Republic of Moldova

Overview of power supply options

Octavian Ciobirca

Brussels, 11 December 2015

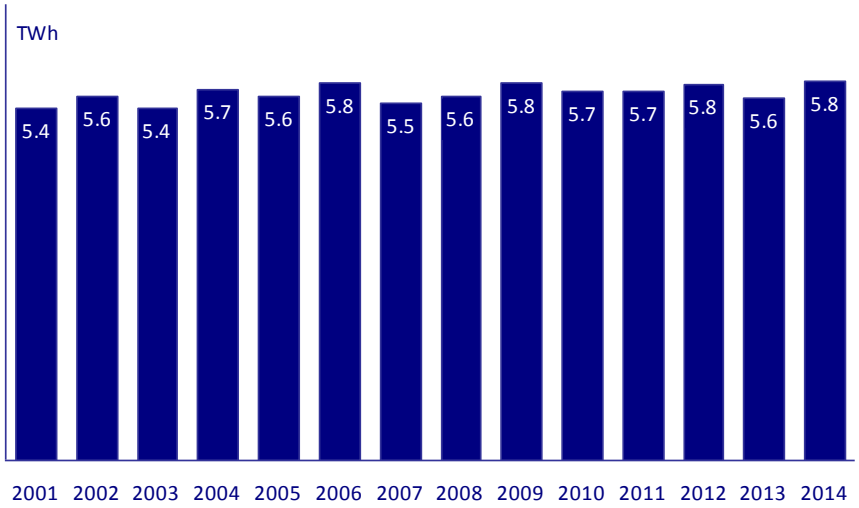
Grid & Interconnections

- 7 x 330 kV and 11 x 110 kV interconnection lines with power system of Ukraine
- 1 x 400 kV and 4 x 110 kV interconnection lines with power system of Romania
- ENTSO-E asynchronous operation
- IPS/UPS synchronous operation
- Installed capacities – 2991 MW
  (available - 2191 MW)

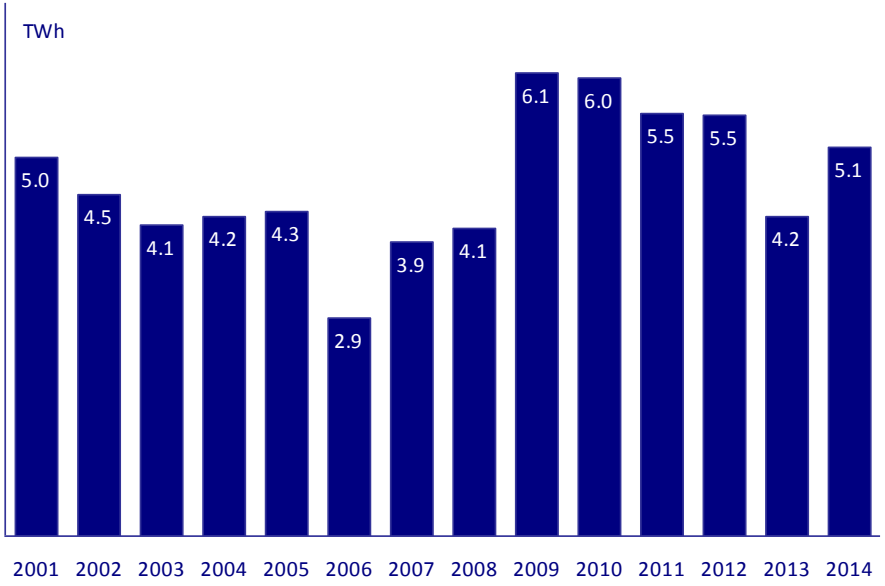
2001-2014 Energy balance

SE MOLDELECTRICA

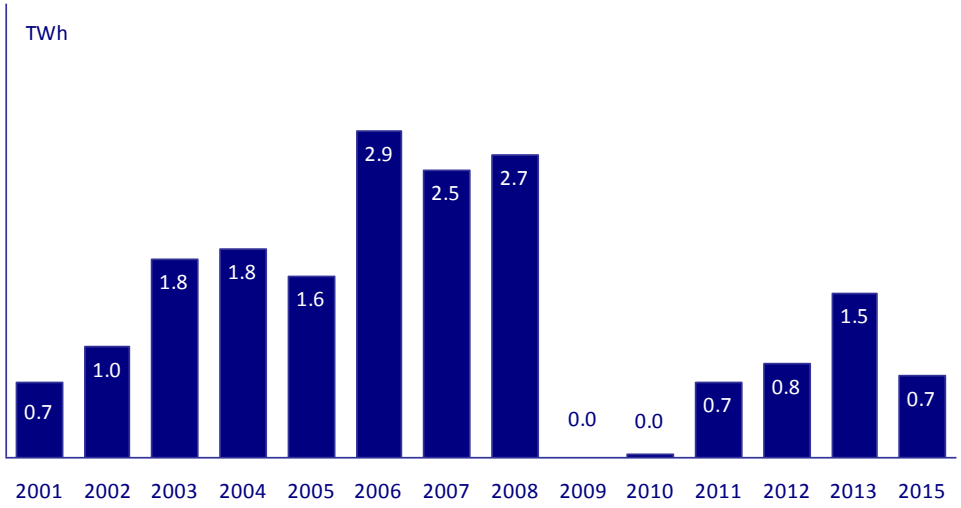
Energy consumption



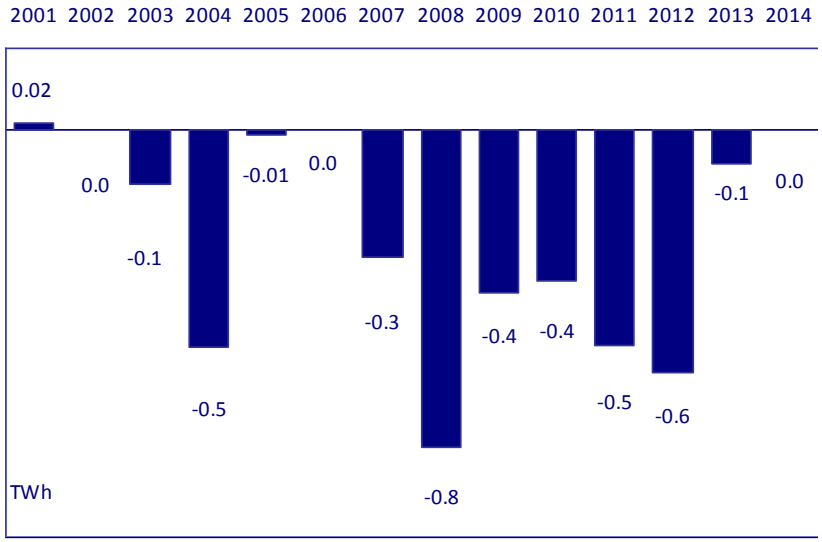
Energy production



Import from Ukraine



To/From Romania (island mode)



Generation capacity

- Installed capacity of Thermal electricity sources – 2827 MW (available – 2027 MW)

  Installed capacity of Gas capable electricity sources – 2827 MW (available - 2027 MW from which 330 MW are CHP).
  Installed capacity of Coal capable electricity sources – 1600 MW (available - 800 MW).
  Installed capacity of Oil capable electricity sources – 2840 MW (available - 2040 MW).

- Installed capacity of Hydro electricity sources – 64 MW.

- Installed capacity of Renewable electricity sources – 4 MW.

- Right bank – total 398 MW (CHP 330 MW)

  Chisinau-2 CHP – 240 MW
  Chisinau-1 CHP – 66 MW
  North CHP – 24 MW
  Costesti HPP – 16 MW
  other small PP – 52 MW

- Left bank – total 2593 MW (available - 1793 MW)

  Moldavskaia TPP – 2510 MW (available - 1710 MW)
  Dubasari HPP – 48 MW
  other small PP – 35 MW

UA import capacity

- Rather developed interface with power system of Ukraine

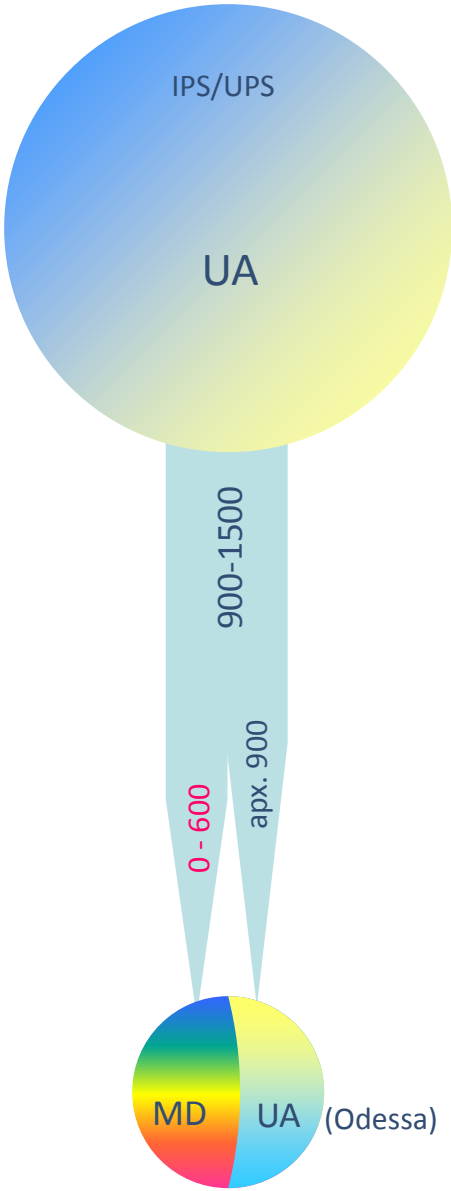
  7 x 330 kV lines
  11 x 110 kV lines

- Import is limited by stability criteria

  Limiting interface (called “control interface”) allows for 900 – 1500 MW flow, depending on generation pattern and grid topology.

  The flow trough “control interface” is directed to MD and UA region of Odessa.

  As at this point the biding zone is on border and not on the congested interface, the import capacity for MD is the value left after subtracting from the limit value the flow to the UA Odessa region.

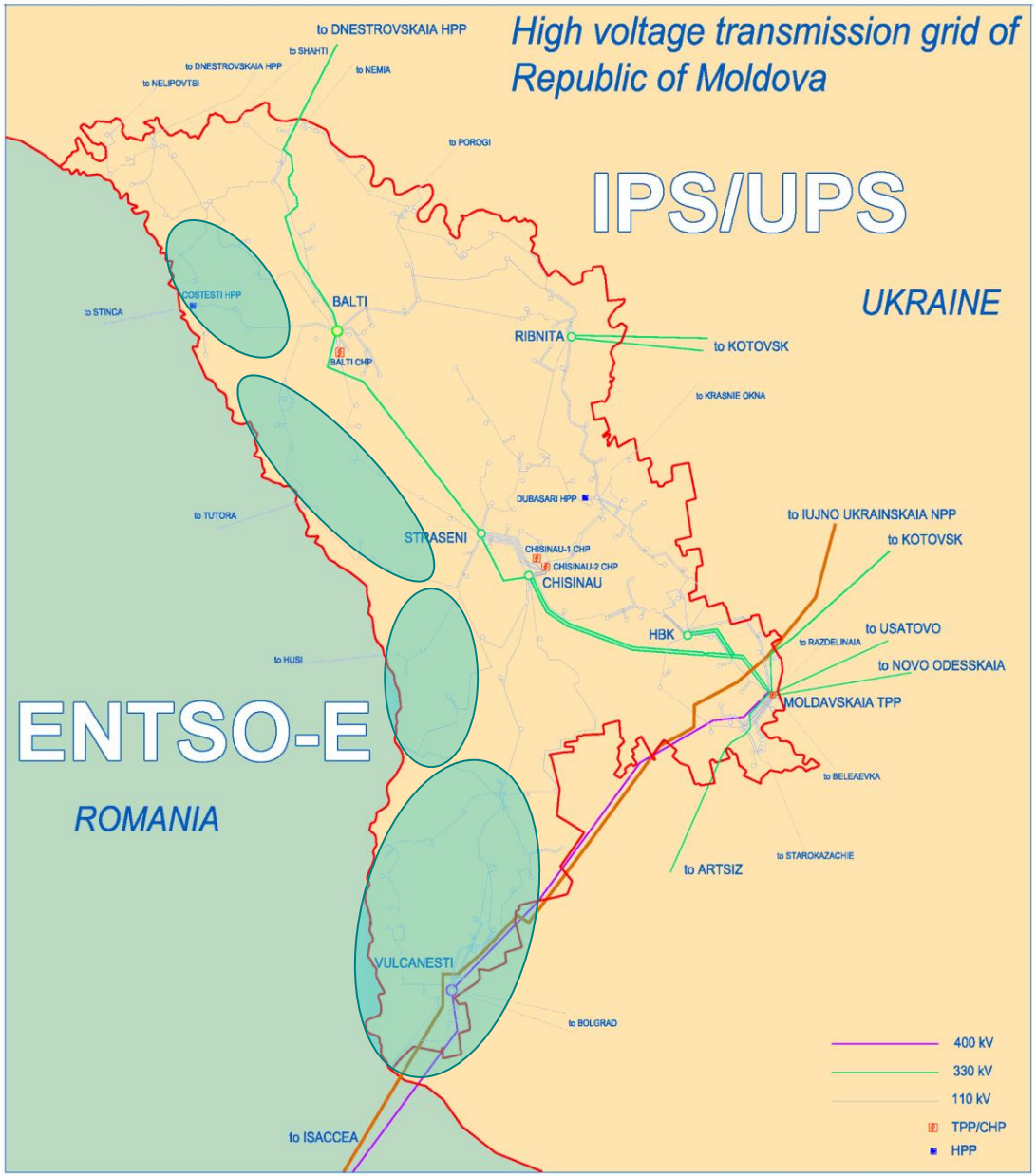


RO import capacity

- Rather undeveloped interface with power system of Romania

  1 x 400 kV lines
  4 x 110 kV lines

- Import is limited by "island operation" due to different synchronous zones – Moldova as part of IPS/UPS and Romania as part of ENTSO-E CE.



Strategy 2030

- Energy strategy till 2030 aims for energy security by diversification of local electricity sources as well as import sources.

- Import options diversification by accessing the electricity market from Romania.

- Increase local electricity sources by integration of renewable sources.

- Increase the potential of local classic electricity sources by refurbishment of existing ones.

ENTSO-E interconnection

- The project is aimed at interconnection the power systems of Ukraine and Republic of Moldova to the ENTSO-E CE power system

- The project was set in 2006

- The project takes 3 phases

  phase A – study of the possibility and required measures
  phase B – implementation of identified measures
  phase C – isolated and interconnected test run

- The project is at phase A, that is dues to be finalized at the end of 2015

- The interconnection to ENTSO-E CE system is though to be the less expensive option for Republic of Moldova that will allow the diversification of import mix by accessing the electricity market from Romania

HVDC interconnection

- This is a set of projects, aimed at interconnection the power system of Republic of Moldova to the power system of Romania trough HVDC interconnections.

- The system study and feasibility study for the set of projects is started in 2015.

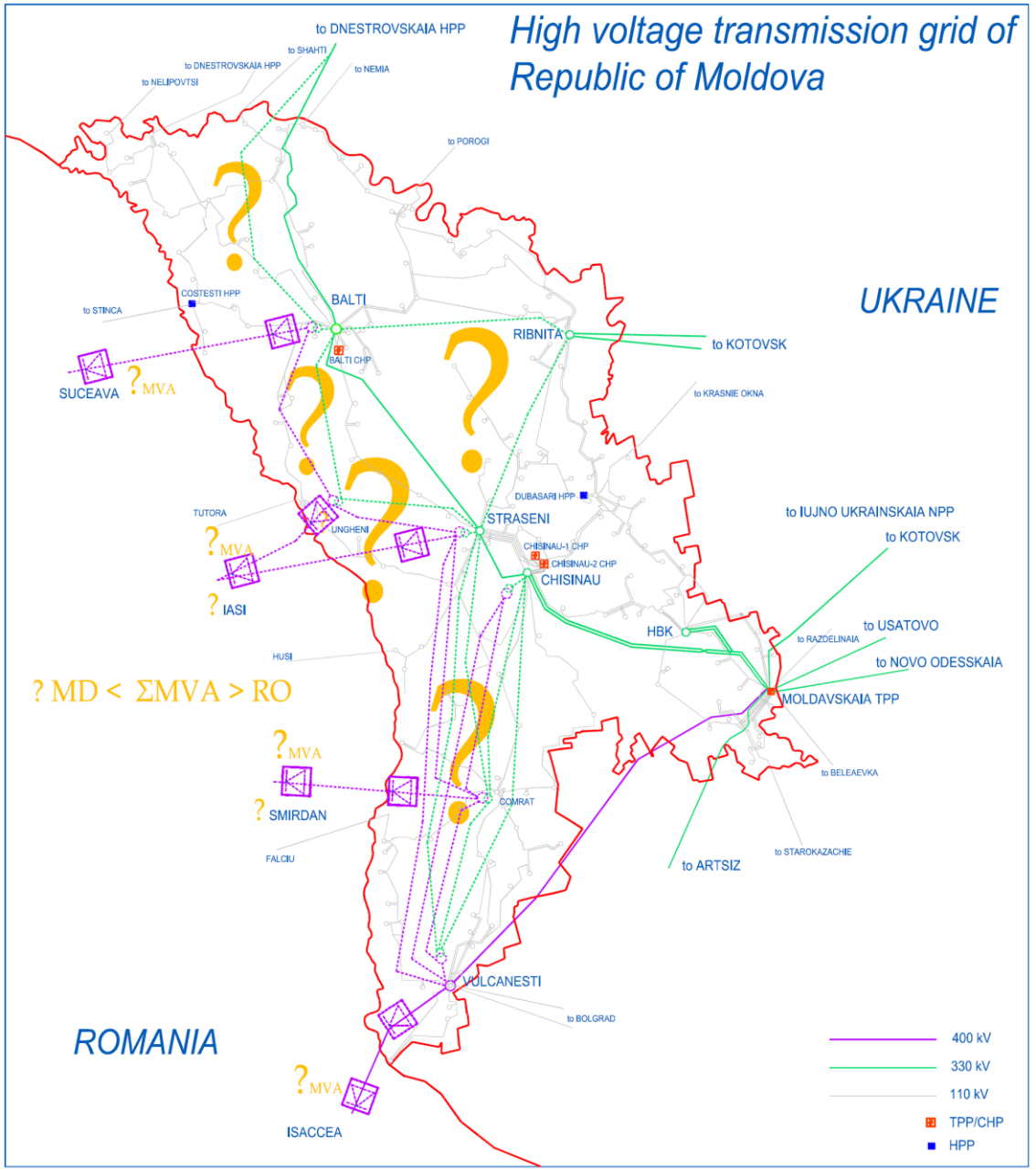
- The preliminary set includes 3 main projects

  B2B station on the 400 kV OHL Vulcanesti (MD) – Isaccea (RO) and 330/400 kV OHL Chisinau (MD) – Vulcanesti (MD).

  B2B station and 400 kV OHL Balti (MD) – Suceava (RO).

  B2B station and 330/400 kV OHL interconection Straseni (MD) – Iasi (RO)

- This is to be the most expensive options for accessing the Romania electricity market.



Renewable sources

•Integration of renewable electricity sources can ease the dependence of import sources but at the same time requires partly import of system services and balancing services or building of local capacities as well as load profile control/incentive measures.

•At this point there is no massive integration of renewable sources although there is large scale interest

•The national action plan sets a target of 20% energy from renewable sources, half of which from electricity renewable sources

Thank You