

Boat tour to offshore wind farm- Key lessons from Danish pilot

Hans Chr. Sørensen and Julia Fernández Chozas

THEME: What have we achieved? Key results and impacts of UNITED pilots



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Key results and impacts of the UNITED pilots

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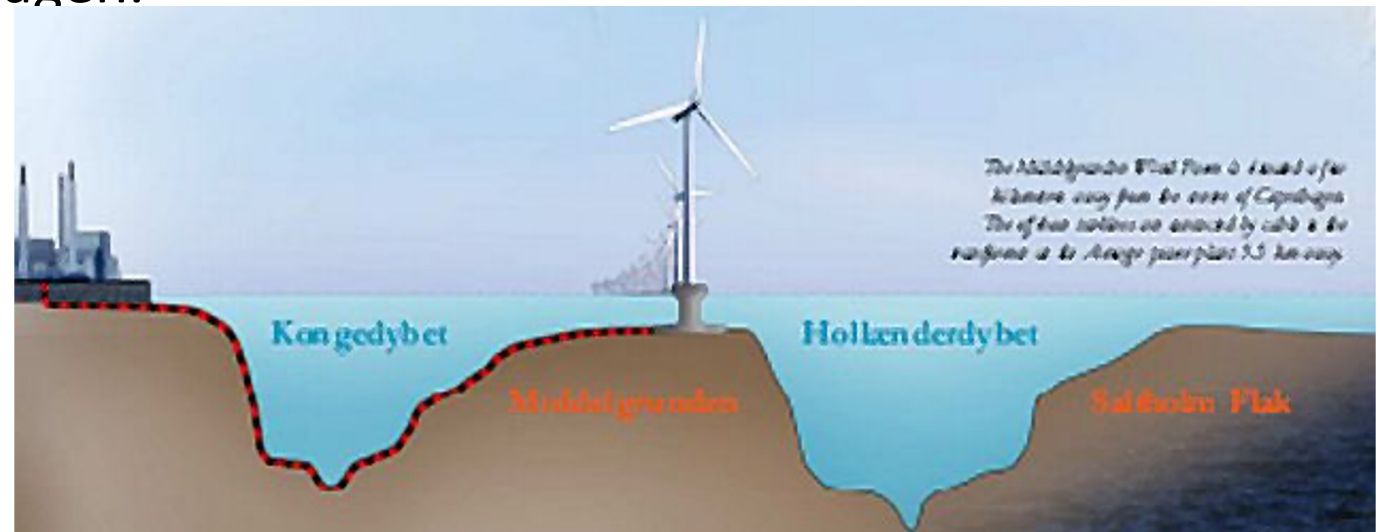
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Danish Pilot

Combining offshore wind and tourism

Middelgrunden Wind

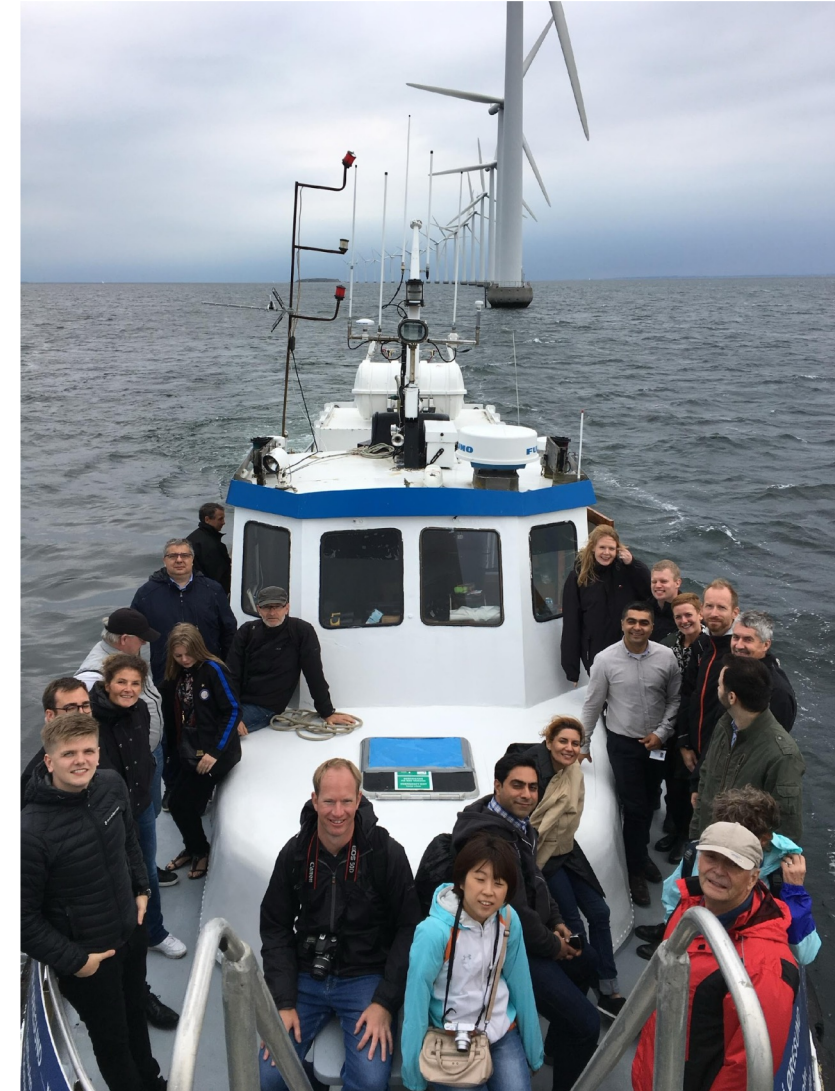
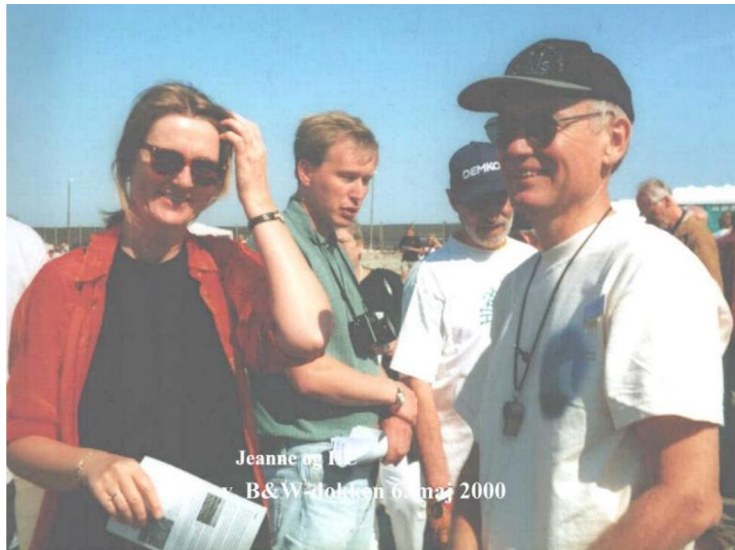
- Situated just 3.5 km's off the harbor in Copenhagen, Denmark.
- Established 2000 as the largest offshore wind farm in the World.
- Delivering 3% of power to Copenhagen.
- Two owners each 50%:
 - ❖ HOFOR (Copenhagen Municipality) and
 - ❖ A Cooperative with 8,000 members
- Lease of the seabed ends 2025; repowering ongoing.



Visiting the windfarm is an old tradition in Denmark

Since 2000 at Middelgrunden Wind

- We started already during the construction phase having 1600 people visiting the building site.
- Owners have been invited to visit their wind farm 3rd Sunday in June (windmill day).
- At the open day: we have 150-200 people every years on a sailing trip including climbing the turbine.



Results of the Danish Pilot

Going from TRL 6 to TRL 8

Business	2017	2018	2019	2020	2021	2022	2023
Trips	31	35	48	4	13	75	90
Visitors	676	930	1117	130	246	1687	1912
kEUR	38.9	44.3	55.6	4.4	19.5	102	136

Changes in visits

In 2022-2023 50% were included climbing.

In 2017-2019 30% were including climbing.

In 2022-2023 25% were ordered by boat.

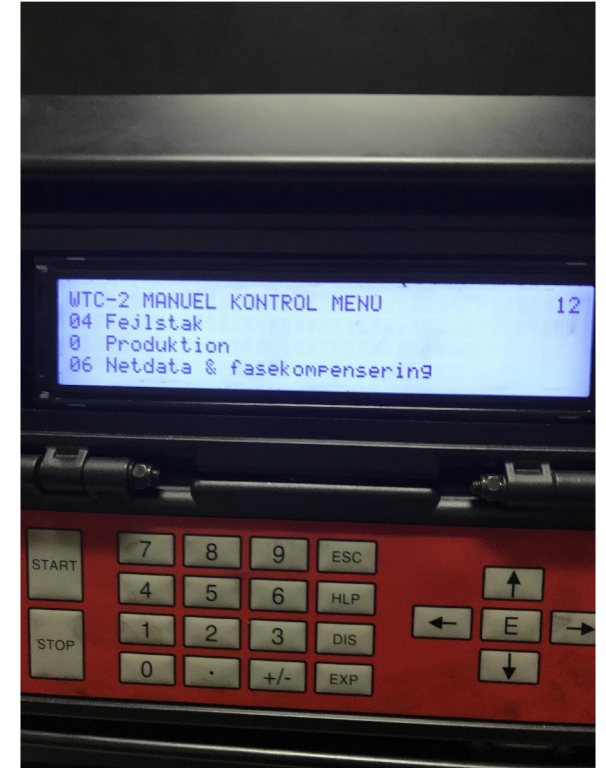


Results of the Danish Pilot

2 more guides trained and a manual ready



- How to stop/start the production
- Instruction about safety
- How to open the Nacelle
- How to reset after activating the emergency stop
- How to act if an accident occurs



The manual can be used to start up a visiting program of wind turbines



Results of the Danish Pilot

Improved safety by entering the foundation



... and climbing to the nacelle

Results of the Danish Pilot

Established insurance

- Covering guides as well as visitors.

Satisfactory survey

- satisfactory survey for the tour has been implemented showing big success of the tours.

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UNITED Danish pilot - Tour of the wind farm

Customer satisfaction survey

This survey will allow us to assess customer satisfaction with the boat tour to the wind farm and collect recommendations for future tours. In this way, we aim to improve our service. Thank you for your collaboration.

How did you hear about the boat tour to the wind farm? (Please select all that apply) *

Online search
 Word of mouth
 Social media

What is your role in relation to this tour? *

People attending (specify how many)
 People organising the excursion (specify how many)

On a scale of 1-10, how satisfied were you with the overall booking procedure? 1 being extremely frustrated and 10 being extremely satisfied. *

1 6
 2 7
 3 8
 4 9
 5 10

On a scale of 1-10, how satisfied were you with the overall tour experience? 1 being extremely frustrated and 10 being extremely satisfied. *

1 6
 2 7
 3 8
 4 9
 5 10

Were the tour guides knowledgeable and informative? *

yes
 no
 N/A

Was the duration of the tour appropriate? *

yes
 no
 N/A

Did you receive appropriate and relevant information before and during the tour? *

yes
 no
 N/A

Were there any specific highlights of the tour that you particularly enjoyed? (Please select all that apply) *

Visiting a wind turbine
 View of the wind farm
 Educational aspect of the tour
 Background information provided
 The boat and offshore experience

Were there any areas of the tour that you feel could be improved upon? (Please select all that apply) *

Background information
 Transport by boat
 Tour guide
 Duration of the tour
 Level of explanations during the tour

Would you recommend this tour to others? *

yes
 no
 N/A

Do you have any additional comments or recommendations for future tours?

Consent to data collection by event organisers *

By checking this box, you submit your information. This information will be stored on our server and deleted after 3 years. It will not be used to other purposes.

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Alternatively, enter the following URL:
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Results of the Danish Pilot

Established 3 videos for virtual visit

To be placed at high rise buildings
and the Science museum

<https://www.h2020united.eu/pilots-denmark>



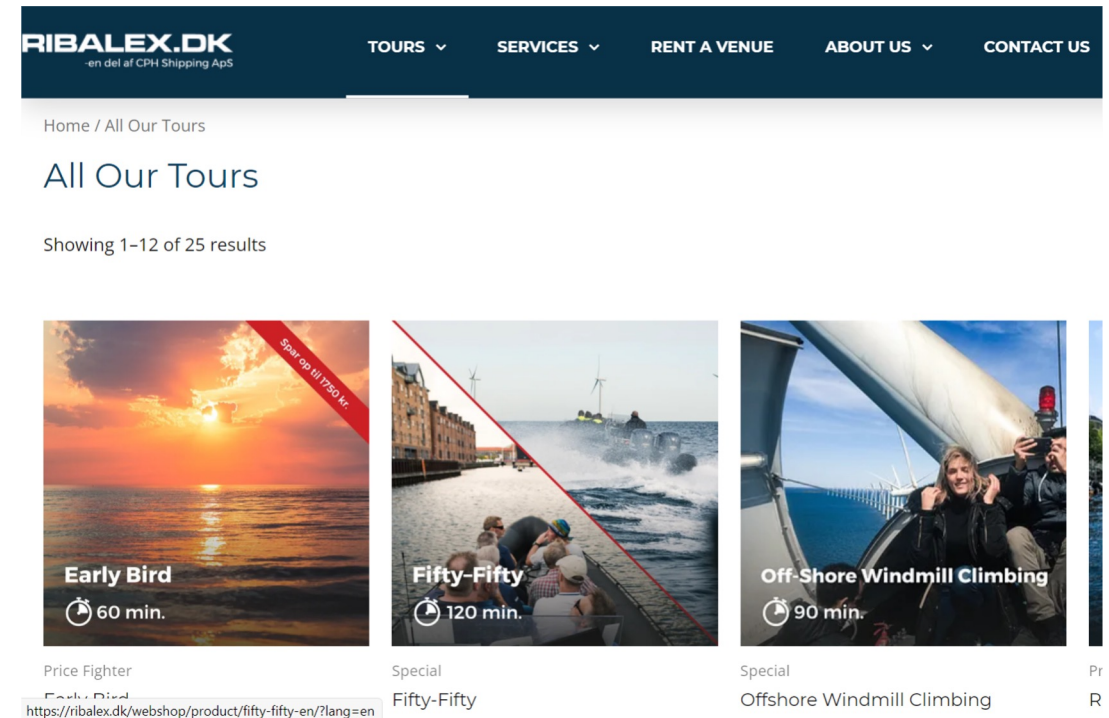
*Total overview
regulation, insurance etc.*

To be used if implemented in
other countries



What would be the pre-conditions for rolling out this type of multi-use to other areas in your country/sea basin?

- Only turbines from before around 2003 have several floors and can be climbed without safety line.
- Owners in general - like utilities have no interest in a visiting program- cooperatives have.
- The legal and safety rules for professional service people cannot be followed, - and need not to be followed.



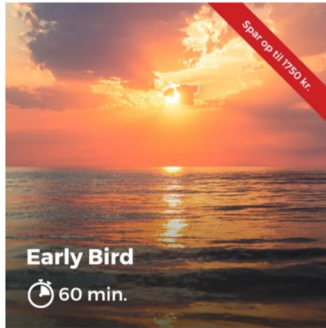
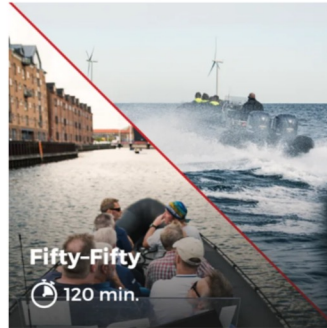

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The Team of the Danish Pilot



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