



Netherlands Enterprise Agency



Wind farm zones

Site investigations

9th workshop
roadmap towards 4,500 MW
14th October 2015

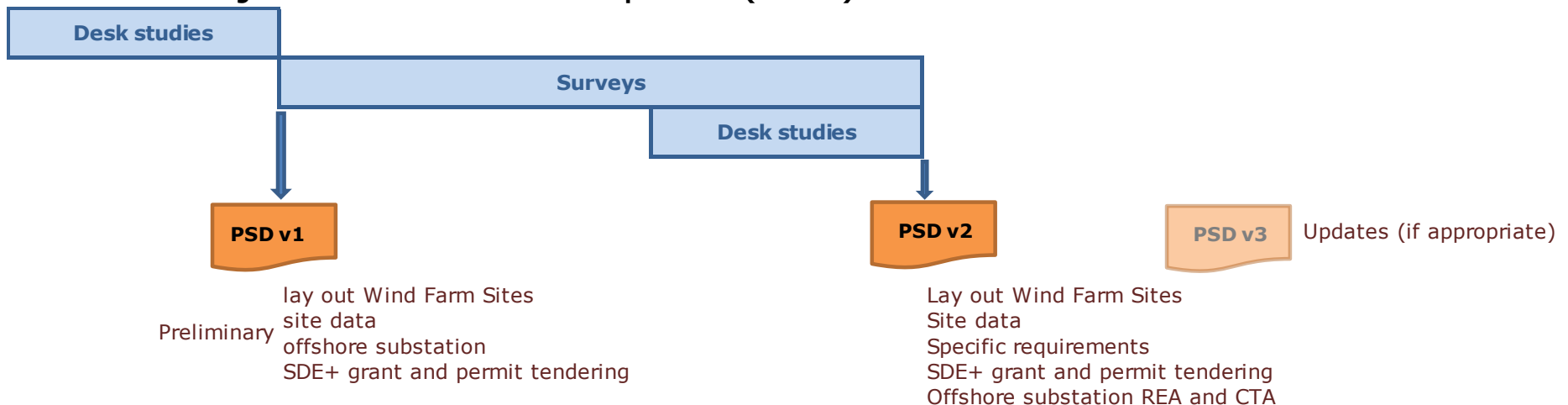
Ruud de Bruijne
Frank van Erp

>> Sustainable. Agricultural.
Innovative. International.



Site investigations: overview

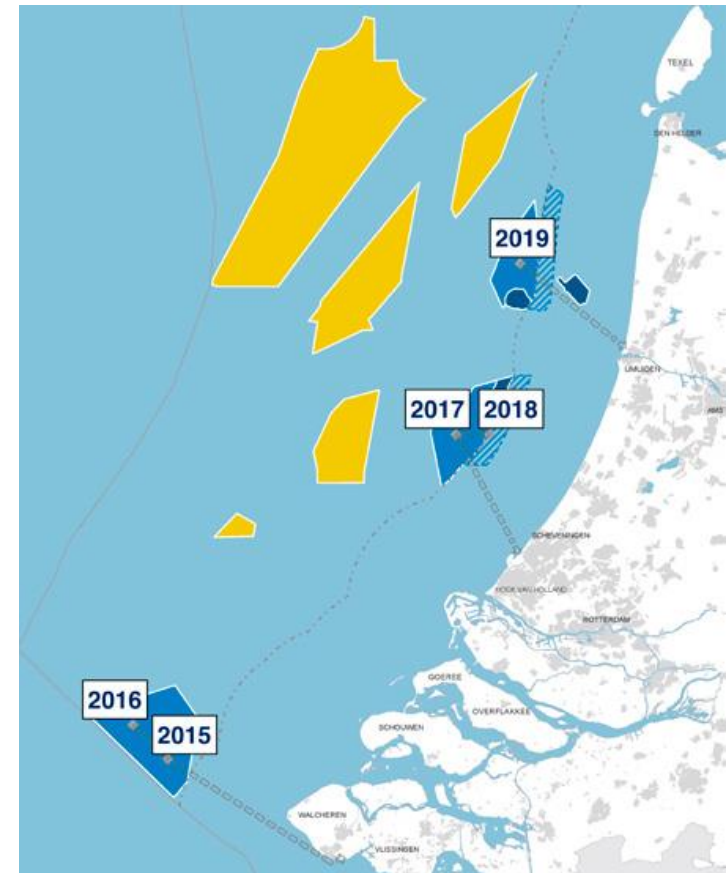
- Information package for each SDE+ grant and permit tender
- Each package:
 - Site data (desk studies & surveys)
 - Project and site description (PSD)





Site investigations: studies & deliverables

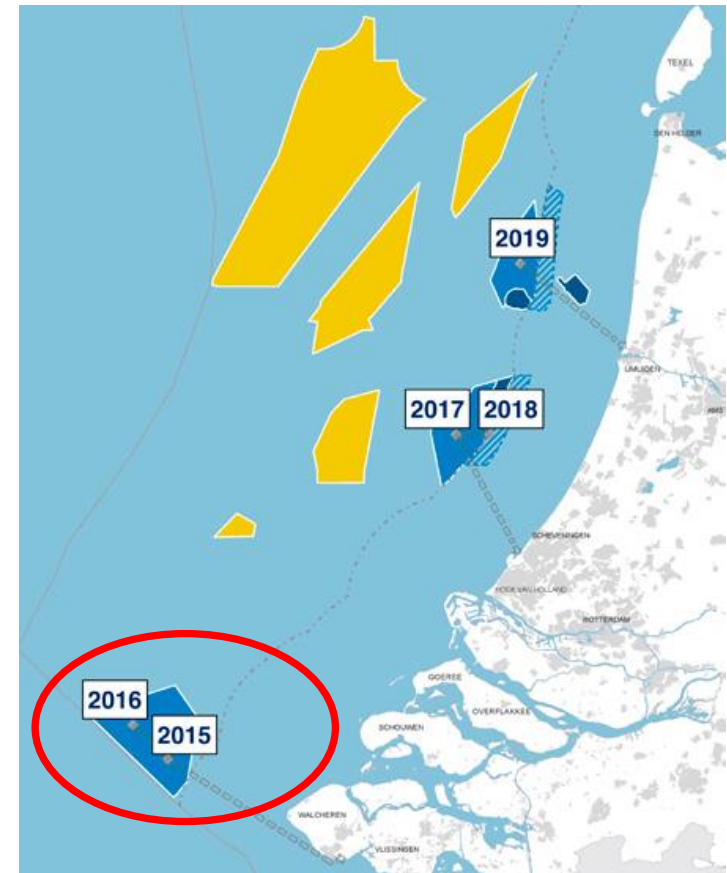
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 - Version 2 (based on surveys)
 - Version 3 (update if appropriate)





Site investigations: studies & deliverables

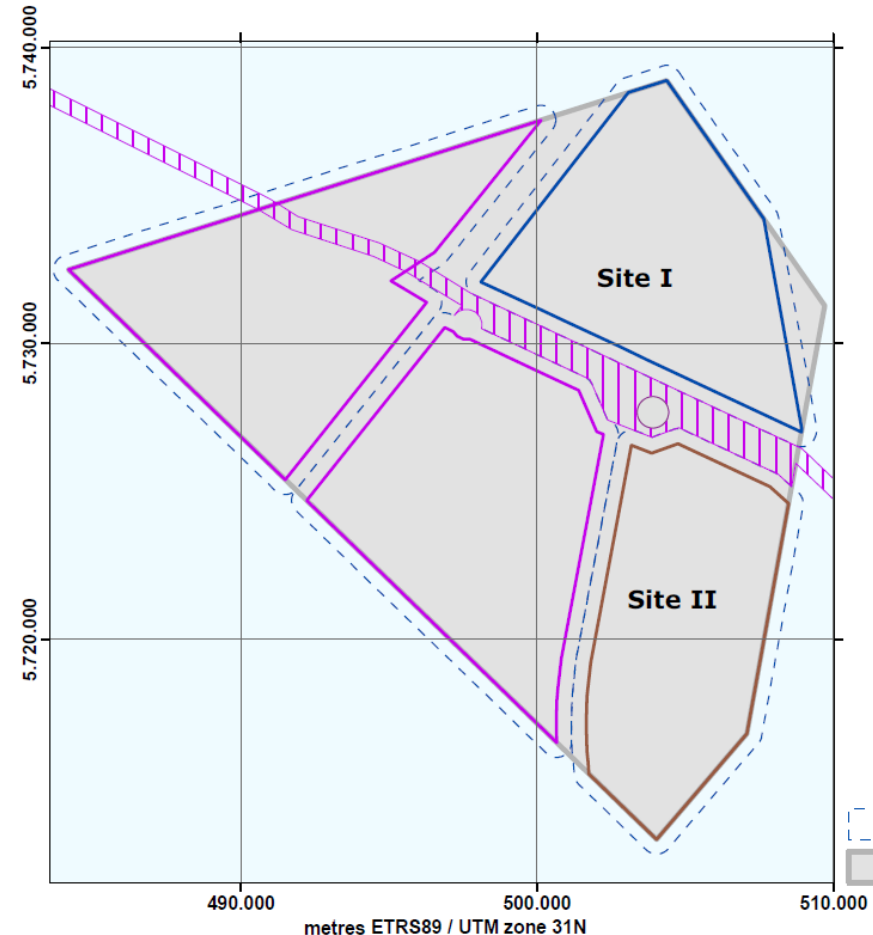
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Borssele Wind Farm Site I and II (1st tender)

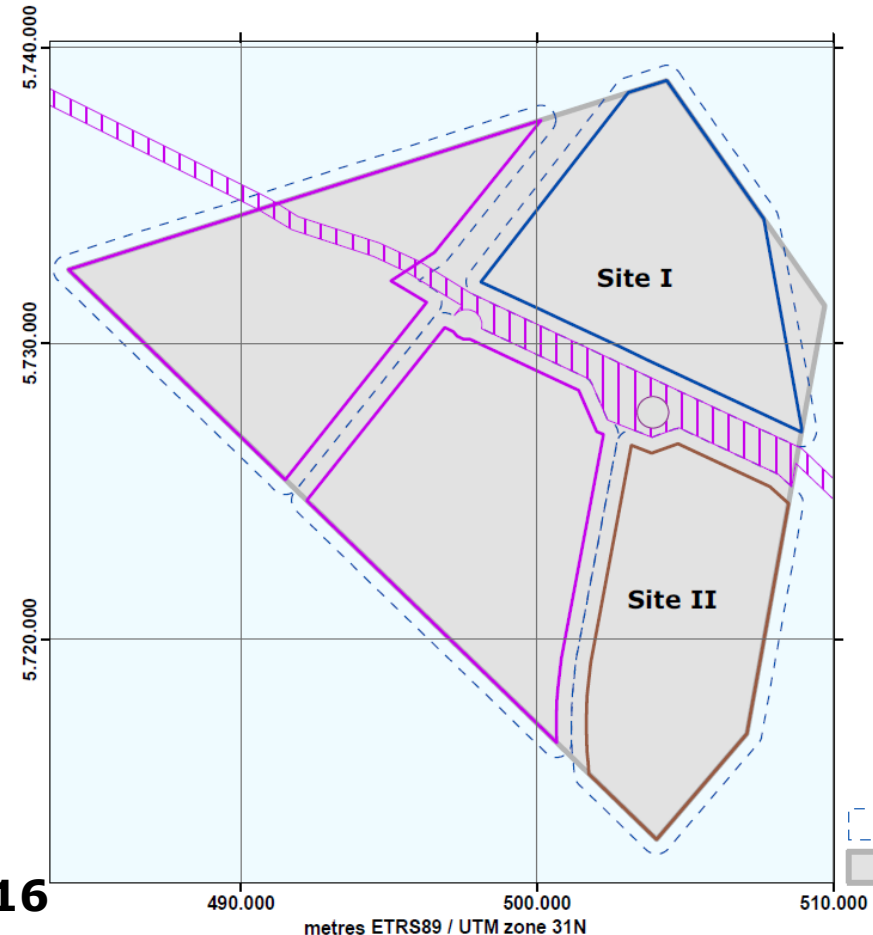
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Borssele Wind Farm Site I and II (1st tender)

- Desk studies
 - Geology ✓
 - UXO ✓
 - Archaeology ✓
 - Wind resource ✓ => **Updated!**
 - Metocean ✓
 - Morphodynamics ✓
- Surveys
 - Geophysical ✓
 - Geotechnical ✓
- PSD
 - Version 1 (based on desk studies) ✓
 - Version 2 (based on surveys) ✓
 - Version 3 => **Planned January 2016**

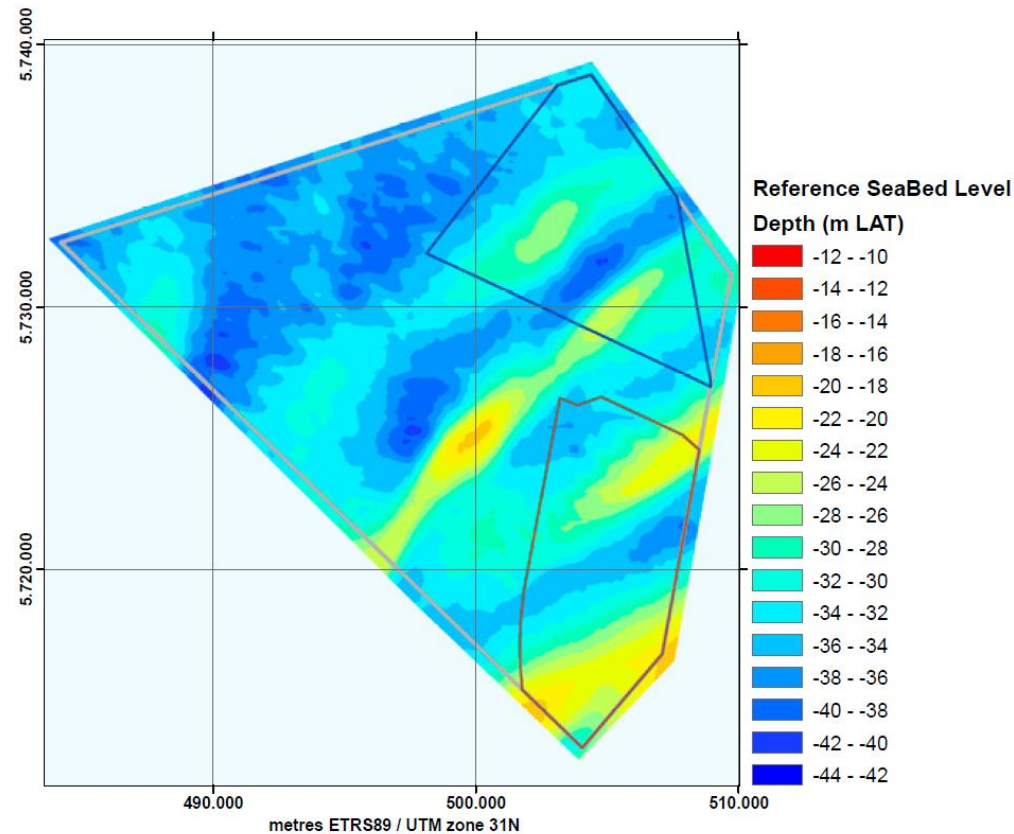
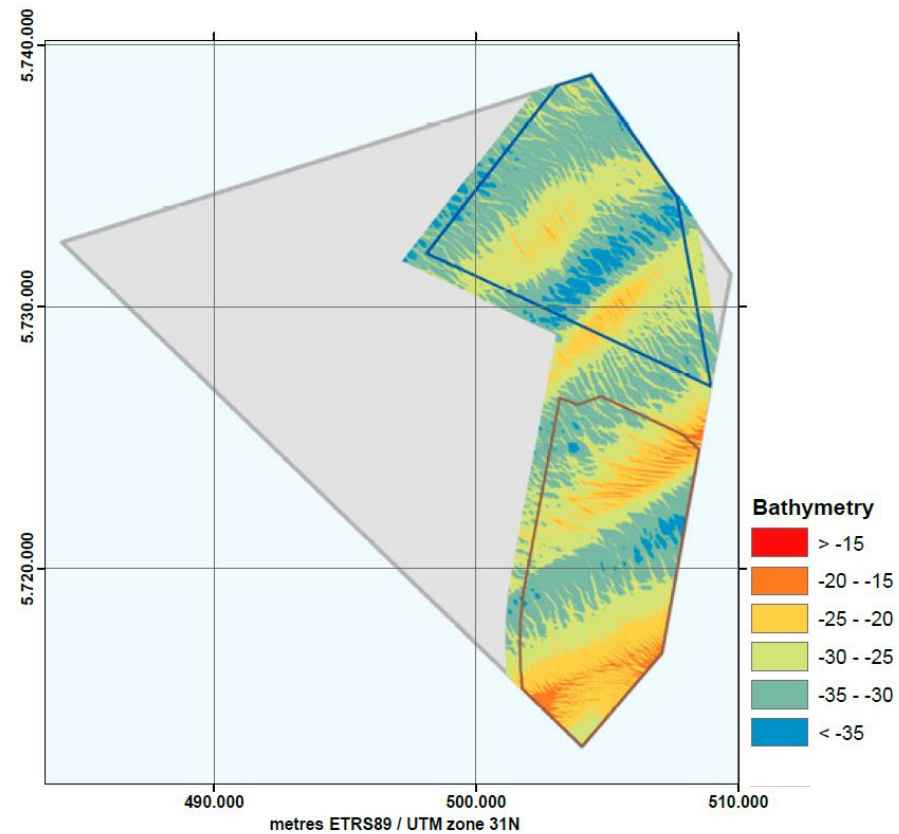




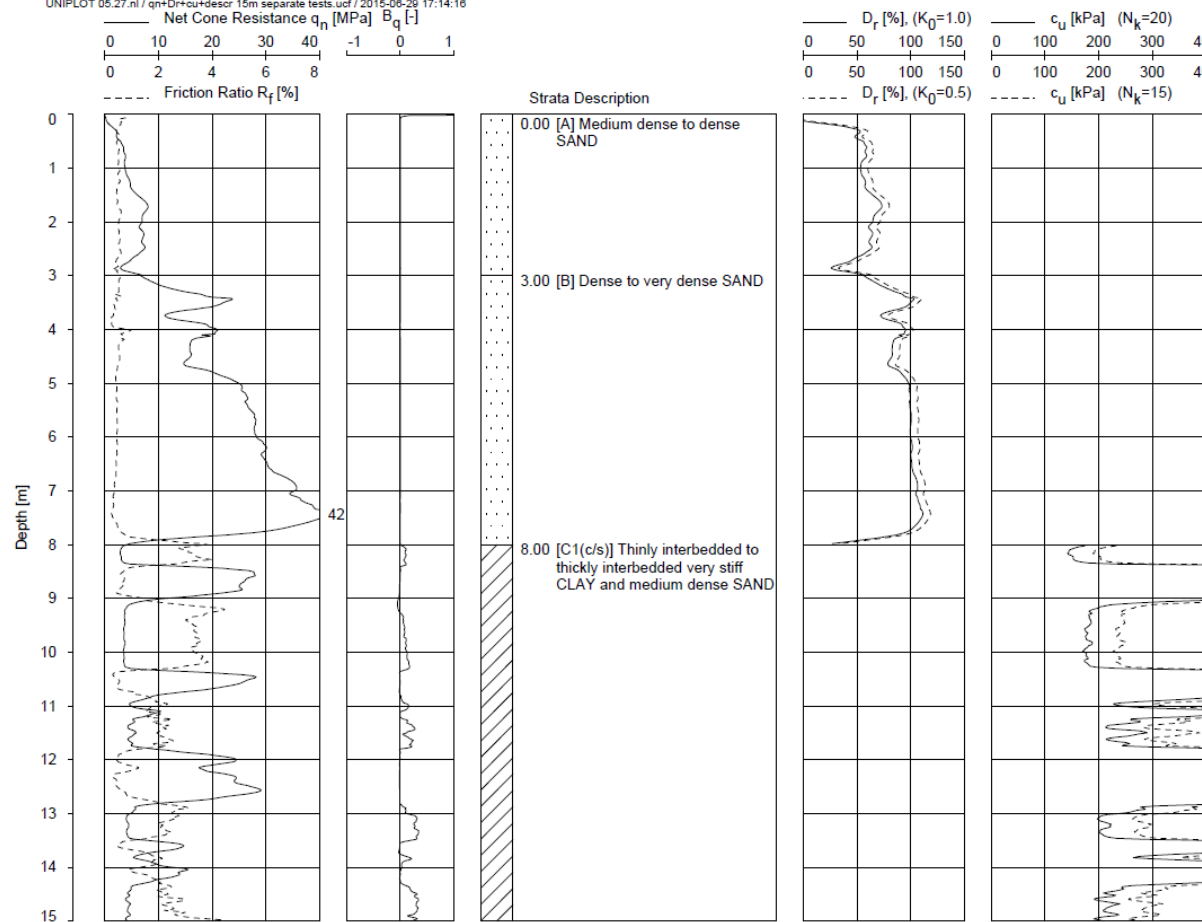
Borssele Wind Farm Site I and II (1st tender)

- Desk studies
 - Geology ✓
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 - Wind resource ✓
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 - Morphodynamics ✓
- Surveys
 - Geophysical ✓
 - Geotechnical ✓
- PSD
 - Version 1 (based on desk studies) ✓
 - Version 2 (based on surveys) ✓
 - Version 3 => **Planned Dec '15-Jan '16**

**All deliverables
published on
offshorewind.rvo.nl**



UNIPLOT 05.27.nl / qn+Dr+ou+desor 15m separate tests.uf / 2015-06-29 17:14:16



Date Of Testing : 01-May-2015
 Water Depth [m] : 30.8
 Coordinates [m] : E504954 N5733399

CPT DATA INTERPRETATION
 CPT_WFS1_13
 BORSSELE WIND FARM ZONE, WFS I - DUTCH SECTO



Borssele Wind Farm Site I and II (1st tender)

- Offshorewind.rvo.nl
 - All deliverables downloadable
 - Q&A and revision log
 - Geophysical data on HDD
- Online expert seminars (webinars)
 - Geotechnical results (video and Q&A on website)
 - Morphodynamics (20th October 2015, register: woz@rvo.nl)

The screenshot shows the website for the Borssele Wind Farm Site I and II tender. The header includes the Netherlands Enterprise Agency logo and a search bar. The main navigation bar lists 'Home', 'Borssele', 'Hollandse Kust Noord', and 'Hollandse Kust Zuid'. A large image of the 'Van Oord' offshore wind farm installation is featured. The 'Welcome' section provides an overview of the tender process, stating that the Netherlands Enterprise Agency (RVO.nl) is responsible for the collection of site data which provide information for FEED studies and makes competitive bids in the grant and permit tenders possible. It also lists the deliverables for each wind farm zone: General, Maps, Studies, and Workshops. The 'Next events' section lists two upcoming events: a Workshop on Offshore Wind Energy on October 14th with 1 attendee, and an Online seminar on Morphodynamics BWFS I and II on October 20th with 0 attendees.

Netherlands Enterprise Agency

Home Borssele Hollandse Kust Noord Hollandse Kust Zuid Search

Van Oord

Welcome

Want to develop a wind farm in the Netherlands?

Between 2015 and 2020 Wind Farm Zones Borssele, Hollandse Kust Zuid and Hollandse Kust Noord will be developed. On this website you can find all available site data on soil, wind and water conditions as downloads. The Netherlands Enterprise Agency (RVO.nl) is responsible for the collection of the site data which provide information for FEED studies and makes competitive bids in the grant and permit tenders possible.

What can you expect?

For each wind farm zone four tabs with:

- General: Introduction to the wind farm zone, revision log and Q&A log
- Maps: Geographical information and GIS deliverables
- Studies: Deliverables from the desk studies and surveys
- Workshops: MoM's and presentations of workshops

You want other information about the Dutch roadmap toward 4,500 MW offshore wind?

- TSO TenneT progress on the offshore grid
- Subsidy and Permit rules in Dutch
- Wind Energy Maritime

Commissioned by the Dutch Ministry of Economic Affairs

Next events

Date	Event	Attendees
OCT 14	Workshop 9 Offshore Wind Energy	1 attendees
OCT 20	Online seminar: Morphodynamics BWFS I and II	0 attendees



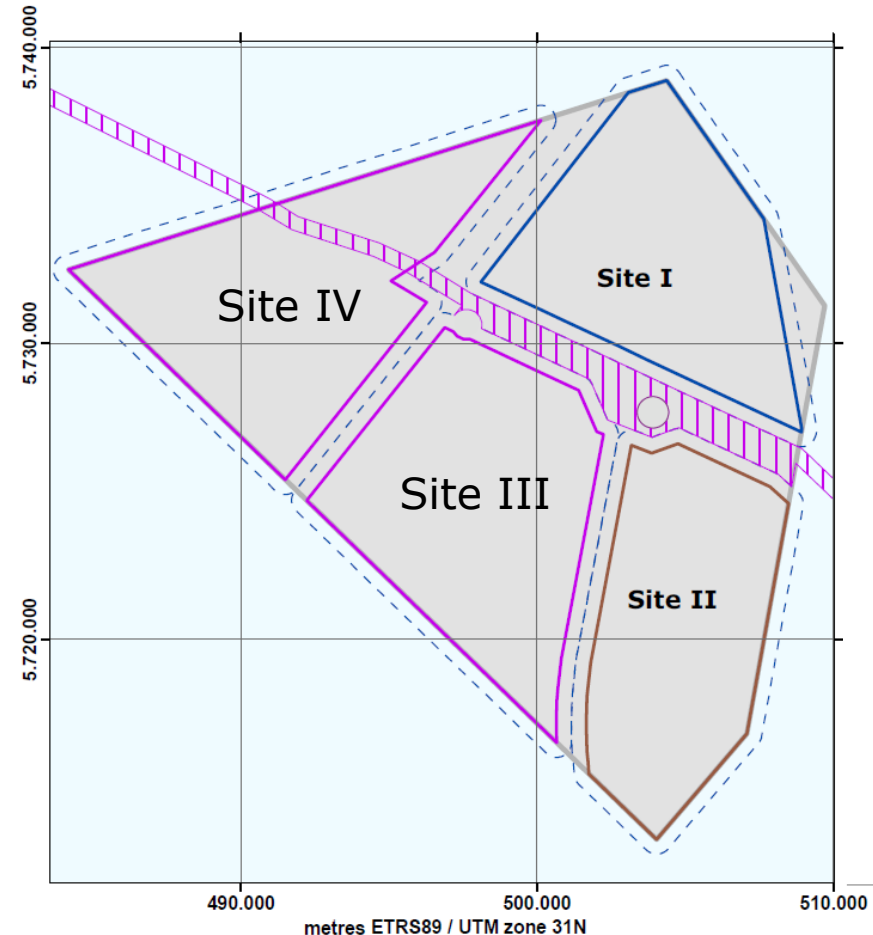
Borssele Wind Farm Site III and IV (2nd tender)

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 - Version 2 (based on surveys)
 - Version 3 (update if appropriate)



Borssele Wind Farm Site III and IV (2nd tender)

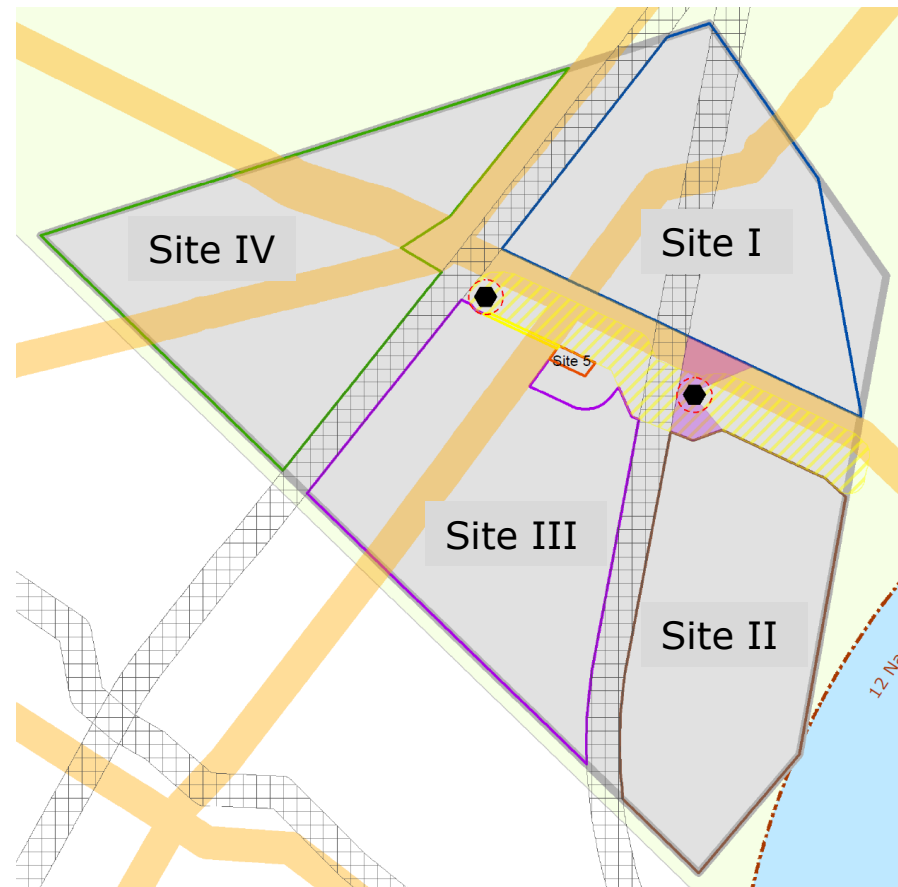
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Borssele Wind Farm Site III and IV (2nd tender)

- Desk studies
 - Geology ✓
 - UXO ✓
 - Archaeology ✓
 - Wind resource ✓
 - Metocean ✓
 - Morphodynamics => **Ongoing, planned November 2015**
- Surveys
 - Geophysical ✓
 - Geotechnical => **Ongoing, planned January 2016**
- PSD
 - Version 1 (based on desk studies) ✓
 - Version 2 (based on surveys) => **Planned for January 2016**
 - Version 3 (update if appropriate) => Not yet planned



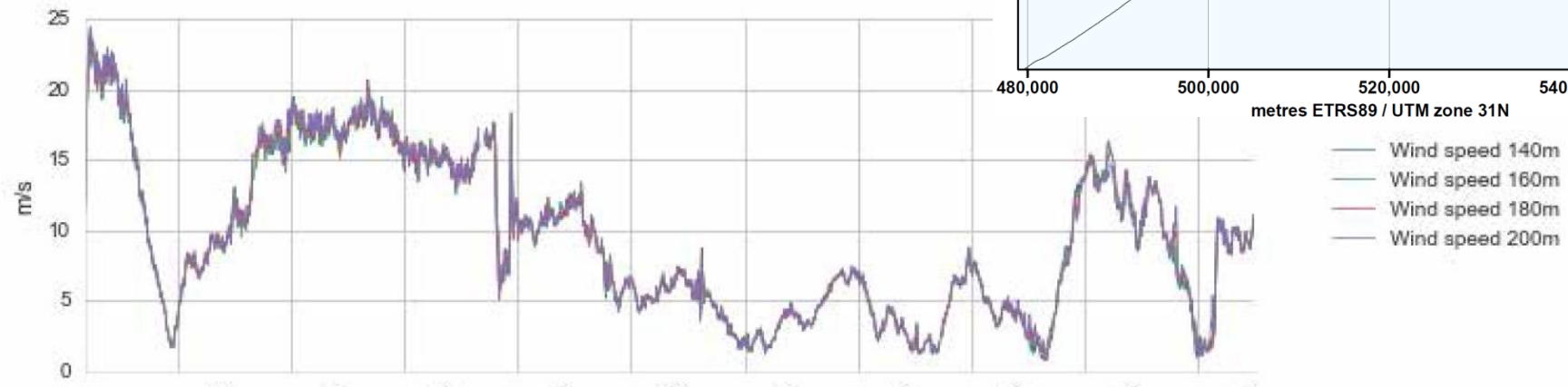
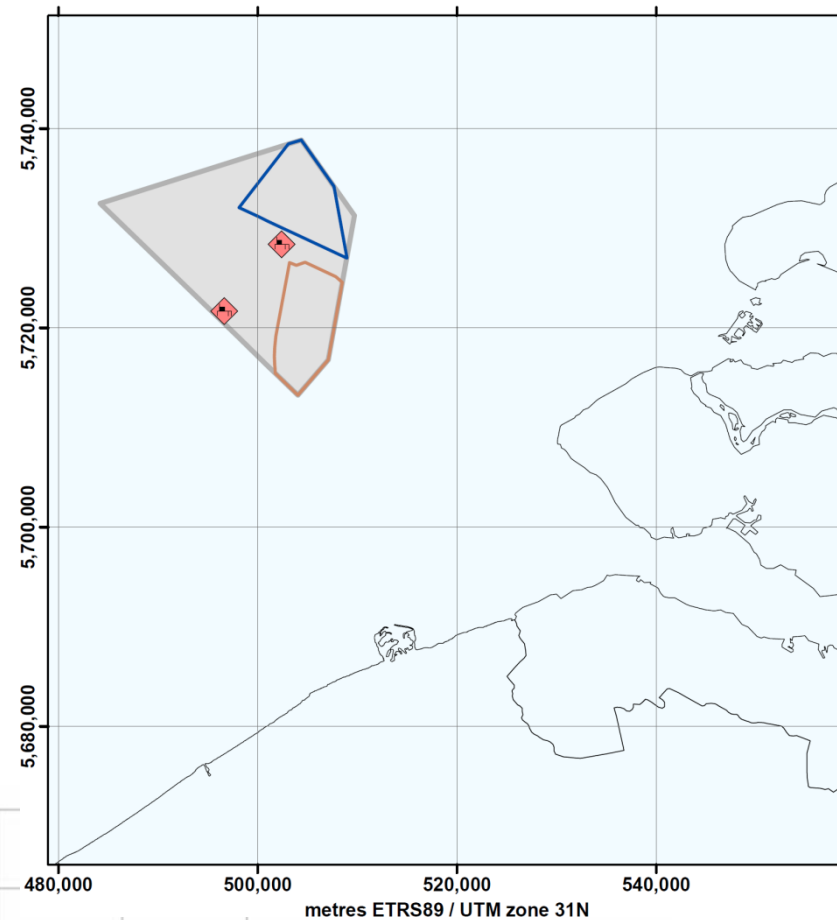
Borssele Wind Farm Site V (Innovation tender)

- Site data WFS V included in site data WFS III
- Separate PSD WFS V



Borssele Wind Farm Zone

- Metocean measurement campaign
 - Buoy 1:
12 month campaign started June 2015
 - Buoy 2:
3 month campaign, planned start November 2015
 - Deliverables:
 - > Reports on offshorewind.rvo.nl
 - > Data on windopzee.net



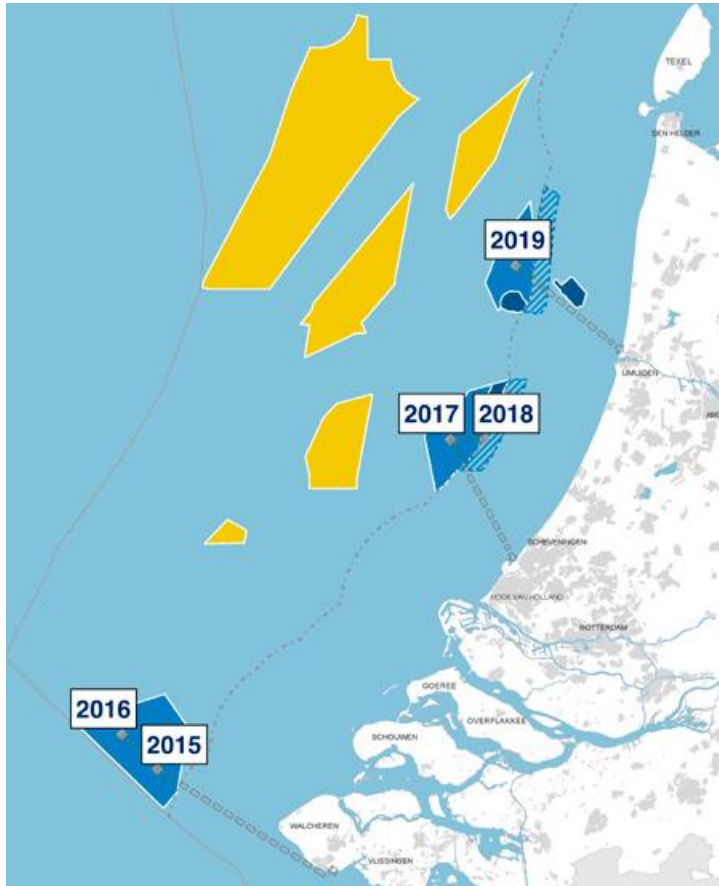


Lessons learned (NWEA)

- Scope, level of detail, quality site investigations
 - In general OK
 - => *Continued in HKZ, with improvements*
- Synchronise data in different work flows
 - => *1 base map; 1 set of starting points*
- Information exchange in smaller workshops, more attention results investigations
 - => *Online seminars to be continued*
- GIS data: sources and status better tracable
 - => *Requirements meta data added, existing GIS data updated*



Hollandse Kust Zuid Wind Farm Zone (3rd & 4th tender)



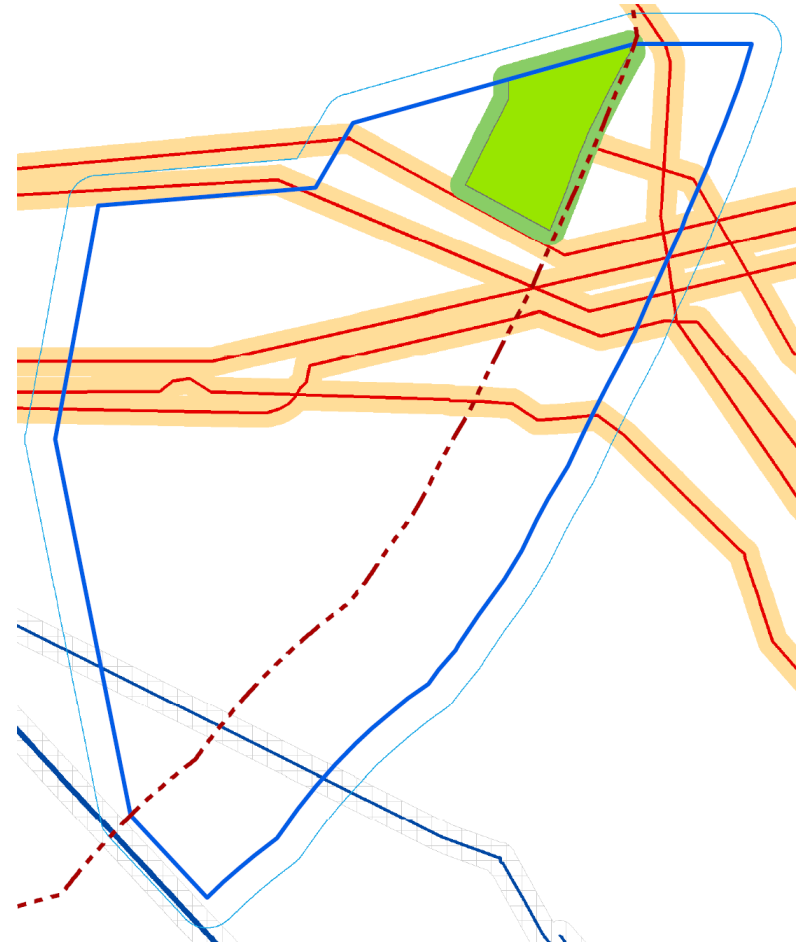


Hollandse Kust Zuid Wind Farm Zone (3rd & 4th tender)





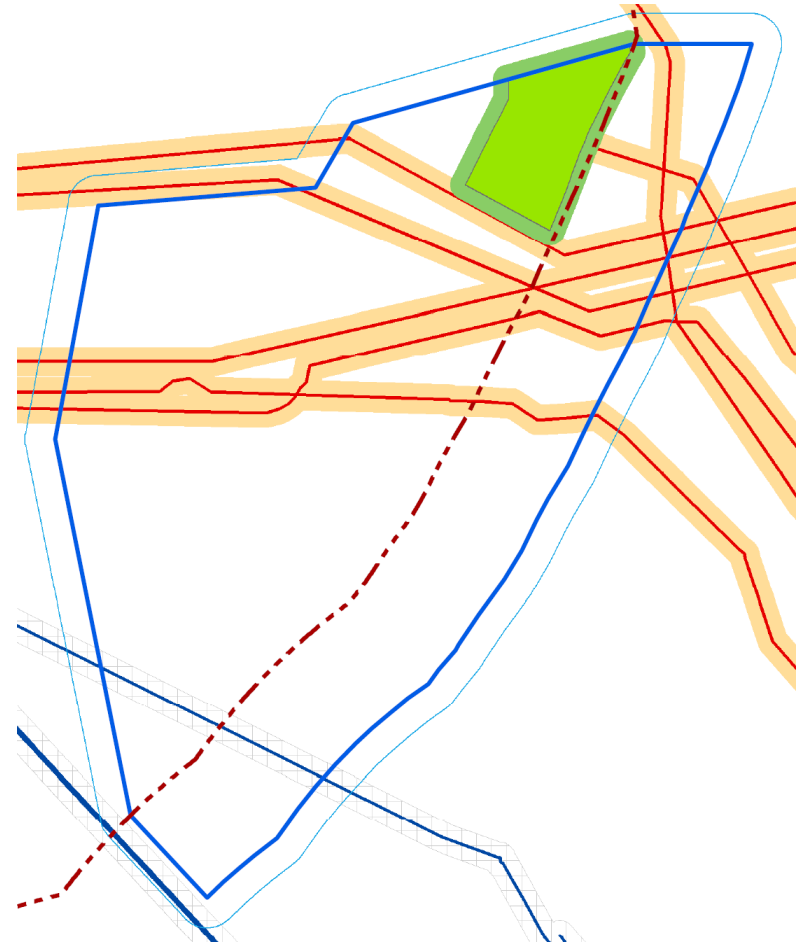
Hollandse Kust Zuid Wind Farm Zone (3rd & 4th tender)





Hollandse Kust Zuid Wind Farm Zone (3rd & 4th tender)

- Desk studies
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 - Geophysical survey
 - Geotechnical survey
- PSD
 - Version 1 (based on desk studies)
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 - Version 3 (update when appropriate)





Hollandse Kust Zuid Wind Farm Zone (3rd & 4th tender)

- Desk studies
 - Geological **=> Ongoing, planned November 2015**
 - UXO
 - Archaeology
 - Wind resource
 - Metocean
 - Morphodynamics **=> Planned Q3 2016 (3rd tender)**
- Surveys
 - Geophysical survey **=> planned Q1 & Q2 2016 (3rd tender)**
 - Geotechnical survey **=> planned Q3 & Q4 2016 (3rd tender)**
- PSD
 - Version 1 (based on desk studies) **=> Planned Q1 2016**
 - Version 2 (based on surveys) **=> Not yet planned**
 - Version 3 (update when appropriate) **=> Not yet planned**



Website:
offshorewind.rvo.nl

E-Mail:
woz@rvo.nl

Next event:
Online seminar morphodynamics
BWFS I and II
20th October 2015