secure and reliable way the European and North African electricity markets.

In that respect, Terna and Steg (Société Tunisienne de l'Electricité et du Gaz) are developing the submarine cable Italy-Tunisia interconnection project which will allow the integration of EU and North African electricity markets. The idea of building an interconnection between Tunisia and Italy has become increasingly meaningful within the new context of energy security and integration of the Euro-Mediterranean electricity market. The Italy-Tunisia electricity interconnector project envisages the use of 600 MW high voltage direct current technology for a 200 km submarine cable expected to cost around € 600 million. The project is strongly endorsed at institutional level by both Governments involved, by the European Commission and by international financial institutions. It is a strategic project for connecting Europe to the African continent. We are all hoping in the provision of grants by the European Union's financial institutions, an essential condition for the project. The request for EC funding is linked to the benefits for both the two directly involved systems and for EU countries (as shown by the technical-economic research conducted by Elmed Etudes), in particular to meet Tunisia's increasing energy demand, and strengthen the EU's overall energy system security, by optimizing both EU and North African energy resources.

# Cooperating to address the challenges of energy and climate in the Mediterranean region



**Jorge BORREGO**

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**José PINTOR**

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The new Sustainable Development Goals of United Nations and the Paris Agreement adopted during the CoP 21 have placed energy at the core of all major challenges, but also of promising opportunities. As it has been said by the Secretary General of the United Nations, Ban Ki Moon, “*energy is the golden thread that connects economic growth, social equity, and environmental sustainability*”. Whether we talk on employment, security, climate change, food production or economic growth, universal access to energy is essential. Indeed, we cannot conceive today fostering sustainable development without energy access.

The Mediterranean region is facing a crucial period for its development, highly conditioned upon its capacity to mobilize important investments. Regional cooperation among Mediterranean countries is essential nowadays to face the existing common challenges and to make the most of the opportunities that this region offers. The areas for cooperation are immensely diverse. In the current international context, cooperation in the energy field is not just an option, but a need, and potentially an opportunity for both shores of the Mediterranean to foster their economic and social development in accordance to sustainability criteria.

While oil and gas still remain the main sources of energy today, renewable energies

and energy efficiency offer a unique opportunity for countries to reduce their vulnerability in terms of energy security – which is at the top of the international political agenda-, building climate resilience in our societies and fostering the transition to new sustainable development models. The deployment of renewables as well as of energy efficiency measures represent a number of

benefits for net importer countries as well as for net exporter ones, including technological transfers, skilled jobs and potential for attracting private investment. This is not to mention the direct impact on the reduction of disruption risks due to economic, technical or political instabilities and of the dependency on oil markets.



*Tafila Wind Farm*



Energy security and stability in the region are two key issues, closely interlinked. The urgency to address climate change effects and its close connection with other vulnerabilities in the region, namely water scarcity, food security, urban development and resilience to extreme weather events, have further accentuated the need of tackling energy issues from a regional and comprehensive approach.

In this context, the Union for the Mediterranean, intergovernmental organization born in 2008, provides a privileged forum to strengthen the cooperation in the Mediterranean region, with the support of its 43 Member States and a number of relevant stakeholders. Through its Secretariat based in Barcelona, Spain, the Union for the Mediterranean acts as a unique platform to facilitate and promote regional dialogue and cooperation as well as to identify, support and implement concrete regional projects with the ultimate goal of fostering the integration and the social and economic development of the Mediterranean region.

The elements on the ground that allow and activate this so essential cooperation are mainly the geographical proximity, the existing complementarities among the countries of the Union for the Mediterranean, the common challenges to be faced and the economic interdependencies between the two rims of the Mediterranean Sea. The improvement of cooperation provides a high added value to economies since it reduces investment costs; it gives markets the critical size to scale up investments and it represents an opportunity

for the region to become more an active player in the new economic paradigm.

It is therefore clear that the comprehensive approach needed can only be developed through a structured dialogue among all the relevant actors in the region, allowing the exchange of experiences and the identification of concrete initiatives to achieve common goals, while creating synergies among a complex system of various structures and programs and reinforcing strategic partnerships with other international and regional institutions that share the same objectives.

While respecting the principles of inclusiveness and variable geometry, the Secretariat of the Union for the Mediterranean has been able to progress on the identification of regional priorities and lines of action, focusing on those common concerns where regional cooperation can have an added value. Advancing towards the energy markets' integration, supporting local authorities' efforts for building low carbon and resilient societies and mobilising private sector for innovative actions in these fields are some of the main priorities that are shaping the Mediterranean Agenda of Solutions. In parallel, an important effort is being carried out to adapt existing financial instruments to these core concerns, while creating the conditions to allow these investments to have a clear impact in terms of employment, particularly for the youth.

The UfM Secretariat is already contributing to the common efforts in combating the adverse effects of climate change with 14 projects endorsed by the 43 UfM Member

States for a total value of more than €4 billion. The MEDCOP of Tangiers, and particularly the COP 22 to be held in Marrakech in November this year, will be excellent opportunities to highlight the added value of the regional dimension, that can play a vital role to better link the international framework with the national strategies of our Member States.

The international agenda will continue to be shaped over the coming years by the need of advancing towards more secure and sustainable energy models in the region, concerning both demand and supply. The challenges ahead of us require common approaches, clear strategies, and policy goals translated into a set of articulated, sequenced and integrated actions. Only by cooperating and uniting efforts, successful results will be achieved. Remaining aloof is not an option anymore.

*Tafila Wind Farm (in Jordan) is one of the regional projects on renewable energy labelled by the Union for the Mediterranean*





# A crucial cooperation with the Mediterranean countries



**Mariya GABRIEL**

*MEP, Member of DMED Delegations*

Already in the Barcelona Declaration adopted in 1995, energy was highlighted as one of the key area of cooperation, seen both as an objective in itself and as a means to achieve peace, stability and shared prosperity in the Mediterranean region. Today, energy together with climate action is one of the six priority areas of the Union for the Mediterranean, while the revised European Neighborhood Policy should upgrade energy cooperation, in link with security concerns and economic transformation. Growing factors are advocating in favor of greater Euro-Mediterranean cooperation and win-win strategies.

## Incentives or pressing arguments in favor of greater cooperation

Countries of Southern and Eastern Mediterranean are having and will having growing needs in terms of energy supplies. On the other hand, the European Union is aiming at diversifying its energy sources both in terms of geographic origin and in terms of types of energy sources. Southern and Eastern Mediterranean, as well as EU countries share a common need: secure, affordable and sustainable supply of energy. While some countries of the Mediterranean are important producers, some are only transit countries. That is why greater interconnexion on the one hand, and on the other hand greater investment in renewable energy sources are necessary.

Second element which should constitute a strong incentive for greater cooperation: the Mediterranean is among the most exposed regions to the effects of climate change. Some Mediterranean countries are already experiencing climate change effects (drought, soil erosion, rising water levels...), and there is no doubt that these effects could also reach the European shores of the Mediterranean. In this context, it is worth underlying that climate change can, directly or indirectly cause massive migration flows and / or conflicts. In both cases, if we cannot anticipate, control or even prevent these consequences of climate change, they will become sources of instability in the Mediterranean region and then in Europe. It is thus also imperative to work together on the energy transition and we all know that the Mediterranean is full of potential regarding renewable energies be it solar energy or wind energy for example.

Thus, energy cooperation is a great and an urgent challenge to be tackled. Looking at it from another perspective, it is also an extraordinary opportunity. Indeed, it is an opportunity to create jobs, including qualified and highly qualified jobs in the Mediterranean countries where youth unemployment is like a Damocles sword over relative political stability, and an open window to create business opportunities, including for European companies and European SMEs. If we follow further the logic, energy cooperation could also be a tool to transform economic models of some of the Mediterranean countries which are actually unsustainable and also constitute destabilization factors in the medium/long run, in link with increasing scarcity of oil resources.

Here was a non-exhaustive list of pressing arguments proving or reminding how crucial energy cooperation is for a region which is bound by a common destiny. Stability in the Mediterranean region means stability for Europe. This stability cannot be achieved without taking into account energy and climate change challenges.

## Connecting the dots: political will, concrete projects, investment

As mentioned in introduction, energy cooperation was already an ambition of the Euro-Mediterranean partnership in 1995. 20

years later, a new Union for the Mediterranean platform for cooperation on regional electricity market has been launched, shortly after the platform for cooperation on gas and ahead of the launch of a platform on renewables and energy efficiency. These platforms translate the UfM Member States' will to strengthen energy cooperation. Members, financial institutions, regional organizations (including the Arab League which is also a key partner in this field), industrial enterprises and experts are brought together towards the enhancement of synergies in the fields of renewable energies and energy efficiency, integration of electricity markets and gas. We can only hope that these platforms will soon deliver concrete results.

A key issue remains the integration among countries of the Southern and Eastern Mediterranean. Even if the European Union continues to struggle to speak with one voice on the external aspects of the energy union, internal energy cooperation has strongly shaped the European integration as early as the European Community of Coal and Steel. In the Euro-Mediterranean partnership, the EU cannot undertake, on its own, the leadership on energy cooperation. Stronger leadership and political will for energy interconnexions projects, cross-border renewables projects, applied research programmes, adaptation and mitigation of climate change effects from the Southern partners is needed. The EU can deploy extraordinary financial and political efforts in bilateral cooperation, if regional cooperation does not happen, the full potential of the region will never be exploited. Once again, energy cooperation is a pragmatic opportunity to overcome diplomatic difficulties, for the sake of political stability and socio-economic development of the region.

Finally, the Euro-Mediterranean cooperation in the energy field cannot only rely on public finance investments. Innovative methods such as the Juncker Plan for strategic investments in the EU should be considered in the context of the Union for the Mediterranean. Energy platforms created within the UfM should work in this direction.

# The Next Issue:



## THE EUROPEAN FILES

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**NEW ENERGY MARKET DESIGN**

*TOWARDS MORE*

*SECURITY AND FLEXIBILITY*





The energy  
to see  
and the energy  
to do.



Our energy has been traveling around  
5 continents for over 60 years.  
Thanks to the work of all our hands.

