POLICY PAPER

Six Objectives for a Successful Capacity Market in Czechia

Fakta o klimatu

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Authors
Paweł Wiejski
Jan Krčál

Layout and Design
Marcel Otruba

Proofreading
Roman Blahynka

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Executive Summary

PROBLEM

Resource Inadequacy and the “Missing Money”

The rapid growth of wind and solar power across Europe is successfully driving down carbon emissions, but it is also disrupting traditional energy markets. In Czechia, this transition is reaching a critical tipping point. The country still relies heavily on coal, which supplied nearly 40% of its electricity in 2024. However, rising carbon costs and cheap renewable imports are rendering domestic coal plants financially unviable, pushing them to close much faster than expected.

While weather-dependent renewables are expanding across Europe, Czechia still needs backup from dispatchable power sources (like gas plants or batteries) to maintain resource adequacy and meet peak demand when renewable generation is low**.** Building these backup facilities is expensive and highly risky for investors. In theory, electricity prices should spike during power shortages to reward backup plants for running. In practice, governments often cap prices to protect consumers. This creates a systemic **“missing money” problem**: **investors cannot make enough profit from the energy market alone to justify building new assets.**

Consequently, Czechia is failing to replace its retiring coal plants, threatening grid reliability. Official forecasts (ERAA 2025) warn that by 2030, Czechia’s **Loss of Load Expectation (LOLE) could reach 18 to 29 hours per year** – meaning the grid will face hours where available power supply cannot safely meet demand. This is three to four times higher than the national reliability standard, making market intervention urgent.

TOOL TO HELP

Capacity Market

To secure energy supplies and boost investments, a growing number of EU countries – including the UK, France, and Poland – have introduced capacity markets. Instead of paying producers only for the electricity they deliver, a capacity market pays them simply to be ready to provide power when the grid is under strain.

Under this competitive system, power providers bid in auctions several years in advance. Winning bidders receive fixed annual payments funded by consumer grid tariffs. This long-term financial certainty drastically reduces risk for developers, successfully driving the construction of new infrastructure. To accelerate these efforts, in 2025 the European Commission introduced the **CISAF framework** (Clean Industrial Deal State Aid Framework), which fast-tracks approvals for countries following a set of pre-defined design rules.

Policy Recommendations

Czechia is currently designing its own capacity market under CISAF to incentivise immediate investment in new, reliable power sources. **This policy brief identifies six objectives across three focus areas to guide Czechia toward a successful, cost-effective capacity market:**

Setting up the market: Special care should be taken to ensure the **success of the first auction round**, guaranteeing that the market delivers on its core goals: building new capacity at a reasonable cost. This is no trivial task, as CISAF is a very complex policy tool and Czechia is the first country establishing a capacity market according to its design rules.

Building robust market governance. The specific design of the Czech capacity market will have long-term implications for the country's energy security, electricity costs for consumers and industry, and its overall climate trajectory. Getting the details right – and building a robust framework for continuous evaluation and adjustment – will be essential to delivering a market that is both effective and cost-efficient.

→ **Strategic clarity:** The market should be anchored in strategic goals with clear, measurable objectives against which performance can be regularly assessed.

→ **Transparency:** Assumptions, data, and methodologies should be transparent and subject to independent expert scrutiny. This guards against the well-documented tendency of system operators to overestimate capacity needs. Furthermore, derating factors must be defined transparently rather than arbitrarily, as has occurred in Poland.

→ **Avoiding gas lock-in:** Steps must be taken to prevent the overbuilding of gas capacity. An excessive gas buildout risks locking substantial capital into a technology that could quickly become outdated and economically unviable to run.

Improving wider market conditions. The capacity market is not a silver bullet. Ensuring the Czech power system operates effectively in the future will require broader technical and regulatory reforms:

→ **Accelerating renewables:** Czechia must speed up the rollout of renewables to limit the power sector's gas dependency during the 2030s – a dependency that the capacity market will unfortunately increase. Both solar and wind power are crucial to minimise the role of gas. Less reliance on gas translates to cheaper electricity that is far less exposed to gas and ETS1 price volatility.

→ **Enhancing system flexibility:** Improving the flexibility of the Czech power system is not an abstract, long-term objective. Real demand-side flexibility delivered before 2030 can substantially decrease capacity market costs. Achieving this requires an accelerated rollout of smart meters, dynamic network tariffs, and additional support schemes to develop the market of flexibility aggregation.

CURRENT FOCUS

SET UP CAPACITY MARKET COMPLIANT WITH EU RULES

Successful first auction

- → **Incentivise new buildout while not overpaying existing projects**
- → **Get the right mix of technologies**
- → **Distribute costs in a fair and predictable way without market distortions**

BEYOND COMPLIANCE

BUILD ROBUST MARKET GOVERNANCE

Strategic clarity and predictability

- → **Embed capacity market in the strategic ecosystem of the country**
- → **Set out clear objectives and evaluate results against them**
- → **Build in structured review cycles but avoid erratic changes**

Transparency

- → **Independently verify capacity assumptions**
- → **Base derating factors on evidence**
- → **Transparently cooperate with neighbours**

No more gas plants than necessary

- → **Use mix of contract lengths to avoid sinking too much money in gas assets**
- → **Keep participants accountable to ensure awarded contracts materialize**

BIG PICTURE

IMPROVE WIDER MARKET CONDITIONS

Buildout of renewables

- → **Build wind power to limit significant gas dependency in the winter**
- → **Build solar and storage to decouple electricity from gas in the summer**

More system flexibility

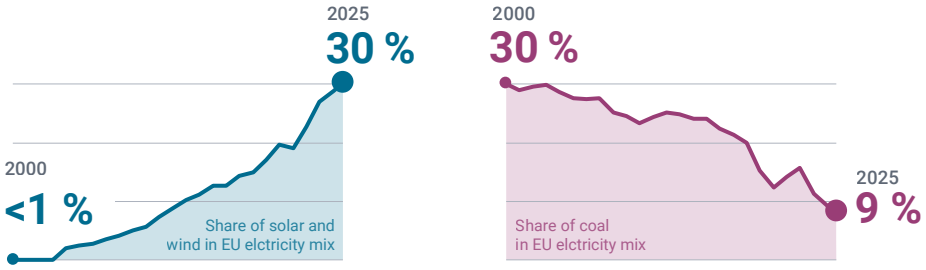
- → **Incentivise flexibility using smart metering and dynamic distribution tariffs**
- → **Consider state aid for boosting non-fossil flexibility**

1 Background

Energy transition driven by climate policy and declining costs of clean technologies are putting the energy market in many EU countries under strain. Old coal and gas plants, designed to provide baseload energy throughout the year, are economically struggling in these new market conditions. Solar and wind produce power at zero marginal cost and thus push coal and gas out of the market, gradually decreasing their yearly capacity factors. In an energy-only market, this means less revenue.

FIGURE 1

While solar and wind energy grew 30× in the last 25 years, coal has fallen down to one thrid



Source: Ember Yearly Electricity Data

Investing in new, dispatchable generation capacity is expensive and risky. In theory, an energy-only market should be sufficient to incentivise investment. Periods of scarcity drive the wholesale power price up, allowing for dispatchable power plants to turn a profit even while working for a few hundred hours a year. In reality, however, governments are wary of excessive price spikes and protect customers from them using price caps. This results in the so-called "missing money" problem – possible revenue from the energy-only market is not enough to justify investments given rapid changes in the energy system, geopolitical risk, and technological uncertainty. This all means that not enough dispatchable power plants are being built (while older plants are closing, notably the coal-based ones).

Dispatchable power sources (gas plants, batteries and other forms of storage) **will however remain necessary for the foreseeable future** to ensure electricity is available whenever consumers need it. EU countries are considering other ways to attract investment in new energy sources – and a growing number of them are using capacity mechanisms to do the job.

1.1 What are Capacity Mechanisms

Capacity mechanisms are policy tools designed to pay energy producers not only for delivering power into the system, but also for being ready to do so whenever needed. Capacity mechanisms can be broadly categorised into two types:

- → **Strategic reserves** (used by Germany, Sweden, Finland) – a targeted mechanism in which the Transmission System Operator (TSO) pays an existing energy producer (typically a fossil fuel power plant) a yearly fee to remain available in case of a critical situation. This fee basically finances fixed costs such as wages and maintenance. In exchange, the power plant cannot sell energy on the main energy market, it is producing only when activated by the operator. That is why it is sometimes referred to as a "cold" reserve. The participating facilities are selected by the TSO, usually from power plants that were scheduled for closure and are often fully depreciated.
- → **Capacity market** (used by the United Kingdom, France, Ireland, Italy, Belgium, Poland, newly approved in Spain, and prepared in Germany, Greece, and Czechia) – a range of market-based mechanisms where capacity providers compete in auctions to provide capacity for a specified period. The TSO selects the power plants that require the lowest yearly remuneration, called capacity payment. Unlike in strategic reserves, the selected power plants continue to trade on the main electricity market. However, in exchange for the capacity payment, they are legally obligated to offer the contracted capacity on the electricity market during system stress periods (such as winter peak demand periods).[1]

Choosing the type of mechanism to use involves trade-offs. Strategic reserve is typically limited in scale and cannot incentivise the construction of new power plants. Furthermore, the selection process is discretionary and can be subject to political pressure, such as extending the life of an ageing plant solely to protect jobs. Conversely, capacity markets actively incentivise building new power plants and drive down per-unit costs through competitive bidding. However, they are complex and difficult to design. Existing capacity markets also undergo frequent revisions.

How capacity contracts work in practice. To understand how these mechanisms function over time, consider the lifecycle of a capacity contract targeting a specific year (e.g. 2032):

1. **Securing the contract (e.g. 2027)**: The TSO selects suitable power plants (capacity providers) – either directly or via auction – and enters into capacity contracts. In a capacity market, this typically happens several years ahead to allow enough time for new power plants to be built.
2. **Operational power plant (up to 2032)**: By signing the contract, each selected provider is bound to actually deliver the capacity in the target year – meaning they must maintain an operational power plant by 2032. According to the contract, the TSO can test this readiness and issue steep fines if the provider fails to comply.
3. **Capacity payment and delivery (2032)**: In exchange for their constant availability, providers receive a fixed annual capacity payment during the delivery year. This mechanism is funded by electricity consumers through a regulated grid tariff, the cost of system adequacy is thus borne across all end-users.

Contract duration and investment certainty. The duration of these contracts varies significantly depending on the policy goal. For strategic reserves, contracts are typically signed for just 12 months and renewed annually. This short horizon is sufficient because the goal is simply to retain existing plants that do not require long-term financial certainty.

1 Formally, capacity providers have to offer their capacity on the electricity market during the so-called delivery period which is defined in the capacity contract and covers more than system stress periods.

In contrast, capacity markets can offer much longer terms – often up to 15 years for new infrastructure. This extended horizon is crucial for developers to mitigate investment risk and secure bank financing when constructing new assets. In this scenario, a single auction outcome commits the TSO to making annual capacity payments for the whole 15 years, while binding the provider to operate the plant for that entire period.

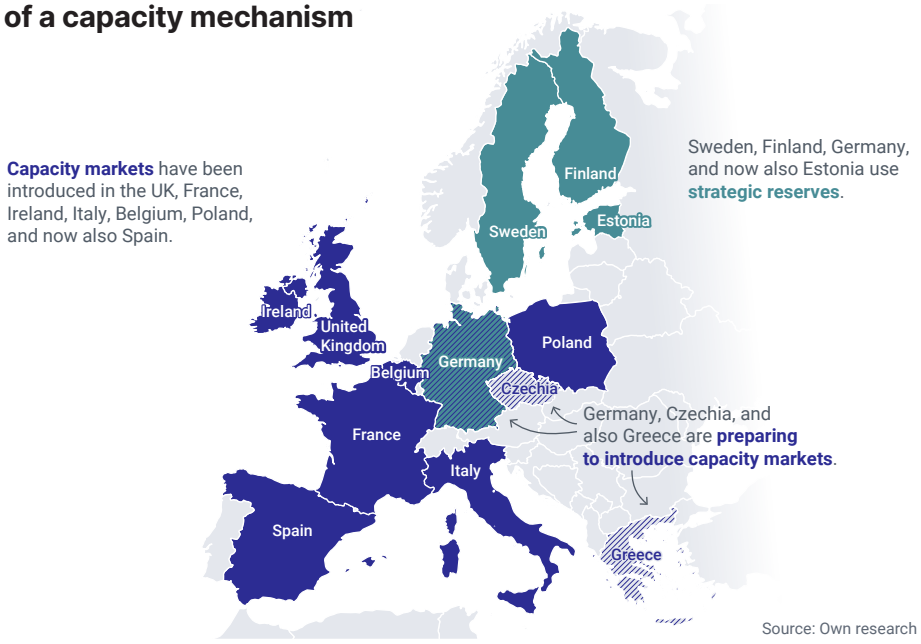
1.2 Overview of Capacity Mechanisms in the EU

Currently five EU countries have operational capacity markets, while a further three operate strategic reserves. The UK was the first country in Europe to implement the capacity market in 2015, which is still operational to this day.

Some other EU countries are moving to introduce capacity mechanisms. Under EU law, such measures are considered state aid, and therefore require approval by the European Commission. Estonia's strategic reserve legislation has been approved by the Commission in 2025 and will come into effect in 2026. Just recently, the Commission has approved a new capacity market in Spain.[2] Similar mechanisms are being negotiated in Greece, Germany and Czechia.

FIGURE 2

Many European countries use some form of a capacity mechanism



Source: Own research

Ultimately, capacity payments involve serious money. As of the beginning of 2025, an estimated €87bn has been contracted under capacity mechanisms in Europe. Nearly half of that amount has been assigned to gas-fired power plants, and further 8% to coal plants (mostly in Poland). Battery storage received 13% of capacity contracts, with nuclear, hydropower, biomass, and demand-side response sharing the rest.[3]

CISAF: unifying rules. In 2025 the European Commission announced the Clean Industrial Deal State Aid Framework (CISAF). The aim of this communication was to simplify and speed up the state aid approval process for measures supporting investments in industry modernisation and decarbonisation. Capacity mechanisms are also included under CISAF and thus can be now approved by the Commission in a fast track process. However, they have to adhere to a so-called target model, a set of design rules specified by CISAF.[4]

2 European Commission (2026), Commission approves €9 billion Spanish capacity mechanism for security of electricity supply
3 Aurora Energy Research (2025), Capacity remuneration mechanisms in Europe
4 These rules learn from experiences with existing capacity mechanisms across the EU and aim to make the mechanism as compatible with the EU energy market and climate goals as possible.

1.3 Does Czechia need a Capacity Market?

Czechia is not at the forefront of the energy transition in Europe. Uptake of renewables is slow – in 2024, the country produced 17% of electricity from renewable sources, compared to 47% for the whole of the EU.[5] It is lagging behind in energy storage[6] and smart meter deployment as well.[7] It also has one of the highest shares of coal in energy production, second only to Poland.[8]

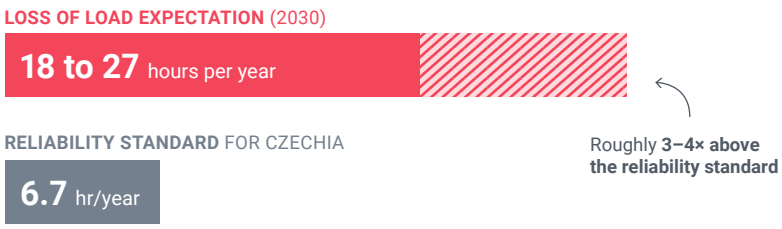
However, the situation is changing rapidly with a looming coal phase-out. The economic case for further operation of coal plants is weak, given high EU ETS costs and competition from renewables on the domestic market and abroad. In the following years, Czechia thus has to replace the majority of its coal capacity which in 2024 provided close to 40% of electricity in the country.

New dispatchable power plants, such as gas plants, are not being built. As explained earlier, revenues from the energy-only market are not enough to justify investments. Without sufficient investments, Czechia might run short of dispatchable capacity in the following years.

As a result, **Czechia is facing significant resource adequacy concerns** when it comes to its power system. Regular grid modelling for the coming years shows concerning results for Czechia. Specifically in the ERAA 2025 study,[9] the country ranks among the EU nations with the highest **LOLE values** (Loss of Load Expectation) for the year 2030 – estimated at 18–29 hours per year. This metric represents the total hours per year during which the grid may be unable to meet electricity demand, forcing the operator to curtail consumption (primarily in industry).[10] This figure is roughly 3 to 4 times higher than the reliability standard set for Czechia, which stands at 6.7 hours per year.

FIGURE 3

Czechia has one of the highest LOLE values for 2030 among European countries



Source: ENTSO-E, ERAA 2025

The capacity market aims to solve this problem by providing financial incentives for constructing new dispatchable power plants. While introducing a market intervention of this scale carries significant costs, Czechia has no other viable option to secure resource adequacy in the short-term.

Relying on electricity imports from neighbouring countries is risky, as a region-wide winter drop in wind and solar production puts the whole region under pressure. It is not clear there would be any electricity to import. Similarly, while batteries and flexible demand are expanding, they are designed for short hourly bursts – not for sustaining the grid through a week-long winter freeze. Furthermore, simply keeping unprofitable coal plants online through state bailouts is strictly forbidden by EU State Aid rules due to their high emission factor.

5 Eurostat (2026), Energy in Europe – 2026 edition
6 JRC SES, European Energy Storage Inventory [Accessed: May 2026]
7 ACER (2024), Market Montoring Report: Energy retail - Active consumer participation is key to driving the energy transition: how can it happen?
8 Ember (2026), European Electricity Review 2026
9 European Resource Adequacy Assessment performed by ENTSO-E – association of operators that manage Europe's interconnected energy grid.
10 Technically, LOLE is an average duration of loss of load per year across a wide range of simulated scenarios. These scenarios have varying weather patterns affecting renewable generation and demand for electricity, unplanned outages, etc.

2 How to Deliver a Successful Capacity Market in Czechia

A capacity market is likely unavoidable for Czechia. This reality is recognised by the Czech government, which aims to launch the first auctions before the end of 2026.

However, introducing a capacity market means adding a new, regulated charge to every citizen's and industry's electricity bill. Therefore, **"successful implementation" cannot simply be measured by whether new gas plants get built. True success must be defined as achieving maximum value for money.**

In public policy terms, this means buying the minimum necessary insurance to hit the 6.7-hour national reliability standard at the lowest possible cost to consumers, while ensuring this temporary fossil-fuel safety net does not derail Czechia's long-term energy transition targets.

The table below illustrates this "value for money" dilemma: the core objective of a successful design is to maximise strategic benefits while mitigating the associated economical and environmental risks.

The capacity market value proposition

THE BENEFITS (WHAT IS CZECHIA BUYING)

- ⊕ **Security of Supply:** Eliminating structural supply deficits and protecting industry from forced consumption curtailment or extreme price spikes.
- ⊕ **Cost control via competition:** Using transparent, competitive bidding auctions to drive down the per-unit cost of capacity.
- ⊕ **Capital for clean flexibility:** Fixing the "missing money" problem for low-carbon technologies, allowing batteries and industrial Demand Side Response (DSR) to compete.
- ⊕ **Market incentive for flexibility:** Sending a price signal towards flexibility of consumption that can help reduce system strain in peak hours.

THE RISKS (WHAT CZECHIA MUST AVOID)

- ⊖ **Inflated consumer bills:** Excessive overall costs if the auction design does not guarantee enough competition or over-compensates existing power plants.
- ⊖ **The risk of overbuilding:** Over-procuring capacity and paying for idle infrastructure due to overly conservative TSO demand forecasts.
- ⊖ **Market design failure:** High costs paired with a failure to actually secure resource adequacy due to flawed auction design.
- ⊖ **Fossil gas lock-in:** Supporting a prolonged gas lock-in that jeopardises decarbonisation goals by over-subsidising fossil infrastructure.

In this chapter, we outline the concrete steps required to ensure the Czech capacity market delivers this value for money. First, we examine the strict EU State Aid rules that will dictate the boundaries of the market's design. Second, we propose specific national considerations to ensure the auctions remain efficient, fair, and transparent. Finally, we look at the broader energy market reforms needed to ensure this mechanism serves as a temporary bridge, rather than a permanent burden on Czech consumers.

CURRENT FOCUS

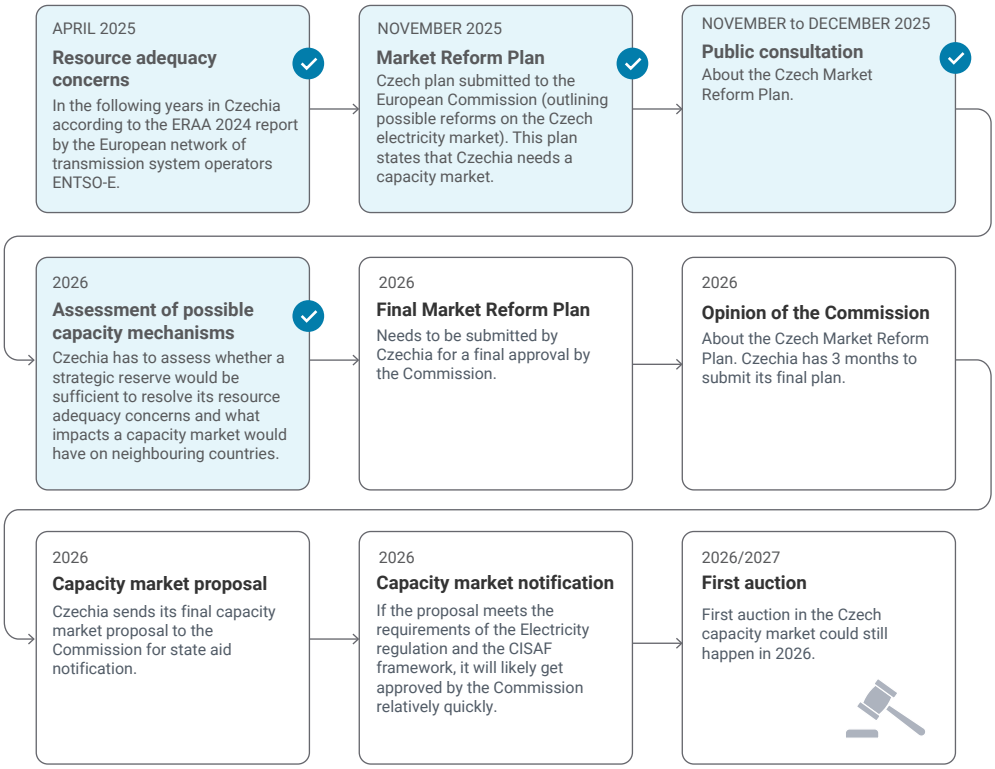
2.1 Set up a Capacity Market Compliant with EU Rules

This is the most pressing aspect for the Czech government: getting notification for the capacity market, setting up the first auctions, and running auctions successfully – thus securing resource adequacy in Czechia for the years after 2030.

Getting state aid notification is the first step. Capacity mechanisms indeed meet the criteria to be considered state aid under EU law: it is provided through the State, it is selective, it affects trade between countries, and can distort competition.

Czechia is preparing a capacity market using the fast-track process of CISAF. The adoption procedure is presented in the diagram below:

FIGURE 4 **Steps towards notification of the Czech capacity market**



Conditions of CISAF. The CISAF communication outlines specific conditions (called "target model") that a capacity market has to meet in order to get accepted. Most important conditions are summarised below, the full list can be found in Annex I of CISAF.[11]

→ **The capacity market needs to be necessary.** The Member State needs to prove that an adequacy problem exists and that other means are not sufficient to solve it. This condition has already been met by Czechia. European Resource Adequacy Assessment (ERAA 2024) found breaches of Czech reliability standards for every target year of the study.[12] Czechia has also submitted the Market Reform Plan and received an opinion from the Commission – the updated version of the plan needs to be submitted at the latest 3 months after the Commission greenlights the capacity market. Czechia still needs to prove that a strategic reserve will not be sufficient to resolve the adequacy concerns – this analysis will likely be part of the capacity market proposal.

11 Communication from the Commission – Framework for State Aid measures to support the Clean Industrial Deal (Clean Industrial Deal State Aid Framework), C/2025/3602

- → **Capacity needs must be calculated based on ERAA central reference scenario.** This is to prevent overbuilding of infrastructure (with excessive cost for consumers).[13]
- → **The capacity market needs to be open and competitive.**
  - → All technologies should be allowed to participate if they meet emission limits.[14] While that in practice excludes lignite power plants, it includes various types of gas plants, hydro, biomass, nuclear, batteries, pumped hydro, demand side response, etc. As technologies differ in their contribution to resource adequacy, their nominal capacity should get normalised using so-called **derating factors** (see the box below for explanation).
  - → The capacity market must be open both for existing and newly built power plants (to guarantee fairness to all market participants).
  - → The market must be open to cross-border participation (existing and new power plants from neighbouring countries up to limits allowed by the capacity of interconnection with these countries).[15]
- → **Capacity contracts should be allocated via an auction.** CISAF provides strict guidelines concerning the bidding process specifics, e.g.:
  - → Type of auction (all winning participants are awarded the clearing price; this system is called payed-as-cleared)
  - → Length of contracts (preferring one year contracts, maximum 15 years for investment-intensive fossil fuel assets)
  - → Auctioning timelines (75–90% of the capacity should be auctioned 4–6 years ahead, which makes it more open to new buildout; the remaining capacity should be contracted through an adjustment auction closer to delivery)
- → **Peak-hour consumption should bear most of the capacity market costs.** End consumers of electricity should pay most of the costs (at least 90%) for their consumption during peak hours (1–5% of highest priced hours of the year). This is to encourage reducing demand during these hours to reduce stress on the system which, in the long-term, should decrease capacity needs and the overall costs of the capacity market.

DERATING FACTORS: HOW DIFFERENT TECHNOLOGIES COMPARE

Derating factors in capacity markets adjust a facility's nominal capacity to reflect what it can reliably deliver during grid stress periods. For example, a gas plant can run almost continuously, earning a derating factor of over 90%. Conversely, a battery typically receives a lower factor (10% to 60%, depending on the methodology and discharge duration) because its limited discharge duration may not cover the entire duration of a shortage.

Auctions only consider this derated capacity. For instance, a 60 MW battery with a 30% derating factor is treated as an 18 MW asset – matching a 20 MW gas turbine with a 90% factor. Because both are assumed to provide the same reliable grid capacity, they receive identical payments. Consequently, to win the auction, the battery must be three times cheaper per nominal megawatt than the gas plant.

12 Before ERAA 2024 (approved in April 2025), it was hard for the Czech government to argue for the necessity of a capacity market as previous ERAA studies did not show adequacy problems in Czechia.

13 Eurelectric argues in their recent position paper that national reports (NRAAs) should also be allowed if any divergence is justified according to existing legislation. Eurelectric (2026), Meeting adequacy needs in a modern electricity system: Design principles for Capacity Remuneration Mechanisms.

14 The emission limits are specified in the Electricity Regulation: These limits are 550 gCO_2/kWh for newly built units, and 350 kg CO_2 annually per installed kW for existing units. Apart from emission limits, the capacity market also cannot be used to support a company that would not survive without state support (so called "undertaking in difficulty").

15 Technical details are specified in an ACER methodology: ACER (2020), Technical specifications for cross-border participation in capacity mechanisms.

OBJECTIVE

Successful First Auction

The requirements of CISAF present a few major challenges for successful implementation. Here we focus on three of them.

Incentivise New Buildout While Not Overpaying Existing Projects

The combination of a single major auction slot for both new and existing plants with pay-as-cleared remuneration makes it challenging to not overcompensate existing power plants (nuclear, hydro or gas).

The auctions in Czechia will only be successful if they incentivise building new power plants that are needed to phase-out coal. New gas plants need significant capacity payments to get built out, which pushes the clearing price up. At the same time, existing nuclear, hydro, and gas plants do not need any payments to keep operating and may end up getting overcompensated by this high clearing price. Thus the risk is that way too much money gets spent overall on building a bit of (gas) capacity.

To circumvent this issue, some **clawback mechanisms** to reduce overcompensation must be set up (which is possible with CISAF). In simple terms, a clawback mechanism forces a plant operator to return some of the profits above a certain threshold. Still, it is tricky to set up right: to limit overcompensation while not discriminating against existing power plants by harsh clawback mechanisms that would effectively exclude them from the capacity market. If existing plants do not enter the auction, it may end up being a failure too (if capacity needs are not decreased accordingly, too much new capacity may get contracted, possibly with weak competition and higher clearing price).

Czechia should play it safe for the first auction with only moderate clawback. As existing plants get only 1-year contracts, the negative impact of insufficient clawback mechanisms is low. Conversely, the harm of setting them too harsh is potentially high (risking grossly wrong outcomes).

Get the Right Mix of Technologies

The Czech resource adequacy problem is different from the ones in Spain, Belgium, or the UK. Due to systemic lack of wind power,[16] Czechia needs baseload and mid-baseload generators for the winter months with higher electricity consumption. Only gas power can realistically meet most of these needs in the short-term (despite its clear drawbacks related to energy security and climate). While enhancing flexibility (with new battery systems or increased demand side response) is also very beneficial for the grid, it can only play a limited role in securing capacity.

Under CISAF, this complex question of the right mix gets reduced into a single auction slot where technologies are usually normalised using static derating factors. **This setup usually results in a 1-0 mix:** either almost all contracted new-built capacity gets supplied by gas power (as in most auctions in Europe up to date) or almost all contracted new-built capacity gets supplied by battery systems (as in two auctions in Poland supported by inappropriately high derating factors). Both outcomes are suboptimal. A better and fairer solution is to use **dynamic derating factors** that account for the saturation of energy storage, in literature called marginal ELCC (Effective Load Carrying Capability).[17] In practice, the auction software uses a downward curve: the more batteries that win capacity contracts in a given slot, the lower the derating factor becomes for the next battery in line. This reflects its diminishing marginal contribution to grid reliability.

Czechia should use a fair computation of derating factors based on ACER methodology, ideally using marginal methods (such as ELCC). Because Czechia needs to build up substantial new capacity, truly dynamic derating factors should be considered.

16 Lack of wind power in Czechia is caused mainly by extremely complicated and long permitting processes, lack of support schemes between 2013 and 2022, and also by geographical limits.

17 Marginal ELCC is used in capacity auctions in some US markets and partially in the UK,Ireland, and recently in Poland.

Distribute Costs in a Fair and Predictable Way Without Market Distortions

Under CISAF, costs must be attributed to a fraction of hours with the highest electricity prices. As Czechia does not have time-of-use tariffs yet, this creates a challenge how to set it up and explain to consumers. One can think of several approaches:

- → **These hours can be selected in a simple and predictable way.** For instance, hours with wholesale prices above a fixed threshold get a fixed regulated capacity surcharge per MWh. Nevertheless, this binary approach is not truly **fair** as it does not truly reflect the situation in the grid (i.e. stress of the power system that corresponds to actual capacity needs).[18] Thus the incentive it sends may not lead to lower capacity needs in the long term. This strong binary signal may also **distort the energy market** in hours close to this threshold.
- → **This simple approach can be extended with progressive pricing,** i.e. the higher the wholesale price, the higher the capacity surcharge (according to a fixed simple function). Such progressive surcharges still would not truly reflect the actual stress of the power system but might alleviate the market distortion.[19]
- → **These hours can be selected dynamically** to reflect the real system stress**.** For instance a more complicated algorithm can run every day to define the progressive capacity surcharges for the day ahead, based on estimated system stress (e.g. based on remaining unused generation capacity at the moment – the less remaining capacity, the higher the surcharge[20]). This is complex and hard to explain to consumers, especially in Czechia, who may have no experience with dynamic network tariffs. It is also hard to reconcile with CISAF: a definition based on system stress may not map well enough to the required 5% of hours with the highest prices.

All these approaches have another **minor problem with fairness**: rollout of smart meters in Czechia is far from complete. Around 2030, when the market is expected to start operating, most consumers with low electricity consumption (below 6 MWh/year) might still lack smart meters. These consumers cannot lower their capacity surcharges by adjusting their consumption profile. In the end, they may bear a slightly disproportionate part of the costs of the capacity market. This can be addressed by giving them the benefit of the doubt, slightly lowering their capacity fees (as if they adjusted their consumption profile a bit). Either way, this should only be a short-term issue that will be solved by a complete rollout of smart meters.

Czechia should find the right balance between complexity and fairness. One fixed price threshold is however not fair enough and risks distortions on the energy market.

18 Actually, wholesale prices do not correlate well even with high capacity needs. Summer peak hours in Czechia have high prices even though capacity needs are much lower than in the winter. This also does not work with volatile gas prices: electricity prices were extreme (but capacity needs low) during the peak of the past gas crisis in August 2022, as pointed out by Eurelectric in their position paper: Eurelectric (2025), Proposed amendments to Clean Industrial Deal State Aid Framework (CISAF).

19 This holds true especially if the surcharge function is continuous. This means that the surcharge starts at zero and increases without any discrete jumps (that would distort motivation of market participants).

BEYOND COMPLIANCE

2.2 Build Robust Market Governance

CISAF and Electricity regulation provide strong guidelines for implementing a capacity market, but they still leave many policy decisions to the Member States. From a broader energy policy perspective, more can be done to increase the chances of the market being successful. These are not formal conditions for the measure to be accepted by the European Commission, but rather design principles that stem from previous successful capacity markets and from literature.

OBJECTIVE

Strategic Clarity and Predictability

Embed Capacity Market in the Strategic Ecosystem of the Country

The capacity market should be closely aligned with the energy strategy of the state, and with economic strategies more broadly. The amount of capacity needed will depend on the energy mix, demand from the industry and households, and economic and demographic development. High quality strategies can help the administration understand the development of these factors and their impact on the energy market. They also inform decisions of policymakers concerning disbursement of public funds and regulation incentives.

However, the landscape of Czech government strategies is unclear. The energy strategy of Czechia, Státní energetická koncepce (2015), is outdated and should be updated or replaced. In the meantime, the more up-to-date vision of development of the Czech energy sector can be found in the National Energy and Climate Plan (NECP, 2024). Economic strategy of the Czech Republic, Hospodářská strategie Česko: Země pro budoucnost 2.0 (2026), is also relevant, as the capacity market contributes to some of its goals concerning energy security. However, the newer economic strategy in some aspects contradicts the older NECP. Further sectoral strategies under the supervision of the Ministry of Industry and Trade and the Ministry of the Environment should also be taken into account.

Capacity market is a long-term measure and requires clear long-term strategies. One aim is to reconcile strategic goals for the short term: to secure resource adequacy during coal phase-out. However, the capacity market will have long lasting impacts on the power sector: just the first auction may determine capacity payments up to 2045.[21] In this long horizon the Czech strategies are the most unclear or even divergent: How much new nuclear capacity will get built and when? What is the desired energy mix in the meantime? How much new gas capacity does Czechia need? These questions need to be clarified.

Set Out Clear Objectives and Evaluate Results Against Them

Objectives are the basis for a well-functioning capacity market. Without clear goals it is nearly impossible to evaluate whether or not the mechanism is functional. The objectives should be based on the broader strategy and should follow standard good practice.[22]

The primary objective of a capacity market is ensuring security of supply, but

20 This is similar to how administrative scarcity pricing works on some European balancing markets.
21 Capacity contracts for gas may be up to 15 years long and be auctioned 4–6 years in advance.
22 Such as being SMART – Specific, Measurable, Achievable, Relevant and Time-bound.

this needs to be well defined. Estimated LOLE can be a useful measure – the indicator of a capacity market functioning well can be bringing the estimated LOLE value down to Czech standards (6.7 hr/year) within the first years of the mechanism's functioning, and maintain it at that level for its entire duration. Typically, LOLE values are estimated for the forthcoming winter, based on modelling of the energy system. The modelling is conducted by the TSO as part of their work on ensuring reliability of energy supply. When the capacity market functions well, it should improve the reliability of the system, bringing the LOLE value down.

Other objectives apart from security of supply can be relevant. The British capacity market set out three objectives: security of supply, cost-effectiveness, and avoiding unintended consequences. Cost-effectiveness can be measured by analysing the clearing price of capacity auctions, comparing it with neighbouring countries, and tracking its development over time. Unintended consequences can be identified via tracking how the energy market functions (market distortions, manipulation, concentration).[23]

Build In Structured Review Cycles but Avoid Erratic Changes

Capacity markets are complex and can be influenced by a large number of factors, from technological breakthroughs to geopolitics. Even the most carefully designed markets will go through many changes during their existence.

Revisions and evaluations should be embedded in the design itself so that stability and predictability for market participants and the public are ensured. The government or the TSO should be obligated to evaluate the market in regular cycles (for example a report every year and an in-depth evaluation every 5 years). Revisions should be announced in advance and major changes should be consulted. All revisions should be guided by clear design principles of the market that do not need to change over time. This recommendation cannot be fully implemented without clear, measurable objectives, and a commitment to transparency.

Czechia should define strategic short-term and long-term goals and clear objectives for the capacity market. Czechia should also define review cycles for the market, including in-depth evaluations.

23 Department for Energy Security and Net Zero (2024), Capacity Market – the Ten Year Review

OBJECTIVE

Transparency

The capacity market can benefit from being transparently managed. Not everything needs to be publicly available: proprietary modelling, sensitive data on energy security, and industrial data should be kept confidential. However, allowing access to modelling assumptions, running targeted and open consultations and communicating with the industry can help avoid mistakes and build confidence of market participants. Openness can also help with public acceptance of the mechanism, which is relevant given that in the end, the consumers will bear the costs.

Independently Verify Capacity Assumptions

Setting correct targets for capacity is where transparency matters the most. Contracting the correct amount of capacity is one of the biggest challenges when designing a capacity market. Too much capacity leads to overbuilding of infrastructure, excessive costs and can undermine emission reduction goals. Too little capacity threatens security of supply and may necessitate additional intervention or frequent revisions of the market. Historically, capacity market designers have been prone to contract excess capacity – energy ministries and TSOs have incentive to prioritise security of supply over other concerns, such as cost-effectiveness, affordability, or environmental and climate goals.

EU rules introduce some safeguards against overbooking of capacity, namely forcing Member States to use the reference scenario from ERAA. These safeguards can be strengthened by opening the capacity assumptions to scrutiny from independent experts. In the UK, the Panel of Technical Experts, consisting of academics, assesses the target capacity proposed by the TSO (incl. the modelling and its assumptions) and publishes recommendations, usually suggesting lowering capacity goals.[24]

Base Derating Factors on Evidence

Derating factors in capacity mechanisms allow to differentiate between technologies participating in the auctions based on how much capacity they are actually able to provide during scarcity periods, compared to their nominal capacity.

EU rules leave the setting of derating factors to the national regulatory authorities. The process for establishing derating factors in existing mechanisms varies significantly. For example, in Poland the derating factor for batteries in an auction for 2028 was set at 95% - higher than for gas plants, which are much more flexible. The following year, at an auction for 2029, the value for battery storage was set at 12,33% - significantly lower than in capacity markets in other countries. Neither value was supported by a publicly available modelling. In contrast, the Belgian capacity mechanism uses a consistent and publicly available methodology to determine derating factors for all technologies, based on historical data and scenario analysis. The methodology is adjusted before each auction to reflect the new data and the results are published in an official journal.

Transparently Cooperate with Neighbours

Capacity markets are developed by Member States. EU rules, such as CISAF and Electricity Regulation, provide guidelines on the design of the mechanism, but wide differences between countries remain. With an interconnected grid, a capacity mechanism in one country can impact the energy market of the other country. Czechia has a relatively high cross-border transmission capacity, so the impact both from the future Czech capacity market on the neighbours and from the existing (Polish) and proposed (German) capacity markets on Czechia

24 Scott, D., Claeys, B., and Pató, Z. (2023), Capacity markets – six mitigations for six drawbacks, Regulatory Assistance Project

can be significant. For instance, independent calculation of capacity needs (without counting in other new markets) can lead to overinvestment.

In the absence of full harmonisation of capacity markets in the EU (which is unlikely in the near future), regional cooperation can be a useful tool to improve effectiveness and increase competition. Transparency of modelling input data can help with cross-border adjustments. Dialogue with stakeholders should also involve stakeholders from neighbouring countries. Sharing experiences and best practices can improve setting crucial parameters of capacity markets (such as derating factors) using an aligned methodology.[25]

Czechia should be transparent in all the modelling supporting the auctions. Both the input data and methodology for capacity needs and derating factors should be public.

25 Framework on improving regional cooperation between capacity mechanisms was proposed last year by the Brussels-based think tank Bruegel: Holmberg, P., Maurer, C., Morawiecka, M, Roques, F., and Zachmann, G. (2025), Europe's electricity capacity mechanisms need to be better coordinated, Policy Brief 30/2025, Bruegel

OBJECTIVE

No More Gas Plants than Necessary

Use Mix of Contract Lengths to Avoid Sinking Too Much Money in Gas Assets

Another crucial parameter of the market is the length of capacity contracts. Longer contracts can be beneficial, ensuring stability and lowering risks for investors, especially for capital-intensive gas power plants. It has very practical consequences, lower risks should translate to lower bids for capacity payments and to lower costs per year.

Excessively long contracts nevertheless decrease flexibility of the mechanism and can lock-in the energy system with potentially outdated technologies. Currently, natural gas plants are likely to capture a large part of newly built capacity. The future advancements in electricity storage, nuclear or even biomass may change that landscape. Czechia is 100% reliant on importing gas, and cementing its role in the energy mix for a long time exposes the country to geopolitical shocks and price volatility. The more capital is fixed into long-term contracts for gas assets, the more capital may be missing in the future for developing new, cleaner technologies.

EU rules prohibit capacity contracts longer than 15 years for fossil-fuelled installations. Additionally, contracts longer than one year can only go to installations requiring significant capital investment. **National rules can and should be stricter than these limits.**

Design of the capacity market should award a mix of long-term and yearly contracts based on market analysis and in proportion consistent with the national energy strategy. In the main auction, it is hard to control the mix. However, the ratio of long-term contracts mostly awarded to gas plants can be partly adjusted by the ratio of the capacity auctioned in the main process (CISAF allows setting this ratio between 75–90%) and the capacity auctioned in the adjustment process closer to the delivery window (10–25%).

Keep Participants Accountable to Ensure Awarded Contracts Materialise

Czechia should also make sure the absolutely necessary gas plants (and other assets) actually get built. This means making market participants accountable by having **clear verification procedures and fines in the market design**.

The rules for participation must exclude “paper projects” and ensure the contracted capacity is actually available. EU rules mandate significant non-availability penalties and testing of contracted capacity at least once per year. However, rules on pre-screening of participants are left for the Member States to decide. Aside from penalties, the mechanism can force participants to place security deposits, which can be recovered once the project is finalised. Deposits not only provide incentive for participants to make sure the investment is finished on time, but also weed out participants with insufficient financial stability.

On the other hand, excessive deposits and penalties can limit the range of participants and increase strike price. To complement financial penalties, capacity market participants should be pre-screened and projects may be required to be in an advanced stage of development (for example having secured environmental and administrative permits). Setting the fines and pre-screening conditions at an appropriate level will be challenging and will require market analysis and dialogue with the industry. First auction will likely necessitate less strict conditions to attract market participants – the results of the auction should be closely monitored and evaluated to refine conditions for the subsequent auctions.

Czechia should have strategic clarity on how much new gas capacity is strictly necessary, and set the parameters of the auctions to increase the chances to get as close to this target as possible. Significantly less would not allow safe coal phase-out, significantly more would be too expensive and deteriorate climate goals.

BIG PICTURE

2.3 Improve Wider Market Conditions

A well-designed capacity market can provide financing for much-needed investments and improve reliability of the Czech energy system. However, it is not a silver bullet and there are other measures that can complement it and make it more effective, cost-efficient, and also climate-friendly. These measures should be part of a broader energy strategy, of which the capacity market can be an important element.

OBJECTIVE

Buildout of Renewables

Good implementation of the capacity market can slightly decrease how much capital is locked into gas assets 5–20 years from now. However, it has very little impact on how much electricity actually gets produced from gas in these years, i.e. **how much gas actually gets burned** in the power sector. This is determined by wider market conditions. Lowering the amount of gas burned is absolutely crucial for lowering wholesale electricity prices, limiting Czech exposure to potential future shocks in gas prices and reducing emissions.

Build Wind Power to Limit Significant Gas Dependency in the Winter

The single most important driver for reducing future gas consumption in Czechia is **building more wind power**. Wind power is especially important because its production seasonally correlates the best with future electricity production from gas – it is stronger in the winter half of the year with higher electricity consumption. In this seasonal fit, wind power outperforms both nuclear and solar.

Build Solar and Storage to Decouple Electricity from Gas in the Summer

Thanks to rapidly declining costs for storage technologies over the past years, solar generation coupled with battery storage is also a viable option, mostly for offsetting gas in the morning and evening peak hours, but even partly during the night (in the summer half of the year). More solar capacity is also beneficial for limiting gas dependency in autumn and early spring.

It is not only about solar and wind, it is important to also expand renewables and storage in the heating sectors (ambient and waste heat, geothermal, biomass) and to expand production of advanced biomethane.

Czechia should speed up building wind and solar power (as well as renewables in the heating sector). Without these steps, the reliance of the Czech power and heat sector on imported gas in the 30s becomes a major risk for the wider economy.

OBJECTIVE

More System Flexibility

Capacity contracted through the capacity market is calculated to meet peak demand in periods of scarcity. An important way to save costs of the market is to reduce peak demand in these periods. This means less capacity has to be contracted. **This can be achieved by increasing system flexibility.**

The rules of CISAF make sure the market itself pushes towards more flexibility, most importantly by (a) explicitly including demand-side-response in the auctions (so that for instance industry can get rewarded for offering to reduce electricity consumption in scarcity periods), and (b) cost allocation only to hours with highest electricity prices.

However, there are many more measures to promote flexibility outside of the design of the capacity market. Here we list the most important ones.

Incentivise Flexibility Using Smart Metering and Dynamic Distribution Tariffs

Smart metering rollout will be important for the functioning of the capacity market. It is necessary for fair cost recovery consistent with CISAF rules[26] where real-time data on electricity consumption is necessary. But smart meters and dynamic tariffs have a more fundamental role to play in improving the flexibility of the energy system as a whole. They allow sending strong price signals to consumers.

- → Exposing consumers to extremely high prices incentivises them to adjust their consumption to reduce overall stress on the system.
- → Exposing consumers to extremely low prices incentives them to adjust their consumption to make good use of excess renewable electricity. It is not about doing the laundry at the right time at home, dynamic tariffs can unlock a wide range of new business models that are not possible otherwise, e.g.:
  - → **Flexible heating sector**: installing large heat pumps, electric boilers, and heat storage solutions
  - → **Cost-effective public slow-charging and vehicle-to-grid infrastructure**: without dynamic tariffs, public charging of BEVs has no chance to compete with home charging
  - → **Scaling demand flexibility aggregation business** to a larger scale of applications (e.g. smart charging of BEVs, behind-the-meter batteries, vehicle-to-grid solutions, home and industrial electric boilers, heat pumps, and HVAC systems)

Smart-meter rollout in Czechia is significantly slower than in most other EU countries. In 2023 (the latest available data) only 3% of households had smart meters installed – only Germany, Cyprus, and Bulgaria recorded lower rates[27]. By June 2027, all consumers using more than 6 MWh per year are supposed to be equipped with a smart meter – energy companies have to exchange the meters free of charge.[28] Average consumption of electricity by a household in Czechia is around 3 MWh, therefore this rollout wave still does not affect most households. The remaining ones still need to pay around CZK 5000 (€200) for the installation, which slows down adoption substantially.

26 As mentioned before, 90% of costs should be recovered during 1–5% of highest price hours on the wholesale market.
27 ACER-CEER, 2024 Market Monitoring Report. In the 2025 edition of the Market Monitoring Report, the National Regulatory Authority of Czechia did not provide data on smart meter rollout.
28 This is mandated by the Czech Electricity Metering Decree (No. 359/2020 Coll.).

The decree mandating installation of smart meters only for large consumers dates back to 2020 and it was based on a cost-benefit assessment from 2016. The accelerating energy transition itself constitutes a valid reason to revisit the assumptions that were behind that decision – especially given that most EU countries opt for a wider rollout of smart meters. The European Commission, in its opinion on the Czech Market Reform Plan, recommended carrying out a new cost-benefit analysis by the end of 2026 at the latest.[29]

Czechia has no truly dynamic distribution tariffs at the moment.[30] As reforming the tariff structure takes time and is politically sensitive (especially for the household sector), the process of introducing dynamic tariffs should start as soon as possible. Otherwise, it will not bring benefits before the capacity payments start. More details can be found in a recent detailed study on time-of-use tariffs in Czechia.[31]

Aggregation of demand side flexibility is an important business that can help scale system flexibility. This business reached an important milestone in 2025 when the energy law got updated (called Lex OZE III). Namely, new provisions were included to properly define aggregation and all the tricky technical details to make it functional on the electricity market. The rules go into effect at the beginning of 2027, so it will only be possible to evaluate the success of the regulation in a few years. As mentioned above, rollout of smart meters and introduction of dynamic distribution tariffs would help this business model significantly.

Consider State Aid for Boosting Non-Fossil Flexibility

Clean flexibility technologies, such as battery storage or demand side flexibility, can participate in capacity markets. However, most of the support so far has been directed to fossil fuel assets, mainly gas. Specific support schemes for other technologies are possible under CISAF, so called Non-fossil flexibility support schemes. These measures can support battery storage, other forms of energy storage (such as pumped hydropower or heat storage), and demand flexibility.

Czechia has already introduced a similar measure under the predecessor of CISAF – Temporary Crisis and Transition Framework, which was the Commission's response to the energy crisis caused by the Russian invasion of Ukraine. The mechanism provides CZK 7bn (€300m) from the Modernisation Fund for battery storage projects attached to the transmission and distribution grid. While this project is a good start, more financing should be considered, including for distributed storage for households, industry and heating systems, which can reduce stress on the power system during daily demand peaks.

Czechia should set up the necessary conditions for flexibility before 2030. Flexibility can cut costs of the capacity market (especially when current estimates of future capacity needs count with future flexibility). Flexibility can also make better use of existing grids and cut network costs.[32]

29 European Commission (2026), Commission Opinion of 12.3.2026 pursuant to Article 20(5) of Regulation (EU) 2019/943 on Czechia's implementation plan
30 Apart from the legacy dual-rate tariffs switched through the ripple control system.
31 Frank Bold (2026), Chytré tarify, efektivnější síť (in Czech only)
32 Flexibility allows distributing more electricity (per year) through the limited infrastructure, thus decreasing the pressure to invest billions of EUR into reinforcing Czech grids. As a result, it can lower overall distribution costs per MWh of consumption.

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