

Sixth enerCEE Report

Status on renewable energy uptake in Romania and Bulgaria



The sixth enerCEE comparison report looks at the progress of renewable energy uptake in Romania and Bulgaria.

As both countries became the Member States of the European Union in 2007, they established policies and supporting mechanisms by incorporating the EU obligation to develop renewable energy production. The national plans reflect on the individual challenges while aligning the national policy frameworks with the European ones.

After achieving their renewable energy targets by 2020, both countries continue to make headways toward the modernization of the energy sector, expand renewable generation capacities, improve energy efficiency and adopt further decarbonisation measures to advance their 2030 targets and implement measures laid out in the Integrated Energy and Climate Plans.

Romania

Romania set a target of 24% renewables in final energy consumption in 2020 (43% for electricity, 10% transport, and 22% for heating and cooling) in the National Renewable Energy Action Plan (NREAP) adopted in 2010. The country exceeded this target in 2014 (23.9% in 2018, of which 41.9% for electricity, 6.3% for transport, and 25.4% for heating).

The National Energy Strategy (2019-2030) with a view to 2050 aims at increasing the share of clean energies and improving energy efficiency while providing access to electricity and heat for all consumers. The strategy contains measures and projects to protect vulnerable consumers and reduce energy poverty. It sets out the goal of restructuring the market framework in the context of transition-induced costs and improving the competitiveness and innovativeness of the energy markets.

In the National Energy and Climate Plan (NECP), the main targets of the upcoming decade were laid out. Romania aims to raise the share of renewables in final energy consumption to 30.7% by 2030, including a 49.4% share in electricity consumption, 33% in heating and cooling, and 14.2% in transport). These targets can be reached by an added capacity of 6.9 GW that requires additional infrastructure

and financial support from the European Union. The share of renewables in power generation sources should be accounting for 50% by 2030.

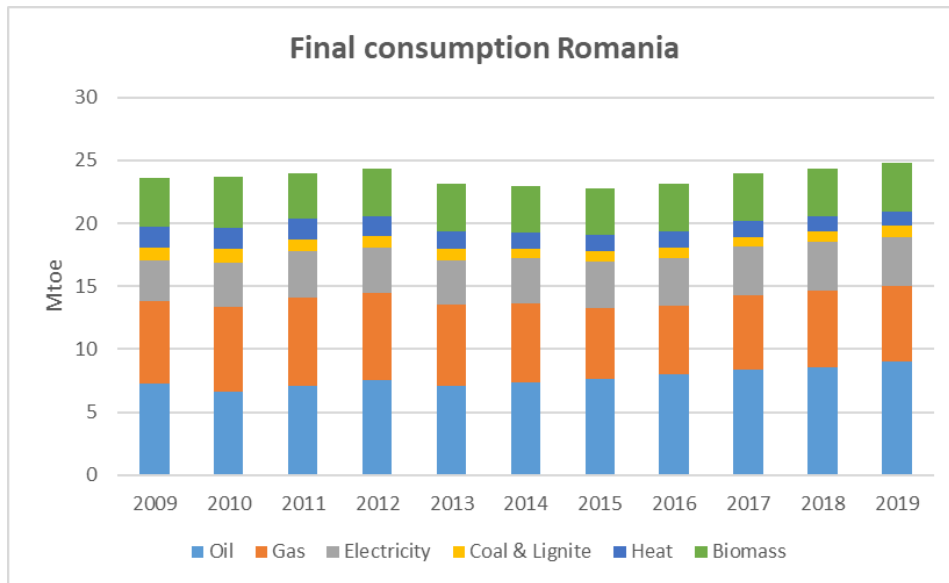


Figure 1 - AEA, Source Enerdata

Power generation

Power generation remained stable at around 65 TWh between 2014 and 2018 but decreased by 7.8% in 2019 to 60 TWh. In 2019, hydropower continued to dominate the electricity production (27%), followed by coal (21%), nuclear (19%) and gas (18%). Wind and solar generation increased between 2011 and 2015, reaching 14% of the power mix (11% wind and 3% solar).

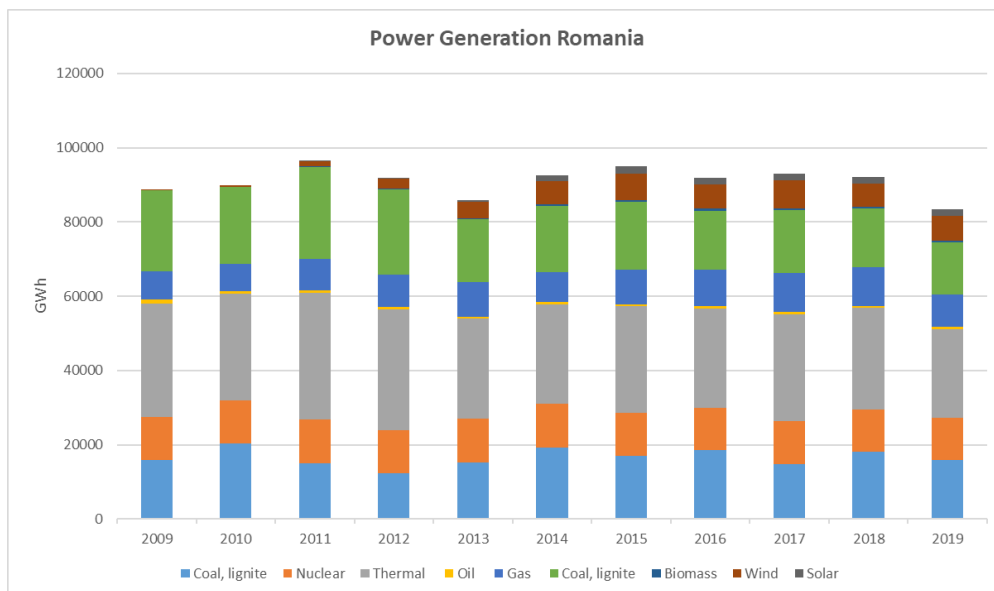


Figure 2 - AEA, Source Enerdata

Romania possesses abundant renewable energy resources. Although, wind and solar capacities have barely increased since 2015 (by 64 MW). Solar installations surged but the pace has been slowing down, as only 75 MW has been installed since 2015, solar capacity accounted for 1.4 GW in 2019. As the National Energy and Climate Plan states, wind and solar photovoltaic capacities need to be

extended. The share of wind in the power generation mix is expected to reach 11.69 TWh (6.57 TWh), between 2021 and 2030. The share of solar photovoltaic should increase from 1.98 TWh to 7.36 TWh.

IRENA finds that in addition to the potentials described in the National Renewable Energy Action Plan (NREAP), Romania has the following RES potentials to exploit:

- hydropower around 38 TWh,
- wind around 154 TWh until 2050,
- solar PV around 26 TWh until 2050 and
- biogas around 8 TWh.¹

Romania ended its quota scheme in 2016, which left no incentive for large renewable projects. Biomass, biogas, and geothermal projects, as well as renewable projects for self-consumption in farms, are eligible for subsidies. Besides, households can receive subsidies for PV installations up to 3 kW. The Government re-introduced long-term bilateral PPAs in May of 2020 for renewable projects commissioned after 1 June 2020.²

Bulgaria

In 2011, Bulgaria published its Energy Strategy until 2020 that aimed at improving energy security through the diversification of energy supplies, an increase in liquid fuel stocks and better utilization of local energy resources. While improving energy security through new gas infrastructures and shale gas development, Bulgaria aimed at further upscaling renewables and energy efficiency and completing the liberalization of energy market. The national target of 16% set by the Renewable Energy Directive of renewables in final consumption in 2020 was exceeded in 2012 (20.5% in 2018, of which 22% for electricity, 33% for heating and cooling and 8.1% for transport).

In 2020, Bulgaria published its National Energy and Climate Plan (NECP) 2021-2030, introducing a set of renewable and energy efficiency targets to reach by 2030. The country set a target of 25% of renewables in final energy consumption by 2030, including 17% for electricity, 44% for heating and cooling, and 14% for transport.

The draft Sustainable Energy Development Strategy sets out the main priorities for the development of the energy sector until 2030. Energy security, the development of an integrated and competitive energy market and consumer protection, an increase in energy efficiency, decarbonisation and innovative technologies are highlighted as priorities. Among others the development of systems for energy storage and adding 2.65 GW in new renewables capacity are planned for the next decade.

¹ IRENA (2017): Cost-competitive renewable Power generation: Potential across South-East Europe)

² Enerdata (2021): Energy Report, Romania

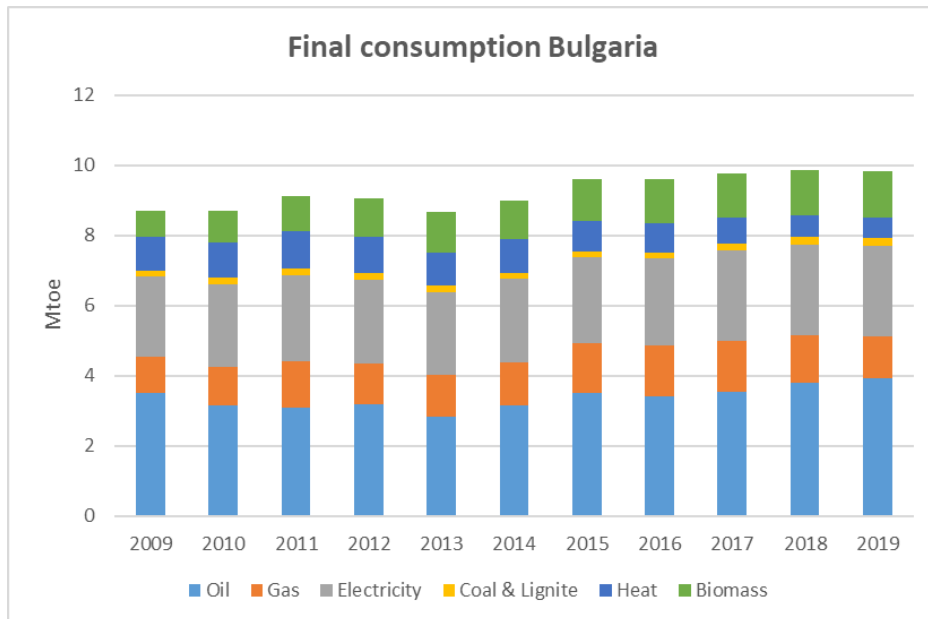


Figure 3 - AEA, Source Enerdata

Power generation

Electricity production evolved unevenly, ranging between 45 TWh and 50 TWh since 2011. Due to the rise in renewables, production increased in 2010 and 2011, after remaining relatively stable between 2000 and 2009. In 2018, power generation increased by 1.9% to 46.4 TWh, thanks to a 55% surge in hydropower and a 3.9% rise in nuclear. According to preliminary estimates, power generation decreased by 3.8% in 2019. Lignite and nuclear kept dominating the power mix (40% and 35%, respectively, in 2018). Russia remained the main gas supplier.

The yearly goal set for the share of renewables in the power generation, has been considerably exceeded in 2013, however, raising the yearly target has not been considered yet or additional power generation from renewable sources has not been incentivized.

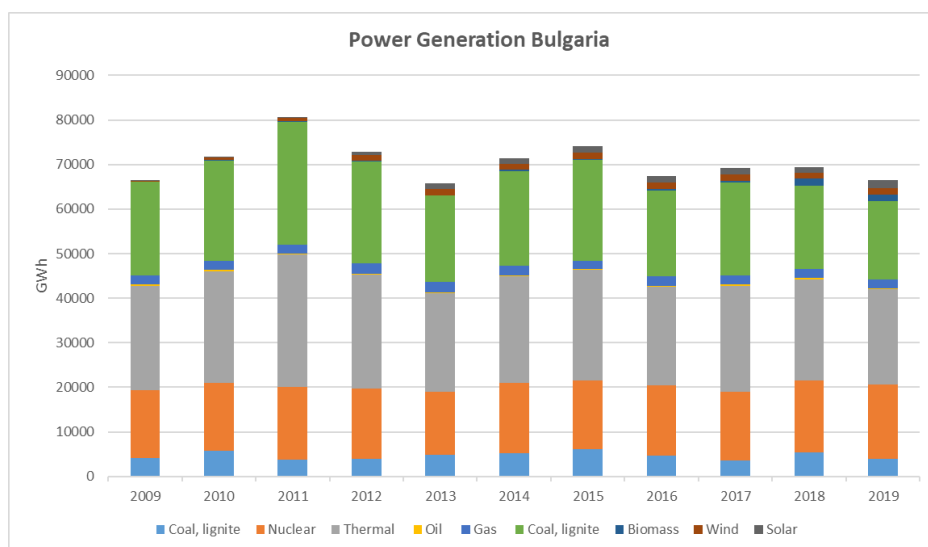


Figure 4 - AEA, Source Enerdata

The 2020 goal set out in the Bulgarian National Renewable Energy Action Plan (21%) was achieved in 2018. In the same year, renewables in the power generation mix accounted for 22 %. The National Energy and Climate Plan (NECP) foresees 30% of renewable energy sources in the power generation mix until 2030.³ The National Energy and Climate Plan (NECP) emphasizes the need to extend wind power and solar PV capacities. Wind power should reach 1900 GWh and solar PV 4800 GWh by 2030. Currently, both of them are accounting for 1300 GWh.

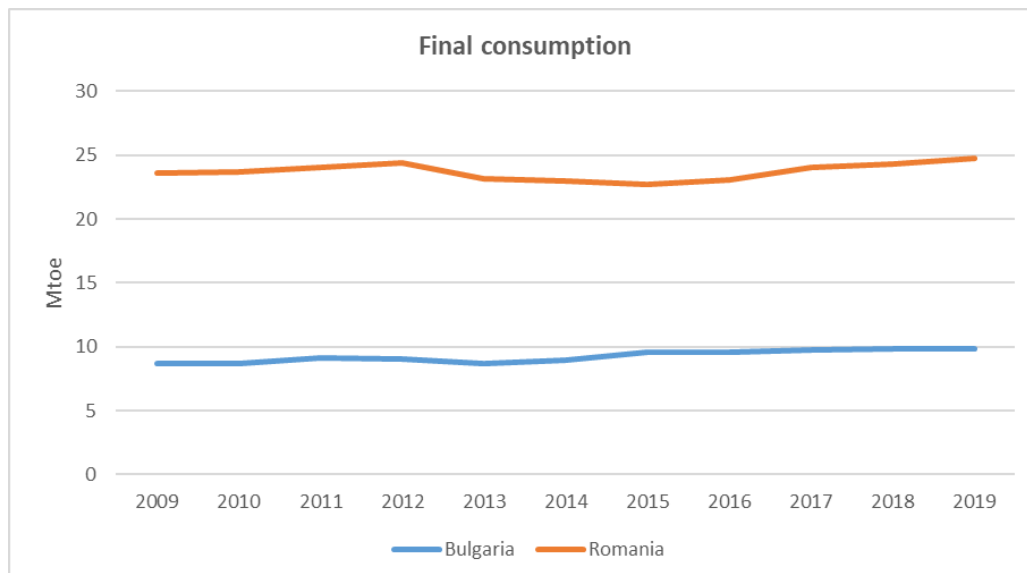
According to IRENA findings, in addition to the potentials described in the National Renewable Energy Action Plan (NREAP), Bulgaria has the following RES potentials:

- hydropower around 13 TWh,
- wind around 53 TWh until 2050,
- solar PV around 10 TWh until 2050 and
- biogas around 2 TWh.⁴

In 2007, the Renewable and Alternative Energy and Biofuels Act introduced long-term power purchase agreements and mandatory purchase of renewable electricity. It also implemented feed-in tariffs (FiTs) for photovoltaic, wind, biomass and biogas, geothermal and small hydroelectricity. FiTs led to growth of solar capacity (from about 30 MW in 2010 to more than 900 MW in 2012) and increased end-user tariffs, forcing the country to reverse its renewables policies.

However, since 2011, Bulgaria has been implementing various measures aimed at hindering investors and curbing the weight of financial incentives, which ended up with the final removal of feed-in tariffs for new projects in 2015. Only plants below 1 MW (since 2019) are eligible for FiTs and plants above 1 MW benefit from the premium.

Final consumption



The final consumption in Bulgaria accounted for 9.8 Mtoe in 2018. Oil remained the main energy source consumed (38%). The share of coal and lignite has been decreasing since 2000 (from 10% to 3%

³ Enerdata (2021): Energy Report, Romania

⁴ IRENA (2017): Cost-competitive renewable Power generation: Potential across South-East Europe)

in 2018), while electricity has been increasing (26% in 2018, compared to 22% in 2000). The share of biomass has doubled (from 6% to 13%) since 2000. The share of gas accounted for 14% in 2018.

Romania's final consumption reached 25 Mtoe in 2019. Oil covered 36% of final energy consumption (up from 26% in 2000), followed by gas (25%, down from 30% in 2000), while electricity and biomass (16%), heat (5%), and coal (4%) remained stable.

Summary

As the long-term plans of Romania and Bulgaria demonstrate, further decarbonisation and diversification of the national energy mix is required to reach the targets set out in the Integrated National Energy and Climate Plans. Both countries foresee the modernization of the energy sector through the construction of new generating capacities, repowering of production capacities, facilitation the uptake of renewables in the transport sector and decentralizes distribution of energy, while encouraging savings in domestic consumption under energy efficiency target.