



**Nordic  
Electrofuel**

Clean at scale



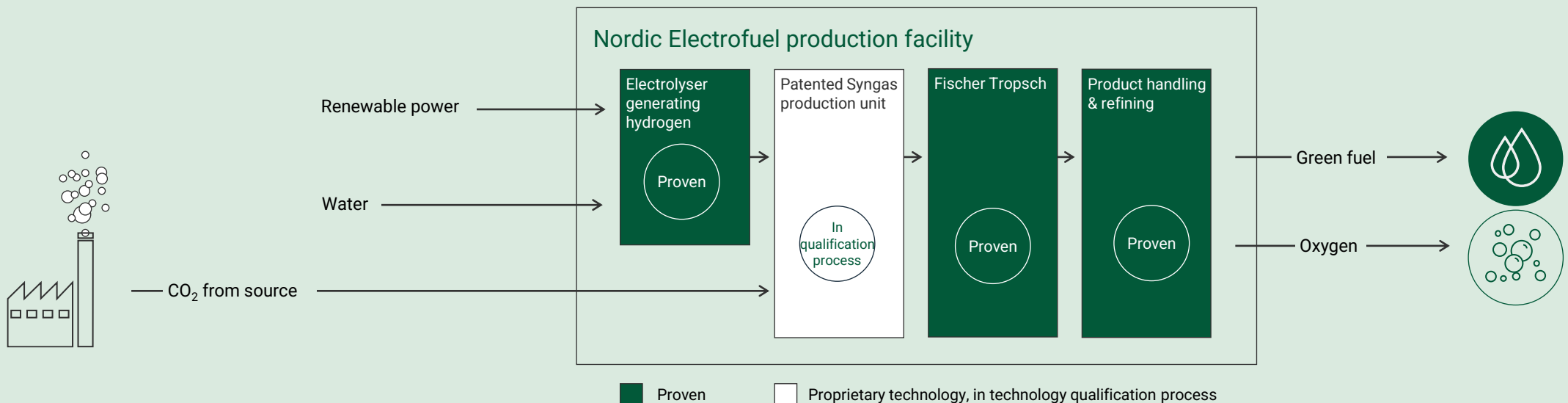
**Nordic Electrofuel will make it Green to Fly!**

# We produce sustainable fuel from green hydrogen and CO<sub>2</sub> utilizing the Power-to-Liquid (PtL) pathway

**Electrolysis** uses renewable energy to split water into hydrogen and oxygen.

We focus strictly on applying well proven technologies from **reputable partners**.

Adding our **proprietary technology** brings down operating costs and increases lifetime.



# First mover advantage and robust technological platform developed together with reputable partners

## Milestones



## Technology maturity



# Transportation is off-track for EU climate targets

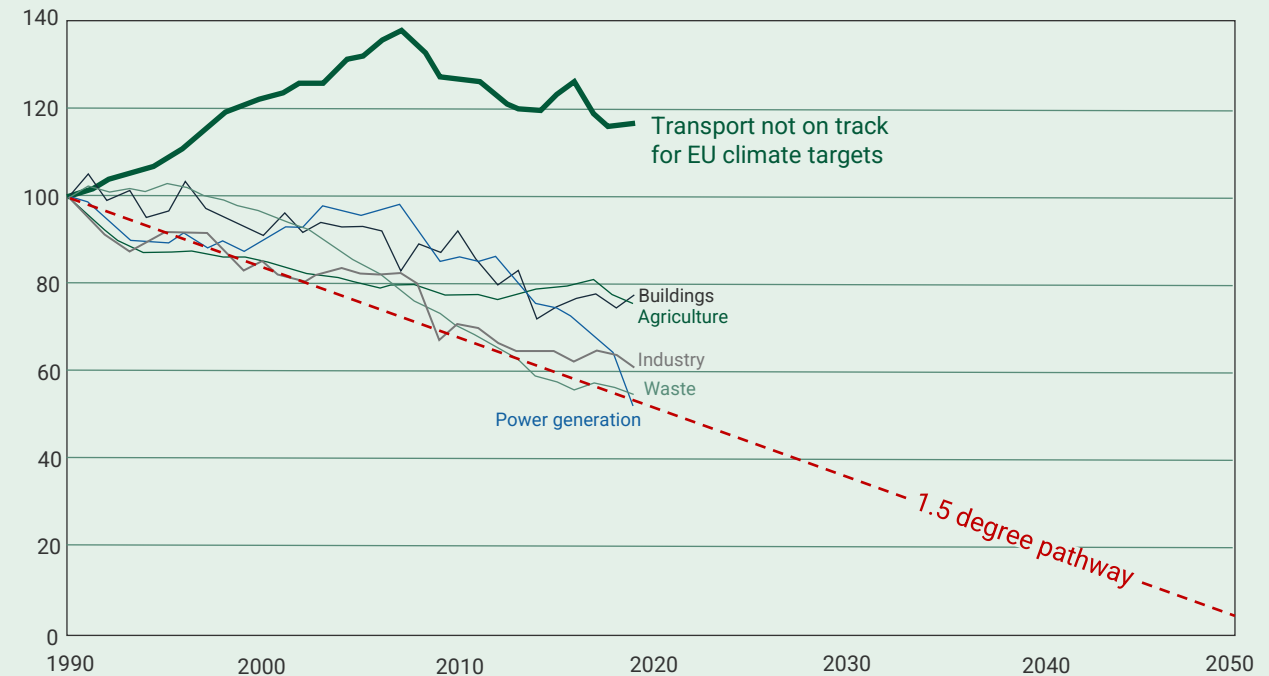
Rapid decarbonization is required in transportation to close the gap to a **1.5 degree pathway** in Paris Agreement

According to Goldman Sachs (Carbonomics Equity Research analysis Dec 11 2019), aviation emissions presents special challenges:

- Aviation abatement costs are 5x higher than those in power generation or agriculture.
- Due to the aviation sector's inherently global nature, localized and non-standardized regulatory schemes lead to market distortions instead of a "level-playing field" required for smooth operations.
- Fleet renewal cycles are slow, with commercial aircraft being used for 40 years or more.

## Transportation (aviation, shipping, trucking) is behind other sectors in terms of decarbonizing

Indexed EU GHG emissions by sector compared with the 95% reduction target trajectory (1900 = 100)



Source: Clean Skies for Tomorrow: Sustainable Aviation Fuels as a Pathway to Net-Zero Aviation. McKinsey and World Economic Forum.

# Proposed regulations in the EU regarding Sustainable Aviation Fuel (SAF)

## Fit for 55 and the new proposed ReFuelEU Aviation directive

The proposed regulations in the EU sets minimum requirements regarding **SAF categorized as either bioenergy or synthetic jet fuel** with minimum requirements for both.

The EU27 consumption of jet-fuel in 2019, before covid 19, was around 55 bill. liters or around 14% of world wide consumption.

Applying the jet fuel consumption from 2019, to the estimates from IEA, the consumption of synthetic fuel in the future in the EU 27 can be estimated as follows assuming a 100% blend in and market growth of 1.5%:

2030: ~0,5 bill. liters

2040: ~6,0 bill. liters

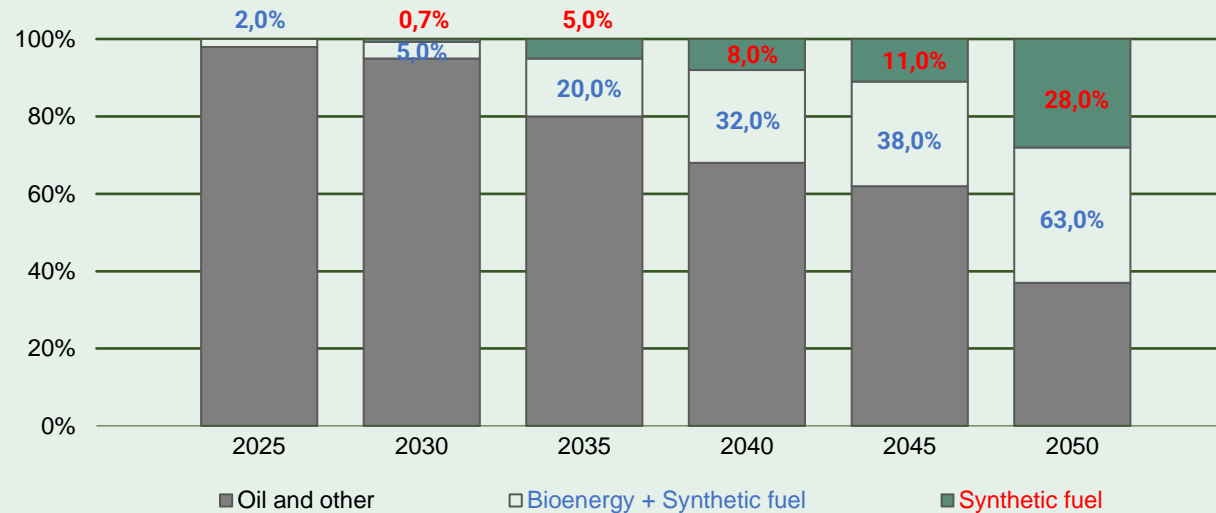
2050: ~24 bill. liters

Note: NEF's own calculations

The proposed regulations promotes synthetic jet fuel as feedstock resources are abundant

Proposed minimum requirements of SAF in the EU

Distribution by type of fuel



Source: Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on ensuring a level playing field for sustainable air transport – Annex I (volume shares)

# Future estimates on jet fuel consumption (IEA)

## Synthetic fuel (e-fuel) expected to become the second most used jet fuel after Bioenergy in 2050

The total worldwide consumption of jet-fuel in 2019, before covid 19, was around 400 bill. Litres. After a drop in 2020, IEA estimates a growth in jet fuel demand back to the levels seen in 2019 by 2050.

Applying the jet fuel consumption from 2019, to the estimates from IEA, the consumption of synthetic fuel in the future can be estimated as follows assuming a 100% blend in:

2030: ~6 bill. liters

2040: ~50 bill. liters

2050: ~125 bill. liters

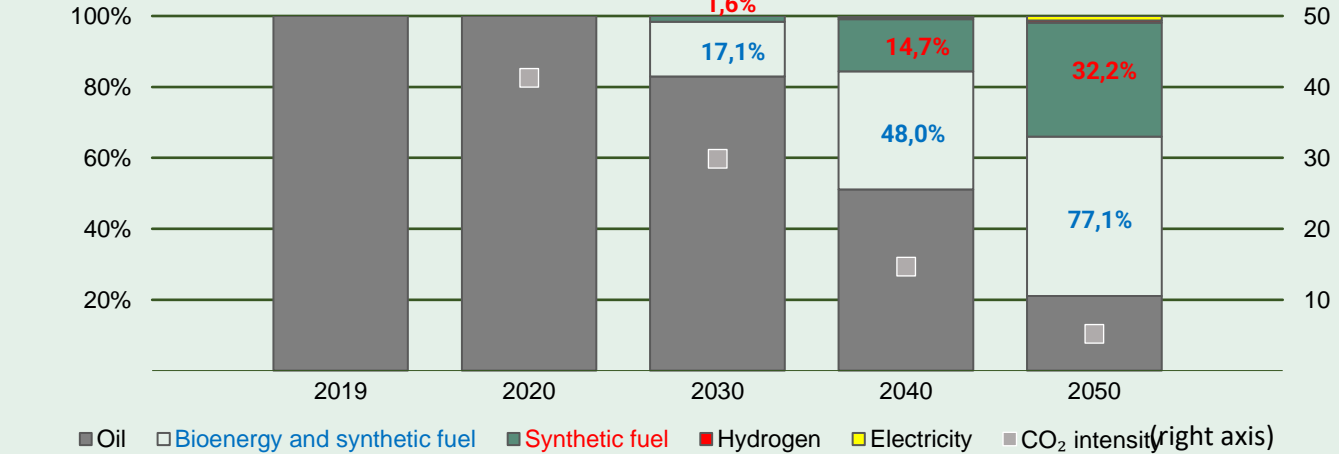
Note: NEF's own calculations

Production of synthetic fuel must be scaled up considerable in order to meet future demand.

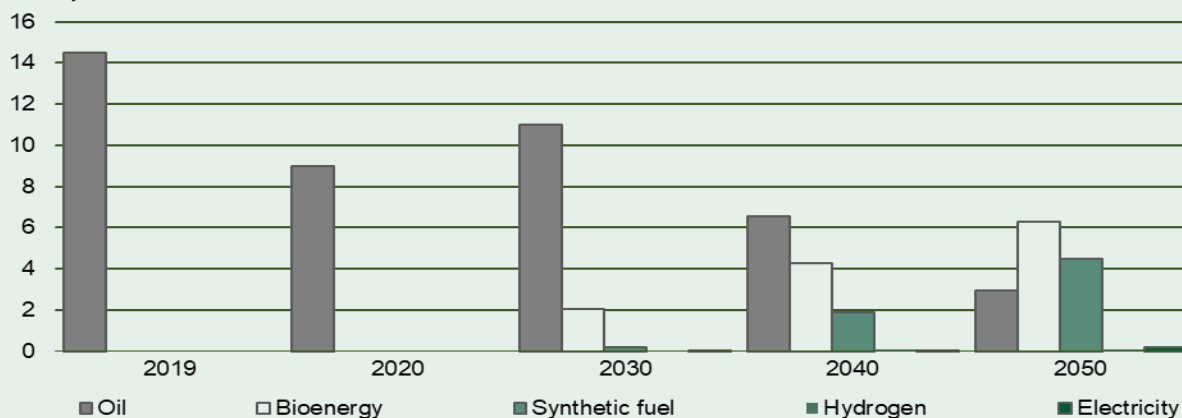
Hydrogen and Electricity is expected to have a marginal role in the aviation industry in 2050.

### Jet fuel consumption estimates

Distribution by type of fuel

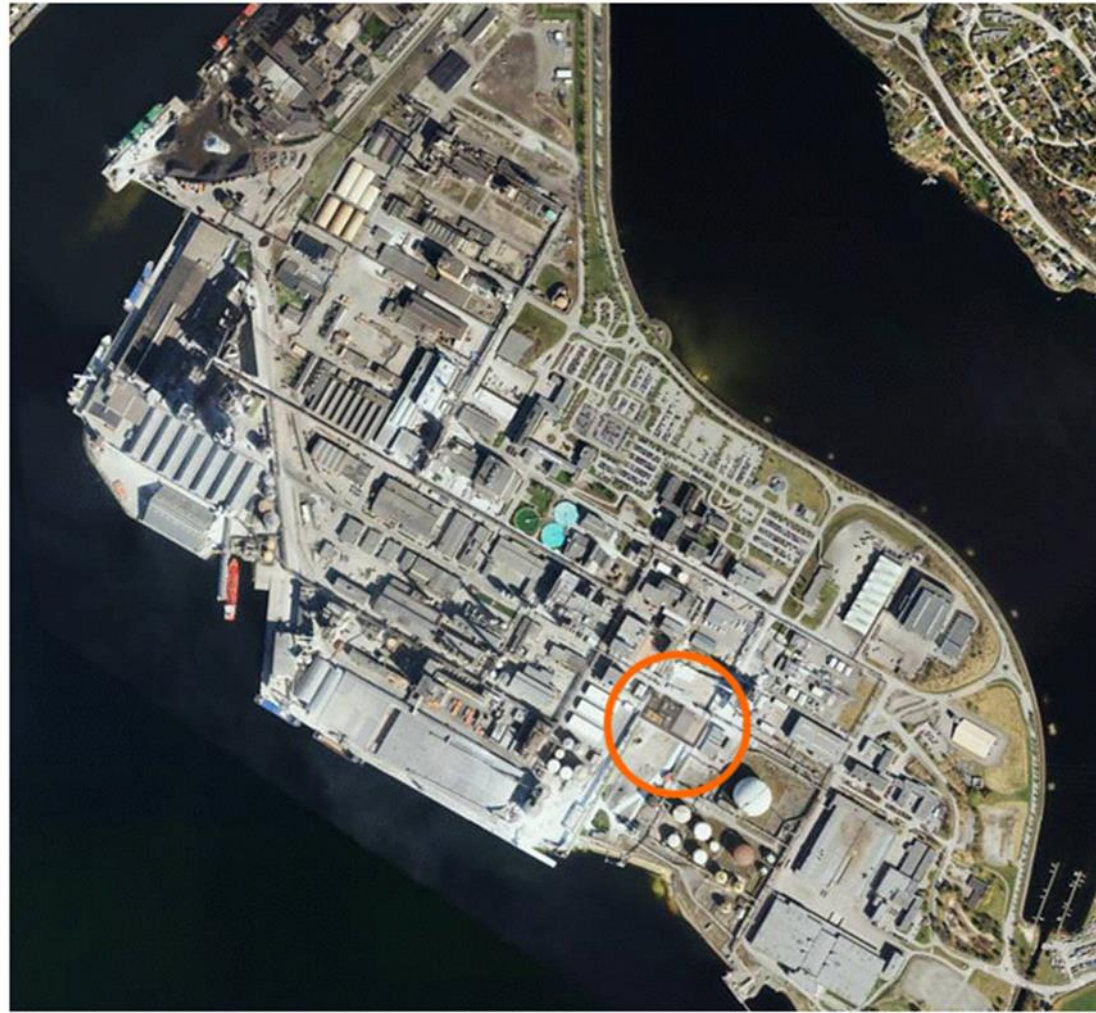


Estimates in Exajoule

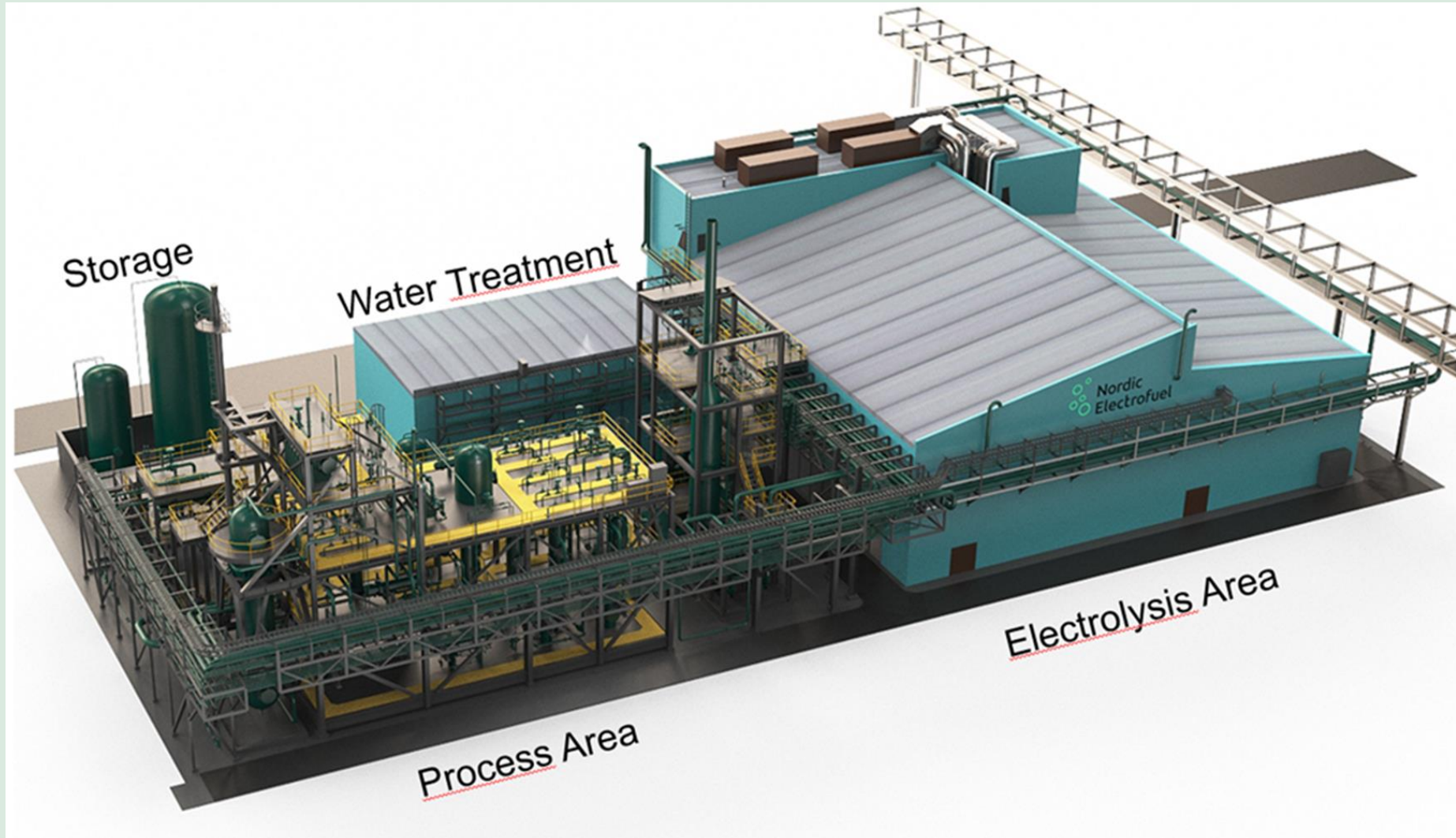


Source: International Energy Agency (2021), Net Zero by 2050, IEA, Paris

# Site Location- Herøya

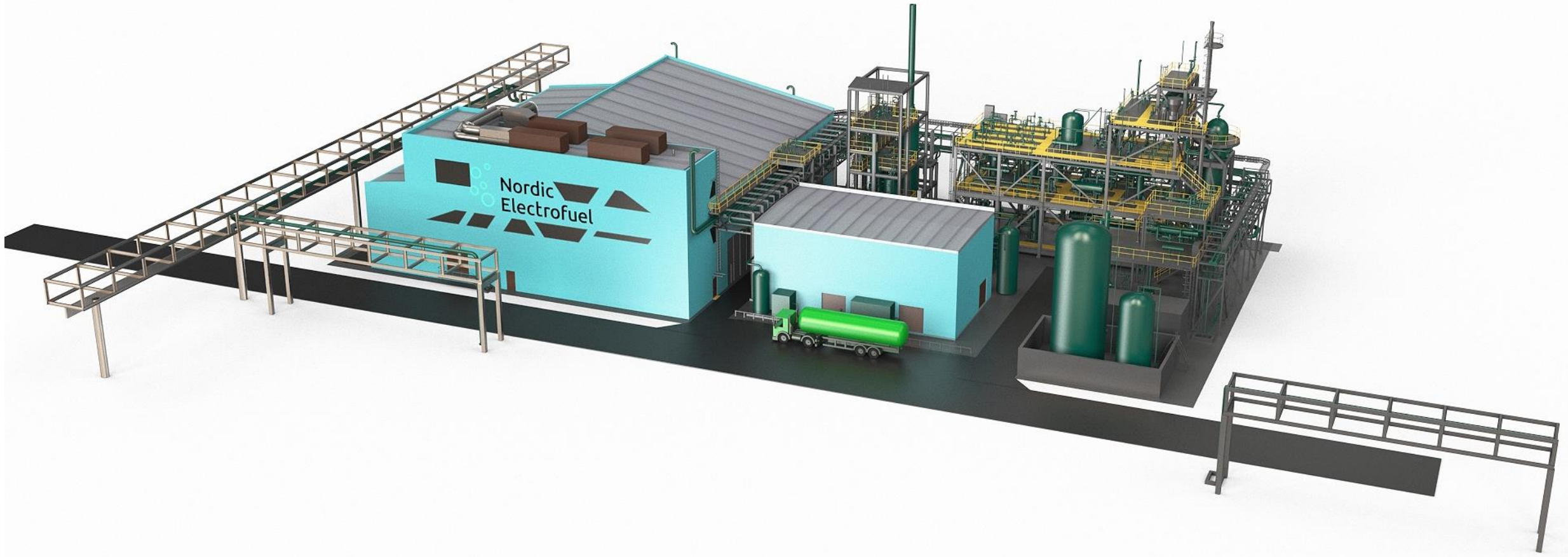


# Complete 3D Model - Looking North East



herøya\_afx-track\_03b.mp4.mp4





**First facility at Herøya designed  
by Aker Solutions, FEED complete**

Capex in EUR million	Tie-in and contingencies EUR million	Capacity in million liters	Commissioning
132	+ 43	10	2024

# Ambitious expansion plan targeting 1 billion liters of green fuel by 2032

Land and feedstock for E-fuel 1 is secured and negotiations initiated for E-fuel 2. Both plants to be located at Herøya Industrial Park.

Negotiations for additional new sites are in process, with the ambition of producing 1 billion liters E-fuel by 2032. Have evaluated economics of 1 billion liter plants.

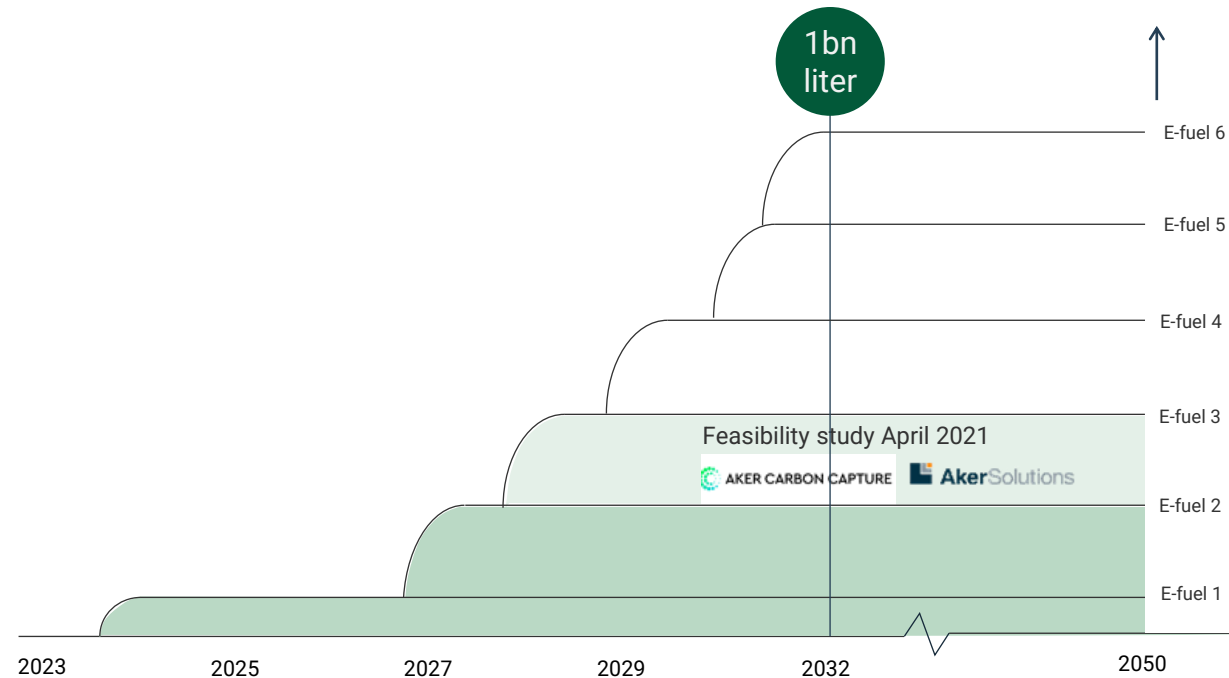
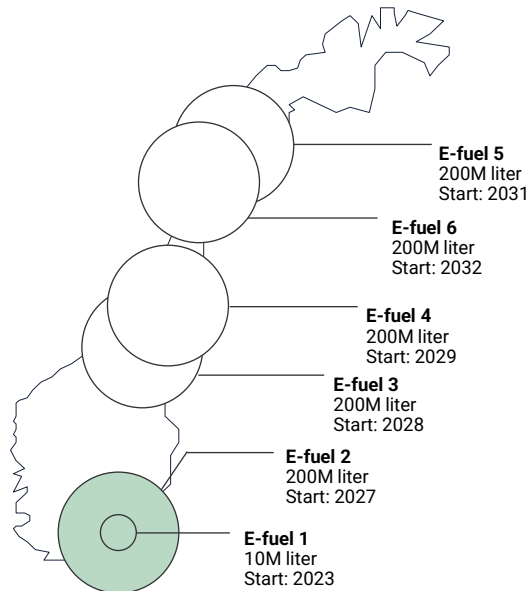
2032 target in liters

1bn

Capex for 200M liters facility in EURm

600

## Norwegian expansion plan



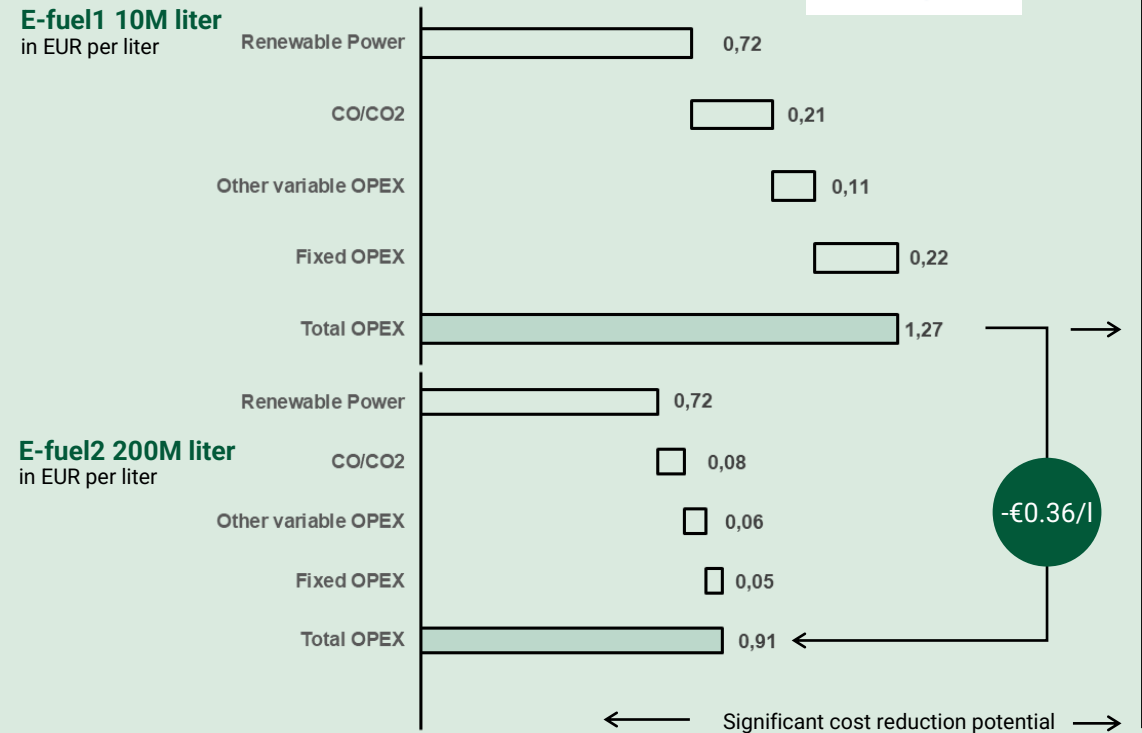
# OPEX is <€ 1 per liter for the 200 million liter facility

Nordic Electrofuel's green fuel will trade at a **significant premium** to fossil-based fuel

- Sales price is based on LOI's on off-take
- Current market price of SAF based on the HVO/HEFA pathway is around ~ € 2.25 per liter
- ~ 70% of OPEX is costs related to Green Hydrogen
- Scaling up production reduces operating cost from ~ € 1.27 to ~ € 0.91 per liter
- We will work to make the price competitive to fossil-based fuel through technological advances and scaling effects



Off-take € 2.00 – 2.50 per liter





# Economics for 200 million liters facility

## Economics for 200 million liters facility

Investment cost	610 EUR million
Annual production capacity	200 million liters
Price according to Off-take LOI	2.25 EUR per liter

Revenue per year	450 EUR million
Operating costs	188 EUR million

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EBITDA for 200 liter	262 EUR million
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CAPEX / EBITDA	2.3x
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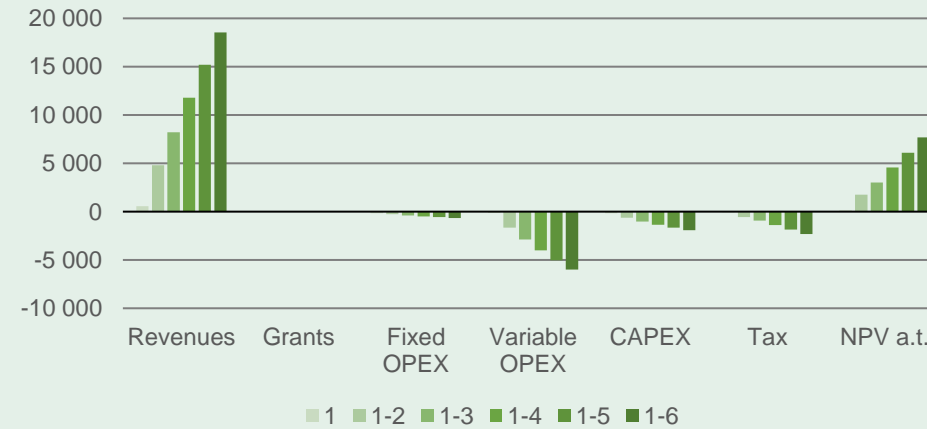
← Illustrations from the feasibility study of E-fuel 3

# Financial figures and Internal Rate of Return (IRR)%

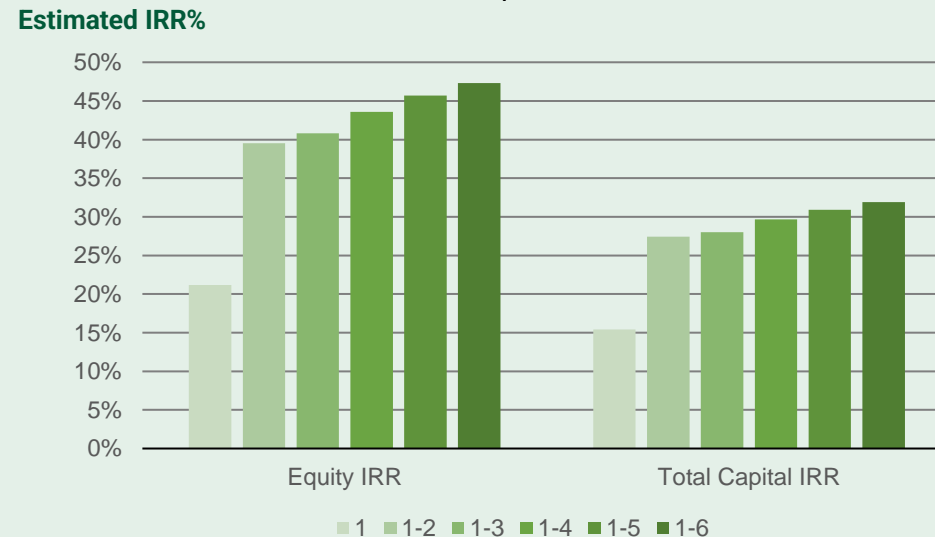
Significant scaling potential with **very attractive IRR%** when constructing several plants

- Revenue potential above accumulated EUR ~15 bn. present value first 6 plants
- Net Present Value (NPV) of Equity after tax potential of an accumulated EUR ~ 8 bn.
- Equity IRR potential >35%
- Total Capital IRR potential >25%

Financial estimates in EUR million, present value



Number of plants constructed



# Companies within the PtL industry - hydrocarbons

The companies within the Power-to-liquid industry are at research or pilot level

- Many projects/companies have announced research or small-scale pilot projects within Power-to-liquid industry.
- Compared with the projects/companies listed we believe Nordic Electrofuel is in the forefront, currently in the FEED phase for construction of the largest scale demonstration plant

Name	Country	Location	Quantity (tons per year)
<b>Europe</b>			
Sunfire	Germany	Dresden	n.a
Kopernikus Power-to-X II	Germany	Karlsruhe	n.a
Ineratech	Germany	Frankfurt	3 500
P2X Europe (Mabanaft and H&R)	Germany	Hamburg	n.a
GreenPower2Jet (GP2J)	Germany	Stade / Lingen	n.a
German Aerospace Center	Germany	Stuttgart	n.a
Atmosfair	Germany	Werlte	365
Synkero / Amsterdam Schiphol airport	Netherlands	Amsterdam	n.a
The Zenid Initiative / The Hague airport	Netherlands	Rotterdam	293
Nordic Electrofuel	Norway	Porsgrunn	8 000
Norsk e-Fuel (Sunfire)	Norway	Mosjøen	n.a
Repsol/Saudi Aramco	Spain	Bilbao	2 300
Sun-to-Liquid	Spain	Madrid	9
<b>Other</b>			
Carbon Engineering	Canada	Squamish	n.a
SAF+ Consortium	Canada	Montreal	2 450
LEN Consortium	South Africa	Secunda	n.a
Infinium (Greyrock)	USA	Sacramento	n.a
Twelve (US Air Force)	USA	n.a	n.a

Source: NEF's own research based on various sources – pilot capacity or planned capacity for projects

# Highly experienced team with strong execution power

Nordic Electrofuel has a highly experienced and balanced management team of six professionals. Board of Directors with members holding extensive management and board experience from listed and non-listed companies.

## Team members

6

Average years of professional experience

30+

## Core team overview



Gunnar Hølen  
CEO  
30+ yrs



Rolf Bruknapp  
Founder  
30+ yrs



Bjørn Bringedal  
Chief Technical Officer  
30+ yrs



Tom H. Sundby  
CFO  
25+ yrs



Rune Løvstad  
Project Director  
30+ yrs



Terje Dyrstad  
CEO, Nordic Wind  
(90.1% Nordic Electrofuel)  
30 yrs

## Board members

5

## Overview of Board of Directors



Rolf Bruknapp  
Chairman



Harald Norvik  
Board Member



Ronald Tuft  
Board Member

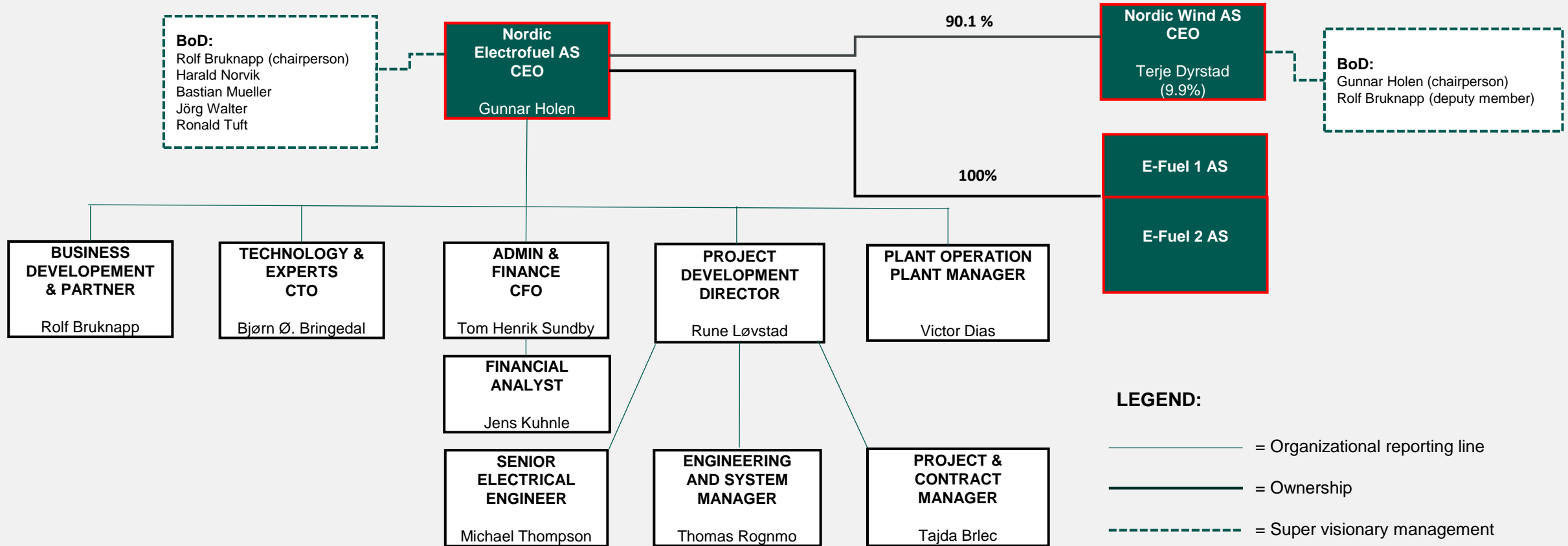


Bastian Müller  
Board Member



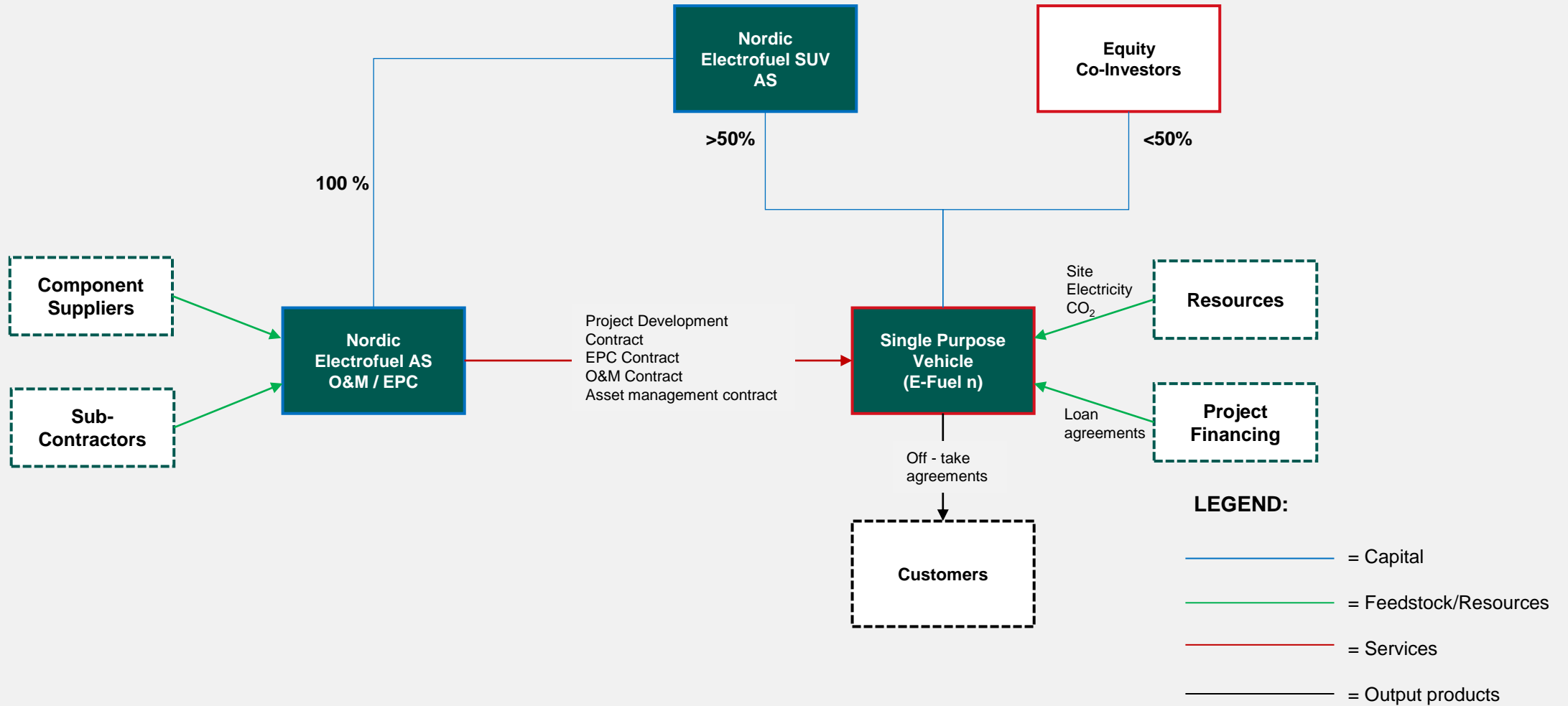
Jörg Walter  
Board Member

# Nordic Electrofuel - Company and organization

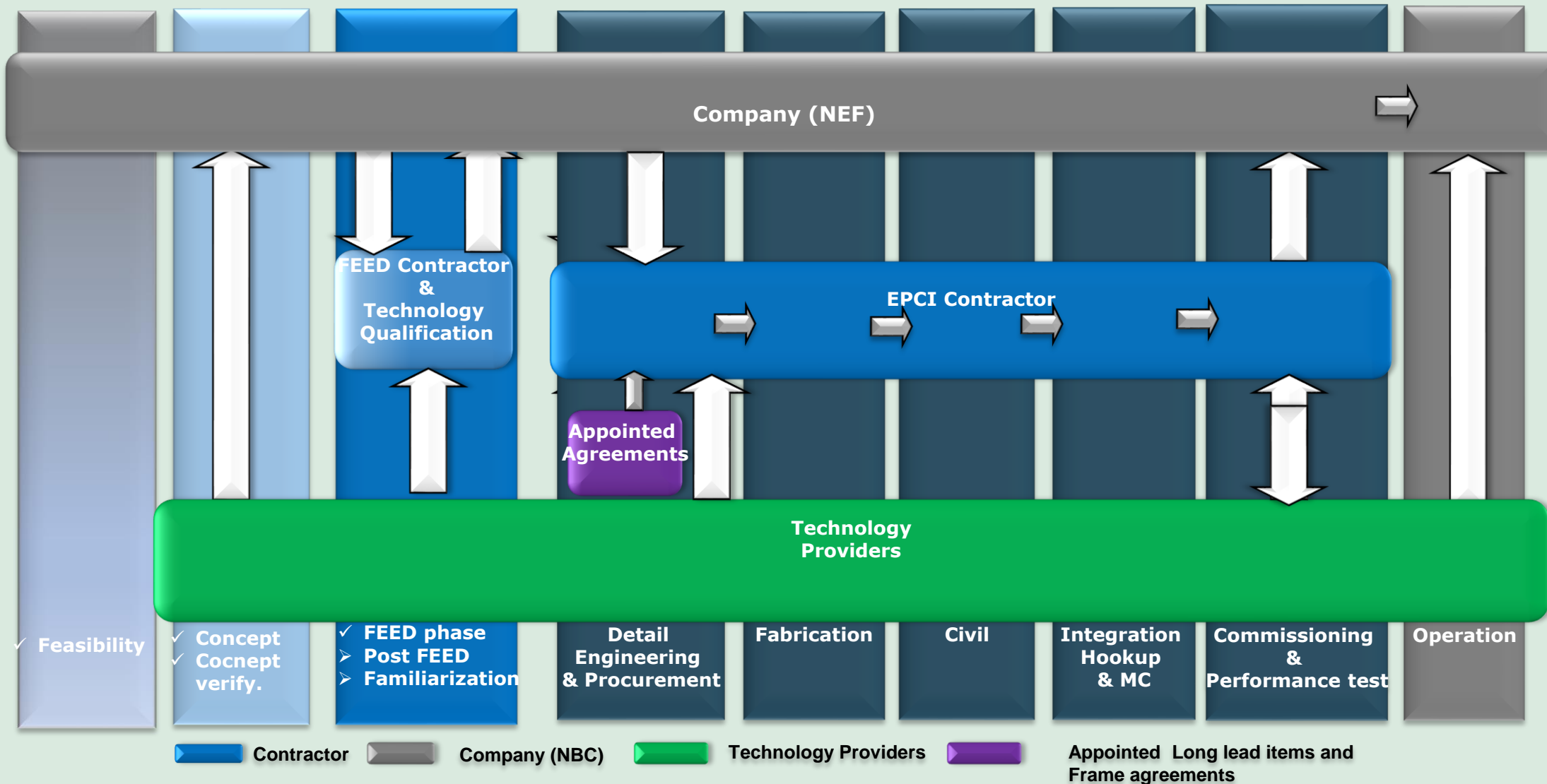




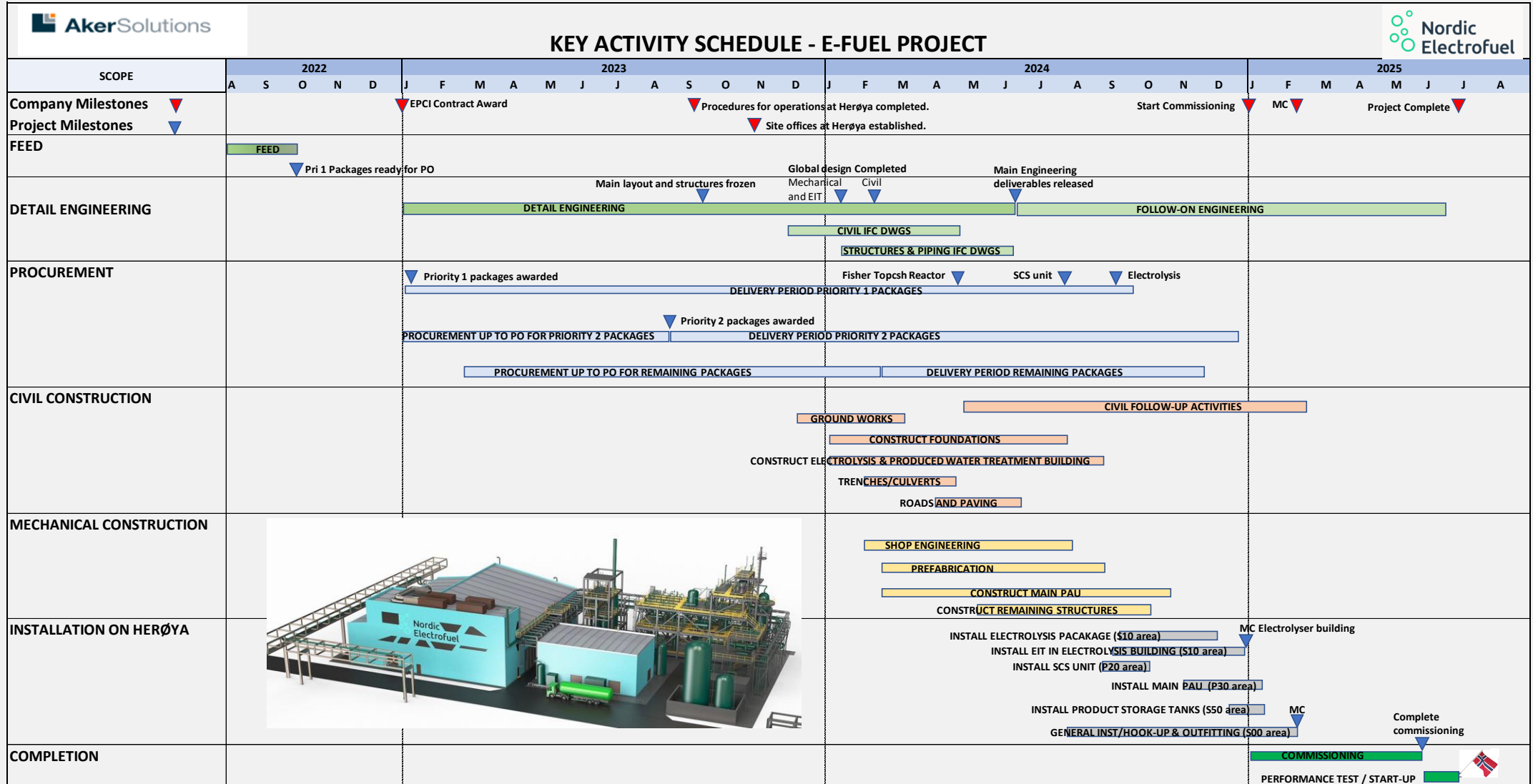
# Legal Structure - E-fuel 3,4,5....n



# Project Execution Model



# Key Activity Plan



# EPCI Contract Main Terms and Principles

- ❑ Nordic Electrofuel AS ("Company") plans to procure the entire scope of work necessary to design, engineer, procure, construct, install, commission and hand-over the plant under a single EPCI contract (the "Contract")
  - ❑ The Contractor is expected to take EPCI responsibility for the entire scope of work and to manage and remain responsible for the performance of all subcontracts (some of which will be appointed by Nordic Electrofuel AS prior to contract award)
- ❑ The conditions of contract will be based broadly on the terms & conditions of Norsk Totalkontrakt ("**NTK 2015**") with certain amendments to tailor for the peculiarities of the project (some of which are highlighted on the following slides)
  - ❑ The Contract will be based on a principle that the party that is best placed to control the risk shall carry the risk
- ❑ The appendices to the Contract will follow the structure and hierarchy of the NTK 2015, with some amendments i.e.:
  - ❑ Agreement Form
  - ❑ NTK 2015,T&C with amendments
  - ❑ Appendix A SOW
  - ❑ Appendix B Compensation
  - ❑ Appendix C Milestone & schedule
  - ❑ Appendix D admin requirements (after appendix H in hierarchy)
  - ❑ Appendix E Company documents
  - ❑ Appendix F Companies Deliverables
  - ❑ Appendix G Companies insurance
  - ❑ Appendix H Subcontracts
  - ❑ Appendix I Contractors documents

# Total funding requirement for E-fuel 1 – EUR 175m

## Three main workstreams for total funding requirement

### 1. Equity investors

Term Sheet signed for a preferential share capital single close private placement of EUR 65 mill. in total

Oil & Gas major, the lead investor (CP, confirmatory DD) EUR 17 mill

Marquard & Bahls, Existing owner since DEC 2019 EUR 10 mill

Selected International institutional & strategic investors, including one of the largest airlines, currently conducting confirmatory DD for the remaining amount.

5 workstreams for Confirmatory Due Diligence conducted by the Oil & Gas major

- 1. Ethical & Compliance
- 2. Cybersecurity
- 3. Legal/Corporate (Norwegian lawfirm)
- 4. Financial
- 5. Technological (Completed)
  
- Post Technological DD Oil & Gas major initiated 2 other workstreams
  1. off-take agreement
  2. Licensing agreement for technology

# Total funding requirement for E-fuel 1 – EUR 175m (cont'd)

## Three main workstreams for total funding requirement

2. **Commercial Loan:** established a relation with leading Norwegian bank with the objective of raising a commercial loan facility in a consortium together with Eksfin, Export Credit Agency funding and Nordic Investment bank (NIB). NIB indicates EUR 25-30 mill in loan, participating in such a consortium. Received support letter for the EU Innovation fund application from the Norwegian bank and NIB.
  
3. **Grants/Soft Funding:** (1) 2nd call EU Innovation Fund application filed 2nd March 22. 456 pages produced and received more than 30 letters of support. NEFs application is for a total grant of EUR 35 million.
  - (2) Eligibility negotiations with ENOVA, Norwegian government enterprise for promotion of environmentally friendly production of energy. ENOVA granted project support of NOK 500k for EU Innovation Fund application.
  - (3) Participate in the European Investment Bank (EIB) NER 300 program, designed to support application to funding programs within EIB

## Funding track record for Series A tranche:

Raised approximately EUR 15 million in equity, and EUR 2 million in Loans and grants

New application for tax refund from Norwegian Research Council for fiscal year 2021 approved, potential MNOK 4,75 in grants

# Reputable partners and research bodies

Our technology solution is developed by Nordic Electrofuel in close collaboration with a number of reputable partners and research bodies. Close cooperation with the leading experts on heat exchange solutions and synthetic fuel production increases quality and limits risk of our project.



Shareholder

Founded	Employees	Reach
<b>1947</b>	<b>6 700</b>	<b>Global</b>

"Marquard & Bahls is invested in Nordic Electrofuel for its sustainability and the long-term value creation potential (..) *Markku Korvenranta, SVP Group Portfolio Development*



Technology provider

Founded	Employees	Reach
<b>1910</b>	<b>1 700</b>	<b>Global</b>

With more than 100 years of experience, Arvos Group is the leading expert on heat exchanging solutions. Arvos verifies and delivers our syngas and heat recuperation system.



Technology integrator

Founded	Employees	Reach
<b>1841</b>	<b>15 000</b>	<b>Global</b>

Aker Solutions has executed the Feasibility and Concept study together with Nordic Electrofuel and have completed the FEED.



Research provider

Founded	Employees	Reach
<b>1760</b>	<b>7 600</b>	<b>Norway</b>

Experts from Norwegian University of Science and Technology (NTNU) has developed kinetic simulation models of the syngas reactor to demonstrate the viability of the design..

# We are the leading initiative for producing green fuel

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Exponential market growth for liquid green hydrogen fuel

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Proven technology with a magic touch

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Scalable concept with attractive economics

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Highly experienced team and reputable partners





# Nordic Electrofuel

Clean at scale

## Disclaimer

Nordic Electrofuel AS has in cooperation with related parties made this presentation. We have based all of the information herein on public information, and information gathered from the involved entities.

There has not been executed any due diligence neither of Nordic Electrofuel AS nor any of the mentioned or related entities.

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# Nordic Electrofuel

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