

PKEE publishes a complex analysis of the rationale behind the implementation of a technology- neutral capacity mechanism in Poland.

According to Compass Lexecon experts, the security of electricity supply in Poland in the long run can only be guaranteed by implementation of the capacity mechanism (CM). This solution would be the most efficient form of intervention and the most beneficial one for both electricity producers and for the end consumers.

Conventional electricity generation in Europe, including in Poland, must tackle the same issue: the deficit of revenues from electricity production (so called “missing money problem”). This creates a higher risk of capacity shortages in the long-term (so called “missing capacity” phenomenon).

In the current market design, the economic sense of building new power plants is disputable and existing generation plants are becoming less profitable. Poland is preparing intensively for implementation of the capacity mechanism which will help to solve these problems. In this context, the Polish Electricity Association (PKEE) together with Compass Lexecon, a consultant previously working inter alia for the British and French decision-makers, has prepared a detailed analysis of the rationale for implementation of the capacity mechanism in Poland.

“The results of this complex analysis prove that, in the long term, the Energy Only Market alone will not guarantee the security of supply in Poland. Therefore, it is necessary to introduce the capacity mechanism to reward readiness to generate electricity. No other alternative can systematically solve the security of supply problem cost-effectively for consumers.” – said Henryk Baranowski, president of PKEE.

The Compass Lexecon [report](#) presents a comparison between different possible electricity market designs in Poland, for example:

- 1) Energy Only Market – one product (commodity) based market model;**
- 2) Capacity market – two products (commodity and capacity) based market model;**
- 3) Strategic reserve – alternative to the capacity market.**

Compass Lexecon also analyzed the potential impact of the emission performance standard set at the level of 550 g CO₂/kWh (the so-called EPS 550) to be implemented in capacity mechanisms. The need for analysis of different possible options is even more important now as the European Parliament and the Council will frame the conditions for implementation and functioning of capacity mechanisms in the Electricity Market Regulation.

The European Commission proposed to introduce the emission performance EPS 550 standard for generation units supported by capacity mechanisms. According to the proposal, existing generation capacity emitting 550gCO₂/kWh or more shall not be allowed to participate in the capacity mechanism five years after the entry into force of the 550 EPS. Moreover, new generation capacity that does not meet the emission standard shall be excluded from capacity remuneration immediately after implementation of the EPS 550. This standard could be applied from the start in case of investments, for which the final investment decision would be taken after the entry into force of the regulation (most likely after early 2019). Generation capacity which obtained a final investment decision before this date is given a five-year transitional period that would therefore end in 2024.

The necessity for intervention in the Polish market

The report by Compass Lexecon and PKEE highlights the fact that, in cases of a lack of any regulatory intervention, by introducing the capacity market **from 2020 onwards, the standard of reliability and security of supply will not be met in Poland**. Without implementation of a capacity market, there will be no economic viability of keeping some power plants operational and there will also be no investment signal to replace the missing capacity. Furthermore, the deficit of capacity will persist throughout the entire analyzed period, from 2017 to 2040.

The introduction of the capacity market will decrease electricity prices for end consumers in Poland.

The results of the analysis make it clear that with the **the capacity market, the costs of electricity for end consumers in 2040 will be lowered by ca. EUR 7 billion** when compared to the energy only market scenario. The additional cost related to the implementation of the capacity market is well compensated by the lower cost of non-delivery of energy and lower wholesale prices. **The analysis shows that with the implementation of the capacity market, wholesale electricity prices will be on average ca. EUR 5 /MWh lower by 2040**. It will also stabilize the energy prices and lower the cost of capital for the new investments, specifically for peak-load capacity.

The implementation of capacity market is the most cost-effective solution

In the long run, the security of supply can only be preserved by the implementation of the capacity market which is the most cost-effective solution.

The implementation of the capacity market is a much better solution than the strategic reserve model. In the period 2021- 2040, implementing **the strategic reserve could cost end consumers up to EUR 8 billion more than in the case of the capacity market**. Moreover, the strategic reserve is not an adequate structural tool for Poland, as it is designed to work as a short-term solution, while the security of supply problem is long-term.

A high bill for EPS 550

The full advantages of the capacity market are only realized if it is introduced without the restrictive criterion of EPS 550. According to Compass Lexecon analysts, the proposal of the European Commission could lead to:

- **Loss of Polish energy independence** – EPS 550 eliminates entire coal-based generation capacity, leading to a drastic increase of energy dependence on imported gas. The change in the generation mix triggered by EPS 550, with a significantly higher CCGT gas-fired capacity, would lead to a significant increase in the country's gas consumption for electricity generation. **Over the outlook period, the 550 EPS increases Polish gas consumption by 60 bcm, a 70% increase compared to the CM scenario**. This would significantly raise Polish gas import dependency. The necessary investments to reinforce and extend the gas transmission infrastructure could have

substantial cost implications for the Polish consumers and give rise to security of supply concerns.

- **Cost increase for end consumers** - by comparison to the capacity mechanism, without EPS 550, the proposed emission performance standard **will lead to an increase in cost for end consumers of circa EUR 240 million throughout the 2017-2040 period due to the necessity to invest in new gas infrastructure**. Additionally, when compared to the scenario of the capacity market without the EPS 550, implementation of this standard would lead to a **decrease of social welfare by ca. EUR 1 billion between 2017 and 2040**.
- **Increase in the cost of CO2 reduction** - according to Compass Lexecon, EPS 550 will lead to an increase in the cost of CO2 emissions reduction in Poland of about 5 EUR/t – **which is double the current market price of CO2**. EPS 550 is furthermore unlikely to reduce CO2 emissions at the EU level as reduced emissions in the power sector are offset by increased emissions in others.

“The report by Compass Lexecon highlights the possible threats that could arise from implementation of the emission performance standard in the capacity market in Poland. In short, EPS 550 means the loss of energy independence and higher energy costs for citizens. It will also cause an increase in the cost of CO2 emissions reduction, while its impact on CO2 emissions would be marginal. It also creates a risk of our ability to replace older coal-fired units with gas-fired ones on time, given the infrastructure constraints” – PKEE President, Henryk Baranowski.

The analysis of the impact of EPS 550 on the Polish energy sector deserves special attention, mainly because the **European Commission has not presented so far any formal impact assessment** for implementation of that rule. Our results differ significantly from those of a study done by E3M-Lab¹, as **the E3M-Lab study does not aim to assess the efficiency of the 550 EPS**. The E3M-Lab study does not model the impact of a CM, but instead models the impact of a subsidy (Contract for Difference) limited to coal and lignite plants. However, the **CM envisaged in Poland is not a subsidy specific to coal and lignite plants, but applies to all eligible technologies, including CCGTs, DSR etc.**

As a result, the E3M-Lab study cannot be used as a basis to assess the efficiency of the 550 EPS and its findings should be compared with our study results with great care. Indeed, the coal/lignite subsidy assessed by E3M-Lab in Poland, Romania, Greece and Estonia would mainly displace gas-firing generation. The coal and lignite support would encourage investment in new build coal, resulting in different mix, price levels and significantly higher emission levels than those of the 550 EPS scenario of our study.

We conclude that a thorough impact assessment of the measure proposed by the European Commission is still urgently needed.

¹ E3M-Lab (June 2017), Modelling study contributing to the Impact Assessment of the European Commission of the Electricity Market Design Initiative.