Fifth enerCEE Report

Status on renewable energy uptake in Poland and Ukraine

The fifth enerCEE comparison report looks at the progress of renewable energy uptake in **Poland** and **Ukraine** and presents development plans for decarbonisation and diversification of the often import and fossil dependent energy sectors. The decarbonisation of the energy sector increases the security of supply, promotes regional development, and mitigates climate change effects while stimulating economic growth.

Ukraine and the European Union established cooperation on a bilateral basis under the European Neighborhood Instrument in many key areas, among others security of energy supply, energy-efficient investments, digitalization and the decarbonisation of transport. The long-term objective is Ukraine's progressive integration with the EU energy market. Ukraine became a Contracting Party of the Energy Community in 2011 and reports on its progress on transposing EU legislation under the EU4ENERGY Governance annually.

Poland is a Member State of the European Union, therefore established a ten-year integrated national energy and climate plan (NECP) from 2021 to 2030 in the framework of the Governance Mechanism. Due to the market expansion for renewable technologies over the last decade and the new, economically viable opportunities, Poland continues to scale up its efforts to diversify its energy mix and restructure its coal sector.

Ukraine

In 2017, the Resolution of the Cabinet of Ministers of Ukraine adopted the Energy Strategy of Ukraine for the period up to 2035 "Security, Energy Efficiency, Competitiveness" (ESU 2035), a document that outlines strategic goals for the development of energy over the next period until 2035, such as enabling a more systematic and holistic approach that facilitates reforms. The Strategy envisages the transformation of the energy sector to be completed largely by 2025, with particular emphasis on the security of supply, energy efficiency targets and competitiveness guided by innovative technologies and with the strategic focus on the energy market integration with the EU and sustainable energy development. To implement this approach, the ESU laid out six main goals complementing the appropriate political commitments, including an Action Plan for the first implementation phase of the Strategy (2017-2020) to achieve the goals set out.[1]

In January 2019 the "Concept of Green Energy Transition until 2050" was adopted, which is based on three pillars: ensuring energy security, sustainable energy production and consumption, and reaching climate neutrality by 2070. The long-term energy strategy also aims at building a modern energy market that aligns with the framework of the European market. Following this strategy, renewables

[1] Resolution of the Cabinet of Ministers of Ukraine (2017): Energy Strategy of Ukraine for the Period up to 2035 "Security, Energy Efficiency, Competitiveness": https://razumkov.org.ua/uploads/article/2018_Energy_Strategy_2035.pdf

should cover 70% of the power mix by 2050, with a significant part (15%) coming from solar rooftop installations. [2]

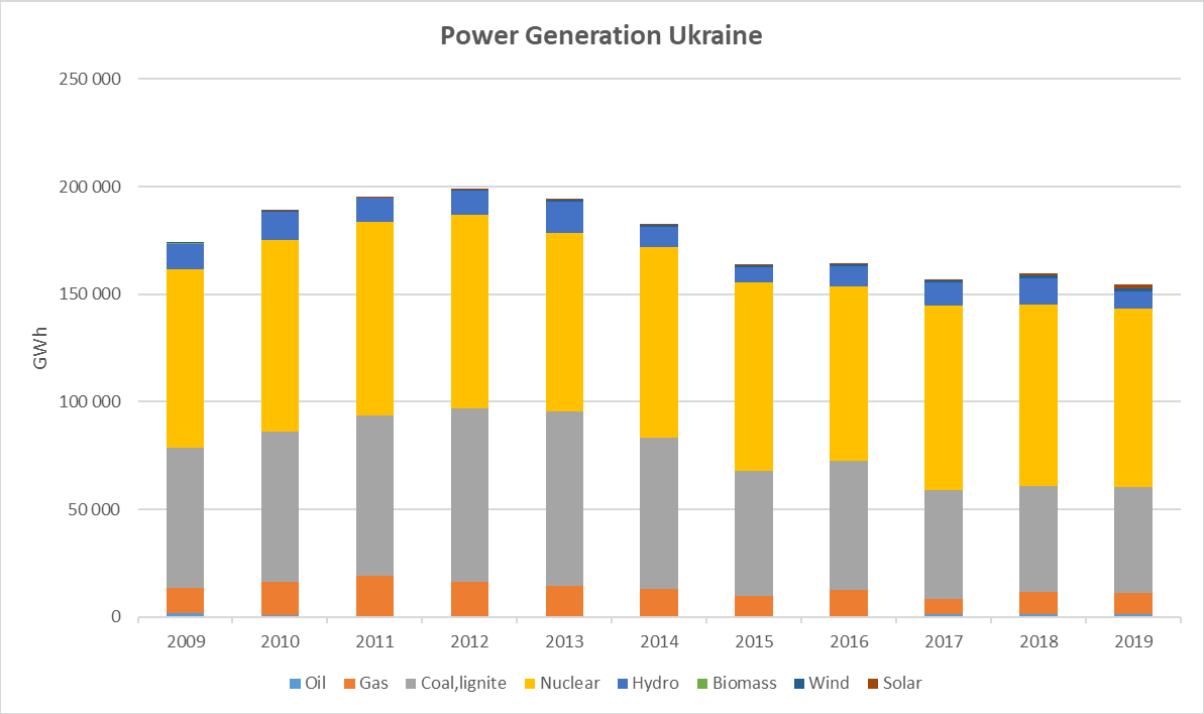

Figure 1 - AEA, Source Enerdata

Based on recent developments, hydropower became the dominant renewable energy source accounting for 7.6 TWh (5%) in electricity production in 2019. Solar and wind power capacity is growing, however nuclear remained the main source of power generation, accounting for 83.6 TWh (55%) of total generation in 2019, followed by coal 48.7 TWh (32%) and gas 7.6 TWh (5%). Solar and wind are marginal, accounted for 1.52 TWh (1%). Renewables, largely solar and wind, while accounting for only a small portion of total electricity generated, have seen a surge in capacity additions in recent years due to generous Feed-in-Tariffs (FiTs), creating financial and operational challenges. In 2019 alone, about €3.7 billion were invested in a record 4,500 MW of renewable energy capacity in Ukraine. The existing renewable energy capacities open the possibility to annually produce more than 8.4 billion kWh of electricity. Record generation of renewable energy has exacerbated the old problem of overstated "green" tariffs. In spring 2020, due to a significant increase in new renewable capacities, especially solar, as well as due to imperfections in the electricity market functioning, a serious shortage of funds arose amid payments to renewable energy producers. In 2021, Ukrainian lawmakers will have to address the issue and finally solve the dispute: where to get the money to pay for the "green" tariff, given the threat of claims by deprived investors to international arbitration.

The country aims to achieve 11 % until 2020. The Energy Strategy “Safety, Energy Efficiency and Competitiveness” set the share of renewable energy sources at 12 % of the primary power production until 2025, which cannot account for less than 25 % until 2035 (taking into account all of the hydropower capacities and thermal energy resources).

[2] Enerdata (2021): Country Energy Report, Ukraine. accessed on 29.1.2021

According to the National Renewable Energy Action Plan (NREAP) adopted in 2014, renewables should account for 11% of final energy consumption by 2020 (3.8% in 2009), including the 11% share for electricity, 12.4% for heating and 10% for transport. In addition, two other targets were adopted on the share of renewables in total primary energy supply: 17% in 2030 ("Sustainable Development Strategy for Ukraine by 2030") and 25% in 2035 (Energy Strategy "Safety, Energy Efficiency and Competitiveness" of 2017).

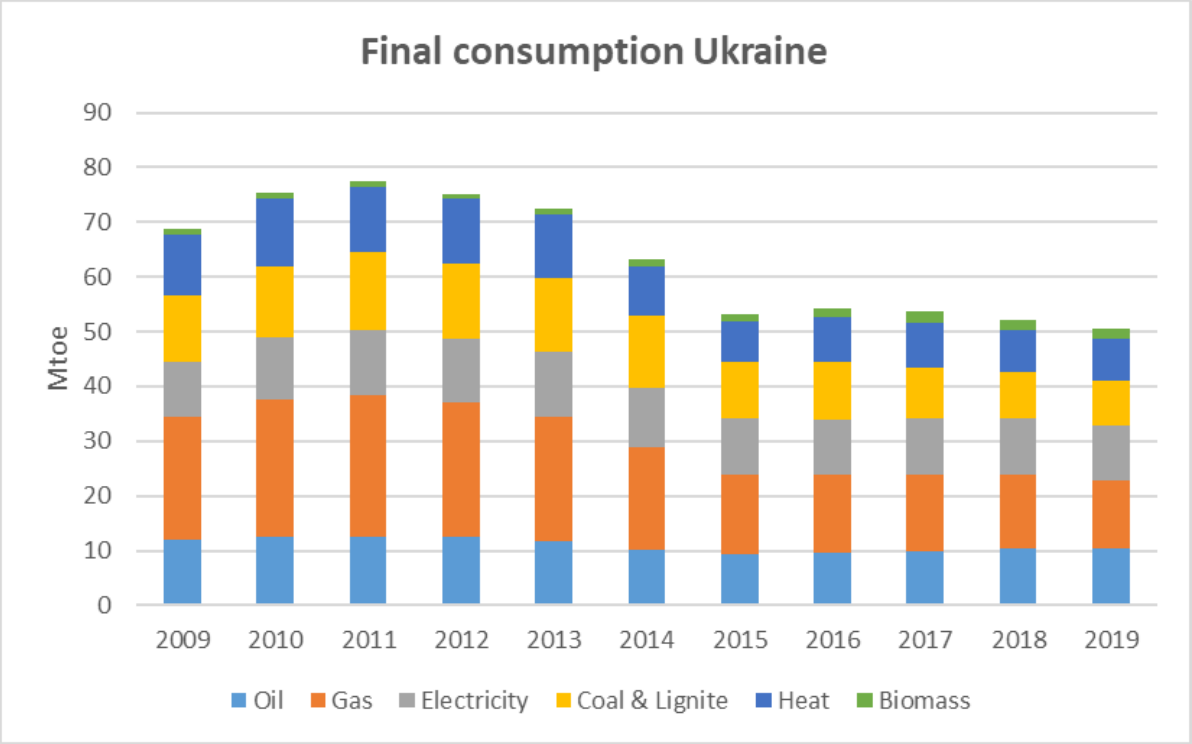

Figure 2 - AEA, Source Enerdata

Poland

Poland submitted its National Renewable Energy Action Plan (NREAP) in 2010 in accordance with the article 4 (1) of Directive 2009/28/EC on the promotion of the use of energy from renewable sources. The plan obliges Poland to increase the share of renewable energy sources in its final energy consumption to 15% until 2020 and lays out sectoral targets for 2020, as follows:

- RES heating and cooling (district and non-district systems): 17.5%
- RES-electricity: 19.13%
- RES-transport: 10.14%.

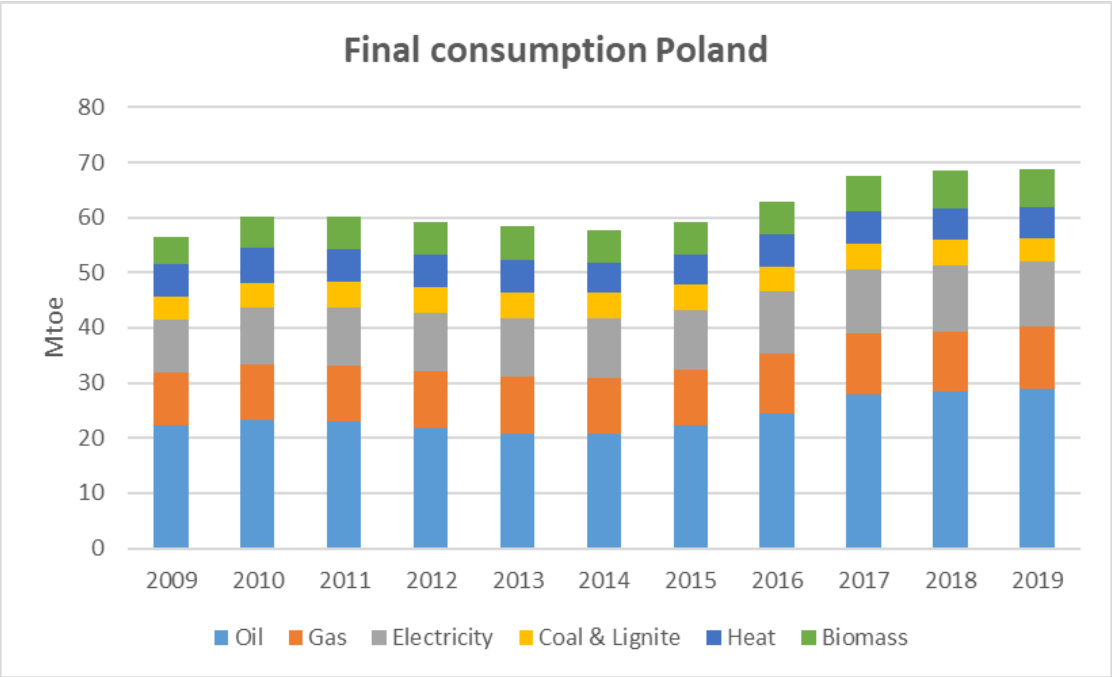

Figure 3 - AEA, Source Enerdata

In 2019, the share of renewable energy sources in the final energy consumption accounted for 12.2 %.[3] Likely, Poland will not achieve its 2020 target.[4] The main energy source for final consumers (38% in 2019), followed by coal and lignite (16%), electricity (15%), gas (14%), biomass (9%), and heat (7%). The updated energy policy aims to reach a 21-23% renewable share in final energy consumption and 27% in power production by 2030.

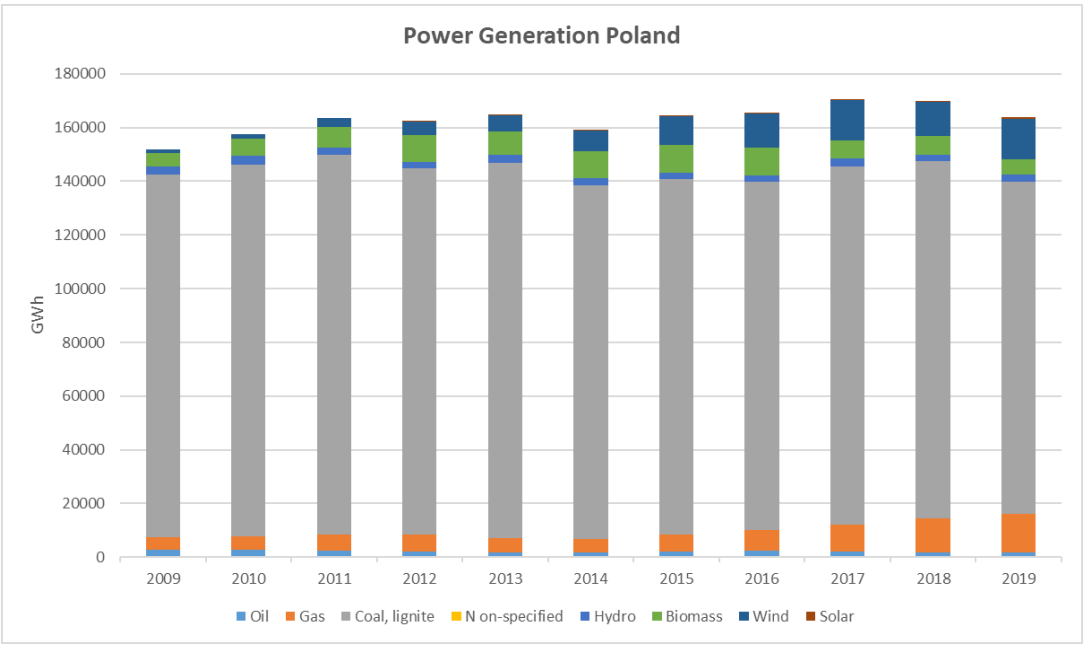

Figure4. - AEA, Source Enerdata

[3] EUROSTAT (2021): Share of energy from renewable sources, 2004-2019, https://ec.europa.eu/eurostat/statistics-explained/images/a/a9/Share_of_energy_from_renewable_sources%2C_2004-2019_%28%25_of_gross_final_energy_consumption%29-v2.PNG , accessed on 1.2.2021

[4] European Commission (2020): The National Energy and Climate Plan for 2021-2030, Objectives and targets, and policies and measures https://ec.europa.eu/energy/sites/ener/files/documents/pl_final_necp_part_1_3_en.pdf, accessed on 1.2.2021

Coal and lignite kept their dominant position in the power generation mix, but their share is steadily eroding due to the increased penetration of gas and renewables (73% in 2019, compared to 95% in 2000). Wind capacity experienced rapid growth between 2010 and 2016 (+4.6 GW); since then, it only increased by around 300 MW to 6 GW at the end of 2019. Solar capacity increased from 560 MW in 2018 to 1.3 GW in 2019.

According to the targets set out by the National Energy and Climate Plan, solar PV capacity should achieve 7.3 GW, offshore wind 11 GW and onshore wind 9.6 GW until 2030. Besides, hydropower, biomass and biogas generation capacity should be increased; however, the plan does not contain specific measures.

Poland's 11 GW offshore wind target for 2030 tops by some margin the goal for another nascent European offshore wind market—France, which aims to reach 8.75 GW by 2028. In meeting its own offshore goal, Poland will take advantage of Northern Europe's strong winds, existing offshore wind supply chain, and interconnectors used by utilities in nearby Denmark and Germany. Offshore wind historically happens in the North Sea, but there is not much space in the North Sea, and the Baltic Sea is as suitable for offshore wind as the North Sea.

The achievement of these goals will be facilitated by auctions based on the in 2018 amended the Renewable Energy Sources Act (RES Act, 2016). Auction-winning projects receive either a feed-in tariff (below 500 kW) or a premium (above 500 kW). The National Energy and Climate Plan views the Renewable Energy Sources Act as the main implementing instrument.[5]

In February 2021, the Polish Government adopted the Energy Strategy until 2040 (PEP2040), which sets out the long term vision for Poland's energy transition, paving the way toward the adoption of EU energy-related measures, as well as meeting the economic needs arising from the COVID-19 pandemic. The PEP2040 makes strategic investment decisions aimed at exploiting Poland's economic, raw material, technological and human resources potential, and stimulating economic growth in the energy sector.

[5] Enerdata (2021): Country Energy Report, Poland, accessed on 29.1.2021

Final consumptions comparison

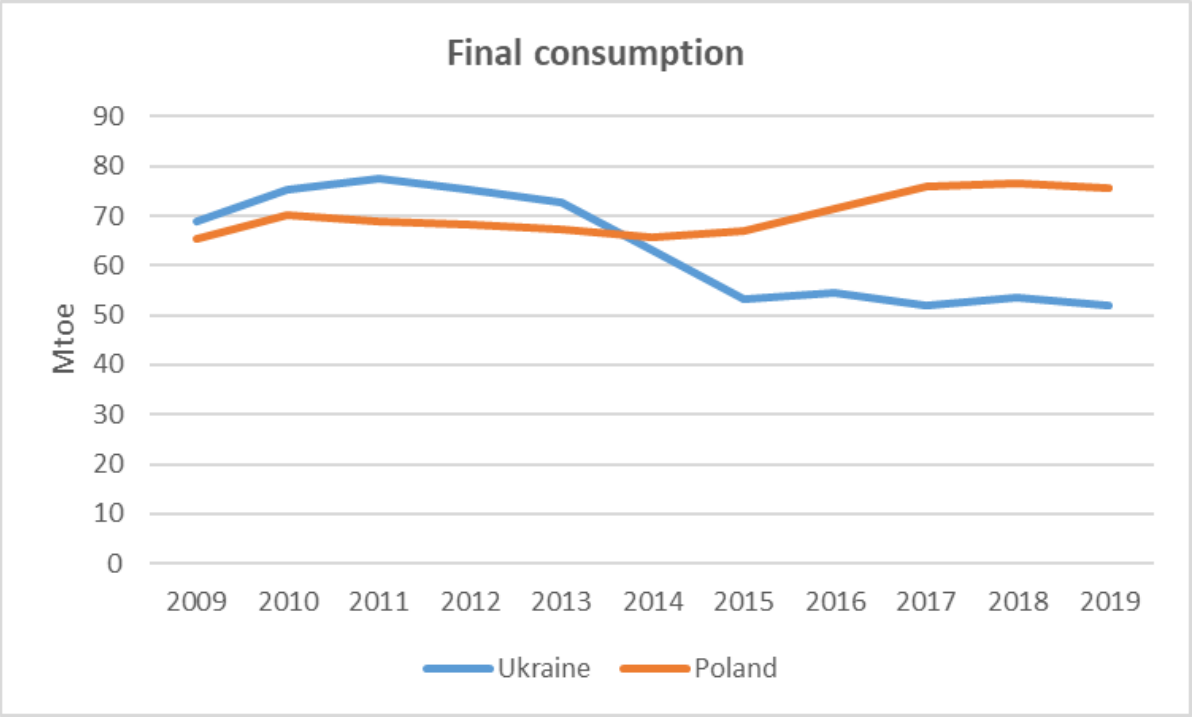

Figure 5 - AEA, Source Enerdata

In Ukraine, the final energy consumption has decreased by a third since 2009, reaching around 51 Mtoe in 2019. In 2019, the household and services sector accounted for 42% of final consumption, and industry and non-energy uses accounted for 41%. Poland`s final energy consumption has been recovering since 2014 (+3.2%/year) to 77 Mtoe in 2019 after a decline by 1.7%/year between 2010 and 2014. Because of industrial restructuring, the share of industry in final consumption fell from 40% in 1990 to 22% in 2019 (30% including non-energy uses), a share lower than that of transport (29%). Households & services account for 41% of final consumption.

Summary

As data demonstrates, Ukraine and Poland have significant renewable potentials to exploit. However, in relation to fossil fuels, renewables play only a partial role in the energy generation and final consumption mix. Due to the strong reliance on fossil fuels and imports, these resources are not sufficiently used.

Both countries are committed to the energy and climate policy goals of the EU and thus set final consumption targets for the electricity, heat and transport sectors. Making progress on these goals is not possible without significant investment in new infrastructure and renewables technologies, incentives and a more enabling legislative framework.