

## **Assoelettrica Response to the Public Consultation on generation adequacy, capacity mechanisms and the internal market in electricity**

Assoelettrica welcomes the European Commission public consultation paper on generation adequacy, capacity mechanisms and the internal market in electricity.

In our opinion, this analysis should not disregard the contribution of properly designed capacity remuneration mechanisms in addressing market failures/distortions emerging in real energy only-markets and to reduce the increasing risk perceived by market operators, which is also influenced by the current policy driven transition of the electricity sector (RES subsidies etc.)

History showed that real energy-only markets generally fail to provide system adequacy unless market power is sufficiently large to support investments in new power plants before capacity gets scarce. Literature<sup>1</sup> refers to “missing money problem” to explain the reason why real energy-only markets fail to provide system adequacy. By oversimplifying, main causes of flaws in the actual functioning of energy only markets as opposed to theory can be highlighted:

### **1. Customers are risk averse**

Their risk aversion makes impossible to create liquid long-term markets, thus energy-only markets does not provide long-term price signals for investments in new and existing power plants.

### **2. Rigidity of electricity demand**

In real energy markets, electricity demand is rather rigid so that, in case of insufficient supply, there is not enough voluntary load reduction to clear the market. As a consequence, when involuntary load shedding occurs, a problem of efficiency turns into a problem of reliability (a public good). Furthermore, TSO's measures which have to be adopted to maintain reliable system operations during scarcity periods (e.g. contracting new additional capacity, managing of out of market operating reserves, rolling blackouts, etc.), interfere with market and generate the “missing money problem”.

### **3. Public acceptability of energy-only market dynamics**

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<sup>1</sup> See, for instance, Cramton and Ockenfels, Economics and design of capacity markets for the power sector, May 2011



In pure market design, the lack of coordination in the decisions to build new capacity induces boom and bust cycles that are not always well accepted by public opinion, influencing the regulatory interventions leading to the “missing-money problem”.

Investors’ perceived risk has increased post liberalization of energy markets and has been enhanced by the current financial crisis, affecting the premium required in the electricity sector to hedge the growing uncertainty on capital cost recovery. The reasons of this uncertainty can be summarized as follows:

1. **Price volatility, that is intrinsic in energy-only markets** since scarcity periods, occurring few hours every year and changing from year to year, cannot be clearly estimated in advance.
2. **Policy driven transition in the electricity sector** (e.g. toward RES, efficiency, new market design) since the frequency and the level of scarcity prices are significantly affected by small changes in the regulatory framework.

Therefore, by explicitly pricing the value of capacity, properly designed market-based capacity remuneration mechanisms complementary to energy-only markets could be a safety valve to mitigate:

- **The “missing-money problem”** resulting from energy-only market flaws, filling the gap between capital and fixed costs of peaking capacity and the actual rent coming from the markets.
- **The investor’s perceived risk** or required risk premium, reducing the uncertainty about the recovery of capital and fixed costs that is intrinsic in energy-only markets and that has been further exacerbated by the current policy driven transitions (e.g. RES, energy efficiency etc.).

Thus, Assoelettrica supports the implementation at member State level of tailor-made capacity remuneration mechanisms which take in due account the specific national market conditions. However, we are also in favor of an adequate level of European coordination and supervision (e.g. through the definition of some common basic criteria for the evaluation of capacity mechanisms) in order to avoid possible distortions/inconsistencies. Moreover, these measures should be compliant with Third Energy Package provisions and not hamper the integration of the European electricity markets as envisaged by the European Target Model.

## **INVESTING IN THE INTERNAL ENERGY MARKET**

### **1. Do you consider that the current market prices prevent investments in needed generation capacity?**

Yes. The liberalization of electricity markets has driven to an increased uncertainty on the future level of market prices. Moreover, the price level emerging in energy-only markets is often not able to deliver proper signals to promote sufficient investments in new generation capacity or to keep into operation the existing thermal power plants. This situation can pose serious problems in terms of generation adequacy since it negatively affects the sustainability of business plans of generation capacity.

Nowadays, little incremental firm capacity is about to enter the market in the coming years<sup>2</sup> because the business case for investment in new thermal capacity is facing lower levels of expected profitability. Furthermore, there are raising concerns over the actual materialisation of future investments; electricity markets are not delivering adequate investment signals: security of supply, adequacy more specifically, may be undermined. Such phenomenon is the result, among others, of:

- Aggressive penetration of low variable cost technologies, often resulting from badly designed support schemes<sup>3</sup>
- The existence of some regulatory flaws rules that distort market signals (e.g. spot price or offer caps and end-user regulated prices)
- The lack of robust and liquid long-term markets
- Presence of market failures or conditions far from the ideal ones<sup>4</sup>
- Inefficient use of existing interconnection capacity (especially near real time) and poor expansion (e.g. financing, permitting, NYMBY)

The situation and investments in existing generation fleet are further exacerbated by context conditions which include:

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<sup>2</sup> The International Energy Agency (WEO 2012) estimates that more than 60% of capacity additions for the period 2012-2025 will come from variable renewable energy sources (of which more than 50% by wind and solar).

<sup>3</sup> Electricity market dynamics are strongly driven by EU policy goals (more specifically the "20-20" targets and above all the priority of dispatch granted to renewables) that are deviating the energy mix from its pure economic optimum, affecting spot prices (levels and variability over time) and challenging grid planning as well as associated remuneration schemes.

<sup>4</sup> No perfect competitive markets; Inefficient short-term price; risk allocated inefficiently among the agents; small demand participation; incomplete information to decide the level of capacity socially optimum.



- Large uncertainty over the future regulatory, policy and market landscape (EVs and storage facilities role/regulation, demand side response potential, ETS evolution, etc.)
- The impact of environmental regulation on older plants (e.g. LCPD & IED Directives)
- The overcapacity of some EU markets amplified by the economic crisis
- The ongoing revision of policies on nuclear energy in some MSs (e.g. Germany and France)

In other words the undermined economic viability of some of the existing plants puts them at risk of early decommissioning (or mothballing). Clearly such developments pose the challenge of ensuring sufficient capacity availability in both the short and long-term while ensuring adequate investment return rates in the market place for existing and future generation capacity.

For example, in Italy the energy-only markets do not ensure a sufficient level of profitability to the existing thermal power plants. The current low demand level and the massive penetration of subsidized renewables, has led to reduced operating hours of thermal power plants (e.g. in case of CCGTs less than 2500 h per year on average) and to a reduction of spark spreads. Therefore, thermal power plants operators are currently facing very limited margins on variable costs while their ability to recover fix costs is extremely reduced. This can lead in the medium term to problems of generation adequacy due to a reduction of the available firm capacity (mothballing or shut-down of thermal power plants) necessary to meet load requirements, particularly when intermittent generation is not available. This possibility may pose serious consequences since 50% of the electricity produced in Italy is covered by CCGTs (2011 historical data).

**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?**

Yes. In principle the introduction of any form of direct or indirect support for specific energy sources affects the efficiency of price formation and leads to distorted price signals.

Sometimes the degree of the impact is related to the design of the support itself and to the characteristics of the generation technologies.

With respect to targeted support for technologies capable to deliver firm energy (coal, biomass, nuclear and gas-fired power plants), to guarantee the system operations security of the power systems and to solve critical

congestions of the grid infrastructure appears to have lower and limited impact.

With respect to renewable energy sources (RES), we acknowledge the utmost benefits in terms of diversification of the electricity mix (and therefore to the security of supply), of environmental protection (sustainability) and of promotion of innovation. At the same time, if RES incentives are necessary, support schemes should be differentiated on the basis of the technological development stage. European RES promotion policies should emphasize the need for the optimal combination of policy instruments rather than the selection of one single instrument as the best solution and the choice of the incentives should depend on the position of the target technology along the path to full market competitiveness and integration into the market, RES subsidies should be phased-out as soon as possible as they create market distortions. Furthermore, if support schemes are poorly designed, they become highly distortive and:

- They might entail excessive levels of remuneration which will lead to excess of installed capacity (as it was the case of solar PV and CSP in Spain).
- They might encourage the operation of these subsidized plants even when that energy is not needed, in a non cost-effective way from the system perspective (negative prices).

As a result of the later, market functioning will be distorted and viability of conventional generation will be threatened through a reduction of the operating hours, which might endanger the security of supply of the system. Additionally, this will hinder decisions of new investments in generation as well as maintenance of existing generation fleet. Paradoxically, intermittent sources such as solar and wind power can, if wrongly supported, threaten overall generation adequacy as the price profile facing the market becomes more volatile and more weather dependent, making flexible plants operation more dependent on stochastic weather conditions. This increases cost and risk and lowers willingness to invest in the required flexible capacity. Insofar those intermittent sources take their own balancing costs and the development is evolutionary, this should be included in the normal market risk.

Furthermore, legislation introduced also priority dispatch that highlight these problems earlier: operation of these subsidized plants even when that energy is not needed and excess of installed capacity as a result of a very generous support scheme

**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?**

Assoelettrica fully supports the integration of European energy markets and the process towards the implementation of the electricity Target Model together with energy efficiency measures and the development of alternative sources (e.g. demand response). In fact, well-functioning, competitive and integrated wholesale energy and balancing markets can contribute to improve efficiency and reduce costs for final customers through more transparent and reliable price signals which reflect more accurately the actual market conditions, thus attracting energy and reserves where they are needed the most.

At the same time, it must be noted that some forms of market integration are already in place for the day-ahead, intraday and balancing European markets (i.e. in Central Europe or between Italy and Slovenia);

Nevertheless, an improved version of energy-only markets (with the full implementation of the third package) does not seem alone to be able to solve system adequacy issues. Such consideration is based on three main points.

Firstly, the improvement of cross-border trade does not tackle the existing flaws of energy-only markets, like the absence of long term markets able to provide the price signals necessary to ensure generation adequacy. Thus, the optimization of generation dispatch through well-developed intra-day and balancing markets, though leading to lower costs and efficiency gains, contributes to security of supply only in the short term.

Secondly, in February 2011 the European Council set 2014 as the target year for the completion of the internal market for electricity and gas. However, despite the effort to complete the necessary rules by 2014, their final approval will occur realistically after 2014.

Thirdly, the implementation of the above mentioned rules will possibly require even more time, especially at national level where the adaptation of national network codes will be necessary. As a consequence, while the strategic mandate of the Council is clear, an investor faces the challenge of making important and long-term investment decisions with very limited visibility over the likely final market rules and their implementation time frame, especially considering the lengthy times and not always fully transparent approval processes (e.g. comitology procedure).





Lastly, such visibility is further clouded by the often unclear long term view of the EU Commission on the key targets and instruments to be used to achieve the decarbonisation path (e.g. coherence among climate, environmental and energy policy objectives).

**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?**

First of all, at European Level **policy and regulatory uncertainty** should be reduced as much as possible and **consistency among climate, environmental and energy policy** objectives should be ensured.

Second, electricity markets should be allowed to function properly so as to deliver the best results in terms of security of supply, reliability and affordability. For this reason:

1. The so-called **European target model** must be integrated in order to take into account **market-based capacity remuneration mechanisms** as a central pillar of the future electricity sector
2. There should be **well defined phase-out process for regulated end-user prices**
3. **Renewable energy technologies** should be brought on a **level playing field** with all other generators. In particular, clear roadmap with concrete deadlines for phasing out such supports as technologies reaches maturity and they should be responsible for balancing (see answer to question 2)
4. **Better use of cooperation mechanisms**
5. There should be a full implementation of the **3rd energy package**
6. Facilitate the expansion of interconnection capacity and the completion of other infrastructure projects through the **Infrastructure Package**

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

First, also at National level **policy and regulatory uncertainty** should be **reduced** as much as possible.

Second, Member States should adapt **their national electricity markets in order to be fully compliant with European Directives and Regulations**. In

particular, they should fully and rapidly implement all the provisions contained in the **Network Codes**. This process needs to be carry out in close cooperation with market participants and taking into account national markets' specificities.

Third, Member States have a key role in **removing distortions introduced in national regulations**. For this reason generators should be allowed to withdraw or mothball plants and manage their generation portfolio solely based on economic principles; furthermore price/offer caps should be deleted.

Fourth, Member States and NRAs should remove legislative and regulatory barriers (e.g. lengthy authorization procedures) which hamper the smooth **realization of infrastructure projects**.

Fifth, the full integration of RES in national electricity market (e.g. by taking system responsibilities in meeting scheduling nomination and balancing requirements) should be pursued in order for **RES generators to actively participate in the market** with the same obligations as for the other generation technologies.

Sixth, it must also avoid the introduction of **distortive taxes** on generation activities, like the Italian "Robin Hood" tax and the new Spanish energy taxation Law, that endanger investments in existing and new power plants.

Finally, as already underlined, it should be taken into account that energy-only markets, even if efficiently managed, may not be anyway sufficient to address generation adequacy. It is then legitimate for member States to be sure that the issue of generation adequacy is properly addressed also by **dedicated capacity support mechanisms** (see answers to the following questions).

**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?**

At present, in the system there is only a system approach based on Loss of Load Expectation (LoLE), which reflects the expected number of days per year for which available generating capacity is insufficient to serve the daily peak load. Moreover, the security and availability of energy supply are of utmost importance for consumers, whereas markets currently face considerable uncertainty on demand side response technologies and, notably, on their potential contribution to generation adequacy (e.g. in terms of type of services and volumes) as well as on their growth perspective.





In the future, it is of utmost importance that every customer has the possibility to choose its appropriate level of security of supply. However, in order to make possible different levels of security of supply we need the deployment of “smart” technologies and the introduction of economical solutions, like non-fix grid access contracts. Only with these advancements, customers will be able to offer their flexibility and benefit from the market value associated with it.

As already explained, an increase in demand response can lower the rigidity of electricity demand moving the market towards a more ideal situation. However, as demand cannot join a very high and unlikely level of flexibility, increased demand responsiveness cannot fully solve the missing money, risk and coordination problems emerging in energy-only markets.

In general, we believe that demand response services can make a contribution, though not substantial, to generation adequacy and, for this reason, they should be integrated in the electricity market (e.g. balancing market) as a precondition for their inclusion within capacity support schemes.

A deep assessment on how to include energy efficiency, tariffs, support for DSR is needed in order to evaluate the sustainability of burden resulting from the needful infrastructural development; maybe demand reduction and demand participation could make economic sense if managed along with a clear climate change policy.

However, public authorities should primarily define a proper regulatory framework (specific dispatching rules, imbalance penalty system etc) for their provision, e.g. enabling electricity suppliers to offer innovative products and tariffs to final customers in order to identify their preferences on services that potentially imply the acceptance of lower supply standards.

## **ASSESSING GENERATION ADEQUACY**

### **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:**

Generation adequacy is measured against the level of system security centrally defined. This level of system security should be calculated for each

“area” on a common European methodology which should be based on technical and economical parameters. Given that these parameters vary between areas, there could be different levels of system security around Europe.

These analyses of System security should be carried out for each “area”, which must be well-defined. In particular, the definition of an area should be based on the level of interconnection and on interdependency between electricity systems: an area could be a single country (especially where interconnections are very low, i.e. islands: Cyprus, Malta, etc.) or entire/portion of different European Countries. The last situation could happen where the transmission grid is meshed (i.e. between Germany and France) or where the electricity systems are complementary, i.e. Nordic Countries and Central Europe where the first is energy-constrained (its adequacy depends on the quantity of water stored) and the second is capacity-constrained.

Moreover, Assoelettrica believes that full transparency on assumptions and figures used for generation adequacy assessment is extremely important for stakeholders interested to enhance their understanding of the analysis carried out by TSOs at national, regional and European level. In particular, transparency on the methodology used by ENTSO-E is of utmost importance also when security of supply analyses and risk assessment are carried out within the TYNDP on the basis of the scenarios elaborated in the Scenario Analysis and Adequacy Forecast.

**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?*

Yes, TSOs should develop a regional assessment about available flexibility in the system, including generation, demand and storage. The level of flexibility available through the interconnections should be properly taken into account through a regional analysis. The limitations to the dynamic use of interconnectors that are embedded in market-coupling algorithm (like ramp-up limits on DC cables in the NWE coupling algorithm) should be assessed and analysed at a regional level rather than a national one.

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



One of the drawbacks of the ENTSO-E generation adequacy outlook is related to the fact that it does not include the economic parameters of the existing and future generation. This might result in a too optimistic assessment of generation adequacy, especially in view of reducing running hours of back-up generation due to massively increasing in-feed of RES.

Furthermore, as highlighted above, it is important to provide more complete data and better transparency of the ENTSO-E methodology used for the generation adequacy assessment. In the ENTSO-E TYNDP 2012, the general methodology justifiably includes variable RES into the ‘non-usable capacity’. However, the fact that all TSOs are not using the established methodology in a consistent way requires better coordination of the work from the side of ENTSO-E. The assumptions used to calculate the average availability of intermittent energy sources for the definition of the level of “non-usable capacity” should be made available by ENTSO-E in order for stakeholders to identify the accuracy of these estimates and their impact on the overall generation adequacy assessment. In addition, we welcome more consistent application of probabilistic methodologies to assess the impact of RES, but want to stress that for the proper use of these techniques the accurate modelling of the variable sources, which is indeed not easy to do, is of paramount importance.

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

The Directive 2005/89/EC sets forth the general principles which Member States have to follow to ensure an adequate level of security of supply without creating excessive burden on final customers. Notwithstanding those principles, Member States still enjoy a certain amount of leeway to achieve the results dictated by the Directive. As a result, in the absence of specific regulations at European level, aiming to define common criteria to assess security of supply, Member States have adopted different approaches.

In general terms, the Electricity Security of the Supply Directive is considered adequate even if it acknowledges a lack of coordination at European level.

**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?**

The Regulation on gas security of supply establishes a common framework in which security of supply is a shared responsibility of natural gas

undertakings, EU member states and the Commission. The Regulation imposes the obligation on the Competent Authority to make a full assessment of the risks affecting the security of gas supply and, based on the results, adopt a preventive action plan and an emergency plan. Competent Authorities can also perform joint risk assessment at regional level.

We believe that risk assessment is a good tool to enhance the level of security of supply, but at the same time recognizes that the existing non-binding TYNDP performed by ENTSO-E, already embeds the concept of security of supply (Regulation 714/2009). Instead, it would be preferable to enhance the transparency of the TYNDP in terms of regional planning (see also EURELECTRIC response to ENTSO-E Ten-Year Network Development Plan 2012 Package) and focus on the flexibility of the system and its ability to integrate intermittent resources.

**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?**

Yes. The development of harmonised generation adequacy standards across the EU seems to be the way forward in an integrated market. In this situation, it is not possible to assume that capacity located in one country only contributes to that country's security of supply. This approach would avoid any risk of distortions of cross-border trade.

At the same time, security of power supply is of key importance to member states and while a specific regulation at European level remains absent, the only regulation to this respect, i.e. Directive 2005/89/EC empowers each Member State to tackle its own security of supply. Besides, the structures of the power system (like generation mix, presence of hydro reservoirs etc.) vary widely among the different member states. Therefore it seems quite difficult to really obtain such harmonisation in the short term.

A pragmatic way forward would be that the European Commission outlines harmonized general principles that member states shall comply with at the same time that member states start cooperating at regional level to gradually move towards European adequacy standards, taking also into account cross-border network capacities. Having the same generation adequacy standards, however, is not enough to ensure the same level of investments across Member States. Other conditions already mentioned in previous questions should be fulfilled, in particular when it comes to creating a level-playing field between Member States and between technologies (RES and conventional generation).

## **MECHANISMS TO ADDRESS GENERATION ADEQUACY CONCERNS**

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

In the answers to the previous questions it was highlighted that energy only markets often fail to deliver proper investment signals to ensure generation adequacy in the medium and long term.. In fact, between other things, customers' risk aversion makes impossible to create liquid long term markets. For this reason, in energy-only markets there are no reliable long term price signals that are able to signal the necessity of new investment in order to maintain system adequacy. This structural situation has also been aggravated by the introduction of incentives to RES not correlated with costs.

Therefore, we believe that capacity mechanisms should be introduced along with the removal of all market distortions (price caps, regulated end consumer prices, RES preferential treatment etc.), the implementation of measures encouraging demand elasticity (e.g. demand response) and the support to grid development. All these measures are thus necessary to achieve generation adequacy.

Capacity mechanisms should be properly designed to ensure that energy customers are securely supplied by the power system and to provide generation adequacy at the lowest possible costs minimizing the impact on energy markets, especially concerning cross-border trade.

In conclusion, the target model should be complemented with the introduction of a long-term market-based capacity remuneration mechanism.

### **13. Under what circumstances would you consider market functioning to be insufficient:**

*a. to ensure that new flexible resources are delivered?*

Market functioning is insufficient to ensure the delivery of new flexible resources when prices in energy and balancing market are unable to reflect the costs incurred by generators for the provision of flexibility services, thus delivering weak or no investment signals to investors. This may happen if specific regulatory interventions (e.g. price caps etc.) distort price signals



emerging in energy and ancillary services/balancing markets. In this case, a proper market design (e.g. ancillary services/balancing markets) able to deliver transparent price signals reflecting the actual value of the specific services provided by generation can help address the need of new flexible resources. Flexibility should then be remunerated especially by balancing markets, and its costs should be supported by who creates the need.

The European Commission, ACER and National Regulators should speed up the introduction of the target model for the European balancing markets. Given that the process will not be completed before 2018, National States should introduce regional agreements for sharing flexible resources near the time of delivery.

Furthermore, context conditions like:

- Lack of a properly functioning energy market characterized by distortions to competitive dynamics
- Political and regulatory instability such as distortionary market interventions (charges, taxes, levies)

should be removed

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

As we stated in answer to question 12, we consider that energy-only alone are not able to give the right signals for capacity adequacy. For this reason we need to complement energy-only markets with long-term market-based capacity remuneration mechanisms.

#### **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?*

No. Strategic reserves do not represent an appropriate tool to address long term generation adequacy target and to support the transition to new energy mixes since they can induce discrimination and could interfere with market price formation if they act as a price cap on the market.



Moreover, there are other appropriate tools to achieve the climate objectives, like a well-functioning EU ETS set by a stable and clear regulatory framework.

Strategic reserve could just be used as a temporary measure to address short-term shortages in generation capacity (i.e. winter peaks), when all other resources do not allow to meet load and effective long-term capacity mechanisms are not yet implemented. In any case the activation of strategic reserve should be carefully regulated to avoid any disturbing effect on the internal market functioning (especially in terms of effect on energy markets and on unbundling rules).

As stated above we consider capacity remuneration mechanism as a pillar of the target model. At the same time, we deem other (more advanced) forms of market-based CRMs better able to support the transition (see answer 15)."

*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?*

Strategic reserve consists of old plants, that otherwise would have been mothballed or dismantled, kept available for emergencies and operated by an independent agent, typically the system operator. In this kind a central body procures reserve capacity but withholds it from the market unless "exceptional circumstances" prevail.

The main risk, we see is the practice occurred in Finland, Norway and Sweden where those kind of mechanism are applied and where SO directly owns generation assets. This solution poses legal concerns with respect to the unbundling regime laid down by the third energy package.

Furthermore, this kind of capacity remuneration mechanism could present the so called "slippery-slope" effect: plants not selected in the Strategic Reserve decide to close down or mothball, so more and more plant must be part of the Strategic Reserve to ensure it remains effective.

## **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?*

Generally speaking market-based solutions, and more specifically reliability options, appear frequently to be the most desirable solution. A number of reasons make them the option of choice as they appear to best address the

most significant challenges posed by the context and by market functioning, namely they:

- Are a market-based solution that relies on administratively set level of optimal capacity but leaves to the market and competition the price of capacity. When future capacity adequacy is ensured, capacity price are very low or zero
- Can be designed to be as much as possible coordinated with existing market mechanisms (e.g. DAM, ID, balancing and ancillary services markets) and therefore minimize the distortions to market dynamics
- Are compatible with demand side response
- Could mitigate exploitation of market power in the electricity market and burden on consumers
- Raise the least legal concerns in terms of compatibility with the EU legal framework

In some cases, however, hybrid mechanisms combining market based approaches with elements of administrative solutions could be appropriate if the market and regulatory conditions suggests so. Minimum remuneration levels fixed through administrative solutions may be desirable when regulatory changes undermine the expected profitability of the investment and therefore their recovery.

Furthermore, we believe that generation adequacy should be properly addressed in all European countries in order to avoid the distortionary impact on the European market caused by a country benefiting from the mechanism of a neighbouring country without paying its cost. Thus we are in favor to the introduction of capacity mechanisms defined at Member State level since the rationale behind such mechanisms and the tool to ensure generation adequacy may differ depending on the specific national market conditions. However, a proper level of supervision should be ensured at European level in order to avoid distortions due to major inconsistencies in the different national support schemes.

*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?*

As it was said in answer 13.a flexibility should be remunerated by energy and balancing markets and not by capacity markets. At the same time, market-based capacity remuneration schemes could work in combination with energy and balancing markets. For instance, reliability options (like the Italian

solution) could be designed in such a way that peak energy rents on precious balancing services (i.e. secondary reserve) are not paid by generators to TSO.<sup>5</sup>

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

It is not the existence of the mechanism in itself that should be reversible, but rather its impact on the market. If the mechanisms are market-based, the scarcity value will automatically drop to low values when there is overcapacity and sufficient earnings in the energy market. Market-based mechanism might therefore remain active without producing an impact (minor overall costs) on the market, and therefore being ready when needs appear again. Any retroactive change must be avoided. A strategic reserve should be designed as reversible.

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

A capacity market should be the preferred model to minimize the cost of adequacy for the electrical system. Such a market should be complementary to energy market and clearly set the value of capacity. It should also be open to all capacities and non-discriminatory among different technologies.

Market-based approaches with few parameters, and leaving as much room for the market as possible, will create lower costs compared to models with numerous targets and administratively set parameters.

The costs for end-consumer will strongly depend on the determined level of required capacity, including stability of the network. Consumers should be able to identify the costs related to system adequacy. A good capacity market should be really transparent and the most efficient possible. Stability of energy system must remain a top priority for MS, then it's important to improve awareness of consumers of the benefits of well-functioning capacity mechanisms.

Moreover, it should be considered that the assessment of the total costs of a capacity remuneration mechanism should take into account not only the additional costs of the mechanism itself (e.g. the premium for the capacity

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<sup>5</sup> Reliability options are a particular form of market-based capacity remuneration scheme in which TSO sign CfD 1 way with producers for a quantity equal to the capacity required in the future years. The strike price of the CfD is defined on variable cost of flexible-marginal power plants.

made available) but also the positive effects engendered at system level (e.g. reduced energy costs). For this reason, a thorough cost-benefit analysis on the opportunity to introduce capacity mechanisms should be focused on the assessment of their ability to maximize the overall social welfare of the system rather than on the sole costs for consumer which should be also addressed through a proper redistribution of welfare at national level.

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

Not at all. Capacity mechanisms should aim at ensuring that enough capacity is in place and available. Using capacity mechanisms to encourage flexibility would imply some type of technology discrimination that should not exist. Mixing the objectives may result in discriminatory, complex and less transparent mechanisms, which increase consumer costs. Balancing markets are encouraging flexibility together with energy markets. At the same time, as it was said in answer 15.b, some form of capacity remuneration mechanism (i.e. reliability options), are better able to better evaluate flexibility services.

Flexibility and capacity adequacy are two fully different issues, which should be addresses with different instruments. Flexibility is quite well dealt with using existing market-oriented mechanisms like intraday markets, balancing mechanisms and reserve management.

Flexibility is the ability/availability of power plants and demand-response to ramp up and down, to compensate variation into the system. The existing capacity is able to provide flexibility, though to a different extent, with different constraints and a different level of control depending on the generation technology. In general, power plants can modulate their production if technically needed, though suffering some loss of opportunity or generation over-costs linked to the provision of these services. These costs can be fully recovered through markets (e.g. ancillary service markets etc.) if they are properly designed to reflect the actual value of the services provided by generators. The cross-border exchange of reserves can further improve the functioning of balancing market towards a more efficient system management at European level.

Furthermore, capacity mechanisms which are not technology-neutral are likely to introduce unnecessary competition distortions and are not a sustainable way to deal with a long-term issue such as generation adequacy. On the contrary, universal, market based and non-discriminatory mechanisms are the best way to ensure generation adequacy at the lowest

possible costs for the society, with no competition distortions and no issues of State aid or Services of General Economic Interest.

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

No, developing the blueprint for a EU-wide capacity mechanism is too premature. At the same time, coordination between member states should be ensured. According to the EU law security of supply ultimately falls within the different National jurisdictions. Therefore, Member States may decide to set up their own national capacity remuneration mechanism depending on national circumstances and as long as they ensure compatibility with the EU internal energy market and its competitive dynamics. Indeed efforts must be done in order to prevent CRM as well as other security-driven mechanisms to distort market dynamics. Consequently, criteria should be agreed at the EU level in order to prevent distortions coming from lack of CRM coordination (in terms of structure and approach), to facilitate MS cooperation and to mitigate the impact on energy policies of specific national industrial interest (e.g. energy intensive industries, domestic fuel supply).

The EU Commission, rather than on a blueprint for an EU-wide capacity mechanism, should work on specific policy recommendations proposal to work on common elements to be included and not to be included in CRM design. Moreover, we acknowledge the importance of advancing the discussions at EU level to agree on a pathway for the implementation of well designed and more coordinated capacity remuneration mechanisms.

CRM design can vary depending on national circumstances but has to be market based. Differences among Member States, as far as specificities of their electricity systems is concerned, make it advisable to abandon the idea of “one-size-fits-all” solution. These differences, which end up affecting security of supply, can be found in:

- Level of interconnection
- Penetration of RES and particularly variable RES (wind and solar).
- Situation of conventional generation mix: peaking, mid-merit and base-load units
- Administrative permits required for decommissioning of power plants
- Existence of price caps in the markets.
- Current and envisaged reserve margins.
- Regulatory instability

- Demand response penetration

## **FRAMEWORK FOR ASSESSING CAPACITY MECHANISMS**

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

We support the definition by the European Commission of a list of appropriate essential requirements which national schemes should comply with in order to ensure that their possible cross-border impact is minimized. In our opinion, few basic criteria are sufficient to ensure that capacity support schemes developed at national level are coherent and compatible with the functioning of the internal electricity market. As highlighted in the answers to the previous questions, a proper design of capacity mechanisms could be attained through some basic features:

- Market based. The mechanism should guarantee that capacity obligations are covered at the lowest costs.
- Non-discriminatory. Any capacity (new or existing) providing the same contribution (e.g. capacity firmness etc.) to generation adequacy should have access to the mechanism and receive the same remuneration.
- Avoiding windfall profit and or unusual return on invested capital. Overlaps between different support schemes should be avoided.
- Inclusive of the contribution of interconnections to generation adequacy, though taking into account adequate reliability margins which factor in all the possible contingencies (e.g. unavailability, congestions etc.) having an influence on the available cross-border capacity.

### **20. Do you consider the detailed criteria set out above to be appropriate?**

As mentioned above, the coordination at European level of capacity remuneration mechanisms implemented at national level should be limited to few general criteria aimed to avoid distortions between member States while giving them the opportunity to tailor capacity support schemes to their national market conditions.

Therefore, we believe that the criteria proposed by the European Commission seem to be too detailed for the required level of European coordination and in some cases misleading since they don't reflect the needs which justify the introduction of capacity remuneration mechanisms. In particular, we deem advisable to draw the attention on the criteria number 3:



***(3)The duration of the application of the capacity mechanism should be clearly limited and clearly specified.***

- a. The impact on the market of the introduction of capacity mechanisms should not make it difficult to reverse that decision in the future.***
- b. The necessity of retaining reinstating a capacity mechanism should be subject to review.***

Generation adequacy is a long-term issue to be addressed by long-term market-based mechanisms able to guarantee an adequate level of new investments (or preservation of existing capacity) and to complement correct functioning wholesale energy markets. The medium-long period covered by such mechanisms requires that a certain stability of the regulatory framework is ensured in order to avoid sudden changes of the conditions affecting the expected investment remuneration after the concerned operator has taken its investment decision.

Policy and regulatory uncertainties can create major impediments to long-term investments, preventing wholesale energy markets and capacity mechanism from providing the correct outcome in terms of generation adequacy.

Moreover, capacity mechanisms should be properly designed in order to reflect the risk related to capacity adequacy in a certain market and to provide price signals close to zero when generation adequacy is not in danger in the medium-long term. Unexpected changes in the regulatory framework should then be avoided and are not required with self-regulating mechanisms.

It should finally be highlighted that the available literature on capacity payments and markets already defines basic criteria which capacity mechanisms should comply with in order to achieve generation adequacy objectives in the most efficient way. See for example Joskow (2007).<sup>6</sup>

## **21. Which, if any, criteria should be given most weight?**

Any capacity mechanism should be market based and used for generation adequacy only. The choice of the best compatible technology should be left to the market. Carbon emission should be addressed through a well-functioning emission trading scheme and flexibility services remunerated through power

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<sup>6</sup> Paul L. Joskow "Capacity payments in imperfect electricity markets: need and design" (December 5<sup>th</sup>, 2007).



markets. Existing units should not be discriminated as well be no discrimination there should be between generation, storage or demand response.