Key Note: WSW Wuppertaler Stadtwerke
an example of German Stadtwerke

Nagano, 7th September 2017
Head of Strategy and Development
WSW Energie & Wasser AG
WSW – what do we stand for?

Heimatgefühl
Wir sind Wuppertal
local identity „we are Wuppertal“

- safe and clean mobility for Wuppertal
- 90 million passengers per year
- waste disposal
- electricity, natural gas, energy services for Wuppertal
- production of drinking-water and wastewater disposal
- responsibility for people and the environment
- safety
- partnership
- make it possible
- local identity „we are Wuppertal“
Performance of the WSW Group

Performance of the WSW Group (Mio. EUR)

- balance sheet total

- turnover

- earnings

- investments

Employees: 3,270 (2016)
Number of passengers (Mio.): 90.1 (2016)
Mega trends are describing the development of the whole society

<table>
<thead>
<tr>
<th>Mega trends</th>
<th>Decentralisation</th>
<th>Decarbonisation</th>
<th>Digitalisation</th>
<th>Neo-ecology</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>field activities</td>
<td>trend towards a CO2 free society</td>
<td>connectivity → networking of all kind of areas of life</td>
<td>resource-efficient and sustainable economic activity</td>
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<tr>
<td></td>
<td>subsidiary decisions and added value</td>
<td>affects all sectors</td>
<td>data security and protection</td>
<td>fair trade, regional products and recycling</td>
</tr>
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<td></td>
<td>Top-Down central administrative tasks on subsidiary level</td>
<td>materialised first in the energy sector</td>
<td>automation</td>
<td></td>
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<td></td>
<td>Bottom-Up individual is responsible for a change</td>
<td>Digitalisation is a Meta-Mega trend</td>
<td>processing of information</td>
<td></td>
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<td></td>
<td>Individualisation</td>
<td>Many mega trends, which overlap in some parts, are affecting energy companies.</td>
<td></td>
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<td></td>
<td>self-efficacy, individual freedoms</td>
<td>Digitalisation describes the possibility of making and using of a large amount of information.</td>
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</tbody>
</table>
Mega trends find expression in political activities

2050 targets

- Reduction of CO2 by 80-95%
- Increase the share of renewable energies to 80%
- Improve energy efficiency by 50%
- Reduction of gross electricity consumption by 50%

Legal basis: Renewable Energy Act (EEG)

<table>
<thead>
<tr>
<th>EEG 2014</th>
<th>EEG 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feed-in tariffs</td>
<td>Auction model</td>
</tr>
<tr>
<td>- Policy mechanism to accelerate investment in renewable energy technologies</td>
<td>- Auction system for most renewable technologies</td>
</tr>
<tr>
<td>- Long-term contracts for renewable energy producers</td>
<td>- Aim: to keep a steady hand on the rise of renewable power</td>
</tr>
</tbody>
</table>

Quelle: EnWG
Transition of the energy system in Germany

**driving forces**

- central liberalised market
  - large power plants
  - few providers
  - etc.

- decentralised market
  - renewable energies (RE) → Wind and PV
  - many providers
  - etc.

**mega trends**

- Digitalisation, Decentralisation, Decarbonisation, Neo-ecology, Individualisation

**liberalisation of the energy market**

- competition among energy suppliers
- competition of energy products

**german energy transition**

- decentralised energy supply
- nuclear phaseout
- expansion of renewable energies and removal of large power plants

**Commodity**

- benefit due to economies of scale

**No margin**

**confidence in the Brand**

- positive effects by added values

- Synergies
- Economies of Scope

**Due to these mechanisms WSW goes along with three different development trajectories:**

- Risk diversification
- exploitation of synergies in co-operation
- focus on retail market

Sören Högel | Stadtwerke in a Nutshell 6
Thank you for your attention

Sören Högel

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