A collaboration between the cities Emmen (Netherlands) and Haren (Germany)

Brussels, 25.4.2016
Objective SEREH

A Regional, decentralised and mostly communal cross-border energy system in Emmen-Haren:

Connecting supply and demand locally to keep benefits of RE in the region
Keywords for SEREH

- self sufficiency,
- community benefits of renewables,
- connecting local supply and demand,
- smart grid,
- new businesses.
Renewable Energy – comparables

- **Country**: Germany (24%)
- **State**: Lower Saxony (43%)
- **Region**: Weser-Ems (66%)
- **District**: Emsland (115%)
- **Town**: Haren (Ems) (147%)
Renewable Energy in Haren (Ems)

Current situation

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renewable Power Production Haren</td>
<td>246.973 MWh</td>
</tr>
<tr>
<td>Power Consumption Haren</td>
<td>167.957 MWh</td>
</tr>
<tr>
<td>Excess</td>
<td>79.016 MWh</td>
</tr>
</tbody>
</table>

Power Excess in Haren ≈ 79,000 MWh per year
## Energy facts Emmen

### Electricity

<table>
<thead>
<tr>
<th>Category</th>
<th>Consumption</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Households</td>
<td>130,000 MWh/y</td>
<td>30 million €/y</td>
</tr>
<tr>
<td>Industry</td>
<td>340,000 MWh/y</td>
<td></td>
</tr>
</tbody>
</table>

### Gas

<table>
<thead>
<tr>
<th>Category</th>
<th>Consumption</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Households</td>
<td>70 million m³ (710 GWh)</td>
<td>45 million €/y</td>
</tr>
<tr>
<td>Industry</td>
<td>130 million m³ (1.3 TWh)</td>
<td></td>
</tr>
</tbody>
</table>

50% used by green houses

Available renewables for the time being: 3% (solar)
Cross Border Innovative Windfarm

- Avoiding imbalance on the grid
- Communal benefits of RE
- Accommodate efficient use of civic energy
- Regional 'Energy Union' living lab. Experimenting with regional market regulation
Our idea of a Smart Energy Region

147% electricity share?
How to achieve that?

- **Storage en smart distribution program**
  - Power to gas?
  - Power to heat?
  - Demand Side Respons?
How to achieve that?

• Interconnecting Medium Voltage Grids (DSO level) in Emmen en Haren

• Research & Innovation program involving DSO and TSO cooperation
How to achieve that?

- Regional merit order

- Regional energy market (at nearly real time prices)

- Leveling differences in subsidising and taxing of RE
What do we need?

✓ Living lab conditions
✓ Pressure on our national governments
✓ European funding (H2020)
✓ Pressure on DSO’s and TSO’s to cooperate
Dit bleek de makkelijkste oplossing...
Thank you for your attention