South East Europe Electricity Roadmap (SEERmap)

Network Electricity Model
(EKC)

Belgrade,
22.9.2016.
Content

• Scenario description – Network assessments
• Wholesale price impacts
• Generation mix, CO2 impacts
• Impacts on system costs:
  – Investment costs,
  – RES support costs
• Network impacts -Network assessments
  – Contingencies
  – NTC valuations
  – Network loss impacts
Network Electricity Model (PSS-E)

Comments:

- The map shows the region that will be included in the network modelling
  - 9 electric power systems will be modelled and assessed in full capacity
  - Croatia, Hungary, Slovenia and Turkey will be modelled in full capacity
  - Italy and Austria will be modelled as equivalents
- Two analysed scenarios
  - Reference RES penetration
  - Maximum RES penetration
- Two target years
  - 2020
  - 2030
- Two analysed regimes
  - Winter max regime
  - Summer maximum regime
Scenario definition

• Network model was will be used for the assessment

• Representatives hours of years 2020 and 2030 will be modelled, to assess the network impacts on the whole region

• The following assessments will be carried out:
  – Steady-state and contingency analyses
  – Evaluation of net transfer capacity between target electric power systems
  – Transmission grid losses
  – Network reinforcement for 9 countries, including costing estimation
Scenario Assessment Results

- Evaluation of net transfer capacity between target electric power systems

<table>
<thead>
<tr>
<th>Scenario 2025</th>
<th>TRIPPING</th>
<th>OVERLOADING</th>
<th>SOLUTION</th>
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<tbody>
<tr>
<td>REF</td>
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- Evaluation of transmission grid losses

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<tr>
<th>Calculation parameters</th>
<th>Albania</th>
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<tbody>
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<td>Equivalent duration time of maximum losses [h]</td>
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<td>Variation of transmission losses [MW]</td>
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<td>Scenario REF</td>
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<td>Variation of yearly transmission losses [GWh]</td>
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The following unknowns are expected:

► Voltage level of the connection of the new generation facilities (to transmission or to distribution network)

► Connection points of the new generation in 2020 and 2030 (if transmission network)

► Precise location of the new RESs (geographical position related to the nearest transmission facilities)

► Transmission assets unit cost (i.e. OHLs Euro/km)
Thank you for the attention!

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