# Utsira, Fornybarsamfunnet

- Lokal strømproduksjon, lokal lagring av energi
- Smarte Nett / Micro Nett
- Smarte Hus / Pluss Hus
- Digitalisering / Sensorteknologi / IOT

# TRYGT HJEM - TA 2!


HAUGALAND KRAFT

Haugesund

Utsira

Karmøy

| | |
|---|---|
| Country | Norway |
| County | Rogaland |
| District | Haugaland |
| Administrative centre | Utsira |
| Government | |
| • Mayor (2012) | Marte Eide Klovning (Ap) |
| Area | |
| • Total | 6.33 km² (2.44 sq mi) |
| • Land | 6.30 km² (2.43 sq mi) |
| • Water | 0.03 km² (0.01 sq mi) |
| Area rank | #421 in Norway |
| Population (2017) | |
| • Total | 201 |
| • Rank | #422 in Norway |
| • Density | 31.9/km² (83/sq mi) |
| • Change (10 years) | -6.1% |
| Demonym(s) | Sirabu[1] |
| Time zone | UTC+01:00 (CET) |

# Fase 1; Leveringskvalitet / økt kapasitet

## N.B. Eksisterende sjøkabel

Existing wind turbines
1,2 MW

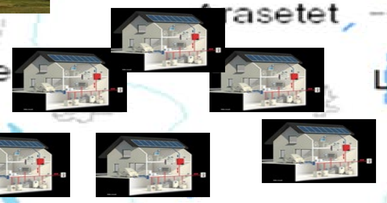
Power Electronics / Battery
Voltage - and electrical power support
Re-use equipment from Folgefonn Ferry FOU

Micro wind

Local transformer, 22/11 kV

Distribution Power Grid 11 kV
**Upgrades to 22kv**

Solar cells / Micro wind
/ Battery for private marked



Solar cells

Existing sea cable
TXRA 1x3x25 CU, 17 kM

- Automatic energy meters (AMS)
- Smart Grid sensors
- Local control system
- Smart grid analytic SW
- DMS / SCADA
- Energy balance system

Power Grid on Karmøy
needs some upgrades
Ongoing

# Fase 2a; Elektrifisering Utsira Ferje

## N.B. Eksisterende sjøkabel

Electrical Ferry, 4 MW

Existing wind turbines
1,2 MW

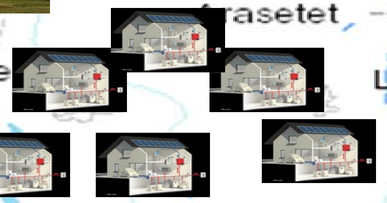
Power Electronics / Battery
Voltage - and electrical power support
Re-use equipment from Folgefonn Ferry FOU

Micro wind

New Auto Control Transformer
22 kV (+/-)

Distribution Power Grid 11 kV
**Upgrades to 22kv**

Solar cells / Micro wind
/ Battery for private marked



Solar cells

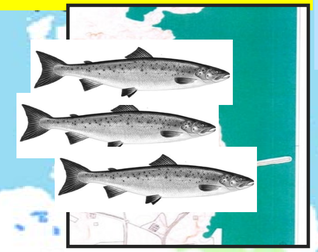
Existing sea cable
TXRA 1x3x25 CU, 17 kM

Power Grid on Karmøy
needs some upgrades
Ongoing

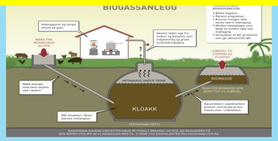
- Automatic energy meters (AMS)
- Smart Grid sensors
- Local control system
- Smart grid analytic SW
- DMS / SCADA
- Energy balance system

# Fase 2b; Landbasert fiskeoppdrett ++? N.B. Eksisterende sjøkabel

Fish farm on shore, 1,0 MW



Bio gas production?




Hydrogen plant

Supply of oxygen and hot water to fish farm

Electrical Ferry, 4 MW

Existing wind turbines 1,2 MW

Power Electronics / Battery

Voltage - and electrical power support

Re-use equipment from Folgefonn Ferry FOU

Micro wind

New Auto Control Transformer

22 kV (+/-)

Offshore Fish Farm?

Distribution Power Grid 11 kV

**Upgrades to 22kv**

Solar cells / Micro wind / Battery for private marked

Solar cells

Existing sea cable

TXRA 1x3x25 CU, 17 kM

Power Grid on Karmøy needs some upgrades

Ongoing

- Automatic energy meters (AMS)
- Smart Grid sensors
- Local control system
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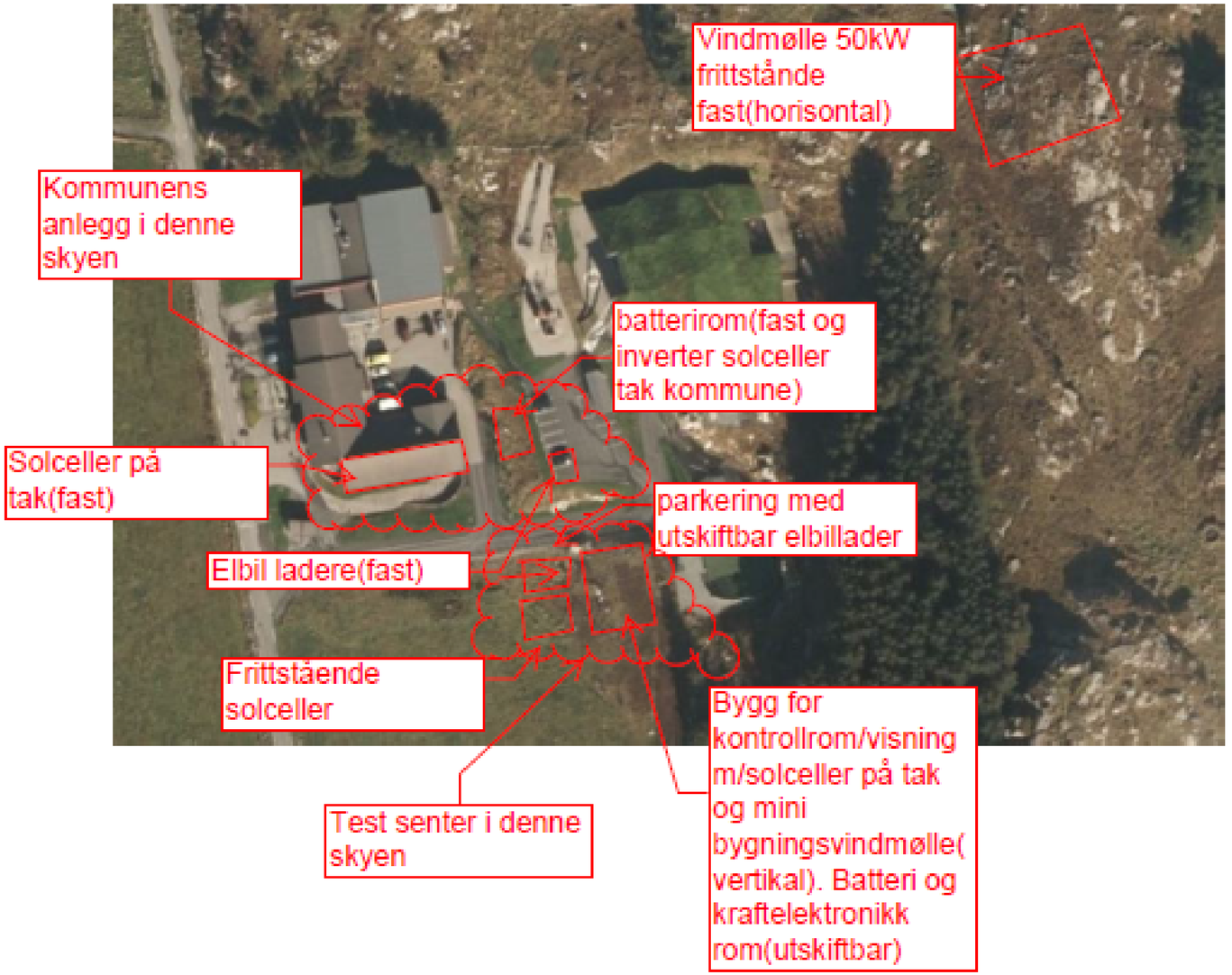
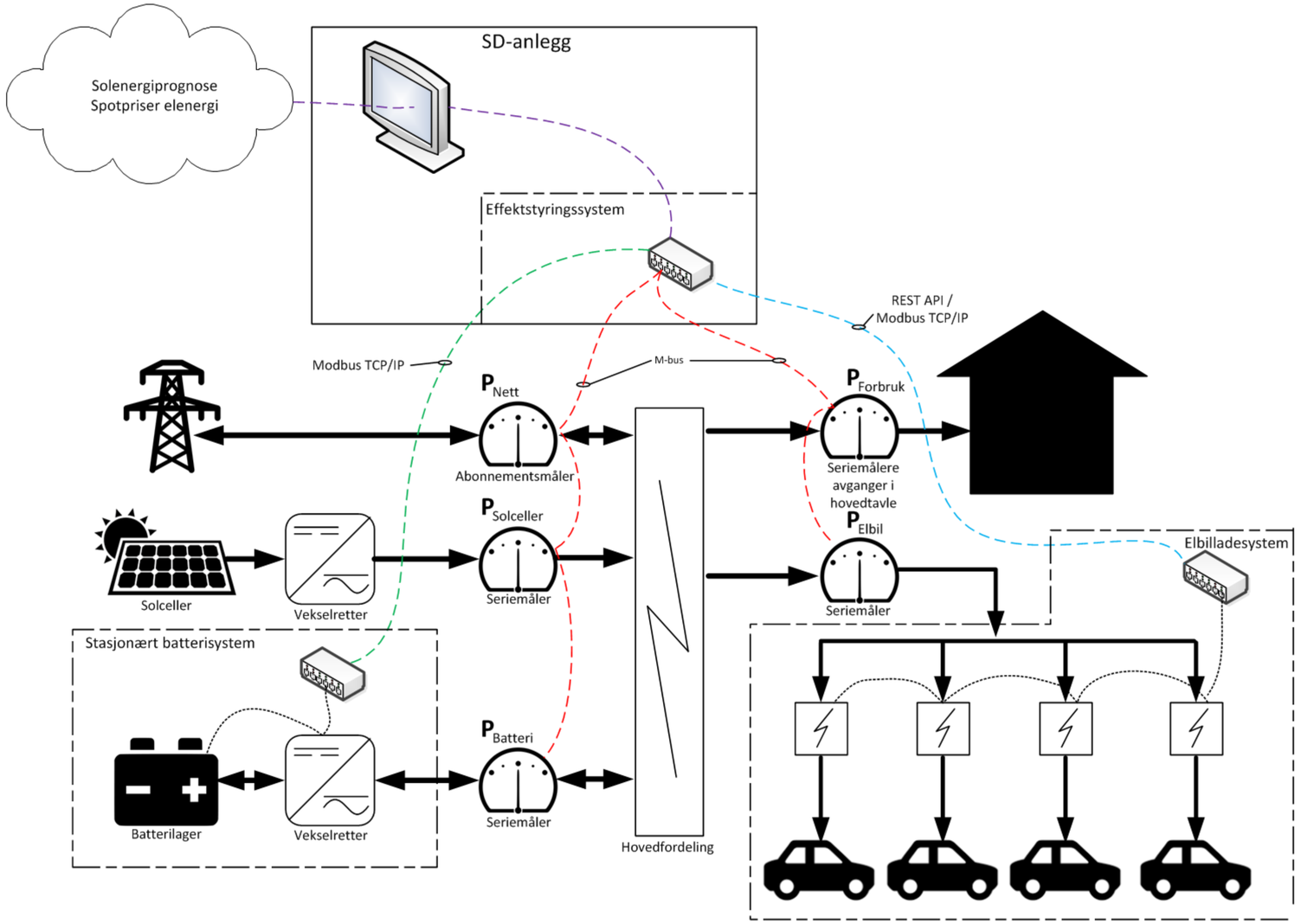
- Energy balance system

# Sustainable Energy Catapult Test Centre; Utsira



# Energistyringssystem, HK nybygg på Stord




Den primære oppgaven til effektstyringssystemet er i prioritert rekkefølge:

1. Redusere effekttopper av elektrisitet trukket fra nettet iht. Haugaland Kraft nett sin tariffstruktur for nettleie. Effektleddet i tariffen skal minimaliseres.
2. Øke egenforbruket av lokalt produsert solenergi
3. Utnytte time-for-time prisvariasjoner i strømmen (spotpris)

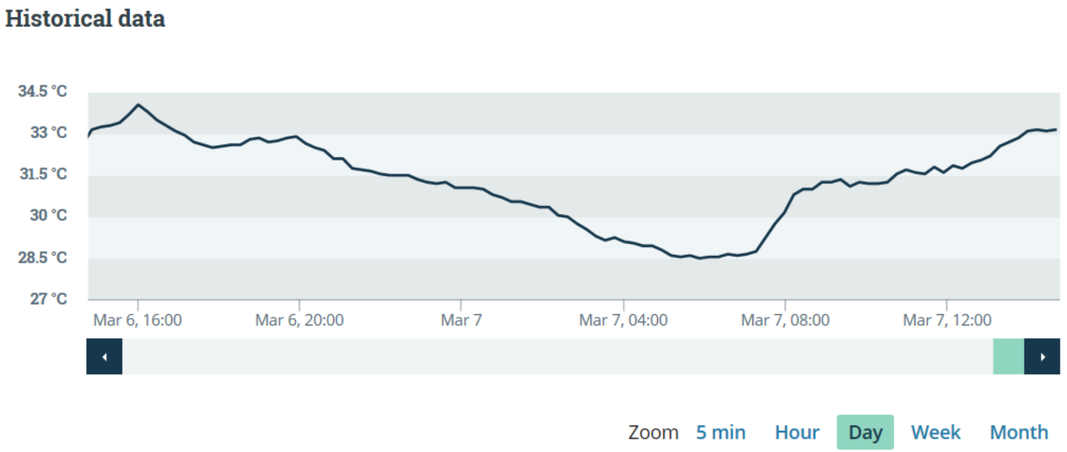
# Energistyringssystem, HK nybygg på Stord

# Nettstasjon Karmsundgaten, sensorløsning fra Disruptive Technologies

Data Connector

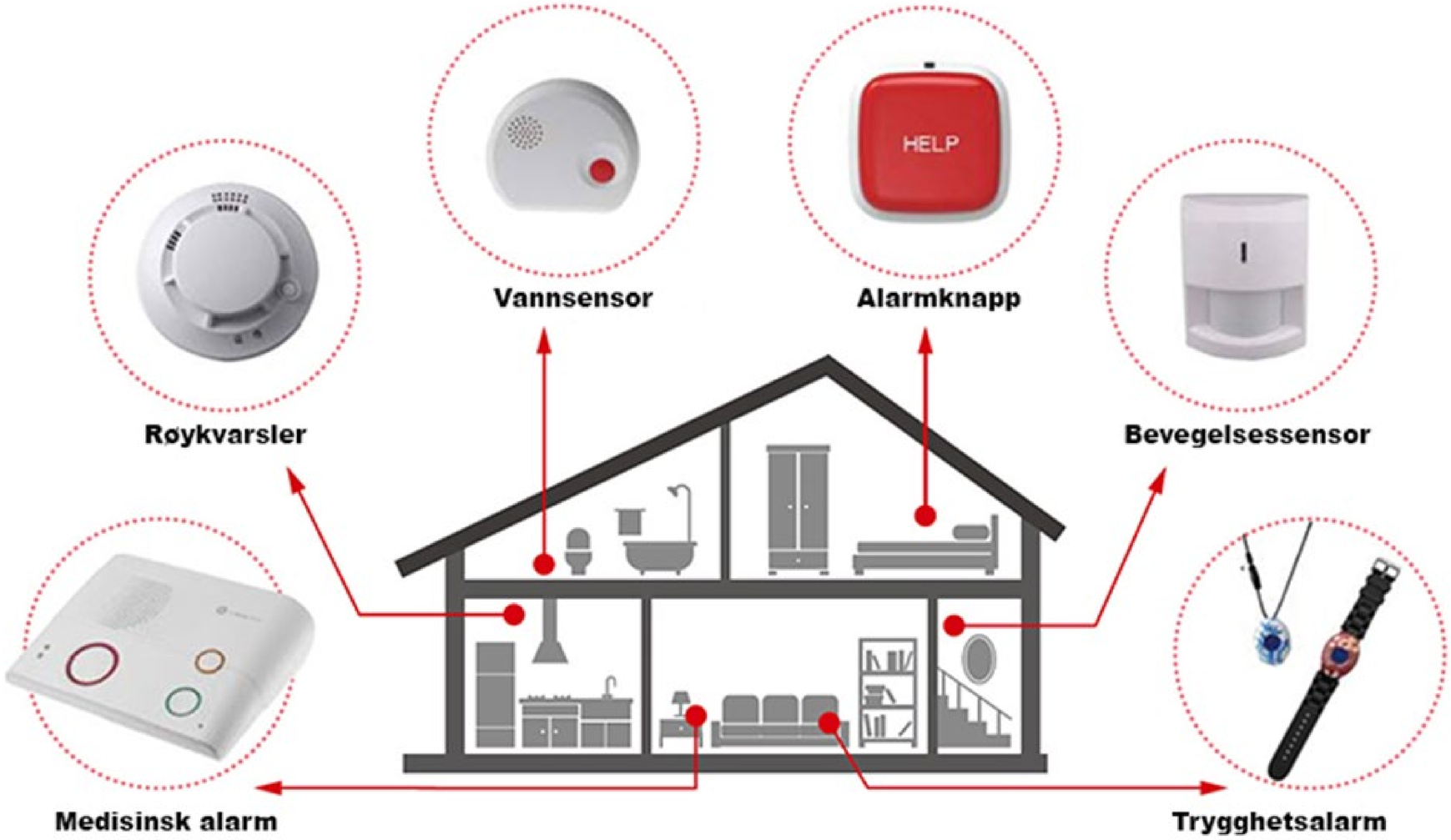
Dørsensor


Temp måling på trafo/kabel

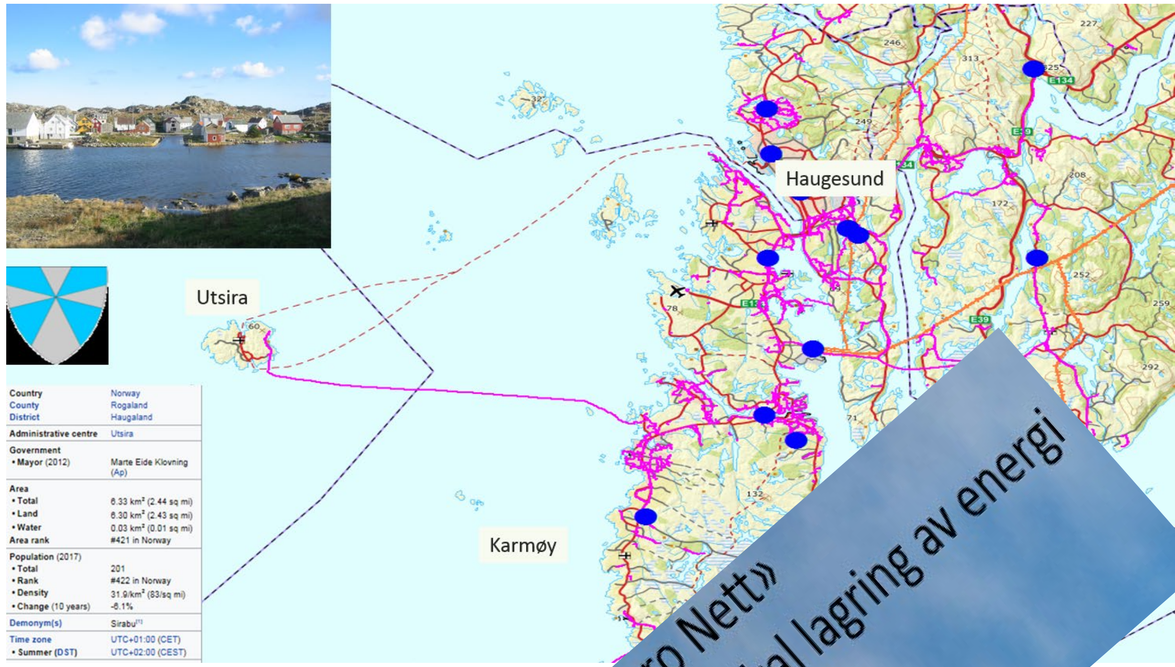
# Testsenter Utsira

## Kunderelatert tjenester, Smart Velferd og Kommunale tjenester



# Klima og Miljø element Utsira FOU prosjekt

- Trigger / Utgangspunkt:
  - Landbasert fiskeoppdrett ✔
  - Elektrifisering Utsira Ferje ✔
- Batteri og Kraftelektronikk for å unngå å legga ny sjøkabel ✔
- Samspill med eksisterende Vindmøller ✔
- Hydrogen (elektrolyse og brenselcelle) ✔
- Mulig biogass produksjon ✔
- Solceller ✔
- Micro Vindmøller ✔
- Smart energistyring / energieffektivisering ✔
- Mulig oppkobling til offshore fiskeoppdrett ✔



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| • Summer (DST) | UTC+02:00 (CEST) |



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