APREN'S REPLY TO THE EUROPEAN COMMISSION PUBLIC CONSULTATION ON GENERATION ADEQUACY, CAPACITY MECHANISMS AND THE INTERNAL MARKET IN ELECTRICITY

INVESTING IN THE INTERNAL ENERGY MARKET

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

This question has two assumptions that do not allow the correct assessment of the problem.

First of all "market prices" are referred as they can be used as a reference for producers' revenues. Nevertheless, due to the incomplete liberalization of the market, producers receive other revenues than market price. For example in Portugal, there is no producer that receives only market prices, since they all get other type of compensation, either hidden subsidies, PPA´s or feed-in tariffs. Moreover, investment decisions in new power capacity do not resort solely on absolute market prices. Decisions are rather taken based on the projections of a variety of variables such as the evolution of supply-demand balance, fuel prices, macroeconomic environment, regulatory framework, bankability of projects, etc.

Therefore market prices should not be considered as a reference for investment decisions, in generation capacity or any other investment in power generation assets. Instead of market prices, it is rather the market model that sets up the conditions for investments.

The second misleading assumption is that what is truly "needed" is not generation capacity, but rather generation adequacy, which is actually the real focus of this public consultation, and does not necessarily comes from generation capacity, as it will be shown afterwards.

This said, this question should be rephrased to "*Do you consider that the current market model prevent investments in needed generation adequacy?*", and the answer would then be – no.

In order to face the challenges of the future internal energy market, with high penetration rates of RES required to comply with 2020 and 2050 targets, what is needed is not capacity as such, but flexibility. Flexibility is the main feature of tomorrow's power system. It will allow addressing the problem not only on the generation side, but also on the demand side, in a more effective and less market distorting way to ensure system adequacy and security of supply.

That is not the case today. Energy markets in the EU continue to be highly concentrated with national incumbents exerting significant market power, creating structural market distortions. Furthermore, the new liberalized market rules have been developed with established conventional large scale power generators in mind, which hardly differ from those created for vertically integrated utilities before any significant cross-border trading and liberalization took place. Examples are the predominance of forward energy markets in which power is mainly traded via long-term bilateral contracts and explicit transmission capacity allocation, as well as the absence of intraday markets – and, where they exist, their low

liquidity. These are all evidences of a market design tailored for dominant incumbent participants of large, slow-ramping, must-run inflexible power plants.

It should also be recalled that, at least in some Member States, there are significant overcapacities, which also distort investment decisions and market prices. However the market design should not protect those affected by overcapacity, since it is a natural consequence of the liberalization and decarbonisation of the energy market that they can no longer operate in economically viable conditions. Those capacities are often in the hand of former incumbents and continued subsidisation would only further distort the functioning of the energy market and impede all liberalisation efforts.

The new internal energy market model should, as opposed to what was described above, facilitate, on a level playing field, the integration of both RES and medium-sized producers, recognizing their technical and economical nature, without compromising system adequacy. This is already possible with the existing technologies and knowhow.

To ensure investors' interest in power generation assets, the focus should be on alternative market based revenue streams. The establishment of grid support services markets (i.e. ancillary services as frequency control, reactive power control, black-start capability, etc.) could provide an additional source of income for all generators, including RES. This would tackle a potential generation gap in the electricity sector without significantly distorting the market, as opposed to regulatory intervention – for example, in the form of capacity payments.

In the medium to long term, technological progress and further market development should enable wider participation of renewable energy and other generators and provide another revenue stream in addition to energy-only markets. Grid support services markets will deliver benefits similar to those provided by capacity markets in a broader and less discriminatory and distortive manner. In a truly liberalized setting, regional trading of grid support services should be encouraged when technically feasible.

Commercial provision of grid support services as additional market-based revenue for all generators should be considered in view of lower average and more variable spot market prices on energy-only markets.

A market for grid support services with prices high enough to influence investment decisions would encourage the construction of power plants able to provide certain grid support services, incentivize demand-side solutions and ultimately trigger innovations. These would include services for normal system operation and emergency states, as well as services for system stability, for balancing and even for future system adequacy.

Consequently, grid connection requirements in Europe should firstly consider market options for ancillary services instead of compulsory non-remunerated requirements. These options are markets for grid support services and ideally they should be utilized as fully as possible because they lead to higher cost-effectiveness and hence to a reduction of electricity costs for users. The compulsory technical requirements for all generators must, therefore, focus on the essential aspects of technical performances, leaving an opening for remunerated grid support services.

Power markets with an increasing proportion of variable RES can deliver the right kinds of capacity resources and ensure stable and secure energy supply provided an adequate framework is in place.

(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?

It should be clear that, besides ensuring generation adequacy, the new internal electricity market model should also guarantee the compliance with renewables and decarbonisation targets. Therefore the promotion of renewable technologies must be assured.

Any out-of-market measure creates competitive distortions per definition.

Hence, all existing types of support, for all types of technologies, have already created a distorted market. Dedicated RES support mechanisms and related regulatory provisions should be seen in the context of this incomplete liberalization and lack of competition in the energy sector. RES support, harmonized or not, as well as priority grid access and dispatch are not a market distortion in themselves, but they are a guarantee for new entrants given their technological maturity, structural risks and lack of a functioning internal energy market.

Dedicated renewable energy support is necessary in the absence of a level playing field and in view of the historical development of power generation. Vertically integrated companies have developed their power generation portfolio enjoying the advantages of a natural monopoly, decades of fossil fuel and nuclear subsidies which continue today and passing on costs and risks to consumers via electricity bills or tax revenue. If structural risks are addressed effectively, the need to support newer, flexible renewable energy technologies would significantly decrease or completely disappear for the most mature renewable technologies, such as onshore wind power in good locations.

Nonetheless it is true that, as wind power (and other RES, but they currently have a lower expression) reduces spot market price levels via the merit order effect and reduces the number of hours of production from conventional generators (load duration curve), it lowers their load factor or capacity utilization. This makes costs and investment recovery more challenging.

Nevertheless, this is a feature of market dynamics. Incumbent participants have to compete under different terms when new participants enter the market. They should adapt to the new internal market model, and not the other way around. Specifically, conventional power plants have to compete in a more flexible manner, with more frequent and faster ramp-ups and fewer running hours if they are to stay in the market.

On top of that, wind power and other RES can contribute to system adequacy. It has the potential to replace conventional capacity with some degree of reliability.

RES should gradually converge to market. However, if and when the energy only market fails to do so, as it is the case today, then promotion of RES must then be achieved through the application of transitory, well designed market-based support schemes for more matured RES technologies, and through other, more effective, support schemes for less matured technologies.

(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?

The establishment of effective cross-border day ahead, intraday and balancing markets is crucial, and will definitely contribute to ensuring security of supply, by providing the following benefits to the electricity system:

- Better and more efficient use of assets and resources (both generation and demand)
- Maximization of welfare: lower electricity prices, maximization of revenues for generators
- Reduction in operating costs: reserves and balancing
- Improved congestion management across borders
- Increased system adequacy
- Increased security of supply
- Competitiveness and growth

But to ensure this is done in an effective way, it also requires:

- Implement intraday markets in all Member States and increase their liquidity
- Increasing cross-border transmission capacity
- Reinforcing of Transport Grid infrastructures
- Development of pan-European corridors
- Market coupling
- Aggregation of control zones into larger geographical areas for trading
- Trading closer to real-time delivery across borders
- Common set of market rules
- A larger market place in general
- Set up of a European TSO to manage cross-border day ahead, intraday and balancing markets as well as to calculate and manage cross-border transmission capacity.

The timeframe of this happening is dependent on Member States, Commission and ENTSO-E, so we urge these institutions to arrange the framework necessary to implement the requirements listed above and establish a cross-border market. We also hope that the result of this Public Consultation is the speed up of that process.

Intraday markets have positive impacts not only on generators but also on the operation of power systems. By allowing generators to adjust their trade position using more accurate and close to delivery data, real-time balancing volume and price are reduced, allowing electricity markets to benefit from the integration of RES.

However, there are only 15 Member States with intraday markets. Moreover, intraday markets, when available, have very low trade volumes and liquidity. Only the Iberia power exchange trades significant volumes, the others are all below 1% of consumption. Low liquidity in intraday markets results in the use of more expensive resources in real-time delivery for making adjustments, such as fast ramping conventional power plants. In addition, markets with low trade activity are characterized by less transparent prices than those with high liquidity where individual actors have greater impacts on the price formation.

Moreover, intraday markets should run continuously, rather than fixed auctions with gate closures at pre-determined times during the day. As the purpose of these markets is to allow for faster adjustments within the day of operation, continuous trading is more suitable than fixed auctions, to provide greater flexibility for participants. These are already applied in some countries with auctions and products in less than one hour (as in Germany with 15 minute contracts available for trading).

Another benefit of intraday markets is to allow a more effective participation of demand side management.

The strong interplay of intraday and balancing markets and their overall impact on cross border trading should also be addressed. A functioning intraday market will increase the efficiency of the balancing market. It will allow better deployment of resources if unit commitment can be rescheduled and balancing resources used only when needed.

Balancing markets face a high level of complexity for integration. First, the variety of operational and market rules across Member States is a significant problem. Second, the impact of balancing and reserves changes for system stability and security of supply is critical. Therefore, there is a conservative approach to cross-border cooperation in developing these markets beyond national borders.

If electricity market and RES benefits are to be fully exploited, more ambitious provisions are needed. Harmonization of gate closure times and technical characteristics are necessary first steps. Then, cross-border integration needs to be encouraged across all time frames and activation modes – not only on replacement reserves. The Nordic market can be taken as a reference point. There, even primary reserves can be exchanged across borders through its "Regulating Power Market".

Balancing markets across borders will enable cost efficient integration of RES energy and will improve power system operation and overall market efficiency. By balancing RES power on a regional level, reserves will be optimized, requiring fewer real-time assets online. In this way, large geographical areas will reduce balancing costs. This is due to the smoothing effect of aggregating wind power and other power output on reducing its variability. Wind integration in the US and the Nordic region has shown how operational costs can be cut, by balancing power exchange with neighboring countries and markets.

Functional balancing markets that are integrated across borders also improve intraday markets' liquidity and create incentives for all generators to reduce their power imbalances. In a well-designed balancing market, prices will be higher than on day ahead and intraday markets, encouraging the use of the latter to avoid high costs of imbalances.

If imbalances occur, imbalance exchange between countries or systems is possible, when functional cross-border balancing markets are in place. This has the benefit of decreasing the reserves needed in the system.

However, in order for functional cross-border markets it is essential to define the available transmission capacity for trading. Cross-border transmission capacity has traditionally been calculated before final flows are known, one border at a time and without considering bilateral trading impacts on neighboring systems. This causes TSOs to frequently restrict flows across borders under different security standards, even when restrictions are not justified by the physical flows of power.

A common grid model and flow-based transmission allocation are significant steps towards enhanced, harmonized and more transparent congestion management across borders. Their use maximizes the capacity available to the market under common technical security criteria, opening up the possibility of accommodating additional power flows for trading.

While an increase in cross-border transmission capacity does not replace infrastructure upgrades, its implementation can secure short-term transmission capacity expansion across borders, particularly when wind generation is high and curtailment of wind farms may take place. This increased interconnection capacity could be used for balancing purposes. In addition to taking advantage of the availability of wind and its lowering effect on electricity prices, there is evidence that when sufficient interconnection capacity is available for balancing in high wind power penetration levels, balancing costs for the power system are reduced.

Moreover, by considering electricity flows behavior in the interconnected network when trading across borders, the cross-border grid model for transmission allocation will significantly reduce unscheduled power flows (loop flows) through neighboring systems which, today, are mistakenly attributed almost exclusively to increased wind and solar power penetration.

(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?

European Institution should ensure, at European level, the implementation of the requirements defined in answer to question number 3, namely:

- Implement intraday markets in all Member States and increase their liquidity
- Increasing cross-border transmission capacity
- Reinforcing of Transport Grid infrastructures
- Development of pan-European corridors
- Market coupling

- Aggregation of control zones into larger geographical areas for trading
- Trading closer to real-time delivery across borders
- Common set of market rules
- A larger market place in general
- Set up of a European TSO to manage cross-border day ahead, intraday and balancing markets as well as to calculate and manage cross-border transmission capacity.

This should all be done in the view of implementing a grid support services markets.

The definition of harmonized criteria, mandatory and consistent with other energy related targets, should also be within the scope of European institutions, as referred to answer 11.

Finally, European institutions should also ensure the correct framework is settled to allow for the participation in the market of demand side management and energy efficiency.

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

Member States should, implement at national level all European provisions defined in answer to previous question, lobbying at national and international level, and speed up all the necessary administrative procedures under their control.

(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?

The extinction of regulated tariffs is the first step to accomplish this aim. Secondly, more flexible tariff options, in addition to smart meters and demand side management. Consumers should have the possibility of choosing tariffs according to the quality of service they wish. Some of these options are already available for industrial consumers, and they could also be applied to domestic consumers.

Like the Commission already recognizes, consumers should have the possibly to be cut off for some time, rather than paying for more capacities. In Germany, for example, the new §14b Energiewirtschaftsgesetz (EnWG) now enables gas consumers to enter into contracts with the system operators allowing to cut off them off for some time, in return for reduced grid tariffs. Their readiness and ability to satisfy their energy needs from other sources, use storage or drive down consumption in the short term needs to be taken into account when assessing capacity needs, and it delivers important additional flexibility. Generally, demand-side management and storage will help match demand and supply so that electricity consumers continue to enjoy comparable levels of system reliability over the next decades at lowest overall cost.

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:

a. National level

b. Regional Level

c. European Level

A better understanding of system adequacy in Europe is needed, and this requires further research. The capacity credit of RES power should be taken into account in generation adequacy forecast and planning.

TSOs must be encouraged to thoroughly analyze all aspects of firm capacity from wind power and other renewables in an integrated system at EU level. Despite the real physical capacity value of wind power and other renewables, they are not yet regularly used for capacity planning to any significant extent. The development of a harmonized method for assessing wind power capacity credit is needed in order to properly evaluate its contribution to system adequacy at European level.

This could offer significant flexibility to the system, allowing TSOs to make use of inexpensive balancing resources. Nevertheless, the market mechanisms that properly value the provision of these services for all market participants mentioned in the previous chapter "INVESTING IN THE INTERNAL ENERGY MARKET" have to be put in place.

With current technology, wind power plants can already provide grid support services including balancing. Advanced control techniques allow them to ramp up or down as required by the system, depending on the availability of wind at the specific moment. Wind power has the potential to replace conventional capacity at a high degree of reliability. The capacity credit of wind power can be up to 40% if high wind energy production is combined with high loads, and it can be as low as 5% in extreme cases with local wind characteristics correlating negatively with demand.

At low levels of wind penetration the capacity value is roughly equal to its load factor, which in 2011 was around 24% for onshore and 42% for offshore. At larger amounts of wind energy, its marginal contribution to system adequacy declines. Despite this, research has shown that aggregating wind energy production from multiple countries strongly increases its firm capacity. This, of course, is a principle that applies to all technologies to different degrees.

The aggregated capacity credit of the wind farms in a system depends on many factors. Among them, the characteristics of the power system in question (reliability level, flexibility and composition of the total generation mix) and the penetration level of wind power in the system. It also depends on a range of wind and wind technology specific factors such as the capacity factor, or location of wind farms in the system.

Despite the real physical capacity value of wind power, it is not yet regularly used for capacity planning and frequently is not given a value in power markets. In part, this is due to the diversity of methods available for calculating the capacity credit, but also to a lack of assessing adequacy at European level beyond individual national borders or control zones. Firm capacity from wind power has neither been thoroughly analyzed in an integrated EU

system nor has its interplay with other renewables such as PV been considered. Such analysis could help mitigate variability from both, increasing their firm capacity share.

We call on developing and utilising a harmonised method for wind power capacity credit assessment in both national and European generation adequacy forecasts and importantly, the ENTSO-E 10-year network development plan (TYNDP), in order to properly evaluate the contribution of wind power to system adequacy.

(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. A pan-European approach is preferable to assess the supply/demand adequacy perspective.

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

We consider that ENTSO-E generation adequacy outlook can be improved, as already mentioned in Q7, including the following points:

1.- Requesting all TSOs to provide completed data regarding national generation adequacy.

2.- Deepen the analysis of flexibility of the system, through a regional and European assessment, bearing in mind the significant benefits provided by future pan-European balancing services. Spare capacity should be fine-tuned for each region, given their particular conditions, not setting 5% of Net Generation Capacity as default.

3.- Deepen the analysis of simultaneous interconnection transmission capacity within ENTSO-E electrical system, preventing too conservative assumptions on generation adequacy by individual Member States.

4.- Taking into account energy efficiency measures and demand side participation regarding generation adequacy, so it reduces the need for building new generation capacity.

5.- Improving the assessment of wind generation contribution to generation adequacy. Aggregation of control zones across larger geographical areas enables the smoothing-out of wind generation variability. This, combined with integrated intraday and balancing markets within the EU Target Model, will increase wind generation firmness and its contribution to system adequacy.

Many TSOs count RES (wind and solar above all) in the category of non-usable capacity for adequacy calculations. This is not the case, although its contribution to the guaranteed capacity at peak load is lower than that of other technologies, there is a certain amount of firm wind capacity that has to be used for capacity planning.

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

We consider the Directive to be adequate, including all appropriate guidelines, except for the absence of a mandatory standardized assessment of the contribution of the different generation technologies to generation adequacy, at national and European level. This point could be included in Article 5 of the Directive.

(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?

Yes, these procedures should be adopted, mainly if there is an increase in cross-border transmission capacity increase. The risk assessments should also account for the influence of fossil fuel and CO_2 emissions licenses costs in the merit order and consequently in the European electricity mix and include a pan-European approach.

(11) Should generation adequacy standards be harmonized 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, these standards should be harmonized and that minimum requirements should be set to prevent Member States to over reduce their reserves or stop investing in infrastructures relying on their neighbors.

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?

We share the concerns expressed by the European Commission in its Communication on the Internal Energy Market stating that the introduction of capacity mechanisms could run counter to the EU's decarbonisation objectives, distort the EU price signal and favour fossil fuels and nuclear to the detriment of renewable energy sources, distort investments signals, interfere with cross-border trade and competition, close national markets, distort the location of generation, and finally increase costs for all Member States.

While it is clear that capacity markets provide a certain amount of guaranteed income to certain power producers, capacity payments also lead to undesired externalities and market distortions. This perpetuates the need for regulatory interventions, which is clearly a retrograde step in efforts to create competitive conditions in liberalized markets.

This "missing-money" problem, could be overcame with the implementation of a grid support services markets, allowing for extra sources of revenues for producers (please refer to Q1).

In view of this, before establishing capacity payments it should be clarified whether a capacity problem really exists in the EU, ensuring that, before any action is taken, firm capacity from variable renewables and other technologies is counted on, and grid support services markets and cross-border day ahead, intraday and balancing markets are established.

Therefore, capacity mechanisms should only be applied as a last resort and like a transitory measure for the implementation of the market model defined in Q1. In this case, the capacity mechanism should be run by the system operator, and remuneration should be set by transparent auction scheme, instead of fixed values, and for short periods of time.

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

a. to ensure that new flexible resources are delivered?

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

The energy only market is essentially insufficient whenever the regulatory framework disables an efficient economical signaling from market participants, e.g.:

- The existence or prices caps, or having them @ low price levels, prevents producers from signaling the scarcity of capacity in the system at one given moment;
- The impossibility of free exist (either mothballing, decommissioning) by "out-of-money" power plants refrains investments in new capacity by private entities;
- Any other regulatory measure that blocks proper economic signaling.

Therefore, these barriers should be removed to minimize market failures.

(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?

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 reserves should be avoided, as they could easily result in higher CO_2 emissions, discouraging development of more efficient technologies, such as storage and demand side response, and incorrectly reinforce incumbents market position.

However, if strategic reserves solution is to be adopted, the criteria for its use of should be thoroughly set, with a technical and not economical reasoning, to ensure that TSOs won´t make a discretionary use of strategic reserves. They should only be considered as a transitory measure and to allow the transition to more RES integration.

Additionally, strategic reserves shouldn´t be included in system adequacy calculations to allow for new investments.

(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?

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?

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

As already mentioned in Q12, capacity mechanisms and/or payments should only be implemented as a last resort and transitional measure. This mechanism has a great disadvantage which is its high degree of irreversibility when left only at national level.

If deemed necessary, capacity mechanisms and/or payments should:

- Only be made after a proper EU-wide generation adequacy assessment;

- Be a market-based mechanism defined at a EU-wide level, which determines the minimum capacity required to assure generation adequacy (demand) and which should run capacity auctions subject to two (2) main criteria:

    - an efficient and effective CO2 emissions scheme; and

    - technology ramp up response times;

- Ensure that all capacity contributing to security of supply is remunerated equally for the same service;

- Be granted for short periods of time (no longer than 8 years);

To note that RES should be allowed to participate, having a factor to determine its firm capacity according to the technology in question and European harmonized methodology.

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

Capacity mechanisms should only be applied as a last resort and like a transitory measure for the implementation of the market model defined in Q1. In this case, the capacity mechanism should be run by the system operator, and remuneration should be set by transparent auction scheme, instead of fixed values, and for short periods of time, according our answer to Q15.

The full impact to consumers of any out-of-the-market mechanism is difficult to quantify accurately. However, the preferable features for capacity mechanisms are described in previous answer to Question 15.

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

Only if deemed necessary, a EU-wide capacity market can be implemented if together with a well defined balancing market, namely with no price cap as previously described in Q3.

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

Again we stress that, capacity mechanisms should only be applied as a last resort and like a transitory measure for the implementation of the market model defined in Q1. In this case, the capacity mechanism should be run by the system operator, and remuneration should be set by transparent auction scheme, instead of fixed values, and for short periods of time.

The commission should provide guidelines not only on the characteristics of capacity mechanisms, but also, guidelines on the assessment of the need for their implementation. These guidelines should be harmonized between Member States, and take into account the standards defined in Q11.

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.

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

a. Should any criteria be added to this list?

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

These criteria should:

- Ensure consistency with the EU energy policies, i.e. the decarbonisation objectives and renewable investments;
- Allow for innovation and change;
- Account for the carbon intensity of the resources providing capacity so that delivery of the overall carbon reduction targets is not compromised. If, as indicated by several studies, (existing) high-emitting fossil-fuelled generators receive the majority of capacity payments, the decarbonisation objectives of the EU could not be met;
- Be non technology-discriminatory so that it doesn´t lead to unintended adverse consequences for renewable investment making impossible for the EU to meet its 2020 renewable targets and 2050 decarbonisation targets. As such, capacity mechanisms favour the use of high-emitting fossil-fuelled generators to the detriment of renewables generators. As they generally provide for long-term guarantees, there is a significant danger of a "lock-in" situation, and thus stopping the transition to renewables;
- Apply the principle of driving down the costs of immature technologies that have significant long term deployment potential to those technologies requested to integrate renewables into power systems. Certain heat and power storage technologies, for instance, have the potential to make significant contributions in the future towards system flexibility and security of supply;
- Account for the costs and risks of implementing them. Studies suggest that setting up a capacity mechanism involves significant regulatory risks and that it would take up to 10 years before it operates effectively.