



Transelectrica SA

Romanian Electricity Transmission Grid Operator

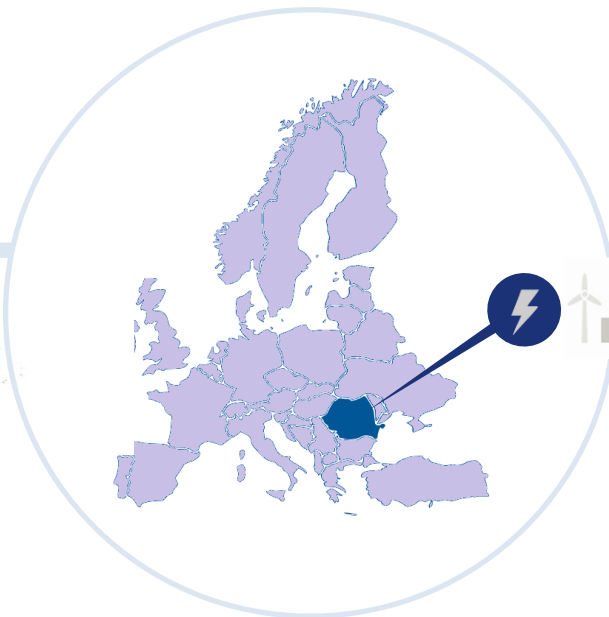
We lead the power

General Presentation



Scope of business operations

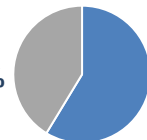
Europe / CEE / Romania
Utilities / Electricity transmission grid
Regulated monopoly



Licence & Concession

25 years license to operate the Romanian main power grid
49 years concession agreement with Romanian Gov (grid assets)

41%
Free float



59%
Govt

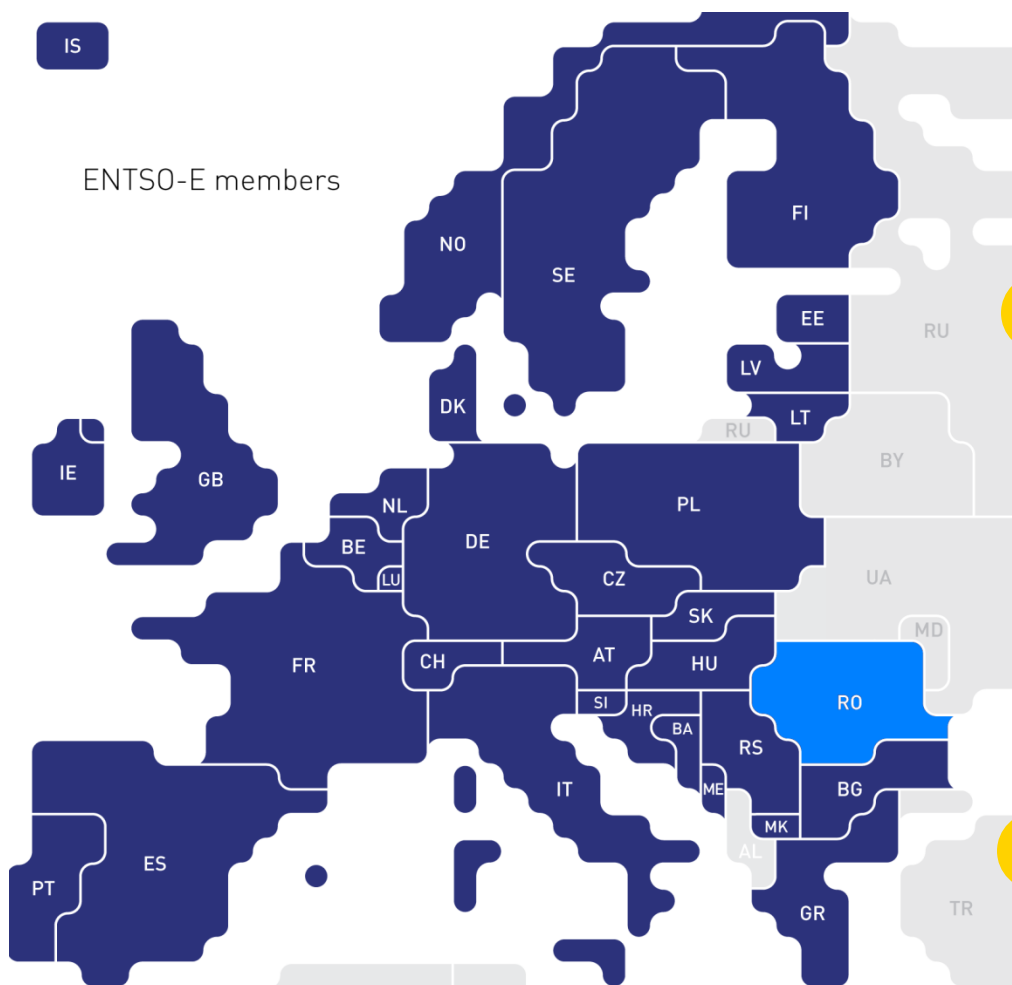
General profile

Regulated prices
Pure network business i.e. just the grid, not active on the market side of the sector (generation/sale)
Defensive business model
Stable and predictable cash-flow

Regulatory profile

Good visibility (5-year price-control cycles with annual rate reviews)
Clear setup for OPEX & CAPEX cost recovery
ROI set by regulation (embedded into grid fees)





ENTSO-E members

...of different electricity systems:

- Continental Europe
- Moldova, Ukraine, Turkey

...of EU and non-EU countries

(EU legislation not mandatory for all the countries in the region)

...of different congestion management regions within Europe:

- West-Central-East (FR→RO)
- South-East (RO, BG, GR)

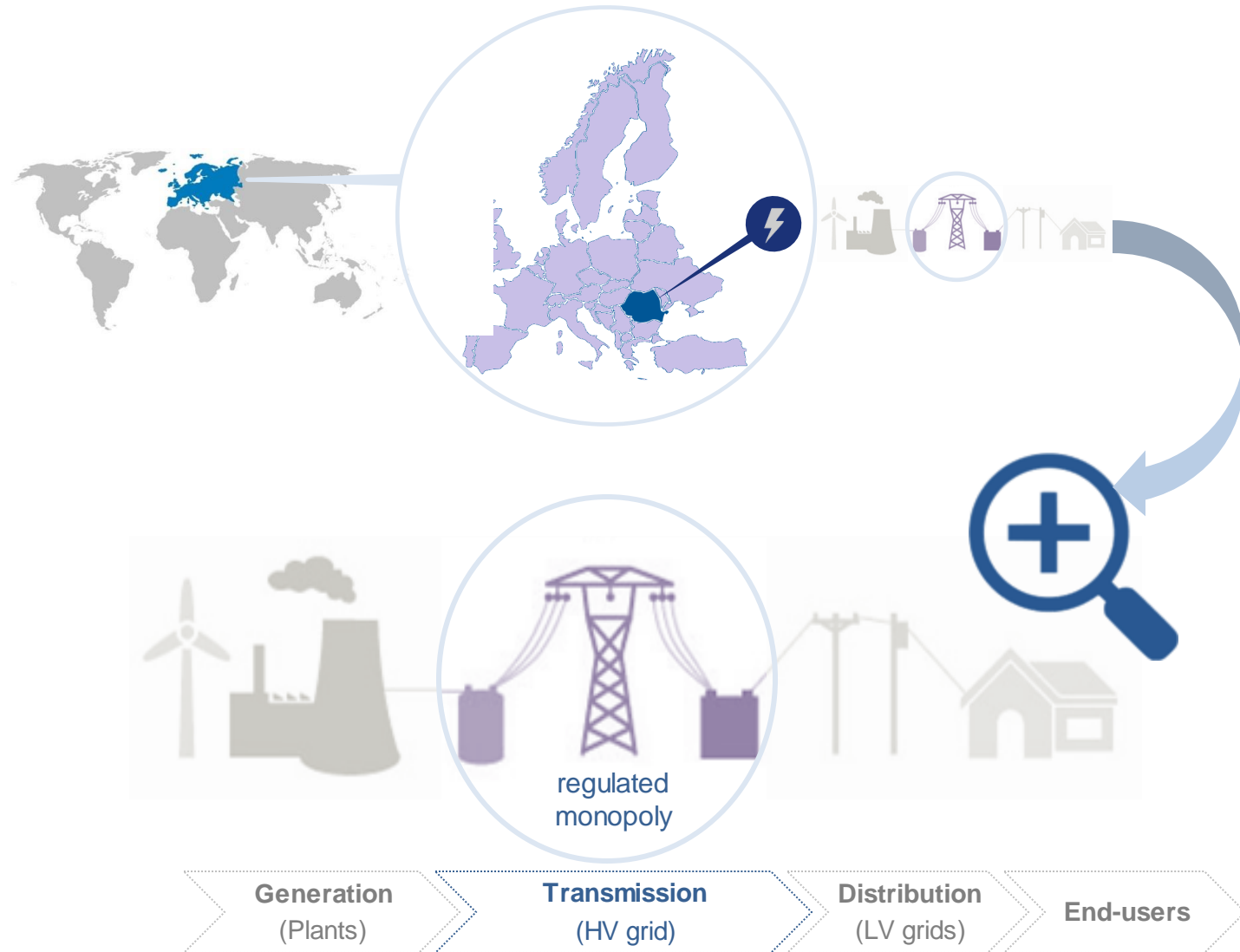


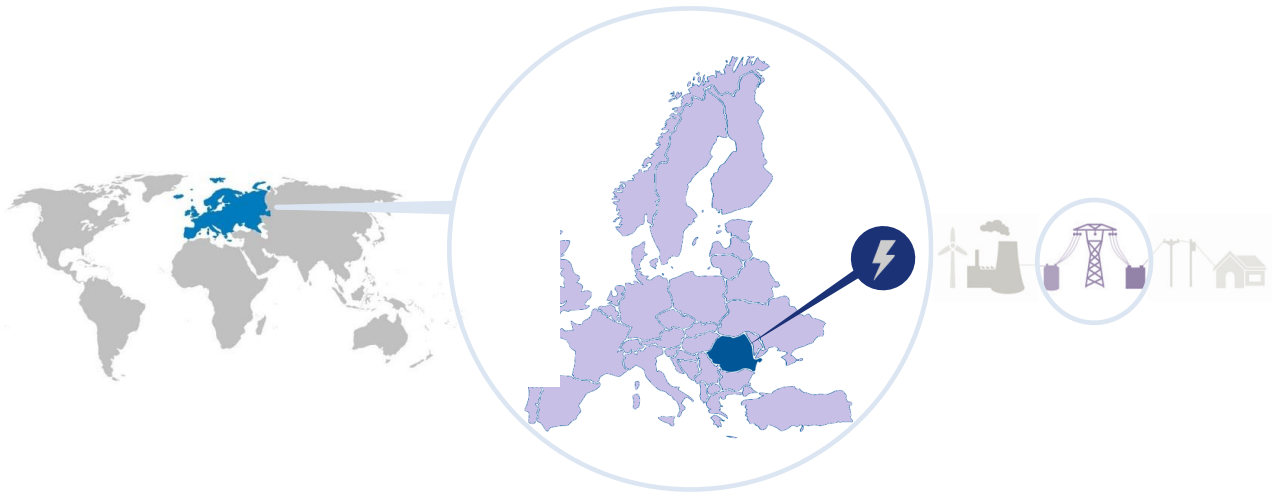
What we do

- Transport bulky volumes of electricity across Romania
- Operate Romania's cross-border power links with neighboring countries

What we don't

- Produce electricity
- Trade in electricity
- Deliver electricity supplies all the way to retail end-users





≈9,000 km
Network length



≈375 €m
Market value of equity



400/220/110 kV
Voltages operated



≈ 900 €m
Capex plan next 10 years

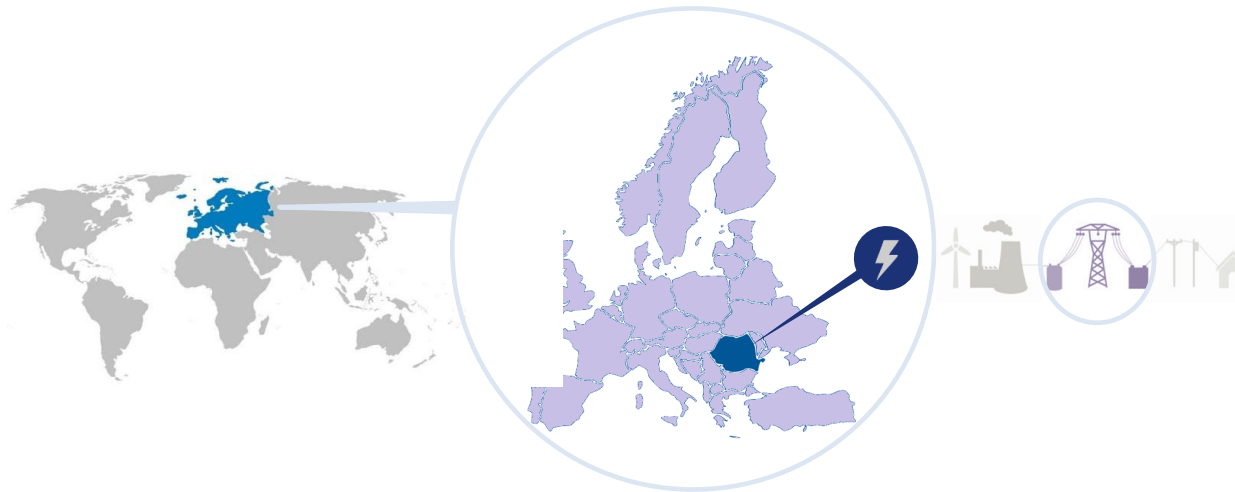


25 years
License lifespan



BBB
Fitch (sovereign +1)





Transmission

- Maintenance, operation and upgrade of the national high-voltage electric backbone
- Operation of cross-border interconnection lines
- High availability (low outage) rates
- Unrestricted grid access for all users



Dispatching & System services

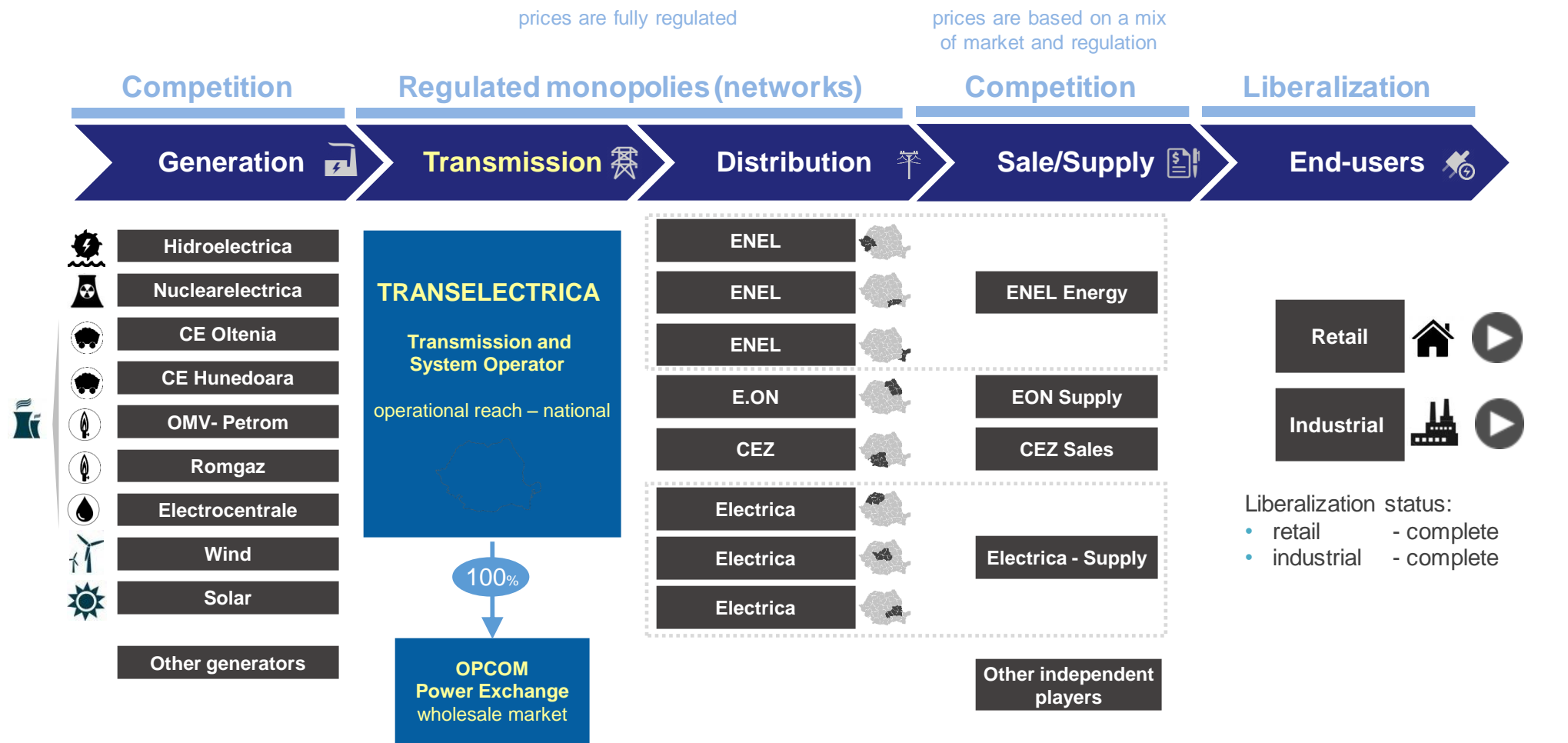
- Real time monitoring of the whole electricity system in Romania
- Grid balance planning i.e. a close match between generation and consumption
- Calculation of the requirement for back-up stand-by capacity reserves



Balancing market

Imbalance settlement process: measurement and financial settlement of grid imbalances caused by temporary generation-consumption mismatches (TSO acts as a clearing agent for the entire market)





Market

Role



Electricity

Market facilitator: operates Romania's main electricity grid

Own trades: volumes purchased to offset grid losses



Balancing capacity services

Single buyer

Frequency regulation reserves purchased mainly through market-based transactions



Balancing energy services

Central counterparty clearing: financial settlement of imbalances (BRPs) vs. balancing services (BSPs)

Own BRPs: unintended cross-border flows, shipper within CEE regional price-coupled DAM (4MMC: CZ+SK+HU+RO)



Cross-border capacity

Calculation and sale of available capacity to the market

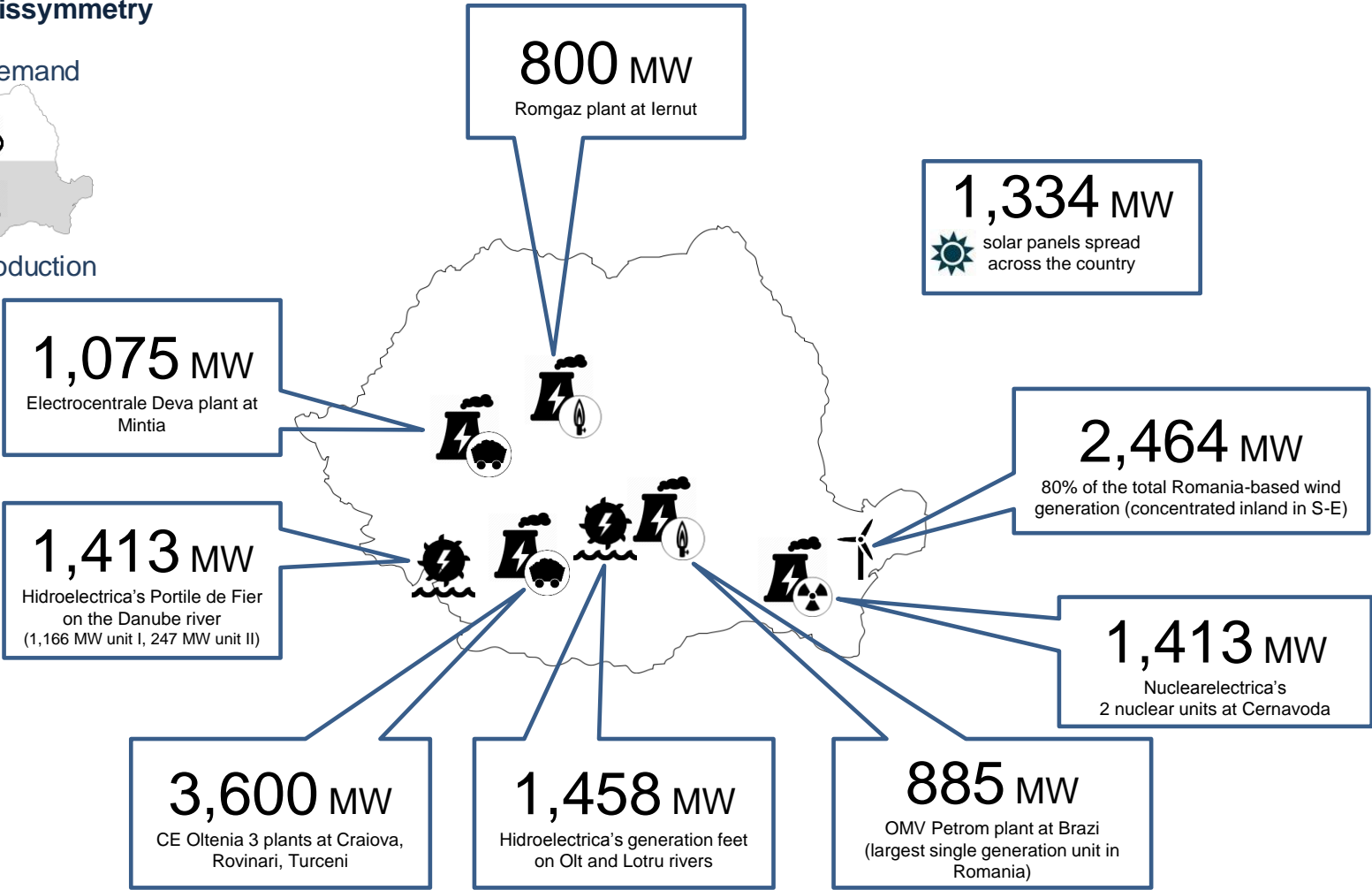
(market-based transactions)

Production - Demand geographical dissymmetry

North - Demand



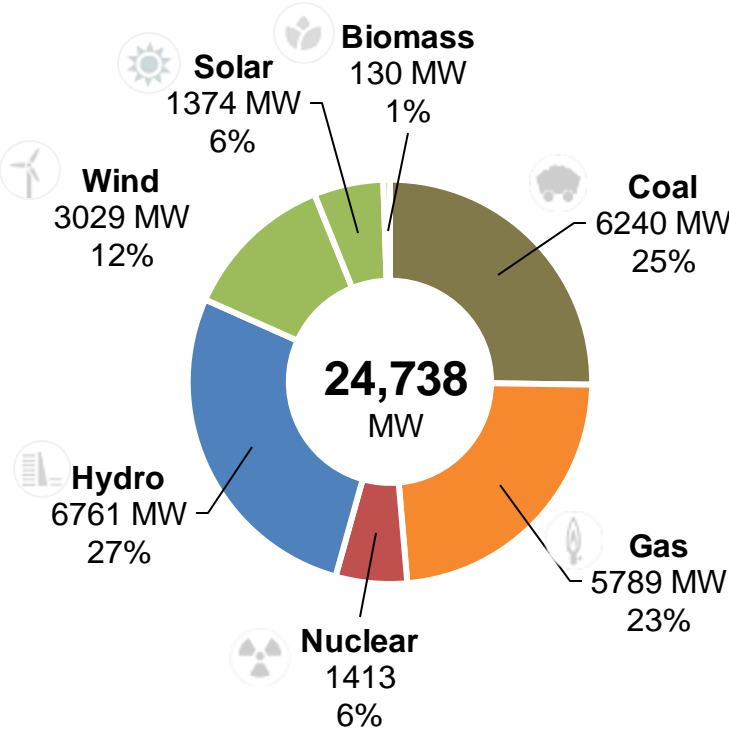
South - Production



Installed capacities (selection)

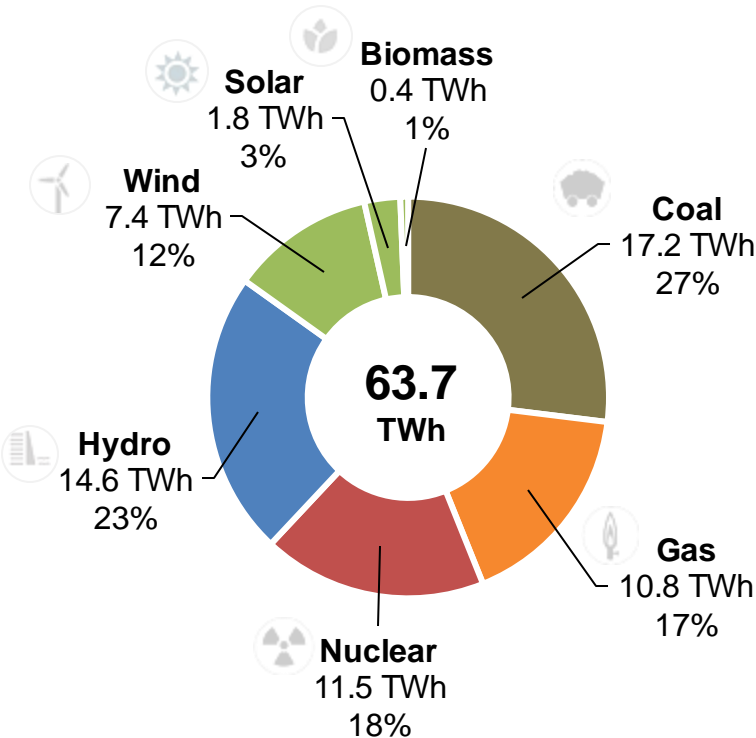
The chart above shows a selection of the Romania-based electricity generation fleet

Generation fleet
(installed capacities)



1-Jan-2018

Generated output
(volumes)

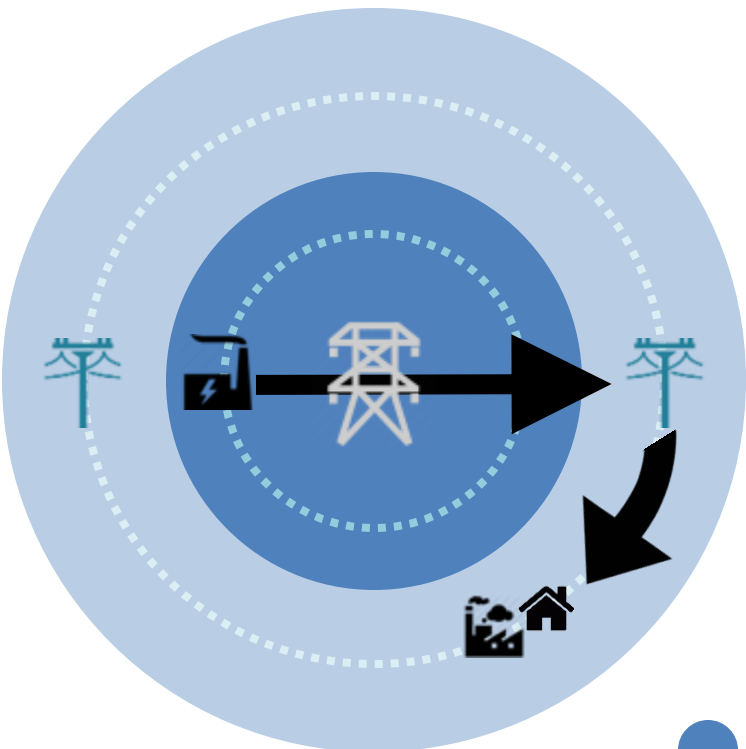


2017

Electricity transmission network

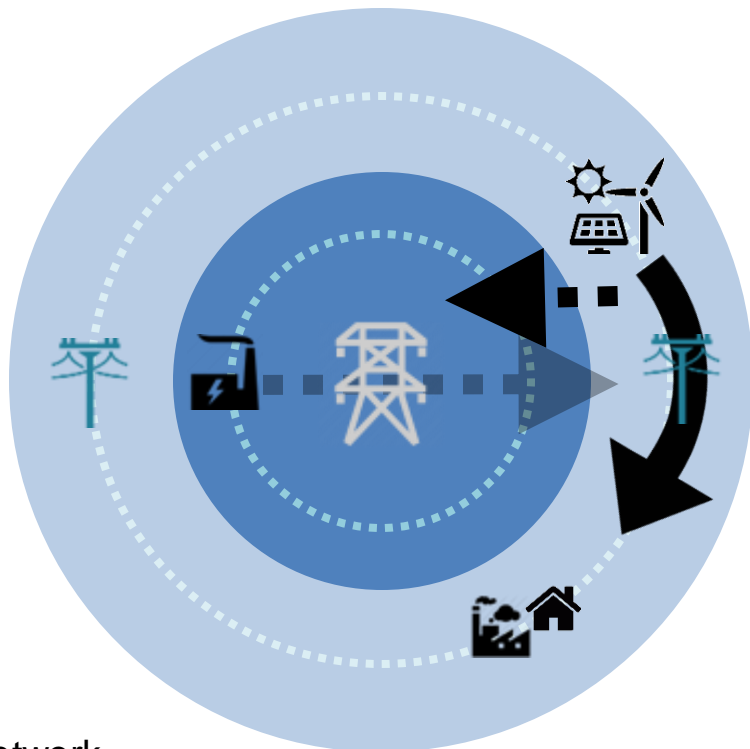
Existing role

traditional power generation and grid flow patterns



New role?

changing power generation and grid flow patterns



- Transmission network
- Distribution network

Grid planning. Main drivers

DOMESTIC DEMAND
Industrial and residential

GENERATION FLEET
Sources, location

CROSS-BORDER FLOWS
Transit, export, import

Grid flow scenarios



electricity transmission network

National TYNDP

- Current edition 2016 (2016-2025) >Eur 1.2 bn
- Next edition 2018 (2018-2027)



European integrated network planning

National plans are integrated into regional plans and further into a European-wide grid masterplan (ENSTO-e Ten-Year Network Development Plan)



1000 km new lines

Planned overhead lines

291 km Portile de Fier-Anina-Resita-Timisoara-Sacalaz-Arad

260 km Gadalín-Suceava

140 km Smardan-Gutinas

160 km Cernavodă-Stalpu

32 km Ostrovu Mare-RET

90 km Suceava-Balti (MD)
(subject to MoU RO-MD)

27 km Connections Isaccea-Varna and Isaccea-Dobrudja in Medgidia-South substation

Investment focus

• CROSS-BORDER INTERCONNECTIVITY

• GENERATION HUB IN THE SOUTH-EAST

• SECURITY OF SUPPLY IN GENERATION-DEFICIT AREAS

• RENEWAL OF EXISTING OLD ASSET BASE



Western border (Serbia, Hungary)
Eastern border (Moldova)



Wind and solar, two additional nuclear reactors



North-Western and North-Eastern Romania
(completion of the national 400 kV ring)

2018-2027



CAPEX FOCUS AREAS

Renewal & upgrade of existing network assets

- New integrated dispatching platform
- Substations
- Auxiliary equipment



Grid extension and upgrade to safely take additional generation from Dobrogea (South-East) area

- New internal route South-East → Central-West
- New internal route Sputh-East → Central-South



Cross-border interconnectivity

- Hungary
- Serbia
- Moldova (Republic of)





The Electricity Transmission Grid of Romania

Company under Two-Tier Management System

WE LEAD THE POWER



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Thank you for your attention!



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