EVN Macedonia: Company profile

Company profile

- EVN is present in NMK since 2006, by acquiring the 90% of shares of state owned company

- Core business functions
  - Electricity distribution: Power Network with 8,000 Transformer Stations and more than 2,000 km low-voltage and high-voltage grid
  - Electricity supply: Over 800,000 customers
  - Electricity production: 11 small hydro power plants (inst. capacity 47 MW) + 1 PV (1.5 MW)

- EVN MK Revenues 2020 of approx. € 400m
- EVN currently has 1,972 employees
Renewable potential in North Macedonia
Overview of the status and expectations

In operation

Can be expected on mid-term

- Largest number is related to photovoltaics with potential capacity of about 400 MW
  - Prosumers are supposed to provide about 40%
- Biomass is still under feed-in regime
  - Potential of about 15 MW
- Additional hydro potential of 40 MW
  - Potential for small hydro plants is widely exploited

<table>
<thead>
<tr>
<th>Renewables</th>
<th>No</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydro power plants</td>
<td>124</td>
<td>491.0 MW</td>
</tr>
<tr>
<td>Wind power plants</td>
<td>16</td>
<td>36.8 MW</td>
</tr>
<tr>
<td>Biomass power plants</td>
<td>4</td>
<td>7.6 MW</td>
</tr>
<tr>
<td>Photovoltaic</td>
<td>126</td>
<td>24.2 MW</td>
</tr>
<tr>
<td>Photovoltaic Prosumer</td>
<td>185</td>
<td>9.8 MW</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>455</td>
<td><strong>569.4 MW</strong></td>
</tr>
</tbody>
</table>
Consumers become “active” consumers

The emerging roles of consumers

- Consumers get new, more active roles across electricity sectors
  - they participate in deployment of renewables by installation of self-generation units
  - consumers are gaining active market role by becoming prosumers
  - it is possible for them to take part in the demand side management

- New roles come with obligations
  - they have to register in front of the DSO
  - they have to obtain bidirectional meter
  - their equipment must comply with the standards and the network management strategies of DSO
Deployment of Renewables is more than construction and operation of renewable plants

- Optimal integration into the distribution network is essential
  - it requires sufficient network capacity
  - has to be supported by deployment of smart technologies
  - developing effective demand side management for managing the network loads
  - integration of storage capacities in the network to manage the loads

- Integration of renewables is particularly challenging for the SEE region
  - affordability for the needed technologies
  - insufficient investments in infrastructure
  - traditional roles of all incumbent stakeholders
  - undeveloped electricity markets not suitable for emerging roles of market players
  - undeveloped and constantly changing regulation
Market access to overall renewable generation

Additional incentive for deployment

- Regardless of their size, all renewable generators should be enabled to participate to the market
  - they must have possibilities for selling their production
  - establishment of functional markets for certificates of origin of the produced electricity from renewables

- Renewable aggregators make energy products more attractive
  - products can not be guaranteed by the producers due to volatility of production → aggregation mitigates volatility
  - especially relevant for smaller scale generation units

- Market access provides mostly needed incentives for development of prosumer concept
  - it enhances feasibility of their investments
DSO is much more than a distributor of electricity

DSO should act as a facilitator of the renewable concept

- DSO has to enhance the roles of other stakeholders
  - especially market roles, through switching, providing data for market access, etc.

- Implementation of appropriate network management strategies is essential
  - possibility to alter consumers' behavior, especially in peak hours
  - it is necessary to engage system services from consumers (like electro mobility or batteries)

- In its allocation of resources, DSO should consider also deployment of smart technologies
  - limited resources are mostly used for network development and reinforcement
  - smart technologies are fundamental for provision of functional renewable production concept