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**COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE  
EUROPEAN PARLIAMENT**

**European Energy Security Strategy**

**Comprehensive plan for the reduction of EU energy dependence**

The European Union's prosperity and security hinges on a stable and abundant supply of energy. The fact that citizens in most Member States have not had to experience any lasting disruption of their energy supply since the oil crises of the 1970s' is a testimony of the success of the Member States and the EU and in guaranteeing this. For most citizens, energy is available "on tap", it is ubiquitous and un-intrusive. This has a major influence on the factors that affect national decisions on energy policy, with security of supply not being on par with other considerations.

Nevertheless, in the winters of 2006 and 2009, temporary disruptions of gas supplies strongly hit EU citizens in some of the eastern Member States. This was a stark "wake up call" pointing to the need for a common European energy policy. Since then, a lot has been done in order to strengthen the EU's energy security in terms of gas supplies and to reduce the number of Member States that are exclusively dependent on one single supplier. Yet despite all the achievements in strengthening its infrastructure and diversifying its suppliers, the EU remains vulnerable to external energy shocks, as the figures below clearly show. The EU needs, therefore, a hard-headed strategy for energy security which promotes resilience to these shocks and disruptions to energy supplies in the short term and reduced dependency on particular fuels, energy suppliers and routes in the long-term. Policy makers at national and EU level must make clear to citizens the choices reducing this dependency implies.

***Key facts and figures on EU energy security***

- Today, the EU imports 53% of the energy it consumes. Energy dependency relates to crude oil (almost 90%), to natural gas (66%), and to a lesser extent to solid fuels (42%) as well as nuclear fuel (40%).
- Energy security of supply concerns every Member State, even if some are more vulnerable than others. This is valid in particular for less integrated and connected regions such as the Baltic and Eastern Europe.
- The most pressing energy security of supply issue is the strong dependence from a single external supplier. This is particularly true for gas, but also applies to electricity:
  - Six Member States depend from Russia as single external supplier for their entire gas imports and three of them use natural gas for more than a quarter of their total energy needs. In 2013 energy supplies from Russia accounted for 42% of EU natural gas imports or 27% of EU gas consumption; Russia exported 80 % of its gas to Europe with the largest volumes to Germany and Italy (see Annex 1);
  - For electricity, three Member States (Estonia, Latvia and Lithuania) are dependent from one external operator for the operation and balancing of their electricity network and for a large share of their electricity supply.
  - In terms of oil, the EU imports more than 300 billion Euros, of which one third from Russia.
- The EU external energy bill represents today more than 1 billion € per day (around 400 billion € in 2013) and more than a fifth of total EU imports.
- EU energy security has to be seen in the context of growing energy demand worldwide, which is expected to increase by 27% by 2030, as well as important changes on energy supply and trade flows.

The Strategy described below builds on a number of strengths and lessons learnt from the application of current policies as well the effectiveness of the Union's response to previous energy supply crises: Europe has made significant progress towards completion of the energy internal market with increased interconnections; it has one of the best records worldwide in terms of energy intensity and a more balanced energy mix than its major partners.

However, too often energy security issues are being addressed only at national level without taking fully into account the interdependence between Member States. The key to improved energy security lies first and foremost in a more collective approach through a functioning internal market and greater cooperation at regional and European levels, in particular for coordinating networks and opening up markets.

The Strategy sets out areas where decisions need to be taken or concrete actions implemented in the short (next 9 months), medium (1-5 years) and longer term (more than five years) to respond to energy security concerns. It is based on seven key pillars that together promote closer cooperation beneficial for all Member States while respecting national energy choices, and underpinned by the principle of solidarity.

In the short term, to prepare for winter 2014/2015:

- A series of immediate actions aimed at increasing the EU's capacity to overcome a major disruption.

In the short term/medium term:

- Strengthening emergency/solidarity mechanisms including coordination of risk assessments and contingency plans; and protecting strategic infrastructures;
- Completing the integrated internal market;

In the medium term:

- Moderating energy demand;
- Increasing EU energy production
- Diversifying external supplies;

In the medium and long term:

- Improving coordination of national energy policies and speaking with one voice in external energy policy.

Today, the EU is the only major economic actor producing more than 50% of its electricity without greenhouse gas emissions<sup>1</sup>. This trend must continue. In the long term, the Union's energy security is inseparable from its need to move to a competitive, low-carbon economy. This European Energy Security Strategy must, therefore, put the overarching principles and objectives of the 2030 policy framework on climate and energy<sup>2</sup> at its core. It is important, therefore, that decisions are taken on this framework soon, as indicated by the European Council, and that Member States gear up collectively to prepare and implement long-term plans for competitive, secure and sustainable energy.

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<sup>1</sup> 23% renewable energy and 28% nuclear energy.

<sup>2</sup> COM(2014) 15

## **1. IMMEDIATE ACTIONS AIMED AT INCREASING THE EU'S CAPACITY TO OVERCOME A MAJOR DISRUPTION DURING THE WINTER 2014/2015**

In view of current events in Ukraine and potential for disruption of energy supplies, short term action must focus on those countries that are 100% dependent on one single gas supplier. The number of options in the short term is inevitably more limited and may entail actions which are not necessarily consistent with the EU's mid and long-term objectives. Moreover, meeting energy security demands in the short term will come at a cost.

For the Winter 2014-2015, the Commission will ensure coordination with Member States and all key players (regulators, TSOs, operators) in order to increase storage having a particular attention to vulnerable areas (e.g. using fully the Latvian storage capacity in the Baltic region), develop reverse flows (following the successful example of the Slovak/Ukraine Memorandum of Understanding), develop security of supply plans at regional level and analyse more the LNG potential.

### Key actions

The Commission and Member States should reflect before the summer on practical ways to:

- Perform a stress test of the EU energy system in light of the supply disruption risks in the upcoming winter, and developing back-up mechanisms if necessary; such as:
  - increasing gas stocks,
  - developing emergency infrastructures [add here what is the estimated volume of currently stored gas which could be disposed of in case of emergency ];
  - Reducing energy demand in the very short term;
- Increase energy production by main suppliers, through increased EU engagement with supplier countries, to the extent that the necessary infrastructure is available.
- Where production cannot be increased, temporarily re-directing globally available gas resources, notably LNG;
- Coordinating at EU and/or regional level national risk assessments and contingency plans;
- Pooling of part of the existing energy security stocks at EU or international level into a virtual common capacity reserve.

## **2. STRENGTHENING EMERGENCY/SOLIDARITY MECHANISMS INCLUDING COORDINATION OF RISK ASSESSMENTS AND CONTINGENCY PLANS; AND PROTECTING STRATEGIC INFRASTRUCTURE**

The EU and its Member States have an overriding priority: ensure that best possible preparation and planning improve resilience to sudden disruptions in energy supplies, that strategic infrastructures are protected and that the most vulnerable Member States are collectively supported.

## **2.1. Oil stocks and refining capacities**

These risks are mitigated by the obligation for Member States to build up and maintain minimum reserve of crude oil and petroleum products<sup>3</sup>. The current level of stock is about 120 days of consumption, well above the minimum requirement of 90 days. Moreover, the EU stockholding obligation is consistent and linked with the oil stockholding obligation developed under the International Energy Agency (IEA). These instruments have demonstrated their relevance and efficiency. The guarantee that no physical shortage of supply is likely to occur is a fundamental element to temper market fluctuations in case of a crisis. The EU should therefore promote further international cooperation and transparency concerning oil stocks and oil markets, involving notably major new consumers like China and India.

## **2.2. Preventing and mitigating gas supply disruption risks**

Since the 2006 and 2009 gas supply crises, the EU has strengthened its coordination capabilities in order to prevent and mitigate possible gas supply disruptions<sup>4</sup>. Investments in back-up infrastructure are now obligatory: by 3 December 2014 Member States must be able to meet peak demand even in the event of a disruption of the single largest infrastructure. In addition, reverse flows must function on all cross border interconnections between Member States.

The EU is also better prepared for gas supply disruptions. There are European rules to secure supplies to protected customers (e.g. customers that use gas for heating) under severe conditions, including in the case of an infrastructure disruption under normal winter conditions, and Member States need to draw up Emergency Preparedness Plans and Emergency Response Plans. The Gas Coordination Group, involving Member States, regulators and all stakeholders, has proven to be an effective EU-wide platform to exchange information between experts and coordinate action. These rules provide a European framework that creates trust and ensures solidarity as it guarantees that Member States act on their national responsibilities and collectively enhance security of supply.

The experience so far with respect to gas security of supply has shown that there are synergies in further cooperation across borders, for example by developing risk assessments (stress tests) and security of supply plans at regional and EU levels, by developing a regulatory framework for gas storages that recognises their strategic importance for supply security, or by a more precise EU-wide definition of "protected customers". This will be part of the full review of the existing provisions and their implementation of the Security of Gas Supply Regulation that the Commission will finalise before the end of 2014.

Furthermore, at international level, new security of supply instruments could be envisaged with key strategic partners. Pooling a minimal part of the existing security

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<sup>3</sup> Directive 2009/119/EC of 14 September 2009 imposing an obligation on Member States to maintain minimum stocks of crude oil and/or petroleum products

<sup>4</sup> Regulation (EU) No 994/2010 of the European Parliament and of the Council of 20 October 2010 concerning measures to safeguard security of gas supply and repealing Council Directive 2004/67/EC

stocks into a virtual common capacity reserve – for instance under the IEA – could allow for rapid response in case of a limited disruption<sup>5</sup>.

### **2.3. Protection of critical infrastructures**

The EU has started to develop a policy to address the physical protection of critical infrastructures (against threats, hazards...) which includes energy infrastructures<sup>6</sup>. Increasing attention shall be given to IT security. In addition, it is necessary to launch a wider debate on the protection of strategic energy infrastructures such as gas and electricity transmission systems which are providing a service of general interest for all consumers. This debate should address the acquisition of strategic infrastructures by non-EU entities, notably by state-companies, national banks or sovereign funds from key supplier countries, which aim more at penetrating the EU energy market or hampering diversification rather than the development of the EU network and infrastructure. It should also assess the advantages of an overall energy system that balances appropriately centralized and decentralized energy production, with the aim of building a system that is both economically efficient and resilient to outages of individual major assets.

The existing provisions on unbundling of gas transmission activities already foresee a mechanism to ensure that transmission system operators controlled by non-EU entities comply with the same obligations as those controlled by EU entities. However, the recent experience of certain non-EU operators challenging the application of EU legislation on EU territory might call for a stricter approach and a reinforcement of the applicable rules at EU and Member states level.

### **2.4. Formalised solidarity mechanisms among Member States**

The solidarity that is the hallmark of the EU requires practical assistance for those Member States most vulnerable to severe energy supply disruptions. Proper contingency planning, based on stress tests of the energy systems and discussions with national authorities and industry, should therefore be organized and regularly reviewed, with the aim of guaranteeing minimum levels of intra-EU deliveries of alternative fuel supplies to complement emergency stocks. In view of current events, the immediate focus should be on Member States on the eastern border of the EU

#### Key actions

The Commission will:

- review existing mechanisms to safeguard security of energy supply and propose their reinforcement where necessary, notably as regards (oil), gas storage, uranium/nuclear fuel, the protection of strategic energy infrastructures and the proper balance between centralised and decentralised assets. (1.1-1.4)
- Propose to Member States and industry new contingency coordination mechanisms and plans to deliver energy to countries in times of need, based on risk assessments (stress tests). The immediate focus should be on all Member States on the eastern border of the EU (1.5)

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<sup>5</sup> This possibility was highlighted in the Joint Statement adopted on 6 May 2014 at the Rome G7 Energy Ministerial meeting.

<sup>6</sup> Directive 2008/114/EC of 8 December 2008 on the identification and designation of European critical infrastructures and the assessment of the need to improve their protection

### **3. BUILDING A WELL-FUNCTIONING AND FULLY INTEGRATED INTERNAL MARKET**

The best guarantee for security of supply is the creation of a European internal market where investment decisions are driven by market signals, in a market framework that takes into account policy aims such as sustainability and security. Government interventions that impact this market framework, such as national decisions on renewable or efficiency targets, decisions to support invest in (or decommissioning of) nuclear generation, or decisions to support key infrastructure projects (such as NordStream, SouthStream, TAP or a Baltic LNG Terminal) need to be discussed at European and/or regional level to ensure that they are decided upon in a consistent market framework, i.e. a level-playing field at EU level. Otherwise decisions in one Member State may undermine security of supply of another Member State. Various tools exist at EU level to prevent this (internal market legislation, TEN-E Guidelines, State-Aid control), but a real European Energy Security Strategy requires that enforcement tools are preceded by a strategic discussion at EU level, not only at national level.

#### **3.1. Making the internal market for electricity and gas work better<sup>7</sup>**

The 3<sup>rd</sup> internal energy market package sets the framework within which the European internal market needs to develop. The Heads of State have agreed that the internal market should be realised by 2014. There are positive developments but much remains to be done.

Positive steps have been achieved in regional market integration. Optimal levels of competition, liquidity, and low market concentration provide an effective hedge against abuses of market or political power by individual suppliers. Well-developed trading mechanisms and liquid spot markets can offer effective short term solutions in the event of disruptions, as is already the case for oil or coal. The same security can be achieved for gas and for electricity, provided that pipeline capacity and grids are available to ship supplies from one place to the other.

A regional approach has been and will also in the future be decisive for the integration of the European energy market in terms of cross border exchanges as well as security of supply (including capacity mechanisms).. The Nordic countries (Finland, Sweden, Denmark and Norway) have shown the example in the electricity sector with an early integration of their markets into NordPool. Likewise, the Pentalateral Forum in the North-West (including initially France, Germany, Belgium, the Netherlands, Luxemburg and Austria) has initiated ground breaking integration projects in both the electricity and the gas sector. Transmission system operators and regulators have also made decisive steps towards market coupling in several areas<sup>8</sup>. In gas, an achievement of similar impact is the establishment of the PRISMA-platform in 2013, where interconnection capacity for the networks of 28 TSOs responsible for transporting 70% of Europe's gas is auctioned in a transparent and uniform manner. However, neither the Baltic States and Finland, nor the South East of Europe, currently fully benefit from the security of supply advantages of this regional integration in the gas and electricity sectors. Targeted approaches that identify critical infrastructure (see point 3.2) as well as the development of regional gas hubs in these regions, is key in this regard.

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<sup>7</sup> [general reference to the IM Report 2014]

<sup>8</sup> A prime example of such regional cooperation was the establishment in February 2014, by grid operators and power exchanges from fourteen Member States, of the so-called 'day-ahead market coupling'.

Also with respect to gas, proper implementation of the Network Codes will significantly improve energy security, as it will enhance open and non-discriminatory access to transmission systems so that gas can flow freely and flexibly across the EU.

In addition, antitrust and merger control rules must continue to be vigorously enforced since they ensure that the EU security of supply and industry bargaining position is not weakened through anticompetitive behavior from and/or excessive consolidation or vertical integration of non-EU energy companies.

### **3.2. Accelerating the construction of key interconnectors**

A truly integrated and competitive internal energy market not only needs a common regulatory framework but also significant development of energy transport infrastructure, in particular cross-border interconnections between Member States. The Commission estimates that some 200 billion Euro are required until 2020 in this respect, but that the market can currently only deliver roughly half of this.

The Regulation on the Guidelines for trans-European energy networks together with the Connecting Europe Facility (CEF) were designed to identify and ensure the timely implementation of the key projects Europe needs along 12 priority corridors and areas. The first Union list of projects of common interest (PCI) was adopted in 2013. Out of the 248 projects of common interest (PCI), 30 projects in gas and 4 in electricity have been identified as critical for EU's energy security in the short and medium terms (indicative list in Annex 2). About half of these projects are planned to be implemented in the short term between now and 2017 whilst the remaining projects have a planned commissioning date until 2020. The large majority of these critical projects are located in Eastern Europe and in South Western Europe. The cost of these projects is estimated at around €15 billion.

The primary objective for the EU infrastructure policy is thus to ensure the timely implementation of the PCIs. Together with the streamlined permit granting procedures, the 5.8 billion Euro of the CEF is key to ensure the timely implementation of the PCIs. However, it represents only app. 3% of the 200 billion Euro investment needs up to 2020. For the CEF to make a difference it must be targeted to few critical projects and it must also be combined with the efforts of regulators by paying for part of the infrastructure through network tariffs and of Member States taking the possibilities offered by the Structural Funds.

The critical PCIs are mainly large scale projects, except a few LNG terminals and storage projects, and inherently complex and prone to delays. Hence, the possibilities to speed up their implementation require more than just early CEF support. The Commission therefore intends to intensify its support to the critical projects by bringing together the project promoters to discuss technical possibilities to speed up and National Regulatory Authorities (NRA) to agree on cross-border cost allocation (CBA) and financing as well as the relevant Ministries to ensure strong political support both in view of the first but also the later calls.

In March 2014, the European Council conclusions called for: "*Speedy implementation of all the measures to meet the target of achieving interconnection of at least 10 % of their installed electricity production capacity for all Member States*". Taking into account the importance of strengthening security of supply and the need to facilitate cross-border exchanges, the European Commission proposes to extend the current 10%

interconnection target to [15]% by 2030 while taking into account the cost aspects and the potential of commercial exchanges in the relevant regions.

### 3.3. The European oil market

Russia is the EU's main supplier of crude oil [figure from the report], that is refined in the EU's refineries today and some refineries are optimized for these crudes. Whilst there is sufficient refining capacity to meet overall demand for petroleum products, the EU is a net exporter of gasoline and a net importer of diesel and jet fuel mainly from Russia and the USA. Russia lacks sufficient capacity to refine the crude oil that it produces, and relies, therefore, on international trade and refinery capacity in the EU. The interdependence between the EU, US, and Russia in relation to oil, the availability of oil stocks, and the ability to trade and transport oil globally, means that there is no immediate threat for the EU in relation to its oil supplies.

There are, however, issues that need to be closely monitored and that require a more strategic coordination of the EU's oil policy:

- The dependence of the EU's refinery industry on Russian crude oil;
- The increased concentration of power in the Russian oil industry, and the increased ownership of Russian oil companies in the EU refinery capacity;
- Refined products consumed in transport;

In the context of the fast growing refining capacity globally, a decreasing demand from North America and the structural imbalance between petrol and diesel in the EU, the EU's refining sector faces significant challenges to remain competitive as evidenced by the reduction in refining capacity and the investment into foreign, in particular Russian, ownership. Combined with the dependence on Russian crude oil, and the emerging influence of Russian players, the refinery industry is vulnerable to political interference. In a long-term perspective, it is important to maintain competitive refining capacities in Europe to avoid overdependence on imported refined petroleum products and to be able to process crude oil stocks with sufficient flexibility. Furthermore, refineries form a crucial part of the chemical industry, which often clusters together geographically.

In the long-term, the EU's oil dependency, in particular in transport, needs to be reduced. More efforts are therefore needed to increase the fuel-efficiency of vehicles and to use other fuels (e-mobility, hydrogen fuel cells). The Member States and the Commission need, therefore, to reflect if the recent decisions on fuel-standards and on infrastructure for alternative fuels, whose ambition was reduced considerably, need to be revisited as part of a comprehensive strategy for the EU to become less oil-dependent.

#### Key actions

Member States should:

- Strengthen regional cooperation between Member States where interconnectors, balancing arrangements, capacity mechanisms and market integration are contributing to energy security;
- complete the transposition of internal energy market legislation as foreseen by the end of 2014, notably as regards, unbundling rules, reverse flows and access to gas storage facilities.

- Intensify discussions on the Energy Taxation Directive to reduce the tax incentives for diesel and restore the balance between refinery capacity and oil product consumption in the EU.
- Implement the recently adopted Clean Fuel for Transport directive.

Transmission System Operators must:

- Speed up the adoption and implementation of the network codes for gas and electricity.

The Commission will:

- speed up infringement procedures related to internal market legislation where required.
- Work with Member State to ensure speedy implementation of all the Projects of Common Interest and other measures to meet the target of achieving interconnection of at least 10 % of their installed electricity production capacity for all Member States by 2020 and a 15% target by 2030. Pool all available Community Funds, including Structural Funds and European Investment Bank support to help accelerate the construction of key interconnectors.
- Consider in cooperation with Member States and their National Regulatory Authorities what measures can be taken to speed up the appropriate CBA for the critical projects identified in annex 2 and all measures that could lead to their completion in the coming two to three years.
- Discuss with industry and Member States how to diversify crude oil supplies to EU refineries to reduce dependency on Russia;
- Identify EU-wide strategic assets in the oil value chain and coordinated action to ensure that consolidation of the EU's refinery capacity is done in a way that improves the EU's energy diversification.
- Cooperate with the IEA to monitor the oil value chain and ensure that transparency of flows, investments, and ownership is promoted;
- Consider further steps to develop an ambitious policy that integrates transport and its effects on the oil value chain to reduce oil dependency and CO2 emissions.

#### **4. MODERATING ENERGY DEMAND**

Moderating energy demand is one of the most effective medium term tools to reduce the EU's external energy dependency and exposure to price hikes. The current situation adds urgency to the previously agreed EU energy efficiency target of 20% that will result in 371 Mtoe primary energy savings in 2020 compared to projections. These savings can be achieved if the measures foreseen in the relevant legislation are implemented rigorously and without delays. In particular, this applies to the Energy Efficiency Directive ("EED") and the Energy Performance of Buildings Directive ("EPBD").

Achieving significant energy savings is only possible if there is a clear identification of priority sectors as well as mobilisation of investment capital that can be easily accessed. Energy demand in the building sector, responsible for about 40% of energy consumption

in the EU and a third of natural gas use<sup>9</sup> could be cut by up to three quarters if the renovation of buildings is speeded up. Improvements in district heating and cooling can also make an important contribution. Likewise, there is significant potential in the EU industry where there are still large differences among Member States when it comes to the share of energy costs in the production costs.<sup>10</sup> Industry consumes around one quarter of the total gas used in the EU.

The private sector has a key role to play but the European Structural and Investment Funds have ring-fenced<sup>11</sup> a significant EUR 27 billion specifically for low carbon economy investments including energy efficiency. Financial Instruments<sup>12</sup> can leverage additional private capital investment participation while the new business models of ESCOs (energy performance companies) can deliver savings across the energy system.

Investment in new energy technologies can contribute to security of supply, by building up new indigenous capacity and optimising the energy system. In particular, new technologies can deliver efficient and cost-effective solutions to improve the efficiency of buildings and local heating systems, to store energy and to better manage grids.

### Key actions

Member States should:

- Speed up measures to achieve the 2020 energy efficiency target, focusing on heating and insulation in particular in buildings and industry, notably through:
  - ambitious implementation of the EED and the EPBD,
  - reinforced regulatory and public financial support to accelerate the renovation rate and the roll-out of district heating systems,
  - promotion of energy services and demand response with new technologies, for which EU financial support, in particular Structural Funds, can complement national financing schemes;
  - in coordination with the Commission, fostering the development by industry of "industrial sector energy efficiency plans" that would prioritise energy audits for large industrial sites in order to identify and implement rapidly savings with short pay-back time such as optimisation of production processes and industrial insulation and additional structural efficiency measures with medium and long-term energy savings potential.

The Commission will:

- Review the EED this summer to assess progress towards the 2020 energy efficiency target and will develop broad lines of a 2030 energy efficiency framework;
- Identify clear priority sectors in which energy efficiency gains can be achieved in medium to long term, including in the Member States most vulnerable to supply disruptions,
- Identify remaining barriers to energy efficiency take up and the development of a

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<sup>9</sup> Mainly for space heating and domestic hot water.

<sup>10</sup> Commission's Communication "Energy prices and costs in Europe", page 11.

<sup>11</sup> A minimum 12%, 15% or 20% of the ERDF allocation has to be invested into the "shift to low-carbon economy" investments in less developed, transition and more developed regions of the EU, respectively.

<sup>12</sup> For example, the "renovation loan" is a standardised off-the-shelf instrument based on a risk-sharing loan model

genuine energy efficiency services market and propose ways to address them through non-legislative measures.

Mainstream energy security in the definition of Horizon 2020 priorities and adapt the Integrated Roadmap of the Strategic Energy Technologies Plan in line with the energy security priorities.

## **5. INCREASING ENERGY PRODUCTION IN THE EUROPEAN UNION**

The Union can reduce its dependency on particular suppliers and fuels by maximising its use of indigenous sources of energy.

### **5.1. Increasing energy production in the European Union**

In the past two decades, indigenous energy production in the European Union has been steadily declining<sup>13</sup>. It is however possible to slow down this trend in the medium term by increasing the use of renewable energies, nuclear energy where this option is chosen, as well as sustainable production of competitive fossil fuels reserves.

#### *Renewable energy*

In 2012, energy from renewable sources was estimated to have contributed 14.1% of EU final energy consumption and should reach the objective of 20% in 2020. Looking beyond 2020, the Commission has proposed to increase the share of renewable energy to at least 27% of EU final energy consumption.

There is a significant cost-effective potential for renewable electricity and renewable heating to reduce natural gas use in a number of sectors by the end of this decade. According to the national renewable energy plans, Member States already plan to add an additional 29 Million tonnes of oil equivalent (Mtoe) of renewable heating and an additional 39 Mtoe of renewable power between 2012 and 2020. These plans could be ‘front-loaded’ using national and European Structural and Investment Funds, in collaboration with EIB and international financial institution support.

Renewable energy is a no-regrets option but there have been concerns about the costs and +impacts on functioning of the internal market. With technology cost reductions, many renewable energy sources are increasingly competitive and ready to join the market (e.g. onshore wind power). The new Guidelines on State aid for environmental protection and energy 2014-2020 will also promote a more cost-effective achievement of the 2020 national renewable energy targets.

#### *Hydrocarbons and clean coal*

The exploitation of conventional oil and gas resources in Europe, both in traditional production areas (e.g. the North Sea) and in newly discovered areas (e.g. Eastern Mediterranean), should be supported in full compliance with existing energy and environmental legislation, including the new Offshore Safety Directive<sup>14</sup>. Moreover, producing oil and gas from unconventional sources in Europe, and especially shale gas,

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<sup>13</sup> Between 2001 and 2012, energy production declined by 15%

<sup>14</sup> 2013/30/EU

could partially compensate for declining conventional production<sup>15</sup> providing issues of public acceptance and environmental impact are adequately addressed. To date, first exploration activities are on-going in some Member States. A more accurate overview of EU's unconventional reserves (economically recoverable resources) [is being prepared by the Commission] in order to enable possible commercial scale production.

In the past two decades both the domestic production and consumption of coal has declined in the EU. However, coal and lignite represent a significant share in electricity generation in several Member States and about 27% at EU level. Although the EU is currently importing approximately 40% of its needs for solid fuels for electricity, heat and steel production, this is procured from a well-functioning and diversified global market providing the Union with a secure import base. Coal and lignite's CO<sub>2</sub>-emissions mean that they only have a long-term future in the EU if using Carbon Capture and Storage. CCS also offers potential to further improve gas and oil recovery that would otherwise remain untapped. However, developments in the area of CCS have to date been very slow, difficult and expensive.

### Key actions

Member States should:

- Continue the deployment of renewable energy sources in order to achieve the 2020 target in the context of a market-based approach and notably:
  - Initiate the Europeanization of renewable energy support systems through improved coordination of national support schemes;
  - Accelerate fuel switch in the heating sector to renewable heating technologies;
  - Ensure stable national regulatory frameworks and address administrative barriers;
  - Provide structured credit lines to renewable projects on all levels (large and small scale) through a concerted initiative by the European Investment Bank and national investment banks.
- Exploit hydrocarbons and clean coal taking into account the decarbonisation priorities:
  - Stream-line national administrative procedures for hydrocarbon projects, including by carrying out Strategic Impact Assessments and setting up one-stop-shop for granting permitting procedures;
  - Assess the potential of unconventional hydrocarbons taking full account of Recommendation 2014/70/EU in order to ensure that the highest environmental standards are implemented and, for this purpose, establish a European science and technology Network on unconventional hydrocarbon extraction;
  - Support demonstration projects for Carbon Capture and Storage (such as the ROAD project) which need clear financial support if CCS is to be commercially deployed.

The Commission will:

- Review the CCS Directive.

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<sup>15</sup> JRC study on potential to mitigate EU declining gas production through unconventional gas resource

## **6. DIVERSIFYING EXTERNAL SUPPLIES AND RELATED INFRASTRUCTURE**

### **6.1. Gas**

Imports represent some 70% of EU gas consumption. The EU net imports of natural gas are expected<sup>16</sup> to remain stable and then slightly increase to reach about 340-350 bcm by 2025-2030. In 2013 39% of gas imports by volume came from Russia, 33% from Norway and 22% from North Africa (Algeria and Libya). Other sources only represented 4%. LNG imports from these and other countries (e.g. Qatar, Nigeria) have been increasing as a share to reach 20% in 2011, but have dropped since then to 15% because of higher prices in Asia.

Accessing more diversified natural gas resources is a priority, whilst maintaining significant import volumes from reliable suppliers. LNG will remain and grow as a major potential source of diversification in the years to come. New LNG supplies from Northern America, Australia, Qatar and new discoveries in East-Africa are likely to increase the size and liquidity of the global LNG markets. In the US, the first liquefaction plant on the East-Coast is expected to be operational by 2015-2017 with a capacity of about 24 bcm/y. Many other projects are being developed. It is expected that most of the volumes would be directed to the Asian markets, but some European companies are already negotiating LNG supply contract with US LNG producers. These evolutions should be adequately reflected in the on-going negotiations on a Transatlantic Trade and Investment partnership (TTIP). Both Norwegian (up to 116bcm/y in 2018 from the current level of 106 bcm/y) and North African (potentially huge unexplored or unexploited hydrocarbons resources and the advantage of geographical proximity) production have potential to grow. The Union should improve internal interconnections to ensure that gas from these suppliers reaches all regional markets in line with existing interconnection targets. Moreover, new supplies from the Caspian region are also being developed. In a first phase it is expected that by 2020 10 bcm/y of natural gas produced in Azerbaïdjan will reach the European market through the southern Gas Corridor. The currently envisaged infrastructure in Turkey could accommodate up to 25 bcm/y for the European market. In the longer term perspective, other countries such as Turkmenistan, Irak and Iran, if conditions are met to lift the sanctions regime, could also significantly contribute to the enlargement of the Southern Gas Corridor. Furthermore, the EU should engage in intensified political dialogue with the Northern African partners, in particular with a view to creating a Mediterranean gas hub in the South of Europe.

All of this will only be possible if import infrastructure capacities are made available and if gas volumes are on sale at an affordable price. Appropriate EU and Member State cooperation will be required (see section 6).

### **6.2. Uranium and nuclear fuel**

Electricity produced from nuclear power plants constitutes a reliable base-load electricity supply of emission free supply and plays an important role for energy security. The relative value of the nuclear fuel is marginal in the total production cost of electricity compared to gas or coal fired plants, and uranium is only a small part of the total cost of the nuclear fuel. The worldwide uranium supply market is stable and well-diversified but the EU is nonetheless completely dependent on external supplies. There are only a few

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<sup>16</sup> EU Energy, transport and GHG emissions trends to 2050 – Reference scenario 2013- European Commission

parties in the world that are able to transform Uranium into the fuel for the nuclear reactors, but the EU industry has the technological leadership on the whole chain, including enrichment and reprocessing.

Nuclear safety is for the EU an absolute priority. The EU should remain the pioneer and architect at international level for nuclear safety. It is therefore important to accelerate the adoption of the amended nuclear safety directive, reinforcing the independency of nuclear regulators, information of the public and regular peer reviews.

However, Russia is a key competitor in nuclear fuel production, and offers integrated packages for investments in the whole nuclear chain. Therefore, particular attention should be paid to investments in new nuclear power plants to be built in the EU using non-EU technology, to ensure that these plants are not dependent only on Russia for the supply of the nuclear fuel: the possibility of fuel supply diversification needs to be a condition for any new investment, to be ensured by the Euratom Supply Agency. Furthermore, an overall diversified portfolio of fuel supply is needed for all NPP-operators.

#### Key actions

The Commission and Member States should jointly:

- Examine ways to increase transparency at EU level regarding security of gas supply, for instance by issuing periodic reports by the Commission based on notifications of new important gas contracts;
- Assess options for voluntary demand aggregation mechanisms that could increase the bargaining power of European buyers in compliance with EU legislation;
- Support the development and further expansion of gas supply infrastructure with Norway, the Southern Gas Corridor as well as the Mediterranean gas hub.
- Put in place a monitoring system at EU level for energy supply security based on annual reports by the European Commission to the European Council and European Parliament.
- Accelerate the adoption of the amended Nuclear Safety Directive;
- For new-build, a reasonable diversification of fuel supplies should be taken into account in the Commission point of view on investment notifications;
- The assessment of security of supply should also be reinforced in the context of the recommendation given by the Commission on the notification by Member States of draft agreements or contracts with third countries.

The Commission will:

- Systematically take into consideration for the assessment of new investment projects in nuclear energy security and diversification of fuel supplies in the context of the recommendation given by the Commission on the notification by Member States of draft agreements or contracts with third countries.

## 7. IMPROVING COORDINATION OF NATIONAL ENERGY POLICIES AND SPEAKING WITH ONE VOICE IN EXTERNAL ENERGY POLICY

Many of the measures described above point to the same underlying priority: the need for Member States to better coordinate important energy policy decisions. It is clear that decisions on the energy mix are a national prerogative, but the progressive integration of energy infrastructure and markets, the common reliance on external suppliers, the need to ensure solidarity in times of crisis, implies that fundamental political decisions should be discussed with neighbours. The same holds true for the external dimension of EU energy policy, where national decisions impact widely beyond Member State borders.

The Commission welcomes, therefore, the calls made by certain Member States in favour of an Energy Union and will analyse the detailed proposals included.

As a first step, it calls for the creation of a mechanism that would enable Member States to inform each other of important decisions related to the energy mix prior to their adoption and detailed deliberation, so as to take on board relevant comments in the national decision process.

On the external side, based on a progress report<sup>17</sup> presented by the Commission in September 2013 related, the Council adopted a report<sup>18</sup> on 12 December 2013 which notably highlights the “*case for a coordinated and coherent Europe that speaks with one voice and acts as one on key energy issues*”. This will require *inter alia* a more systematic inclusion of energy issues in all third country contacts, in particular in Summits with strategic partners and a review of the EU-level energy dialogues with major supplier countries. The recent Joint Statement of the G7 Rome Energy Ministerial is a good model of our reinforced cooperation with key partners. It will also require that the EU and Member States continue to develop consistent and coordinated messages in their dealings with international organisations and fora. Furthermore, the Energy Community which aims to expand the EU's energy acquis to enlargement and neighbourhood countries should be further strengthened in the light of the EU's security of supply concerns. This should be achieved by promoting energy sector reforms in the participating countries, supporting the modernisation of their energy system and their full integration in the EU energy regulatory framework. Moreover, the Energy Community institutional setting should be enhanced in short to medium term with view to strengthening the enforcement mechanisms.

In particular, Member State's agreements with third countries in the field of energy shall be fully compliant with EU legislation and the EU security of supply policy. For this purpose, the Commission and Member States shall make full use of the possibilities offered by Decision No 994/2012/EU of the European Parliament and of the Council of 25 October 2012 establishing an information exchange mechanism with regard to intergovernmental agreements between Member States and third countries in the field of energy. This particularly relate to the possibility to develop standard provisions and to request the Commission's assistance during negotiations. Moreover, at the light of recent experiences, Member States and concerned companies must inform the Commission as early as possible before concluding intergovernmental agreements having a potential

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<sup>17</sup> Report from the Commission on the Implementation of the Communication on Security of Energy Supply and International Cooperation and of the Energy Council Conclusions of November 2011 [COM(2013) 638]

<sup>18</sup> Council Report “Follow-up to the European Council of 22 May 2013: review of developments on the external dimension of the EU energy policy” adopted on 12 December 2013.

impact on security of energy supplies and diversification options and seek advice from the Commission during the negotiations.

A particular area of interest is gas, where increased EU political-level engagement with prospective supplier countries would pave the way for commercial deals without jeopardizing the further development of a competitive EU internal market. In addition, in certain cases, aggregating demand could increase the EU bargaining power.

Regarding joint purchasing of natural gas, reference has been made to the "collective purchasing mechanism" of the Euratom Supply Agency. In the present context where there is no risk of security of supply on the uranium market, this mechanism leaves full freedom to commercial partners to negotiate their transactions. The co-signature of the contracts by the Euratom Supply Agency confirms only that there is no risk of security of supply. If a contract would jeopardize security of supply the Agency maintains the right to object to it. On the basis of the notifications and other information received, the Euratom Supply Agency also increases transparency of the nuclear fuel market by issuing periodic reports.

The Commission, in close cooperation with the Member States, will examine if a procedure could be developed for gas which would contribute to increasing transparency of the market as well as taking into account energy security needs. In addition, voluntary demand aggregation mechanisms that could increase the bargaining power of European buyers could be assessed. These options would need to be carefully designed and executed to avoid concerns arising from competition law.

#### Key actions

The Commission:

- Will ensure the implementation of the measures identified in its communication on external energy policy of September 2011.

Member States:

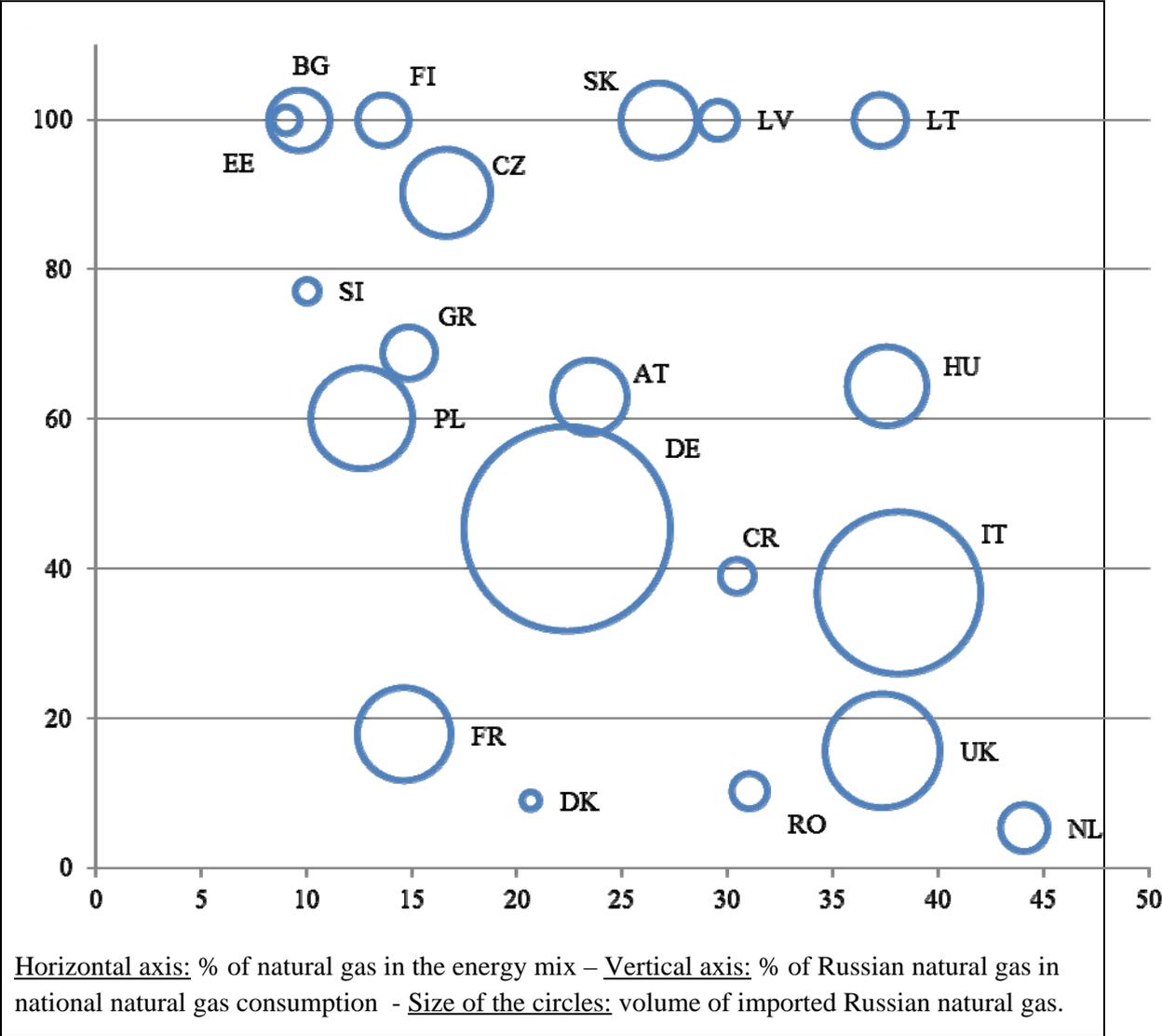
- To inform each other of important national energy policy decisions prior to their adoption;
- Early information of the Commission before initiating negotiations on intergovernmental agreements having a potential impact on security of energy supplies and seeking Commission advice during the negotiations. This will ensure that agreements are concluded in full compliance with Union law.

## 8. CONCLUSIONS

*[Conclusions to be finalised later once content is stable]*

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**ANNEX 1: DEPENDENCY ON NATURAL GAS SUPPLIES FROM RUSSIA**



## ANNEX 2: STATUS OF KEY SECURITY OF SUPPLY INFRASTRUCTURE PROJECTS

### NATURAL GAS

<b>A Short-term projects (2014 – 2016)</b>			
	Name project	Details	Finished by
	Baltic gas market		
1	PL - LNG – terminal	Swinoujście – enough pipeline capacity to ship onwards	End 2014
2	LT- LNG vessel	Vessel and connecting pipeline in Klaipėda None PCI as 100% financed by LT	End 2014
	Cluster Gas optionality in South-East Europe		
1	GR-BG interconnector	2 year delay in financial investment decision endangers the contract for 1 bcm from Shaz Deniz (Azeri gas). Design, EIA	Planned 2016
2	GR-BG	Permanent reverse flow; pre-feasibility	Planned 2014 (?)
3	BG – Chiren storage	Increase storage capacity; pre-feasibility	?
4	HU-AT reverse flow	In need of additional funding	?
5	HU – RO reverse flow	Necessary compressor station in RO budgeted too low – project being taken off list	Could be quick if decided
6	GR-BG reverse flow	6 bcm planned, 3 bcm can currently be booked	In operation for part of capacity
7	BG-SRB interconnector	Pre-investment, EIA, routing	Planned: 2016
8	BG-TU interconnector	Feasibility and pre-investment work, to be developed in stages	First stage at start of 2015
9	SK–HU interconnection	Pipe with reverse flow. Permitting stage	2015 (realistic?)
<b>B Medium-term projects (2017 – 2020)</b>			
	Name project	Details	Finished by
	Baltic gas market		
1	PL-CZ interconnector	Stork II – EIA in CZ issued, PL not yet	2019
2	PL-SK interconnector <sup>19</sup>	Financial Investment decision in 2014	2019
3	3 pipes and compressor station in PL	Crucial for enabling gas to flow between Baltic and Adriatic	2017
4	PL-LT interconnector	Ends isolation of the Baltics	2016
5	FI-EE interconnector	Baltic Connector – to be decided by MS	?
6	Baltic LNG terminal	Location to be decided between EE and FI	? (can be quick)
7	LV-LT interconnector	Enhancement of interconnector – lack of political commitment	?
	Other		
1	ES-FR Midcat pipe	Interconnection at Le Perthus to enable ES excess gas to flow north; feasibility study	?
	Cluster Gas optionality in South-East Europe		
1	TANAP	Trans-Anatolian Natural Gas Pipe bringing Azeri (later maybe Uzbek) gas to the EU via Turkey	2019
2	TAP – GR-ALB-IT	Trans Adriatic pipeline	2019
3	HU-RO reverse flow	Compressor station necessary in RO.	

<sup>19</sup> These two interconnectors make flows between the Baltic and Adriatic possible (Southern Corridor gas), but also gas from DE-NL-NO could be thus transited increasing significantly security of supply situation in whole (South)-Eastern Europe

4	ALB-HR interconnect	Financial investment decision end 2014	2018
5	BG – internal system	Rehabilitation and expansion of transport system. At feasibility study phase	?
6	RO – internal system and reverse flow - UKR	Rehabilitation and expansion of transport system. Status: problems with RO ban on export and Gazprom opposition to reverse flow	?
7	GR - system	Independent natural gas system	2017
8	GR - compressor	Compressor station at Kipi	
9	GR- Aegean LNG	LNG floating terminal at Bay of Kavala	Planned 2016, impossible

## ELECTRICITY

<b>A Short-term projects (2014 – 2016)</b>			
	Name project	Details	Finished by
	End Baltic isolation		
1	Eastlink 1&2 Nordbalt 1&2	Interconnections Finland-Estonia Interconnections Sweden-Lithuania	in operation 2015
2	LT-PL interconnection	New interconnection and back-to-back converter stations; a subsequent stage planned for 2020; related reinforcements needed in PL	2015 (first stage)
<b>B Medium-term projects (2017 – 2020)</b>			
	Name project	Details	Finished by
	End Baltic isolation		?
1	Internal lines in LV and SE	Increasing capacity on the LV-SE interconnection (Nordbalt)	2019
2	EE-LV interconnection	Interconnection and related reinforcements in EE	2020
3	Synchronous interconnection of EE, LV, LT with the Continental European networks	Synchronisation of the Baltic states on the basis of several scenarios	2020?