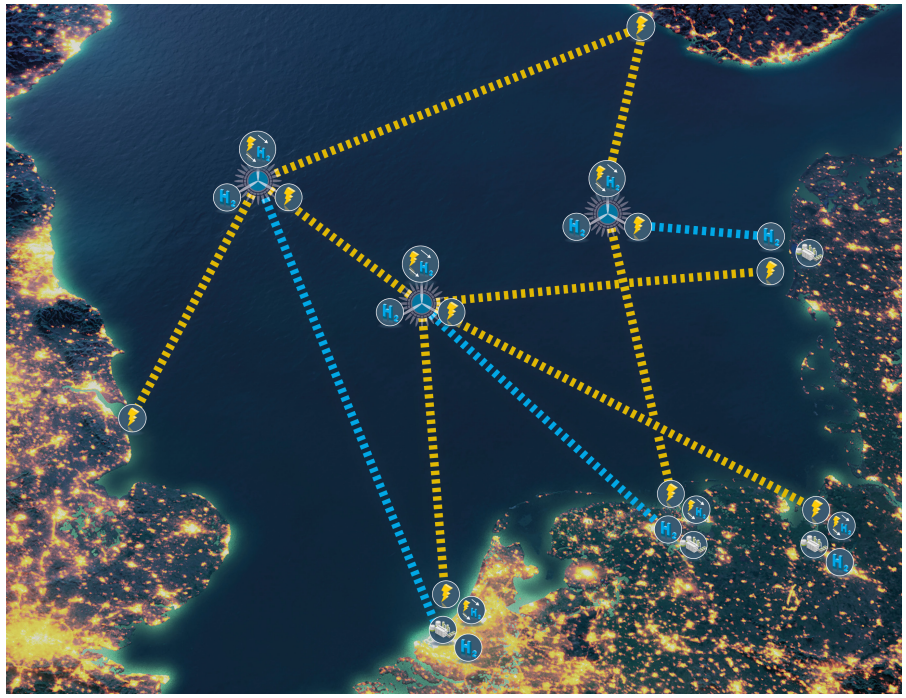
OBZs Where, Why and How?

Lotte Bosschieter

Why energyhubs?

- More complex future offshore infrastructure

1. **Efficient integration of renewable energy in onshore high-voltage grid**
2. **Limited spatial impact & infrastructure project lead time**
3. **Improved cost efficiency of offshore infrastructure because of dual functionality**



But developing hybrid projects is very challenging

In addition to ‘regular’ offshore projects, they require:

Extensive cooperation between TSOs, commercial-parties OWF developers and technology providers to match technology and timing

Joint commitment of involved Member States

Focus for today

Business Case for the Offshore Wind Farms (‘market setup’)

- Clarity on market setup required before start of tendering that enables clear, calculable investment case for offshore wind farms (and TSOs) in these international projects

The market setup: Why is it important?

What is it?

The market setus defines how offshore wind farms (OWFs) are assigned to specific bidding zones and how interconnection capacity between these bidding zones is allocated.

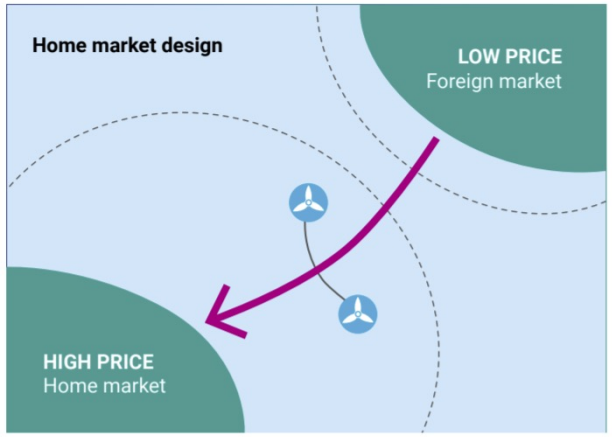
Why is it different for energyhubs?

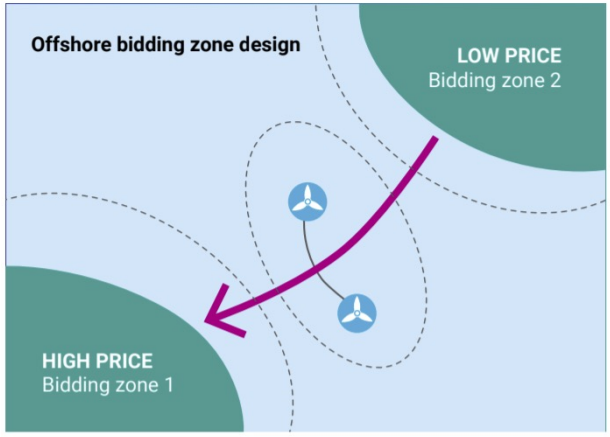
Hubs combine interconnection and the grid connection for OWFs. Due to interconnection functionality, EU electricity market regulation – such as the 70% rule - and market coupling elements will play a role.

What is required?

A market setup that results in efficient dispatch and capacity allocation and maximized socio-economic welfare. Clarity is required ultimately before OWF tendering.

Two potential market setups to efficiently integrate energyhubs





In the Home Market (HM) setup:

- OWF bids and dispatches into its Home Market.
- OWF receives the HM electricity price.
- Hub-to-Home Market cable is a hybrid asset and hub-to-other bidding zone(s) is a cross-border interconnector.

In the Offshore Bidding Zone (OBZ) setup:

- OWF bids and dispatches into a separate offshore bidding zone
- OWF receives the OBZ electricity price, which will be the result of market coupling. The price will converge to the lowest price of the connected onshore bidding zones.
- Both cables are cross-border interconnectors.

Offshore Bidding Zones as more efficient market setup

The Offshore Bididing Zone setup is compliant with the 70% rule from European Electricity Regulation.

The OBZ setup results in higher socio-economic welfare & dispatch and capacity allocation efficiencies, and is therefore the preferred market setup of the EC and ACER.

In case of national hubs and national OBZs (opposed to multinational hubs), the hub stakeholders can conduct their original roles and responsibilities and no major issues with governance models and cost recovery are foreseen.

The offshore bidding zone market setup may result in less captured reveneus for OWFs and may create investment uncertainty. However, congestion income is not a suitable financing source to provide investment security for OWFs*.

The Bidding Zone Review process is not be suitable to establish OBZs due to its lengthy process which is mainly focussed on reviewing existing bidding zones.

*Engie Impact,(March 2022), conference: Support on the use of congestion revenues for offshore renewable energy projects connected to more than one market – 2nd workshop.

Further research required to take concerns away

Further research required to take concerns away and create clarity on need for support:

1. Balancing of an OBZ:

   balancing responsibilities for both the TSOs and OWFs require further research. In addition, how the balancing settlement and resulting imbalance price would be established in an OBZ is still unclear.

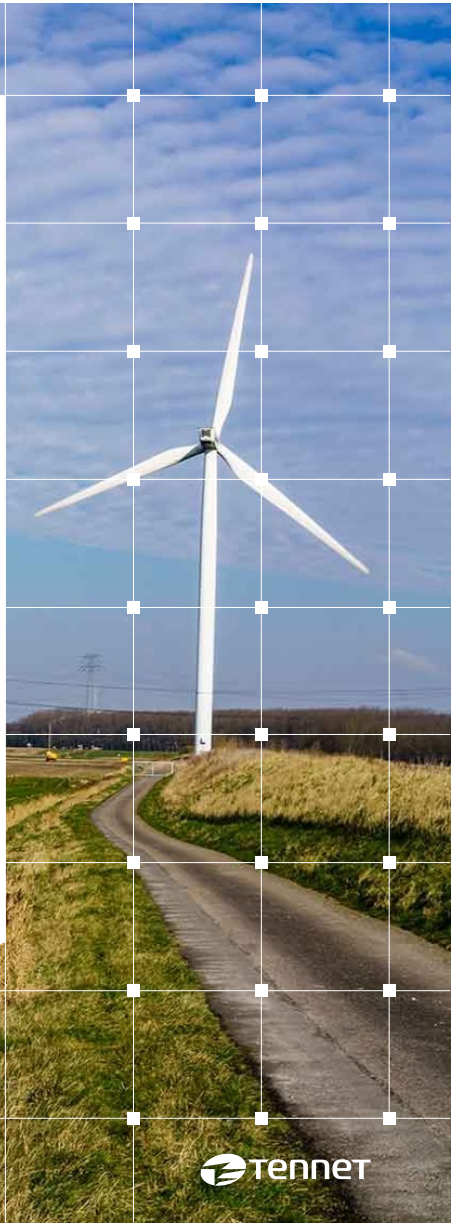
2. Advanced hybrid coupling:

   is the future way to include HVDC cables in flow-based market coupling and impacts capacity allocation and dispatch. As such, it has an impact on market modelling and CBA.

Ultimately, before tendering OWF clarity is required on the market setup. The further development, assessment and potential implementation of OBZs require time and effort which can complicate project development timelines.

TenneT is a leading European grid operator. We are committed to providing a secure and reliable supply of electricity 24 hours a day, 365 days a year, while helping to drive the energy transition in our pursuit of a brighter energy future – more sustainable, reliable and affordable than ever before. In our role as the first cross-border Transmission System Operator (TSO) we design, build, maintain and operate 23,900 km of high-voltage electricity grid in the Netherlands and large parts of Germany, and facilitate the European energy market through our
16 interconnectors to neighbouring countries. We are one of the largest investors in national and international onshore and offshore electricity grids, with a turnover of EUR 4.5 billion and a total asset value of EUR 27 billion. Every day our
5,700 employees take ownership, show courage and make and maintain connections to ensure that the supply and demand of electricity is balanced for over 42 million people.

Lighting the way ahead together.



Lotte Bosschieter

Lotte.Bosschieter@tennet.eu