

Center for Isotope Research

Greenhouse gases

Aerosols

Stable isotope applications

Radiocarbon analysis & dating

Geo-Energy

Subsurface CO₂ storage

Geothermal energy

Induced seismicity

Subsurface activities

Science & Society Group

Embedment of technology & innovation

Sustainable energy & local conditions

Biobased society & biotechnology in Africa



Combustion Technology

Elementary physical & chemical processes in high temperature energy conversion

Optical & spectroscopic methods for in-situ analysis

Development & characterisation of idealised model systems

Analysis of new fuels (fossil & sustainable)

Center for Environmental Sciences (IVEM)

Socio-technical systems integration

System analysis, modelling & simulation

Biobased systems

Impact of climate change (analysis)

Ocean Ecosystems

Global change & microbes

Fluid mechanics & energetics

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Power to the people: local energy transition through community energy



Presenter: Esther van der Waal
Daily supervisor: Henny v.d. Windt (SSG)

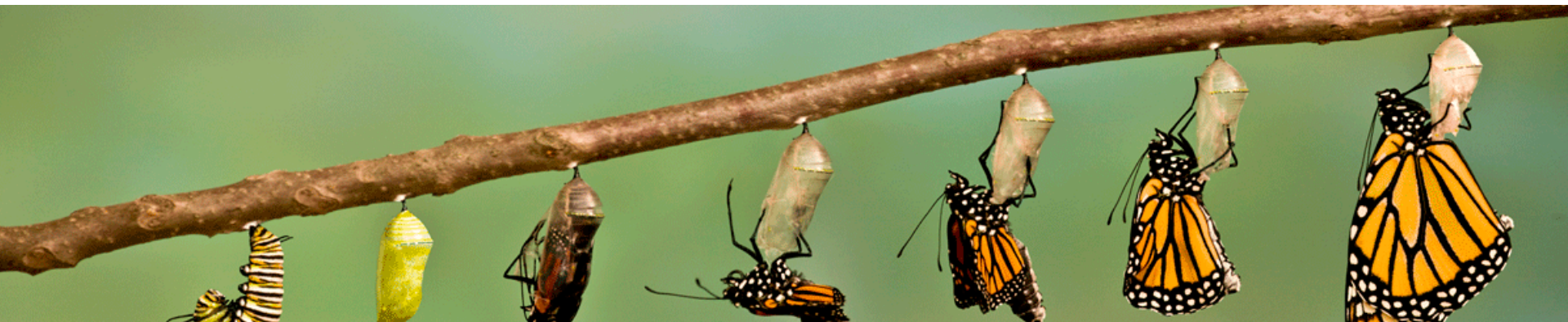
NWO-project: Community- Responsible Innovation for Sustainable Energy



Energy transition

- **Transition to a new pathway of consumption** thinking, acting and organising that take several decades, and evolve rather than incrementally from technological, social, economic and institutional factors (Byrne et al., 2009).

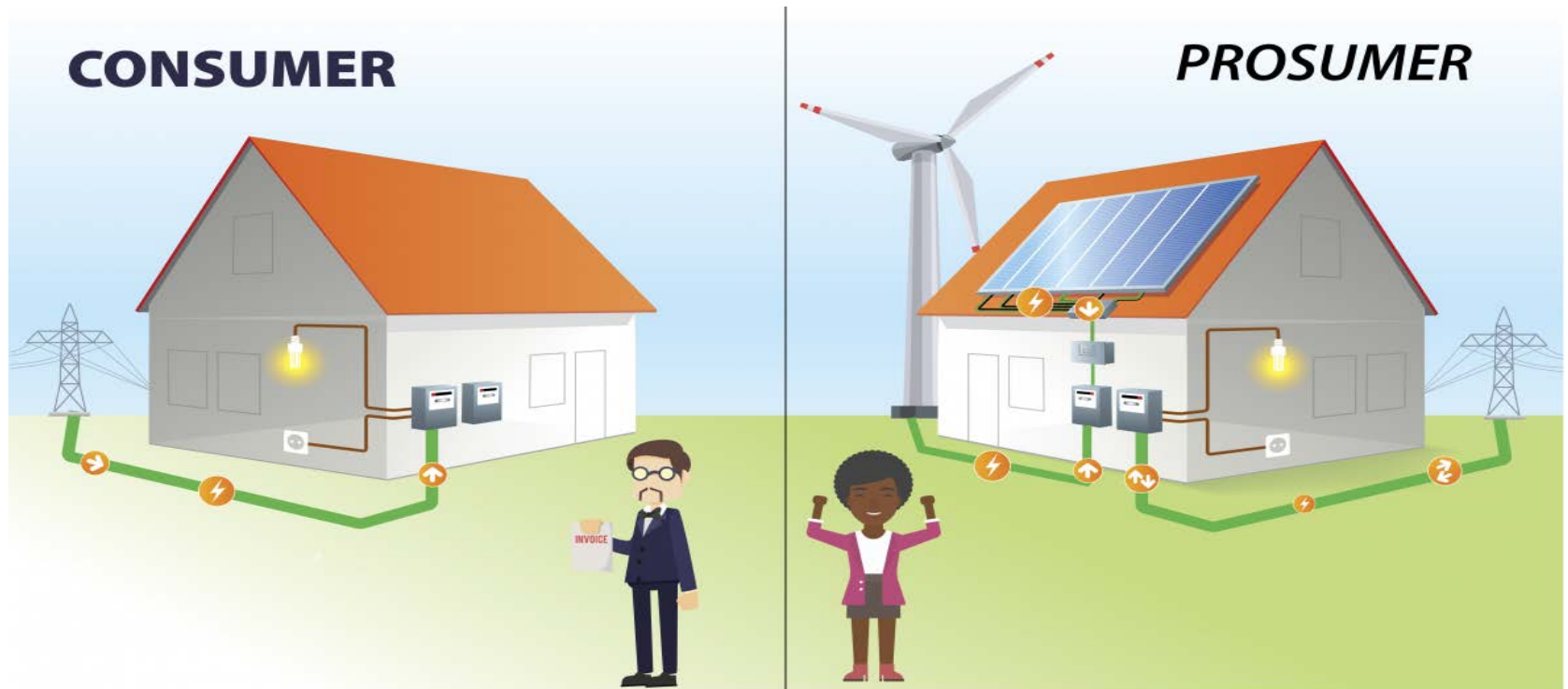
(Hufen & Koppenjan, 2015: 3).

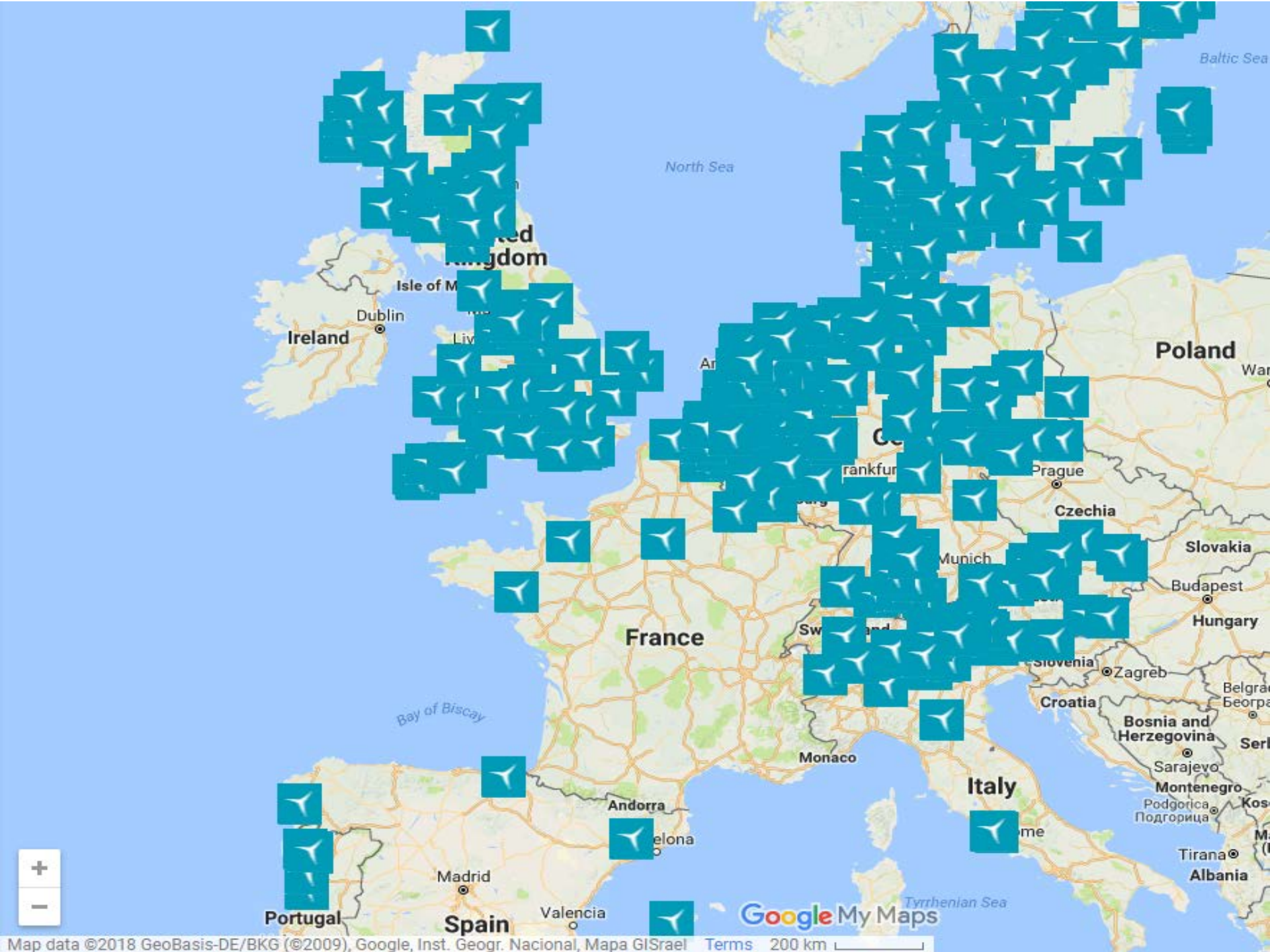




Community energy

- › Sustainable energy produced by local groups
 - > consumers to prosumers

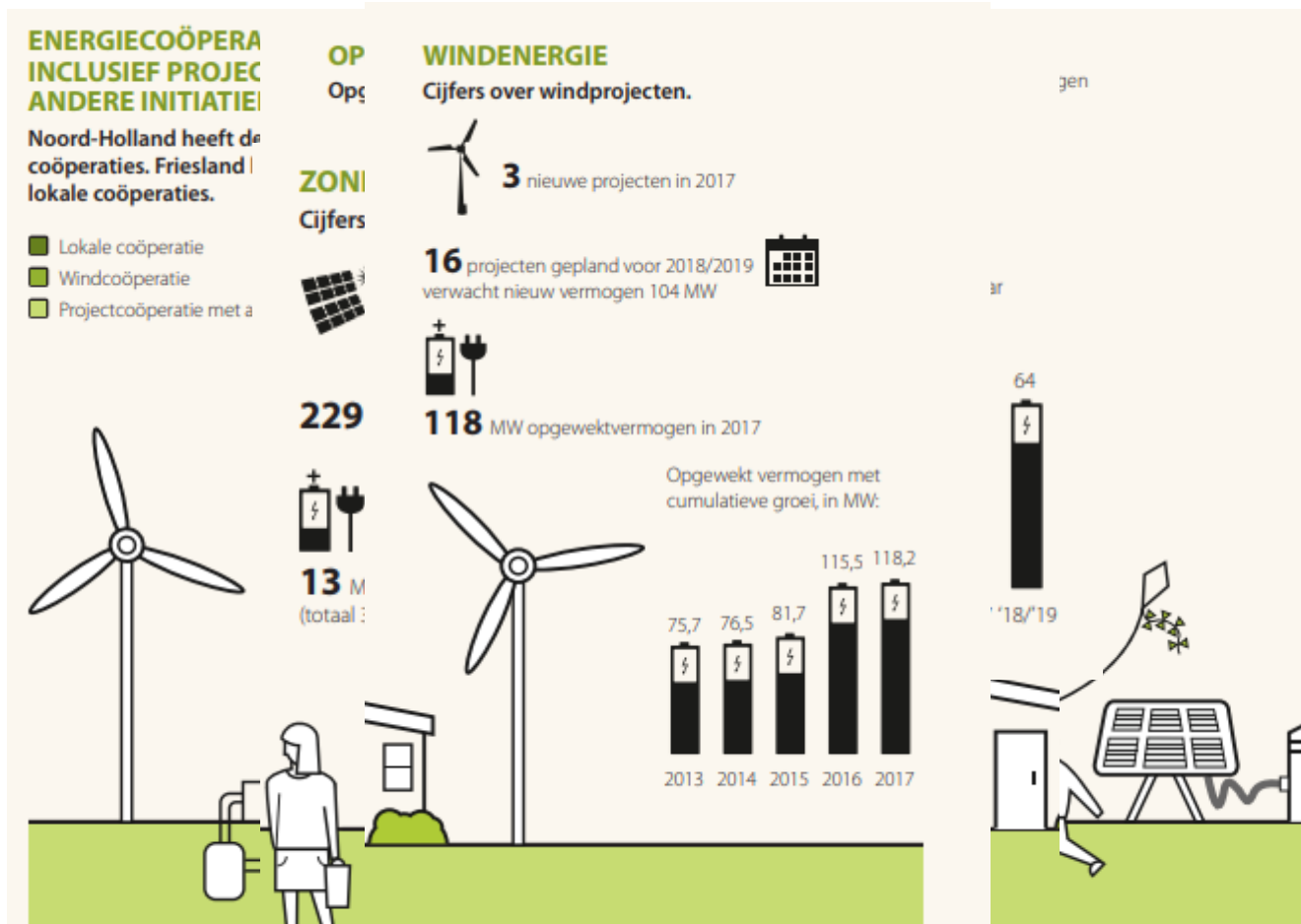




Google My Maps



Some numbers for a brief overview..





Agent of change or drop in the ocean..?

- Local ownership = local returns
 - Local investors
 - Community fund
- Creates local jobs & skills
- Opportunity for local participation
 - Growth of local networks
 - Political efficacy
 - Acceptability
- Awareness of energy usage

- 85.000 households' energy = less than 1% of NL's RE
- Small membership within community
- Financial participation models reaffirm existing socio-economic differences
- Division over siting



- > Can community energy groups have enough transformative potential to enhance local energy transition?





- › Socio-technical innovation: new human-technology interaction
- › Indicators transformative potential

Socio-technical innovation

A. Support by powerful energy sector actors

- Collaboration with incumbents

B. Stabilised learning processes

- Infrastructures for sharing knowledge and practices

C. Heterogeneity of members

- Diversity of motivations, education or financial status

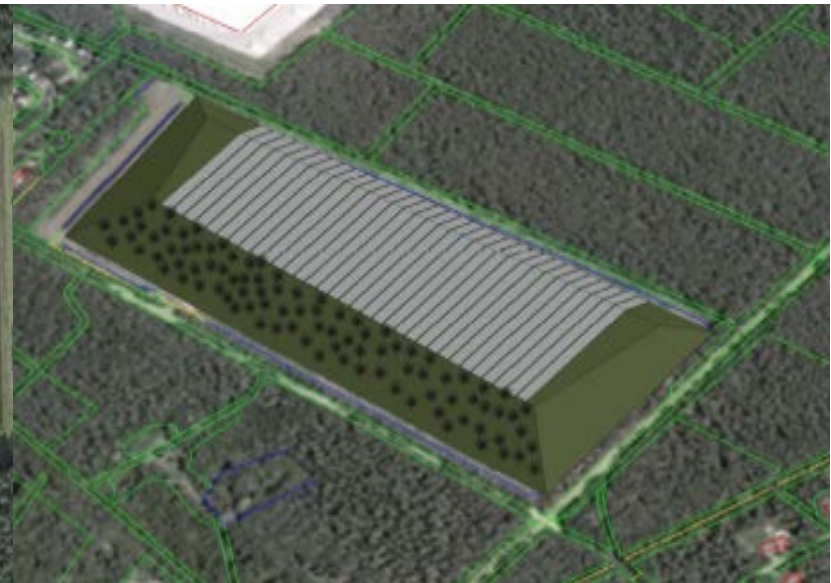
D. >5% market share

- >5% of the municipal households' energy



Brummen Energy

- › A solar installation for the local landfill
- › 12 ha area
- › Production equivalent to 1200-1400 households (total Brummen 21k)





Two options for technologies

A. Solar panels



B. solar film



HyET Solar
Flexible light weight solar modules



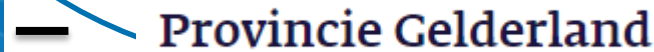
Initial collaborators





Pilot phase







Next phase: towards implementation

- › Film degenerates -> panels with a foundation
- › SDE subsidy application
- › Finalisation business plan and getting finance
- › Realisation planned later in 2018





Conclusion

Socio-technical innovation		Brummen Energy
A. Support by powerful actors	<ul style="list-style-type: none">• Collaboration with energy incumbents or other powerful actors	YES!
B. Stabilised learning processes	<ul style="list-style-type: none">• Infrastructures for sharing knowledge and practices	YES!
C. Heterogeneity of members	<ul style="list-style-type: none">• Diversity of motivations, education or financial status	YES!
D. >5% market share	<ul style="list-style-type: none">• >5% of the municipal households' energy	YES!



Transformative capacity: All about the minimal 5% share?!

- A. collaborating with powerful actors



Collaboration
 Raadhuis and
 Deventer Energie

4MW wind

75/25 shares



- B. influencing sector wide learning processes about developing RE



Wind park Oostpolder

Community sounding
 board

Community ownership
 without investment: 2
 community turbines
 and regular
 consultation



- › Nationally: just beyond pioneering
- › Locally: community energy groups can transform the local energy sector



THANK YOU
for your
ATTENTION!

Any questions
or
comments?