

SEE, Serbia, Croatia, Hungary, Bosnia, Romania: New ENTSO-E electricity corridors investment plan to enable power export to Italy

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The European Network of Transmission System Operators ENTSO-E has adopted six regional investment plans, including the plan for the continental south-east region CSE (Continental South East) which covers the area of the Balkans and Italy.

The ten-year development plan TYNDP for electricity is the most comprehensive and the most up-to-date reference for planning the Pan-European electricity transmission network. All relevant Pan-European projects are assessed therein in a series of different scenarios. This is a biannual report which is published in even years and it is the basis for determining the list of projects of common interest (PCI list), in accordance with the EU Energy Infrastructure Regulation.

The work on the TYNDP 2016 is divided in two phases:

First phase (summer 2015 – summer 2016) includes identification of a list of projects that are candidates for the TYNDP 2016.

Second phase (summer 2016 – end of 2016) will be dedicated to assessing the projects by using the *cost-benefit* method, on the basis of the possible scenarios for the period 2020/30.

In the previous years, the scope of electricity exchange on the electricity market within the region has been moderate in comparison to the rest of Europe, which is the consequence of small national electric power systems and the peripheral position that the region has in Europe.

The results of the studies conducted so far indicate towards a dominant energy flow direction from east to west and from north to south.

The main characteristics of the transmission network development in the region can be summarized in the following:

- Increasing the transmission capacities and market integration: the network is poor so an increase in transmission capacities (cross-border and internal) is a precondition for market integration in the region. In addition, the price difference between the Balkans and Italy is the main driving force for the development of capacities for the transfer of energy to Italy through a submarine interconnection.

- Integration of renewable energy resources (RER): RER exploitation is insufficient, except in Greece, Bulgaria and Romania. The expected integration of RER (mostly wind, hydro and FV)

aimed at achieving EU objectives, requires a comprehensive development of transmission capacities.

- Withdrawal of conventional facilities, mostly in the western part of the region.

In the plan, it is stated that coal, particularly lignite, dominates the electric power systems within the region, whereas hydro capacities are ranked second. Nuclear power plants have the participation of 18 percent in the total annual electricity production.

In 2014, Hungary, Croatia and Greece were the largest importers in the region, and Bulgaria, Romania, BiH and Slovenia were the largest exporters.

The main driving forces of transmission system development arise from the objectives of the EU energy policy – supply security, integration of internal electricity market, mitigation of climate changes through a widespread exploitation of RER and increasing energy efficiency.

Several potential bottlenecks have been identified within the electric power system in SE Europe for the following decade, if new transmission capacities are not developed – supply security, a direct connection of capacities and market integration.

To respond to the overloads detected in the analyzed scenario, a list of new projects has been agreed. The overload of the line at the border between Bulgaria and Serbia, Bulgaria and Macedonia, as well as Romania and Serbia will be solved with two new projects – a double OHL line Sofia West (BG) – Niš 2 (RS) and the doubling of the existing 400 kV Đerdap 1 (RS) – Portile de Fier (RO).

The limitations on the transmission line at the border between Bulgaria and Greece, which is detected on the future 400 kV line Maritsa East (BG) – Nea Santa (GR), will be eliminated by doubling the transmission line.

The overload at the border between Romania and Hungary will be solved by constructing a new 400 KV long distance power line Debrecen (HU) – Oradea (RO).

In addition, the results of market simulation have indicated towards a need to increase the capacity at the border between Serbia and Croatia, as well as Croatia and BiH. Accordingly, the following projects have been agreed:

1. A new 400 kV OHL line Ernestinovo (HR) – Sombor 3 (RS), which will simultaneously solve the overload issue on the line Sandorfalva (HU) – Subotica 3 (RS) and the internal line Paks – Sandorfalva (HU) and
2. Upgrading the existing 220 kV line between the transformer substation Đakovo (HR) and the transformer substation Tuzla/Gradačac (BA)

With the aim of increasing cross-border capacity, and in accordance with national requirements, two internal projects have been nominated in Serbia:

1. Improvement of the existing 220 kV voltage network in central Serbia. This project is directly linked to the increase in the cross-border capacity between Serbia and Bulgaria, as well as between Serbia and Montenegro and Serbia and BiH. This project will build a completely new corridor from east to west, which will increase the potential for the transit of electricity from Bulgaria and Turkey towards Italy, Montenegro and BiH.
2. The project of 400 kV ring around Belgrade will solve the overload problem of the line Pančevo 2 – Beograd 20, it will enable the electricity transit from Romania to Croatia and Italy and strengthen the corridor north – south and east – west, considering that Serbia has eight borders and is located in the heart of the region. , transmits Serbia-energy.eu