

# CEER Call for Evidence on Generation Adequacy Treatment in Electricity

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A EURELECTRIC Response paper



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## EURELECTRIC Response to CEER Call for Evidence on Generation Adequacy Treatment in Electricity (C09-ESS-05-03)

EURELECTRIC welcomes CEER's Call for Evidence as a useful contribution to the debate on how current and future electricity markets can provide the necessary level of "generation adequacy" (including increased demand side participation) in Europe's rapidly evolving electricity markets. Market based investment decisions concerning power plants constitute a core element of market liberalisation.

We generally agree with the document's content although we believe that certain pre-requisites need to be highlighted even more clearly before assessing benefits and risks of possible additional measures to ensure generation adequacy. We believe that generation adequacy (and security of supply in general) should be primarily sought through market efficiency and market integration. As the CEER document recognises, it is "urgent to implement all the necessary regulatory measures to facilitate the creation of efficient liquid markets". In EURELECTRIC's view, the EU and Member States should aim at:

- creating a stable and sufficiently harmonised legislative and regulatory framework to limit investment uncertainties, ensuring – first of all - the full implementation of the second and third internal market package;
- removing regulated energy prices which discourage potential investors to invest in new generation;
- ensuring the existence of correct price signals also to encourage customers to adjust their consumption according to prices, therefore smoothing demand peaks;
- implementing efficient and harmonised congestion management methods to ensure that existing interconnections are used optimally and developing further interconnection capacity – as much as possible from a EU-wide perspective - to achieve further market integration, preferably through regional initiatives;
- facilitating and speeding up authorisation procedures for new power plants and transmission lines, including interconnections;
- ensuring that all generation options (wind, hydro, solar, nuclear, gas, coal, etc.) are available and that investments are not distorted by introduction of regulatory mechanisms favouring only one particular technology.

Last but not least, we agree with CEER's views on additional measures (and criteria) for facilitating the provision of new generation capacity:

*European Energy Regulators clearly support the view that the well-functioning electricity market should be able to deliver security of supply and generation adequacy and that any additional mechanisms must be introduced only after a careful consideration of barriers to investment and possible adverse effects of such additional mechanisms. Furthermore, their effects on the market should be reviewed periodically.*

*Incompatible methodologies at European or regional level may lead to market distortions or incompatibilities in implementation.*

## 1) What are the key elements for ensuring generation adequacy in the competitive electricity market in EU MS and the EU as a whole?

### General observations on how to maintain generation adequacy

- We believe that electricity markets without any regulatory distortion would deliver an appropriate level of generation adequacy and market-based demand response. A well designed and efficient competitive market will provide the most efficient price signal to the customer which reflects the available capacity, the fuel and other variable costs, the level of competitiveness, etc. This price should indicate the scarcity of capacity and should offer the adequate price signal to incentivise new investments in the most appropriate technology, both in supply (generation capacity, storage, etc.) and in demand side management. In fact, in a market based environment price spikes are needed to contribute to cover costs of back up capacity and to incentivise demand response and storage capabilities.
- As price peaks in liberalised commodity market play a crucial role for generation adequacy, it is important that their occurrence and magnitude is above suspicion and well understood by regulators and competition authorities. CEER therefore rightly highlight the importance of transparency of the non-confidential part of generation data and of market monitoring of confidential data by competent authorities.
- An adequate level of transmission capacity is a key driver to promote more integrated electricity markets<sup>1</sup>. Increased investments in interconnections and internal grid reinforcements are necessary to develop larger markets, with the resulting economies of scale and allowing neighbouring countries to benefit from energy sources with lower marginal cost.
- Existing distortions and market barriers have to be removed with out exception and without delay:
  - Price limits in electricity markets in form of cap and/or floors distort the incentives for investment in peak plants and storage facilities. Investors must have legal certainty that there will be unrestricted price development and that price spikes will be accepted.
  - Suboptimal use of interconnectors across European borders, like in the case of electricity import bans, hamper the European market integration: there are interconnections with hours in which we can see available capacities (non-allocated), and high price spreads between both markets.
  - Generators should not be obliged to sell their products at a price non-related to the market via Virtual Power Plants.
  - Liberalisation levels, market rules, TSOs operation criteria (e.g. balancing responsibility) and support schemes should be progressively harmonised among the different Member States and technologies.

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<sup>1</sup> This will also create a more secure and efficient system to handle backup capacities. Transmission has to be planned ahead of generation investment as is pointed out in the CEER paper. This means that regulators have to allow TSOs to take the risk that the expected generation investments sometimes are not realized, and that the costs resulting from transmission investments which thereby appear to be stranded are allowed to be covered by transmission tariffs.

### Observations on the composition of the energy mix:

- Generation adequacy is not about attaining a specific mix of generation. An appropriate generation mix will emerge from market signals as the market for instance under certain circumstances rewards the construction of peak capacity and under certain circumstances attracts new base-load capacity. The same is true for decommissioning.
- In the case of 2020 targets for renewables, which EURELECTRIC fully supports and is committed to find solutions to achieve them at the lowest cost possible for the society, we observe that, in order to favour the development renewable energy sources, all support schemes have forced a rebalance of the generation mix, leading to higher penetration of RES. As a natural consequence, more RES means less electricity generation from “conventional” thermal technologies. Investment in thermal technologies become less profitable and attractive; however the intermittent nature of most RES (i.e. wind and solar) requires an adequate level of back up capacity and flexible generation which cannot be fully provided without such thermal technologies (e.g. CCGT gas fired plants or dual-fired OCGT plants). The availability of hydropower (e.g. pumped storage plants) will also have to be ensured as it plays a crucial role in providing flexibility and back-up capacity.
- Support levels for renewables must be carefully set to be consistent with the expected objectives and the progress of the MS in achieving those targets<sup>2</sup>. Inefficiencies or miscalculations of certain regulatory schemes can lead to generation mix inadequate to preserve generation adequacy. Moreover, the integration of these supported technologies generates inconsistencies since they take part in the formation of market price but they are not remunerated at this market price (they are not exposed to it)
- Decommissioning of large combustion plants (LCP Directive), together with the ousting of nuclear generation capacities in some countries may create in the coming years a tense situation in Europe, that is not yet visible in the electricity market prices.
- Finally, we would like to point out that in the current public debate the requirement on the electricity market is that interruptions due to lack of generation capacity should not occur under any circumstances. On the other hand, realistically, a 100% adequacy of supply may be prohibitively expensive. Instead the Regulators should decide the desired level of adequacy and if deemed needed take measures to ensure this level.

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<sup>2</sup> As an example, the Spanish photovoltaic capacity target for 2010 is 482 MW, which compared to the 3.200 MW of installed PV capacity in 2008 (as a consequence of a very generous Feed in Tariff), gives a magnitude of how the development of certain generation technologies can follow inconsistent trends if inefficient or miscalculated support schemes are in place.

**2) Do you observe any barriers for investing in new generation capacity? If yes, please list and explain them**

- To invest in new generation, the regulatory framework should be clear, consistent and stable in time since an unstable and unpredictable regulatory framework does not help to take consistent decisions. For example, there is also considerable uncertainty about the carbon framework in the EU post-2020 and even more so about the international policy framework. EU ETS, while a fundamentally sound policy, does not yet provide a sufficient long term signal for the large capital investments which will be required to decarbonise the power sector.
- As mentioned, regulatory uncertainty can represent an important barrier for investing in new generation capacity. It must be clear that in a functioning market, price spikes do not justify regulatory intervention in price formation mechanisms. The increasing share of intermittent RES generation will probably lead to higher price volatility. However, it is uncertain if price spikes will be sufficient in number and in magnitude to cover the fixed costs of the plants (in particular “peak plants) needed for generation adequacy. In the current market context, most medium load power plants such as CCGT plants can cover (at least part of) their fixed costs as they have a load factor of 5000 or more hours per year. In several countries, intermittent renewables growth is already substantially reducing the number of running hours to somewhere 2500 hours, or less. This means that during peak hours the equilibrium price should include a market spread twice as high in order to stimulate investors to build CCGT.
- The acceptance of price peaks that could incentivise investments in back-up capacity is very different around Europe. As one example the Swedish regulator, together with the TSO and energy agency, declared that price spikes show that the market is functioning and gives incentives for large consumers to shift their consumption (load shedding) and generators to invest in peak load capacity. In some parts of Europe price peaks are a political and media issue, leading to pressure to cap prices or introduce additional regulation. As mentioned earlier, price spikes – even if left to occur freely - may not be sufficient in magnitude and frequency in certain markets to stimulate enough investments in flexible and back up capacity.
- EU environmental legislation tends not to take adequate account of security of supply. The environmental standards required by new legislation (e.g. Industrial Emission Directive) impose additional costs on these peak plants which already operate a small number of hours throughout the year (less than 30% of the time): as a result, a limited environmental benefit is achieved at the expense of a sharp increase in marginal costs, which leads to further reduction of load factors or even decommissioning. The necessary reserve capacity for security of supply should be maintained in the system by allowing a reasonable degree of flexibility in environmental legislation while at the same time safeguarding general environmental goals.
- Delays in grids and power plants authorisation procedures (which should be ideally harmonised at European level) create significant obstacles for investors.

- Finally, inadequate competition in gas supply markets and insufficient flexibility in gas procurement hampers investments in gas plants and may therefore have an impact on generation adequacy too.

### 3) In case of additional measures for ensuring generation adequacy, what would be the key issues to take into account?

So far, market models in Europe have shown capability to deliver high level of security of supply and generation adequacy despite strained conditions. However, in the near future, we think that EU capacity adequacy concerns will mainly regard lack of flexibility, rather than lack of capacity in quantitative terms.

If sufficient revenues cannot be recovered in the energy market to achieve generation adequacy, a fall back solution such as capacity remuneration mechanisms might be required, ideally on a harmonised base at EU level. These mechanisms are generally based on the concept of a two-part price, with one set of revenues paying for energy on a €/MWh basis and another rewarding capacity needed on a €/MW-period basis. In theory, these mechanisms allow (depending on their design) the primary energy market to operate undisturbed while recovering the ‘missing money’ needed to support new or existing investments through capacity remuneration schemes outside of the energy-only market (these may assume the form of competitive capacity mechanisms or auctions).

Different capacity incentive models might be considered<sup>3</sup>. In any case, **careful analysis is required to assess in which cases, under which conditions and at what geographical scale it may be advisable to introduce such models.** In fact, if such arrangements are implemented without careful analysis at EU level, they will most likely be on national level and may create spreading disturbance to neighbouring countries over time.

EURELECTRIC is currently analyzing potential advantages and disadvantages of capacity remuneration mechanisms and will present its findings over the next months.

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<sup>3</sup> See for instance “The Brattle Group” Paper “A Comparison of PJM’s RPM with Alternative Energy and Capacity Market Designs” – September 2009.



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