



Smart Energy Region

Emmen • Haren



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

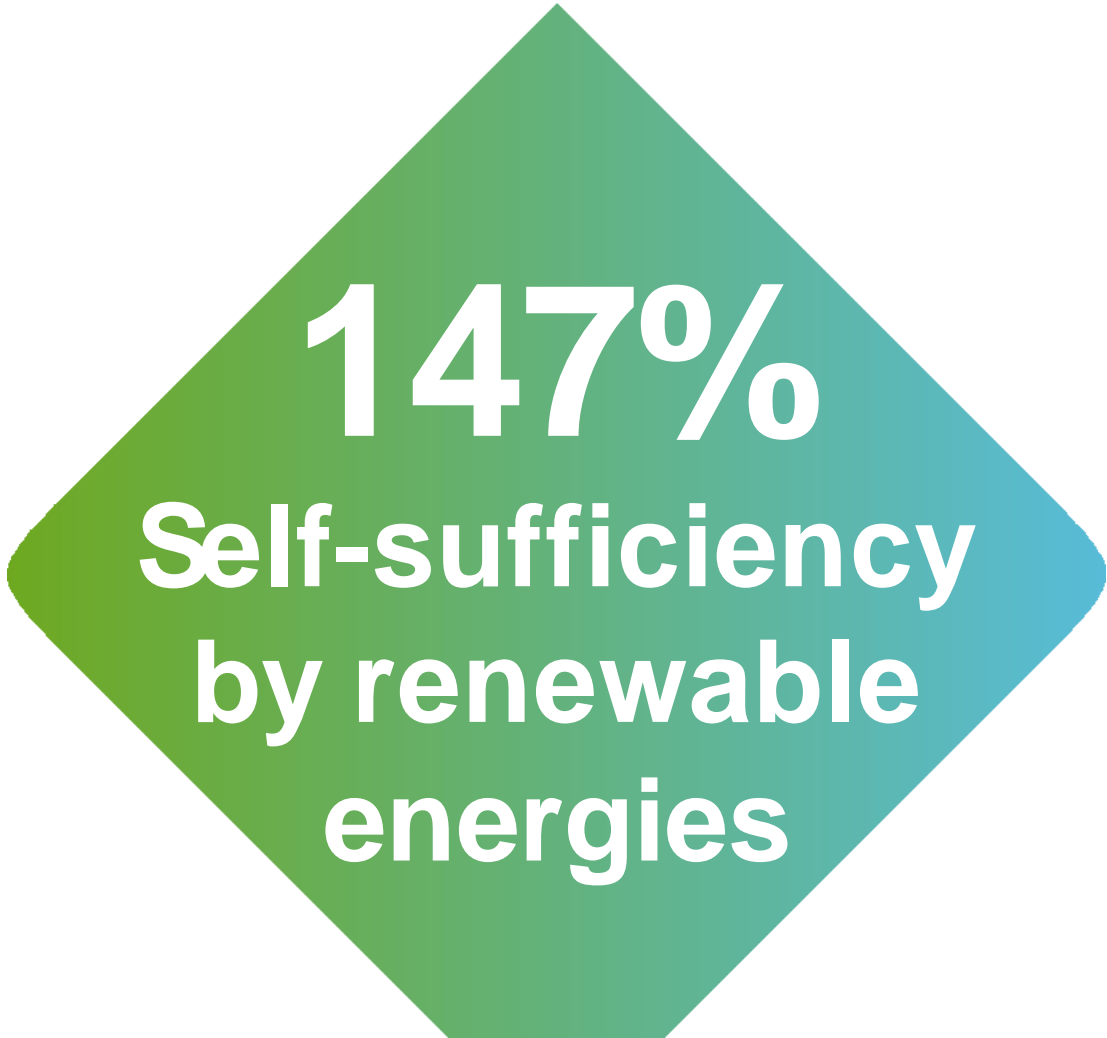
Brussels, 25.4.2016

Smart Energy Region Emmen Haren



Description of organisation

The municipality of Haren (Ems) is located in north-western Germany. Haren (Ems) is a regional industrial center and counts about 23.000 inhabitants. Haren (Ems) also borders to the Netherlands.



147%
**Self-sufficiency
by renewable
energies**

Description of organisation

The municipality of Emmen is in the north-east part of The Netherlands. Emmen is a regional industrial centre, and counts about 110,000 inhabitants.

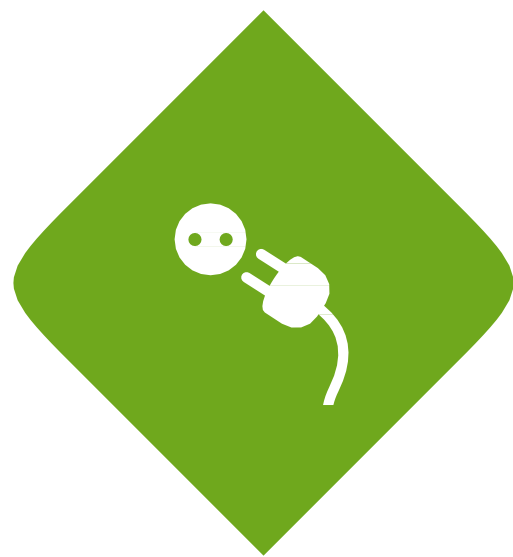
Emmen also borders to Germany.

The Municipality Council adopted an ambitious CO₂-reduction target:
CO₂ neutrality by 2050.



CO₂
emission free
in 2050

Energy facts Emmen



Electricity

Households \approx 130.000 MWh/y
 \approx 30 million EuR

industry \approx 340.000 MWh/y



Gas

Households \approx 70 million m³ (684 GWh)
 \approx 45 million EuR

industry \approx 130 million m³ (1,3 TWh)
50 % used by green houses

available renewables for the time being: **3%(solar)**

Why SEREH?

Strategy building process

Transition problems in Haren

- ✓ Excess renewable energy causing grid problems
- ✓ Transportation to users in South Germany needs a very expensive extension of the grid
- ✓ Or transportation on the high voltage grid to The Netherlands at negative prices
- ✓ While there is demand next door (across the border)



Keywords for SEREH

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



Advantages of SEREH

- civic energy sources and local profit
- less transport costs
- no need to extend the grid
- cheaper energy
- emerge of new businesses

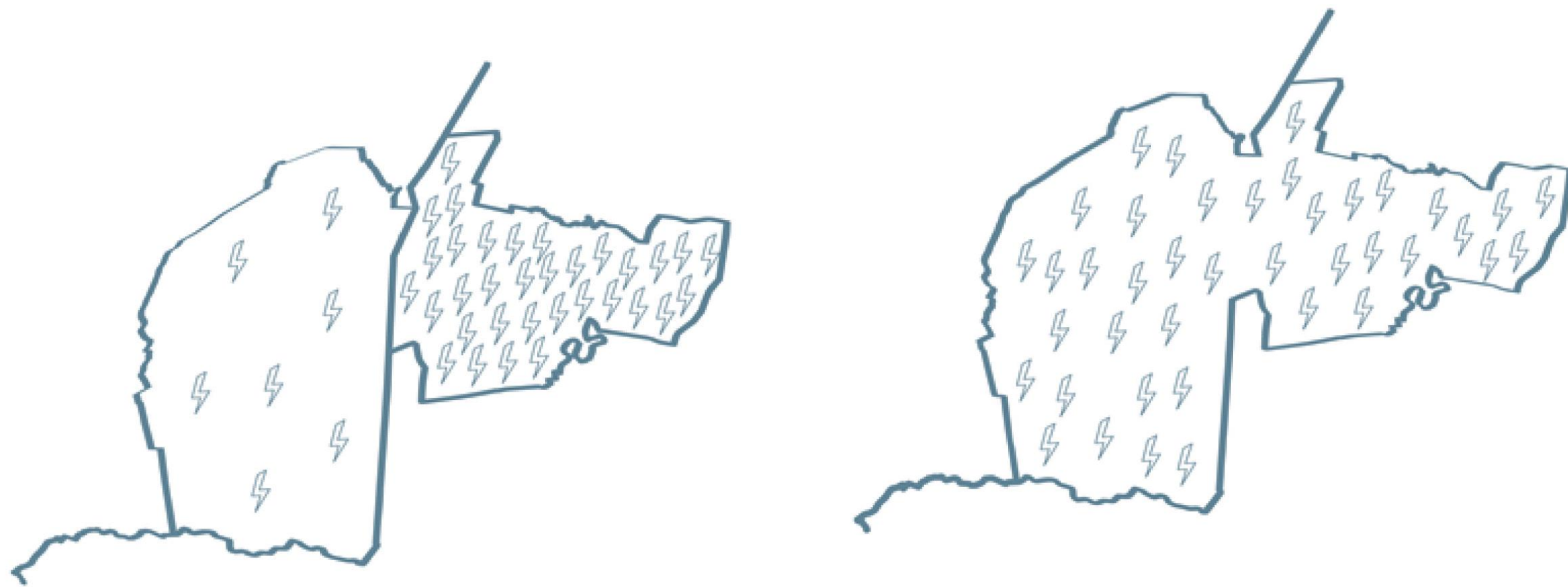


Objective SEREH

**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**

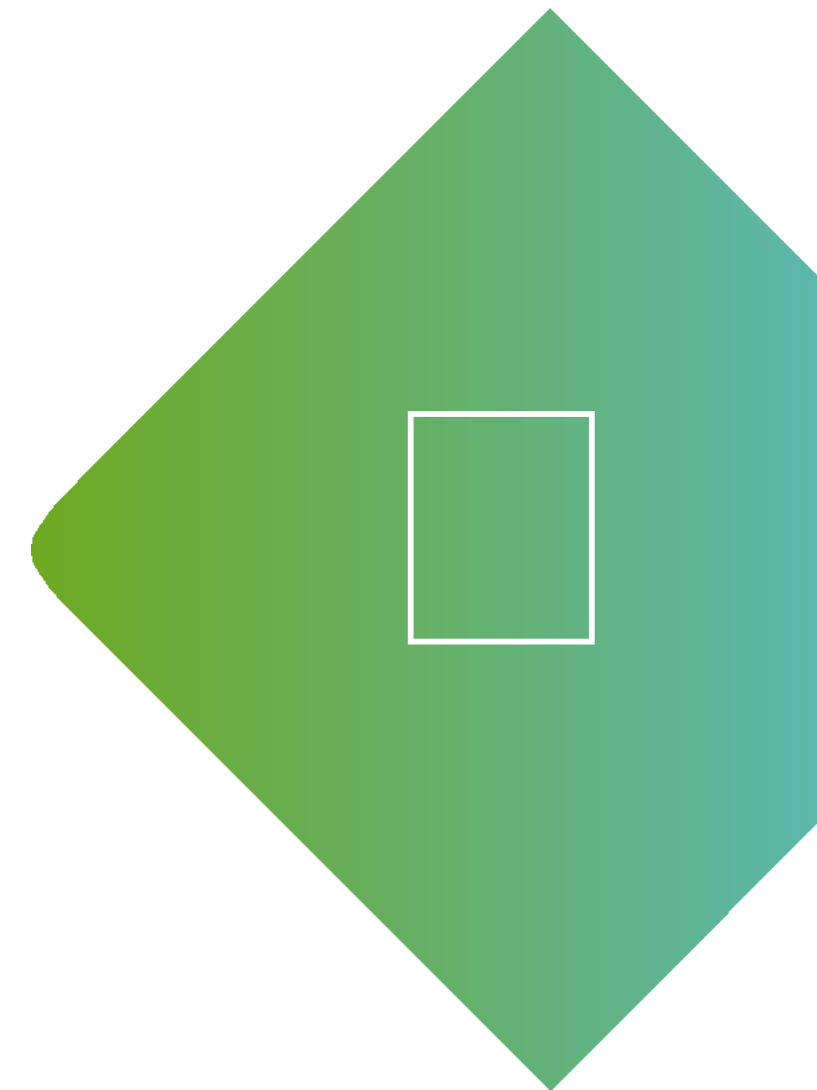
Our idea of a Smart Energy Region



147% electricity ☐ share?

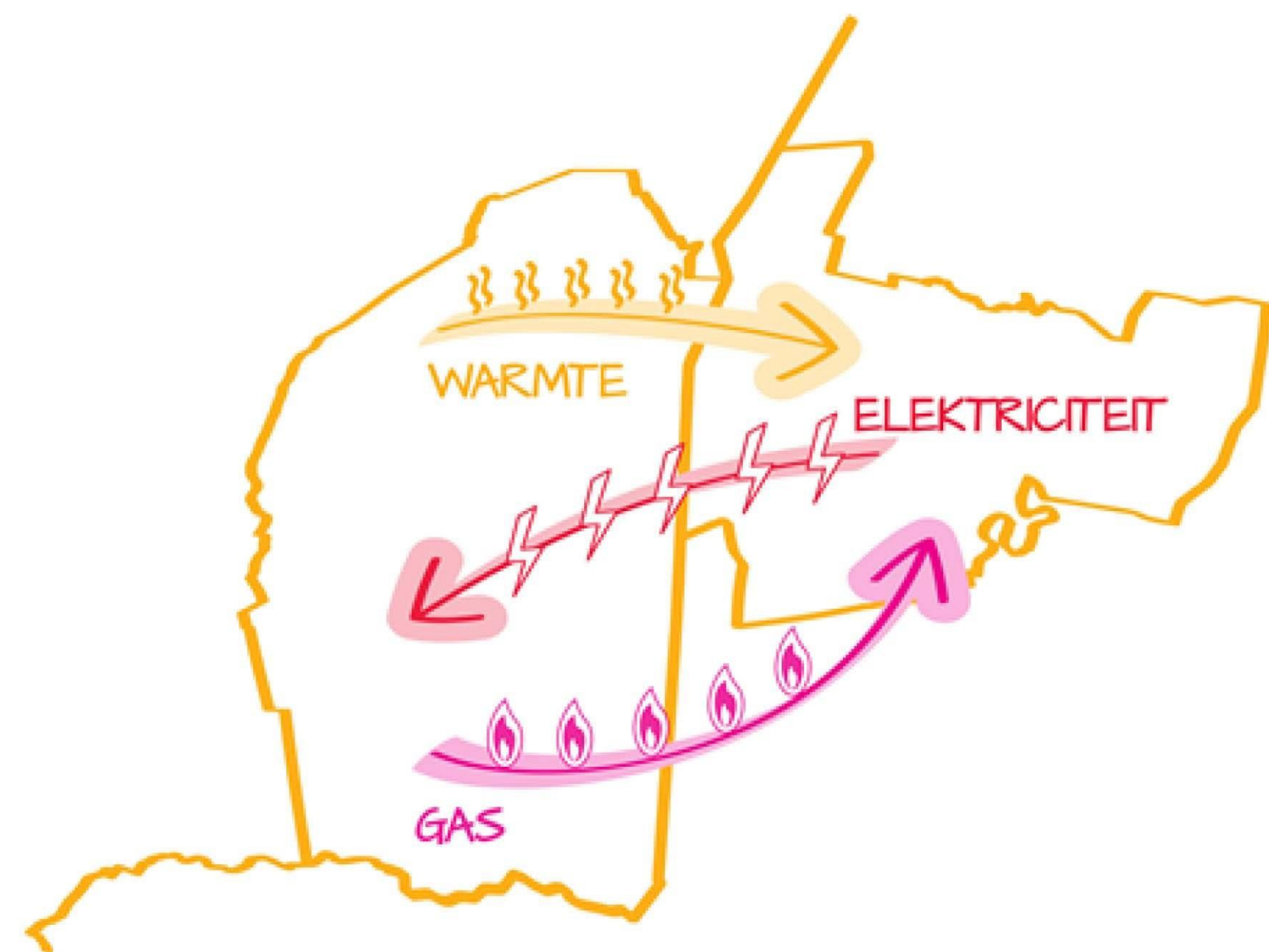
How to achieve that?

- Interconnecting Medium Voltage Grids (DSO level) in Emmen en Haren
- Exploring communal and civic business models



Pilot project H2020 Cross border Innovative Windfarm

- 50 MW windpower in Haren (at the border)
- 20 MW windpower in Emmen (at the border)
- With connection on both the German and Dutch (medium voltage) grid



Pilotproject H2020 Cross Border Innovative Windfarm

- Storage en smart distribution
 - Power to gas?
 - Power to heat?
 - Demand Side Respons?



Pilotproject Interreg NSR Smart Grid and Local Energy Cooperatives

- Organize prosumers in a cross border local energy cooperative
- Build and manage a smart grid between members of the cooperative
- Using differences in production and consumption patterns between Emmen and Haren to optimize efficient use of civic energy

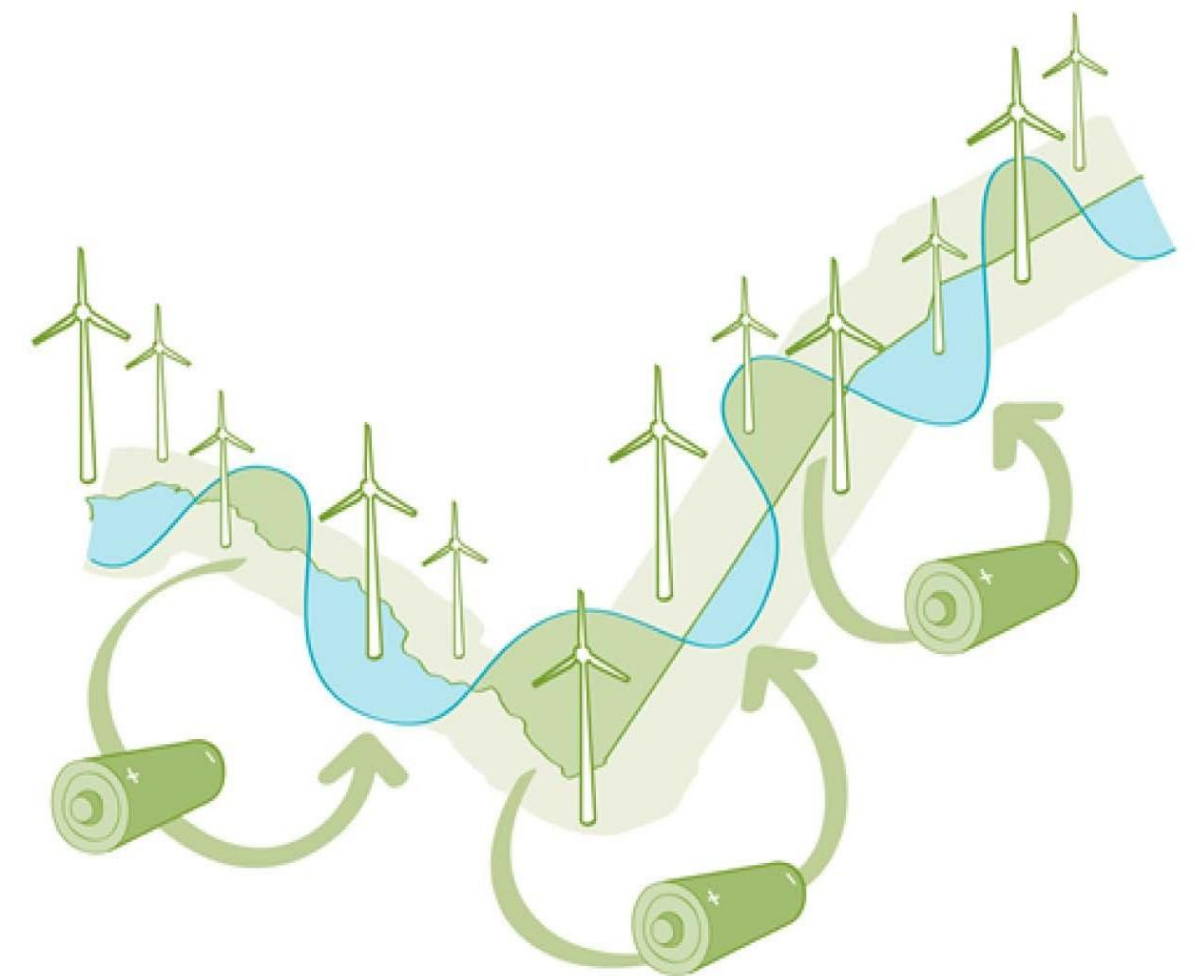
Smart Grid and Local Energy Cooperatives

- Using differences in real time energy prices between Germany and The Netherlands to optimize financial benefits for cooperative members
- Enabling cross border trade and transport of civic energy on DSO level

Cross Border Innovative Windfarm

strenghts

- ✓ 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



Challenges

- ✓ National legislation on interconnection
- ✓ TSO monopoly and taxing
- ✓ Differences in subsidy systems
- ✓ Lack of market incentives



Action on EU level?

Long term

- Avoid regulating and taxing interconnection capacity?
- Levelling differences in subsidy and taxing of RE?

Short term

- Promoting cross border experimentation zones?

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Thank you
for your
attention