



Netherlands Enterprise Agency

## Dutch tender system and future perspectives

**Roadmap towards 4,500 MW offshore wind power in the Netherlands**

Ir. F.C.W. (Frank) van Erp

Expert meeting 'Experience from the Borssele offshore wind tenders' during Offshore Wind Energy

London, 7 June 2017

>> Sustainable. Agricultural.  
Innovative. International.



# Content

- Netherlands Enterprise Agency
- Dutch approach
- Key success factors
- Hollandse Kust (zuid)
- Outlook
- Conclusion



# Netherlands Enterprise Agency (RVO.nl)

- Dutch Ministry of Economic Affairs
- Our role in offshore wind energy:
  - Site data
  - Stimulation scheme
  - Permitting and enforcement

# Government and market

## Traditional

Market: initiative, project developer

Government: decision about application  
for permit and subsidy





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## Traditional

Market: initiative, project developer

Government: decision about application  
for permit and subsidy

## New model

Government and Market: co-development





**GOVERNMENT - TSO**

**INDUSTRY**

**Consenting**

**HV Substation**

**Support  
mechanism**

**Site  
investigations**

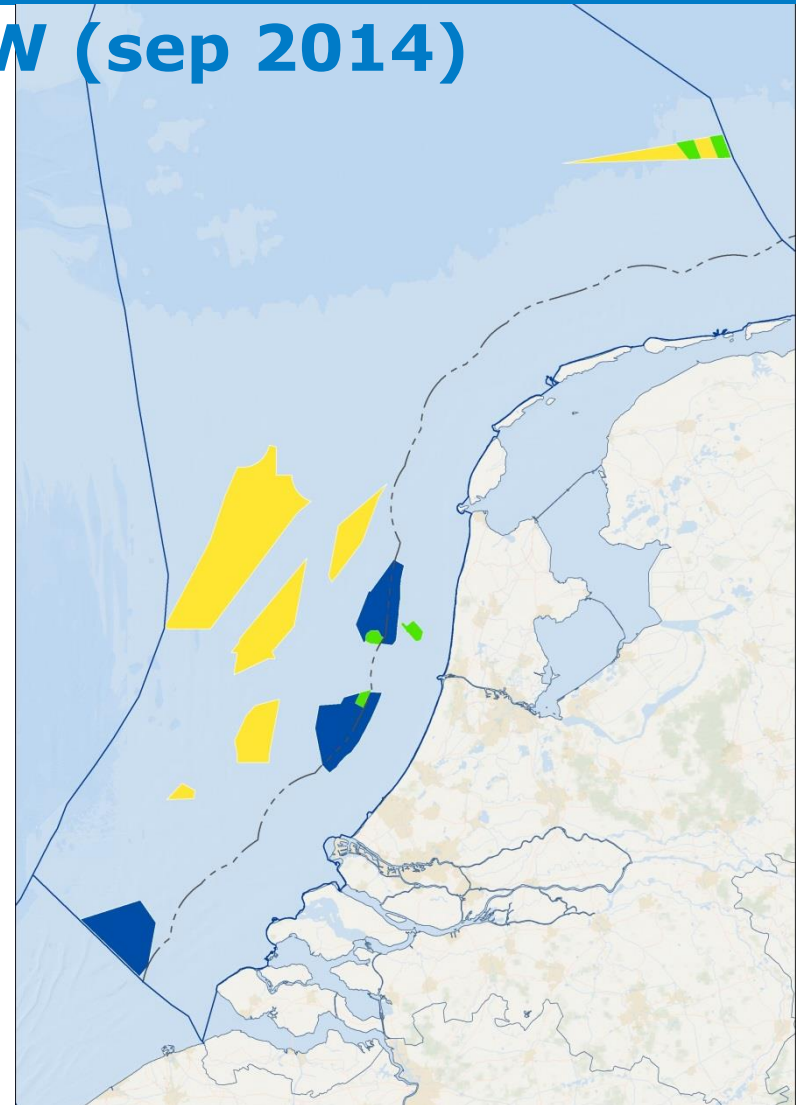
**Grant  
and  
permit  
tendering**





## First roadmap towards 4.5 GW (sep 2014)

Wind farm	Capacity (MW)	Status
OWEZ	108	In operation
Prinses Amalia	120	In operation
Luchterduinen	129	In operation
Gemini	600	In operation
Borssele I & II	700	1 <sup>st</sup> roadmap, tendered
Borssele III & IV	680	1 <sup>st</sup> roadmap, tendered
Hollandse Kust (zuid) I & II	700	1 <sup>st</sup> roadmap, planned
Hollandse Kust (zuid) III & IV	700	1 <sup>st</sup> roadmap, planned
Hollandse Kust (noord)	700	1 <sup>st</sup> roadmap, planned





# Tender timetable and price cap SDE+

Year	Capacity (MW)	Wind Farm Site (WFS)	Price cap (Euro/MWh)
2015	700	Borssele Wind Farm Zone, WFS I and II	124.00
2016	680	Borssele Wind Farm Zone, WFS III and IV	119.75
2017	700	Hollandse Kust (zuid) Wind Farm Zone, WFS I and II	107.50
2018	700	Hollandse Kust (zuid) Wind Farm Zone, WFS III and IV	103.25
2019	700	Hollandse Kust (noord) Wind Farm Zone	100.00





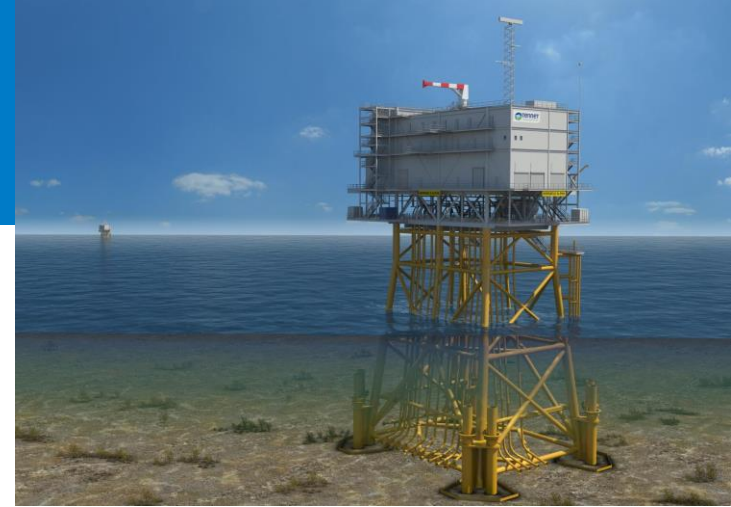
## The Netherlands embarked on its journey: Borssele tenders - results

- Reduction of cost achieved represents a major breakthrough globally
- 1,380 MW will generate more electricity than originally anticipated.

Wind Farm Site	Price cap set (Euro/MWh)	Winning bid price (Euro/MWh)	Organisation
BWFS I and II	124.00	72.70	DONG Energy Borssele 1 B.V.
BWFS III and IV	119.75	54.50	Blauwwind II c.v.



# Key success factors



## Process

- Stable policy => trust
- System design joint initiative industry and government
- Industry and government committed
- Clear planning legal framework
- Stakeholder management

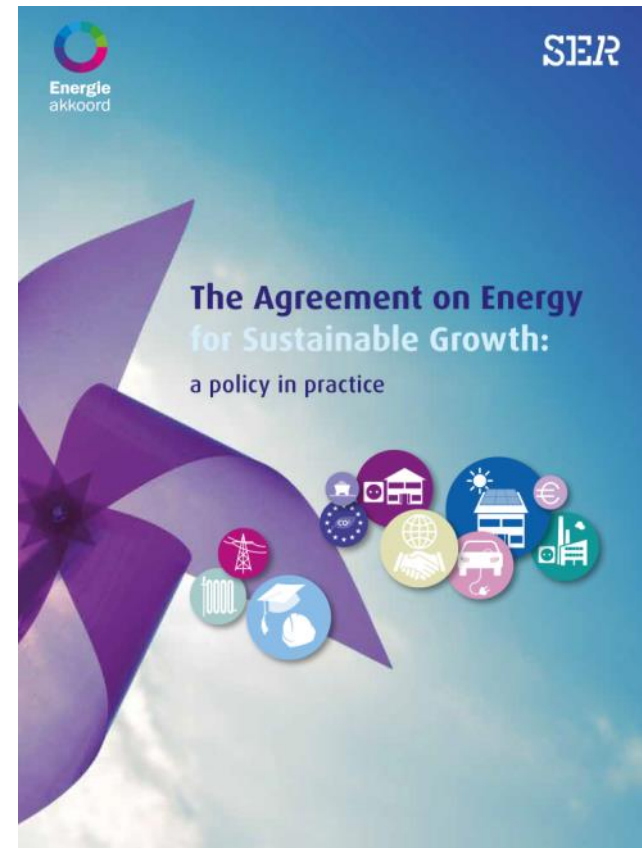
## System

- Planning, 5 successive tenders of 700 MW each
- Standardisation (i.e. Wind Farm Site Decisions, Tender procedure)
- High quality information



# Key success factors: The Agreement on Energy for Sustainable Growth

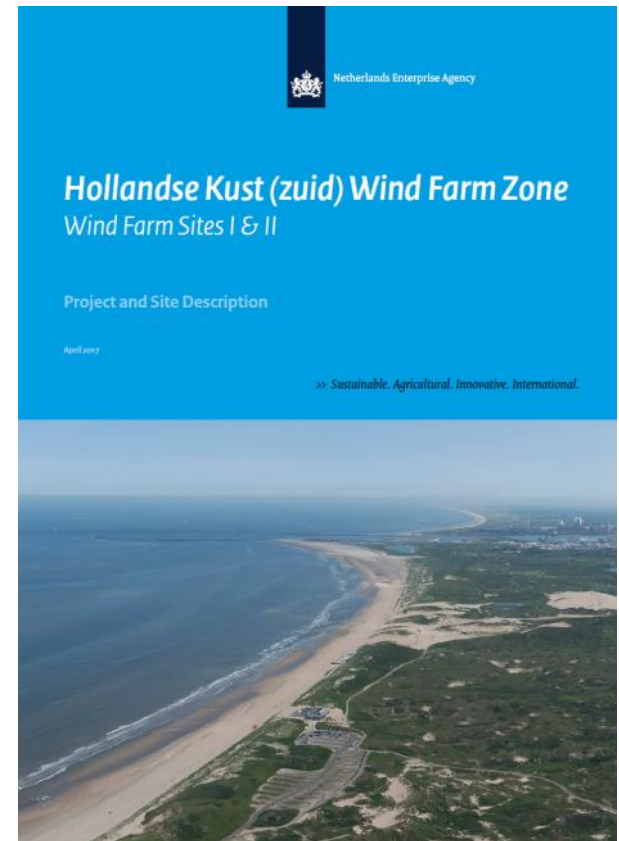
- 2013: >40 organisations approved Agreement on Energy
- Objectives:
  - Energy savings: 1.5% annual / 100 PJ in 2020
  - Increase RES production: 14% in 2020 / 16% in 2023
  - 15,000 new full time jobs





# Key success factors: Transparency

- Consultation process
  - Site data: portfolio, quality requirements, SoW's
  - Electrical infrastructure: expert workshops
  - Consenting: expert meetings with NWEA
- Communications
  - Quarterly workshops
  - Site data: webinars
  - Websites
  - Each tender: project and site description ('bid book')





Key success factors:

The right skills,  
the right  
location - the  
perfect base for  
a strong supply  
chain

## Existing port and manufacturing infrastructure base





# Hollandse Kust (zuid) conditions more favourable than Borssele

- Closer to shore
- Shallow water
- Soil conditions allow simple foundation methods
- Lower extreme wave height
- Lower level of seabed dynamics
- More comprehensive data
  - Further reduce risks for developers
  - Stimulate design optimization in tender stage.
- Downward cost curve



# HKZ Site Data: two metocean systems





# HKZ Site Data: additional boreholes may be omitted



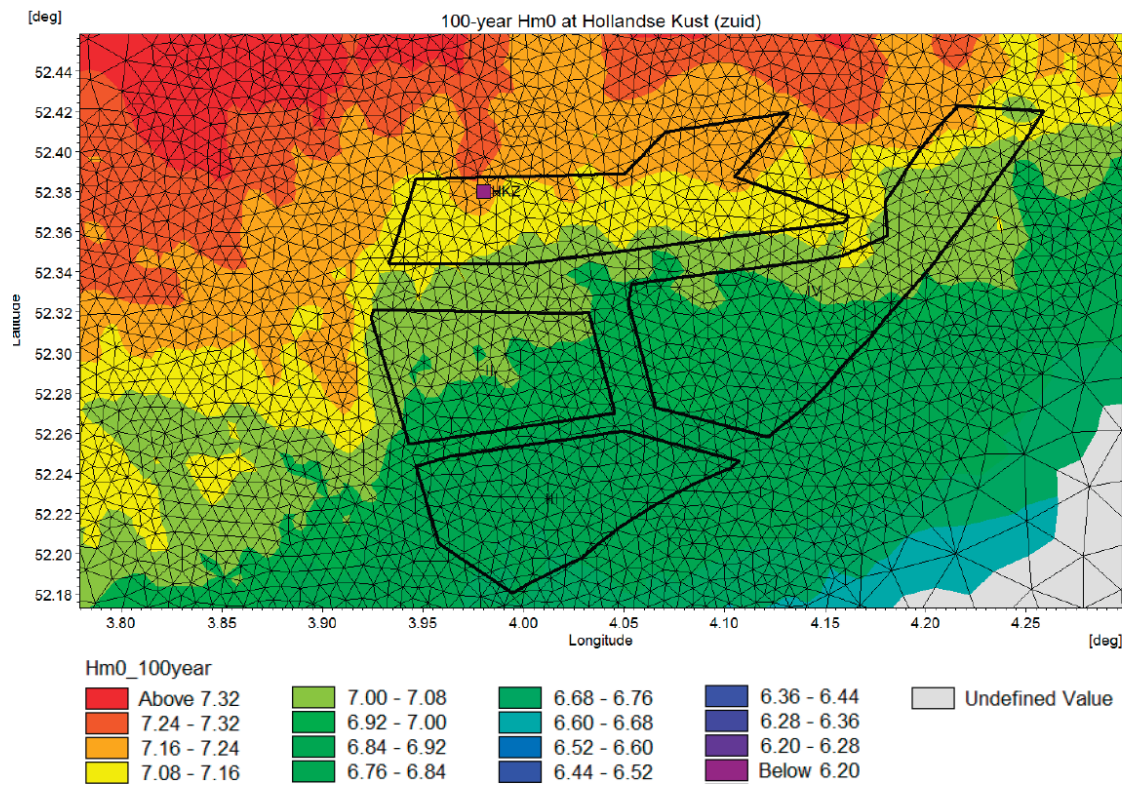
## Conclusion DNV GL

- With a proper CPT calibration and additional CPTs at each planned turbine location it is **likely that additional boreholes may be omitted.**
- However, it is the responsibility of the designer to make the final decision, if additional boreholes can be omitted to enable an economic and safe foundation design.





# HKZ Site Data: metocean database





# HKZ Site Data: certification DNV GL

DNV GL

## STATEMENT OF COMPLIANCE

Statement No.: SC-DNVGL-SE-0190-02664-2  
Issued: 2017-05-31

Issued for:

### Site Conditions Assessment

of

### Wind Farm Zone Hollandse Kust (zuid) (WFS I and WFS II)

Comprising:

### Wind Turbines, Substation and Power Cables

Specified in Annex 1

Issued to:

### Netherlands Enterprise Agency

Croeselaan 15  
3521 BJ Utrecht  
The Netherlands

According to:

### DNVGL-SE-0190:2015-12 Project certification of wind power plants

Based on the documents:

CR-SC-DNVGL-SE-0190-02664-4 Certification Report, dated 2017-05-03

Changes of the site conditions are to be approved by DNV GL.

Hamburg, 2017-05-31

For DNV GL Renewables Certification

  
I. V. Pablo Politano  
Service Line Leader Project Certification



Hellerup, 2017-05-31

For DNV GL Renewables Certification

  
Erik Asp  
Project Manager

The accredited certification body is Germanischer Lloyd Industrial Services GmbH, Brokterkei 18, 20457 Hamburg.  
DNV GL Renewables Certification is the trading name of DNV GL's certification business in the renewable energy industry.

## Site conditions

- Established correctly
- Complete and fulfill the requirements
- Risks and uncertainties minimised according to state-of-the-art methods
- Can be used directly as input for design



## Trend: LCoE are falling: recent auction prices (€/MWh)



- Auction price  $\neq$  LCoE
- Differences in support mechanisms
- Differences in site conditions



# Subsidy-free auctions

## December 2016

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**NETHERLANDS**

### Netherlands plans subsidy-free auctions from 2026

9 December 2016 by David Weston, [Be the first to comment](#)

NETHERLANDS: In its energy plan to 2050, the Dutch government is hoping it can apply the lessons from its successful offshore tender process to other forms of renewable energy, while planning to remove subsidies in future auctions.

## April 2017


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**BUSINESS GUIDE**

### Germany Accepts First Subsidy-Free Offshore Wind Auction Bid



Germany's Bundesnetzagentur has selected three offshore wind projects by DONG Energy and one project by EnBW in the first auction for grid connections and funding for existing offshore wind farm projects, with at least one of the developers offering the lowest price bid of 0.00 Euro cents per kilowatt-hour.

The agency selected four offshore wind projects with a combined capacity of 1,490MW, including EnBW's 900MW He Dreiht, and DONG's Borkum Riffgrund II West, Gode Wind 3, and OWP West offshore wind farm.





## Outlook

- **1<sup>st</sup> Roadmap till 2023**
  - Deployment well on track
  - Cost reduction:  
broadly achieved ahead of time
- **Current government: Energy Agenda**
  - Centered around CO<sub>2</sub> reduction
  - Energy efficiency & increase RES
- **2<sup>nd</sup> Roadmap 2023 – 2030**  
*official preparations for decision making*
  - 7 annual tenders of 1 GW
  - 0 subsidy from 2026
  - Local economic benefits
  - Preparations for 3<sup>rd</sup> Roadmap



# Conclusions

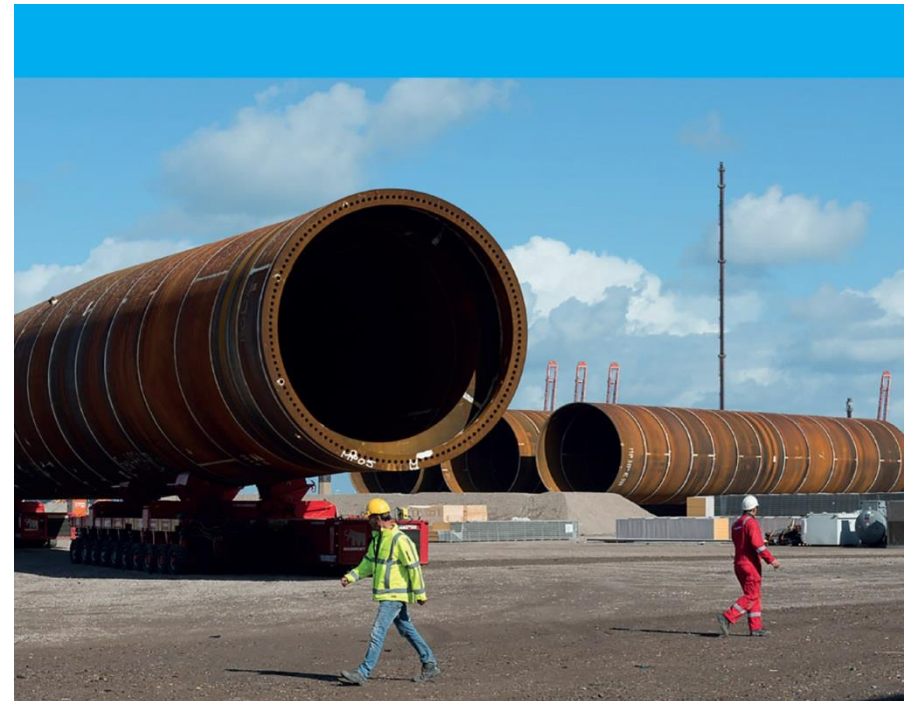


- Borssele exceeds expectations
- Hollandse Kust (zuid) conditions are more favourable than Borssele
- Stable outlook for future developments



# Communications

- Regular workshops, webinars, e-mail updates  
register: [woz@rvo.nl](mailto:woz@rvo.nl)
- Site data & Project and Site Description:  
[offshorewind.rvo.nl](http://offshorewind.rvo.nl)
- SDE+ grant and permit tenders:  
[www.rvo.nl/sde/windopzee](http://www.rvo.nl/sde/windopzee)





Netherlands Enterprise Agency

# *Masterclass Dutch offshore wind energy policy*

**A unique opportunity to learn from the successful Dutch cost cutting tendering system**  
**Target audience: Government officials considering offshore wind development**

*Monday 27 - Wednesday 29 November 2017, Amsterdam (The Netherlands)*  
*One day prior to Wind Europe 2017 (28-30 November 2017, Amsterdam)*





# Thank you very much for your attention!



- Borssele exceeds expectations
- Hollandse Kust (zuid) conditions are more favourable than Borssele
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