Resilience has no price!
What kind of societies are we becoming?

We take this for granted!

These services are provided by
Critical Infrastructures:

- Asset
- System or part thereof located in Member States which is essential for the maintenance of vital societal functions, health, safety, security, economic or social well-being of people, and the disruption or destruction of which would have a significant impact in a Member State as a result of the failure to maintain those functions

Two aspects:

- Sectoral
- Country

Identifying, understanding, and analyzing critical infrastructure interdependencies – S.M. Rindali, James P. Peerenboom, T.K. Kelly
PSE infrastructure

NCC
National Control Centre—main and emergency locations

Regional units responsible for maintaining and operating the Extra High Voltage (EHV) lines

5

EHV substations

106

Owner of 256 lines in service with a total length of 14,195 km, including:
- 1 line of 750 kV, 114 km
- 93 lines of 400 kV, 6,326 km
- 164 lines of 220 kV, 7,755 km

Submarine interconnection
450 kV DC (direct current)
Poland - Sweden
- total length of 254 km (127 km of which is owned by PSE S.A.)

Interconnection with Lithuania
400 kV, asynchronous with a HVDC back-to-back station

Synchronous interconnections
400 kV with the German system,
400 kV, and 220 kV with the Czech system,
400 kV with the Slovak system

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**PSE profile**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employees</td>
<td>~2300</td>
</tr>
<tr>
<td>March, 2018</td>
<td></td>
</tr>
<tr>
<td>Total assets</td>
<td>PLN 19,513 million*</td>
</tr>
<tr>
<td>Operating cost</td>
<td>PLN 8,169 million*</td>
</tr>
<tr>
<td>Net profit</td>
<td>PLN 531 million*</td>
</tr>
<tr>
<td>Net sales revenue</td>
<td>PLN 8,887 million*</td>
</tr>
<tr>
<td>Export revenue</td>
<td>PLN 0.149 million*</td>
</tr>
<tr>
<td>Investment expenditures</td>
<td>1,453 million*</td>
</tr>
<tr>
<td>Concluded agreements</td>
<td>163*</td>
</tr>
<tr>
<td>Providing access to the Polish Power Grid</td>
<td></td>
</tr>
<tr>
<td>Concluded agreements</td>
<td>123*</td>
</tr>
<tr>
<td>Providing electricity transmission services</td>
<td></td>
</tr>
</tbody>
</table>

*As at 31 December, 2017*
Example of electricity

• Regulated:
  • National level
  • EU level – Network Codes

• Key sector on which other sectors are dependent

• Sector functioning as one throughout the whole of Continental Europe

• Peer pressure (ENTSO-E)

This means that systems have to be resilient – no room for error
Example of electricity

The key is a level playing field
• Who is ENTSO-E?

ENTSO-E, the European Network of Transmission System Operators, represents 43 electricity transmission system operators (TSOs) from 36 countries across Europe. ENTSO-E was established and given legal mandates by the EU’s Third Legislative Package for the Internal Energy Market in 2009, which aims at further liberalising the gas and electricity markets in the EU.

- The drafting of network codes and contributing of their implementation
- Technical cooperation between TSOs
- The development of long-term pan-European network plans (TYNDPs)
Possible instruments

- **Tax deductions** - setting for CI operators a certain threshold for resilience investments/expenses that can be subtracted from gross income to reduce the taxable income

- **Preferable insurance** - if we have invested in our resilience we should have an advantage

- **Norms and standards** – a good way to ensure a level playing field
Levels of engagement

• National
• Regional
• International

Critical infrastructure is not your typical infrastructure
Tomasz Szewczyk | tomasz.szewczyk@pse.pl | Security Department