



EUROPEAN  
COMMISSION

Brussels, 28.5.2014  
COM(2014) 330 final

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

**European Energy Security Strategy**

{SWD(2014) 330 final}

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 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 import 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 39% of EU natural gas imports or 27% of EU gas consumption; Russia exported 71 % 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 on one external operator for the operation and balancing of their electricity network;
- The EU external energy bill represents more than €1 billion per day (around €400 billion in 2013) and more than a fifth of total EU imports. The EU imports more than €300 billion of crude oil and oil products, of which one third from Russia.
- EU energy security has also to be seen in the context of growing energy demand worldwide, which is expected to increase by 27% by 2030, with important changes to 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 as from 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 addressed only at a national level without taking fully into account the interdependence of Member States. The key to improved energy security lies first in a more collective approach through a functioning internal market and greater cooperation at regional and European levels, in particular for coordinating network developments and opening up markets, and second, in a more coherent external action. This includes ensuring through the enlargement instruments that these guiding principles are followed by candidate countries and potential candidates.

Today, the EU is the only major economic actor producing 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 and significantly fostered by its need to move to a competitive, low-carbon economy which reduces the use of imported fossil fuels. This European Energy Security Strategy is, therefore, an integral part of the 2030 policy framework on climate and energy<sup>2</sup> and also fully consistent with our competitiveness and industrial policy<sup>3</sup> objectives. 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. Tackling energy security in a fast-changing environment will require flexibility, capacity to adapt and change. Hence, this strategy may need to evolve due to changing circumstances.

The Strategy sets out areas where decisions need to be taken or concrete actions implemented in the short, medium and longer term to respond to energy security concerns. It is based on eight key pillars that together promote closer cooperation beneficial for all Member States while respecting national energy choices, and are underpinned by the principle of solidarity:

1. Immediate actions aimed at increasing the EU's capacity to overcome a major disruption during the winter 2014/2015;
2. Strengthening emergency/solidarity mechanisms including coordination of risk assessments and contingency plans; and protecting strategic infrastructure;
3. Moderating energy demand;
4. Building a well-functioning and fully integrated internal market;
5. Increasing energy production in the European Union;
6. Further developing energy technologies;
7. Diversifying external supplies and related infrastructure;
8. Improving coordination of national energy policies and speaking with one voice in external energy policy.

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<sup>1</sup> 23% renewable energy and 27% nuclear energy.

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

<sup>3</sup> Communication from the Commission "For a European Industrial Renaissance", COM(2014)014

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

In view of current events in Ukraine and the potential for disruption to energy supplies, short term action must focus on those countries that are dependent on one single gas supplier.

For the winter ahead, the Commission will work together with Member States, regulators, Transmission Systems Operators and operators to improve the Union's immediate preparedness in respect of possible disruptions. Particular attention will be paid to vulnerable areas, to enhancing storage capacity (e.g. using fully the Latvian storage capacity in the Baltic region), to developing reverse flows (following the successful example of the Slovak/Ukraine Memorandum of Understanding), to developing security of supply plans at regional level and to exploiting more the potential of Liquefied Natural Gas.

### Key actions

The Commission and Member States should:

- Intensify cooperation within the Gas Coordination Group<sup>4</sup> and notably continue monitoring natural gas flows and the level of gas storage and coordinate at EU and/or regional level national risk assessments and contingency plans;
- Update the risk assessments and the Preventive Action Plans and Emergency Plans, as provided for by Regulation 994/2010.
- Launch energy security stress tests in light of the supply disruption risks in the upcoming winter, and develop back-up mechanisms if necessary; such as increasing gas stocks, developing emergency infrastructures and reverse flows and reducing energy demand or switching to alternative fuels in the very short term;
- Further cooperate with gas suppliers and transmission system operators to identify possible sources for short-term additional supplies, notably LNG.

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

The EU has an overriding priority: to ensure that the 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**

Member States are obliged to build up and maintain minimum reserves of crude oil and petroleum products and this will mitigate the risks of supply disruption<sup>5</sup>. Current stocks

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<sup>4</sup> Established by Regulation (EU) No 994/2010 concerning measures to safeguard security of gas supply

<sup>5</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

represent about 120 days of consumption which is well above minimum requirement of 90 days supply. 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 price fluctuations in the case of a crisis. The EU should therefore promote further international cooperation and transparency concerning oil stocks and oil markets, notably involving 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>6</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 asset. 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) in severe conditions, including in the case of 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 existing security stocks in a virtual common capacity reserve – for instance under the IEA – could allow for rapid response in the case of a limited disruption<sup>7</sup>.

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<sup>6</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.

<sup>7</sup> This possibility was highlighted in the Joint Statement adopted on 6 May 2014 at the Rome G7 Energy Ministerial meeting.

### 2.3. Protection of critical infrastructure

The EU has started to develop a policy to address the physical protection of critical infrastructure (against threats, hazards...) which includes energy infrastructure<sup>8</sup>. Increasing attention should be given to IT security. In addition, it is necessary to launch a wider debate on the protection of strategic energy infrastructure such as gas and electricity transmission systems which are providing a crucial service for all consumers. This debate should address the control of strategic infrastructure by non-EU entities, notably by state-companies, national banks or sovereign funds from key supplier countries, which aim at penetrating the EU energy market or hampering diversification rather than the development of the EU network and infrastructure. Respect of existing EU legislation has to be guaranteed for any acquisition by non-EU buyers of strategic infrastructure. 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 should also be assessed.

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 seeking to avoid compliance with EU legislation on EU territory might require a stricter application and a possible reinforcement of the applicable rules at EU and Member State level. In this context, the respect of EU internal market rules, notably as regards public procurement, also needs to be guaranteed.

### 2.4. 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; where appropriate, candidate countries and potential candidates could be associated to such mechanisms.

#### Key actions

The Commission will:

- Review existing mechanisms to safeguard security of energy supply and propose their reinforcement, where necessary, together with measures for the protection of strategic energy infrastructures and the proper balance between centralised and decentralised assets.
- 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 (energy security stress tests). The immediate focus should be on all Member States on the eastern border of the EU.

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<sup>8</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. MODERATING ENERGY DEMAND

Moderating energy demand is one of the most effective 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, industry consumes around one quarter of gas used in the EU and there is significant potential for energy efficiency gains driven by a strengthened Emissions Trading System as proposed by the Commission as part of the 2030 climate and energy framework.<sup>10</sup>

In order to trigger further investment from the private sector, which has a key role to play, the European Structural and Innovation (ESI) Funds have ring-fenced<sup>11</sup> a minimum of €27 billion specifically for low carbon economy investments, including energy efficiency. The current analysis of the programming of these funds by the Member States indicates that the actual amount of these investments will increase to over €36 billion. Financial instruments set up with ESI Funds contribution<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.

#### 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 of buildings and the improvement in/ roll-out of district heating systems,
  - promotion of energy services and demand response with new technologies, for which EU financial support, in particular ESI Funds, can complement national financing schemes;
  - accelerated implementation of the Sustainable Energy Action Plans

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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 national European Regional Development Fund (ERDF) allocation has to be invested to support the shift towards a low-carbon economy in all sectors in less developed, transition and more developed regions of the EU, respectively. If the Cohesion Fund (CF) is used for such investments, the share increases to 15% for less developed regions.

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

- submitted by municipalities participating to the Covenant of Mayor,
- fostering energy efficiency in industry through a strengthened EU ETS.

The Commission will:

- Review the EED this summer to assess progress towards the 2020 energy efficiency target and indicate how energy efficiency can contribute to the 2030 energy and climate policy framework;
- Identify clear priority sectors (in housing, transport and industry) in which energy efficiency gains can be achieved in the 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 genuine energy efficiency services market and propose ways to address them through non-legislative measures;
- Review the Energy Labelling and Ecodesign Directives building on experience gained to ensure a more effective reduction of energy consumption and other environmental impacts of products.

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

A European internal market for energy is a key factor in energy security and is the delivery mechanism to achieve it in a cost-effective way. Government interventions that affect this market framework, such as national decisions on renewable energy or efficiency targets, decisions to support investment 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 decisions in one Member State do not undermine security of supply in another Member State. Various tools exist at EU level to implement such projects in respect of the *acquis* and in a coordinated manner (internal market legislation, TEN-E Guidelines, State-Aid control). A real European Energy Security Strategy requires that enforcement tools are preceded by a strategic discussion at EU level, not just at national level.

##### **4.1. Making the internal market for electricity and gas work better**

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. Competitive and liquid markets 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 transmit supplies from one place to the other.

A regional approach has been and will continue to 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<sup>13</sup> if necessary). The Nordic countries (Finland, Sweden, Denmark and Norway) have set the example in the electricity sector with an early integration of their markets into NordPool. Likewise, the Pentalateral Forum in the North-West (including 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 taken decisive steps towards the coupling of electricity markets in several areas<sup>14</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.

Nevertheless, the development of competitive and well-integrated markets in the Baltic States and in the South East of Europe lags behind, depriving those regions of the related security of supply advantages. Targeted approaches that speed up the development of critical infrastructure (see point 4.2) as well as the establishment of regional gas hubs in these regions are needed.

Proper implementation of the gas sector 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 EU security of supply is not weakened through anticompetitive behavior or by anticompetitive consolidation or vertical integration of energy companies.

#### **4.2. 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 are required up to 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. The primary objective of EU infrastructure policy is to now ensure the timely implementation of the PCIs. Together with the streamlined permit granting procedures, the €5.8 billion of the CEF will help to achieve this. The CEF represents only around 3% of the €200 billion investment needed up to 2020 but it can leverage other funds through using financial instruments. For the CEF to make a difference it must be targeted at few critical projects and it must also be combined with the efforts of regulators to finance part of the infrastructure through network tariffs and of Member States making use of the European Structural and Investment Funds, where relevant. Both during permitting and project implementation, due account should be taken of existing EU environmental legislation and

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<sup>13</sup> Communication from the Commission “Delivering the internal electricity market and making the most of public intervention”, C(2013)7243

<sup>14</sup> A prime example of such regional cooperation was the establishment early 2014, by grid operators and power exchanges from sixteen Member States, of the so-called 'day-ahead market coupling'.

guidance<sup>15</sup> to ensure the environmental sustainability and secure public support and acceptance for the project.

27 projects in gas and 6 in electricity have been identified as critical for EU's energy security in the short and medium terms (indicative list in Annex 2) because their implementation is expected to enhance diversification of supply possibilities and solidarity in the most vulnerable parts of Europe. About half of these projects should be finished by 2017 whilst the remaining projects have a planned commissioning date of up to 2020. The large majority of these critical projects are located in Eastern Europe and in South Western Europe which would help to end the energy isolation of Portugal and Spain. The cost of these projects is estimated at around €17 billion. The critical PCIs are mainly large scale projects, except a few LNG terminals and storage projects, and are 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 for the critical projects by bringing together the project promoters to discuss technical possibilities to speed up project implementation and National Regulatory Authorities (NRA) to agree on cross-border cost allocation 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*". Currently, the average interconnection level stands at about 8%. Taking into account the importance of interconnectors for strengthening security of supply and the need to facilitate cross-border trade, 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.

### **4.3. The European oil market**

Russia is one of the EU's main suppliers of crude oil that is refined in the EU today and some refineries are optimized for these crude oils. 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 mainly from Russia and the USA. 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 in the Russian oil industry, and the increased ownership of EU refinery capacity by Russian oil companies;
- Refined products consumed in transport.

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<sup>15</sup> Commission guidance document on "Streamlining environmental assessment procedures for energy infrastructure and Projects of Common interest" and on EIAs for large-scale trans-boundary projects.

The EU refining sector faces significant challenges to remain competitive as evidenced by the reduction in refining capacity and foreign investment, in particular from Russian companies which add to the dependence on Russian crude oil. 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<sup>16</sup>.

In the long-term, the EU's oil dependency, in particular in transport, needs to be reduced. The Commission has set out a series of measures to reduce greenhouse gas emissions and consumption of transport fuels including an alternative fuels strategy<sup>17,18</sup>.

#### 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; A favourable taxation for alternative fuels, in particular for renewable fuels, should also be considered.
- Intensify efforts to implement the recently approved Directive on the deployment of alternative fuels infrastructure.

Transmission System Operators must:

- Speed up the 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. Coordinate all available Community Funds, including the CEF, ESI Funds and European Investment Bank support to accelerate the construction of key interconnectors and related national and regional infrastructure;
- Consider in cooperation with Member States and their National Regulatory Authorities what measures can be taken to speed up the appropriate CBCA<sup>19</sup> for the critical projects identified in annex 2 and all measures that could lead to their completion in the next two to three years;

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<sup>16</sup> Taking notably into account the results of the on-going « fitness check » of the sector.

<sup>17</sup> The 2011 Transport White Paper “Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system; COM(2011) 144 final

<sup>18</sup> COM(2013) 17 final

<sup>19</sup> Cross-border cost allocation

- Discuss with industry and Member States how to diversify crude oil supplies to EU refineries to reduce dependency on Russia;
- Pursue an active trade agenda ensuring access to oil export markets and limiting trade distortive practices by promoting strong energy-related trade disciplines and ensure adequate enforcement of trade disciplines where appropriate.
- Identify EU-wide strategic assets in the oil value chain and coordinated action to ensure that consolidation of the EU's refinery capacity occurs in a manner that improves the EU's energy diversification;
- Cooperate with the IEA to monitor the oil value chain and ensure that transparency of data on flows, investments, and ownership is promoted.

## 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 steadily declined<sup>20</sup> in spite of an increase of renewable energy production. It is however possible to slow down this trend in the medium term by further increasing the use of renewable energy, nuclear energy, as well as sustainable production of competitive fossil fuels where these options are chosen.

#### *Renewable energy*

Avoided imported fuel costs due to increasing use of renewable energy amount to at least some EUR 30 billion a year. 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% by 2030.

There is a significant cost-effective potential for renewable electricity and renewable heating to further reduce natural gas use in a number of sectors by the end of this decade. Notably, a fuel-switch to indigenous renewable heating sources can displace significant amounts of imported fuels. According to their 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 as well as ESI Funds, in coordination with EIB and international financial institution support. As with infrastructure, the bulk of the investment in this area should be made by the private sector.

Renewable energy is a no-regrets option but there have been concerns about the costs and impact on the 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). Their large scale integration will require smarter energy grids and new energy storage solutions. Capacity mechanisms at regional level may also need to be

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<sup>20</sup> Between 2001 and 2012, overall EU energy production declined by 15%

considered<sup>21</sup>. 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, Black Sea), should be developed in full compliance with energy and environmental legislation, including the new Offshore Safety Directive<sup>22</sup>. Producing oil and gas from unconventional sources in Europe, and especially shale gas, could partially compensate for declining conventional gas production<sup>23</sup> provided issues of public acceptance and environmental impact are adequately addressed<sup>24</sup>. 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 necessary in order to enable possible commercial scale production.

Over the past two decades both the domestic production and consumption of coal has declined in the EU. However, coal and lignite still 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 solid fuels, 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). CCS also offers the potential to further improve gas and oil recovery that would otherwise remain untapped. Therefore, bearing in mind the rather limited uptake of CCS to date, further efforts in research, development and deployment should be made in order to fully benefit from this technology.

#### 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;
- 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 for renewables and address administrative barriers;
- Facilitate access to finance for renewable projects on all levels (large and small scale) through a concerted initiative by the European Investment Bank and national investment banks, where relevant making use of the support provided by the ESI Funds;

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<sup>21</sup> Communication from the Commission “Delivering the internal electricity market and making the most of public intervention, C(2013)7243

<sup>22</sup> 2013/30/EU

<sup>23</sup> JRC study on Unconventional gas and its potential energy market impacts in the EU (EUR25305 EN)

<sup>24</sup> Commission Communication and Recommendation on the exploration and production of hydrocarbons (such as shale gas) using high volume hydraulic fracturing in the EU (COM(2014)23final and Recommendation 2014/70/EU of 22 January 2014).

- Exploit, where this option is chosen, 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, in accordance with the Commission's guidance documents on Streamlining environmental assessment procedures for energy infrastructure and Projects of Common interest and on EIAs for large-scale trans-boundary projects<sup>25</sup>;
- 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;
- Support demonstration projects for carbon capture and storage, particularly those co-financed by the NER 300 Programme and the European Energy Programme for Recovery, such as the ROAD project.

The Commission will:

- Launch a European science and technology Network on unconventional hydrocarbon extraction;
- Organise an exchange of information between Member States, the relevant industries and non-governmental organisations promoting environmental protection in order to draw up Best Available Techniques (BAT) reference documents on hydrocarbons exploration and production (BREF);
- Ensure the full implementation and review of the CCS Directive and take a decision on the second round of awards under the NER 300 Programme;
- Promote the development of renewable energy technologies and trade in multilateral and bilateral negotiations.

## 6. FURTHER DEVELOPING ENERGY TECHNOLOGIES

The present plan for the reduction of EU energy dependence requires substantial changes to the energy system in the medium to long term, which will not happen without a strong push for the development of new energy technologies. These new technologies are needed to further reduce primary energy demand, diversify and consolidate supply options (both external and indigenous), and to optimise energy network infrastructure to fully benefit from this diversification.

New technologies can deliver efficient and cost-effective solutions to improve the efficiency of buildings and local heating systems, to provide new energy storage solutions and optimise the management of grids.

To achieve this, significant investments from the EU and Member States in energy research and innovation are required. Deployment of a broad range of new energy technologies will be crucial, in order to ensure that a sufficient number of them effectively reach the market, allowing Member States to meet their various energy mix choices.

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<sup>25</sup> [http://ec.europa.eu/environment/eia/pdf/PCI\\_guidance.pdf](http://ec.europa.eu/environment/eia/pdf/PCI_guidance.pdf) and  
<http://ec.europa.eu/environment/eia/pdf/Transboundary%20EIA%20Guide.pdf>

These investments must encompass the whole technology supply chain, from materials (including critical raw materials) to manufacturing, ensuring that, whilst reducing EU energy import dependence, the EU also ensures that its dependence on foreign technologies is contained. Ultimately, such a strategy can only be implemented if it is an integral part of the energy research and innovation policy of the Union.

In order to maximise the impact of these investments, more coordination will have to take place between Member States themselves as well as between Member States and the Commission. In addition, and in particular for the deployment of large scale demonstrators, financial instruments to leverage greater investment from industry, for example via the European Investment Bank, will be essential.

#### Key action

The Commission will:

- Mainstream energy security in the implementation of the priorities of the Horizon 2020 Framework Programme for Research and Innovation (2014-2020) and ensure that the forthcoming Integrated Roadmap of the Strategic Energy Technology Plan will be in line with the European Energy Security Strategy.

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

### **7.1. Gas**

Imports represent some 70% of gas consumed in the EU but are expected<sup>26</sup> to remain stable to 2020 and then increase slightly 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 are small and represent about 4%. LNG imports from these and other countries (e.g. Qatar, Nigeria) increased and peaked at about 20% but have since dropped to around 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 facilitated by adequately reflecting priorities in EU external policies, in particular 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.

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<sup>26</sup> EU Energy, transport and GHG emissions trends to 2050 – Reference scenario 2013- European Commission

Beyond strengthening our relationship with existing suppliers, a EU policy goal should also be to open the way for new sources. The establishment of the Southern Corridor and the identified projects of common interest is an important element in this respect, as it prepares the ground for supplies from the Caspian region and beyond. Pursuing an active trade agenda in this region is crucial to ensure market access but also for the development of critical infrastructure, the viability of which depends on access to sufficient export volumes. In a first phase it is expected that by 2020 10 bcm/y of natural gas produced in Azerbaijan will reach the European market through the southern Gas Corridor. Moreover, this new pipeline connection is vital in providing a connection to the Middle East. 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, Iraq and Iran, if conditions are met to lift the sanctions regime, could also significantly contribute to the enlargement of the Southern Gas Corridor. A coherent and targeted Foreign policy vis-à-vis these countries will be crucial. Furthermore, the EU should engage in intensified political and trade dialogue with Northern African and Eastern Mediterranean 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 4).

## **7.2. 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 in energy security. The relative value of the nuclear fuel is marginal in relation to 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 entities in the world that are able to transform uranium into fuel for the nuclear reactors, but EU industry has technological leadership on the whole chain, including enrichment and reprocessing.

Nuclear safety is an absolute priority for the EU. The EU should remain the pioneer and architect for nuclear safety at international level. It is therefore important to accelerate the adoption of the amended nuclear safety directive, reinforcing the independence of nuclear regulators, providing information to 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 plant operators.

### Key actions

The Commission and Member States should jointly:

- Increase transparency at EU level regarding security of gas supply and explore



how price information under existing reporting mechanisms, such as Eurostat data and market monitoring by the Commission can be further developed;

- 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;
- Cooperate to diversify supply of nuclear fuel when needed.

The Commission will:

- Pursue an active trade agenda ensuring access to natural gas/LNG exports and limiting trade distortive practices by promoting strong energy-related trade disciplines and ensure adequate enforcement of trade disciplines where appropriate;
- Seek to lift existing oil export bans in third countries;
- Systematically take into consideration diversification of fuel supplies in its assessment of new nuclear investment projects and new draft agreements or contracts with third countries.

## **8. 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 coordinate better important energy policy decisions. It is clear that decisions on 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, all imply that fundamental political decisions on energy should be discussed with neighbouring countries. The same holds true for the external dimension of EU energy policy<sup>27, 28</sup>.

The Commission welcomes the calls made by certain Member States in favour of an Energy Union. It supports the creation of a mechanism that would enable Member States to inform each other of important decisions related to their energy mix prior to their adoption and detailed deliberation, so as to take on board relevant comments in the national decision process.

The European Union has a general interest in stable, transparent, rule based and liquid international energy markets. The EU should develop consistent and coordinated messages in international organisations and fora. A related policy action is the coordinated promotion of sustainable energy technologies across the globe, but particularly among emerging economies, which are expected to provide the greatest contribution to energy demand growth in the coming decades. Such an initiative is not

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<sup>27</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>28</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.

only in line with the broad EU environment and climate goals, but can also have an impact on traditional fossil fuel markets, easing demand and improving liquidity.

Within our closer neighbourhood our goal must remain to engage all partners at all levels in order to enable their close integration into the EU energy market. 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, while also 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 the short to medium term with a view to strengthening the enforcement mechanisms.

There is a need for a systematic use of foreign policy instruments, such as the consistent inclusion of energy issues in political dialogues particularly Summits with strategic partners. A review of the EU-level energy dialogues with major supplier countries will be undertaken. The recent Joint Statement of the G7 Rome Energy Ministerial is a good model of our reinforced cooperation with key partners. There is also a need to ensure consistency with the external aspects of other sectorial policies which could contribute to promoting energy security, in particular regarding the strategic programming of EU's external aid instruments. The European External Action Service plays an important role in integrating energy considerations into EU foreign policy and coordinating with Member State's foreign affairs ministries.

In addition, Member State's agreements with third countries in the field of energy should be fully compliant with EU legislation and the EU security of supply policy. For this purpose, the Commission and Member States should make full use of 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, in light of recent experiences, Member States and relevant companies must inform the Commission as early as possible before concluding intergovernmental agreements having a potential impact on security of energy supplies and diversification options and seek advice from the Commission during the negotiations. This requires a review of Decision No 994/2012/EU.

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 whether 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 ensure compatibility with EU legislation and trade law. Where appropriate, candidate countries or potential candidates could be associated with such a procedure.

#### Key actions

The Commission will:

- Ensure the implementation of the measures identified in its communication on external energy policy of September 2011;
- Assess options for voluntary demand aggregation mechanisms that could increase the bargaining power of European buyers in compliance with EU and trade law legislation;
- Promote with the EEAS the more systemic use of foreign policy tools to support external energy policy goals and strengthen coherence between energy and foreign policy goals;
- Review Decision No 994/2012/EU establishing an information exchange mechanism with regard to intergovernmental agreements between Member States and third countries in the field of energy.

Member States should:

- Inform each other of important national energy policy decisions prior to their adoption making full use of existing fora chaired by the Commission;
- Ensure early information of the Commission before initiating negotiations on intergovernmental agreements having a potential impact on security of energy supplies and engage the Commission into the negotiations. This would ensure that agreements are concluded in full compliance with Union law.

## CONCLUSIONS

Much progress has been done in the last few years to enhance Europe's energy security. Despite these achievements, Europe remains vulnerable to energy shocks. The European Energy Security Strategy therefore sets out a series of concrete measures to strengthen Europe's resilience and reduce its energy import dependency.

The Union's energy security is inseparable from the 2030 framework for climate and energy and should be agreed together by the European Council. The transition to a competitive, low-carbon economy will reduce the use of imported fossil fuels by moderating energy demand and exploiting renewable and other indigenous sources of energy.

In the short term

1. For the coming winter the Union must improve its preparedness for disruptions to energy supplies. Existing European emergency and solidarity mechanisms should be reinforced on the basis of risk assessments (energy security stress tests) coordinated by the Commission together with Member States, regulators, TSOs and operators in order to increase resilience. The Union must also engage with its international

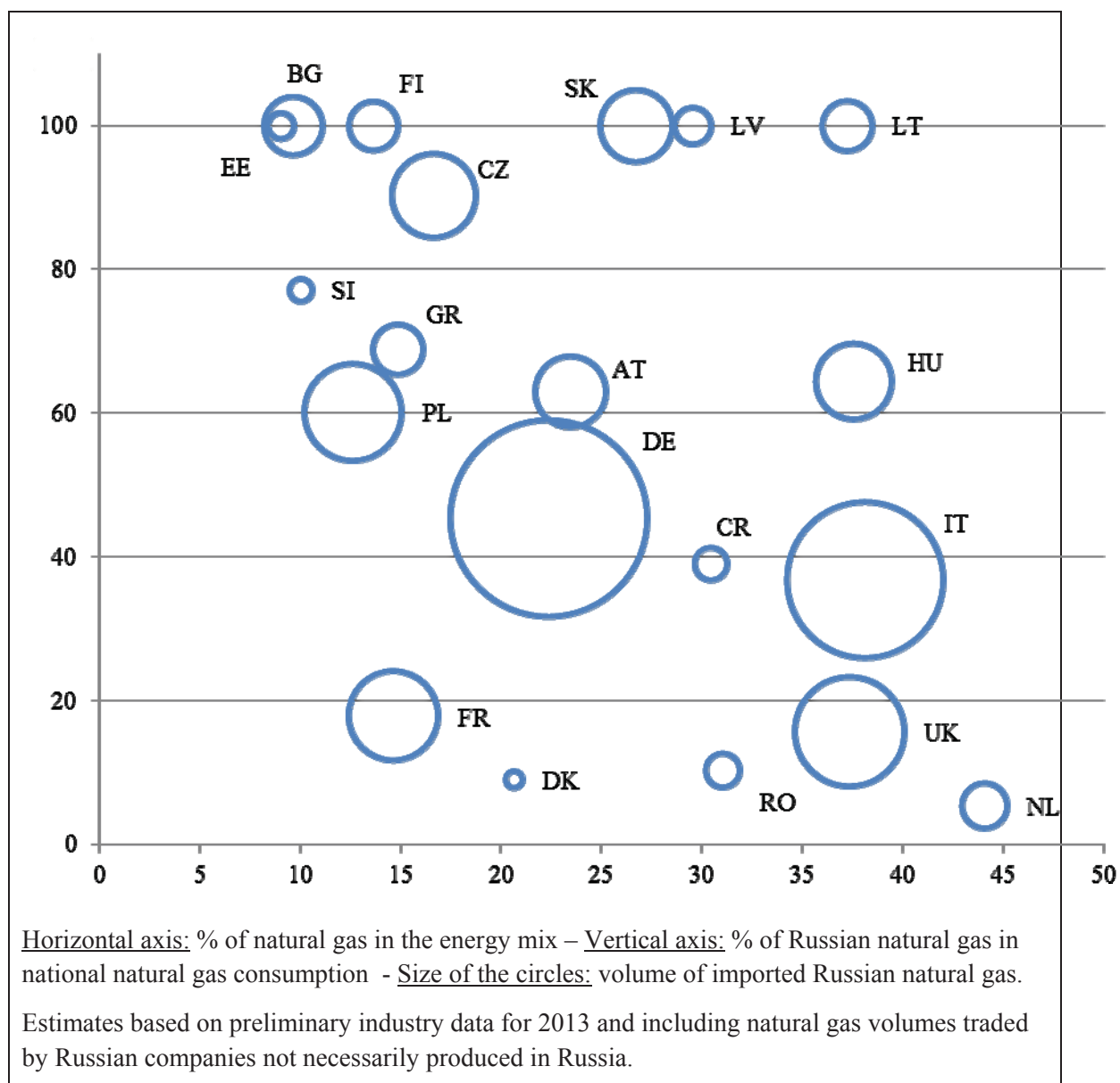
partners to develop new solidarity mechanisms for natural gas and the use of gas storage facilities;

2. New infrastructure investments promoted by dominant suppliers must adhere to all internal market and competition rules. In particular, the Southstream project should be suspended until full compliance with EU legislation is ensured and re-evaluated in light of the EU's energy security priorities;
3. The Union should work closely with its neighbours and partners within the Energy Community, notably Ukraine and Moldova, to improve energy security. The recent agreement on reverse flows between the Slovak Republic and Ukraine is to be welcomed in this respect.

In the medium term to long term

4. Europe needs to achieve a better functioning and a more integrated energy market. Priority projects should be accelerated to join up existing energy islands and ensure delivery of the existing interconnection target of at least 10 % of the installed electricity production capacity by 2020. By 2030, Member States should be on track to meet a 15% interconnection target;
5. The Union must reduce its external dependency on particular suppliers by diversifying its energy sources, suppliers and routes. Notably, a reinforced partnership with Norway, the acceleration of the Southern Gas Corridor and the promotion of a new gas hub in Southern Europe should all be pursued;
6. Energy security and the transition to a low carbon economy should be prioritised in the implementation of the EU financial instruments in the period 2014-2020, in particular using the European Regional Development Fund, the Connecting Europe Facility, Horizon 2020 and the European Neighbourhood Policy Instrument. They should also be a guiding objective for the interventions of the EU external action instruments such as the neighbourhood investment facility and the Western Balkans Investment facility, as well as the European Investment Bank, and the European Bank for Reconstruction and Development;
7. More coordination of national energy policies is necessary to respond credibly to the challenge of energy security. National choices over energy mix or energy infrastructure affect other Member States and the Union as a whole. Member States should better inform each other and the Commission when defining their long-term energy policy strategies and preparing intergovernmental agreements with third countries. Further efforts are needed to ensure better synergies between energy objectives and foreign policy and to speak to our partners with a single voice

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



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

### Natural gas projects

<b>A Short-term projects (2014 – 2016)</b>			
#	Name project	Details	Finished by
Baltic gas market			
1	LT: LNG vessel	Vessel (not a PCI). Status: under construction	End 2014
2	Klaipėda-Kiemėna pipeline upgrade	Capacity enhancement of the connection from Klaipėda to the LT-LV interconnector. Status: EIA and engineering design	2017
Gas optionality in Central and South-East Europe			
1	PL: LNG terminal	Terminal in Swinoujscie and connecting pipeline (not a PCI due to maturity). Status: under construction	End 2014
2	EL-BG interconnector	New interconnector to support diversification and deliver Shah Deniz gas in Bulgaria. Status: permitting, EIA (2 years delay)	2016
3	EL-BG reverse flow	Permanent reverse flow on the existing interconnector (alternative/complement to IGB). Status: pre-feasibility	2014
4	BG: storage upgrade	Increase storage capacity in Chiren; Status: pre-feasibility	2017
5	HU-HR reverse flow	Reverse flow enabling gas flows from Croatia to Hungary. Status: feasibility studies.	2015
6	HU-RO reverse flow	Project to enable gas flows from Romania to Hungary. Status: feasibility studies	2016
7	BG-RS interconnector	New interconnector supporting SoS in Bulgaria and Serbia. Status: EIA, routing, financing (issued with Srbijagas unbundling to access finance)	2016
8	SK–HU interconnector	New bi-directional pipeline. Status: construction	2015
<b>B Medium-term projects (2017 – 2020)</b>			
#	Name project	Details	Finished by
Baltic gas market			
1	PL-LT interconnector	New bi-directional pipeline (GIPL) ending isolation of the Baltic States. Status: feasibility/FEED	2019
2	FI-EE interconnector	New bi-directional offshore pipeline ("Balticconnector"). Status: pre-feasibility/permitting	2019

3	Baltic LNG terminal	New LNG terminal with location to be decided (EE/FI). Status: pre-feasibility, permitting	2017
4	LV-LT interconnector	Upgrade of the existing interconnector (including compressor station). Status: pre-feasibility	2020
Enabling gas from Spain to flow north			
1	ES-FR "Midcat" interconnector	New interconnection (including compressor) to enable bi-directional flows <sup>29</sup> between France and Spain. Status: feasibility study	tbd
Cluster Gas optionality in Central and South-East Europe			
1	PL-CZ interconnector	New bi-directional pipeline between Czech Republic and Poland. Status: Feasibility/FEED, permitting (CZ)	2019
2	PL-SK interconnector <sup>30</sup>	New bi-directional pipeline between Slovakia and Poland. Status: final investment decision in 2014	2019
3	PL: 3 internal pipelines and compressor station	Internal reinforcements needed to link input points on the Baltic Coast to the PL-SK and PL-CZ interconnectors. Status: pre-feasibility	2016-18
4	TANAP (TR-EL)	Trans-Anatolian Natural Gas Pipe bringing Caspian gas to the EU via Turkey and opening the Southern Gas Corridor. Status: feasibility/final investment decision	2019
5	TAP (EL-AL-IT)	Intra-EU section of the Southern Gas Corridor. Direct connection to TANAP. Status: permitting	2019
6	IAP (AL-ME-HR)	New interconnector part of the Balkan Gas Ring and connected to TAP. Status: feasibility/FEED	2020
7	HR – LNG terminal	New LNG terminal in Krk supporting SoS and diversification in the Region. Status: feasibility/FEED (financing issues)	2019
8	BG: internal system	Rehabilitation and expansion of transport system needed for regional integration. Status: feasibility/FEED	2017 (tbc)
9	RO: internal system and reverse flow to UA	Integration of the Romanian transit and transmission system & reverse flow to Ukraine. Status: feasibility	Tbd

<sup>29</sup> Flow from Spain to France in case of supply crunch in Western/Central Europe. Flow from France to Spain to arbitrage high gas prices in Spain. The "Artère du Rhône" needs also to be reinforced

<sup>30</sup> These two interconnectors (PL-CZ and PL-SK) will enable flows between the Baltic and Adriatic, but also gas from DE-NL-NO could thus be transported increasing significantly security of supply situation in whole (South)-Eastern Europe

		study (regulatory issues with reverse flow)	
10	EL: compressor station	Compressor station at Kipi to enable TANAP and TAP connection. Status: permitting.	2019
11	EL: Alexandroupolis LNG terminal	New LNG terminal in Northern Greece. Status: permitting	2016 <sup>31</sup>
12	EL: Aegean LNG terminal	New LNG floating terminal at Bay of Kavala. Status: feasibility/FEED, permitting	2016 <sup>32</sup>

### **Electricity projects**

<b>A Short-term projects (2014 – 2016)</b>			
#	Name project	Details	Finished by
Ending Baltic Isolation			
1	Nordbalt 1&2	Interconnections Sweden-Lithuania (not a PCI) Status: under construction	2015
2	LT-PL interconnection	New interconnection and back-to-back converter stations; a subsequent stage planned for 2020; related reinforcements needed in PL. Status: under construction	2015 (first stage)
<b>B Medium-term projects (2017 – 2020)</b>			
#	Name project	Details	Finished by
Ending Baltic Isolation			
1	Internal lines in LV and SE	Increasing capacity on the LV-SE interconnection (Nordbalt). Status: feasibility/FEED	2019
2	EE-LV interconnection	Interconnection and related reinforcements in EE. Status: feasibility/FEED	2020
3	Synchronization of EE, LV, LT with the Continental European networks	Synchronisation of the Baltic states. Status: feasibility studies	2020 (tbc)
Ending Iberic Isolation			
1	France - Spain interconnection	HVDC subsea cable interconnection between Aquitaine (FR) and the Basque country (ES)	2020 (tbc)

<sup>31</sup> Information provided by project promoters but start-up can more reasonably be expected after 2017.

<sup>32</sup> Idem