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ENSURING SUPPLY SECURITY

A Capacity Market in the Netherlands is urgently needed.

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Summary

EP NL calls for the rapid development of a Capacity Market which is needed to ensure a sufficient level of security of supply, because:

- The current EOM market design too risky for peak capacity
- Security of supply issues can materialize earlier than expected and development of a capacity market needs time
- A capacity market brings net financial benefits for Dutch consumers
- A capacity market facilitates the transition towards a decarbonized energy system
- A capacity market is a structural element of the EU power market design
- A capacity market reduces import dependency
- A Strategic Reserve is not an alternative
- Stimulating batteries and demand response is not an alternative

Why is an Energy-Only Market (EOM) insufficient?

The Dutch electricity market is based on the Energy Only Market design. This means generation capacity with low operating hours **must rely on scarcity rents** to recover fixed costs. Scarcity is expected when demand is high and the production by weather dependent generation (wind and PV) is low. The actual occurrence of scarcity is uncertain Having to rely on scarcity rents thus has high risks. These **risks** are further aggravated for several reasons, like:

- Possible interventions in periods of physical scarcity including capping of power prices
- Possible tax on inframarginal rents in case of extreme prices
- Uncertainty of climate policies supporting technologies like nuclear capacity or storage capacity
- Uncertainty of climate policies aiming for electrification / demand growth
- Possible introduction of grid tariff for generation
- Strong increase of tariffs for use of the gas grid (for gas-fired power plants)
- Possible obligation to blend CO2-free gas (for gas-fired power plants)

The consequence is that the business case for investments in peak capacity becomes too risky. Investments do not take place or existing plants may close early. A capacity market allows to have revenues by making capacity available. This allows to maintain a sufficient level of security of supply.

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Why is a capacity market needed now?

Security of supply issues can materialize earlier than expected and development of a capacity market needs time.

TenneT has concluded that security of supply is at risk after 2030[1]. This is caused by an expected growth of demand and expected closure of firm capacity from 22.3 GW in 2023 to 14.5 GW in 2030. However, security of supply problems may already materialize earlier. In particular TenneT is too optimistic on the availability of new gas-fired power plants in Germany. TenneT also underestimates the risks for peak capacity. The economic viability of the continuation of a gas-fired power plants is regularly being reviewed before each periodical maintenance cycle, which requires additional investments. A faster closure of existing firm capacity cannot be excluded.

It must also be noted that TenneT uses a target value of 4 hours per year for the Loss of Load Expectation (LOLE) in its monitor security of supply. This value of 4 hours is based on a estimate of the Value of Lost Load (VoLL) of about 15 000 €/MWh. It is likely that the actual VoLL is considerably higher. (ACM has assessed the VoLL at 68 887 €/MWh.) If one would calculate with a higher value for the VoLL, the target value for security supply would also change and a LOLE of for example of 2 hour would be closer to the optimal level. Neighbouring countries also apply a lower value for the LOLE. In other words, TenneT underestimates the value of a secure electricity supply and thus the benefits of a capacity market..

The last European monitor also shows that action is needed to safeguard security of supply[2]. This analysis shows that the LOLE in the Netherlands would already pass the target value of 4 hours in 2028.

As a capacity market needs time to be developed and implemented and as security of supply is at risk after 2030 and possible earlier, the design of a proper capacity market fit for the Dutch case should start as soon as possible. A first no-regret activity would be to analyze the effectiveness of the different capacity markets in place in EU countries.

[1] Rapport Monitor Leveringszekerheid 2024, TenneT
[2] European Resource Adequacy Assessment (ERAA) 2024, ENTSO-E

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Costs: A capacity market brings net financial benefits for Dutch consumers

The business case for investors in firm capacity will strongly depend on extreme scarcity prices. As described the market value of peak capacity in the EOM is uncertain and very volatile. Therefore, expected revenues from scarcity prices will be heavily discounted. This implies that these events would need to occur more often than economically desirable. A capacity market removes part of the uncertainty for investors and ensures that more firm capacity will remain available. A capacity market will involve capacity payments which are sometimes regarded as additional cost for consumers, but they should be evaluated together with the benefits of a capacity market. The capacity market can be seen as an insurance which will result in an increased amount of installed firm capacity ensuring lower and more stable power prices. As a result market participants, including retail suppliers, face lower risks for hedging and procurement on the wholesale market, which results in lower risk premiums and thus lower retail prices. Finally, a capacity market reduces the risks of physical scarcity (load shedding) which is of high value for consumers.

The revenues obtained by providers of firm capacity through the capacity market replace higher scarcity rents that would have been obtained in an EOM situation with lower installed capacity. A capacity market will thus not result in windfall profits for generators. If a capacity market is introduced in a situation with sufficient installed capacity, then capacity payments will fall to zero (as currently observed in France).

A capacity market is the best instrument to ensure a sufficient level of security of supply. It should be technology neutral and allow all providers of firm capacity to compete for the most efficient solution. All capacity remains fully active in the energy market and thus contributes to lower electricity prices.

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Energy transition: a capacity market facilitates the transition towards a decarbonized energy system

A capacity market must be seen as an amendment of the power market design and an add-on to the energy market. Just like the EOM the capacity market should be open for all technologies that can contribute to security of supply. Although EU rules do not allow technologies with carbon emissions exceeding 550 gram/kWh, which excludes coal plants without co-firing and/or CCS.

A capacity market with the aim to guarantee a sufficient level of security of supply, while supporting the availability of firm capacity including gas-fired power plants, also facilitates the transition towards a decarbonized energy system. Fast electrification (in mobility, heating and industry) is key in the transition to decarbonized electricity system, a reliable electricity supply is an important prerequisite. The use of fossil fuels is replaced with electricity, which results in a reduction of greenhouse gas emissions also if electricity is partially generated through fossil fuel power plants.
To facilitate electrification and to meet the growing demand of electricity consumption in a reliable way, a capacity market is needed. In parallel, the well-known instruments (in particular ETS and SDE) remain in place to increase the share of carbon free electricity generation. The relative share of fossil-fuel power plants will thus reduce over time.

A capacity market to safeguard security of supply and instruments to steer towards a carbon free electricity system, thus can and must go hand in hand.

EU developments: a capacity market is a structural element of the EU power market design

The Dutch electricity system is dependent on the import of electricity in periods of scarcity. This means additional risks as whether surrounding countries can accommodate those exports strongly depends on investment decisions of additional firm capacity in these countries, which in turn depends on their policy measures and market design. Besides, to avoid local price spikes neighbouring countries may be tempted to curtail export in periods of mutual scarcity. Finally, import from UK, Norway and Denmark is coming from offshore cables which are more vulnerable to terrorism. The introduction of a capacity market allows to have more direct control on the level of security of supply in the Netherlands.

A capacity market reduces import dependency

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Strategic Reserve is not an alternative

The strategic reserve is placed outside the market and only activated in case of threats of physical scarcity. Without any market revenues the cost to keep these assets operational need to be fully covered by capacity payments while customers can still experience scarcity prices. A strategic reserve is thus costly as part of the capacity cannot be dispatched for economic reasons.

However, the main drawback of the Strategic Reserve is that it does not provide a structural solution for security of supply. It still relies on the EOM as a basis for investments in firm capacity, both for new capacity but also for investments needed to keep existing plants in operation.

Stimulating batteries and demand response is not an alternative

Flexible capacity from batteries and demand response will play an increasingly important role in the electricity system of the future. They, however, play a quite different role than firm generation capacity. First, batteries and demand response provide short-term flexibility. It means the capacity to respond to short duration price fluctuations. They are, however, much less well equipped to provide firm capacity that is required for longer periods of scarcity, like a Dunkelflaute situation with several days of high demand and low wind and solar generation. Secondly, they have a quite different risk profile than firm, peak generation capacity. Batteries will in each scenario have a similar and high number of operating hours. Peak power plants, however, have extremely low operating hours. In other words, batteries and demand response are not at risk in the EOM model

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Any barriers for the participation of storage and demand response in the market should be removed (if such barriers still exist). It is, however, unnecessary to introduce support mechanisms for batteries and demand response. It would be an expensive way of ensuring sufficient security of supply. A capacity market, that also allows for the participation of storage, is thus the preferred option.

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