



ENERGY, PROSPERITY AND THE CLIMATE

Europe awaits firm decisions

Report led by Claude Mandil

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REPORT SUMMARY

Published in anticipation of the forthcoming COP21, this report outlines several areas for reflection regarding the implementation of a European energy and environment policy that is both ambitious and compatible with objectives for the security of energy supply and the imperative need for growth (in other words, the consideration of costs). The report envisages the fight against climate change as a major opportunity to imbue European integration with renewed purpose and to put the continent back on the pathway to prosperity. Several proposals are developed:

- **Priority must be placed on the use of markets, which naturally select the least expensive solutions.** The EU Emissions Trading System (ETS) should not be abandoned, but it is in need of major reforms. It needs to be actively managed, so that it may provide a long-term price signal that is coherent with progress towards a carbon-free economy. The electricity market, which was not designed to handle intermittent renewable production at zero marginal cost, must be rebuilt in light of the need to remunerate the available capacity and to be protected against direct administrative interventions. The gas market must be supported by the completion of European interconnections and the development of storage sites.
- **Ensuring the security of supply requires European solidarity.** In other words, there needs to be an assurance that every member state can count on the others in the event of a supply failure. This calls for interconnections, but above all political will.
- **The EU must be entrusted with projects that it is better equipped than member states to see through:** the interconnection of networks, checks on the compatibility of national energy policies (consistency tests), research funding, development and deployment (energy efficiency, energy storage, cost reduction). The Energy Union project developed by the European Commission is a step in the right direction, but it should be taken much further in certain areas, for example regarding the complete overhaul of the carbon and electricity markets. Researching the most promising and potentially least expensive technologies should be made a priority, as should a policy of clear reasoning with a view to garnering public support around Europe. Such measures would enable a return to growth and the reinstatement of the European Union as a leading figure in the fight against climate change.

INTRODUCTION

Europe has long been an international point of reference for its management of the climate and emissions, with its commitment to the Kyoto protocol, the launch in 2005 of its «European Trading System» (ETS, the first restrictive permit system for major emitters), its improvements in vehicle energy efficiency (the 2001 CAFE directive), and its policy towards technological excellence, embodied by the Strategic Energy Technologies plan (SET), adopted in 2008. This is not to mention the diverse yet ambitious national policies to be found regarding the price of carbon (United Kingdom, Sweden) or building regulations (Germany, France).

It must nevertheless be noted that the 2008-2009 crisis dealt a serious blow to a set of measures that were designed for a period of strong growth, and Europe is still yet to regain the status that it previously held. The China-US joint climate change agreement, reached in 2014, shows that today's advances in global governance of the climate are in danger of bypassing Europe. Our continent finds itself with an ETS whose price is lower than what is currently available on the Chinese market, without a credible long-term vision to channel investments. National energy policies, largely left up to each individual state by the Lisbon treaty, show no synergy.

The negative repercussions of this fragmentation are clear to see: when it comes to the energies of tomorrow, Europe has fallen behind. This is particularly the case regarding renewable energies, perhaps also the nuclear domain, and certainly carbon capture and storage (CCS) and electric vehicles. Offshore wind farms give cause for hope, but at what cost!

The observation makes for hard reading: of course, emissions in Europe are falling in accordance with the commitment made at Kyoto, but this is principally the consequence of having abandoned most of the development projects in the continent's CO₂-emitting industries (such as steel, refining, chemicals and aluminium). Pursuing an economic decline is not an acceptable way to fulfil Europe's next COP21 commitment on reductions, which is to say a 40% reduction in 2030 in comparison with 1990 levels.

This situation calls for a new departure for European energy and climate policy, with a view to transforming this challenge into a source of new prosperity for the continent. The industrial solutions are largely already out there; it is the politics that are falling short. The purpose of this report is to outline the path towards a European resurgence, one that is made all the more necessary and vital by the pressing need to reach an agreement this December at the COP21 in Paris.

I. THE INSTRUMENTS OF A COMPETITIVE CARBON-FREE ECONOMY

1.1 Several tools can, in theory, have a part to play in the transition to a low-carbon economy

Persuasion, a tool not to be overlooked in the struggle for acceptance among citizens. For example, the Swedish energy agency devised a number of humorous slogans, such as: «if you sing in the shower, choose shorter songs!»

Regulation and standardisation, particularly useful tools for reducing levels of energy intensity when pricing incentives fail to hit their targets (the owner/tenant paradox). However, energy efficiency does not always go hand-in-hand with lower emissions: a nuclear plant is, statistically speaking, less efficient than a combined cycle gas plant; the capture and storage of CO₂ reduces the efficiency of a coal power plant; thermal regulations introduced in France in 2012, whose desired effect is to reduce home electricity use to a minimum, outlaw electric boilers whose storage capacity would nevertheless enable a higher share of intermittent renewable energies to be used in electricity production. Above all, in the absence of price signals for emissions, improved energy efficiency may in fact lead to an increase in consumption, in what is known as the rebound effect. The central heating sector, which has seen average temperatures rising from 19°C to 21°C since 1985, provides particularly clear evidence of this trend. Finally, the cost of energy efficiency measures is often hidden, if not entirely unknown. It is imperative to ensure that the cost of the regulatory tools – per ton of CO₂ avoided – remains coherent with the price of a ton of CO₂ discussed below, or to slightly anticipate it in order to encourage technical progress.

Direct support for certain forms of energy, via subsidies, fiscal measures (a bonus/penalty system associates these two tools) or feed-in tariffs. These tools have been widely used throughout Europe, as they are simple to implement and apparently painless. Yet despite their spectacular success, they do also bring significant disadvantages. Largely hidden from the consumer, they can lead to unmanageable costs over the long term (over twenty billion euros per year in Germany); they may protect inefficient technologies and do not therefore always foster technological progress; they cause major market distortions by stripping price signals of their meaning. Above all, they do not encourage restraint, which is particularly regrettable given these subsidies apply at times to emitting energies (such as coal in several European countries, and diesel in France).

Explicit carbon pricing directly linked to CO₂ emissions, and more generally to emissions of all greenhouse gases, over as large a geographical area as possible, comprising at least the entirety of the European Union and with a view to gradually extending this pricing around the world. This type of tool appears self-evident: since the aim here is to move towards a low-carbon economy, why not penalise CO₂ emissions? An additional advantage is its technological neutrality: each and every country, producer and consumer is in a position to choose the forms of energy production or consumption that best suit their particular situation, customs or culture, and their financial contribution will always be proportionate to the level of their emissions. Ultimately, the law of the market will in principle mean that people favour the least expensive solutions. The fight against climate change will be a costly one, but doing nothing could be even more expensive, so studying even the smallest cost becomes essential. **We believe that an incentivising price signal linked to CO₂ emissions is essential.** In theory, two approaches are possible in Europe: a carbon tax or a system of tradable emissions permits.

- **A carbon tax** would have various benefits: it would be simple to implement (although the devil is often in the detail) and remain unaffected by market volatility. It does however suffer from an institutional handicap: decisions can only be made on fiscal measures within the European Union by way of a unanimous vote, which means that in the short term any European harmonisation remains impossible. The possibility of countries setting up national taxes, as is already the case in fourteen member states, must not however be ruled out. Furthermore, their introduction must coincide with a broader fiscal redistribution. It would be the perfect opportunity to reform our fiscal system in its entirety, raising taxes on CO₂ and lowering those on employment.
- **The CO₂ emissions trading system** (the EU-ETS in Europe) offers one clear benefit: it already exists! Not only does such a system exist in the European Union, but a growing number of non-European countries are opting, or considering opting, for this tool. This gives hope that there may one day be worldwide alignment behind the idea. Furthermore, as the system is not fiscal in nature, the objection raised over the carbon tax does not apply here. Finally, as it is a market mechanism, it theoretically guarantees that the least expensive solutions will be prioritised, a key benefit as our climate objectives must be compatible with both economic growth and competitiveness.

The disadvantages of this system are widely known.

Today the European experiment is still largely inconclusive because the price of carbon collapsed after a promising start, becoming much less of an incentive for those looking to invest in low-carbon equipment. We are nevertheless convinced that this hiccup is less the consequence of an intrinsic flaw in the tool, than it is of a rather regrettable absence of management. Extreme shocks were not anticipated, such as those resulting from the 2008 crisis or from policies supporting renewable energies. The ETS market must be managed, just like any other financial market of public instruments, such as foreign exchange markets. The European market is the only one to have been left almost entirely to its own devices. Yet let's keep in mind that these permits markets are not natural markets, like those that have developed around raw materials, but rather public policy tools whose effectiveness is dependent on a particular management and mediation in accordance with the procedures established.

The ETS market does not take diffuse emissions into account, meaning that levels of related consumptions (transport, heating) continue to drift upwards. Fuels are partly subject to an excise duty (levied on volumes) but this should be directly linked to their carbon content, which is not currently the case. The climate-energy contribution created by the 2014 budget act is a step in the right direction but must, in order to be effective, be gradually increased, as outlined in the energy transition act. In France, these emissions represent nearly two-thirds of total emissions.

The market is volatile, meaning that investors are not receiving a clear long term message. Part of this volatility is manageable, as it results from technological progress; the other part less so, as it stems from political uncertainties.

1.2 Our proposals result from this observation

➤ Support for a managed ETS

The key step for Europe should be the creation of conditions enabling an active, vigorous, professional and independent management of the ETS market.

Active, because it is necessary to make market interventions by buying or selling permits in order to avoid prices becoming too high or too low, and to allow for technological progress.

Vigorous, because the credibility of the system is at stake.

Professional, because this is not a job that can be done off the cuff, any more than the management of a central bank or a financial market could be.

Independent, because short-term political considerations must not interfere with the management of the market.

The European Commission has made its first proposals, approved by the European Council and the European Parliament. These are a step in the right direction, as they allow for a reduction or increase in the number of permits in circulation in the event of unforeseen market turbulence, in accordance with pre-defined operating rules. Nevertheless, it may become necessary at a later phase to go even further. In this sense the creation of a Management Authority, whose decisions reflect developments in other markets and regulations on emissions, should not be ruled out.

Three delicate issues must be addressed at this time.

The first is to **avoid a variety of different measures coming into effect simultaneously**. Direct carbon penalties cannot be introduced at the same time as costly financial incentives whose ultimate goal is the same. In other words, systems of preferential feed-in tariffs must be gradually phased out, as foreseen by the European Commission.

The second issue is **the threat hanging over the competitiveness of certain major emitting industrial sectors**, until the ETS system becomes generalised. It is clear that, without free allocations for an initial period, the steel, cement, paper, refining and chemicals industries would vanish from the European continent.

The third concerns **determining a target average price**. In theory, this would correspond to the cost of «marginal» emissions-reducing technology. For example, in Europe this «marginal» technology (in the sense that is of marginal cost) may be the capture and storage of CO₂ in major emitting industrial sectors.

These issues will be more easily resolved if procurement officials and emitters are able to consult a definitive database on emitters by sector, by country or by geographic zone. **An emissions observatory** must therefore be created.

➤ **Support for a study into including diffuse emissions as part of the ETS**

As has been previously discussed, the ETS does not take diffuse emissions into account, even though they constitute the majority of total emissions. In order to address this issue while avoiding the difficulties related to a carbon tax, an evaluation of the upstream quota system would be appropriate, asking fuel and fossil fuel distributors to have quotas for the amount of emissions caused by their sales to clients that are not themselves subject to quotas. The system is simple enough, as the equivalences between a litre of fuel or a cubic metre of gas and the mass of CO₂ emitted are well known. This solution has a number of advantages: as it is not a tax, it does not require unanimous agreement at a European level, but it does provide a response to the objection raised by major emitters over what they see as unequal treatment. The main risk is that in reality it may result in prices that are too high for industry but insufficient for transport.

➤ **Support for ETS-compatible public action**

The above does not mean that public action would no longer exist beyond the financing of research and development, but rather that the interventions of the authorities (by prices or by regulations) must not disrupt the central role of the ETS. For example, when necessary the purchasing rates – which disturb the ETS – should be gradually replaced by investment aid. In the same way, thermal regulations for buildings must become neutral with respect to final energies. At present they essentially penalise electricity, which is somewhat paradoxical as electricity can respond to fluctuating demands and remains the main energy vector for renewable energies.

Choosing to take carefully adapted and coherent action is now one of the most important challenges facing public authorities in the fight against climate change.

➤ **Support for a strong and focused backing of R&D**

In reality, the role of the public authorities is essentially to ensure that throughout the energy and climate transition Europe retains its competitiveness, and even regains its somewhat blunted industrial vigour. The main tool at their disposal is the support of research, development and demonstration via temporary subsidies, financing of prototypes and incentivising standardisation. There are numerous significant factors at play in this domain:

- **Going hand in hand with the necessity to reduce energy consumption, the improvement of energy efficiency is crucial** in every sector of the economy: residential and tertiary, transport, industry and agriculture. In the residential-tertiary sector, the need for innovation mainly concerns materials, home automation and the development of techniques to enable the completion of vast energy renovation projects at low costs. The proposed solutions must, however, reach profitability within a reasonable timescale in order to preserve the purchasing power of households and the competitiveness of businesses. In the transport sector, R&D must be focused on increasing vehicle energy efficiency and on developing new, low-consumption engine technologies by working, for example, to reduce energy

use or to introduce energy recovery systems, in addition to switching to carbon-free energies. At the same time, the reduction of emissions must also involve systemic innovations relating to infrastructure and uses, or the development of new services thanks to new information and communications technologies.

In industry and agriculture, R&D must focus on the design of less energy-hungry processes and components, and the «decarbonisation» of industrial processes through the direct introduction of renewable energies, the optimisation of energy flows and the recycling of energy.

- **The development of competitive renewable energies is also a priority.** Called upon to produce 20% of all of Europe's electricity by 2020 and to increase this share over the longer term, renewable energies are at the heart of the energy transition. Whether it be solar, wind or marine, biomass or geothermic energies, a number of advances or technological breakthroughs could reduce the cost of implementing the procedures and sourcing the volume of raw materials required, costs which to this day remain too high. The aim is to achieve, via technical progress and «learning by doing», costs similar to those incurred for other means of energy production.
- **Another area of focus is the development of innovations to deal with intermittency.** Faced with the huge progress of variable renewable energies and the diversification of uses for electricity, the continued adjustment of supply to demand will entail innovations in the domains of demand management, intelligent networks – particularly distribution networks, to which renewable energies tend to be connected –, inter-conversion between vectors (gas, hydrogen, electricity) and storage. Adjustment of supply and demand is required not just for electricity, but also for heat.
- **The capture, storage and recycling of CO₂ in different forms and the inter-seasonal storage of high capacity electricity** can play a central role in Europe's future energy landscape, provided that significant progress is made or if the markets and regulatory framework evolve in their favour (lower costs, an increase in the price of CO₂). These areas must therefore be a priority for European Union research.

But the energy transition will only succeed if everyone involved pulls in the same direction. It is of fundamental importance that everyone works together to better integrate and distribute technological innovations within their territories and that, inversely, the technical solutions developed and offered respond to the demands of users and decision-makers. Tomorrow's energy systems – and the way that they interact with technology, institutions and society – are yet to be invented. **The priority must therefore be for an approach that consolidates research work in the physical and technological, but also the human and social, sciences.**

II. SECURITY OF SUPPLY: A NECESSARY CONSIDERATION

An energy policy neglecting the issue of the security of supply would be quite simply unacceptable.

Currently, two risks are of particular concern in Europe: the first, that we tend at times to overestimate, is how dependent the continent is on gas imports, particularly from Russia; the second, that we unfortunately tend to underestimate, is the risk of an electricity supply failure.

2.1 Gas security

Stemming from the conviction that current levels of dependency on Russia are excessive and weaken Europe, the first aim of the initiative for the creation of an energy union – proposed in April 2014¹ by the president of the European Council Donald Tusk, against the backdrop of crisis in Ukraine – was to guarantee the security of the gas supply. Before extending further afield, Donald Tusk's energy union project was initially centred on a European collective gas purchasing mechanism to enable joint negotiations with Russia, to ensure continued solidarity between member states in the case of supplies being cut off and to sign deals with emerging providers.

Reducing the share that Russian gas imports hold in the overall energy mix appears to be a major challenge for Europe, as dependency on foreign supply is already high and growing greater still. The European Union imports nearly 70% of the gas that it consumes and Russian gas represented 29% of its supplies in 2014, compared with 23% for Norway, 4% for Algeria and 10% for liquefied natural gas².

While historic examples of gas supplies being cut off are few and far between, confidence in the Russian supply was shaken in 2006 and above all in 2009 when trade disagreements over gas prices between Russia and Ukraine resulted in an interruption of deliveries to end clients, including twelve member states. This deprived the European Union of nearly 20% of its gas supply. Fears of a new gas crisis arose once more in the spring of 2014, but Europe was better prepared on this occasion to cope with a potential interruption, with higher volumes in storage than in 2009 and a lower level of Russian gas being delivered via the Ukrainian network³.

Over the last few years, internal measures have been introduced to reinforce the security of Europe's gas supply. In particular, a 2010 regulation established EU-wide emergency action plans in case of a supply failure.

It also obliged member states to ensure that their energy flows could be reversed, to enable Western Europe to supply countries such as Poland, the Czech Republic or Slovakia⁴.

Suppliers have also taken steps to guarantee the security of supplies by diversifying their sources and their routes (Nordstream, East Mediterranean, Southern Corridor), turning increasingly towards LNG and developing storage volumes.

1. See Donald Tusk's article in the Financial Times entitled «*A united Europe can end Russia's energy stranglehold*»^{1st} April 2014, <<http://www.ft.com/intl/cms/s/0/91508464-c661-11e3-ba0e-00144feabdco.html#axzz3fHoBgZVT>>.

2. CEDIGAZ estimates for 2014.

3. In 2014, 40% of Russian gas was transported to Europe via Ukraine, following the entry into service of the Nord Stream gas pipeline that directly supplies Germany with Russian gas.

4. Regulation (EU) No 994/2010 concerning measures to safeguard security of gas supply <<http://eur-lex.europa.eu/legal-content/FR/TXT/?uri=celex:32010R0994>>.

In the autumn of 2014, all member states carried out resilience tests to assess their capacity to deal with an interruption of Russian gas deliveries for a whole winter (from September to February) with a two-week cold snap in February⁵. The countries that would be most affected by such a scenario would be Finland, the Baltic states and those countries in the south-east of the Union whose rate of dependency on Russian gas imports borders on 100%. Conversely, countries located further to the west such as Ireland, Spain and Portugal receive only marginal quantities of Russian gas and are therefore much less vulnerable. Providing it holds sufficient storage levels and receives minimal deliveries of LNG, France's situation is satisfactory.

This simulation exercise also revealed that strengthened cooperation and coordination between member states can significantly soften the potential impact of a gas shortage in Europe. Today the European Commission is aiming to improve the resilience of Europe's gas system by strengthening solidarity and by implementing a concerted action plan between member states in the eventuality of a crisis⁶, which eliminates the need to fall back on the much-debated system of joint purchasing, an idea all but dismissed by the communication published about the Energy Union on 25th February 2015. Furthermore, the European Commission wishes to see greater transparency in gas contracts in order to avoid the unequal treatment of European buyers by the Russian supplier, which is not appreciated by several key players who fear a loss of their competitive edge.

Finally, the process of strengthening the European Union's gas supply security has also featured a revision of the decision approved in 2012 on information exchange mechanisms surrounding intergovernmental agreements between member states and third parties. The Commission wishes henceforth to be involved from the very first stages of negotiations in order to ensure that these agreements better comply with European regulations.

Beyond these legislative measures, the Energy Union will focus on «revitalising its diplomacy» in order to strengthen its energy security, by developing energy partnerships with current and potential suppliers and transit countries. However, there are not many alternative solutions for Europe as it looks to replace Russian gas. Domestic gas production levels continue to fall, and the potential of European shale gas will not reverse this trend. North Sea reserves are in decline and production in Groningen is collapsing faster than expected, as it suffers from the worsening frequency and intensity of seismic tremors that have affected the region over the last few years. Due to a growing domestic demand, a smaller share than previously of the gas produced in North Africa is now sent to Europe, and Algerian gas exports have fallen noticeably over the last seven years.

5. Two scenarios were tested: a total interruption of Russian gas, including the Nordstream pipeline, affecting the EU and the members of the Energy Community (Ukraine, Moldova and the Balkan states); and the closure of the Ukrainian gas route.
6. A revision of the regulation on supply security is underway: <<https://ec.europa.eu/energy/en/consultations/consultation-revision-regulation-eu-no-9942010-concerning-measures-safeguard-security>>.

Plans for the Southern Corridor to start transporting natural gas from Azerbaijan (10 billion cubic metres to be sent to the European Union via the trans-Adriatic pipeline, starting in 2018) represent a genuine possibility, albeit a limited one, to diversify the sources of Europe's gas supply.

In reality, the diversification of European gas has a name: LNG (liquefied natural gas). Western Europe has an ample regasification capacity, but the filling rates of LNG terminals have only reached 20-30% on average over the last few years, because Asia has proved to be a much more lucrative market for exporters. Since November 2014, however, Europe has presented better commercial opportunities compared with Asia, where demand has slowed considerably over the last few months. Furthermore, the nature of the LNG market is changing as it moves into surplus due to new capacities coming into service as of 2015, mainly in the USA and Australia. Destined to play a major role in ensuring the diversity and security of Europe's gas supply, nowadays LNG is at the heart of the EU's new energy strategy, but its transition to Eastern Europe remains restricted by bottlenecks in the gas transport networks.

By revamping energy diplomacy, concluding the integration of the market and reviewing its internal legislation in order to guarantee the solidarity of member states in potential crisis situations, the Energy Union certainly has a number of tools at its disposal when it comes to strengthening the security of the continent's gas supply. It is all about encouraging diversity of supply and development of infrastructure (LNG stores and terminals, interconnections between member states, and transport networks). This objective is all the more important as, beyond a short-term climate characterised by a surplus of supply, demand for gas is expected to start rising again as soon as the share of the energy market held by nuclear and carbon starts to fall in Europe.

Globally speaking, gas security is in a better state than is often claimed, which puts the European Union in a strong position to enter discussions with Russia, its main supplier, bearing in mind that in the long term the need for gas could well start to grow once more.

The problem is that this generally favourable situation is not true for all areas of Europe. **The response to the risk therefore needs to be a political one. In a word: solidarity.**

2.2 Security of the electricity supply

The harmonisation and integration of European electricity markets commenced at the start of the century. These processes have proved difficult and remain incomplete to this day. While numerous steps forward have been made over these last few years, such as the coupling of markets from one day to the next, progress in other aspects has been more limited (for example the integration of intraday or balancing markets).

Even more importantly, the present model now seems largely obsolete. In setting renewable energy targets (the European goal of 20%, broken down into national targets) even though these energies – often too expensive and almost always intermittent – cannot find their place on the market, has necessitated specific measures: these have included guaranteed feed-in tariffs and priority access to the network.

The market works in theory but, since price and quality are guaranteed to producers of non-hydraulic renewable electricity, the price signal does not apply to them. All the while their production is starting to represent a significant share of total production in the European Union: 7.8% of electricity produced in 2013, and fully 16.7% of production capacity. This difference illustrates the cost of intermittency. A surcharge must therefore be paid between the market price and the price guaranteed to the producer, and this surcharge is either covered by all of a country's consumers by way of a contribution to the public electricity service (as with the CSPE in France), or by all consumers apart from major industrial consumers (as is the case in Germany, with its EEG system for renewable energies).

The result is a nonsensical situation whereby wholesale prices are very volatile and generally getting lower and lower due to the growing production levels of renewables, and the retail prices rise higher and higher because of the growing impact of systems such as the CSPE or EEG. Governments are then tempted either to regulate prices to individuals, further increasing the number of those escaping the law of the market, or to freeze retail prices, as was proposed by the leading opposition party in the United Kingdom.

To sum up, the internal electricity market may have the appearance of a market, but it has none of the inherent characteristics that would lead it naturally to an overall balance at the lowest cost.

Up until now, efforts have focused on improving the functioning of the market in the short term. Now we can see that this clearly does not go far enough, as the new political priorities of decarbonisation and the security of supply require a long-term vision to stimulate and coordinate investments. The model has reached an impasse on a certain number of factors that nevertheless have a fundamental part to play in giving effective signs – for both the long and short term – and in reflecting a value which varies depending on geographic location.

In its current state, four main areas can be identified that should shape the priorities for reform in Europe's electricity market.

- First and foremost, **the intersection between electricity markets and environmental policies and regulation is not clearly defined, which causes unnecessary distortions.** Let's consider by way of an example public policies in favour of renewable energy production (ENR). These were not coordinated on a European level, which led to distortions regarding how prices were formulated on the European electricity market. The guidelines on energy and environmental public aid adopted by the Directorate-General for Competition in the summer of 2014 defined a framework and a set of rules for all member states, paving the way for the gradual convergence of the individual systems. This development, necessary for the completion of a genuine European energy market, must continue to receive support at a European level. Elsewhere, and as seen above, the European Trading System (ETS) needs to be reformed because currently its pricing is not a sufficiently effective signal to encourage investment in clean technologies. Put simply, there is an urgent need in Europe to improve the coordination between public environmental policies and market mechanisms.
- Elsewhere, and as seen above, **the European Trading System (ETS) needs to be reformed** because currently its pricing is not a sufficiently effective signal to encourage investment in clean technologies. Put simply, there is an urgent need in Europe to improve the coordination between public environmental policies and market mechanisms.
- Secondly, the development of intermittent renewable energies reinforces the need to **place a higher value on flexibility, to encourage flexible sources of production and to subdue demand.**
- Thirdly, **the incapacity of the market framework to provide effective investment signals to maintain the security of supply in the medium and long term is increasingly worrying.** Certain national reforms are putting capacity remuneration mechanisms in place, but the expansion and variety of these mechanisms throughout Europe carries the risk of distorting the market, which is crying out for a shared framework that redefines the issue of the security of supply. Given the German decision to reject the French-style capacity mechanism in June 2015, it will now be crucial over the coming years to ensure that different national capacity mechanisms are compatible with each other and to look to create a harmonised, powerful remuneration mechanism within the next decade. Without such a development, the risks of failure resulting from a lack of investment are very real.
- Finally, **the locational signals are not sufficient and do not enable an efficient coordination of investments in the network, and centralised and decentralised production.** European countries have different approaches to handling congestion problems and charges for network connection and use. This could hamper the development of an efficient network. This question is likely to become increasingly pertinent in the years to come, with a rise in decentralised electricity production and the growing need for coordination between the network operators and the resulting increase in production.

Furthermore, the climate hazard, whose impact on the networks may well continue to grow, requires European-level impetus and coordination.

III. WHAT TO MAKE OF THE EUROPEAN COMMISSION'S PROPOSALS ON THE ENERGY UNION?

On 25th February 2015, the European Commission published a document containing its proposals for a European Energy Union and summarised them in «fifteen action points». It outlined its intentions on 15th July 2015 in its «summer package» entitled «Transforming Europe's energy system». The majority of these proposals are essentially areas for reflection that, following consultations, should make way for legislative proposals in 2016 and 2017. In light of the analysis carried out in the present report, we must consider whether these proposals constitute a step in the right direction and whether they are sufficient.

- Our key proposal, a managed ETS market, barely features in the Energy Union project, but the legislative proposal on 15th July has set this right and undoubtedly moves things in the right direction, since it recognises the need for an active management of this market, starting with the creation of a market stability reserve and the lowering of the emissions ceiling. It is regretful that the idea of an upstream quotas market (in other words, an ETS market extended to distributors of fuels and fossil fuels) has not been tabled, and the majority of us believe in the creation of a «central bank» of carbon, an idea not addressed at all by the Commission.
- The overhaul of public interventions, in order to make them compatible with a developing ETS, is addressed in the 15th July legislative proposal with one essential guideline: the targets must be achieved at the lowest cost possible. The harmonisation of different public intervention systems with the ETS is not addressed, even though in other documents the European Commission clearly suggests putting an end to feed-in tariffs.
- The document calls for a debate on the overhaul of the electricity market, whose incapacity to adapt to a changing landscape is acknowledged. The European Commission shows great reticence towards capacity markets, without entirely ruling them out. For our part, we consider them to be indispensable. Furthermore, in the medium term, a reform of the electricity market in order to equip it with greater power and flexibility seems entirely necessary.
- With regard to gas security, a new development is included indirectly, in the shape of the withdrawal of the unrealistic and counter-productive idea of the European Union becoming a single gas buyer (which does not exclude beneficial coordination between those involved, i.e. the European Commission, state members and companies).

CONCLUSION: TRANSFORMING DIFFICULTIES INTO OPPORTUNITIES FOR PROGRESS

Such is the contradictory nature of the different aims, it is often considered impossible to fight against climate change while simultaneously guaranteeing the security of energy supplies and putting Europe back on the path to growth and prosperity. On the contrary, our group is convinced that, far from contradicting each other, the different elements of a European energy and climate policy can mutually strengthen one another, provided that bold and coherent decisions are taken without further delay. In particular, climate policy, an absolute priority, can and must be taken forwards without putting security and growth at risk. But under which conditions is this possible?

First and foremost, it is necessary to underline the importance of «costs», a matter that is all too often overlooked. Prosperity means not throwing money out of the window. This is why **our first proposal is to get the markets working to the best of their ability**. In principle, their raison d'être is to encourage the least costly solutions: an ETS market managed in a professional way; an electricity market freed from direct administrative interventions on prices, but aware of the need to guarantee sufficient volumes over the long term; a gas market rendered perfectly fluid thanks to the necessary interconnections and storages.

Next, **Europe must stop trailing behind the rest of the world in the domains of industry and technology**. Wealth and job creation depend on it. This is not about using vast and expensive subsidies to create jobs that destroy other areas of employment, but about doubling our efforts in research, development and demonstration in the most promising domains, such as those outlined above: energy efficiency for buildings and transport, the most promising renewable energies, intelligent networks, electricity and heat storage, CO₂ capture and storage. The future will not be the same as the past: we must accept that our model of civilisation is developing within the domains of agriculture and urbanism

To be efficient, Europe's policies need to be coherent. This does not mean uniform. We are very aware that history, geography, geology and general customs may give rise to different solutions in different member states. **What must no longer be accepted is that one member state can make decisions without having checked whether they are compatible with those being made in neighbouring states**. The simplistic opposition between national and European policies must become a thing of the past. Coherence tests, in the form of peer reviews organised by the European Commission, may be needed. **Coherence tests**, in the form of peer reviews organised by the European Commission, may be needed. **Profound cooperation between neighbouring countries** must be encouraged.

In fact, the European Union's energy and climate policy should be developed in the image of the Union itself, which purports to be a «community». The main characteristic of a community, which marks it out from a simple assortment, is solidarity between its members. It is solidarity that enables each member state to benefit from an energy supply, regardless of its geographical profile. It is solidarity that allows a harmonisation of markets that rises above national self-interests. It is solidarity that frees up the financing necessary for research. This does not happen by itself; it requires effective teamwork, a joint offensive against energy insecurity and above all a visible political commitment in order to mobilise citizens, even though public opinion often paints the energy transition as a burden, particularly among the newest members.

We therefore propose that the European Union of energy shows a sense of solidarity. This solidarity must be in even greater evidence and of even greater tenacity during COP21. As Jean-Claude Juncker, the president of the European Commission, put it during his State of the Union speech on 9th September 2015: «The planet we share – its atmosphere and stable climate – cannot cope with the use mankind is making of it. My priority, Europe's priority, is to adopt an ambitious, robust and binding global climate deal. (...) My Commission will work to ensure Europe keeps leading in the fight against climate change.»

Europartenaies was founded in 1994 by Elisabeth Guigou as a platform for reflection and discussion. It supports the development of a society capable of restoring meaning to the process of European integration, and of redefining the roles and responsibilities of its social and political figures.

Today, Europartenaies is cochaired by Elisabeth Guigou, a former minister and currently the elected member for SeineSaintDenis and president of the Committee on Foreign Affairs at the National Assembly, and Jean-Noël Jeanneney, a former minister and currently professor emeritus of history at Sciences Po University.