

Cefic response to EC public consultation on generation adequacy, capacity mechanisms and the internal market in electricity

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In general

This Cefic paper was written in close collaboration with IFIEC Europe (representing energy-intensive industries across the EU).

Renewable Energy Sources (RES) are currently not capable to completely and continually cover the electricity demand of our society. Due to their intermittent character RES generation is controlled by weather conditions. This means, however, that for instance the grid management is highly depending on weather forecasting which cannot always be accurate, particularly on the longer term. Thus, in case of low solar or wind power production other solutions must be found quickly in order to maintain system security. Therefore, reliable back up capacity is needed, e.g. from conventional power generation or storage. At the same time, existing electricity markets are supposed to send signals of insufficient capacity to the market so respective parties start to invest into consistent back up power. According to the present consultation paper of the European Commission (EC) security of supply (SoS) is at stake because current market prices do not allow generators or non-generators to recover the investment needed to reach the desired level of generation. The EC concludes that there must be a “missing money” issue. One of the instruments which are discussed to eventually solve this problem is the introduction of a capacity mechanism.

The consultation paper mentions some reasons for the “missing money” problem:

- Prices are administratively fixed at too low levels (price caps wholesale market)
 - a. Supply side: Prices reflect only the marginal price of the marginal producer. Wind and solar with low or zero operating costs drive wholesale prices down for long periods.
 - b. Demand side: lower demand due to the recession leading to fewer periods where peak prices are reached.
- Potential technological, political/regulatory and operational barriers preventing to right market signals.

Against this background, debates about introducing separate capacity mechanisms have started in many EU Member States (MS). Cefic believes, however, that the EC should tackle the problem at its roots and focus first of all on market related instruments instead of adjusting results of current discrepancies. The key driver of all our actions must remain to achieve a well-functioning internal energy market across the EU delivering internationally competitive energy costs for industry. In our view, the presumed ‘missing money’ is mainly caused by market distortions, regulatory and political uncertainty and the current state of the economy.

In some MS the market is severely distorted by RES treatment, i.e. heavy subsidisation which often averts an application of market principles. This subsidised electricity is injected into the grid with consistent priority access disregarding market mechanisms and the need to cost-effectively counterbalance intermittent energy sources. So it happens that conventional (flexible) plants, such as gas fired power plants, are pushed out of the merit order. The



reasons behind are market distortions and inappropriate price signals which prevent investments in needed (flexible) generation capacity.

RES energy providers do at present not pay the costs they impose on the system due to their intermittency, e.g. by paying the (total) imbalance costs. As a result RES electricity finds its way to the market at a non-cost reflective level leading to adulterated market prices. Consequently investments are not carried out. This leads to a system which is not cost-efficient and encourages free rider behaviour including an infringement with the 'causer pays' principle. But there are also other investment barriers such as political and regulatory uncertainty. For example, unilateral decisions to phase out nuclear energy without consulting the SoS impact with neighboring countries or insecurity on long-term fuel mix policies at EU and national level deteriorate the investment climate. Simplifying permitting procedures and removing other policy obstacles to the construction of new power plants would help to improve the situation as well.

Additionally, there is low demand for electricity due to the recession and capital is scarce. As a result utilities keep minimal capacity available to reduce their costs. In combination with relative high gas prices this leads to insufficient investments into flexible back up capacity from gas fired power plants.

Together with reducing market distortions there are also more efficient alternatives to make sure there is enough flexibility in the system.

In case the market does not provide enough back-up capacity, TSOs should try to solve this problem with existing instruments like contracting more restoration and replacement reserves (which should in fact is already be based upon a capacity market in the current system).

However, there are also non-generation solutions which could contribute to solve the unpredictable fluctuations and imbalances leading to over- and undersupply.

- Pumped hydro storage or other storage technologies like power to gas (via hydrogen) of other application for the Hydrogen like Ammonia production or fuel for fuel cells.
- More investments in interconnection (better coordination at all levels (EU & MSs))
- Demand Side Response on a voluntary basis and with fair compensation, e.g. by smart chips in all kinds of (industrial) equipment and household appliances.

How to optimise these instruments is not yet defined, but markets initiatives must give reason for these investments in the first place.

But provided that there really is a need for implementing capacity mechanisms as a measure of last resort because the market still does not provide enough back-up capacity, these instruments have to meet certain requirements. Incentives to secure adequate generation capacity should be created in close connection with the design of the future support scheme for renewables. In doing so, the following principles should be observed:

- The necessary volume of needed capacity should be ensured by market-based mechanisms;
- Capacity needs should be met in an optimal way, taking into account European, regional and grid-related aspects, by making use of the advantages of cross-border integration to reduce the need for capacity.
- Voluntary demand-side measures should be used as much as possible to reduce the need for further capacity and to take advantage of low-cost solutions.

- European coordination and enlargement of cross-border grid capacities can help to further reduce the need for (national) capacities.
- Coordinating capacity mechanisms with RES-E support schemes can contribute to integrate renewables into the market by envisaging a system where RES-E support and back-up capacity responsibilities are combined.
- Strictly national capacity mechanisms at MS level must be prevented. Capacity mechanisms (if any) shall be coordinated at regional and/or EU level.
- Capacity mechanisms shall fully comply with the internal market in order to avoid distortions in the electricity market. Therefore the decision to activate a Strategic Reserve is the responsibility of the TSO to prevent distortions in the electricity market which should be activated only when grid stability is not guaranteed.
- Security of supply should be ensured at the least possible costs, so as not to threaten international competitiveness of industrial energy consumers.

Specific responses to the questions

Investing in the Internal Energy Market

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

Cefic believes there are different reasons that prevent investment in needed generation in some member states:

- In a lot of member states RES energy is heavily subsidised. As a result conventional plants are pushed out of the merit order. Due to this market distortion current market prices do not give the appropriate signals to the market and prevent investment in needed (flexible) generation capacity.
- The market is further distorted by the fact that some market participants do not pay the (full) cost they induce to the system (infringement causer pays principle). Intermittent RES energy providers do for example not pay for their total imbalance costs. This leads to a system which is not cost-efficient and encourages free rider behaviour, including infringement with the 'causer pays' principle. The system does not provide the correct market prices and therefore prevents investments in required generation capacity.
- But there are also other important barriers for investments in generation ('back up') capacity. The most important one is political and regulatory uncertainty.
- Thirdly current market developments lead to the rather bad investment climate. There is low demand for electricity due to the recession. Utilities keep minimal capacity available to drive their costs down. Combined with a relative high gas price this leads to the fact that utilities do not invest in excess capacity.

The fact that there is little investment in (flexible) capacity does not necessarily mean that capacity mechanisms are needed. On the contrary, this should be recognised as a signal that no new investment is needed yet. As a matter of fact, capacity mechanisms must themselves be seen as market interventions only to be used as a last resort when



the market fails to provide the necessary level of security of supply after all other actions to remove the market distortions have been implemented.

Please note that also IEA is being rather sceptic about additional market interventions and a hasty move into capacity mechanisms without further assessments.¹

(2) *Do you consider that support (e.g. direct financial support, priority dispatch or special network fees) for specific energy sources (RESs, coal, nuclear) undermines investments needed to ensure generation adequacy? If yes, how and to what extent?*

Yes, Cefic believes that support for specific energy sources undermines investments needed to ensure generation adequacy.

- First of all, priority grid access given to intermittent electricity generation from RES sources leads to a reduction in the runtimes of traditional power plants and their ability to recover their fixed costs.
- Secondly, high guaranteed incentives for RES energy, combined with priority grid access, leads to RES electricity offered to the market at a price which does not reflect the level of demand. As a consequence, marginal prices fall at times of high RES-E production even below the level corresponding to the cost-effectiveness of standard power plants. No incentives are given for new investments.

(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?*

Yes, the enlargement of market areas makes it possible to benefit from scale effects. Therefore, better integration of such short-term markets will most likely contribute to ensuring SoS, since it will allow the usage of excess capacity located in neighbouring countries.

Cefic sees the work on the establishment of cross-border day ahead, intraday and balancing markets contributing to ensuring SoS by the end of 2014. As announced by the EC by then the EU internal energy market is finally going to be completed.

In order to ensuring SoS markets need not only need to be coupled in theory but also physically by investing in interconnection capacity up to an economically efficient level.

(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?*

Cefic believes that a few additional steps need to be taken at European level to ensure that internal market rules fully contribute to ensuring generation adequacy and SoS.

- Firstly, the EC must remove market distortions.
- Secondly, market rules should be revised in such a way they can cope with the more dynamic capacity picture which we are faced with, e.g. by considering a more precise time resolution in day-ahead and balancing markets.

¹ The respective IEA report is publicly available at the IEA website:
<http://www.iea.org/publications/freepublications/publication/name,33897,en.html>

- Thirdly, demand side response on a voluntary basis could be incentivised by adapting market structure, market products, and bidding procedures in the shorter term physical markets. But with view to the complexity of industrial installations flexibility and a fair financial compensation is key if this shall lead to success.
- Fourthly, liquidity in financial markets must be improved to provide necessary relief from risk in the more volatile physical markets.
- Fifthly, the EC must make sure that all cross-border intraday capacity is offered on a market based platform.
- Sixthly, at European level, a coherent energy policy and a better coordination and a consistent policy approach between different MS will help to strengthen SoS. European guidelines of good practice with regard to RES energy may improve the know-how in different MS. European rules or institutions must further improve coordination by facilitating exchange of information and by spreading information about best practices, e.g. with regard to assessing generation adequacy.

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

Cefic believes that MS can take a few additional steps to support the effects of the internal market in delivering generation adequacy:

- First of all, MS must ensure that national market distortions are being removed. The European Chemical Industry (ECI) operates under world market conditions and therefore relies on globally competitive energy prices and a robust electricity system.
- Secondly, all MS should implement all measures from the third energy packages as soon as possible.
- Thirdly, when planning national energy policies, MS must take into account the effects of such measures on countries next-door as well as on the internal energy market itself and basing their national energy policies on a EU energy policy and thereby adjusting their permit procedures accordingly. Already today, some states depend (and rely) on importing power from their neighbours. It is reasonable that all MS meet certain criteria of balance in their capacity portfolio and that shortcomings of national policy decisions are made transparent. Any change of the capacity portfolio in one country therefore has an (also financial) impact on the generation adequacy in other countries and affects the competitive situation for their industry. Thus better coordination between national authorities is vital.
- Fourthly, providing a correct spot price signal, reflecting the merit curve, is important for both DSR and investors in new capacity. Therefore regular monitoring by regulators of these spot prices is also a measure that should be undertaken by MS (and ACER).

(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?*

Firstly must be to assess consumers' preferences on SoS, or more broadly speaking, quality of supply. Therefore, authorities (either on national or at European level) should

conduct studies – and in this process directly ask consumers – to what extent consumers do value security of supply. The valuation of reliable power supply may vary between different consumer groups, e.g. households and industry, as well as between different consumers within such a group. These should be taken into account when setting up regulatory measures like quality regulation, but also when setting incentives, e.g. for interruptibility.

The question (6) asks how “preferences for lower standards” can be reflected. Cefic’s experience is quite different: Some consumers have strong preferences for higher SoS. This is especially true for industrial consumers. While households often can stand shorter interruptions (e.g. few seconds), or not even notice very short interruptions, industrial consumers face economic damages due to production losses caused by short interruptions (often less than one second). Hence, the problem is not how to deal with preferences for lower quality, but for higher quality.

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*

At the moment, generation adequacy at the European level is assessed by ENTSO-E (biannual summer / winter outlooks). At national level, generation adequacy might be assessed at larger intervals. There should be some harmonization, to align these assessments at the shorter interval (at least biannually)

(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?*

Since generation and injection of RES-E power is rapidly growing, with its volatility being the most important reason for growing troubles in terms of SoS, the availability of flexible capacity (and not only the availability of sufficient capacity) is an aspect that should be assessed more thoroughly in the biannual generation adequacy reports, at national as well as at European level. The problem is the priority access which is given to RES as no control mechanism is installed which allows a proper grid management based on actual demand.

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

The directive must be revised to ensure a better coordination and a consistent approach of EU policy between different MS to strengthen SoS.

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

The directive applies rules for each MS. Cefic believes the directive must be revised to ensure a better coordination of energy policy between the different MS to strengthen SoS.

(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?*

Mandatory risk assessments such as in the Regulation with regard to Gas SoS mandatory risk assessment mostly look at whether there is enough transportation capacity available. For electricity mandatory risk assessments or generation adequacy plans it could be a good idea not to look at transportation bottlenecks only, but also to assess whether there is sufficient generation adequacy (flexible capacity).

(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?*

Harmonisation of SoS Standards across the EU should be subject to a prior assessment of current practices, identifying the best practices. This could form the basis for guidelines of good practices. Such guidance could leave enough room to account for different national preferences. Mandatory standards should only be set as a measure of last resort, e.g. if some national policies (justified by “national preferences”) endanger SoS in other MS and if market functioning is hampered.

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?*

Cefic believes that market forces have the potential to deliver the most efficient solutions, as long as the framework of market rules is set correctly. Any improper regulatory intervention might lead to market distortions. Capacity mechanisms constitute an additional regulatory intervention in the energy market.

As we have said before, there are a few important steps to be taken to make the market function.

- First of all, market distortions must be removed. For example the over-subsidisation of RES in some MS which pushes flexible gas-fired plants out of the merit order. Due to this market distortion current market prices do not give the appropriate signals to the market and prevent investment in needed generation capacity. Another market distortion that must be addressed first is the functioning (pricing) and the efficiency of the gas market; competitive gas prices will increase the revenues of (flexible) gas powered electricity plants, making it more profitable to invest in these capacities.

- Secondly, political and regulatory uncertainty must be minimised to an acceptable risk level. For example simplifying permitting procedures and removing other policy obstacles to the construction of new power plants.
- Thirdly, maximum opportunities must be provided for efficient solutions, such as voluntarily and fairly compensated demand side response. Furthermore, the promotion of innovations such as electricity storage is vital. Industrial demand response may in some case be cheaper and can be used in a shorter term than expanding gas capacities and storage facilities. But to take advantage of such industrial flexibilities, appropriate financial incentives are needed. Furthermore, research and investments in energy storage systems (classic hydro-pumped storage as well as new concepts, e.g. storage by load-shifting and using industrial products such as hydrogen or ammonia as a substitute for electricity storage) must be stimulated to promote new technologies that are able to reduce volatility with the least possible costs
- Fourthly, the internal Energy market must be completed. Increased investments in interconnections (after detailed cost/benefit analysis) especially between countries with high and low natural storage capacities should lead to improved market functioning. Furthermore, the establishment of cross-border day ahead, intraday and balancing markets throughout the whole of Europe will contribute to ensuring security of supply. Such market integration will help coping with volatility through flexible power generation and flexible storage facilities. Set up closer integration of (short- and long-term) cross-border markets, expanding of cross-border capacities and exploring of storage possibilities

Provided that there really is a need for implementing capacity mechanisms as a measure of last resort and being coordinated at regional and/or EU level because the market still does not provide enough back-up a capacity mechanism might be introduced following the principles as highlighted at the beginning of the paper.

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

a. *To ensure that new flexible resources are delivered?*

See answer to question (12): Only when the measures mentioned above are used, and experience shows that they will not suffice to secure highest levels of power supply continuity and quality, explicit capacity mechanisms should be put in place. If for example policy-makers would provide a stable regulatory landscape, then generation investors would be able to plan what kinds of plants were needed, and build them in adequate time. It is of prime importance that the lowest overall cost is achieved (through optimisation of grids, back-up capacities, storage and Demand Side Response) by applying a market-based approach.

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

See answer to question (12): Cefic considers market functioning insufficient when the above mentioned steps are taken it is clear (after a proper qualification and quantification) that there is no generation adequacy. To ensure that sufficient capacity is available maximum opportunities must be provided for efficient solutions, such as demand side response.

(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?*

Cefic believes that, very strictly speaking, a strategic reserve must already be considered as a capacity mechanism, particularly if the case of emergency might become a permanent threat due to a rising share of intermittent forms of energies in the grid. As said capacity mechanisms constitute an additional intervention in the energy market. A capacity mechanism can only be introduced if it is clear (after a proper qualification and quantification) that markets are not functioning.

It is therefore more efficient to remove market distortions and to avoid uncertainties due to sudden policy or regulatory changes on the energy market.

A strategic reserve perhaps could be implemented rather quick and easily, and thus could serve as an emergency measure to secure capacity adequacy in unforeseen circumstances. However, to prevent market distortions, this can only be done if the operation of the strategic reserve is the responsibility of the TSO. But generally, the decision whether to implement any capacity mechanism at all should be based on a thorough analysis of the situation, so the advantage of easy implementation should not play an important role under normal circumstances.

Moreover, a strategic reserve has some serious drawbacks, see answer to question (14b.) below.

- 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 often are made up of old plants which would otherwise be retired as uneconomical. The introduction of a strategic reserve therefore might create an incentive for the operator of an older plant to declare his power plant as uneconomical, threatening to retire it, only to receive the capacity premium paid by the regulator. This may create a situation where power plants are retired from the market and transferred into the strategic reserve, thereby further aggravating the capacity scarcity in the normal electricity market. Additionally, investments in efficient and low-emitting new plants, equipped with state-of-art technology may be hampered. Furthermore, while strategic reserves are quick and easy to implement, the removal of a strategic reserve is much more difficult. Any strategic reserve should obey a market-based approach for determining the needed volume thus ensuring that the lowest cost solutions are awarded.

Above that, it is questionable whether such older power plants can provide the necessary flexibility to accommodate volatile RES-E production.

(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?*

The fewest market distortions can be expected from mechanisms that have the least chance to distort the market.

Any capacity mechanism is distortive for the functioning of the internal market.

Therefore the determination of the necessary amount of flexible capacity should be left to the market and the operation should be left to the TSO.

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?

A model of a capacity market that does not lead to market distortions and provides maximum opportunities for demand side response, where consumers that are able and willing to provide flexibility by selling back their capacity into the market based upon a strong electricity price signal is a way to ensure 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?

Generally, the implementation of any capacity mechanism would be reversible only (if at all) with great difficulty. Since such mechanisms aim at incentivising new investment, their introduction (or their announcement) has the effect that it gives the incentive for existing generators to wait for the next “Call for Tender” or auction to receive the yearly capacity fee in addition to the market price. Purely market-driven investment would be erased as long as the mechanism is in place. It will be very difficult to abolish such mechanisms, since this would lead to huge competitive distortions between investors that built capacity during the time the mechanism was in place and those who might want to invest after the abolishment.

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

Market-based instruments have the highest potential to reduce costs for consumers. Therefore it is worthwhile to use market mechanisms as far as possible. Therefore a capacity mechanism – if necessary - should be examined that leaves the determination of the necessary amount of (flexible) capacity to the market. This could e.g. be done by giving suppliers the responsibility to ensure enough backup-capacity to cover their supply to final consumers – i.e. Suppliers should not only procure energy (e.g. from the exchange) but also capacity/flexibility.

Since volatile RES-E installations are a main reason for capacity concerns (see answer to question (2)), one could envisage a system where RES-E support and capacity responsibilities / incentives are combined: By limiting the support to renewables to a premium (based on the difference between the effective generation cost and the electricity price of the reference market) RES-E producers will be incentivised to sell their electricity as efficiently as possible in the market. If producers of renewable energy are incentivised to integrate their electricity efficiently in the market, the price volatility and the need for additional back-up capacity will be reduced. Moreover, RES-E suppliers could also be responsible (or be incentivised) to ensure their own flexible backup-capacity needed to accommodate their volatile RES-E-production to become compatible to consumers’ needs. That way, the “quality” (e.g. flexibility) of new capacity will be most fitting to the needs of the market.

In addition to addressing the capacity adequacy issue, such a combined mechanism could help integrating RES-E into the market.

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

Existing balancing markets can already be seen as some kind of capacity markets and might therefore be used as a starting point. While there are similarities between balancing and capacity markets, i.e. in terms of provision of backup capacity for emergencies (as opposed to other markets where not capacity but energy is provided), there are some differences, the most obvious being the different time span – balancing markets are very short term, while capacity markets focus on a very long term perspective.

In any case, additional mechanisms must not distort functioning e.g. (balancing) market segments. Where a well-functioning balancing market is already in place it has to be avoided that this market is cannibalized, i.e. capacity simply moves from the balancing market to the new capacity mechanism. This would only make the system more expensive without having an effect on the amount of available capacity.

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

Cefic believes the EC should make sure that the Internal Energy Market is completed. This can hardly be done if there are 27 different capacity mechanisms. Therefore the EC must remove the underlying causes of the deteriorated investment climate instead of adjusting results of market distortion and political and regulatory uncertainty. On top, the EC must ensure that MS take the effects of their national policies on other member states into account. Confidence of investors and political security are finally 1 set of business rules.

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

Such EC guidance could be very helpful for national legislators and regulators.

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

a. *Should any criteria be added to this list?*

No

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

Most weight should be given to the use of alternative or supporting measures, such as demand response or energy efficiency (criterion 1b, c), increased interconnection (criterion 1a), to alleviate the need for additional capacity mechanisms as far as possible. If a capacity mechanism is to be introduced, it should not distort competition, be it cross-border or within any MS (criterion 5). Therefore, criterion 6a (allocation of the capacity mechanism after an open competitive bidding process) is not acceptable. Market-based allocation of capacity mechanism is distortive for the functioning of the internal market. Therefore the determination of the necessary amount of flexible capacity should be left to the market and the operation should be left to the TSO.