



Rijkswaterstaat  
*Ministerie van Infrastructuur en Waterstaat*

# Renewable Energy near dutch Infrastructure

Multiple landuse approach

Alex Kamst

June 16th, 2021

# Dutch Climate Agreement



- CO2 reductie: 49% in 2030, 95% in 2050 – tov 1990
- Sectoral measures, eg. Electricity, Mobility
- Cross-sectoral measures, eg. public support, spatial planning en integration, exemplary role government
- In 2030 70% of electricity comes from renewables
- 30 Regional Strategies on Energy and spatial planning (RES)
- Land scarcity → Smart land use





# Rijkswaterstaat

- Executive organisation of the dutch Ministry of Infrastructure and Water Management (I&W).
- Manages and develops national roads, waterways and the main water system, and supports a sustainable environment



Main highways network  
**3000 km**



Main waterways network  
**3500 km**



Main watersystems  
**90.000 km<sup>2</sup>**



# Rijkswaterstaat

## Climate and energy related issues becoming more important

- Energy- and climate neutral Organisation in 2030
- Making government owned lands available to renewable energy

## Landuse

Netherlands: area 41.543 km<sup>2</sup>

- governmental owned
  - land: 4.130 km<sup>2</sup>
  - water 11.650 km<sup>2</sup>
  - roofs 10 km<sup>2</sup>
- Majority is in use: waterways, railways, highways, nature, agriculture, built environment
- Multiple landuse: combining existing function with renewable energy





Locks

Dredging depots

## Potential multiple landuse

Junctions

Roadsides





# Renewable energy projects

## **Realised solar projects → Individual, project approach**

- Solar Highways A58 – noise barrier made of solar panels
- Etten-Leur A58 – solar panels mounted on noise barrier
- Leeuwarden Hemrikshein –solar near highway-exit

## **Projects in preparation → Programmatic approach**

- Pilotprogramme renewable energy on government owned land: 10 large scale projects
- Follow Up Programme: 20-30 large scale projects



# A50 Solar Highways



Realised in 2018, by Rijkswaterstaat  
Integrated Solar-Noise-barrier  
400 m long, bi-facial panels  
Equivalent 40 –60 households  
Energy used by Rijkswaterstaat





# Leeuwarden Hemriksein



Realised in 2017, by Ecorus BV  
public tender solar field on state ground  
1400 solar panels  
0,4MWp  
Crowdfunding





# A58 Etten-Leur



Realised in 2020, by Greenspread (now :Groendus)  
Constructed on Noise Barrier  
6280 solar panels  
Equivalent 912 households  
Crowdfunding



# A58 Etten-Leur







# Pilotprogramme renewable energy on government owned lands

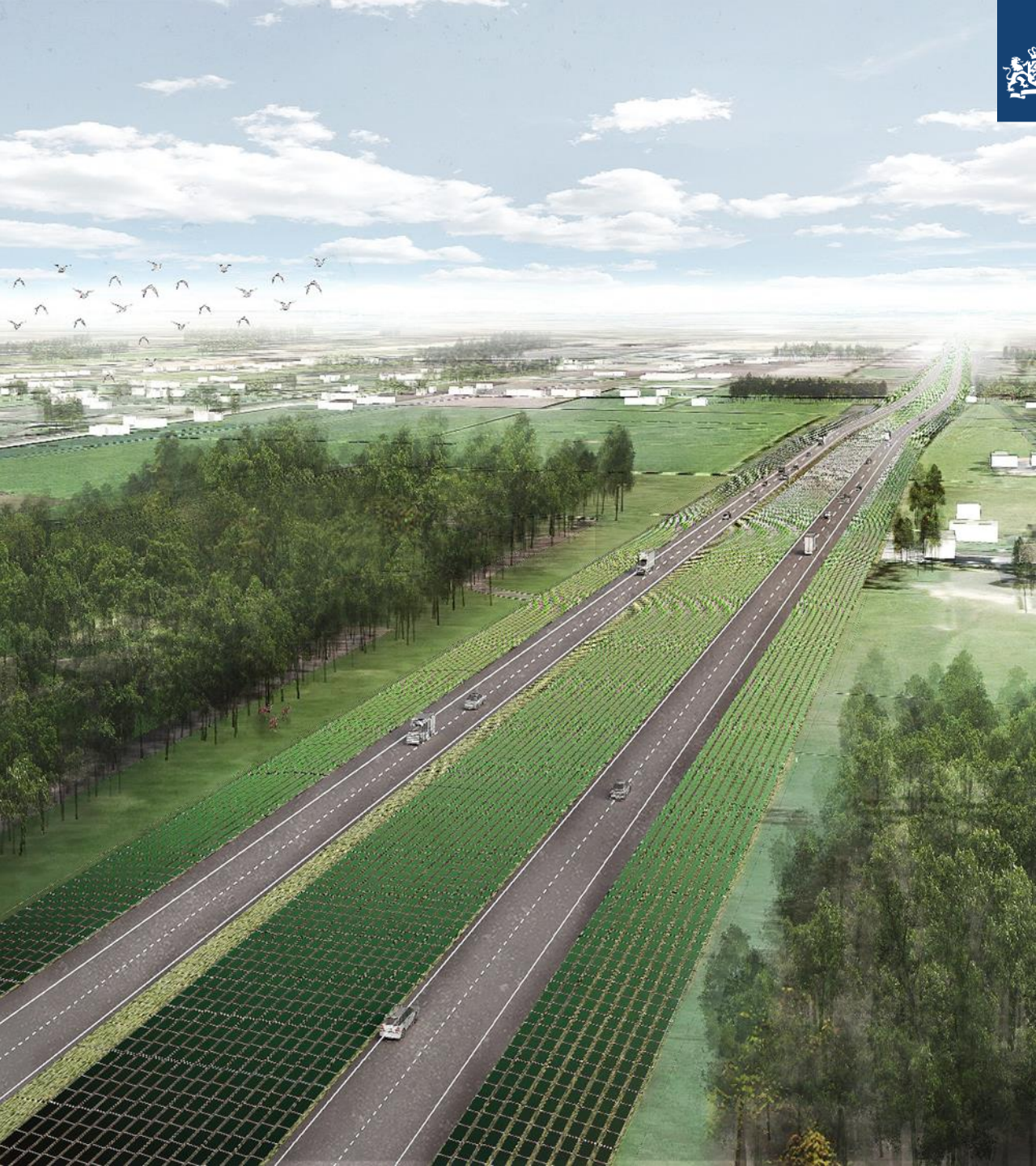
On behalf of the Ministry of Economic Affairs and Climate, RWS in cooperation with others

To experience and learn how government owned lands near infrastructure can be used on a **large scale** to generate **solar- and windenergy**.

Preparing 10 locations for renewable energy with **public support** from en **together with local and regional stakeholders**

Public tendering process





# A37 Solarroute Drente

- length of 42 kilometer
- Potential 200 MWp
- Solar panels projected: roadsides, junctions, barriers
- In preparation: to be tendered in 2023
- High degree of preparation before tender
- Involvement of local stakeholders, participative design





Local involvement



Public set-ups  
innovative solar panels





*Local involvement*



*Public set-ups for innovative solar panels*



## A37: Hoogeveen, VR-design Solarwall



Stel een vraag



Bekijk in VR



Huidige situatie

Mogelijke situatie

Mogelijke situatie + v



Stel een vraag



Bekijk in VR



Huidige situatie



Mogelijke situatie

Mogelijke situatie + v



## Solarwall: not all locals agree







# Krammer locks

- Basin near locks
- Potential 20 – 40 MWp
- Floating Solar projected
- Location granted to Zeewind and Meewind cooperation (owner of Windpark)
- Low degree of preparation before tender





# Conditions for success

- **Political willingness: sense of urgency, assignment**
- **A prepared organisation**
  - Motivated, convinced
  - Be able to: finance, personnel, know-how
- **Cooperation:**
  - Together with local counterparts,
  - Local public support
- **Technical:**
  - Locations near infrastructure,
  - Sufficient grid capacity
- **Skilled market parties**





Rijkswaterstaat  
Ministerie van Infrastructuur en Waterstaat

Thanks for your  
attention!

[alex.kamst@rws.nl](mailto:alex.kamst@rws.nl)

[www.rws.nl](http://www.rws.nl) [www.energieoprijksgrond.nl](http://www.energieoprijksgrond.nl)