

ELECTRICITY Infrastructure in SE Europe

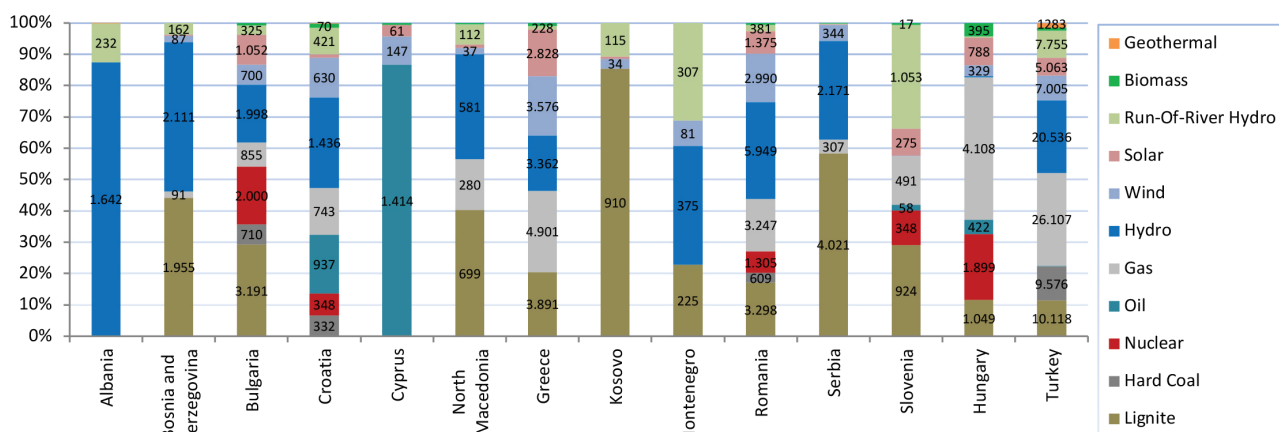
Currently, power systems in South East Europe are facing significant challenges on the path towards energy transition. These challenges stem from the overall goal for the decarbonization of regional power generation, as regional electricity markets are in the process of substituting coal/lignite-fired baseload generating units with newly developed natural gas and RES capacities. The main challenges therefore are the gradual transformation of the local coal-based economy and the implementation of the required grid enhancement projects aiming to facilitate the intermittent generation from newly deployed renewables.

Despite specific **coal decommissioning** plans in the region, adequacy concerns due to the decommissioning of older plants make decarbonization for power generator a difficult choice. Coal and lignite projects currently under construction include the Ptolemaida V (net 615 MW) in Greece, TPP Kostolac B3 (320 MW) in Serbia and TPP Tuzla 7 (450 MW) in BiH, which are expected to come on stream in 2021, 2022 and 2024 respectively. At the same time, a most ambitious lignite phasing out program is being promoted by Greece, aiming at decommissioning 3.0 GW of existing lignite-fired net installed capacity by 2022 and totally 3.8 GW, the entirety of Greece's current lignite-fired power plant fleet, by 2023.

Romania is in the process of adjusting to more ambitious goals as it recently drafted its updated NECP (31/01/2020), which anticipates the decommissioning of 1.26 GW of coal-fired baseload by the end of 2025. On the other hand, Bulgaria and the WB6 countries have chosen a more modest decarbonization path, which is not consistent with the European goals and lurks the danger of breaching emission limits set by EU's Industrial Emissions Directive (IED).

The only **nuclear** projects in the region scheduled before 2030 are Reactors 5 and 6 at Paks NPP (2 x 1,200 MWe) in Hungary and the much anticipated Unit 3 at NPP Cernavodă (720 MWe) in Romania, expected to be commissioned in 2025, 2026 and 2029 respectively. Greece is the only country in the region that has consciously chosen **natural gas** as a transition fuel, with two gas projects on the pipeline, one by Mytilineos S.A. (826 MW) already under construction and one by Elpedison (828 MW) under licensing procedure, expected to be connected to the grid in 2022 and 2023 respectively. Newly built gas power generating units in SEE region include Panchevo CCGT (200 MW) in Serbia and TEC Vlora CCGT (98 MW) in Albania, expected online as early as 2020 and 2024 respectively.

Installed Capacity per Country and Production Type in SE Europe (MW) (2019)

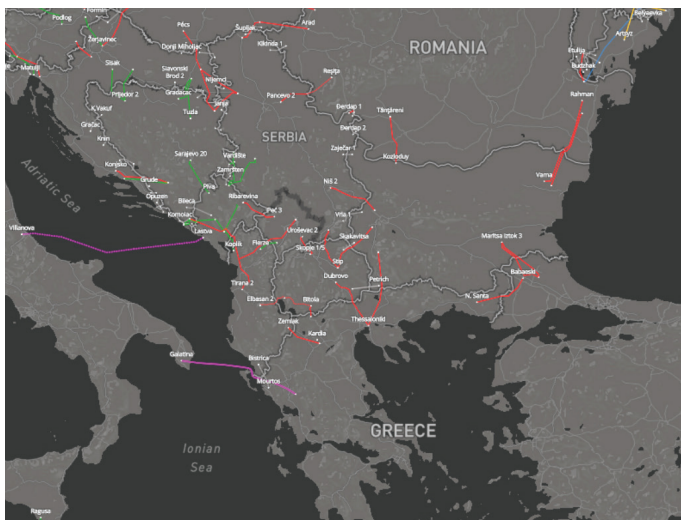


Sources: IENE, ENTSOE, Republic of Cyprus, Ministry of Innovation and Technology of Hungary

With regard to the deployment of **renewables**, significant steps have been made by Greece with 727 MW of windpower being deployed during 2019. Albania has also made steps in the installation of new solar PV, with the deployment of the first phase of Akerni Vlora Solar PV farm (50 MW) and various smaller projects (15 MW), which have been connected during 2019. Montenegro has also made progress with the connection of WPP Mozura (46 MW) and commencing the construction of a large solar PV farm at Briska Gora (250 MW) in 2020.

Moreover, Serbia is aiming at increasing RES penetration with the commissioning of Wind Farm Kostolac (66 MW) and HPP Potpec G4 (13 MW), both expected in 2020. On the other hand, deployment of solar PV and windfarms has been rather stalled in Bulgaria, North Macedonia and BiH during 2019.

Cross-border Power Interconnections Between SEE and Peripheral Countries (2019)



Source: ENTSOE

Concerning the deployment of **large hydroelectric units**, important projects are currently being developed in Albania with planned total installed capacity of 558 MW, to be implemented latest by the end of 2023.

Furthermore, future hydropower projects in the SEE region might derive from Bosnia and Herzegovina's high untapped potential, while the much discussed Turnu Magurele-Nicopole (400 MW) hydropower plant on the Danube river located in Romania has yet to see a concrete implementation proposal. Turkey is the major investor in hydropower projects in the region with more than 1,000 MW of hydroelectric dams commissioned in the period of 2018 – 2019.

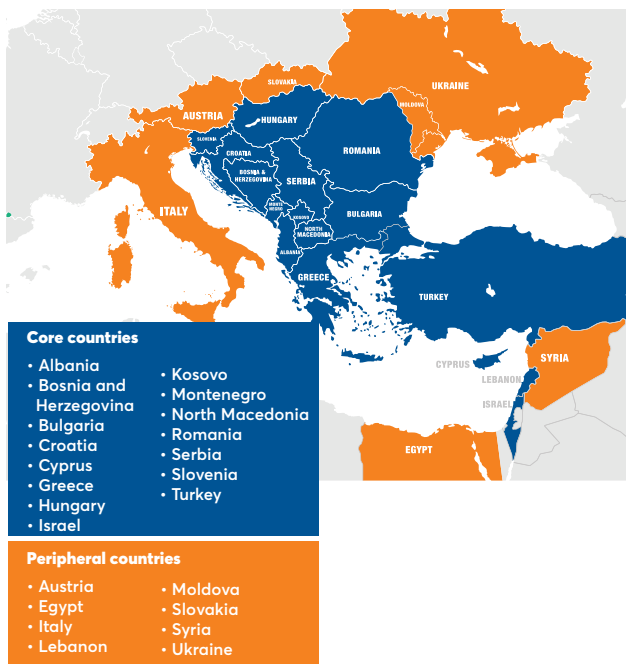
New regional grid interconnections are planned to facilitate the excess generation of variable renewables as flexible and intermittent generation becomes a norm in SEE. Most notable is the recently completed Italy-Montenegro interconnection project, deployed in November 2019, which links via a HVDC subsea cable Villanova (Italy) and Lastva (Montenegro).

Ongoing projects of major importance for the interconnectivity in SEE are:

- (a) the Black Sea Corridor project (Romania – Bulgaria),
- (b) the CSE4 400kV power link between Bulgaria and Greece, expected in 2023,
- (c) the Mid Continental East Corridor (Serbia - Romania),
- (d) the Transbalkan Corridor (Serbia – Montenegro – Italy),
- (e) The new interconnection line between Serbia and Croatia,
- (f) The new 400 kV interconnection line between Hungary and Romania and 6 more PCI projects.

Furthermore, in Greece, IPTO, Greece's TSO, is expected to commence phase 3 of the interconnection of the Cyclades islands with the mainland grid on the 4th quarter of 2020.

The SE European Region as defined by IENE



Who are we?

The Institute of Energy for SE Europe (IENE) is a nonprofit organization active throughout South East Europe, focusing on energy policy and analysis but also on information dissemination. IENE aims to promote a broader understanding of the major energy and environmental issues in the region.

A key objective of the Institute is to contribute towards the implementation of the European Union's sustainable strategy which combines economic and social development, security of supply, environmental protection and climate change mitigation.

Further information on the Institute, its mission and vision and its various activities can be found in www.iene.eu

