



Transelectrica SA

Companie administrată în sistem dualist

We lead the power

**Central European Day of
Energy Conference, 2nd
DEC 2020**

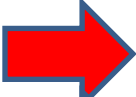

Black Sea Offshore potential

Source: ROMANIA'S OFFSHORE WIND ENERGY POTENTIAL

Authors: Energy Policy Group (EPG) in cooperation with Dunărea de Jos University of Galați

The natural and technical potential of Romania's offshore wind sector, total an estimated potential natural capacity of **94 GW**, out of which **22 GW** could be installed as fixed turbines, leading to a total Annual Energy Production (AEP) of **239 TWh**, with 54,4 TWh from fixed turbines.

Two potential clusters

-  one with capacity factors between 33-35%, in water depths below 50 m at 40-60 km from the shore (**orange** colour in the next slide)
-  the second area presents marginally better wind resources, but the existing onshore power transmission line is further inland and the connection grid would have to be extended through the Danube Delta, which is a protected area (**pink** colour in the next slide)

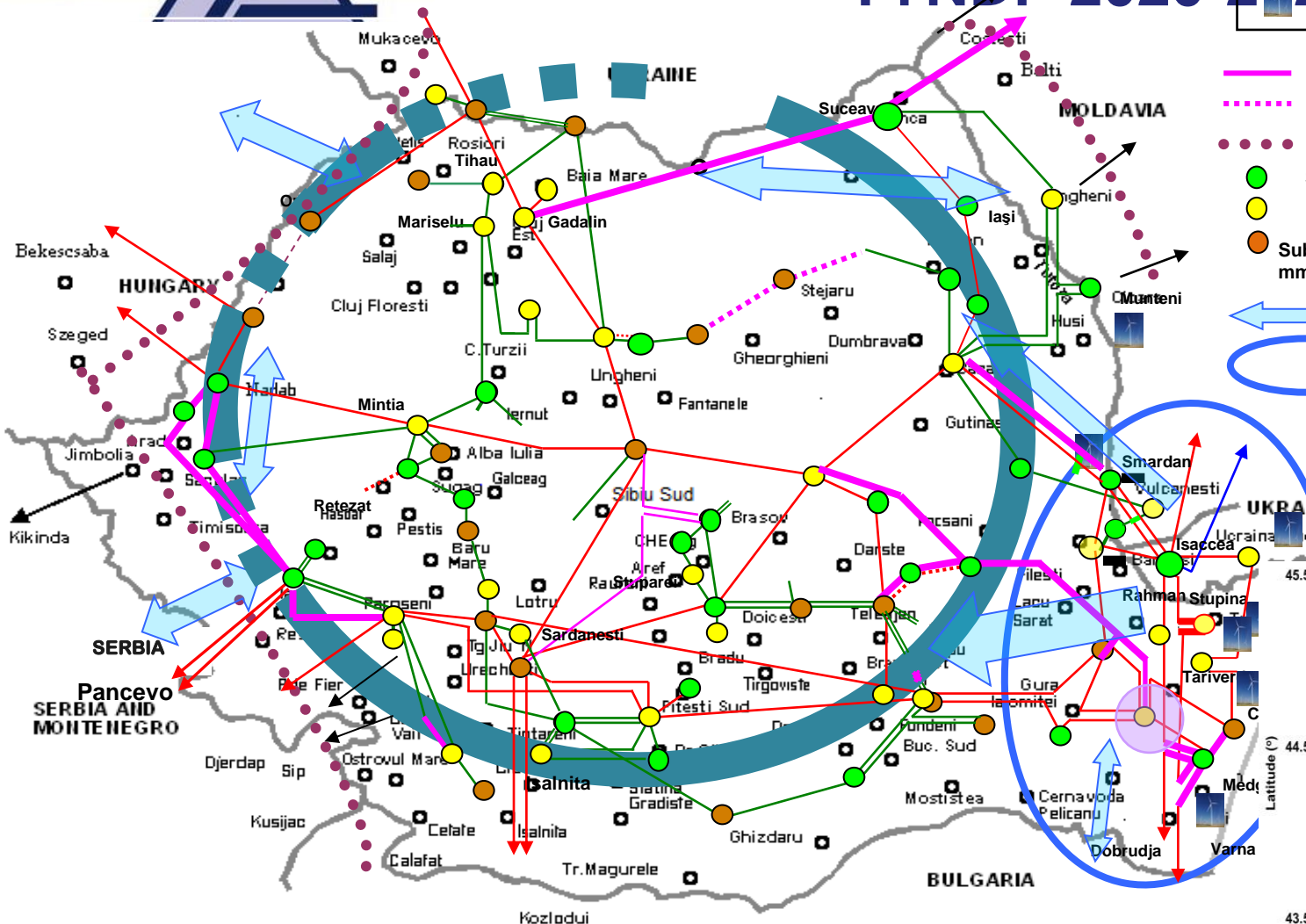
The existing and under development infrastructure of transmission grid opens the opportunities for offshore developments in the orange area on the next slide.



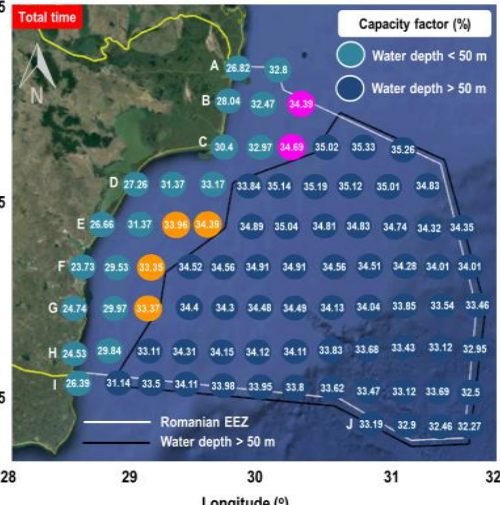
TYNDP 2020-2029

- OHL 400kV
- OHL 220kV
- - - OHL 400 kV operate at 220 kV

Fossil fuel generation
CEE



- New Transmission Lines (> 1000 km)
- - - OHL Capacity Increasing projects
- Interconnection increasing capacity
- Substation refurbishment Projects
- Recently modernized Substations
- Substations MicroSCADA recently modernized
- ← Power Flows
- Largest Wind Power Generation area
- CNE Cernavoda
- 400 kV National Ring



MAIN PROJECTS IN THE GRID DEVELOPMENTS FOR RES INTEGRATION:

- LEA 400kV double.circuit. Smârdan – Gutinaș;
- LEA 400kV double.circuit. Cernavodă – Gura Ialomiței – Stâlpu
- OHL 400 kV double.circuit. Stâlpu – Brașov ;
- OHL400 kV double.circuit. Medgidia Sud – Constanța Nord;
- OHL 400kV Tulcea Vest – Isaccea second circuit
- 220 kV OHLs capacity increasing by new line conductors

Transelectrica will consider, during the year of 2021, a technical assesement for a DC cable form the Black Sea Costal area to main consumption area of Bucharest.

Important benefits of offshore wind integration:

- Improved system adequacy
- Significant opportunities for the hydrogen economy and GDP increase
- RES (without hidropower) target **Increased to 34%** with an wind installed power from present 3 GW to 6 GW at 2030 horizon – to figure this the average Romanian consumption estimate is 7,5-7,7 GWh in the year 2030.

TYNDP 2020-2029

Final (provisional) thoughts

After receiving feedback from the renewable industry, Transelectrica added an analysis of the scenario based on the 2030 targets presented by the NECP. In effect, Transelectrica considers about 500 MW of offshore wind in the Black Sea, which is to be connected to the onshore grid in the Constanța Sud power substation.

- **For the offshore generation development the renewable industry, TSO, public authorities and stakeholders at large has to cooperate in an efficient and accelerated way in order to match the national RES and the economic developments targets for the next decade.**
- **An important role is the regional cooperation with the Black Sea neighbouring countries as well.**



Thank you !

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