



Enel Group Response to the Public Consultation on generation adequacy, capacity mechanisms and the internal market in electricity

Enel welcomes the EC consultation on CRM and generation adequacy as a timely opportunity to discuss the generation adequacy challenges faced by European power systems.

Enel fully supports the 2020 climate and energy policy objectives as well as the decarbonisation strategy by 2050, but stresses the need to underpin a smooth transition towards a low-carbon economy with a strict coherence of national and EC policies. In order to strengthen investors' confidence, the EU should take a holistic approach post 2020 by integrating its policies on CO₂ reduction, RES and energy efficiency into one coherent structure. The EU ETS should be the key driver to bring the EU power sector towards carbon-neutrality whilst support schemes to mature RES technologies should be progressively phased out. Furthermore, Member States should avoid taking discretionary measures and destabilise the investment climate by introducing retroactive changes.

Whilst Enel acknowledges the positive role RES promotion is playing in fulfilling the EC climate change policy, the integration of RES has sometimes produced distortive effects on the functioning of wholesale markets, in particular with respect to the price formation and the operation of back-up plants. This not only brings new challenges to the current market design and the effective implementation of the third energy package but it also negatively affects the investment framework and adequacy as investment decisions risk to be made primarily on the basis of the level of support rather than the market price signal.

Enel supports the idea that the European electricity target model should be reviewed and considers market-based capacity remuneration mechanisms (CRMs) as a pillar of future market design. The way forward is to re-think the European market design by allowing the implementation of sound and coordinated (structures and approaches) market-based CRMs across the EU and its borders. Properly designed CRMs are a market design option that can complement energy markets in a stable and long term manner as well as an important tool to bridge a secure transition to decarbonisation. The key arguments rely upon the potential role of imperfections, failures and real conditions of European electricity markets (far from the ideal ones) as demonstrated by NRAs' assessment motivating CRM introduction or modification. Market based mechanisms appear frequently to be the most desirable solution and better able to address the most significant challenges posed by the context. Moreover, CRMs should be technology neutral, ensure equal treatment of different market players, take into account interconnectors and be established as a stable framework.

At the same time, Enel acknowledges the importance of moving forward at the EU level to reach properly functioning and competitive energy markets and increase cross border interconnection. To this end policy makers need to address key areas including removing the various remaining distortions such as end-users regulated prices, stepping up efforts in integrating electricity markets, bringing RES into the market and developing demand response.

Finally, an EU-wide CRM is not necessary neither feasible but coordination must be ensured. Member States should be able to set up (or adapt) their own CRM depending on national circumstances as long as they ensure compatibility with the EU internal energy market and its competitive dynamics. The Commission should work on policy recommendations and on general non-binding principles to harmonise structure and approaches and to ensure

compatibility with the internal market. Consequently, criteria should be agreed at the EU level to prevent possible distortions and facilitate cooperation between MSs.

INVESTING IN THE INTERNAL ENERGY MARKET

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

No, we do not believe that current market prices are the main element preventing investments. This is mainly due to the fact that in competitive and properly functioning energy markets it is the **expected market price evolution, rather than current market prices, that sends the appropriate signals for investing in generation capacity and drives the generation resource availability**. Each agent decides its investments for itself and profitability is not guaranteed ex-ante, but gained in the market place¹. As far as market prices are concerned, they are clearly reflecting distortions mainly caused by badly designed support schemes and by interventions of governments and national regulatory authorities.

Nowadays, the bulk of incremental capacity expected to enter the market in the coming years corresponds to intermittent energy sources rather than firm ones² and the business case for investment in new thermal capacity is facing lower levels of expected profitability, raising concerns over the actual materialisation of future investments and thus system adequacy. Electricity **markets are not delivering adequate investment signals** and security of supply, **adequacy** more specifically, **may be undermined**. Such phenomenon is the result, among others, of:

- Excessive penetration of low variable cost technologies such as some RES technologies, often resulting from badly designed support schemes³
- The existence of regulatory flaws 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 ones⁴
- Inefficient use of existing interconnection capacity and poor expansion (e.g. financing, permitting, NYMBY)⁵

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

- Large uncertainty over the future regulatory, policy and market landscape (EVs and storage facilities role/regulation, demand side response potential, ETS evolution, nuclear policy revision in some MSs, etc.)

¹ This might differ in case of innovative and non-mature technologies which might benefit from direct form of support (e.g. R&D)

² The International Energy Agency (WEO 2012) estimates that more than 60% of capacity additions for the period 2012-2035 will come from variable renewable energy sources (of which more than 50% by wind and solar).

³ 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. Moreover, some MSs have not properly planned in advance RES development and the associated support, turning some markets into overcapacity.

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

⁵ That would enable more cross-zonal capacities and cross-zonal trade between areas with excess supply and areas with excess demand.

- The impact of environmental regulation on older plants (e.g. LCPD & IED Directives)
- The overcapacity of some EU markets amplified by the economic crisis.

In light of such a context, the economic viability (“*merit-order effect*”, “*missing money*”, reduced operating hours, modified production patterns, increased price volatility, etc.) of some of the existing plants puts them at risk of early decommissioning (or mothballing) and new investments are undermined. 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.

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, because in principle the introduction of **any form of direct or indirect support**⁶ for specific energy sources **affects the efficiency of price formation** and leads to distorted price signals⁷. Considering adequacy as the existence of enough available generation capacity (both installed and/or expected to be installed) to efficiently meet demand in the medium to long term, the introduction of specific support **distorts the basis upon which investment decisions are made**, may undermine the operations of power systems and might imply an additional burden for electricity consumers. More specifically, poorly designed support schemes are highly distortive because:

- They might entail excessive levels of remuneration which may lead to overcapacity (as it was the case of solar PV and CSP in Spain) and to reach in advance national 2020 targets (e.g. PV in Italy);
- They might encourage production from subsidized plants even when that energy is not needed, in a non cost-effective way from the system perspective (e.g. negative prices, wind curtailment).

In light of such a context, market functioning can be distorted and viability of conventional generation threatened, endangering system security and adequacy. In addition, such conditions can hinder decisions of investments in new capacity and/or in maintenance of existing fleet. Moreover, if excessive support is granted to variable sources (e.g. solar and wind) and the latter reach significant shares of the power mix too rapidly, the overall system adequacy may be undermined as well (leading to increased price volatility and dependence on weather conditions of prices itself and of flexible plants’ operations). This may increase system costs and investment risk as well as lower willingness to invest in the required flexible capacity.

However the **degree of the impact is substantially related to the design of the support itself** and to the characteristics of the generation technologies:

- With respect to **targeted support** for technologies capable of delivering **firm energy** (coal, biomass, hydro, nuclear and gas-fired power plants), guaranteeing power system operations **security** and solving critical **congestions** of the network, the support appears to have more limited impact (time and volumes) and to be more security/adequacy-oriented;

⁶ Indirect form of support includes priority of dispatch or connection to the grid.

⁷ Under a market-based scheme, driven by demand and supply laws, an equilibrium price and an equilibrium quantity are determined as the result of generators and demand interaction in the market.

- With respect to **renewable energy sources** (RES), the benefits in terms of diversification of the electricity mix (and therefore of security of supply), of environmental protection (sustainability) and of promotion of innovation are all clear. However, badly designed support or incentive levels undermine markets dynamics and reduce the benefits of market liberalization and integration. Even if National or European regulation define ambitious targets, only non-mature and, therefore, limited RES production should have access to incentives. Consequently, for future investments, RES subsidies should be phased-out as soon as possible and at the same time, if deemed necessary, differentiated on the basis of the technological development stage along the path to full market competitiveness and integration into the market. Lastly, RES promotion policies should emphasize the need for the optimal combination of policy instruments rather than the selection of a single instrument for all technologies and Member States should properly plan in advance the steps of development to meet EU objectives.

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?

Nowadays, cross-border day ahead, intraday and balancing electricity markets, despite improvable liquidity rates and limited tradable quantities, are already in place in many borders and most European markets are coupled⁸. Although the acceleration of the **integration** process and the implementation of the European **electricity target model** are considered fundamental, they **cannot solve completely the security of supply and adequacy issues**, neither adequacy concerns, **but only contribute to some extent**. Such consideration is based on the main following points:

- **Persistence of flaws** - The integration process and cross border trade doesn't tackle the existing flaws preventing the market to deliver the best results in terms of security of supply, reliability and affordability (see examples given in answers 1 to 2);
- **Delays in the approval at European level** - In February 2011 the European Council set 2014 as the target year for the completion of the internal market for electricity and gas but, despite the efforts to complete the necessary rules by 2014, their final approval will occur realistically after 2014. Such development is confirmed by latest Acer's ERI Quarterly report that highlights further delays of the European Price Coupling project and the statement on the "*increasingly challenging 2014 target*"⁹;
- **Lengthy national implementation** - The implementation of the above mentioned rules will possibly require even more time (e.g. consultations), especially at national level where the adaptation of national network codes will be necessary;
- **Policy and regulatory uncertainty** - The situation is further clouded by the often unclear long term view on the key targets and instruments to be used to move forward along the decarbonisation path (e.g. coherence among climate, environmental and energy policy objectives and associated tools).

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

⁸ See: [Acer/CEER Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2011](#).

⁹ See: [Acer's ERI Quarterly Report – Q4 2012](#).

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).

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, the Commission will have to take the lead in **reducing** as much as possible **EU policy and regulatory uncertainty** and ensuring the consistency among climate, environmental and energy policy objectives and associated tools, taking into account the investor time horizon.

Secondly, the European electricity **target model** should be **reviewed and consider market-based CRMs** as a **pillar of the future market design**. The way forward is to acknowledge that energy-only markets are not able to face on their own the challenges of generation adequacy and to re-think the European market design by allowing the implementation of sound and coordinated capacity markets across the EU (structures and approaches).

Thirdly, electricity markets should be kept as free as possible and allowed to function properly. To this end, **selected key market rules and design elements must be modified or introduced**. Such improvements include the removal of distortions such as: those related to support schemes (see answer to question 2), restrictions on plant operations, price and/or offer caps, other regulatory or administrative measures which unnecessarily distort wholesale market outcomes. Within such context:

- **Integrating RES into the market** - It is of utmost importance to promote and accelerate the integration of renewable energy technologies into the market in order to bring them on a level playing field with all other generators
- **Fostering flexibility** - EU policymakers and regulators should set as policy priorities real-time flexibility of both demand and supply, further integration of wholesale markets within the forward, day-ahead, intraday and balancing timeframes
- **Pushing ahead liberalisation and competitive markets** - There should be a full implementation of the third energy package and above all a clearly defined phase-out program for regulated end-user prices
- **Promoting infrastructure** - 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 of all, also at National level policy and regulatory uncertainty should be reduced as much as possible by setting clear energy policies and regulatory objectives.

Second, Member States need to make a greater commitment to the removal of distortions. To this end, among others (see also answer 1), it will be key to allow generators to withdraw/"mothball" plants and manage their generation portfolio solely based on economic principles as well as to eliminate price/offer caps.

Thirdly, Member States must avoid the introduction of distortive measures with direct impact on the electricity sector and more specifically of taxes on generation activities.

Notable examples are the Italian “Robin Hood” tax or the recent Spanish Law (Ley 15/2012) introducing fiscal measures for the sustainability of the electricity sector. The latter, on top of endangering investments in existing power plants is distorting competition with the Portuguese border and strongly influencing forward market prices (the key market signals for future investments), thus the base upon which investment decisions are made.

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?

In the future, it is of utmost importance to grant customers the possibility to choose the most appropriate level of security of supply and to offer them innovative products and flexibility, taking into account that all customers have different needs, preferences and potential to be more flexible or to accept lower standards. To this end we consider it necessary to:

- **Fostering** the deployment of “**smart**” **infrastructures and technologies**;
- Introducing market-based mechanisms (time of use rates; interruptible programs, real time pricing) to **promote DR solutions**;¹⁰
- Ensure an effective **retail competition** and correct price signals;
- Allowing a more **accurate reflection of capacity** significance in power markets, possibly through CRMs, to **reveal the real value of demand response** that lies in its ability to act as a fast capacity resource.¹¹

The above mentioned proposals are motivated by the fact that, generally speaking, consumers do not select their desired level of reliability when choosing a supplier mainly because electricity **demand is rigid**, because **customers do not adjust** their level of **demand in response to real time** conditions (and scarcity) and for the reason that they are substantially not directly exposed to real time prices. One reason is that many consumers do not have the infrastructures necessary to monitor and to respond to spot prices, which are often poorly interrelated with and not necessarily reflected in end-user prices. Another reason is the low penetration of demand response (DR) solutions.

As a consequence, until there isn’t sufficient demand response to address such demand-side flaws the market may not be capable to solve the reliability adequacy problem without introducing the selling of a **reliability product or other market-based mechanisms** (time of use rates, interruptible programs, real time pricing).

Lastly, at present, consumers preferences in relation to security of supply are defined by public authorities mainly through system approaches based on Loss of Load Expectation (LoLE). This is a measure of how long, on average, the available capacity is likely to fall short of the demand¹². The use of **LoLE** to assess generation adequacy is an **internationally accepted practice and we currently consider it the soundest**

¹⁰ The latter plays a critical role as if on one hand reducing consumption it reduces the need for additional capacity, at the same time would reveal the actual price demand is willing to pay to avoid a certain level of disruption in the electricity service (value of lost of load, VoLL).

¹¹ With the current focus on energy-only markets the real cost of providing capacity is often not adequately reflected into hourly electricity prices; the Smart Energy Demand Coalition (SEDC) identified the methods for valuing capacity in most EU energy markets as the second most important barrier slowing DR penetration (See SEDC “Demand Response Snapshot”: <http://www.sedc-coalition.eu/wp-content/themes/blue-grace/images/snapshot.pdf>)

¹² Is a statistical measure of the likelihood of failure and does not quantify the extent to which supply fails to meet demand.

available instrument. The calculated adequacy level is then compared to a standard to assess the adequacy of the system (e.g. number of hours per year).

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:*

Generally speaking, a substantial revision of how generation assessments are carried out in the internal market is not strictly needed per se, rather to be maintained based on national schemes with some coordination at European level. To this end **some key improvements appear desirable:**

- Generation adequacy should be **measured against** the **level** of system security that is **decided upon legally or by regulators** in each area. Areas should in principle correspond to national borders but might be expanded to sub-national or supra-national with the advancing of the market integration process;
- Developing benchmarks for system security and adequacy requirements (including reliability) to progressively **harmonise the approach in the internal market;**
- Adequacy assessments should **take into account** contribution of **cross-border interconnections, capacity closures due to economic reasons** (not only technical lifetime), the contribution from **demand response** resources and above all the type of capacity (e.g. firmness and flexibility).

a. National level

Not substantially in the shorter term, but there is a need to **dynamically follow market integration advancements**. Detailed national reviews are made regularly in numerous countries and required by Electricity Security of Supply Directive. The national scale of analysis appears the most pertinent but should be dynamically adapted to market integration progresses and properly reflect local possible specificities (regulatory framework, economic environment, political orientations, network infrastructure conditions, presence of isolated systems, etc.).

b. Regional Level

As above, **not substantially in the shorter term, but there is a need to dynamically follow market integration advancements**. More precisely, in areas where there are specific concerns about generation adequacy or synergies to be exploited, coordination or ad-hoc agreements to improve generation adequacy assessments could valuably improve the analysis and reduce adequacy costs for consumers.

c. European Level

At the European level it is fundamental **in the short term to proceed with the improvement of the Entso-E assessment** (see answer 8); **in the longer term**, as the market becomes more and more integrated and depending on technological developments (e.g. storage viability and intermittent RES predictability), it might be necessary to **consider potential modifications** to better reflect the greater importance of adequacy assessment at the European level (e.g. European scale adequacy standards and requirements).

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, Entso-E should develop assessments including **available flexibility in the system** (generation, demand and storage). The level of flexibility available through the interconnections should be properly taken into account as well.

- 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 properly **include the economic parameters of the existing and future generation**. This might result in too optimistic assessments of generation adequacy, especially in relation to reduction of operating hours for back-up generation due to increasing feeding-in of RES.

Furthermore, it is important to provide **more complete data sets and increase transparency over ENTSO-E methodology** used for the generation adequacy assessment. In the ENTSO-E TYNDP 2012, the general methodology justifiably includes intermittent 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 by ENTSO-E.

In addition, we would welcome **more consistent application of probabilistic methodologies to assess the impact of intermittent RES**. At the same time we would like 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. To this end an important concept that could be further investigated and developed by Entso-E is the so called "capacity credit".¹³

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

In general terms, the Electricity Security of the Supply Directive is considered adequate, even if it is important to acknowledge a lack of coordination at European level. Coordination will have to be improved in the future as the market becomes more and more integrated. More specifically, 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 an excessive burden on final customers. Despite 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 very different approaches.

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?*

No. One to one equivalency does not seem feasible since other factors intervene in security of supply in electricity that adds a different complexity than in the case of gas. Important differences exist in terms of security of gas and electricity supplies.

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

¹³ See for example [IEA methodology in WEO](#).

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 we recognize 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 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?

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 **Member States should start cooperating** at regional level in order 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?

The European electricity **target model should be reviewed and consider market-based capacity remuneration mechanisms as a pillar of the future market design**. The way forward is to recognise that energy-only market design is insufficient for the purpose of ensuring generation adequacy and to re-think the European market design by allowing the implementation of sound and coordinated (structures and approaches) capacity markets across the EU and its borders. More specifically, we consider that energy-only markets alone can't deliver adequacy, reliability and economic sustainability of power systems as they have proven (and expected to keep proving) their failure to do so. This is particularly true in a context of radical transformation and transition to decarbonised economy and energy sector.

Properly designed CRMs are **a market design option**. They should not be seen as an alternative to the needed improvements to energy only markets. They can instead **complement energy markets** in a stable and long term manner as well as provide an important **solution to bridge a secure transition to decarbonisation**. The key arguments rely upon the imperfections and real conditions of electricity markets which have been extensively described in the answers from 1 to 6. At the same time, we acknowledge the importance of moving forward at the EU level to reach properly functioning and competitive energy markets. To this end we recognise the importance of NRAs to develop, in due consultation with the stakeholders and in a transparent manner, sound assessments as a basis for the introduction or modification of CRMs. The analysis should take into account the physical needs of the systems and the investor's perspective as well as the impact on neighbouring countries.

Lastly, it is worth mentioning that it is very difficult in practice to find a market without any explicit or implicit form of security of supply intervention¹⁴. In many (particularly European) markets, no security-of-supply mechanism has been explicitly implemented, but it may be reasonably affirmed that, even looking at the most market oriented experiences¹⁵, no system lacks of at least an implicit regulatory safeguard with respect to security of supply. Such evidence clearly implies that *"strictly speaking, it is not clear that purely energy-only (competitive) markets do exist"*¹⁶.

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

a. to ensure that new flexible resources are delivered?

Context conditions preventing the market to ensure that existing and new flexible generation/supply resource are delivered can be:

- Lack of a properly functioning energy markets characterized by distortions to competitive dynamics, especially in the balancing and ancillary markets;
- Political and regulatory instability such as distortionary market interventions (charges, taxes, levies);
- Generating plants not operating enough hours and at prices preventing the recovery of the investments.

Moreover, on top of the concerns associated with the new flexible resources, it is important to consider the circumstances of current flexible fleet and to properly remunerate such services in the balancing and ancillary markets. To this end we acknowledge the fundamental importance of the stream of work of European Institutions and of the Agency with respect to the Electricity Balancing Network Code (EB NC). More specifically, due to the fact that the EB NC will reasonably take effect after 2018 we fully support the work carried out by the Electricity Regional Initiatives (ERIs) as a mean to accelerate the regional integration of national balancing markets.

¹⁴ Especially when the system is already suffering (or it is expected to suffer) a period with a tight or even scarce reserve margin.

¹⁵ For example in ERCOTT (Texas) the emergency program known as EECPP (Emergency Electric Curtailment Plan) allows the system operator to use reserves and out-of-the-merit units through "out-of-the market" protocols; in Ontario the Power Authority can enter into long-term contracts in order to secure an adequate reserve margin; In the UK, under the BETTA, the TSO is responsible for the long-term purchasing of the operating reserves; In Nord Pool, the SO takes an active role resorting to a long-term "strategic reserves" contracting that it is later discussed in the quantity-based mechanisms.

¹⁶ See: Battle P. and Rodilla (2010) *"Policy and regulatory design issues on security of electricity generation supply in a market-oriented environment Problem fundamentals and analysis of regulatory mechanisms"*. ". [IIT Working Paper IIT-09-057A](#).

- 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 markets alone are not able to give the right signals for capacity adequacy. For this reason we need to complement them with long-term market-based capacity remuneration mechanisms.

Moreover, in the likely future, particularly stressed system situations should be more and more associated with higher level of peak demand coverage by intermittent renewable energies and possible lack of adequate quantities of programmable and flexible generation. However, **such dimension**, at least in the short term, **is more associated with security and firmness issues rather than with system adequacy** or strategic expansions.

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. As stated above we do consider capacity remuneration mechanism a pillar of the target model, but we deem **other (more advanced) forms of market-based CRMs better able to support the transition**. This is because of the risks posed by strategic reserves mechanisms (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?*

We acknowledge the peculiarity of the context conditions (e.g. power mixes and weather conditions) of Finland, Norway and Sweden, where those types of mechanisms¹⁷ are applied and TSOs often directly own generation assets. However, we see risks associated with the practice of strategic reserves, including:

- **Compliance with unbundling regime** - The legal concerns with respect to the unbundling regime laid down by the third energy package (compliance) and the potential distortion it may have on competition in different contexts
- **"Slippery-slope effect"** - 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 plants 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 mechanisms 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, namely they:

¹⁷ Strategic reserve consists of old plants, that otherwise would have been mothballed or dismantled, kept available for emergencies and operated (ideally) 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.

- Are solutions that rely on administratively set level of optimal capacity, but leaves to the market and competition the price of capacity
- Can be designed to be as much as possible coordinated with existing market mechanisms (e.g. commitment of the capacity awarded into DAM, ID, balancing and ancillary services markets) and therefore minimize the distortions to market dynamics
- Are potentially more compatible with the technology neutrality principle, a longer term move to a more responsive demand side (more strongly encourage non-generation responses to system adequacy issues such as DSR) and flexible power systems
- Could mitigate burden on final consumers
- Raise the least legal concerns in terms of compatibility with the EU legal framework, being substantially close to a complementary forward market

However, in some specific cases, hybrid mechanisms combining market based approaches with elements of administrative solutions could be appropriate especially when based on careful assessments that take into account the physical needs of the systems (adequacy and grid planning) and the investor perspective (investment sustainability). The latter would hold especially in the short term and in those countries where regulatory frameworks and market environments are highly distorted by strong state interventions in the form of extraordinary measures or of other direct interference with competitive dynamics. More specifically, minimum remuneration levels fixed through administrative solutions may be desirably maintained when retroactive or sudden regulatory changes undermine the profitability of current investment and therefore their recovery. Over the medium to long term the model has to be based on market mechanisms.

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?

The intention of CRM is not to encourage flexibility but rather adequacy (see answer 17). At the same time properly designed CRMs are a market design option that can complement energy markets in a stable and long term manner as well as an important solution to bridge a secure transition to decarbonisation.

In addition, **CRMs can be designed to be compatible with the promotion of RES and of demand side solutions**, even to support them directly in an efficient manner with respect to system adequacy. In doing so, and with respect to the technology neutrality, special attention should be given to the fact that RES and demand side, solutions are characterised by a more limited level of reliability/firmness compared to conventional generation.

Furthermore, always on the basis of the technology neutrality principle, a level playing field among operators and/or technologies should be ensured through equal treatment in terms of technical requirements and penalties. A capacity market if properly designed can maximize the scope for competitive forces to determine the price for reliability and consequently the associated optimal (decarbonised) mix of technologies (including flexible ones).

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 (low overall costs) on the market, and be ready when needs appear again. Any retroactive change must be avoided.

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

Market-based approaches with as few parameters as possible, and leaving as much room for the market as possible, will lead to lower cost impacts compared to models with numerous targets and administratively set parameters. In assessing the total costs for end-consumers, not only the very short-term but also the long-term effects should be taken into account. Selective approaches might be less expensive in the very short-term, but more expensive in the long run.

However, the costs for the final consumer will strongly depend on the determined level of required capacity, including the determined reserve margin and interconnection capacity. In this context, it is important to stress that by setting the reserve margin Member States will be setting the level of capacity required in the system and should not intervene with regulatory measures to determine the capacity volumes by technology, applying the principle of technology neutrality.

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, balancing markets are to encourage flexibility in the energy market. Capacity remuneration 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 be avoided. Mixing the objectives may result in discriminatory, complex and less transparent mechanisms, which increase costs for consumers.

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

A single EU CRM is not necessary neither feasible but coordination must 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 terms of structure and approaches in order to prevent distortions coming from lack of CRM coordination, to facilitate MS cooperation and to mitigate the impact on energy policies of specific national interests (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 and on general principles** to be considered or not in CRM design, with the final **aim to harmonise as much as possible structure and approaches and to ensure compatibility with the internal market.** To this end, 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 are 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 generation mix in terms of both technologies (thermal, nuclear, hydro, wind etc) as well as place in the merit order (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?

Yes, the European Commission has to **ensure compatibility** between the regulatory framework and the internal energy market and make available all necessary information, legislative measures and tools to assess possible incompatibilities or design mistakes. To this end it would be advisable that the Commission focuses on some **key design elements** aiming at paving the way **to a progressive harmonisation of structures and approaches** for market-oriented CRM solutions.

At the same time the introduction of a **non-binding provision in the short-term** may be desirable to be possibly reassessed after a proper review of the European target model for electricity markets and the achievement of the “2020 targets”. This might take the form of guidelines, opinions or recommendation.

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

Generally speaking we support many of the criteria developed by the European Commission. However, as we consider CRMs as a pillar of the future market design, we believe it more important to focus on design elements and associated compatibility with the internal market. Here below we report some major comments on the different criteria:

- **(1) Necessity** - CRMs should not be seen in contrast with other measures listed in point 1 (a to b). As a matter of fact, measures such as the improvement of energy efficiency and the removal of barriers to demand response should be pursued in parallel and not considered as alternative but rather necessary in a market design option which contemplates a CRMs;
- **(2) Effectiveness** – We supported the idea that CRMs are an effective market design option to be implemented to address the energy-only model’s failures; to this end the “*normal market rules*” mentioned by the Commission should refer to the current energy-only arrangements of the MSs;
- **(3) Duration** – As already explained, we consider CRMs to be an integral part of the market design. It is not the existence of the mechanism in itself that should be

reversible, but rather its impact on the market. Consequently, their duration should not be forcedly limited in time, but rather the market should automatically reveal the necessity of such policy tools. In any case we share the idea that NRAs should develop sound motivations and analysis for the introduction, modification or removal of CRMs.

- **(4) Interconnection treatment** – Foreign capacity should be allowed to participate to the extent it can provide the same benefits as domestic capacity. This would help to ensure the efficient location of capacity and minimize potential distortion to cross border trade dynamics. Moreover, interconnected capacity should participate on a level playing field and be required to offer the same assurance as domestic providers. At the same it is important to acknowledge the difficulties to be faced in terms of regulatory techniques to integrate foreign capacity. The latter may ultimately lead to having such issues tackled once the market integration process is effectively completed (i.e. in the longer term);¹⁸
- **(5) Compatibility with cross-border trade and competition rules** - Member States have room to implement national security of supply measures, but national provisions must comply with the European legal framework, competition and state aid rules more in particular. To this end the introduction or modification of CRMs should properly take into account the antitrust profile which can significantly contribute to minimize potential regulatory uncertainty associated with possible breach of competition rules and exercise of market power
- **(6-7) Technology neutrality and demand participation** – We generally support non-discriminatory CRMs consistent with market based approaches and therefore auctions¹⁹. To this end, verifiable demand side solutions must play an equivalent role to generation side solutions within capacity mechanisms. Such fair treatment of different solutions will have to be ensured through a careful design phase. Demand solution providers may be able to participate in the capacity market by being able to offer their capacity into a primary auction on a level playing field with generators.
- **(8-9) Burden on electricity consumers** - Electricity users will pay the costs of capacity mechanisms in their electricity bills, but will also benefit from less volatile (and potentially lower) electricity prices, and from a higher level of reliability. Such costs must be controlled and design choices must aim to reduce and minimise as much as possible the burden on electricity consumers. A provision establishing that any non-availability penalties paid by providers of capacity must be returned to suppliers and should therefore reduce bills for electricity users shall be considered.

a. Should any criteria be added to this list?

No, the list is considered sufficiently exhaustive but in light of the above answer it should be improved and possibly transformed in a non-binding document laying down **key design elements** aiming at paving the way **to a progressive harmonisation of structures and approaches** for market-oriented CRM solutions.

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

¹⁸ See: [DECC "Capacity Market: Design implementation update"](#).

¹⁹ However, as stated in answer to question 12, in some specific cases hybrid mechanisms combining market based approaches with elements of administrative solutions could be appropriate. More specifically, minimum remuneration levels fixed through administrative solutions may be desirably maintained when retroactive or sudden regulatory changes undermine the profitability of current investment and therefore their recovery.

All the criteria should be considered equally important in order to ensure competitive, effective and efficient CRMs.