Energy Island Goeree-Overflakkee

PowerWEB Conference - Integrated Energy Systems

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What is Goeree-Overflakkee?



 \leftarrow One of the islands in the Southwestern Delta of the Netherlands.

← Pledged to be Energyneutral in 2020, stated during the Paris Conference in 2015

 \leftarrow Aims to be Energyproductive in 2030



 \leftarrow And we happen to have a colony of wild flamingoes

- ← Plus almost 50,000 inhabitants
- \leftarrow On 422.34 KM2 of which 160.34 KM2 is water





FOR THE NEW ENERGY GENERATION

ABOUT STEDIN



FOR THE NEW ENERGY GENERATION

OUR OPERATING AREA

PROVINCES OF ZUID-HOLLAND AND UTRECHT

Stedin is the grid operator of most of the Randstad area, which includes the cities The Hague, Utrecht and Rotterdam, the Rijnmond port area and the Botlek industrial area. High-density urban areas with a complex infrastructure and a high dependency on energy that require continuous availability of energy. Now and in the future.

Stedin also manages energy infrastructure in the regions Kennemerland, Amstelland, north-east Friesland and Weert.

Stedin operating area electricity

Stedin operating area gas

OUR ROLE IN THE ENERGYMARKET



GRID OPERATOR

- Maintains, expands and replaces the gas and electricity networks
- Installs, adapts or removes electricity and gas connections
- Installs and manages energy meters
- Deals with interruptions in electricity and gas supply and energy meter defects

CONSUMERS

- Select supplier and product
- Pay costs for supply and transmission
- Are capable of producing own energy
- Report interruptions via national gas and electricity supply emergency number
- Contact grid operator in case of connection modification requests

BUSINESS CUSTOMERS

- Select supplier and product
- Are capable of producing own energy
- Conclude agreements with parties responsible for installation and metering
- Report interruptions in electricity and gas supply to parties responsible for installation
- Contact grid operator in case of connection modification requests

Energy Neutral in 2020



Energy Neutral in 2020, how?



Energy Neutral in 2020, how?



Goeree-Overflakkee

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GOEREE-OVERFLAKKEE

Investment in electricity networks

In 2007, we initiated an investment programme totalling over 100 million euros for the electricity network on the island Goeree-Overflakkee.

In the past few years we have completed several renewal projects, such as increasing the capacity of medium-voltage cables, disconnecting local networks and increasing the capacity of the highvoltage connection between Klaaswaal and Middelharnis.

Unprecedented in Europe

The new connection to Goeree-Overflakkee reached a milestone in May 2014. By means of horizontal drilling beneath the Haringvliet inlet over a distance of 50 metres, new cables were installed between Middelharnis and Geervliet on the island Voorne-Putten, resulting in the only underground high-voltage connection with a length of 18 kilometres in Europe.



Controlled remotely

The renewed and renovated stations and the existing transformer stations are controlled remotely. This enables us to limit the scale and duration of future electricity interruptions.

Ready for production of sustainable energy

Goeree-Overflakkee offers significant potential for generating sustainable electricity. Stedin will be able to transport this sustainable power to other parts of the Netherlands via these new connections.

Partners

Joulz Energy Solutions, Visser & Smit Hanab, RPS advies- en ingenieursbureau, TenneT, Technip, Delta, Waterschap Hollandse Delta, Staatsbosbeheer and LTO



THE QUICK RISE OF SUSTAINABLE ENERGY





AGAIN AN INFRASTRUCTURAL CHALLENGE



















- ← 2011 National government assigns a part of the realisation of wind on land to Goeree-Overflakkee.
- ← The (then) four municipalities agree that they wish to coöperatie instead of fight the assignment.
- ← In 2013 the four municipalities merge into gemeente Goeree-overflakkee. And start planning for the energy challenge.
- ← Alderman Arend-Jan van der Vlugt states at the 2015 Paris climate conference that Goeree-Overflakkee will be energy neutral in 2020.





LOOKING BEYOND CABLES





← Zuiderdieppolder is named as one of the preferred locations for windenergy.







 \leftarrow The farmers in the Zuiderdieppolder see two options

- \leftarrow Have someone else develop the plan and negotiate for their benefits later.
- ← Develop the plan themselves and build the conditions that are beneficial to their farms in the procces.
- ← The farmers united in a cooperation called Kroningswind.









Goeree-Overflakkee

STEDIN

So, where do we go now?



Looking forward



Looking forward



Circular energy island

- Balanced energy system
- To a sustainable built environment
- To a sustainable mobility system





FUTURE OF THE ENERGY-SYSTEM ON THE ISLAND AND PROVINCE?

 H2GO convenant focuses on local green hydrogen for mobility, heating, balance & storage and feedstock for industry (in particular green ammonia).





Smart multi commodity grid concept aims on integration of the complete energy system!

THE CHALLENGE FOR THE GRID OPERATOR

- Current rules and regulation for a DSO
- Forcasting new infrastructural demand
- Giving value to innovative solutions
- Scale and reliability new technology
- Realization of the future sustainable energy-system (year round and as reliable as now).



Elektronen en/of Moleculen

Twee transitiepaden voor een CO2-neutrale toekomst





SOCIETAL CHALLENGES:

- ← Private house owners; how to inspire them to make the shift? Individually of collectively?
- ← Finance: The economic consequences of a € 200/month rise of fixed charges per household.
- ← Combining various physical transformation projects (e.g. climate adaptive, lifecourse proof, circular) vs complexity
- \leftarrow Innovation vs marketscale the chicken and the egg.
- ← Who is going to make it happen? The need for applied, expert and strategic workforce. The need for societal partners.





