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**COMMISSION STAFF WORKING DOCUMENT**

**SUMMARY OF THE IMPACT ASSESSMENT**

*Accompanying document to the*

**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN  
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL  
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

**Energy infrastructure priorities for 2020 and beyond -  
A Blueprint for an integrated European energy network**

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## 1. PROBLEM DEFINITION

The **EU Energy Policy**<sup>1</sup> and its implementing legislation set ambitious goals and binding targets for 2020 on greenhouse gas emissions<sup>2</sup> (-20%), energy from renewable sources<sup>3</sup> (20% of final energy consumption) and energy efficiency (20%). Adequate, reliable energy networks are needed to enable meeting all these objectives. At the same time, Europe's networks are aging and urgently need refurbishment and modernisation. The enlarged EU has inherited poor east-west and south-north connections, as the focus was on national markets, and interconnections were serving only limited security of supply purpose without considering the possibilities of balancing and trade across a truly internal energy market or security of supply needs from a European perspective. This makes it more difficult for energy to move freely around the EU and makes some regions more vulnerable to supply disruption. The **TEN-E policy** has been developed and shaped in the 1990's through the successive TEN-E Guidelines and the corresponding financing Regulation<sup>4</sup>. The objectives of the TEN-E policy are to (1) support the completion of the EU internal energy market, (2) reduce the isolation of less-favoured and island regions, (3) secure and diversify the EU's energy supplies also through co-operation with third countries, (4) contribute to sustainable development and protection of the environment (including a greater use of renewable energy sources and the reduction of environmental risks associated with the transportation of energy). It includes electricity, gas and olefin transmission networks. While the original objectives are still mostly valid, it is not effective enough in delivering the sufficient infrastructure needed to achieve the EU's ambitious energy policy and climate goals.

Obstacles to the adequate development of infrastructure can be detailed as follows:

**1)-Huge uncertainties** concerning future technologies in terms of availability, possible risks and cost competitiveness, standards (notably for renewables and grid technologies, but also for CCS), energy mix and geographical distribution of future plants (electricity), and new sources (unconventional gas, green gas, LNG/CNG, new import infrastructure and upstream development in third countries) can lead to sub-optimal market solutions (from an EU point of view).

**2)-Imperfect internal market:** there is weak or no competition in some Member States where national markets are still dominated by incumbents. Lack of market development does not allow TSOs to have sufficient firm capacity contracts to invest in an interconnector between two markets. At the same time, the market is unlikely to be able to develop as long as there is no interconnector.

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<sup>1</sup> COM(2007) 1 endorsed by the Council on 15 February 2007 (C/07/24).

<sup>2</sup> Directive 2009/29/EC amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community, Decision No 406/2009/EC on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020.

<sup>3</sup> Directive 2009/28/EC on the promotion of the use of energy from renewable sources.

<sup>4</sup> Decision No 1364/2006/EC laying down a series of guidelines for trans-European energy networks and repealing Decision 96/391/EC and Decision No 1229/2003/EC; Regulation (EC) No 680/2007 laying down general rules for the granting of Community financial aid in the field of the trans-European transport and energy networks.

**3)-Tariff regulation and financing:** Transmission is a regulated business and cost allocation to final beneficiaries is difficult or impossible for large trans-European infrastructure. In order to keep transmission tariffs as low as possible, tariff regulation in most Member States has been based on the principle of cost-efficiency, allowing recovery of costs only for projects based on real market needs or cheapest available solutions. There are in particular three types of projects, whose realisation may be hindered through this approach:

- (a) Projects with higher regional than national benefit: The higher the regional or EU benefit of a project, i.e. the more Member States are involved, the more complex it is likely to be (cross-border issues, different regulatory regimes and permitting procedures etc.) and the more difficult the fair allocation of the costs to the final beneficiaries becomes.
- (b) Projects using innovative technologies (e.g. DC VSC offshore grid technology, storage, smart grid applications; carbon capture and storage) usually involve higher risks, as industrial-scale business case experiences are rare or inexistent. This risk is often not reflected in the regulated rate of return.
- (c) Infrastructure with the objective to enhance security of supply are often not justified by market demand and transported volumes, as they may be used only in case of supply disruptions (low probability / high impact events), but not under normal market conditions. In many Member States, there is no regulatory solution on how to recover the costs of these investments.

Finally, as a result of the financial crisis, and the current rapid evolution of rules in the financial sector, access to capitals has become more difficult since 2008.

**4)-Permitting and social acceptance:** Long and uncertain permitting procedures were indicated by industry as one of the main reasons for delays in the implementation of infrastructure projects. In several Member States, public opinion is turning progressively against new projects and in particular overhead electricity lines, further slowing down already inappropriate authorisation procedures. Thus, certain projects can take up to 20 years to be completed.

**5)-Infrastructures external to the EU.** For energy infrastructures outside the EU that will be required to meet the EU's growing need for imported gas or to import "green electricity", there are additional political risks. Beside the need to engage politically with third countries to identify and ensure a mutual benefit from new energy infrastructures, risks may range from an unattractive or non-transparent investment framework in the third countries through to the risk of changes in the fiscal/tax or legal environment once the investment has been made.

#### **6)-Inadequacy of the current TEN-E framework**

There are certain geographic areas in Europe where several of these obstacles converge, resulting in particular infrastructure bottlenecks. These areas are notably the Baltic Region, the off-shore grid in the Northern Seas, renewables in Southern Europe and the Mediterranean, the development of the Southern Corridor for gas and oil, better interconnectivity and diversification in Central and South-East Europe (electricity, gas and oil), and concerning whole Europe the design and development of an EU wide CO<sub>2</sub> transport network and the implementation and roll-out of smart grid technologies.

## 2. ANALYSIS OF SUBSIDIARITY

The energy transmission infrastructure (including an interconnected off-shore grid) has Trans-European, regional or at least cross-border nature or impacts. Individual national administrations and Member State level regulation are not suited or have no competence to deal with those infrastructures as a whole. Under **Article 194** of the Treaty on the Functioning of the European Union, Union policy on energy shall aim at: (a) ensure the functioning of the energy market; (b) ensure security of energy supply in the Union; (c) promote energy efficiency and energy saving and the development of new and renewable forms of energy; and (d) promote the interconnection of energy networks. Article 170 of the Treaty on the Functioning of the European Union says “the Union shall contribute to the establishment and development of trans-European networks in the areas of transport, telecommunications and energy infrastructures”. Article 171 sets the obligation that “the Union shall establish a series of guidelines covering the objectives, priorities and broad lines of measures envisaged in the sphere of trans-European networks; these guidelines shall identify projects of common interest”.

## 3. OBJECTIVES OF EU INITIATIVE

The general objective is to ensure **sufficient and timely infrastructure development** across the EU and beyond in order to develop the internal energy market, ensure security of supply and meet the EU’s energy and climate targets.

In order to sustain infrastructure development, its main hindrances are to be tackled. The planned Communication on infrastructure priorities hence has the objectives to propose clear priorities and improve focus of EU action for all relevant energy infrastructure, reinforce regional co-operation and coordination, highlight the difficulties linked to permitting procedures and build public acceptance to help reducing planning and permitting uncertainties. Clear infrastructure priorities will also provide a political message towards third countries.

## 4. POLICY OPTIONS

In order to better analyse solutions for a broad range of identified obstacles, the analysis was split in policy areas with separate options for each area. The options have been evaluated against the criteria of effectiveness, subsidiarity and proportionality. The main criterion for effectiveness is how much infrastructure investment the single options are likely to deliver. All the listed options are coherent with overarching EU objectives, strategies and priorities. The combination of preferred options from each policy area constitutes the preferred policy choice.

### **Policy area A: Scope of the policy instrument**

Option 1: Business as usual (electricity and gas)

Option 2: Enlarged electricity and gas

Option 3: Enlarged electricity and gas, inclusion of CO<sub>2</sub> networks and oil pipelines

### **Policy area B: Design of policy instrument**

Option 1: Business as usual (project lists as today)

Option 2: Updated project list

Option 3: Limited number of priority projects/regional corridors and smart selection criteria

### **Policy area C: Coordination**

Option 1: Business as usual (national approach, EU coordinators), voluntary regional structures

Option 2: EU coordinators and mandatory regional or thematic priority structures

Option 3: EU TSO (discarded, see explanation below)

#### **Policy area D: Permitting**

Option 1: Business as usual (national competence), exchange of best practices

Option 2: Inclusion of projects of European interest in national priorities and application of fastest national procedure (where existing)

Option 3: National one-stop-shop approvals with streamlined time limits (5 years)

Option 4: New harmonised permitting scheme at the EU level (discarded, see explanation below)

Options C3 EU TSO and D4 harmonised permitting scheme at EU level were excluded from further analysis as they are not respecting the proportionality and subsidiarity principles.

## **5. ASSESSMENT OF IMPACTS**

The baseline scenario (option business as usual from each policy area) is likely to result in insufficient infrastructure development taking place. The worst social and economic impacts are deriving from insufficient infrastructure are electricity black-outs, gas supply disruptions and energy shortages causing price spikes. Concerning CO<sub>2</sub> transportation, the BAU scenario would prevent any significant investment in networks and give rise to piecemeal development (at project or national level) with a high risk of future redundancy or bottlenecks in through-flow capacity (similarly to the electricity and gas grids) and limited market integration with a risk of higher energy prices in the long term.

The main environmental impact of lack of infrastructure may be the non-achievement of the EU's energy and climate targets and thus higher greenhouse gas emissions. Construction works may cause temporary environmental impacts, are however limited through the respect of relevant environmental legislation. A longer than 90 days oil supply disruption to Eastern Europe would involve higher environmental impacts in terms of increased tanker traffic in environmentally sensitive areas as alternative transport to pipelines.

### **Policy area A: Scope of policy instrument**

Major positive impacts are expected at the economic and social level from extending the scope of the policy instrument to new sectors in electricity (Smart Grids including storage) and gas (CNG), but also to CO<sub>2</sub> transportation, fostering further innovation in these fields. The extension to oil would also provide positive environmental impacts, by ensuring diversified oil supply routes to the Eastern EU to reduce the environmental risk related to increased tanker traffic on the Baltic Sea and in the Bosphorus. Including all these new sectors in the scope of the policy instrument (option A3) is therefore the preferred option.

### **Policy area B: Design of policy instrument**

Compared to BAU with a fixed and rigid project list defined in 2006, the update of this list (option B2) based on an enlarged scope (option A3) would allow taking into account new or changed priorities in terms of infrastructure development. This improved focus would have an overall positive impact, but would maintain the rigidity of a project list, which might again need adaptation in the future up to 2020 and beyond.

By contrast, a complete reform of the current approach (option B3), with a very limited number of broad priorities of European interest, no ex ante list of priority projects and smart and transparent selection criteria instead of the current three-tiered categorisation of projects, would yield far bigger positive economic, social and environmental impacts. Indeed, this option would allow focussing all attention on those priorities, which are of major European interest and for which EU intervention will be most beneficial, or on areas with strong innovation and high positive environmental impacts such as renewables' integration into the grid, Smart Grids, storage or CO<sub>2</sub> transport. More generally, this approach based on European priorities would draw attention on economic and environmental trans-boundary and regional effects, while option B2 would be influenced more by national or even local level effects. Establishing smart and transparent selection criteria would minimise possible distorting effects on the internal market, by designing rules that are in line with current legislation and regulation. It would also allow evolution over time of the concrete support given to projects, optimising the use of the policy instrument even in the longer term. It is therefore considered to be the preferred option.

### **Policy area C: Coordination**

Option C2 with mandatory regional structures and, where necessary, EU coordinators, would have significant positive impacts in terms of infrastructure development and is therefore considered as the preferred option compared to BAU. These regional structures would be particularly positive for projects with a clear regional delimitation such as the offshore grid in Northern Europe or the development of a gas corridor in South-Eastern Europe. They would also contribute positively to market integration and better functioning of regional markets. The use of existing regional structures (such as the revised Regional Initiatives) would minimise the impacts in terms of administrative burden.

### **Policy area D: Permitting**

Both options D2 and D3 would introduce more efficiency in the decision making process by clarifying existing rules and ways or recourse, optimising the number of steps needed for a given decision to be taken and reducing as much as possible delays for each of these steps. Option D2 would allow an accelerated treatment for European priority projects in those countries where priorities have been defined or where fast-track procedures exist. It is considered that this would allow improving infrastructure delivery significantly especially in the electricity sector, therefore increase infrastructure investment over the period 2010-2020.

The one-stop-shop approach (option D3) would further facilitate administrative procedures and, combined with a set timeframe, accelerate permitting and increase project delivery compared to the investment needs.

A more in-depth analysis of a wider range of options for the policy area of permitting will be carried out in a separate impact assessment (scheduled for 2011) in order to better assess the compliance with national legal systems, their effectiveness and to estimate how much the options would reduce administrative burdens.

## **6. COMPARISON OF OPTIONS**

The impacts of each maintained policy option have been assessed in terms of economic, social and environmental impacts.

The combination of options with the largest positive impacts would be A3, B3, C2 and D3, noting that the policy area of permitting will still have to be analysed more in depth. This new policy set would significantly raise infrastructure delivery effectiveness and entail positive economic, social and environmental impacts. It must however be noted that even this policy set is assumed to deliver 62.5 bn € less than the identified estimated investment need of 215.5 bn €. Indeed, the mere enlargement of the scope, as well as the proposed reforms on the design of the policy instrument, regional cooperation structures and permitting, will not, *ceteris paribus*, close the remaining huge investment gap and will not make those projects bankable, which are commercially non viable under BAU market, regulatory and nationally focussed tariff conditions. One could expect significantly higher positive impacts under a policy set using public funding or dedicated regulatory measures to enable the implementation of all projects of European interest, including those, which are – currently – not commercially viable. The Commission plans to put forward, in 2011, a proposal or guidelines to address cost allocation of major technologically complex or cross-border projects, through tariff and investment rules. Where a higher rate of return would be required to match the project risks and thus make them bankable, a regulatory approach could also be envisaged. Public funding could be explored for those areas, where the above-mentioned measures would fail. However, this needs detailed further analysis, which will be included in the Impact Assessment to be prepared for the legal proposal scheduled in 2011.

## **7. MONITORING AND EVALUATION**

For the monitoring and evaluation it is proposed that, like in the past, the Commission would assess the evolution via an implementation report on a bi-annual basis, including specific indicators, such as the number of projects constructed or under construction, diversification of gas imports, share of electricity produced from renewable sources, interconnection levels between Member States, share of electricity grid equipped with smart technologies and the average duration of authorisation procedures for projects of European Interest.