

Consultation on generation adequacy, capacity mechanisms and the internal market in electricity

4th February

Climate Action Network Europe response

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

No. Current market prices do not prevent from investments on generation capacity.

However, depending on the view of the actor (whether it is the operator, the consumers, the investor, etc.), that investment can be considered as “needed”. From an environmental point of view, investments on renewable energy generation are still happening in those Member States where effective financial schemes are in place. Investments on flexible generation to compensate for fast swifts of power production (from variable energy sources), such as gas combined cycles, were still happening in 2011¹. The situation has seen some changes since 2012, and a deepened analysis will be necessary.

The question however fails to acknowledge the full spectrum of parameters that influence decisions on new investment for generation capacity. Investments are not only based on the wholesale electricity price, but in other variables, such as the price of carbon under the Emission Trading Scheme (ETS). Current low carbon prices, and the lack of long-term strategic decisions from European institutions² on the needed structural reforms of the ETS, and CO2 emission reduction objectives for 2020 and 2030, do not help to provide investors with the right investments signals.

Another important variable to consider is the price of fuels that is characterized by a trend of rising prices and significant volatility.

Another barrier to investments on generation capacity is the lack of regulatory certainty. The recent retroactive changes that have affected policies to support the uptake of renewable energy sources have a very negative impact on new investments. The uncertainty and the lack of capital increases significantly project costs.

We need to note that power demand in the European Union has been stagnating or falling since 2008. From 2000 to 2011, power demand grew 8,6%. Contrary, EU installed generation capacity grew much faster, also based on estimations and forecasts before the crisis. With more than 220GW of net generation installed in the same period. This has result in overcapacity in certain countries,

¹ In 2011, 9.700MW of gas power plants were installed in Europe.

² See CAN Europe paper on proposals for long-term structural reforms of the ETS.
http://caneurope.org/resources/publications/can-europe-publications/climate-finance/doc_download/2130-q-a-a-on-eu-ets-reform-nov-2012-

shrinking the wholesale market and forcing gas plant operators to reduce the operating hours over the year.

Furthermore, it is difficult, if not impossible to know, given the information currently available, what constitutes 'needed generation capacity' across Europe. While the cross-border assessment of security of supply by ENTSO-E as part of its annual System Adequacy Forecast (SAF) has been informative, it is produced primarily from the network operators' perspective and does not therefore assess how likely it is that registered power plant projects will be implemented.

In any case, ENTSO-E has estimated that the needs of generation adequacy till 2020 – also in terms of additional capacity – will be covered. This would happen, according to the SO&AF, both in the case of the bottom-up scenario, based on the TSOs' best estimates, and in the top-down EU 2020 scenario, based on the achievement of the 20-20-20 targets.³

(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?

The current system design will most likely ensure that the need for investments in generation adequacy until the end of this decade is covered, as indicated by ENTSO-E. However, the energy-only markets do not play – in general – in favour of new investments in generation adequacy. In addition, every type of support granted to different actors is likely to have an effect on the price needed to pass on the signals of investment needs. At the same time, policy objectives triggering a shift or a change in an existing system cannot usually be taken up by market means only. In this sense, the decarbonisation policy for the power sector (and of the whole European economy) requires the development of RES, several of them variable. In order to reach these objectives as cost-effectively as possible, it is crucial that, outside of the support that is needed in order to fulfil determined policy goals, power markets are put in the conditions to work as efficiently as possible. Support aimed at addressing possible market failures should therefore be designed coherently with both policy goals and the internal market framework. Furthermore, any form of support should be transparent at all the levels where prices are determined. Support to fossil fuels is so far not transparent and it exacerbates the need to continue supporting new forms of sustainable energy generation, such as renewable.

The current market design undermines the full internalisation of price signals into the investment needs for generation adequacy. On the price side, spot market price caps are typically a way to limit the internalisation of price signals, directly on the wholesale market. Regulated retail market prices do not allow to pass the full generation costs onto the final consumers, hence lowering reactions

³ ENTSO-E, *Scenario Outlook and Adequacy Forecast*, p. 8 and following. The only scenario where some

to price signals at retail level. Similarly, benefits generated by the presence of RES in the merit order are today not benefiting the majority of final customers (for instance on household and SME level). Other benefits such as air pollution reduction, or the avoidance of dealing with nuclear waste are as well not internalized on the electricity price.

On the quantity side, the current presence of inflexible baseload plants (whose output cannot be easily reduced) is a deterrent to invest on flexible power plants. The remuneration potential of such plants is currently diminished by the number of hours in which the inflexible plants need to stay on the market.

The recent Imperial College report funded by WWF UK, *On Picking Winners*⁴, shows that there is a clear case for providing targeted financial support policies for new technologies such as renewables to help accelerate deployment and cost reduction of these technologies, whereas this level of support should not be provided to more mature forms of technologies like fossil fuel plants. However, given that the current energy market, based on the recovery of marginal costs (mainly from fuel and operation), is not designed to facilitate the decarbonisation of the system, we could expect some initially unforeseen impacts with the use of policies aiming to facilitate this change.

The EU could consider what information is required, member state by member state, as well as EU-wide, in order to be able to answer this question with a high degree of confidence. ENTSO-E could be well placed to do this. As a corollary point, it is vital to remember that security of supply is only one aspect of the European energy trilemma, and that the other two elements of competitiveness and sustainability must not be forgotten.

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

Yes. With an increasing penetration of wind and solar energy, short-term cross-border and balancing markets will contribute to increase the capacity credit (generation adequacy) of variable renewable energy sources. The market will benefit from increased geographical areas to make optimal use of renewable energy sources and to optimize the availability of flexible generation and demand.

The establishment of such cross-border markets should be part of a more general effort to make the system more flexible. Flexibility is the comprehensive framework within which the need for generation adequacy has to be assessed. Optimising the use of infrastructure, enlarging balancing areas and investing in additional infrastructure where needed are means to increase a system's

⁴ Imperial College London and WWK UK,
http://assets.wwf.org.uk/downloads/on_picking_winners_oct_2012.pdf

flexibility. Flexibility can be brought to the system also thanks to an optimised form of self-consumption, storage and load management.⁵ Fully tapping into the potential of these means is the way to maximise the adequacy return on each unit of generation already existing in the system. Flexibility will be further analysed in the next replies.

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

To introduce and implement common methodologies to assess real transmission capacity, based on real-time data.

To exploit benefits of cross border markets to ensure optimization of geographically distributed renewable energy sources.

To deployment flexible assets, based on national strategies to increase the overall system flexibility, which must be developed in each Member State together with the completion of the internal market and the deletion of electricity islands. The European Commission should guide these national strategies. Such European guidelines would ensure that strategies are developed with a EU perspective. Needs and measures for flexibility cannot be taken in isolation, in a fully established and interconnected internal market. On the contrary, this framework should be perfectly integrated in the interconnected internal market and aimed at unleashing all its potential benefits, including crucially cost control.⁶ Flexibility measures need to be analysed coherently with a medium- to long-term vision – embracing the EU decarbonisation goals – and ranked accordingly. Once defined, the appropriate mix of flexibility measures should be coupled with a clear regulatory and economic enabling framework established by regulators.

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

Increase the use of cross-border markets. Price coupling and cross-border and balancing markets will help to create an effective internal single market.

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?

First of all, consumer should be brought to the debate by increasing transparency for consumers on the source of energy they use, real generation cost, structure of the electricity tariff, etc.

⁵ ACER, *Opinion on the European Ten-Year Network Development Plan 2012*, 2012, p. 10.

⁶Size increase – including of balancing areas – is a key flexibility factor. International Energy Agency, *Ibid* and EPIA, *Connecting the Sun*, 2012.

(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:

Yes. Assessments should be harmonized at European Level, after intensive research and open consultation to agree on best practices.

It is especially important to provide accurate adequacy values to renewable energy sources. By considering large geographical areas (in line with the principles of the single market), either at regional, or even at EU level, variable renewable energy sources like wind and solar power are likely to provide positive adequacy values, thus reducing the need to invest on unnecessary fossil-fuel capacity.

(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?

Better information could also be provided by adding additional detail to ENTSO-E's generation adequacy assessment work. While the information gathered (and also the transparency of how it is presented) has been improved by ENTSO-E recently, there is nonetheless an urgent need for the underlying data to be further substantiated and for the transparency relating to assumptions and their reliability to be increased. Also, as mentioned above, ENTSO-E's System Adequacy Forecast is produced primarily from the network operators' perspective and is therefore weakened by the fact that it does not assess how likely it is that registered power plant projects will be implemented.

So far, it is not clear how much of the energy mix at national/regional level is considered as flexible capacity, and whether is available. Furthermore, more information should be provided on consumers with the capacity to adapt flexibility their load, based on market signs.

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

The data collected by TSOs is used to produce generation adequacy assessments at national level, regional adequacy forecasts and ENTSO-E's Scenario Outlook and Adequacy Forecast (SO&AF). These data and the way national generation adequacy is assessed are not consistent across the EU.⁷ Furthermore, the methodological approaches adopted by the TSOs (and accepted by ENTSO-E) often present shared shortcomings.

The capacity credit of RES should be reflected more accurately and results

⁷ ACER, *ibid.*, p. 7.

should be displayed for the regional level to fully account for the geographic smoothing of RES. We therefore call on ENTSO-E to develop and utilise a harmonised method for wind and solar power capacity credit assessment in the European generation adequacy forecast and the TYNDP, in order to properly evaluate the contribution of wind and solar power to system adequacy. The existing methodology developed by the International Energy Agency⁸ could be used as starting point.

Additionally, ENTSO-E should properly take into account all flexibility resources that could contribute to system adequacy before assessing generation adequacy. This analysis should take into account forecasts drawn from the national flexibility strategies on: storage, demand side management, energy efficiency and interconnection. It should be understood that interconnections are a means to ensure system adequacy, whereas currently SO&AF data is used by ENTSO-E to elaborate the TYNDP.

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

(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?

(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?

Generation adequacy standards should be harmonised across the EU and should be correctly implemented. The harmonisation is a part of the accomplishment of a fully interconnected internal market for electricity, since market actors would more easily participate in balancing wider, cross-border areas by using the same means. Diverging preferences in terms of security of supply are yet another factor pleading in favour of enlarging as much as possible the balancing areas and applying the same standard to the same market. For example, ENTSO-E shows that there are countries where the generation adequacy standards are lower than in other – and even negative in certain cases. Generation adequacy is then compensated by flexibility means outside the country, but in the same market.

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

CAN Europe considers that capacity payments, as proposed so far in some

⁸ http://www.worldenergyoutlook.org/media/weowebiste/energymodel/Methodology_CapacityCredit.pdf

Member States will be counterproductive and maybe unlawful in state aid terms. They only address generation, neglecting the huge potential from demand-side management, energy savings and storage solutions and do not provide fair conditions for participation to all market players. In some cases, they do not even differentiate between flexible and inflexible supply. Such mechanisms favour fossil fuel or other mature generation capacity over demand-side and flexible renewable energy, and therefore undermine the basic goal of a single market and policies to decarbonize the energy system by optimizing resources.

CAN believes that capacity mechanisms will slow down further progress toward the completion of the internal energy market. They will very likely delay or prevent the needed investments in grid interconnections, as well as in demand side measures and storage – that are the cornerstones of tomorrow's flexible and decarbonized EU energy market;

Only when demand side solutions have been explored and optimized, and the electricity grid has been upgraded as needed, then, and only then, national authorities could take the decision to intervene at national level, such as with tendering for 'capacity' measures. Those measures, if introduced, should not aim simply at securing firm capacity for its own sake. Rather these measures should aim at:

- reducing demand (energy savings and efficiency) including the leveling of peak loads, and overall system flexibility,
- exploring the potential of demand side response to bring in new and flexible capacities at a level which is sufficient to provide security of supply and does not create significant surplus capacities and high costs,
- limiting the economically driven decommissioning of conventional flexible generation capacity (also limiting the demand for new-build power plants),
- guaranteeing security of supply in a way that is both economically and environmentally sustainable; supportive to the transition to a fully renewable power sector

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

The power market will not function sufficiently well when investors do not find attractive investing in sustainable generation technologies that help to reduce the carbon footprint of the energy system and help to reduce dependency on fuels imports, as well as in flexible generation that will allow further penetration of variable renewable energy sources. Furthermore, a properly functioning market should attract investors' interest in storage and demand-side solutions, as much as in power plants.

Therefore, CAN Europe believes that efforts should focus on providing system flexibility, from both supply and demand, rather than on incentivizing new generating capacity using mature technologies. Energy savings and demand management must be the priority element of a strategy to secure system

adequacy, helping to reduce the need of overall generation capacity, particularly at peak loads, and to reduce the Union's fossil fuels import bills. Such an approach is also reinforced by the Trans-European Network legislative proposals in 2011.

(14) In relation to strategic reserves:

- 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?

Strategic reserves may not be the most appropriate mechanisms available to member states seeking to ensure that increasingly variable supply meets flexible demand for a number of reasons. Strategic reserves probably generate the lowest capacity payment costs, because the segments of the power plant fleet that enjoy capacity payments will likely be limited. However, strategic reserves also cause price peaks in the energy only market – this being the purpose of the model – that apply to the entire market volume and which therefore have a considerable leverage effect.

(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?**

In general, capacity remuneration mechanisms creating incentives for the installation of new capacity create lock-in situations. This is a fact, given the lifetime of a power plant and the time that is needed to pay back an investment, except in cases of extremely high remuneration per unit of power needed.

Also, the introduction of capacity mechanisms could create political and economic path-dependencies, leading to the continued construction of fossil power generation that may not be in line with the European decarbonisation objectives.

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

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

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

No.

(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?

Most of the elements in the proposed criteria are in line with our views. However, point 7 ("*..Not be confined to any particular generation technology, i.e. being tech. neutral (insofar as the mechanism is directed towards security of supply concerns – this may not apply if other objectives are also being pursued)*") should be reviewed. The capacity payment, if introduced, should reward either demand side solution or flexible generation capacity. It should not reward simple capacity. This point is extremely important to allow for the transition to a renewable based energy system (see answer to question 12 in this document).

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

For Climate Action Network Europe, a minimum standard on capacity mechanisms would be that any market changes are designed to reward flexibility from existing suppliers and consumers, as well as promoting increased flexibility as energy systems develop, while guaranteeing security of supply. Support for backup fossil fuel capacity should only be considered where absolutely necessary, only after all other flexibility options have been maximised, and only under strict operational efficiency conditions such as compliance with a stringent emissions performance standard and/or maximum annual running hours. Furthermore, both of these pre-conditions should be tightened over time and combined with a decreasing cap on the amount of fossil fuel generation that could receive capacity payments. This would mean that system quality is prioritised, including the reduction of greenhouse gas emissions and other sustainability criteria. Therefore, any market changes to address generation adequacy concerns must prioritise the use of demand side responsiveness, interconnection and storage well above the strictly limited and decreasing use of flexible fossil fuel powered back-up.

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