

# Generating Electricity from Renewable Sources in CEE & SEE

Energy Industry Group

## Czech Republic

# Wolf Theiss

## Country General Information

### Capital: Prague

**Location:** Situated right in the heart of Europe, the Czech Republic is bordered by Slovakia, Austria, Germany and Poland. It lies mostly between latitudes 48°N and 51°N and longitudes 12°E and 19°E.

**Surface:** 78,866 km<sup>2</sup>

**Population:** 10,880

**Climate:** temperate continental-oceanic climate with four distinct seasons.

**Resources:** The Czech Republic has abundant natural resources, thanks to its geographical diversity – from mountains surrounding the country, streams and rivers, to its geothermal areas, basins, forests, glacier lakes, ponds, etc. Natural resources include large reserves of coal, some natural gas and petroleum reserves, limestone, kaolin, limited deposits of metallic ores (lead, zinc, uranium, tin and graphite). Forestland covers a third of the country's surface area, making wood an important export.

**Electricity Grid:** The Czech electricity grid is divided into two parts according to voltage: the transmission grid (400 kV and 220 kV) and the distribution grid (110 kV, 22 kV and 400 V). The transmission grid has a total length of 5,769 km and is part of the continental European grid system.

**Electricity Transmission, Distribution and Supply:** The Czech high-voltage transmission system (400 kV and 220 kV) is operated by ČEPS, a.s., a company whose sole shareholder is the Czech Ministry of Industry and Trade. The regional distribution system (110 kV and lower) is operated by three companies: PREDistribuce, a.s., EG.D, a.s. and ČEZ Distribuce, a.s. Additionally, private operators may create local distribution networks, through which multiple end-users can be connected to the regional distribution system via a single connection point. These local distribution networks are often located in commercial and residential zones, shopping centres, industrial and business premises.

**Official Language(s):** Czech

**EU Member:** since 1 May 2004.

**NATO Member:** since 12 March 1999.

**United Nations Member:** A founding member of the United Nations as one of the two legal successor states of Czechoslovakia. As Czech Republic, it has formally been a member since 19 January 1993.

**Currency:** Czech crown (CZK). The Czech Republic is committed to joining the eurozone once it meets all necessary criteria (which is not the case now). However, the Czech Republic will itself decide when it enters the eurozone, a decision it has not yet taken.

**Schengen:** The Czech Republic is part of the Schengen area.

**Political System, Administrative Organisation and Economy:** The Czech Republic is a parliamentary republic with the Prime Minister as head of the government and the President as head of state. The country is divided into 14 regions, one of which is the capital city of Prague. The Czech Republic has a developed, service-based economy, yet also focused on industry, mainly in the area of transportation.

## 1. Defined Terms for the Main Permits Required for RES-Facilities

<b>Authorisation for the Construction of a RES-Facility</b>	Authorisation granted by the Czech Ministry of Industry and Trade. Any RES-Facility with a total installed capacity of above 1 MW must obtain this authorisation before obtaining Project Approval.
<b>Connection Agreement</b>	Agreement between the grid operator and the electricity producer, which states that all technical parameters have been met and connection to the public electrical grid will be granted.
<b>Electricity Production Licence of RES-Facilities</b>	Administrative document issued by the ERO that is needed by any individual or legal entity that wishes to conduct business by producing electricity.
<b>Environmental Impact Assessment</b>	An Environmental Impact Assessment (EIA) is required for (i) hydropower plants with a total installed electrical capacity of 10 MW or more; (ii) wind power plants with a mast height of 50 m or more if located (a) in Natura 2000 sites or in specially protected areas and their protection zones; (b) in a place which is closer than 1 km to the nearest protected outdoor space of buildings according to another legal regulation; (c) at a site that is closer than 3 km from another existing or future wind turbine; or (d) when more than 4 turbines are to be constructed. The issuance of the EIA can be merged with the proceeding for issuance of the Single Environmental Statement.
<b>ERO</b>	Czech Energy Regulatory Office.
<b>Grid Connection</b>	Actions performed by the grid operator to connect a new generating facility or to modify or replace the connection of a RES-Facility to the grid.
<b>Liability for Grid Connection and/or Capacity Upgrades, Improvements or Expansion of Grid</b>	The amount the producer/operator must pay as its share of the “costs associated with grid connection and ensuring the reserved capacity”.

<b>Priority Access to the Electric Grid Given to RES-Electricity</b>	The statutory rule whereby grid operators must provide priority grid access for RES-Electricity.
<b>Project Approval</b>	Administrative document permitting the placement and construction of a RES-Facility, which is issued by the competent building authority.
<b>Single Environmental Statement</b>	Administrative document issued by the competent local environmental authority assessing the effects of the RES-Facility on selected environmental components and on the environment as a whole. It integrates several statements and resolutions issued under the applicable environmental legislation.
<b>RES-Electricity</b>	Electricity obtained from RES such as wind, solar, aerothermal, geothermal, hydrothermal, hydraulic, biomass and biogas.
<b>RES-Facility</b>	Electricity generation plant using renewable sources, secondary sources or high-efficiency combined heat and power.
<b>RES Support Scheme</b>	State support provided to producers of RES-Electricity. In the Czech Republic, this support is provided to eligible producers in the form of green bonuses or feed-in tariffs.

## 2. Envisaged Need of Investments in the Czech Republic

As the Czech Republic is a Member State of the European Union, it must work to ensure that the goals set by the EU are met.

In 2018, the EU Renewable Energy Directive was issued with a target of at least 32% energy production from RES by 2030. In 2023, the Directive was revised and the EU's goal was raised to a minimum of 42.5% with an aspiration of up to 45% energy production from RES by the year 2030.

EU Member States are required to amend their legislation to reflect the renewable energy decision-making of the European Commission. The Czech Republic is required to enact specific measures to meet the EU's 42.5% target. The Czech contribution to meeting this EU-wide goal is adjusted based on its geographical, climate and economic conditions. The Czech Republic has set a target for RES-Energy to make up 30% of total energy consumption by the year 2030. The data from 2022 show that RES-Energy accounted for 18.195% of total consumption in the Czech Republic in 2022.

In order to meet the new goals under the Clean Energy for all Europeans package and The REPowerEU Plan, and to help the EU to reach its goal under the European Green Deal, investment in the Czech Republic is primarily needed in the following areas:

- investment to keep some of the existing RES-Facilities, mostly biomass and biogas facilities, in operation (once their support/promotion period ends), provided their operation is more effective than building a new RES-Facility;
- investment in research and development in the area of energy storage;
- investment in the hybridisation of energy systems;
- investment in the decentralisation of energy production;
- investment in the development of alternative green fuels;
- investment in research and development of heating and cooling systems using RES-Energy;
- investment in lowering energy consumption by implementing energy efficient technologies;
- investment in green transportation (infrastructure, research and development);
- investment in strengthening the distribution grid in order to connect more low-voltage facilities;
- investment in research into the efficiency of RES-Facilities; and
- investment in research and development involving facilities that utilise geothermal energy.

### 3. Executive Summary-RES Market Status and Development of RES Facilities

#### 3.1 Market Overview – Factsheets

- The Czech Republic currently produces enough energy to be self-sufficient. In fact, around 18% of its total energy is produced for export.
- The Czech RES-Electricity market has been in development since 2005, when the Czech Republic started to support RES-Facilities. This support was modified by its enactment of Act No. 165/2012 Coll., on promoted energy sources (the “**Promotion Act**”) which is still in force. The Czech Republic later pledged to the EU that it would deliver 13% of its energy output from RES-Electricity. This 13% goal for 2020 was met by the Czech Republic as early as 2013.
- Between 2008-2010, the Czech Republic experienced a ‘solar boom’ while simultaneously facing financial crises, which led to the implementation of a ‘solar levy’, that required solar power plants commissioned between January 1, 2009, and December 31, 2010, to pay a monthly levy out of the state support provided. The solar levy was challenged in the Constitutional Court but was found to not breach the constitutional rights of the producers in question. Core guarantees (such as a return on investment over a 15-year period) have been maintained, except in cases where producers have been ‘strangled’ by the solar levy. The efforts to define the so-called ‘strangling effect’ have become the subject of several court proceedings at the Supreme Court and the Supreme Administrative Court. While the courts concluded that those who feel strangled can apply for a tax exemption under Section 259 of the Tax Code, the Ministry of Finance has released a follow-up statement that they can apply for tax withholding under Section 156 of the Tax Code. Although the Promotion Act was not overturned by the Constitutional Court, it was subsequently repeatedly amended, and the solar levy for solar plants commissioned in 2010 was extended and reduced from 26% (28% for green bonuses) to 10% (11% for green bonuses). Additionally, Act No. 458/2000 Coll, the Energy Act, as amended (the “Energy Act 2000”) required RES-Facilities with a total installed capacity of over 1 MW to obtain an Authorisation for the Construction of a RES-Facility from the Ministry of Industry and Trade.

- In 2010, the total percentage of RES-Electricity within the supply energy mix was 10.52%, while in 2013 that number increased to almost 15%. Since 2013, when the support of new RES-Facilities was reduced, that percentage has been increasing at a slower rate.
- In June 2014, the European Commission approved the state aid scheme for electricity from renewable energy sources in the Czech Republic, with focus on a state aid scheme provided to energy producers commissioned from 1 January 2013 onwards.
- In November 2016, the European Commission approved a support scheme for installations producing renewable energy that were built in the Czech Republic between 2006 and 2012 under EU state aid rules, with a total budget of CZK 836.5 billion over its lifetime (approx.30.95 billion EUR). The Czech authorities have committed to introducing a review mechanism. The purpose of the review mechanism is to eliminate any risk of overcompensation that may result from the cumulation of aid or the overestimation of any of the cost elements factored into the support level calculations. The review of support shall be carried out 10 years after the commissioning of installations benefitting from support under the scheme.<sup>1</sup>
- The majority of eligible RES-Facilities receive state support for twenty (20) years (i.e. most will end in around 2030-2033).
- The Czech energy market still relies heavily on coal and nuclear energy. Coal consumption must be lowered and replaced by nuclear and RES-Energy (for details see Sections 4.3 and 4.4). More state support is paid for the initial construction, rather than the operation, of RES-Facilities. The focus should also be on the research and development of energy storage, which is a vital prerequisite for the efficient and long-term use of RES-Energy.
- On 1 January 2021, an amendment to Act No. 383/2012 Coll., on Greenhouse Gas Emission Allowance Trading Conditions was enacted. This amendment reflected the creation by the EU of the Modernisation Fund in its EU ETS Directive (Directive 2003/87/EC). In 2018, new Article 10d was added to Directive 2003/87/EC describing the Modernisation Fund, which aims to support investment to modernise energy systems and improve energy efficiency between 2021 and 2030. At least CZK 150 billion (approximately EUR 6.123 billion) should be available for the Czech Republic, representing 15.6% of the total funds in the Modernisation Fund.

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<sup>1</sup> IRR approved per technology type: Hydro (6.3-7%), Solar (6.3 – 8.4%), Wind (6.3 – 7%), Biogas (7 – 10.6%), Biomass (7 -9.5%), Geothermal 7%.



- On 1 January 2022, an amendment to the Promotion Act came into effect and established a new type of support scheme, known as the “auction bonus”. Following extensive discussions, solar power projects were also included as eligible for future operating aid in the form of auction bonuses. As of 1 January 2022, the Promotion Act recognises three forms of subsidies for RES producers: (i) green bonuses; (ii) newly introduced auction bonuses; and (iii) a feed-in tariff. The feed-in tariff does not apply to electricity generation plants put into operation as of 1 January 2022, maintenance support for electricity (biomass-fired generation plant) and for the modernisation of an electricity generation plant.
- This 2022 amendment to the Promotion Act further introduced another mechanism to tackle the issue of overcompensation of RES-Facilities commissioned between 1 January 2006 and 31 December 2015. An internal rate of return (“IRR”) interval of 8.4%–10.6% for RES-Facilities was introduced, setting a limited level of state support. The internal rates of return on investment for each type of RES are set by the Czech Government in a regulation at 8.4% for energy from water, wind, geothermal, solar radiation, biomass and biogas. Reviews will be conducted by the Ministry of Industry and Trade after ten (10) years from when the RES-Facility was put into operation and will be carried out as sector-by-sector investigations. In the event that the Ministry of Industry and Trade identifies a risk of excessive state support for a given year, the owners of the electricity generating plants will be at risk of the amount of their state support being adjusted under a general measure adopted by the Ministry of Industry and Trade, or as a result of an individual inspection by the State Energy Inspectorate. Based on the sectoral survey report published in 2023, the value of the IRR for small hydropower, biogas and wind power plants, plants using landfill and sludge gas and biomass (all put into operation in 2012) is below the limit set by the Governmental regulation. However, the calculated value does not represent the value for the entire sector of electricity sources commissioned in 2012, as only less than 40% of the electricity sources put into operation in 2012 completed the survey papers.
- At the same time, the solar levy was increased for solar plants commissioned in 2009 and 2010. As of 1 January 2022, for solar power plants put into operation between 1 January 2009 and 31 December 2009, this tax is 10% for projects benefitting from feed-in tariffs and 11% for projects benefitting from green bonuses. For solar power plants put into operation between 1 January 2010 and 31 December 2010, the solar tax is 20% for projects benefitting from feed-in tariffs and 21% for projects benefitting from green bonuses.

- On 13 July 2021, the new Building Act was enacted. The new Building Act entered into force in its entirety on 1 January 2024, however, it applies to ‘designated constructions’ and ‘related constructions’ (i.e. certain transport and industrial buildings, transmission and transport systems, large electricity generation plants and nuclear construction) only. For other constructions, the previous legislation – the “old” building act and its implementing regulations – will continue to apply until 30 June 2024. As of 1 July 2024 the new Building Act will apply to all constructions. The new Building Act brings many innovations aimed at simplifying and speeding up the permitting process and ensuring the protection of public interests during construction. One of these changes is setting up a specialised building authority (the Transport and Energy Construction Authority) that will be competent to permit key transport and energy infrastructure constructions. These key energy infrastructure constructions include RES-Facilities (except for hydropower construction) being (i) a solar electricity generation plants with a total installed electrical capacity exceeding 5 MW; (ii) an electricity generation plant (except for solar) with a total installed electrical capacity exceeding 1 MW; and (iii) a heat production plant from renewable energy sources with a total installed thermal input exceeding 10 MW.
- A significant amount of the state support in question is distributed to individuals who wish to reduce their electricity consumption. This support is provided for the energy-efficient renovations of buildings, for the construction of new energy-efficient houses, for the construction of energy-efficient apartment buildings and for RES-Facilities used for self-consumption. This support programme is called the “New Green Light for Savings” scheme, which has replaced the previous “Green Light for Savings” scheme.
- To date, most of the support has gone towards solar power plants, with biogas and biomass facilities coming in second and third respectively as the most promoted energy sources (despite all three of these sources generating close the same amount of electricity).
- In October 2023, the European Commission approved, under EU State aid rules, a €2.4 billion Czech scheme to support the construction and operation of new or converted sustainable biomethane production plants.
- The Czech Ministry of the Environment presented an amendment to Act No. 334/1992 Coll., on the protection of the agricultural land fund, which shall enable the development of agrovoltatics.

- Finally, with respect to the European RED IV Directive, the Czech legal framework will be further amended to introduce so-called ‘acceleration zones’, which will facilitate the permitting process for wind power plants in selected areas.

### 3.2 RES Market Status, Permitting, Grid Connection, Licensing of RES-Facilities in the Czech Republic

#### General Market Data

<b>RES in 2022 (out of final consumption)</b>	18.195%
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<b>RES Target for 2030</b>	30%
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<b>Overall installed General Capacity including RES (overall production of electricity)</b>	as of 30 September 2023, the overall installed general capacity was 20,861.7 MW, with a total overall energy production of 55,307.5 GWh gross and 51,591.4 GWh net
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<b>Installed capacity by technology by 30 September 2023</b>	Total: 20,861.7 MW
	Nuclear: 4,290 MW
	Steam-electric: 9,435.9 MW
	Steam-gas: 1,363.5 MW
	Gas: 1,054.0 MW
	Hydro power: 1,096.9 MW
	Wind power: 337.1 MW
	Solar power: 2,112.8 MW
	Pumped storage
	hydropower: 1,171.5 MW

## RES Support Scheme

### Beneficiaries of the RES Support Scheme

The support scheme promotes:

existing RES-Facilities, under the rules applicable for the year commissioned (but solar power plants that are situated on class I or II protected agricultural land are not eligible for the new state support once the old state support expires);

RES-Facilities put into operation on or after 1 January 2022, although only the following are eligible for state support: (i) electricity generating plants whose production process units are no more than 5 years old on the date of commissioning; (ii) electricity generating plants whose production technology units are being replaced as part of modernisation and are no more than 5 years old on the date of registration of this support; (iii) power plants using water energy with an installed capacity of up to 10 MW; (iv) wind; (v) solar; (vi) landfill gas; and (vii) sludge gas, and (viii) (for electricity generation plants put into operation after 1 January 2024) units with installed capacity of up to 500 kW using biogas energy; and

“High efficiency” cogeneration plants.

### Priority and guaranteed off take into the grid

The Promotion Act adheres to the principle that, in connecting to the distribution grid, operators of the distribution grid within the area covered by their licence must give priority to RES-Facilities.

### Other conditions

Licence granted by the ERO for producing electricity; Authorisation for the Construction of a RES-Facility for the RES-Facilities with the total installed capacity over 1 MW.

## Grid Connection Specifics

### Approvals by a grid operator

Connection to the grid is subject to the approval of the grid operator based on the location and installed capacity of the RES-Facility;

The grid operator may require a connection feasibility study from an energy producer if it is clear that the connection of the project will have an impact on the operation of the grid or if the applicant applies for connection to a high-voltage grid.

<b>Permitting from authorities</b>	<p>Single Environmental Statement; Environmental Impact Assessment (if applicable)</p> <p>Authorisation for the Construction of a RES-Facility (for generation plants exceeding 1 MW installed capacity);</p> <p>Project Approval and approval for occupancy;</p> <p>Electricity Production Licence;</p> <p>Connection agreement with the grid operator; and</p> <p>Registration with the market operator.</p>
<p>Timing: depending on the installed capacity and connection to the grid, an investor could obtain the necessary approvals in approximately six (6) months to two (2) years.</p>	
<b>Licensing</b>	
<b>Procedure</b>	<p>A licence to produce electricity is granted once the RES-Facility is built and functioning. Licences are granted by the ERO.</p>
<b>Duration of administrative procedure</b>	<p>Within thirty (30) days from the submission of the complete documentation. In complicated cases the process can take up to a maximum of 60 days.</p>
<b>Licence's duration</b>	<p>Maximum of twenty-five (25) years.</p>

## 4. Key changes to the RES Support Scheme since 2022

### 4.1 A New Support System for RES-Electricity

The Promotion Act was amended in response to the goals the Czech Republic has pledged to meet, in order to fulfil the EU obligations set out in its environmental packages (Clean Energy for all Europeans, REPowerEU plan and Fit for 55). The Czech Republic is increasing its contribution to the EU target share of renewable energy in gross final consumption by 2030 to a 30% share of renewable energy (from the original 22%). The Czech Republic reflects the pending increase in the EU target for the share of RES in final consumption by 2030 to 42.5%, but the relevant local legislation is not yet finalised and will therefore only be reflected when the update to the National Plan (see section 4.4) is finalised.

The most important change to the support scheme is the introduction of a new type of promotion in the form of auctions. The way this works is that the State will decide which new specific types of RES-Facilities should be built and will publish an auction. Whoever is able to build and operate this RES-Facility with the lowest promotion amount may win the auction and obtain the promotion. So far in the Czech Republic two auctions for electricity production from RES in 2023 have been announced. The following categories of generating plants were invited to submit bids in the auctions for the support of electricity from RES:

- Power plants using biogas (modernised power plants) with a capacity of 1 MW and above, with a total value of the competed installed capacity of 5 MWe;
- Small hydropower plants (new electricity generation plants and modernised electricity generation plants) from 1 MW, with a total value of competed installed capacity of 7 MWe; and
- Wind power plants (new electricity generation plants) from 6 MW or more, with more than 6 electricity sources, with a total competing installed capacity of 30 MWe (respectively 60 MWe in the first call.).

No offers were submitted at the first auction, therefore the Czech Ministry of Industry and Trade adjusted the parameters of the auction to make the second call more attractive for the sector. This involved increasing the maximum amount of the reference auction price and extending the deadline for commissioning the generation plant and for the modernisation of the power generation plant. Seven bids were submitted for the second auction, in which the Czech Ministry of Industry and Trade announced that four bids were successful. All successful bids were for wind power plants, comprising three sources with an installed capacity of 6.25 MW each, and one source with an installed capacity of 6 MW. The offered prices ranged between 2.990 CZK/MWh and 3.469 CZK/MWh.

The priority in terms of solar energy rests with smaller rooftop solar facilities. Their construction is supported by the New Green Light for Savings (maximum state support is CZK 200,000 (approximately EUR 7,900)) or by the Modernisation Fund.

## 4.2 Support Scheme for Cogeneration

For many years, cogeneration has been a common tool to produce energy and heat in the Czech Republic. The heat produced by cogeneration covers more than half of the total heat produced, and electricity produced by cogeneration currently makes up 12% of all electricity produced in the Czech Republic. Additionally, the number of small cogeneration units has been growing rapidly in the last decade.

The potential for the development of high-efficiency cogeneration has been identified, particularly for smaller sources with electrical outputs at the level of units of MWe - it will likely consist of increasing the number of micro-cogeneration units (capacity below 50 kW), small (capacity below 1 MWe) and medium-sized sources with natural gas-based cogeneration. The optimal scenario was identified as having the following parameters:

- with an increase of 33 MWe of new installed capacity for microgeneration of up to 50 kW.
- with an increase of 227 MWe of new installed capacity for small and medium-sized gas-fired cogeneration with a capacity of 50 kW-5 MW,
- 62 MWe of new installed units using RES and other alternative fuels.

The promotion of cogeneration of energy and heat is regulated by the Promotion Act. Only “highly efficient” cogeneration plants are eligible for State support. “High-efficiency production” is defined as production that achieves a primary energy saving of at least 10%. The operation of cogeneration units has been supported by the State in the form of green bonuses. The ERO determines the value of “annual green bonuses for electricity generated in cogeneration plants” in its price decisions. To be eligible for the cogeneration green bonus, a certificate of origin of electricity from cogeneration issued by the Ministry of Industry and Trade is required. Under the Promotion Act cogeneration has the right to preferential connection to the grid system, provided that the technical access conditions are met.

In December 2022 the European Commission approved, under EU State aid rules, a €1.2 billion Czech scheme to promote green and more efficient district heating mainly based on renewable energy. The measure will contribute to the implementation of the National Plan and to the EU’s strategic objectives relating to the EU Green Deal, namely the EU’s 2050 climate neutrality target. The scheme, which will run until 14 January 2026, will be financed by the EU Modernisation Fund.

The scheme will support: (i) the installation of new heat generation units based on renewable energy or high-efficiency cogeneration to replace existing installations, and (ii) the modernisation of existing heat generation units to operate with biomass instead of coal. Under the scheme, the aid will take the form of direct grants to owners of existing heat generation units and district heating systems, as well as acquirers of new heat generation units. Supported projects will have to achieve a minimum reduction of 15% in CO<sub>2</sub> emissions and of 10% in primary non-renewable energy consumption with respect to the levels before their implementation. In addition, projects for natural gas-fired high-efficiency cogeneration will be required to either enable the switch to renewable and low-carbon gases or implement carbon capture storage or carbon capture utilisation technologies, to avoid lock-in of natural gas.

### 4.3 National Energy Strategy 2015-2040

The Czech National Energy Strategy was approved by the Czech government in 2015 and contains major strategies in the field of energy up to 2040. The Czech National Energy Strategy is a fundamental document in the field of energy. The general objectives contained therein are further developed in other documents (for example the National Plan (see below)).

The main goal of the document is to ensure a reliable, safe and environmentally friendly energy supply for the needs of the Czech population and economy, at competitive and affordable prices. It promotes lowering emissions, increasing energy efficiency, promoting private energy sources, diversifying energy sources, exporting energy and a downward trend of electricity consumption in private homes.

An update to the National Energy Strategy is expected to be adopted by the Czech Government in 2024. The updated concept of the National Energy Strategy is expected to set a goal for a coal share in energy production of only 10 percent by 2030, a reduction of 33.5% compared to the current share. The National Energy Strategy should also aim for a 37% share of green electricity generation in the Czech Republic.



#### 4.4 National Energy and Climate Plan 2020-2030

This National Energy and Climate Plan 2020-2030 (the “**National Plan**”) stems from the Czech National Energy Strategy and sets out the most important measures to be taken by the Czech Republic, in order to meet the goal for 2030, namely that RES should make up 30% of all energy produced in the Czech Republic.

In the area of decarbonisation, the Czech Republic pledges to decrease carbon emissions by 30% (between 2005 and 2030). RES plays a large role in achieving this goal. The most important tool is the Promotion Act, which brings in a new type of state support (auction bonuses) for new RES-Facilities and for keeping existing RES-Facilities in operation.

The strategic goal of the Czech Republic is to reduce the share of fossil fuels in primary energy consumption to 50% by 2030 and to 0% by 2050, as well as to completely eliminate the use of coal for electricity and heat production by 2033. The modelled scenario (discussed in detail in the National Plan) shows the feasibility of meeting these targets, but only if ambitious policies and measures are set. The scenario also confirms the assumption of a complete phase-out of coal for heat and power generation by 2033, with a significant decline already between 2025 and 2030.

In the area of energy efficiency, the Czech Republic sets goals for a decrease in the total energy consumption, binding goals for public building efficiency and binding goals for a gradual decrease in total electricity consumption. The revised EU target to reduce final and primary energy consumption by 11.7% means a decrease from 1064 PJ (the latest available data from 2021) to 846 PJ for the Czech Republic in 2030. This is the target set by the Czech Republic but it has been observed that the modelled scenario shows the difficulty of achieving it. Even with the adoption of ambitious policies and measures, including the implementation of a progressive building renovation scenario, the evolution of final consumption leads to a value of 945 PJ by 2030. While this is a very significant reduction of about 120 PJ, efforts may still fall short of the target by approximately 100 PJ.

The last area elaborated by the National Plan is research, innovation and competition. The plan sets no specific goals; however, there are other strategies and plans in place to ensure the development and public financing of research. Research into smart grids, infrastructure and storage technologies has been a focus of the Czech Republic.

## 5. Energy act

Since its enactment in the year 2000, the Energy Act 2000 has undergone many amendments, mainly as a result of the obligation to implement a multitude of EU legislation governing the operation of the energy sector. The relatively high number and scope of these individual amendments have made the Energy Act 2000 highly opaque, its provisions confusing and, in some cases, ambiguous, causing confusion as to its interpretation. This fact has long been reproached by the Government Legislative Council in examining each of these amendments to the Energy Act 2000. The Energy Act 2000 has undergone 3 major amendments in 2023. Their main goal is to increase the share of renewable energy produced and consumed in the Czech Republic.

- The first amendment to the Energy Act 2000 from 2023 (also called 'Lex OZE I') changes the necessary value of the installed capacity from 10 kW to 50 kW from which it is necessary to have a licence for the electricity production. This corresponds to approximately the installed capacity of a solar power plant on a larger residential building. The amendment also increases the threshold for demonstrating professional competence at the same value.
- Buildings for the production of renewable energy with a total installed capacity of up to 50 kW in a built-up area are now classified as buildings that do not require project permission or notification under the Building Act.
- Low-carbon electricity generation plants with a total installed electrical capacity of more than 1 MW will be regarded as 'established and operated in the public interest'. This will facilitate the authorisation of large-scale RES.
- The most important legal concept introduced by the second amendment to the Energy Act 2000 from 2023 ('Lex OZE II') is the energy and renewable energy community. It is a form of organisation that allows a group of individuals, businesses or local authorities to share the benefits of energy produced, typically from renewable sources. The goal of this amendment is also to achieve greater energy safety and self-sufficiency and protection of rights of end consumers.
- The third amendment to the Energy Act 2000 ('Lex OZE III') should focus on the introduction of clear rules for the grid energy storage and flexibility aggregation. A new licence type should be obtained specifically for energy storage. The holder of an electricity production license should also be entitled

to store electricity in the distribution system. Energy communities should be entitled (with a smaller installed capacity) to supply electricity from electricity storage to an electricity trader, or markets, even without a license. The final wording of this amendment is now being discussed by the Government.

In 2020, material principles of the New Energy Act were published by the Czech Government. So far, the Energy Act 2000 has only been updated by those substantial amendments mentioned above. This may result in the preparation of the planned New Energy Act being delayed.

## 6. Overview of the Technical Innovations in Electricity Storage and Applicability in the Czech Republic of such Storage Technologies

Efficient energy storage is one of the key prerequisites for the successful use of RES-Energy. As renewable energy is dependent on the weather and/or time of day, electricity grids need to become more flexible, in order to manage the changes in the amount of electricity supplied. Energy storage is a major component of the functionality of RES-Systems. For times when there is an energy surplus, there is a need for technology and space to retain and store this excess energy.

The most common energy-storage system in the Czech Republic remains pumped-storage hydroelectricity. The Czech environment is ideal for these systems because of the abundance of water sources in mountainous areas (for most of the year). The Czech Republic has large water storage facilities that use cheap energy to transport water uphill and let the water stream downhill to produce energy in peak hours, when demand for electricity is at its highest.

Another common mode of energy storage in the Czech Republic is rooftop solar panels, where a solar panel is connected to a lithium-ion battery that stores excess energy. This stored energy may be used when sunlight is scarce.

However, in order to balance the entire grid, larger batteries with storage capacities of tens of MWh are needed. These can stabilise systems powered by RES-Electricity, protect the grid against blackouts, ease the transition to electromobility and ultimately save money for expensive electricity in peak hours. Some large-scale batteries have been installed but the area of energy storage is still underdeveloped, and legislation is lacking.

The concept of air compression systems is being researched but is not widely used in the Czech Republic at present.

## 7. Power purchase agreements (PPA)

In recent years, the use of power purchase agreements (PPAs) for purchasing RES-Electricity has been on the rise in the Czech Republic. This reflects the commitment to transitioning towards a low-carbon economy, since PPAs have emerged as a popular tool for promoting renewable energy development.

PPAs are contractual agreements between renewable energy developers and buyers, typically large corporations or institutions, whereby the developer agrees to supply electricity at a predetermined price (either fixed or indexed) over a specified period. Hence, the PPA gives the buyer predictability about its energy costs while guaranteeing the origin of the electricity.

The most popular variants of PPA contracts are:

- 'On-site PPA, where the RES facility (usually solar power plant) is located on the customer's premises or is physically connected to the point of consumption;
- 'Off-site PPA Pay as Produced', where the subject matter of the contract is a supply of RES-Electricity without direct physical connection to the point of consumption. The customer undertakes to offtake a defined percentage of the electricity produced. The amount of energy produced is not guaranteed due to external influences such as light and wind. The advantage for the buyer is the lower price compared to the 'Pay as Contracted' option; and
- 'Off-site PPA Pay as Contracted', where the subject matter of the contract is a supply of RES-Electricity without direct physical connection to the point of consumption. A specific supply size is guaranteed by the producer, based on a pre-determined delivery schedule. The price of this option is usually higher compared to the 'Pay as Produced' option.

Typically, PPAs in the Czech Republic are concluded for a period of 10 to 15 years. Very often the RES – Facility is developed only after the PPA is signed.

Since PPAs enable businesses to directly support the development of renewable energy projects, they reduce greenhouse gas emissions and contribute to climate change mitigation efforts. This aspect resonates with companies seeking to enhance their environmental credentials and meet sustainability targets.

## 8. Foreign Direct Investment (FDI)

In May 2021, the Foreign Direct Investments Screening Act (Act No. 34/2021 Coll. – the “FDI Act”) came into force. The FDI Act allows the government to screen potentially high-risk foreign transactions by investors from countries outside the EU. The state may approve the foreign investment under review or make it conditional upon fulfilment of certain conditions, or in extreme cases, prohibit its execution (or continuation, in the case of existing projects). The FDI Act defines foreign investors as a natural or legal person from outside the EU or a legal person or trust fund directly or indirectly controlled by such a person or legal entity, that intends to make or has made (i.e., completed) an investment of any kind (i.e. both share and asset deals) that could endanger the security of the Czech Republic or its public or internal order. Only foreign investments that would enable the foreign investor to gain effective control of an economic activity can trigger an investment review. However, effective control can be acquired among others by enjoying 10% of voting rights, which means that minority investments may also be subjected to review.

The Czech FDI control regime distinguishes between investments in (a) specified industries (some energy related investments can be categorised as specified industries because of their critical infrastructure and services characteristic - e.g. power plant, water supply), (b) media and (c) all other sectors. Whereas investments in (a) specified industries and (b) media are subject to stricter scrutiny by requiring an application for permission or obligatory proposal for consultation. No direct obligation is imposed on foreign investors who intend to make or have made investments in (c) other sectors. However, the Ministry of Industry and Trade may initiate an *ex officio* review of any investment (i.e. not only investments in one of the specified industry sectors) which might endanger the security of the Czech Republic or its public or internal order. Such an investment review may result in the prohibition of the investment, or its discontinuation if the investment has already been made. The Ministry may intervene before the investment is made or within a period of five years from the moment the investment was made.

In order to protect the investment from an *ex officio* review, any foreign investor may submit a voluntary proposal for consultation to the authority. Following said consultation, the investment is deemed to have been approved and thus no longer subject to subsequent review, unless it is revealed that the investor submitted untruthful or incomplete information.

In respect of proposals for consultation, the Ministry must notify the foreign investor of the outcome of the consultation by issuing either (i) a decision to initiate a review, or (ii) a notification that it did not find any grounds to initiate a review – within a period of 45 days from the date it receives the complete filing. In respect of a mandatory application for permission, the Ministry is empowered to either (i) issue a decision that the investment is approved no later than 90 days after the date on which it initiates the review proceedings (in more complex cases, an additional 30 days may be granted), or (ii) request a Government resolution no later than 90 days after the date on which it initiates the review proceedings (in more complex cases, an additional 30 days may be granted). Consequently, the Government must issue its resolution whether to prohibit an investment or its continuation or impose a conditional permission within 45 days. The Ministry must then issue its decision accordingly without undue delay.

In general, the FDI investor should be the applicant. A request for approval of FDI or a consultation proposal is to be submitted in a form specified by Government Decree No. 178/2021 Coll., and signed by a statutory representative of the applicant.

Failure to comply with the FDI Act carries the risk of a fine for the foreign investor in the amount of up to 1% of their aggregate net turnover for the most recent complete fiscal period, or up to CZK 50,000,000 (if the investor went ahead with the foreign investment without filing a request for approval, or without filing a mandatory request for consultations), or in the amount of up to 2% of the aggregate net turnover for the most recent complete fiscal period, or up to CZK 100,000,000 (if the foreign investor failed to respect a decision whereby the further continuation of an existing foreign investment has been prohibited, or to fulfil the conditions that were imposed on them). The FDI Act does not apply to investments that were completed before the FDI Act came into force.

## 9. Renewable hydrogen (Green hydrogen)

The Czech Republic's Hydrogen Strategy from 2021 to date has responded to the requirements expressed in the European Commission's 2020 Communication on a Hydrogen Strategy for a Climate Neutral Europe, in an effort to achieve the goals of the Green Deal for Europe.

The Hydrogen Strategy is currently being updated under the auspices of the Ministry of Industry and Trade of the Czech Republic, following the changes introduced in this area during 2023. The revision of the Directive on the promotion of the use of energy from renewable sources, the so-called 'RED III' (Directive (EU) 2023/2413), introduced new binding targets for the consumption of green hydrogen in the transport and industrial sectors, in an effort to promote the consumption of green hydrogen across Member States. The updated version of the Czech Hydrogen Strategy should clearly express support for renewable hydrogen and highlight sectors, which are considered to be the most important in terms of greenhouse gas emission reductions. In particular, it should identify specific actions to be taken in the coming years in the area of hydrogen market development - the launch of support for renewable hydrogen production from the Modernisation Fund, the comprehensive anchoring of hydrogen as an energy gas in the Czech legislation, and the promotion of hydrogen consumption in the industrial and transport sectors (for example, the construction of filling stations). The updated strategy is expected to be approved in 2024.

The development of the market for green hydrogen in the Czech Republic is only at a very early stage. There has not yet been a significant expansion of hydrogen technologies. The high up-front costs are partly covered by subsidies. Several individual green hydrogen plants have recently been established but these are only pilot projects designed to test its practical use. The first sophisticated energy system for the industrial production of green hydrogen in the Czech Republic became operational in October 2023.

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