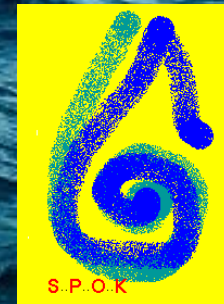




Local involvement leading to multi-use: example of the Middelgrunden wind farm pilot in Denmark

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Middelgrunden Wind 40 MW

Two owners

20 MW: HOFOR (Copenhagen water and energy supply)

20 MW Middelgrunden wind cooperative with 8,553 members

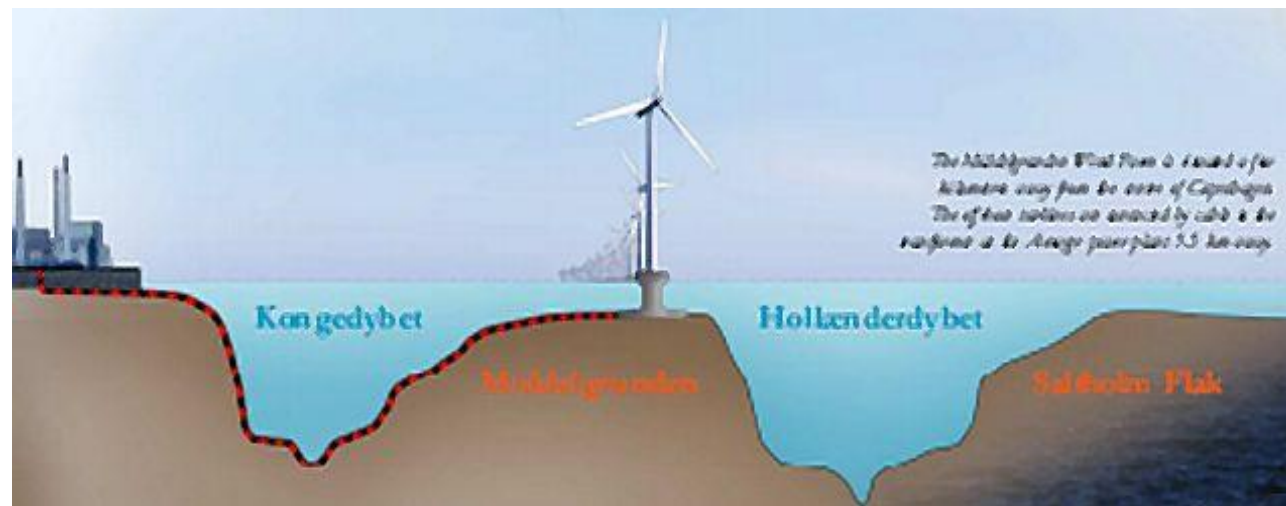
Established year 2000 3.5 km outside Copenhagen as the Worlds largest offshore wind farm

Delivering 3% of power to Copenhagen



Placed on a natural reef

Navigation lines with heavy traffic only 800 meters from the wind farm



A joint venture during construction

But different opinions about what to make publicly available information

1600 participants in the open-house visit day



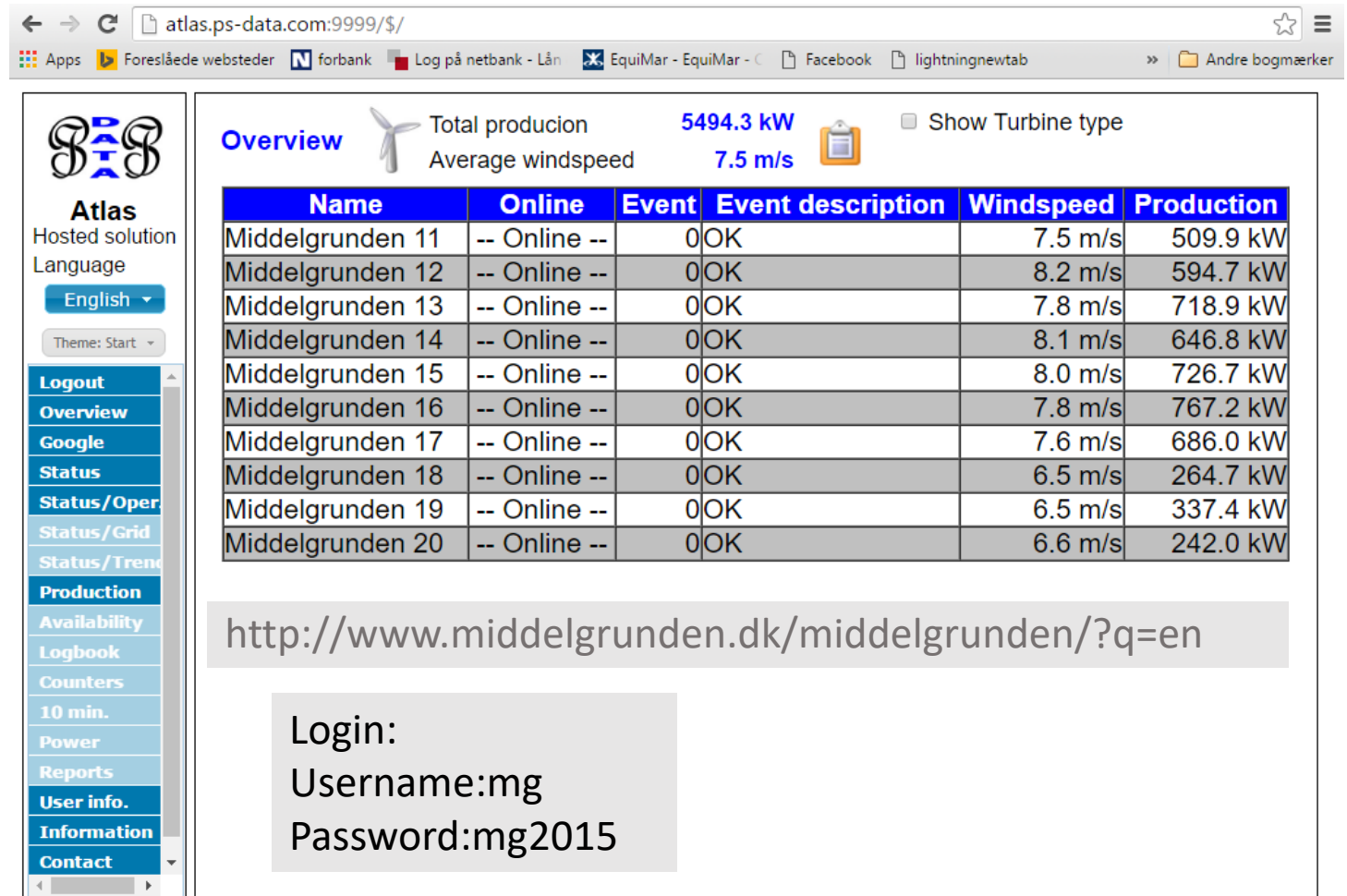
Casting concrete
in the dry dock



A joint venture during construction

Two separated organizations during operation

But different opinions about what to make publicly available information; only the Cooperative releases data like production every 10 minutes



The screenshot shows a web browser window with the URL `atlas.ps-data.com:9999/$/`. The page displays an overview of wind turbine production data for Middelgrunden. The total production is 5494.3 kW and the average windspeed is 7.5 m/s. A table lists 20 turbines, all of which are online and have a status of 'OK'. The production data for each turbine is shown in the 'Production' column.

Name	Online	Event	Event description	Windspeed	Production
Middelgrunden 11	-- Online --	0	OK	7.5 m/s	509.9 kW
Middelgrunden 12	-- Online --	0	OK	8.2 m/s	594.7 kW
Middelgrunden 13	-- Online --	0	OK	7.8 m/s	718.9 kW
Middelgrunden 14	-- Online --	0	OK	8.1 m/s	646.8 kW
Middelgrunden 15	-- Online --	0	OK	8.0 m/s	726.7 kW
Middelgrunden 16	-- Online --	0	OK	7.8 m/s	767.2 kW
Middelgrunden 17	-- Online --	0	OK	7.6 m/s	686.0 kW
Middelgrunden 18	-- Online --	0	OK	6.5 m/s	264.7 kW
Middelgrunden 19	-- Online --	0	OK	6.5 m/s	337.4 kW
Middelgrunden 20	-- Online --	0	OK	6.6 m/s	242.0 kW

Below the table, the URL `http://www.middelgrunden.dk/middelgrunden/?q=en` is displayed. A login box contains the following information:

Login:
Username:mg
Password:mg2015

The Cooperative's principle: all data is free

Boat trips already during construction



An artist created a video about wind and released it at the town square



Danish tradition in wind

Cooperative owners visiting/climbing their turbine 3rd Sunday in June



The owner visits slowly developed

Now groups of students and planners are requesting tours



Other boat operators has asked for service

And aspects arise like health & safety, insurance & legal responsibility



Departure in RIB boat
equipped with survival suit



But it is too hot - even
during the winter - to climb
with survival suit

Also professionals are visiting

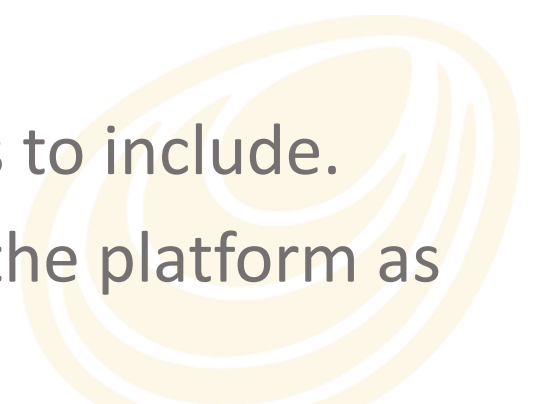
Which create other discussions about health & safety improvements



Offshore wind and tourism

We have 30-40 trips a year and many requests from small groups

- The original approach where the owners are visiting the turbines are still actual. Every 2 years about 150-200 people climb their turbines (20th of September 2020 next time).
- Only Cooperative owned turbines today offer visits to other than the owners.
- And we take even guests from the professional developers to visit the farm.
- Independent operators of tourism in Copenhagen wants to include.
- Leisure diver's organization wants to take advantage of the platform as the reef is an attractive site for them.





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