Norsk e-Fuel - Industrializing PtL for the renewable markets of tomorrow

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The Norsk E-Fuel idea

- European Consortium industrializing PtL technology in Norway
- Norsk e-Fuel will realize a series of e-Fuel projects with integrated, standardized plant lay-out + performance warranty
- Proprietary technology and world-wide patents – Norsk e-Fuel offers the most efficient and economic PtL pathway including world leading Direct Air Capture of CO_2

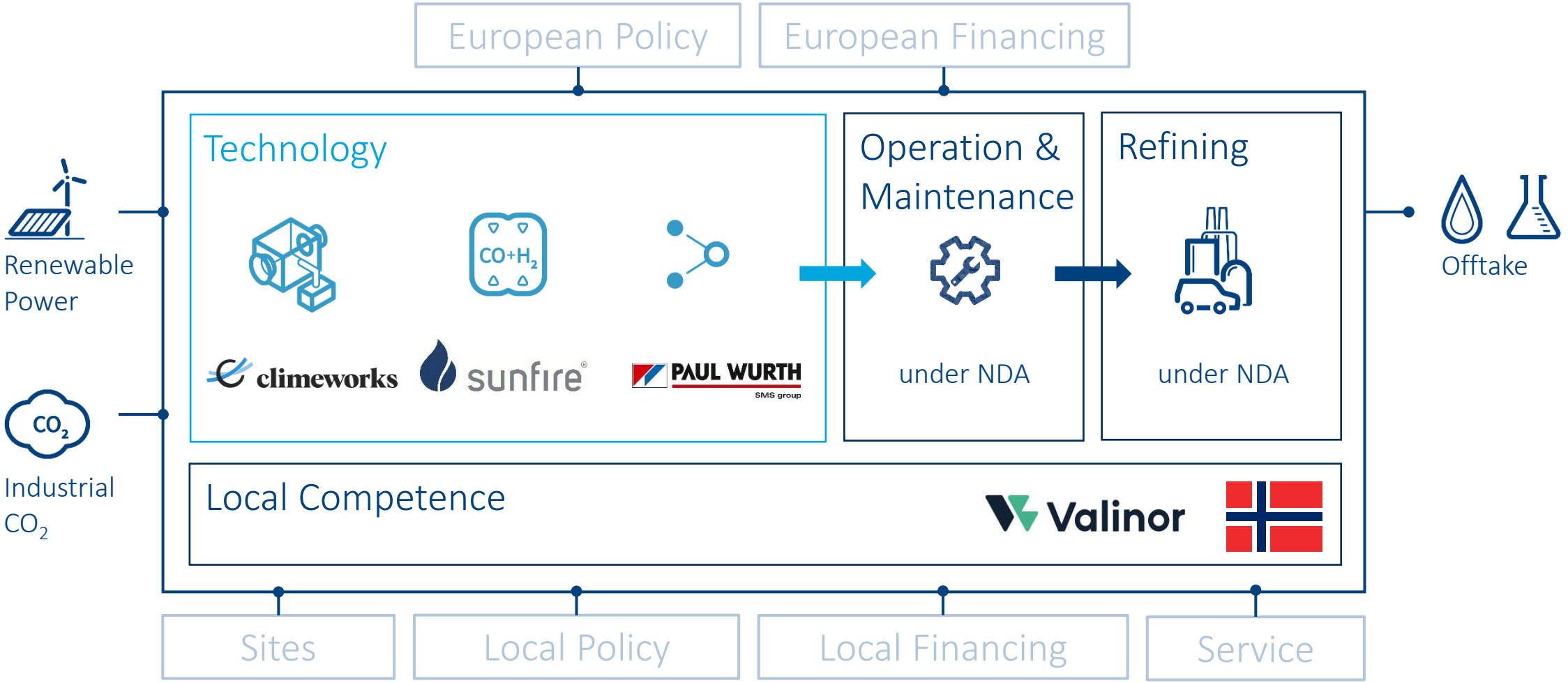
Alpha plant in Herøya (NOR) with 10mL/a capacity

Sunfire demo plant, Dresden (GER) 2020

Climeworks demo plant, Zürich (HE) 2018

THE VALUE CHAIN

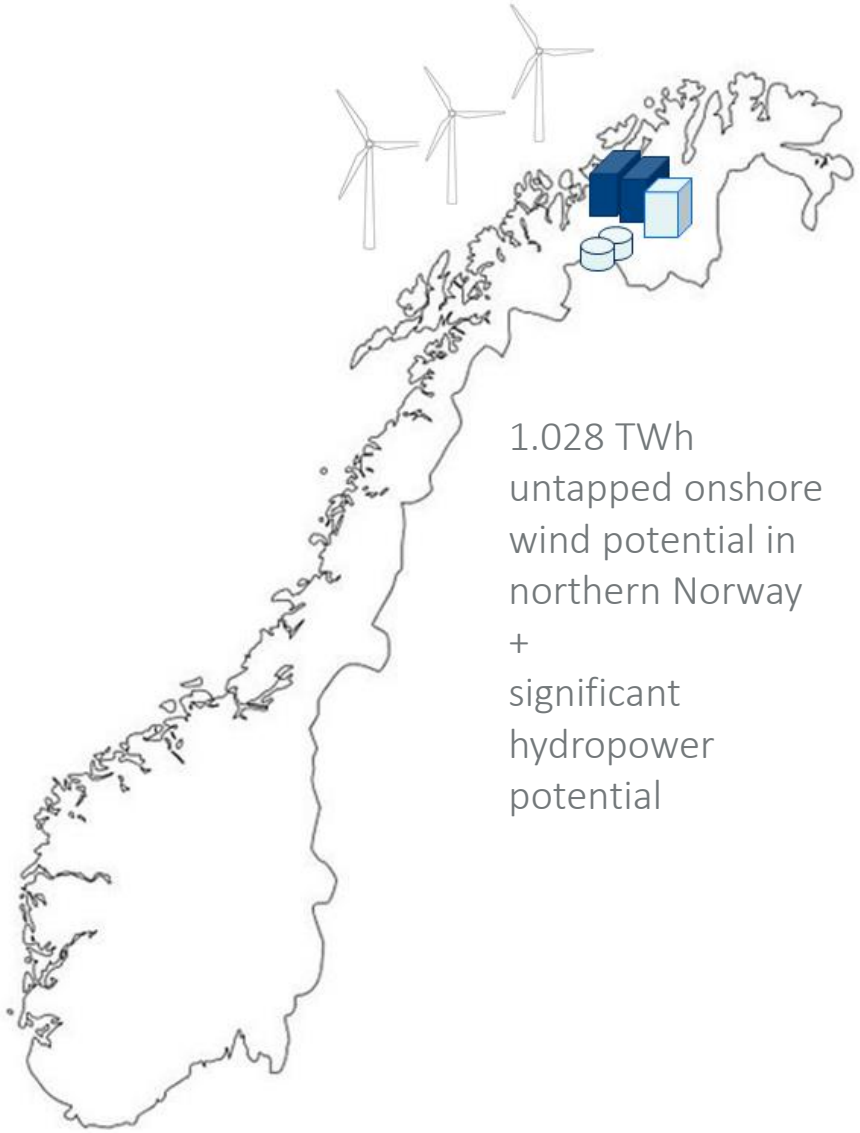
Norsk e-fuel business model



STRENGTH THROUGH COLLABORATION

Core USP of Norsk e-fuel

- Covering the value chain from resource to final product
- Integrated process from power, CO_2 and H_2O to fuel covered by a worldwide base patent
- Highest efficiency by utilizing SOEC technology, creating 30% more product from a given amount of renewable energy
- CO_2 supply independent of point sources through Direct Air Capture technology allowing access to green field installations and cheap electricity
- Strong capabilities and experience in EPC and industrialization through Paul Wurth / SMS



1.028 TWh untapped onshore wind potential in northern Norway + significant hydropower potential

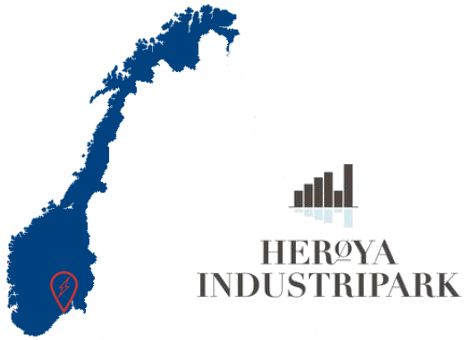
ADVANTAGES OF NORWAY

Building an e-fuel industry

- Availability of renewable electricity at low prices
  - Electricity is the main cost factor in PtL production
  - Norway offers very low electricity prices at high full-load hours due to surplus of hydropower capacity and favourable location for wind power
- Favorable financing environment
  - Strong environmental consciousness
  - Availability of state- and infrastructure funds
- Experience in fuel refining and marketing
  - Availability of experienced engineers and infrastructure
- Strong expansion opportunity
  - North-East Norway wind potential alone could theoretically cover 20 % of EU transport sector power demand

UPSCALING

Bringing renewable fuels from Norway to Europe.



Norsk e-Fuel *SPV 1*

10 Mio. l plant

2023

Norsk e-Fuel *SPV 2*

100 Mio. l plant

2026

Norsk e-Fuel *SPV 3, SPV 4 ….*

x 100 Mio. l plants

2030

Site secured

Start of construction in 2021/2022

Exclusive IP licenses through partners

E-FUEL CHALLENGES

It takes bold action to make e-Fuels a mass-market product.

Challenges addressed by norsk e-fuel

- Technological maturity
- Process integration (PtL)
- Value chain creation
- Market price gap
- Customer preferences

Outstanding challenges

- Renewable electricity supply
- e-Fuel / e-kerosene targets
- Public financial support
- Certification and tradability
- Global deployment

THANK YOU!

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