MEMO

5 February 2013
File no.
Ref. AHK/LWE/RZS

Danish reply to the Commission's public consultation on generation adequacy, capacity mechanisms and the internal market in electricity

First of all we would like to thank the Commission for an interesting review of the issue of capacity market mechanisms and the obvious conflicts with the aim to create a well-functioning competitive electricity market. In general Denmark agrees with the result of the analysis carried out. However, we have a few general remarks:

1) The so to speak 'classic' assessment of the capacity balance – where all capacity is counted and adjusted with a factor between 0 and 1 – excludes most of the available capacity from solar and wind power. Another part is excluded *ex ante* for reasons of operational reserve. Following this principle you need a very high ratio between installed capacity and peak load to have 'sufficient' capacity available. The question is if this is still the optimal way of assessing the security of supply in a system with increasing amounts of generation from wind and solar?
2) Another point of particular concern is that interconnectors and interaction with neighbouring countries is not taken into account. It is the Danish opinion that interconnectors shall be considered seriously important both in respect to a competitive electricity market and in respect to security of supply. The 'classic' assessment of the capacity balance does not seem to value the interconnectors as they deserve to be.
3) The share of wind generation in Denmark reached 30% of national demand in 2012 and is foreseen to reach 50% in 2020. Capacity on all interconnectors is also increasing and will soon be on par with peak load. In contrast, several of the large scale power plants in Denmark have reached the designated lifetime and are thus being taken out of operation. With these new substantial changes to the system the Danish Energy administration has in cooperation with the national TSO recently

started an analysis of improving the assessment of the principle for calculating the security of supply. The situation and development is followed closely.

4) One of the aims of establishing the electricity market has been to avoid overinvestment in the generation sector. In that respect it already did succeed. Another of the aims was to provide sufficient new capacity by means of price signals. Low prices mean no need and high prices mean an increasing need for new capacity. It remains to be seen whether the market can deliver on this point. But it seems with introduction of capacity markets in several countries that some do not believe that the market will deliver here. Capacity payments intervene in the market in an untimely manner. If in some shape it should come into play it should be done in a manner not favouring dominant market players.

As a conclusion the Danish Energy Agency shares the Commission's concerns as regards the introduction of capacity mechanisms. As a starting point the electricity market is the right instrument to address issues related to the relationship between consumption and production. Rising electricity prices as a result of lack of capacity will normally act as an incentive to ensure that new capacity is provided, and national capacity markets may have distortive consequences, unfortunately also to neighbouring countries. We recognize, however, that there may be a risk to security of supply. If intervention is unavoidable, it is crucial that measures are firmly based on the principles of the internal market and in that respect strategic reserves seem to be the least intrusive measure.

It is the Danish opinion that there is no immediate need for common actions to ensure generation adequacy for the time being.

Please find below answers to the specific questions raised in the consultation paper.

Questions and answers

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

Additional generation capacity is not needed in Denmark at this time, which is reflected in low electricity prices. The current low electricity prices in the Nordic market reflect high production from hydro and wind and a demand which is still reduced by the economic crisis. In combination these effects reduce both the electricity prices and demand for thermal generation capacity.

Decisions on investments in new generation capacity is based on expectations on the future market price rather than the current price.

(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?

Substitution of fossil fuels with renewable energy is at the core of European energy policy. This influences electricity markets, and highlight the need for a new methodology for assessing generation adequacy. As mentioned above, investments in new thermal capacity is not currently needed in Denmark.

(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?

These markets are already functioning in the Nordic market, and contribute significantly to ensuring security of supply. Well-functioning international markets on all timeframes have the potential to significantly reduce the cost associated with maintaining security of supply.

(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?

As mentioned in the general remarks, it will be important to evaluate the method for determining when the generation capacity is adequate. Such work is ongoing in Denmark as regards the Danish situation, but could be raised to the European level.

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

See answer to (4).

(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?

By opening balancing markets and electricity markets in general to individual consumers, those with an ability to reduce consumption can act in these markets. Such action will be at far lower cost to society than involuntary interruption of supply for any consumer, and can even become an important part of everyday market operation reducing cost for all consumers.

(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

See answer to (4). DK is currently performing such a review due to report its findings by the end of 2013. By expanding generation adequacy reviews to the regional and European levels, the importance of interconnectors would stand out more clearly. In the future electricity sys-

tem with renewables delivering most of the power, it is important that wind, solar and interconnectors are counted in assessments of generation 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?
b. Are there other areas where this generation adequacy assessment should be made more detailed?

As mentioned previously, we find that better methods than the sum of reliable available capacity should be developed, which would more clearly describe the actual adequacy of existing generation capacity and if need be, which type of additional capacity is needed.

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

Article 5 in the Electricity Security of Supply directive does in general terms contain the provisions to maintain balance between supply and demand. Since it is the Danish opinion that there is no need for common actions for the time being it is also considered that Article 5 is sufficient by now.

(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?

Risk assessments and generation adequacy plans are already produced by the Danish TSO.

(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?

We do not find that this is the right time to harmonize standards of generation adequacy. At this time there is a need to develop new methods for reviewing generation adequacy in internationally connected electricity systems with high shares of intermittent renewable energy. Until more experience is gained with such new methods, a harmonization might hinder the further development of suitable methods.

In general we find that generation adequacy should be assessed by a risk based approach, not by simple addition of reliable available capacity. In a risk based approach both regional interconnectors, wind and solar power will contribute to the security of supply, while these are often not counted as reliable available capacity.

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

Yes. Capacity mechanisms should generally be used as little as possible.

(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?

In both cases, but it is important also to consider demand response, international connections and other contributions in this calculation.

(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?

Yes, strategic reserves can in some cases be needed to ensure security of supply.

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 bought in open tenders with public access to all relevant information on e.g. fixed and variable payments. There is a clear risk that a closed process results in windfall profits to owners of retired power plants. Strategic reserves should only be activated as a last option. Activation rules should be coordinated regionally as with strategic reserves in Finland and Norway.
To cite the consultation paper: "there must be clear rules as to when they can be deployed, in particular they should not be used to keep prices low, which could result in high emissions from inefficient old plants and discourage the development and deployment of new and more efficient technologies, including storage and demand side response. It is also important that such strategic reserves not be established in such a way that they reinforce the position of incumbents."

(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?

Capacity markets and capacity payments interfere with well-functioning electricity markets. If additional capacity is needed, this should be procured as strategic reserves in an open and transparent process.

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?

First and foremost the market design should encourage as many consumers and producers as possible to deliver flexibility.
In case the required flexibility cannot be met by the market, procurement of strategic reserves would be the preferred intervention.

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

Capacity markets interfere with a well-functioning electricity market and will be difficult to reverse. A guiding principle is to have as large share as possible of money flow through the energy component and as little as possible through a capacity component. An eventual introduction of a capacity mechanism should not reduce efforts to further develop the short term energy market and reduce distortions.

However, community wide introduction in general of a capacity mechanism cannot be supported in any form for the time being.

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

If the size of a strategic reserve can be kept small, it will be a more efficient tool, and thus have the lowest cost for consumers. Denmark is in a process of analysing possible arrangements in markets with very high RES-e penetration. There is no simple and no immediate answer.

(17) To what extent do you consider capacity mechanisms could build on balancing market regimes to encourage flexibility in all its forms?
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(18) Should the Commission set out to provide the blueprint for an EU-wide capacity mechanism?

At present we do not see a need for this. Rather the EU Commission should encourage compatibility in product definitions and penalty structures between capacity mechanisms in order to reduce distortions. An important topic for the future development of the internal energy market is the treatment of interconnectors during system stress. Interconnectors will pælay a bigger role in the future and it is thus important that rules are coordinated on a European level in order to achieve transparency and predictability.

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

It might prove useful if the European Commission investigates compliance between capacity mechanisms and well functioning electricity markets.

However, we fear that detailed criteria would lead to a system requiring approval of future capacity interventions, which would induce a high administrative burden.

(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?

See answer to (19)