Third enerCEE report:

Solar PV Uptake in Central Europe

The transition towards a zero-carbon economy provides Central and Eastern Europe (CEE) with significant opportunities to improve public health, quality of life, and economic prosperity in the region, while also mitigating climate change effects. Deploying low carbon, resource-efficient energy solutions can deliver growth, jobs and competitive advantages.

Most of the Central European countries have become EU Member States in the last two decades and set their 2020 targets of energy from renewable sources in gross final energy consumption. With the new legislative package, namely the Clean Energy for all Europeans, Member States were required to prepare their Integrated Energy and Climate Plans (IECP). The Clean Energy Package aims to enable the European Union to realize its 2030 goals and long-term objectives as well as the targets of the Energy Union in line with the 2015 Paris Agreement.

Despite the progress and the huge potential of Central Europe, countries need to step up their efforts to achieve their goals as well as accelerate the energy transition in the region; this requires countries to set higher targets for both energy efficiency and renewable energy. Photovoltaic electricity generation can play a major role in the process of energy transition towards carbon neutral economies. The third enerCEE comparison report assesses the status of solar PV uptake in four selected countries: **Hungary, Czech Republic, Slovenia and Romania.**

Central European countries are facing several barriers that hinder the clean energy transition and the uptake of renewable energy sources. In many countries, significant economic growth has not been accompanied by appropriate improvements in the energy efficiency of the industrial sector. In many countries, there is the common belief that local fossil fuel and conventional energy production guarantees cheap energy for households, while renewable energy will significantly increases costs.

Securing the safe supply of energy requires overcapacity, huge reserves and a good relationship with the Russian Federation, the biggest energy provider of the region. As the latest study from IRENA *'Renewable Energy Prospects for Central and South-Eastern Europe Energy Connectivity'*[1] demonstrates, another barrier for the system transformation in the region is the outdated energy sector. In the upcoming years, in depth transformation will be required as a large portion of the existing fossil fuel-fired power generation assets have reached or are close to reaching the end of their operational lives. By investing in renewables, energy systems will be less reliant on imported fossil fuels, while delivering energy at competitive costs.

[1] IRENA (2020): Renewable Energy Prospects for Central and South-Eastern Europe Energy Connectivity; https://www.irena.org/publications/2020/Oct/Renewable-Energy-Prospects-for-Central-and-South-Eastern-Europe-Energy-Connectivity-CESEC, accessed on 05.10.2020

Hungary

Installed electricity capacity: 0.69 GW (end of 2018)
Solar electricity production capacity: 2% (end of 2018) of 31.9. TWh = 0,638 TWh

The Hungarian National Renewable Action Plan states that a 14.65 % share of renewable energy in the gross energy consumption should be achieved by 2020. In September 2019, the Hungarian Government announced it is preparing to phase out coal-fired capacity by 2030. The country aims to increase its solar capacity ten-fold in order to compensate for the coal retirements.

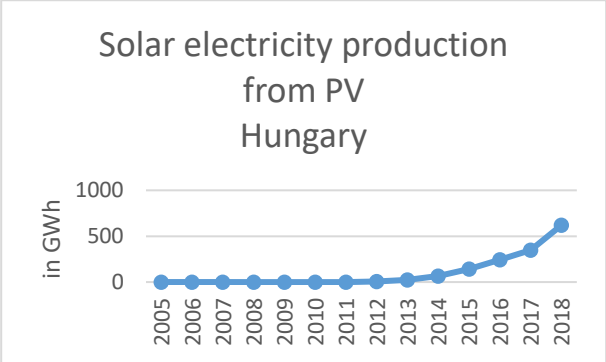

Figure 1 Enerdata

The European Commission approved the new renewable support scheme (METÁR) in July 2017: for systems with a capacity below 500 kW a feed in tariff and for systems between 500 kW and 1 MW a feed-in premium, which is set at the beginning of each year. Systems above 1 MW are eligible for a competitive feed-in premium determined by a bidding procedure.

Hungary connected about 410 MW of licensed PV systems and over 90 MW of residential PV systems, increasing the cumulative PV power to over 1 GW in 2018. The Hungarian Energy and Public Utility Regulator (MEKH) reported that the utility scale PV capacity increased from 726 MW at the end of 2018 to over 1.1 GW at the end of June 2019. In the same period, the residential PV capacity increased from 332 MW to 388 MW.[2]

Czech Republic

Installed electricity capacity: 2 GW (end of 2019)
Solar electricity production capacity: 3 % (end of 2019) 2,61 TWh

The National Renewable Energy Action Plan of the Czech Republic aims to reach 13.5% of renewables in final energy consumption in 2020, which is expected to be exceeded, since renewables already accounted for 15% in 2018 (from that 13.7% for the electricity sector). The NECP aims to raise this share to 22% in 2030, including 14% renewables in transport.

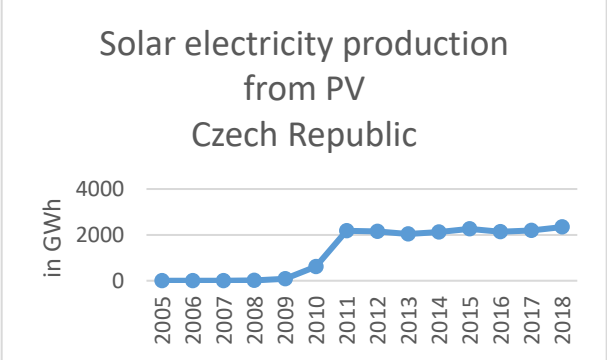

Figure 2 Enerdata

In 2015, the New Green Agreement introduced a new support scheme for small solar PV systems to allow grants of up to CZK 100,000 (EUR 3,700) for solar water heaters and small PV installations generating power for own consumption.[3]

Slovenia

Installed electricity capacity: 0.27 GW (end of 2018)
Solar electricity production capacity: 2 % (end of 2018) 0.326 TWh

The Slovenian national target is to raise the share of renewables in final consumption to 25% in 2020 (of which 10.5% in transport, 31% for heating and

[2] Enerdata (2020): Country report, Hungary, October 2019, https://global-energy-data.enerdata.net/database/, accessed on 05.10.2020

[3] Enerdata (2020): Country report, Czech Republic, June 2020, https://global-energy-data.enerdata.net/database/, accessed on 05.10.2020

more than 39% for electricity). In 2017, renewables accounted for nearly 22% of final energy consumption (2.7% in transport, 34% for heating and 31% for electricity). The NECP 2019 raised the target on renewables to at least 27% of final consumption by 2030.

In 2014, Slovenia amended its support scheme for renewable electricity and cogeneration, and replaced the existing feed-in tariff system with tenders for new renewable projects. The new support scheme introduced a tender process (auctions by the ECO Fund) for renewable power plants to benefit from the support scheme over a 15-year period. A first round of selection is reserved to hydropower, solar PV and waste-to-biogas projects up to 10 MW, and wind projects up to 50 MW.

Tenders were first held in December 2016 and February 2017: 135 renewable projects totaling 125 MW (of which 105 MW of wind power) and 36 CHP projects totaling 34.5 MW were selected.

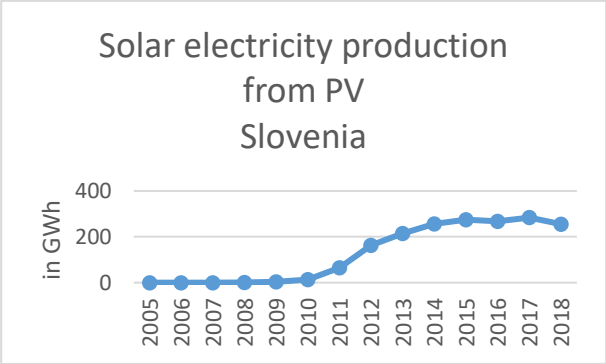

Figure 3 Enerdata

In January 2018, the national energy agency (ANER) selected 93 projects totaling 98 MW through a second tender launched in October 2017 and offering EUR 10m of incentives; 27 solar and 11 hydropower plants below 10 MW, 37 wind projects up to 50 MW, and 15 CHP below 20 MW were selected.[4]

Romania

Installed electricity capacity: 1.4 GW (end of 2019)

Solar electricity production capacity: 3 % (end of 2019) 1,794 TWh

Romania possesses abundant energy resources, mainly due to large wind and solar capacities of the country. Wind and solar generation surged between 2011 and 2015 reaching 14% of the power mix (of which 11% wind and 3% solar).

The National Renewable Energy Action Plan (NREAP) of 2010 set the target of 24% of renewables in final energy consumption in 2020, which was already surpassed in 2014. The National Energy Strategy 2019-2030 expects power generation to increase from 63 TWh in 2017 to 77 TWh in 2030 and 86 TWh in 2050, with renewables accounting for 38% of the power mix in 2030 (including 23% of hydropower and 14% of wind and solar). In order to achieve this goal, renewable capacity could reach 5.5 to 6.5 GW by 2027 (3.6-4 GW of wind, 1.6-2 GW of solar and 300-500 MW of biomass).

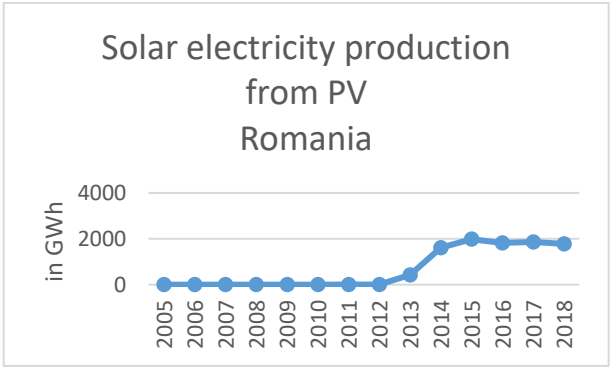

Figure 4 Enerdata

In 2010, subsidies were introduced for wind, solar, geothermal, biomass and small hydro. Two additional subsidy schemes were introduced between 2010 and 2013 for farmers (40-75%) and SMEs in the agricultural and forestry sectors (up to 50%). Under a new scheme running from 2014 to 2020, farmers producing electricity or heat from wind, solar, geothermal, biogas, and biomass systems can receive funding (up to EUR 2m, under a total budget of EUR 150m). Since December 2018, households installing PV systems can receive up to

[4] Enerdata (2020): Country report, Slovenia, November 2019, https://global-energy-data.enerdata.net/database/, accessed on 05.10.2020

90% of the cost (capped at RON 20 000, i.e. around EUR 4,300).[5]

Summary

To create an enabling framework for renewable investments and robust energy policies, cross-border cooperation and integration needs to be strengthened, especially in the light of the new EU climate and energy framework until 2030 that envisions a nearly complete lignite and coal phase-out. The decline of fossil fuels is inevitable. Therefore, in depth planning is required to ensure the security of supply and to allow for a rapid transition to renewables.

[5] Enerdata (2020): Country report, Romania, June 2020, https://global-energy-data.enerdata.net/database/, accessed on 05.10.2020