

Polish Energy Policy 2040 – key goals and KPIs

March 23, 2021

March 10, 2021, marks the publication of the Polish Energy Policy 2040 (PEP2040) in the final form adopted by the government. Counting close to 570 pages, including the accompanying data charts and exhibits, it will certainly be subject to in-depth review and analysis over the coming days. Here's an early look at selected key elements of that policy.

Key goals and KPIs

PEP2040 puts at its heart a just and inclusive energy transition towards a zero emissions system founded on innovation, sustainable economic growth, increased efficiency and competition. The final key driver is the improved air quality, tackling a major problem throughout the country.

Achieving these goals should be measured in the 2030 perspective by: (I) a maximum 56 percent share of coal-fired power generation (with a conservatively estimated exit date of 2049); (II) a minimum 23 percent of renewable electricity in final consumption (32 percent in power generation, 14 percent in transport); (III) nuclear power generation joining the mix by 2033; (IV) reducing greenhouse gas (GHG) emissions by 30 percent (against 1990 levels); (V) reducing primary energy consumption by 23 percent (against 2007 estimates).

These strategic goals are contained in eight detailed action plans, discussed below. Each action plan identifies numerous activities, marked as strategic projects.

A separate section of PEP2040 is dedicated to available and potential financing sources. Many estimates and assumptions refer to ongoing processes, like setting up the NextGeneration EU or accessing the Just Transition Fund, and would require more analysis before we can share any conclusions. Still, the government estimates the cost of the proposed transition over the next two decades as PLN 890 billion (€200 billion) in the energy sector and PLN 745 billion (€167 billion) in other sectors (industry, households, services, transport and agriculture).

In the closer 2030 perspective, the Ministry of Climate and Environment estimates that PLN 260 billion (€58.4 billion) will be sourced from EU and domestic funds for climate-related policies:

- Cohesion Policy - €17.7 billion
- Recovery and Resilience Facility - €21.9 billion (subsidies/ loans)
- Just Transition Fund - €3.5 billion
- ReactEU - €400 million
- Other funds (domestic and EU) - €4.5 billion

- New domestic instruments supporting energy transition - up to €10.7 billion

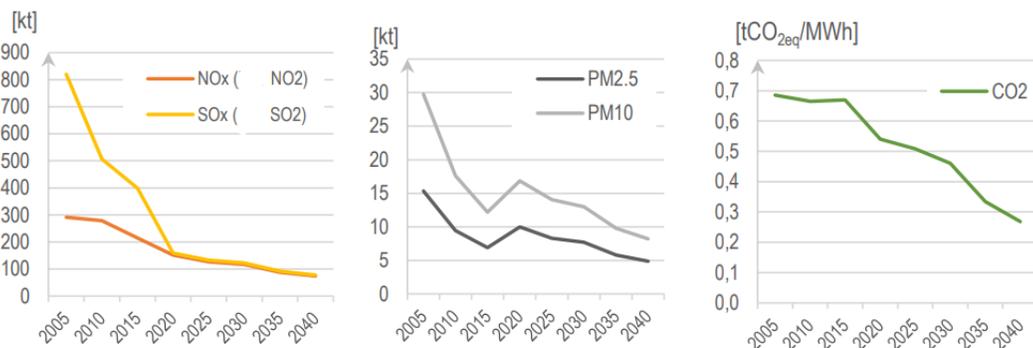
1. Optimal use of indigenous resources

The strategic project within this action plan concerns a just transition of coal regions, supporting the accelerated decarbonization of the generation side. The EU Just Transition Fund forms the central pillar of that policy. Supply of crude oil will remain stable and dependent on imports, while gas consumption is set to increase –challenges which are addressed in a separate action plan (3). Local use of biomass is discussed in this area, mostly in the context of finding a use for waste biomass, with more specific policies proposed in subsequent action plans.

2. Power infrastructure - generation sources and networks

By 2040 the government expects an entirely restructured power sector with fundamental changes to the generation mix, including estimated incumbent capacity of over 26.5 GW decommissioned by 2040. This figure seems to include the existing onshore wind generation assets, which in fact will be repowered .

The strategic concern remains generation adequacy and the capacity market has been selected as the main tool to address that, supported by balancing market reforms aiming at scarcity pricing-based balancing services sourced on the general market. While the existing capacity market –dominated by fossil fuel units – will have to undergo major reform as soon as 2025, the development of the power system should be driven by increased flexibility, engaging to a greater extent demand side response (DSR) , and introducing energy storage solutions.



The action plan is expected to deliver synergies: a significant reduction in emissions and improvements in air quality (source: PEP2040, data collected and processed by the Ministry of Climate and Environment). Further synergies will derive from the development of nuclear generation sources (action plan 5) and renewable energy sources (action plan 6).

Development of a resilient, flexible and digitalized smart grid is the second strategic project within this action plan. Physical infrastructure will continue to be developed in accordance with the 10-year (TSO) and five-year (DSO) rolling network development plans, including strategic cross-border investment (Harmony Link project), improved network availability parameters and reduced connection times. The expansion and reinforcements required to support the Polish Offshore Wind Strategy are already included in the TSO's network development plan towards 2030.

Smart-metering rollout is expected to cover 80 percent of households by 2028. The data will be handled by a new Energy Market Information Operator, the supporting legal framework for which is already in the works.

Network operation should be optimized through the ongoing balancing market reform driven by harmonized EU internal electricity market rules, both in the domestic and cross-border dimension (FBA –flow-based capacity allocation). Resilience should be further improved through a national program for replacing overhead lines with buried cables at the level of medium voltage networks. According to parallel estimates by e-DSO and Eurelectric, investment

requirement in distribution grids in Poland alone could reach €25 billion by 2030.

Development of networks will go in parallel with the focus on integration of energy storage and hydrogen-based solutions (P2H/P2G/P2L/P2A/P2X).

3. Gas, crude oil and liquid fuels infrastructure

Poland will continue to diversify its sources of imported natural gas, with the Baltic Pipe being the strategic project in this action plan, scheduled to deliver 10 million m³ of annual import capacity by 2022, matched by 3 billion m³ of export capacity. The government plans to expand the offtake capacity of the Świnoujście LNG terminal from the current 5 billion m³ to 8.3 billion m³ per annum and to install a FRSU-based LNG terminal in Gdańsk, aiming to reach 4.5 billion m³ annual capacity by 2025. Additional cross-border gas interconnections are constructed (Lithuania, Slovakia) or planned (Czech Republic, Ukraine). Access of municipalities to domestic gas networks should increase by 11 percent by 2024, to reach an estimated 76 percent overall.

The government envisages that by 2030 10 percent of gas transported in networks would be decarbonized (biomethane and hydrogen). Underground gas storage infrastructure should expand to at least 4 billion m³ compared to the current 3.2 billion m³.

As regards fuels, PEP2040 names construction of the second line of the 240 km crude oil Pomeranian Pipeline by 2023 as another strategic project. Expansion of the Central Europe Pipeline System is analyzed as another potential measure.

For more details on activities dedicated to the gas sector please follow this link to our accompanying publication.

4. Development of energy markets

PEP2040 recognizes electrification of the economy as a key direction of the energy transition. Increasing cross-border connection capacities, with the goal of making available to market players at least 70 percent of the technically available capacity, counts as a strategic project in the 4th action plan. Above and beyond the measures already listed in the 2nd action plan, the government is considering measures to allow greater activity of offtakers, including distributed generation of power, peer-to-peer trading, storage and DSR participation and the involvement of aggregators. These measures effectively follow the key directions envisaged in the Clean Energy for all Europeans package; the required balancing market reform should be completed by 2023.

The government is considering measures that will help decrease the difference between average and peak loads, driven by demand side management and demand side response measures, supported by anti-smog and dynamic tariffs, energy storage solutions, electromobility and the development of smart grids. Localised balancing areas would shift part of the energy transition management to the level of DSOs.

As for natural gas, PEP2040 proposes creating a regional transmission and trading hub for Central and Eastern Europe. The development of technical infrastructure would be supported through establishing the accompanying commercial framework, strengthening the natural gas commodity trading platforms.

The liquid fuel sector will need to cut emissions and make the transition towards greater use of alternative fuels and electromobility. However, we will have to wait for detailed goals to be set for the share of biofuels and biocomponents by 2030. Electromobility forms another strategic project, mostly through the development of the necessary network and charging infrastructure, with an estimated PLN 6.7 billion in funding made available through 2027.

In addition, the use of hydrogen in transportation is considered, where the most tangible goals in terms of zero-emission public transport in cities of 100,000 citizens or more are set for 2025 and 2030 in the Polish Hydrogen

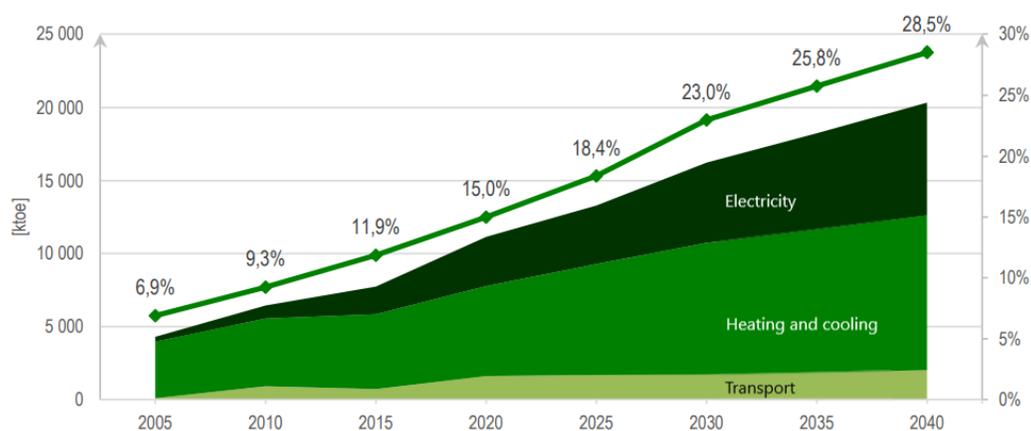
Strategy, currently undergoing public consultation. The legal framework required to boost hydrogen use should be ready by the end of 2021.

5. Nuclear power

The government is reviving the plans to go nuclear, and expects to launch the first unit of 1-1.6 GW by 2033 (depending on the choice of technology), with construction starting in 2024. It would purportedly be the first of several plants, but there are no substantial details as for the other units. The choice is mostly driven by generation adequacy concerns. To achieve that goal, PEP2040 proposes developing a comprehensive financing model, subsequently choosing the preferred technology. Coastal locations tested over the past decade are the first choice option, while the decarbonized coal regions of Pątnów and Bełchatów could follow.

6. Renewable energy sources

The government estimates that the share of renewable energy will reach an overall 23 percent of gross domestic consumption by 2030 and at least 28.5 percent by 2040 (source: Eurostat data processed by the Ministry of Climate and Environment).



Offshore wind farms are viewed as strategic projects in this area (up to 5.9 GW of capacity supported through individual CfD-based awards to be granted in 2021, with two 2.5 GW auctions to follow in 2025 and 2027).

The required 14 percent share of renewable power in transportation by 2030 would be achieved through the use of biocomponents and biofuels, development of advanced biofuels, electromobility policies (as envisaged in the 4th action plan) and biomethane.

The heating and cooling sector should profit from the use of biomass (co-generation), heat pumps and PV, biogas and geothermal energy. Development of PV is already strongly supported through programs like Energy Plus (for SMEs; est. PLN 4 billion in subsidies and loans made available between 2019 and 2025), My Electricity (for households; est. PLN 1 billion) or Clean Air (est. PLN 103 billion in subsidies, preferential and commercial loans and tax benefits). In March 2021 the TSO reported over 4 GW of PV installations connected to the grid, up from c. 400 MW in January 2019. In PEP2040 the government provides a modest estimate of 5-7 GW connected to the grid by 2030 and 10-16 GW by 2040.

In onshore wind, the government is mulling plans to lift the 10H distance rule currently preventing the development of new wind farms near to housing – measured at 10 times the height to the tip of the blade (affecting almost the entire country).

Hydroenergy and distributed energy generation (including active consumers, aggregators and wider introduction of

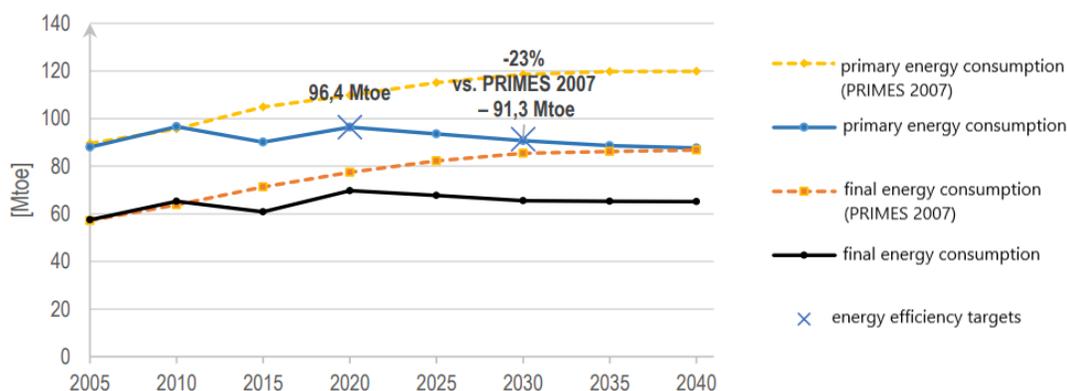
storage solutions) will comprise another two strategic projects in the 6th action plan. To that end PEP2040 envisages tailoring the support schemes (auctions, feed-in tariffs and feed-in premium programs for smaller capacity installations) and modifying the regulatory framework to promote long-term and corporate PPAs.

7. Heat and co-generation

Transition in the heat and co-generation sector will involve a greater share of efficient energy systems, utilizing at least 50 percent of heat of renewable origin, waste heat or 75 percent of heat from high-efficiency cogeneration (or a combination of them). One goal is for 85 percent of heating systems exceeding 5 MW of offtake capacity to reach the efficiency threshold by 2030. The government aims to have 70 percent of households connected to district heating networks in cities by 2030 – 1.5 million more households than those connected in 2018.

8. Energy efficiency

PEP2040 envisages a 23 percent reduction in final energy consumption compared to the Commission's 2007 estimates (93.3 Mtoe compared to 118.6 Mtoe) (source: data collected and processed by the Ministry of Climate and Environment).



Numerous measures are envisaged to achieve those goals, from education and awareness building, through thermo modernization of buildings (with a model role given to the public sector) supported by various funding instruments, a reviewed framework requiring market participants to engage in energy efficiency projects (including tradable energy efficiency certificates), to fighting energy poverty.

Your Key Contacts



Michał Motylewski

Managing Counsel, Warsaw

D +48 22 242 56 66

michal.motylewski@dentons.com