



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

Introduction

At the outset GEODE wishes to emphasize that the creation of a low carbon economy must remain the basic target of all efforts to transform the energy sector in the EU. All further goals such as a better functioning and integration of EU energy markets, the promotion of renewable energies and the addressing of generation adequacy concerns need to address and reflect this decarbonisation strategy of the EU and the Member States.

The necessity of the introduction of capacity mechanisms/markets and their design depend on several criteria which differ considerably among EU Member States. These differences are likewise important for an adequate response of the questions posed by the EU Commission in the frame of this consultation. On account of this, a generalised response for all our European members is hardly feasible. Although GEODE is a European organization, much of its experience and knowledge is based on the German energy market. As biggest electrical market in the EU, the situation in Germany has a considerable impact on the decision-making in other EU Member States. **As a consequence, we have addressed the following questions from a mainly German perspective and this response shall only be regarded as response of the German section of GEODE.**

Further, GEODE wishes to emphasize that the combination of increasing deployment of renewable energy plants and inadequate incentives for investments in grid infrastructure results in a deplorable confrontation of electricity producers and distribution grid operators. If not avoided by sound regulation, this confrontation threatens to result in a long-term grid-lock as regards the transformation of the European energy system. Hence, it is important to acknowledge that here is not only a need to ensure generation adequacy and stable investment standards in power generation facilities but also to provide for adequate investment incentives in grid infrastructure. From a long-term perspective the goal must be to create a similar regulatory investment regime for power generation infrastructure and grid infrastructure which provides for adequate investment incentives in both areas.



Questions

- (1) **Do you consider that the current market prices prevent investments in needed generation capacity?** The calculations of GEODE show that the current market prices in Germany are sufficiently high to allow an economic operation of certain types of already existing fossil-fired power plants. These still economically viable power plants are mainly CHP driven generation units. However, an assessment of the economic situation of other fossil power plants, especially gas-driven power plants, becomes increasingly difficult. The increasing feed-in of electricity from renewable energies causes a reduction of the amount of required residual load and results in a reduction of market prices. At the same time, the decrease of residual load does not alter the needs for capacity by conventional plants since the volatile renewables contribute to secured generation capacity with only a very small share of its actual installed capacities. Therefore the continuing decrease of electricity prices renders power plant operation less economical. Having discussed the increasing pressure on the already existing fleet of power plants with lower fixed capital costs, investments in new low carbon generation units does not appear to be incentivized under the current market prices. Yet, it remains questionable whether, at least in Germany, investment in new generation capacity is currently needed. Capacity assessments generally show that there is overcapacity at the moment and until 2020 no need exists for further capacity resources. This overcapacity is one of the main reasons for the current price decrease. However, from 2020 onwards this situation can change because considerable amounts of generation capacity are supposed to close over the next decade. In this case, there is a risk that long-term price decreases and the perspective of minimized operation time will deter investment in highly efficient and flexible back-up capacities.
- (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?** In principle financial support for one type of electricity generation will only undermine investments in another type of electricity generation if and to the extent the latter's economic potential is diminished. The higher the amount of residual charge delivered by electricity from renewable energies the less the operation time for fossil power plants. Further, marginal prices for electricity from renewable sources are close to zero and result in an overall reduction of electricity prices. Hence, the welcome and politically intended increase of renewable energy feed-in narrows the economic feasibility of fossil power plants because of reduction of operation times and electricity prices.



For securing generation adequacy the market integration of electricity from renewable sources appears more important than the type of financial support schemes for specific energy sources. In Germany, on account of the feed-in-tariff system established through the Renewable Energy Sources Act (Erneuerbare-Energien-Gesetz EEG), a considerable part of electricity generation (approx. 20%) is carried out regardless of exchange prices and market conditions and thus contributes to grid instability and higher balancing energy needs. A higher degree of market integration for the electricity generated from renewable sources (the so-called EEG-electricity) can be achieved by extending the system of direct selling (which currently appears to work well in Germany and, e.g., for wind power reaches almost 85 % of market participants) or by an allocation of "EEG-electricity" to each supplier's balance group per supplied end consumer. Both approaches result in higher prognosis duties for balance group managers (to keep the balance group settled). Balance group managers would be obliged to buy quickly adjustable conventional power capacity to be able to settle balance group deviations caused by volatile feed-in of "EEG-electricity" which can create a market for capacity products. At the same time, these efforts by balance group managers would help to reduce balance energy needs and thus contribute to the functioning of the overall-system.

(...)

- (7) **Do you consider that there is a need for review of how generation adequacy assessments are carried out in the internal market?** The assessment of generation adequacy is useful to get an overview of the different capacity situations in Member States. GEODE supports all efforts to adequately assess capacity situations throughout Europe. We recommend using the existing methodological and procedural experience of the German energy sector gained during the development of the German grid development plan (Netzentwicklungsplan Strom). However, such generation adequacy review cannot substitute reviews on national and regional levels. By contrast, the lack of adequate generation capacity in the sense of system services to support grid operations is a regional or local problem which needs to be solved by grid extension (in most cases) or by additional back-up capacity. For assessing such situations in-depth reviews of regional generation adequacy levels is indispensable. This task needs to be carried out by the relevant national transmission system operators.

(...)



- (11) **Should generation adequacy standards be harmonised across the EU?** The question of what level of overall-capacity is adequate to ensure security of supply in each Member State is a political question which needs to be answered by the relevant government. Whereas some Member States can have high security concerns, others may satisfy their security concerns with lower levels of overall-capacity. In this case, however, it is necessary to reach an agreement on how much capacity each Member State (or even each European country) needs to hold available for emergency cases. For this purpose a harmonisation of adequacy standards is indeed necessary. Otherwise, there are two risks. Firstly, if each state accrues unnecessary overcapacities, economic misallocations are hard to avoid. Secondly, the country with the highest need for security will be forced (by natural way of electricity transmission) to ensure security of supply for countries with inadequate capacity reserves.
- (12) **Do you consider that capacity mechanisms should be introduced only if and when steps to improve market functioning are clearly insufficient?** If a functioning market can provide generation adequacy at politically and economically feasible prices and incentivizes long-term investment in flexible back-up capacities, the introduction of a capacity market would not be necessary in GEODE's perspective. Yet the considerable time span required for power plant investments has to be taken into account in assessing the "clear insufficiency" of market functioning.
- (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?** Market functioning is insufficient if one of both mentioned conditions cannot be fulfilled. To ensure that sufficient capacity is available to meet demand on the system at times of highest system stress is the basic condition which needs to be fulfilled by a functioning market. However, the assessment of the market's functioning must not stop here. By contrast, the long-term decarbonisation strategy makes it necessary that new highly efficient and flexible power plants are being built. Due to efficiency and flexibility advantages, the widespread replacement of coal-driven power plants by gas-driven power plants is recommendable in this regard. A functioning market would thus have to contribute to a fuel switch which not only ensures that new flexible resources are delivered but that investment in gas-driven power plants is incentivized.



- (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?** In our perspective, the introduction of a strategic reserve can indeed support the transition from a fossil fuel based electricity system to an energy system based on renewable sources. A strategic reserve is apt to address short-term concerns such as local strains on the electrical grid and the avoidance of grid congestions. Furthermore, a strategic reserve can provide short-term incentives for maintenance of economically unfeasible power plant operations in order to solve emergency situations. As such, a strategic reserve can be an additional safeguard for transition periods.

By contrast, a strategic reserve does not serve the purpose to refashion or replace the existing fleet of power stations. A power plant covered by the strategic reserve – per definition - will only become operative for very few times per year. It is not sound to build new highly efficient power plants and leave them unused for emergency situations.

Besides, a strategic reserve is not the proper instrument to solve the basic investment dilemma on European power generation markets. An energy market dominated by renewable sources will lead to very low electricity prices if based on a merit order with market clearing prices set by the last plant which is required to meet capacity needs. Marginal costs of close to zero cannot provide adequate remuneration for power plant operation. Prices for electricity from fossil power plants would either have to be very high and volatile or an additional remuneration system needs to be introduced. This long-term shift from the product “electricity” to several products such as “electricity”, “electricity/capacity” and “capacity” cannot be implemented by a strategic reserve.

- (15) **In relation to capacity markets and/or payments:**

Which models of capacity markets 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?

The effects of capacity markets on the internal market for electricity have to be assessed by considering the functioning of the current market structure. Trading activities in the frame of an energy only market are almost exclusively determined by the level of wholesale electricity prices. The price level is determined according to a merit order system. This means that marginal costs of electricity production per plant determine which plants are contracted and thus fix the electricity price (market clearing price). When it comes to the assessment of distortionary effects of capacity mechanisms it is worthy of note that “traditional” capacity markets (i.e., markets which consist of capacity auctions and respective capacity payments) generally do



not interfere with the merit order system. The payment of capacity rewards does not affect the marginal costs of the relevant power plant. As a consequence, there is no immediate effect on the functioning of the internal market by capacity markets. However, if new power plants enter the market, it is likely (albeit not assured) that long-term electricity prices will decrease because of higher efficiency resulting in lower marginal costs of new plants. In any case, this “cushioning-effect” depends on several criteria such as the technology of new plants, relative fuel prices, and prices for emission certificates. By contrast, capacity market models which establish a price cap (such as a strategic reserve) can interfere more easily with the merit order price mechanism.

The German section of GEODE believes that each capacity mechanism can be designed in a way to ensure effective competition and the proper functioning of the internal market. The primary focus should therefore lie on a sufficient analysis of generation adequacy in each Member States, taking into account also regional capacity differences, interconnector capabilities and the situation of the respective national electrical grid, and alternative tools available to ensure security of supply.

(16) Which models of capacity market and/or payments do you consider to be most compatible with ensuring flexibility in a low carbon electricity system?

At the end of February 2013 the German section of GEODE will publish a capacity market model which it considers the most compatible model in ensuring flexibility. However, promoting and ensuring flexibility does not so much depend on a specific type of capacity market model. Each model can be designed in a way to promote flexibility. It is more important that the relevant capacity mechanism allows for the participation of facilities/market participants which can create higher flexibility. Hence, a capacity market needs to promote the construction of highly efficient and flexible power plants (especially CHP plants, gas-driven plants or gas motors with high load change velocities), the use of storage facilities (especially heat storage facilities) and demand side management. In any event, a capacity market model which only considers and promotes the provision of capacity sets the wrong incentives from a long-term perspective.



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

Capacity mechanisms in our understanding should be considered separately from the design of balancing market regimes for the offered service to the electricity system is different. Capacity markets including call options for the supply of controllable generation capacities are fully market driven and operate within the day-ahead and/or intraday markets. Depending on the actual design of this market these options have to be drawn by either the balance group managers or an independent system operator. By contrast, the use of balancing energy (Regelenergie) is not market-driven and is mainly a duty of the relevant Transmission System Operator. However, short-term (5-10 years) capacity problems (such as regional capacity problems or grid congestions) can be addressed by a balancing market regime which rewards capacity provision. For this purpose, balancing market regimes need to provide for higher capacity charges (Leistungspreis) so that plant operators are able to receive contribution margins for participating in the balancing market regime.

- (18) Should the Commission set out to provide the blueprint for an EU-wide capacity mechanism?** Capacity markets/mechanisms until now generally address specifically national capacity concerns and situations. In many European countries one of the main reasons for the possible introduction of capacity mechanisms indeed is the need to create additional back-up capacity to accompany the increasing deployment of renewable energy plants. As a general rule, however, there are nation-specific reasons which need to be addressed by the design of a national capacity market. For example, the promotion of energies from renewable sources and the extent of its deployment differ considerably among Member States. Other important criteria for the design of capacity markets such as the national capacity situation, regional capacity differences, interconnector capacities or the situation of the national electrical grid are likewise different. Therefore, an adequate blueprint solution for all Member States is hardly feasible from our perspective. Nonetheless, GEODE believes that a framework which is in conformity with EU law obligations should be set out by the EU Commission in order to avoid further legal uncertainty in this regard. GEODE welcomes the introduction of broad guidelines which can be used as a yardstick by each Member State to create a national capacity market that is in conformity with the internal market and provides adequate incentive to overcome the specific national capacity and grid problems.



Berlin, February 7th, 2013

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