



Master thesis presentations on offshore wind and prosumers

WEBINAR - BERGEN ENERGY LAB

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A large array of solar panels is shown from a low angle, receding into the distance. The panels are dark blue with a grid of white lines. The sky is a mix of deep blue and bright yellow/orange, suggesting a sunrise or sunset. The sun is visible as a bright, glowing orb on the left side of the frame, partially obscured by the panels. The overall scene is clean and modern, representing renewable energy.

Prosumers

Idea and thesis question



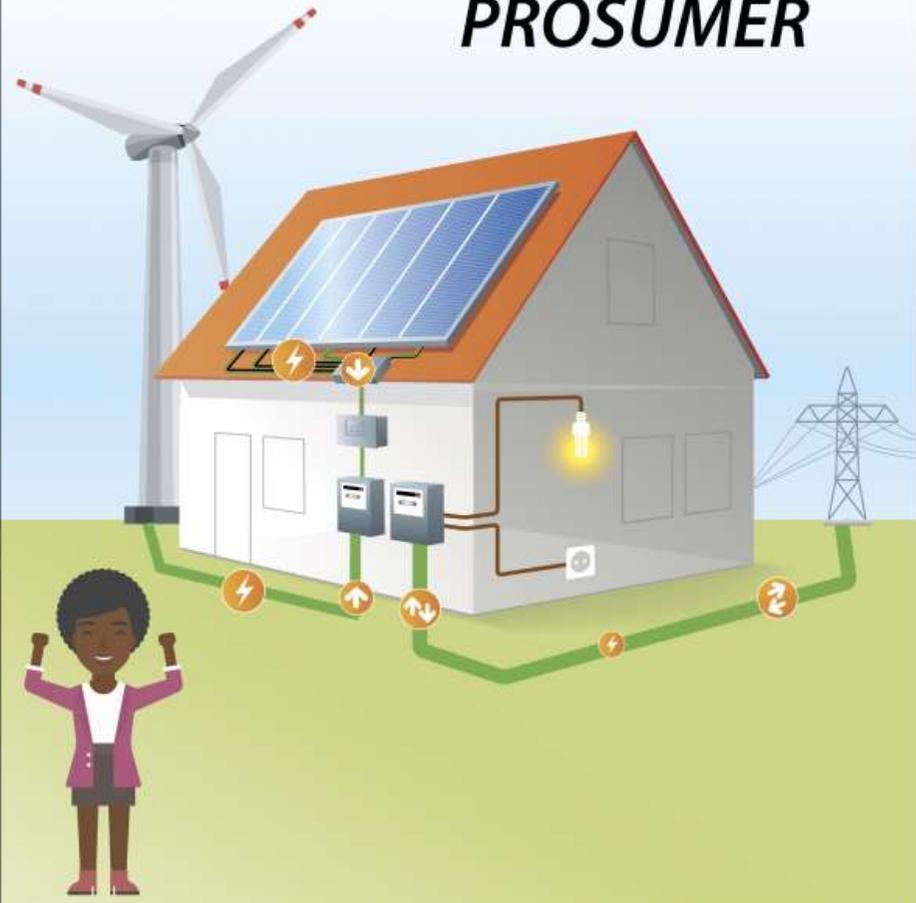
TEP: The Third Energy Package
CEP: The Clean Energy for All
Europeans Package

Introduction

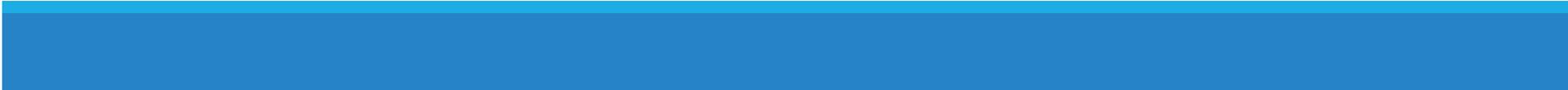
CONSUMER



PROSUMER



Advantages	Disadvantages
<ul style="list-style-type: none">• Energy efficiency<ul style="list-style-type: none">• No need for transport for self-use• Positive for the environment<ul style="list-style-type: none">• Mostly energy generated from renewable energy sources• Increased awareness on energy use• Energy security<ul style="list-style-type: none">• Self-reliance• Diversification	<ul style="list-style-type: none">• Relatively new technology<ul style="list-style-type: none">• Not so effective, PV's are only able to use 20 percent of the available sunlight• Lack of economic incentive• Lack of storage solutions• Not widespread knowledge<ul style="list-style-type: none">• Generally little focus on the possibility



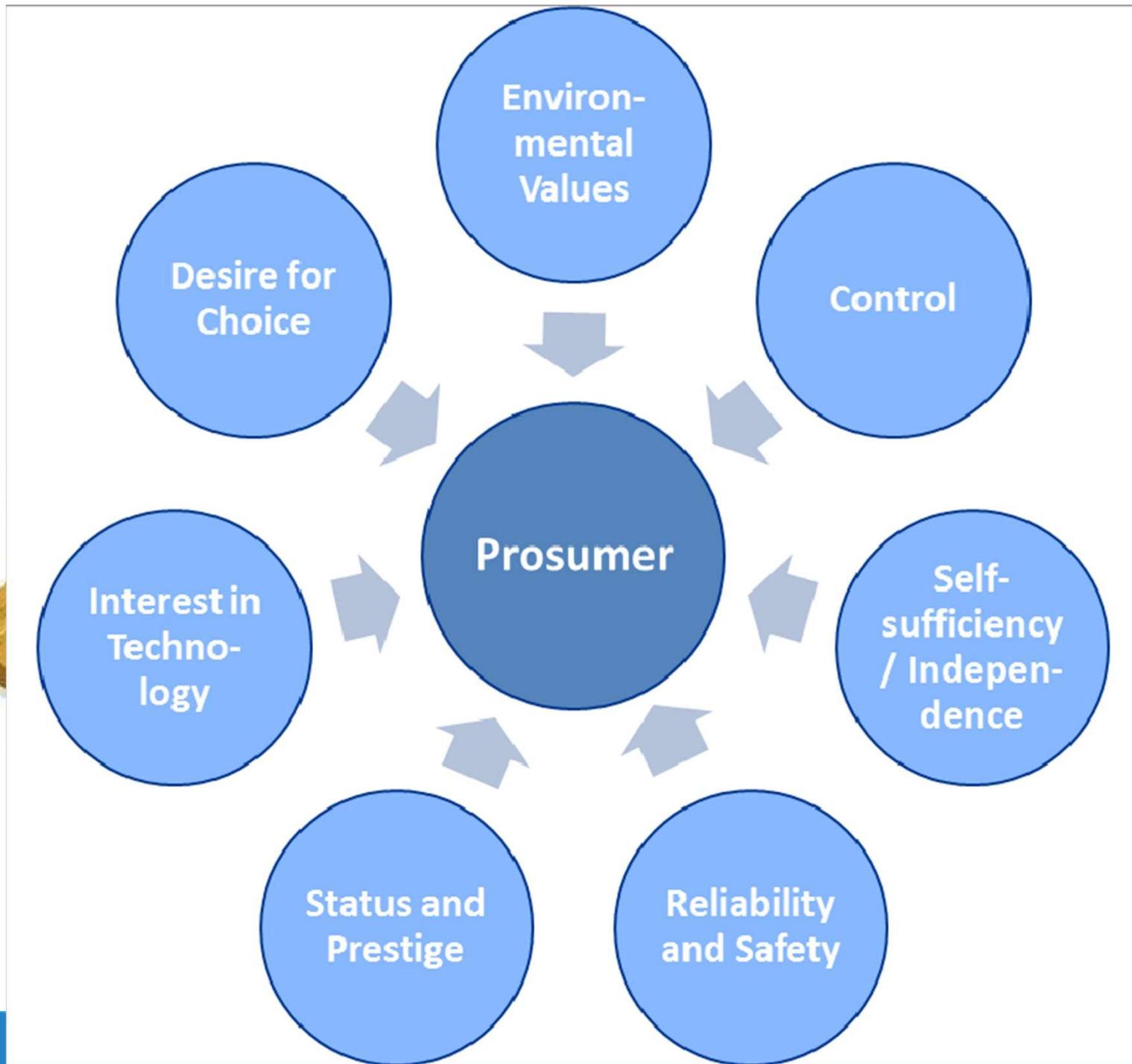
Findings

- Word choice
 - Plusskunde
 - Prosument



Conclusion

- The rules do not differ significantly
 - But the CEP takes active customers a step further and focuses more on the topic
- And there is room for improvement for the Norwegian rules in order to promote prosumers



Overall conclusion

- Traditional solutions are not enough
- Norwegian authorities must dare to think "outside the box"
- The Law is the foundation and the framework for prosumers conditions

Offshore wind



Idea and aim

- Possible link between technological differences and legislation?
- What approach did the legislation take?





Research question

- Offshore wind turbines: an examination of whether there are regulatory differences between fixed and floating offshore wind turbines in Norway.
- Method:
 - Policy
 - Legislation
 - EIAs (environmental impact assessments)

Historical overview

Hywind (floating technology developed by Equinor)

- 2001: The idea of floating wind turbines
- 2009: The Hywind Demo was deployed off the coast of Karmøy
- 2010: Havenergilova (the Offshore Energy Act)
- 2017: The world's first floating wind farm



Source: <https://www.equinor.com/en/what-we-do/floating-wind.html>

Comparison

FIXED TURBINES

- Connected to the seabed using piles, suction or gravity
- Limited to sea depths of maximum 60 meters



FLOATING TURBINES

- Not fixed to the seabed
- Spar buoys, tensions-leg platforms, semi-submersibles and barge platforms used when installing turbines offshore
- Not limited to a certain type of seabed
- Can be placed at depths up to approximately 400 meters



Challenges regarding the topic

- Relatively new technology
- Few legal sources
- Only one concrete example, Hywind Demo
- Havenergilova, a framework



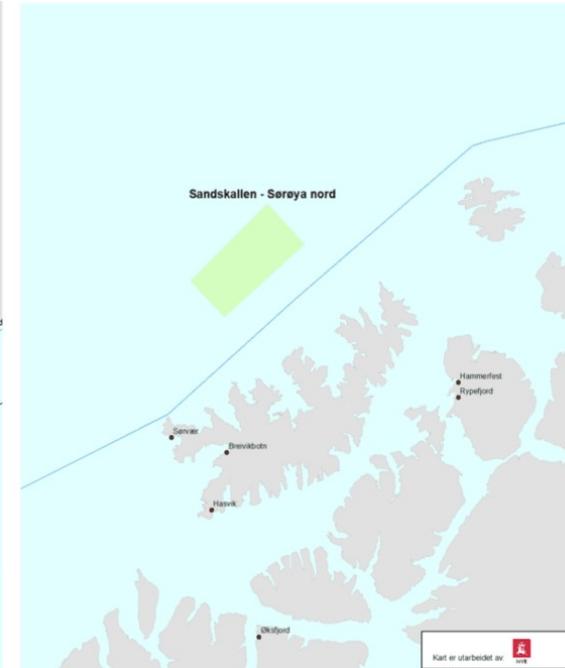
Findings

- The Norwegian strategy
- Technology neutrality
- The impact of environmental impact assessments

Suggested areas offshore

- Utsira Nord
- Sandskallen-Sørøya Nord
- Sørlige Nordsjø II
- Reasons

veuregg IV - kart





Conclusion

- No noteworthy regulatory differences
- Proactive approach
- Aspirations
- A robust legislation

Q&A Discussion

