

GIE answer to European Commission's consultation on "Generation adequacy, capacity mechanisms and the Internal Market in electricity"

Introduction

Ensuring generation adequacy in the European electricity market is currently an important issue. The development of Renewable Energy Sources with low marginal cost (wind and solar) leads to a decrease of wholesale electricity prices. These variable sources of electricity need firm back-up to ensure system adequacy – best provided by efficient gas-fired power plants. But the recovery of fixed costs for back-up plants is not possible any more because of depressed wholesale electricity prices and decreasing running hours. Therefore we experience today closures of gas-fired power plants and postponements of projects for new ones.

Several countries have introduced or envisage to introduce capacity mechanisms to ensure the economic viability of firm back-up electricity production capacity – existing or new. But the introduction of such mechanisms in parts of the European electricity market may lead to distortions in other parts of Europe. The European Commission identified this issue in its Communication on the Internal Energy Markets¹ and decided to launch a consultation on "security of supply in electricity, generation adequacy and the internal electricity market" (this consultation).

GIE welcomes the opportunity to respond to this public consultation. In particular GIE would like to provide some insight on the impact of capacity mechanisms and electricity market design on the gas infrastructure sector. Indeed a major uncertainty of the future gas demand is related to the use of gas for electricity generation, which may be impacted by the introduction of capacity mechanisms.

Who is GIE?

Gas Infrastructure Europe (GIE) is an association representing the sole interest of the infrastructure industry in the natural gas business such as Transmission System Operators, Storage System Operators and LNG Terminal Operators. GIE has currently 68 members in 25 European countries.

One of the objectives of GIE is to voice the views of its members vis-à-vis the European Commission, the regulators and other stakeholders. Its mission is to actively contribute to the construction of a single, sustainable and competitive gas market in Europe underpinned by a stable and predictable regulatory framework as well as by a sound investment climate.

¹ European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions -- Making the internal energy market work*, COM(2012) 663 final, 15 November 2012, p.14-15.



Answers to consultation's questions

Note that some questions are *not* answered by GIE.

Question 1 : Do you consider that the current market prices prevent investments in needed generation capacity?

The current commodity-only electricity market prices result from a balance between supply and demand where supply sources are in competition. On the supply side, the market price reflects the marginal supply cost (operational cost), including fuel price and price for CO₂ emissions. Fixed costs for supply capacity² should be covered when it runs as inframarginal supply. It is theoretically possible to cover the fixed costs for all generation capacity by such market prices, except for the peak capacity. Forward market prices should reflect the long-term market developments in supply and demand, but also the changes in the regulatory environment (EU ETS, energy efficiency targets, targets for renewable energy production). They should trigger the need for new investment in generation capacity and support the necessary capital costs, thereby ensuring security of supply.³

However, important distortions to the electricity market in some countries – regulated end-user prices, price caps and floors, restrictions or unnecessary regulatory requirements on plant operations, priority dispatch, support schemes for renewable energy sources –, lead to market prices that are not the balance between marginal supply and marginal demand any more. In particular the extensive application of support schemes for electricity production from wind and solar – characterised by very low marginal production costs – depresses market prices and decreases events of higher prices necessary to cover the fixed costs of generation capacity. Consequently the current market prices do not give the right signals for investments in needed generation capacity, and especially in the provision of cost-efficient back-up generation capacity for variable energy sources.

It must be noted that price signals are only partly guiding investment decisions, the long-term expectations over the life span of a plant actually determine whether the operator will invest or not. The uncertainties and distortions mentioned above do not create the appropriate investment climate, while current low market prices are actually a sign of overcapacity in the market.

It is worth analysing how the electricity market should be reformed to ensure the recovery of the fixed costs of all electricity production technologies, in order to provide the right investment signals and truly integrate renewable energy sources into the market.

Question 2 : Do you consider that support (e.g. direct financial support, priority dispatch or special network fees) for specific energy sources (renewables, coal, nuclear) undermines investments needed to ensure generation adequacy? If yes, how and to what extent?

In principle, every support scheme distorts the market and could make it less efficient. Support schemes for generation capacity lead to an artificial depression of market prices because part of the

² Supply capacity is electricity generation capacity but also interconnection capacity with neighbouring countries. In efficiently interconnected markets, interconnection capacities play the same role as generation to supply a market. However the high cost of transporting electricity over long distances prevents physical production capacity to be located too far from consumption areas. For the interconnected European electricity market to be efficient, the cost of interconnectors should be covered by cross-border electricity flows.

³ Regarding interconnectors, this means that efficient investments should be supported by long-term spreads between adjacent markets.



revenues does not come from the electricity market any more. When support schemes are appropriately scoped, their impact on the market may be limited – as in the early developments of generation capacity from wind and solar. In such case, the benefits of support schemes could exceed the costs of a less efficient market. As technology matures and reaches a sufficient scale, extensive support schemes inevitably distort the market and as a result the costs of the inefficient market exceed the benefits of the support schemes. The support schemes should be phased out as the new technologies mature and compete with other generation technologies.

The current situation of extensive and lasting support schemes in many countries leads to such distortions that the electricity market is not efficient any more. A huge part of the fixed costs of generation is not remunerated by the market – leading to artificially low market prices – while the end-users pay these costs through non-market means (i.e. taxes, artificially higher network fees). Generation sources with a low marginal cost are therefore artificially favoured. Regulatory measures, like priority dispatch, lead in some countries to negative electricity prices, which are clearly a sign of an inefficient market.

The current support schemes lead to extensive investments in variable renewable energy sources. As they progressively replace other generation sources, there is an increasing need for back-up capacity⁴ to ensure generation adequacy. The important distortions of the market discourage investment in efficient back-up capacity due to the uncertainty associated with revenue streams. This leads to wrong investment signals to the market and ultimately market distortions may lead to higher costs of the whole electricity system for end-users.

Question 3 : Do you consider that work on the establishment of cross-border day ahead, intraday and balancing markets will contribute to ensuring security of supply? Within what timeframe do you see this happening?

In an interconnected electricity market, interconnection capacity with neighbouring countries should be considered as a kind of production capacity. Generation adequacy should also be checked on a regional level.⁵ Therefore cross-border day-ahead, intraday and balancing markets contribute to security of supply. In particular, back-up generation capacity for variable renewable energy sources may come from neighbouring countries more efficiently if the markets are effectively integrated, taking into account the interconnection costs.

Note that, for interconnected markets to be efficient, the cost of interconnectors should be recovered on cross-border electricity flows. The socialisation of interconnector costs in other network tariffs leads to inefficient investments in interconnection capacity – which will ultimately lead to higher electricity prices for end-users.

Question 4 : What additional steps, if any, should be taken at European level to ensure that internal market rules fully contribute to ensuring generation adequacy and security of supply?

To ensure generation adequacy and security of supply, the following steps should be taken:

⁴ Firm generation capacity or firm interconnection capacity with neighbouring countries with an excess of firm (more efficient) generation capacity.

⁵ Assuming there is enough firm physical generation capacity at regional level and no new internal congestions appears while interconnection capacities are fully used. Generation adequacy should also take demand-side measures into account.



- Completion of the internal market along network codes; efficient integration of cross-border capacity in markets; more integrated balancing market and better functioning intraday markets;
- Removal of market distortions (as listed in the answer to question 1) that prevent the market to provide efficient long term price signals for generation and investments;
- In particular, full integration of renewable energy sources in the market with the same rights and obligations as the other generation technologies (i.e. scheduling, nomination, balancing); Fostering of investments in interconnection capacities supported by long-term price spreads between interconnected markets;
- Better coordination between adjacent Member States regarding the energy mix, support schemes (if necessary), generation adequacy and security of supply, taking interconnection capacity into account. This requires the development of common methodologies to assess generation adequacy and security of supply.

It should be noted that whereas market-based measures should be the preferred option, security of supply should be considered from the perspective of both the electricity and the gas market given the strong link between these two markets.

The current structural market and economic problems result in a reduction of the load factor of thermal generation units and discourage investments in back-up generation capacity having an impact on generation adequacy and security of supply. This leads to a situation where capacity mechanisms are envisaged by some Member States as a remedy solution. Where this is the case, such mechanisms should be designed according to market rules, in due coordination with neighbouring countries and avoiding market distortions as much as possible. They should not be designed in isolation: their elaboration should be done taking account of the gas market. Moreover, these mechanisms should be also applied to existing capacity; otherwise there would be a destruction of valuable assets in the market. At last, the gas sector could take some inspiration from these mechanisms, if relevant.

Question 5 : What additional steps could Member States take to support the effectiveness of the internal market in delivering generation adequacy?

See answer to question 4.

Question 6 : How should public authorities reflect the preferences of consumers in relation to security of supply? How can they reflect preferences for lower standards on the part of some consumers?

There is no doubt that security of supply is an important requirement for most end-users. On the residential side, it is very difficult for end-customers to express preference in supply standards they are physically connected to the same distribution network. This does not prevent demand-side measures to be effective to reduce or delay demand in supply-constrained situations, according to market rules and driven by consumer choice. The development of smart grid meters, in electricity as well as in the gas sector, should allow the consumers to express their preferences.

Demand-side measures can also be effective for industrial end-users if an adequate remuneration is provided, according to market rules. Moreover the capacity involved is usually higher and can prove more effective in some situations – i.e. in case of low temperature.



Question 7 : Do you consider that there is a need for review of how generation adequacy assessments are carried out in the internal market? In particular, is there a need for more in depth generation adequacy reviews at:

- a. National level**
- b. Regional Level**
- c. European Level**

As markets become more interconnected, there is a growing need to consider generation adequacy at regional level, taking interconnection capacity into account (see answer to question 3). This would also require a common methodology to assess generation adequacy and security of supply.

Question 8 : Looking forward, is the generation adequacy outlook produced by ENTSO-E sufficiently detailed? In particular,

- a. Is there a need for a regional or European assessment of the availability of flexible capacity?**

[No answer]

- b. Are there other areas where this generation adequacy assessment should be made more detailed?**

[No answer]

Question 9 : Do you consider the Electricity Security of Supply Directive to be adequate? If it should be revised, on which points?

The Gas Security of Supply Regulation⁶ has established an infrastructure standard (similar to generation adequacy in electricity) and a supply standard.⁷ It also foresees that national Risk Assessments, Preventive Action Plans and Emergency Action Plans should be coordinated between neighbouring countries and that regional plans could be drafted. If appropriate and more effective than other measures, similar measures could be envisaged to ensure generation adequacy and security supply in the electricity market.

Question 10 : Would you support the introduction of mandatory risk assessments or generation adequacy plans at national and regional level similar to those required under the Gas Security of Supply Regulation?

If it is more appropriate and more effective than other measures, it could be envisaged to introduce risk assessment or generation adequacy plans at national and regional level.

⁶ Regulation 994/2010/EU of the European Parliament and of the Commission of 20 October 2010 concerning measures to safeguard security of gas supply and repealing Council Directive 2004/67/EC.

⁷ In gas markets, events with a low probability but a high impact (i.e. low temperature with a probability of 1-in-20 years, supply disruption) can happen where the market would possibly not provide adequate solutions. Therefore the infrastructure standard and the supply standard have been introduced to enable the market to manage extreme situations as long as possible, while envisaging non-market-based measures for the cases where network integrity is endangered.



Question 11 : Should generation adequacy standards be harmonised across the EU? What should be that standard or how could it be developed taking into account potentially diverging preference regarding security of supply?

[No answer]

Question 12 : Do you consider that capacity mechanisms should be introduced only if and when steps to improve market functioning are clearly insufficient?

As stated in the answer to question 4, in a case where generation adequacy or security of supply is endangered in some markets, capacity mechanisms could be envisaged as measures to cope with current market distortions. But the priority should be given to removing the existing market distortions: the better the market functions, the “lighter” capacity mechanisms should become. Therefore, capacity mechanisms should be designed according to market rules, in due coordination with neighbouring countries, and avoiding market distortions as much as possible. Widely differing national circumstances (i.e. location, energy mix) could call for different measures across Member States.

Question 13 : Under what circumstances would you consider market functioning to be insufficient:

a. to ensure that new flexible resources are delivered?

Where the market prices do not incentivise investments in the necessary flexible and back-up capacity to cope with the variability of renewable energy sources, while generation adequacy assessments show that investments are needed.

b. to ensure sufficient capacity is available to meet demand on the system at times of highest system stress?

Where projects in new generation capacity are delayed or where existing generation capacity is closed, while generation adequacy assessments show that they are needed.

Question 14 : In relation to strategic reserves:

a. Do you consider that the introduction of a strategic reserve can support the transition from a fossil fuel based electricity system or during a nuclear phase out?

In markets where the price is determined by the short-term marginal supply and demand, the fixed costs for peak capacity are not remunerated. In the absence of adequate measures, a strategic reserve could be considered to prevent peaking units from closing. Nevertheless, the introduction of such a solution (if necessary) should strive to avoid further competition distortion and be compatible with the proper functioning of the internal market.

b. What risks, if any, to effective competition and the functioning of the internal market do you consider being associated with the introduction of strategic reserves?

When the strategic reserve is not used for what it is meant for: last resort supply when supply does not meet demand on the market.



Question 15 : In relation to capacity markets and/or payments:

a. Which models of capacity market and /or payments do you consider to be most and least distortionary and most compatible with the effective competition and the functioning of the internal market, and why?

If capacity mechanisms are considered, they should be designed according to market rules, in due coordination with neighbouring countries, and avoiding market distortions as much as possible, along with the following principles:

- Market-based capacity price determined in a competitive way (i.e. auctions, traded certificates);
- Technology-neutral, taking into account only the firmness and reliability of capacity;
- Existing assets and new assets should be able to compete, as well as demand-response measures and storage;
- Open to capacity from other markets through interconnection capacity;
- Predictable and reliable measures are necessary to build confidence and foster investments, where necessary.

If the income received from the energy market becomes sufficient, the “missing money” (part of the money which does not allow to cover the investments in the energy market) becomes lower, and thus the value of capacity mechanisms decreases.

b. Which models of capacity market and /or payments do you consider to be most compatible with ensuring flexibility in a low carbon electricity system?

In the long-term, the market should remunerate both fixed and variable costs for all generation capacity in an efficient way, while ensuring investments, generation adequacy and security of supply.

c. Are there any models of capacity mechanism the introduction of which would be irreversible, or reversible only with great difficulty?

A well-designed capacity mechanism should phase out automatically with a capacity price of zero when the electricity market is able to provide for the necessary capacity alone.

Question 16 : Which models of capacity mechanisms do you consider to have the least impact on costs for final consumers?

The models of capacity mechanisms that intend to correct the current market distortions and foster efficient generation capacity necessary to achieve generation adequacy and security of supply, should be market-oriented as much as possible and have the least impact on costs for final consumers.

Question 17 : To what extent do you consider capacity mechanisms could build on balancing market regimes to encourage flexibility in all its forms?



Generation units supported by capacity mechanisms should be able to participate in the market, including the balancing market.

Question 18 : Should the Commission set out to provide the blueprint for an EU-wide capacity mechanism?

As Europe is moving towards an integrated electricity market along common rules defined by network codes, an EU-wide capacity mechanism is preferable to a set of national capacity mechanisms. However, this should be done progressively: the first step would be to coordinate and harmonise the systems of the highly interconnected markets; the second step would consist of establishing an EU-wide capacity mechanism. At the same time, capacity mechanisms should address regional generation adequacy and security of supply issues and take national or regional differences into account.

Question 19 : Do you consider that the European Commission should develop detailed criteria to assess the compatibility of capacity mechanisms with the internal energy market?

In the absence of an EU-wide capacity mechanism, it would be useful that the European Commission develops, in close cooperation with stakeholders, criteria to ensure the compatibility of capacity mechanisms with the internal energy market, on the electricity market as well as on the gas market.

Question 20 : Do you consider the detailed criteria set out above to be appropriate?

a. Should any criteria be added to this list?

This should be discussed further in cooperation with stakeholders.

b. Which, if any, criteria should be given most weight?

This should be discussed further in cooperation with stakeholders.