Nordic blue crude

Presentation January 2021

We make transportation green

Nordic blue crude

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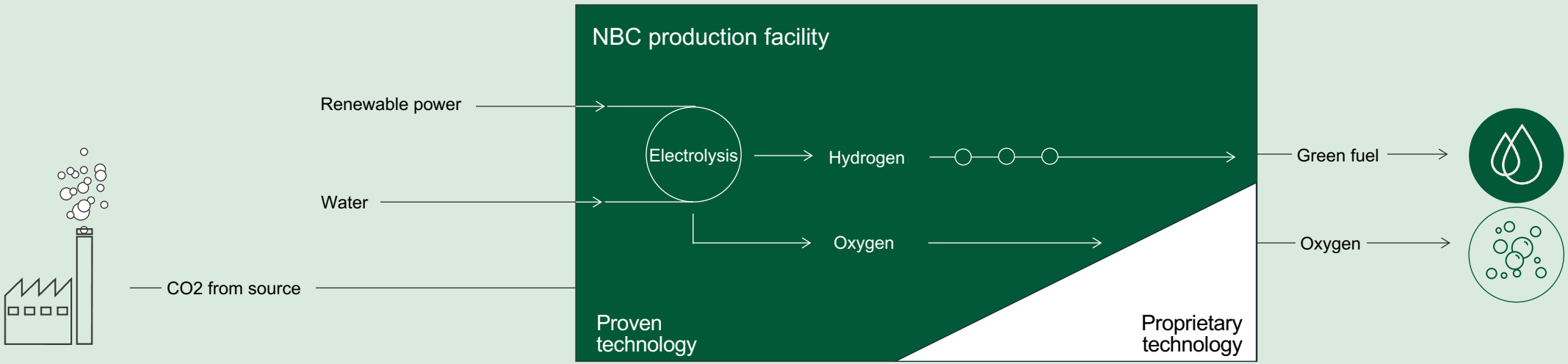
We produce sustainable fuel from green hydrogen and CO2

Electrolysis uses renewable energy to split water into hydrogen and oxygen. While hydrogen feeds into production of green fuel, oxygen can be used for waste-water cleaning, in fish-farming and many industrial applications.

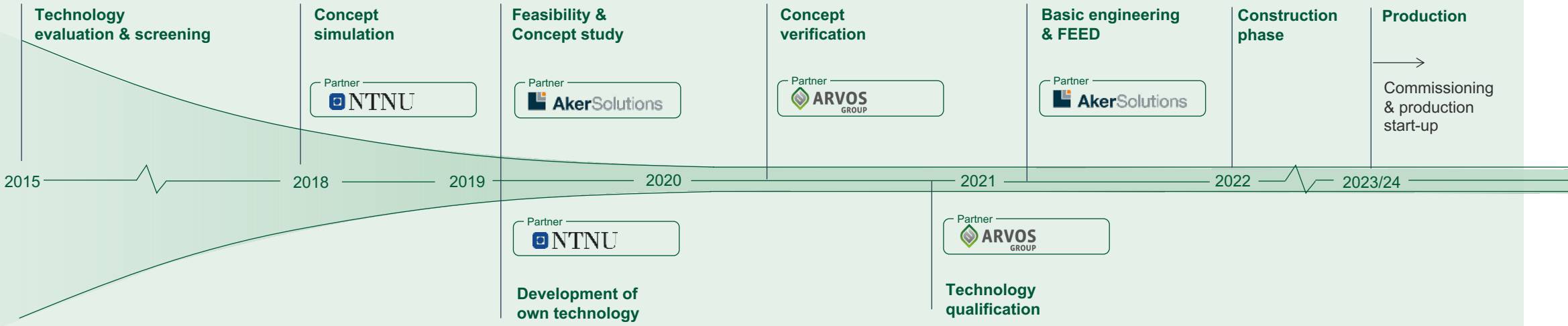


First mover advantage and robust technological platform developed together with reputable partners

Milestones

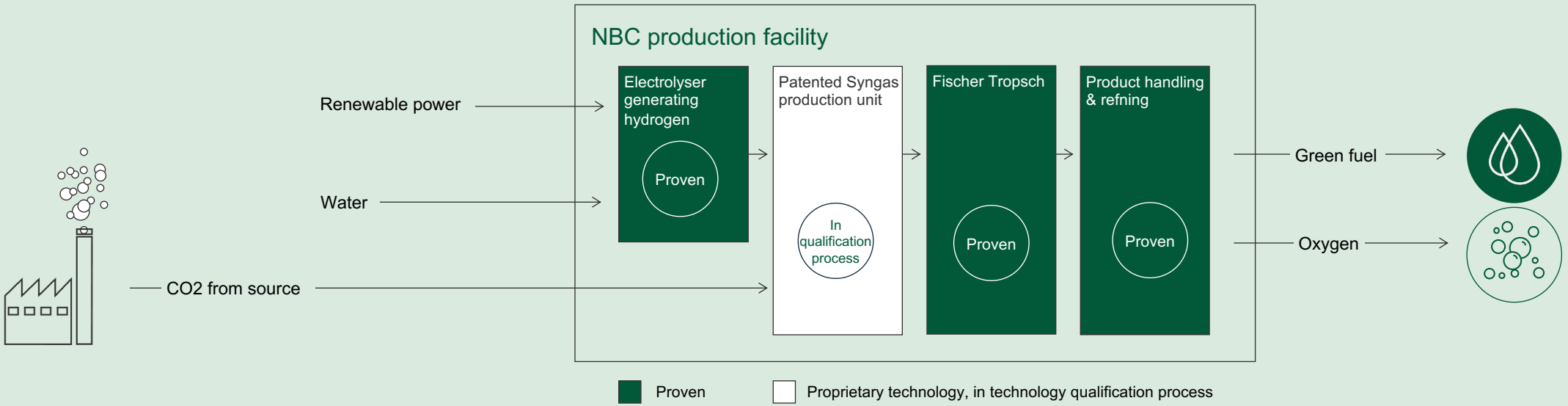
- Dec 2019 — Marquard & Bahls strategic investment
- March 2020 — Patent application filed
- Apr 2020 — Freedom to Operate Opinion JA Kemp
- Nov 2020 — Life cycle analysis confirming 87.2% emission avoidance
- Feb 2021 — FEED start-up
- Q4 2021 — Construction start / EPCI
- Q4 2023 — Commissioning & production start-up

Technology maturity

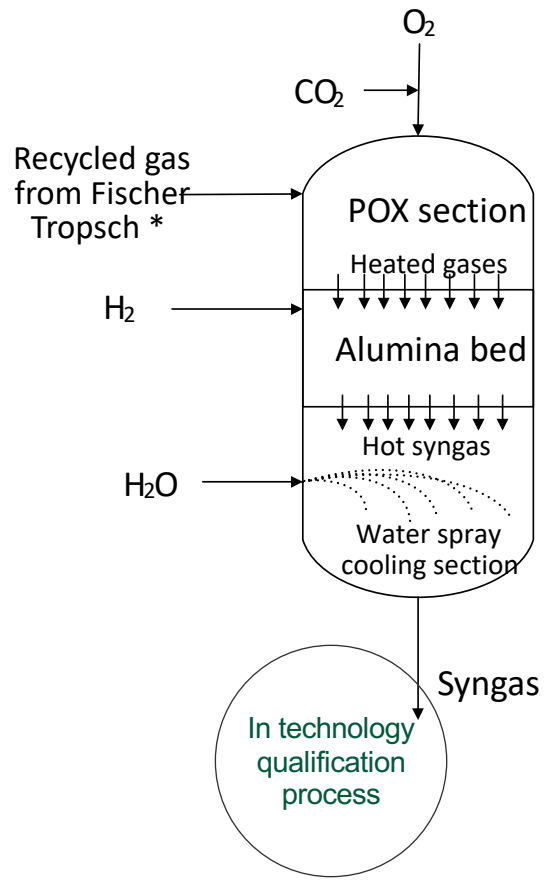


A highly scalable and profitable facility is built from proven and proprietary technology

We focus strictly on applying well proven technologies from reputable partners.
Adding our proprietary technology brings down operating costs and increases lifetime.



Patented Syngas production unit



The Nordic Blue Crude POX-rWGS reactor design for producing e-fuel from CO2 and hydrogen represents a breakthrough in simplicity and reliability.

NTNU Report
Syngas (POXrWGS) reactor

10.12.2020

Erling Rytter

Professor
NTNU

Magne Hillestad

Professor
NTNU

Patented syngas production unit improve cost advantage

Uptime relative to commercially available technology

Higher

Profit impact of patented syngas concept

Higher

First facility at Herøya designed by Aker Solutions

Capex in EUR million	Capacity in million liters	Commissioning
120	10	2023

Ambitious expansion plan targeting 1bn liters of green fuel by 2032

Land and feedstock for Herøya plants are secured. Negotiations for additional new sites are in process, with the ambition of producing 1 billion liters sustainable fuel by 2032.

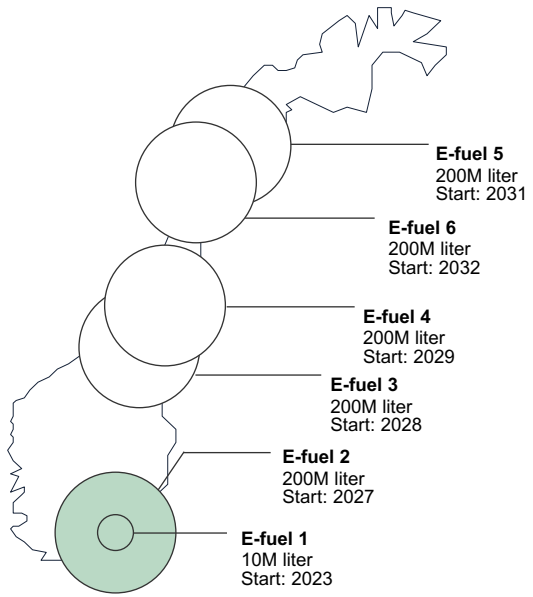
2032 target in liters

1 bn

Capex for 200M liters facility in EURm

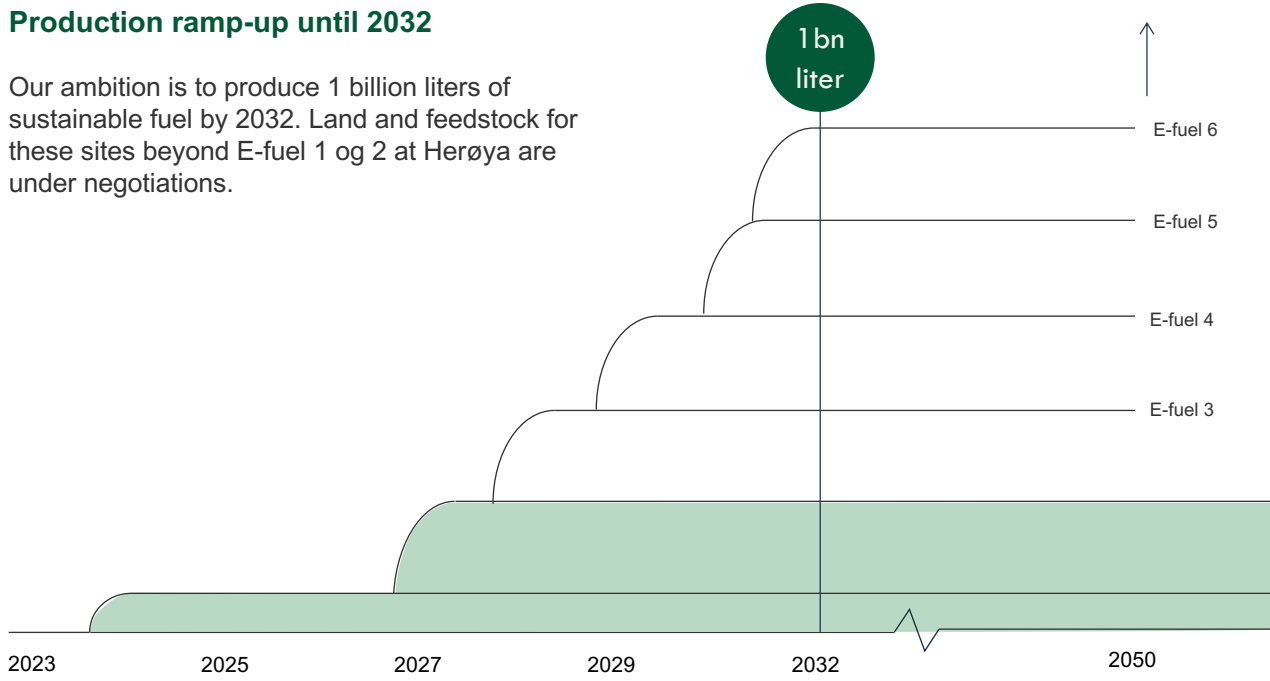
600

Norwegian expansion plan



Production ramp-up until 2032

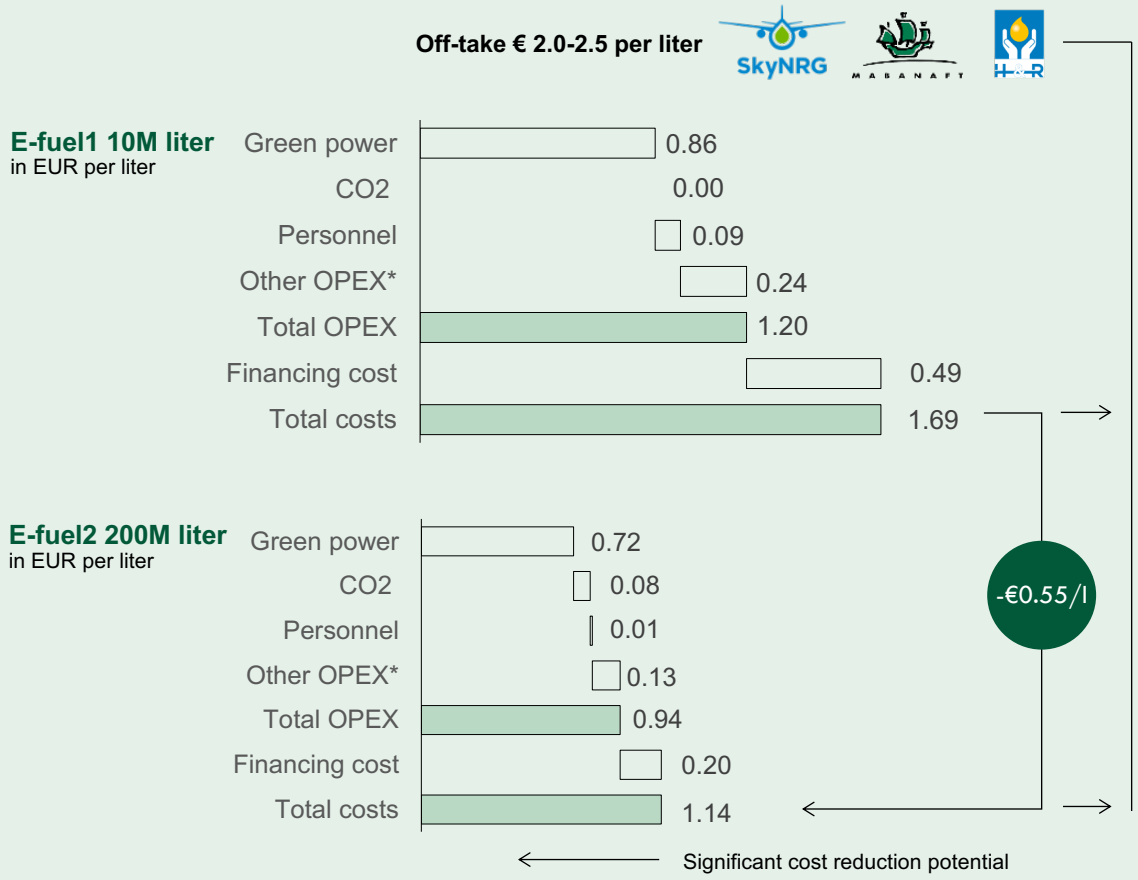
Our ambition is to produce 1 billion liters of sustainable fuel by 2032. Land and feedstock for these sites beyond E-fuel 1 og 2 at Herøya are under negotiations.



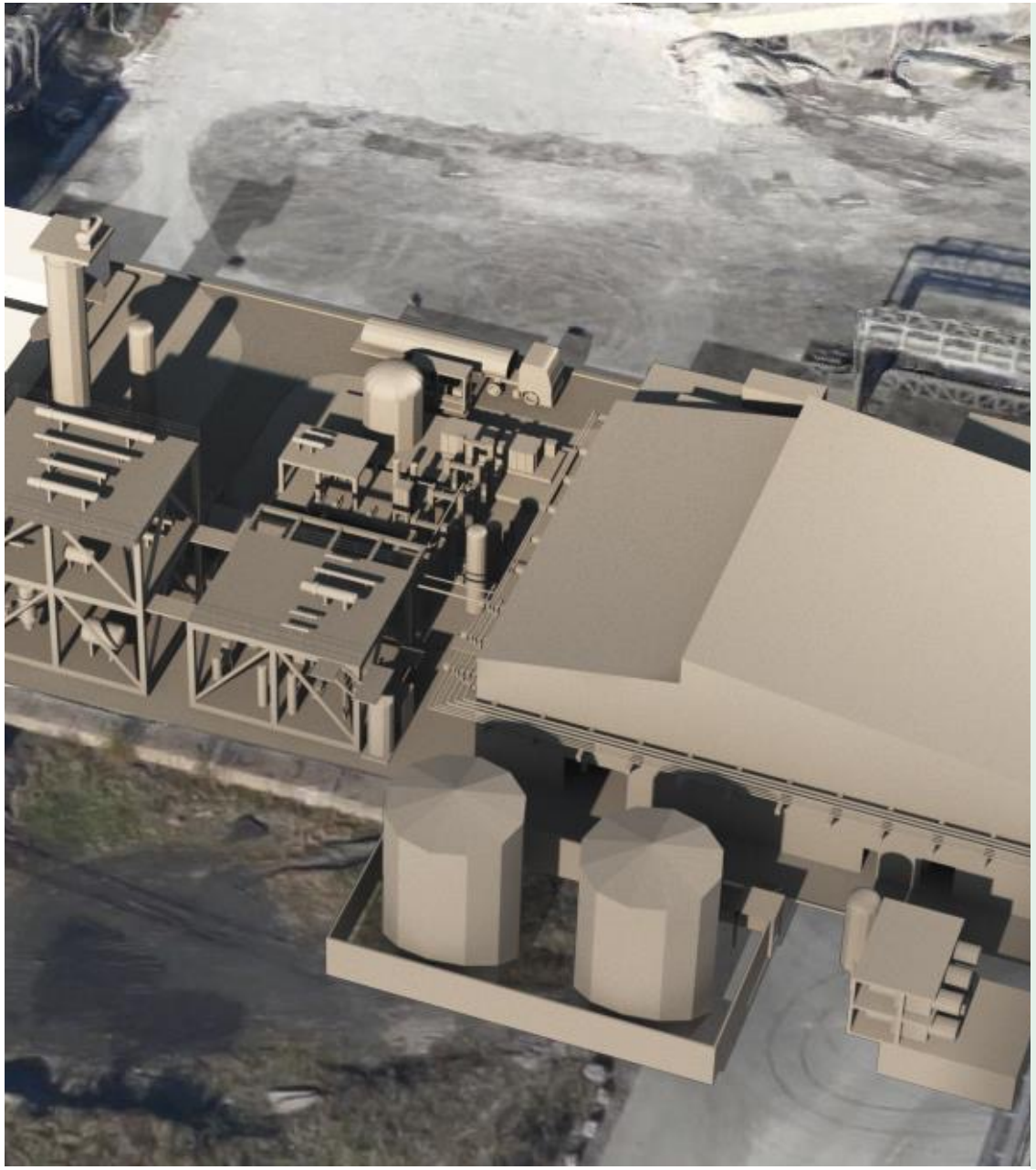
OPEX is <€1 per liter for the 200M liter facility

NBC green fuel will trade at a significant premium to fossil-based fuel.

- Sales price is based on LOI's on off-take
- +70% of OPEX is costs related to Green Hydrogen
- Scaling up production reduces production cost from ~ € 1.69 to ~ € 1.14 per liter.
- We will work to make the price competitive to fossil-based fuel through technological advances and scaling effects.



* Other opex includes maintenance, water, refining, utilities, licenses, distribution cost, acreage and office rental.
For E-fuel 1 the financing cost is based on EU grants of € 40 million, € 40 million in loan at 5% and ~€ 40 million in equity. E-fuel 2 (with CAPEX of € 600 million is financed 50% loan at 5% and remaining equity. A depreciation of 25 years is assumed.



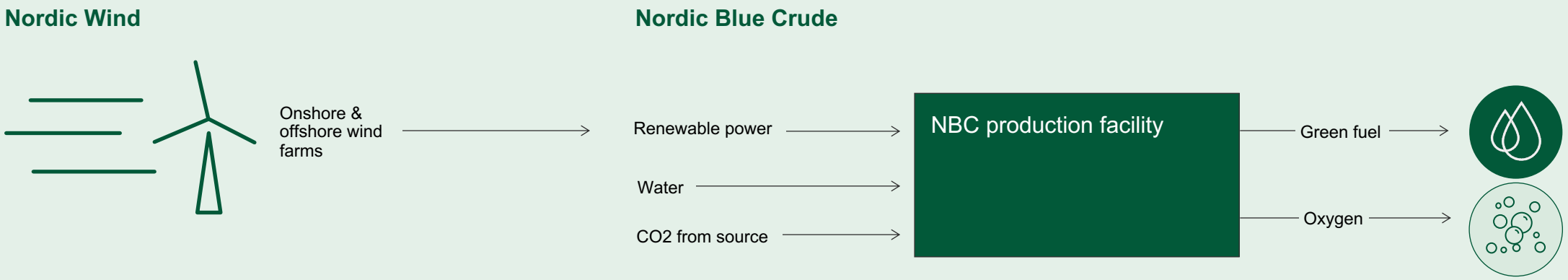
Economics for 200 million liters facility

Economics for 200 million liters facility

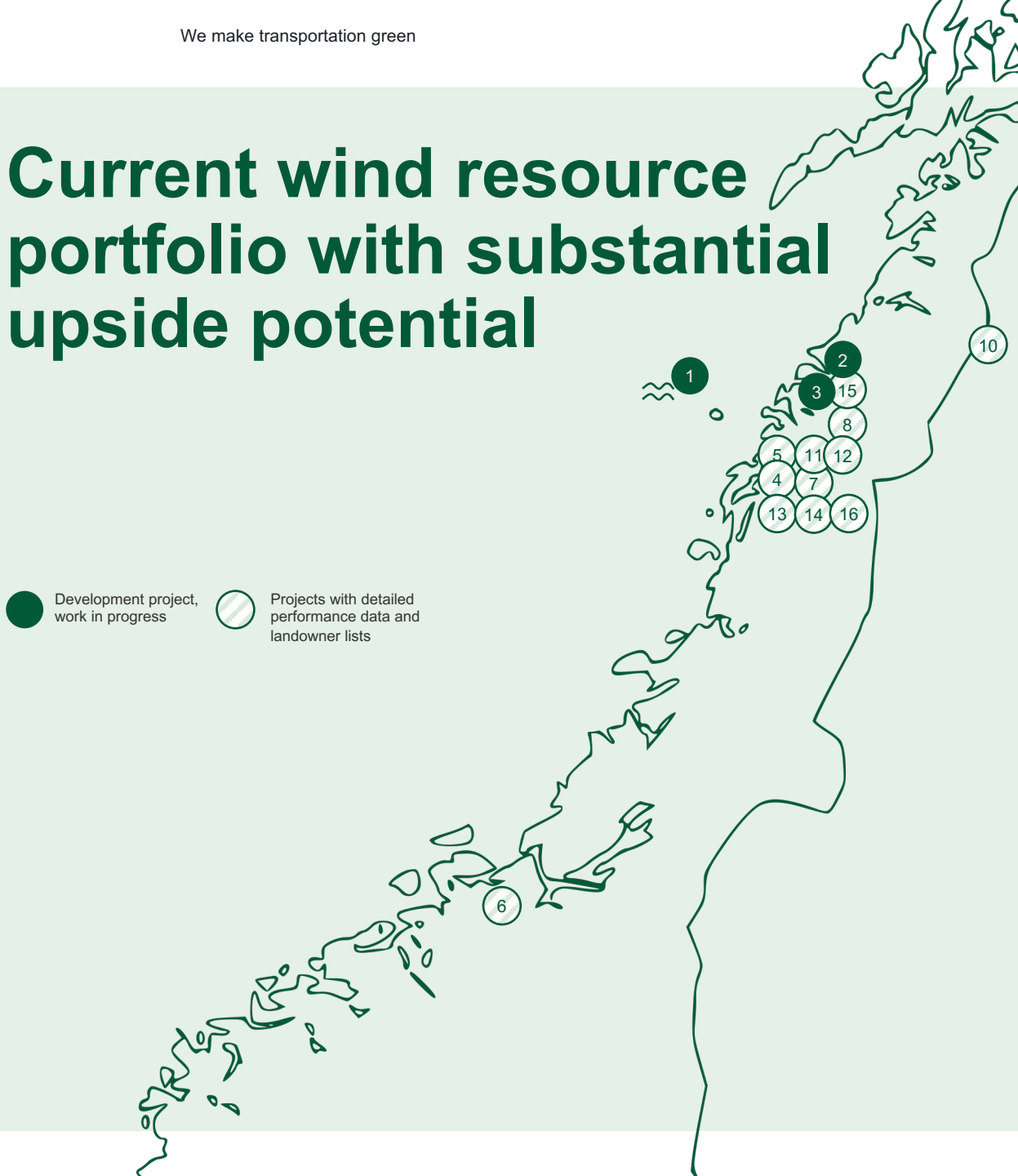
Investment cost	600	EUR million
Annual production capacity	200	million liters
Price according to Off-take LOI	2.25	EUR per liter
Revenue per year	450	EUR million
Operating costs	188	EUR million
EBITDA for 200M liter	262	EUR million
CAPEX / EBITDA	2.3x	

With our industrial footprint, we pursue development of wind resources, securing feedstock for our plants

- Through Nordic Wind we are developing offshore and onshore wind resources in Norway.
- Our portfolio consists of 10+ projects
- Strong synergies exist between wind power and green fuel activities.



Current wind resource portfolio with substantial upside potential



Overview of wind resources

Id	Project	Category	Location	Capacity MW	Stake %
Development Projects - Work in progress					
1	Selvær Offshore	Offshore	Træna	1,400	90%
2	Seiskålfjellet	Onshore	Rødøy	147	90%
3	Kvalhovudet	Onshore	Rødøy	33	90%
Subtotal Development Projects				1,580	
Projects with detailed performance data & landowner lists					
4	Stortuva	Onshore	Vefsn	70	90%
5	Kovfjellet	Onshore	Vefsn	57	90%
6	Gråudra	Onshore	Heim	180	90%
7	Hundålvassfjellet	Onshore	Vefsn	130	90%
8	Reinfjellet	Onshore	Vefsn/Grane	120	90%
9	Tuvfjellet	Onshore	Bindal	115	90%
10	Graddis	Onshore	Sweden	115	90%
11	Villtova	Onshore	Leirfjord	100	90%
12	Lifjellan	Onshore	Leirfjord	80	90%
13	Grytåfjellet	Onshore	Vefsn	65	90%
14	Blåfjella	Onshore	Vefsn	40	90%
15	Klettkovfjella	Onshore	Rødøy	20	90%
16	Korgfjellet	Onshore	Vefsn	70	90%
Subtotal Projects with detailed performance data				1,162	
Total				2,742	

Source: Nordic Blue Crude

Reputable partners and research bodies

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

MARQUARD & BAHLS

Shareholder

Founded	Employeees	Reach
1947	6 700	Global

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

ARVOS GROUP

Technology provider

Founded	Employeees	Reach
1910	1 700	Global

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

AkerSolutions

Technology integrator

Founded	Employeees	Reach
1841	15 000	Global

Aker Solutions has executed the Feasibility and Concept study together with NBC, and will commence on FEED.

EMERGING FUELS TECHNOLOGY

Technology provider

Founded	Employeees	Reach
2007	~73	Global

Emerging Fuels Technology (EFT) is a recognized authority on Fischer-Tropsch (FT), and their role is to verify and be the license partner our FT process model.

NTNU

Research provider

Founded	Employeees	Reach
1760	7 600	Norway

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

Exponential market growth for liquid green hydrogen fuel

Proven technology with a magic touch

Scalable concept with attractive economics

Highly experienced team and reputable partners

Nordic blue crude

Content

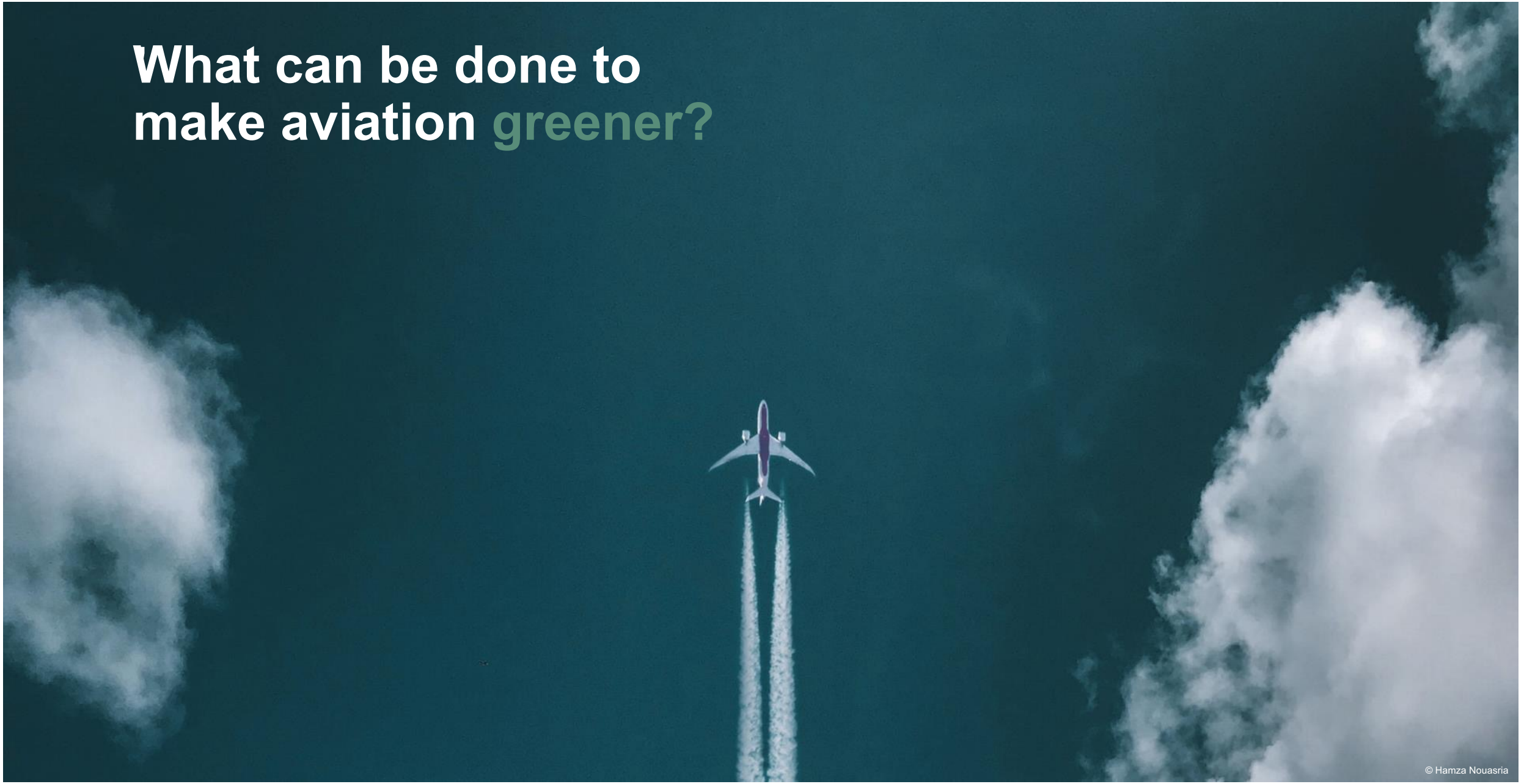
Appendix

Oslo > New York City >Oslo

Jet fuel consumption in liters	CO2 emissions in ton	Time required for a standard car to emit same CO2 amount
140k	356k	77 yrs

Source: Distance between Oslo-NYC is 5 931km. Figures above based on roundtrip Oslo>NYC>Oslo. 747-400 consumes 11.9 l/km. CO2 per liter jet fuel is 2.527 kg/l. According to US Environmental Protection Agency, a standard passenger car emits on average 4.6 ton CO2 per year.

What can be done to make aviation greener?



> I strongly believe that the use of hydrogen – both in synthetic fuels and as a primary power source for commercial aircraft – has the potential to significantly reduce aviation's climate impact.

September 21 2020

Guillaume Faury

Chief Executive Officer
Airbus

AIRBUS

Global jet fuel demand forecasted to increase by ~50% until 2050 relative to pre-Covid levels

The energy demand from aviation, being one of the hard-to-abate sectors, is likely to grow by 50% until 2050.

Alternative green fuel is necessary to reduce the CO2 footprint.

Global aviation CO2 emission in tons

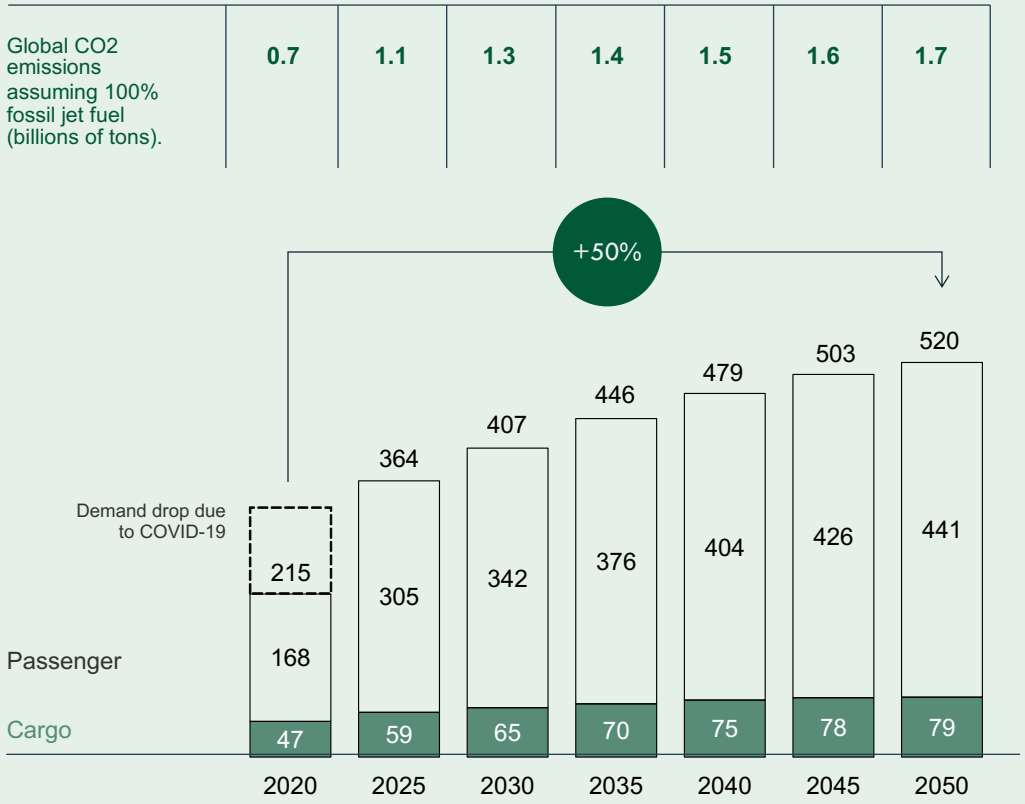
1bn

Share of global CO2 emissions

3%

Projection of global jet fuel demand

Million of tons



Source: Clean Skies for Tomorrow: Sustainable Aviation Fuels as a Pathway to Net-Zero Aviation. McKinsey and World Economic Forum (2020).

Transportation is off-track for EU climate targets

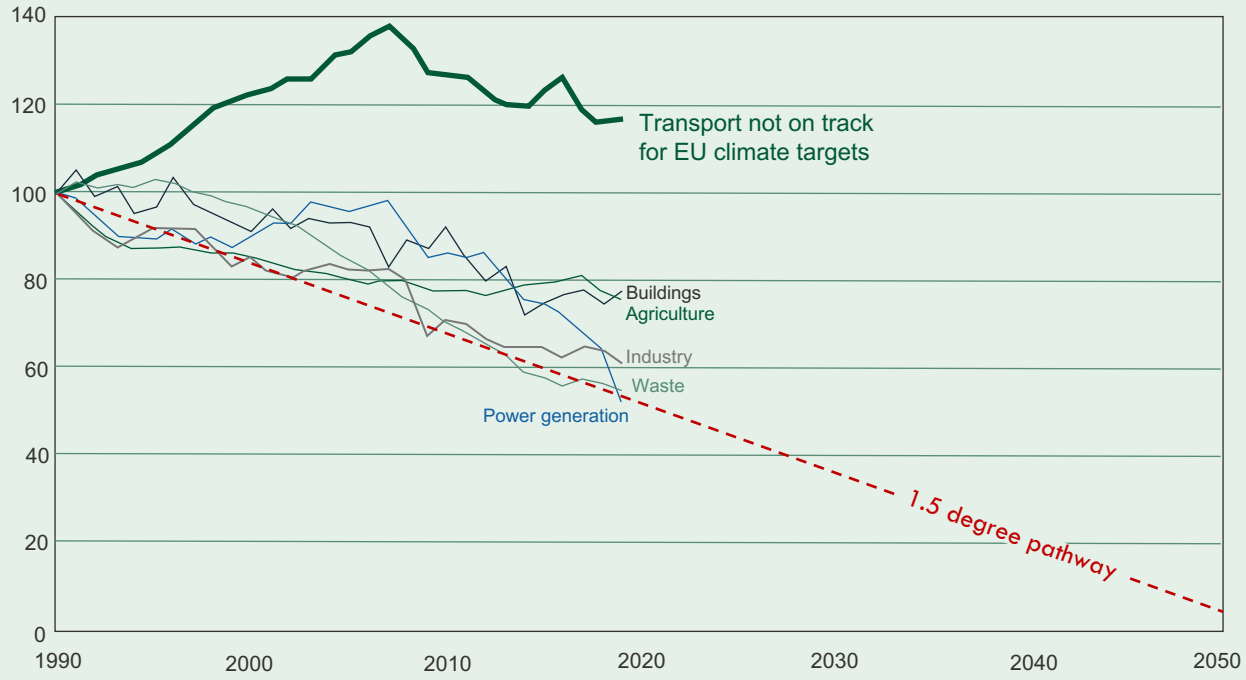
Rapid decarbonization is required in transportation to close the gap to a 1.5 degree pathway in Paris Agreement

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 25 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.

Sustainable aviation fuel will be key in decarbonizing the aviation industry

While battery and hydrogen technologies might become applicable for smaller aircrafts in commuter and short-range segments in the future, sustainable aviation fuel will be key in decarbonizing the aviation industry at scale – today and in the foreseeable future.

According to World Economic Forum and McKinsey, ~95% of CO_2 emissions stems from aircrafts in larger segments. Due to low energy density and technological challenges of battery and hydrogen technologies, sustainable aviation fuel will be the only viable option for long-haul aviation.

On the contrary to battery and hydrogen technologies requiring investments in aircrafts and fuel delivery infrastructure, sustainable aviation fuel is compatible with existing aircrafts and airport fueling infrastructure.

How to make aviation sustainable?

	Climate impact	Aircraft design	Aircraft operations	Airport infrastructure
Green aviation fuel	30-60% reduction	Only minor changes	Same turnaround times	Existing infrastructure can be used
Battery-electric	100% reduction	Low battery density limits ranges to 500-1000 km	Same or shorter turnaround times	Fast-charging or battery exchange systems required
H2 Fuel cell	75-90% reduction	Feasible only for commuter / short-range segments	1-2x longer refuelling times for up to short range	LH2 distrubtion and storage required
H2 Turbine	50-75% reduction	Feasible for all segments except flights > 10.000 km	2-3x longer refuelling times for medium and long range	LH2 distrubtion and storage required

Major challenge Major advantage

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

Four pathways for production of sustainable aviation fuel

Among the four alternatives, Power-to-liquid (PtL) provides the highest GHG reduction relative to fossil jet fuel. With its renewable power resources, Norway is a natural location for developing PtL.

Opportunities and challenges related to the four pathways for sustainable aviation fuel
Source: McKinsey and World Economic Forum

	Opportunity description	Technology maturity	Feedstock	% LCA GHG reduction vs fossil fuel
Power-to-Liquid	**Proof of concept 2025+, primarily where cheap high-volume electricity is available**	**In development. Nordic Blue Crude leading player**	**CO2 and green electricity. Unlimited potential via direct air capture. Point source capture as bridinging technology**	**99%**
HEFA	Safe, proven and scalable technology	Mature	Waste and redidue lipids, purposely grown oil energy plants. Potential to cover 5-10% of total jet fuel demand.	73-84%
Alcohol-to-jet	Potential in the mid-term, however significant techno-economical undertainty	Commercial pilot	Agricultural and forestry residues, municipal solid waste. High availability but fragmented collection.	85-94%
Gasification/FT	Potential in the mid-term, however significant techno-economical undertainty	Commercial pilot	Agricultural and forestry residues, municipal solid waste. High availability but fragmented collection.	85-94%

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

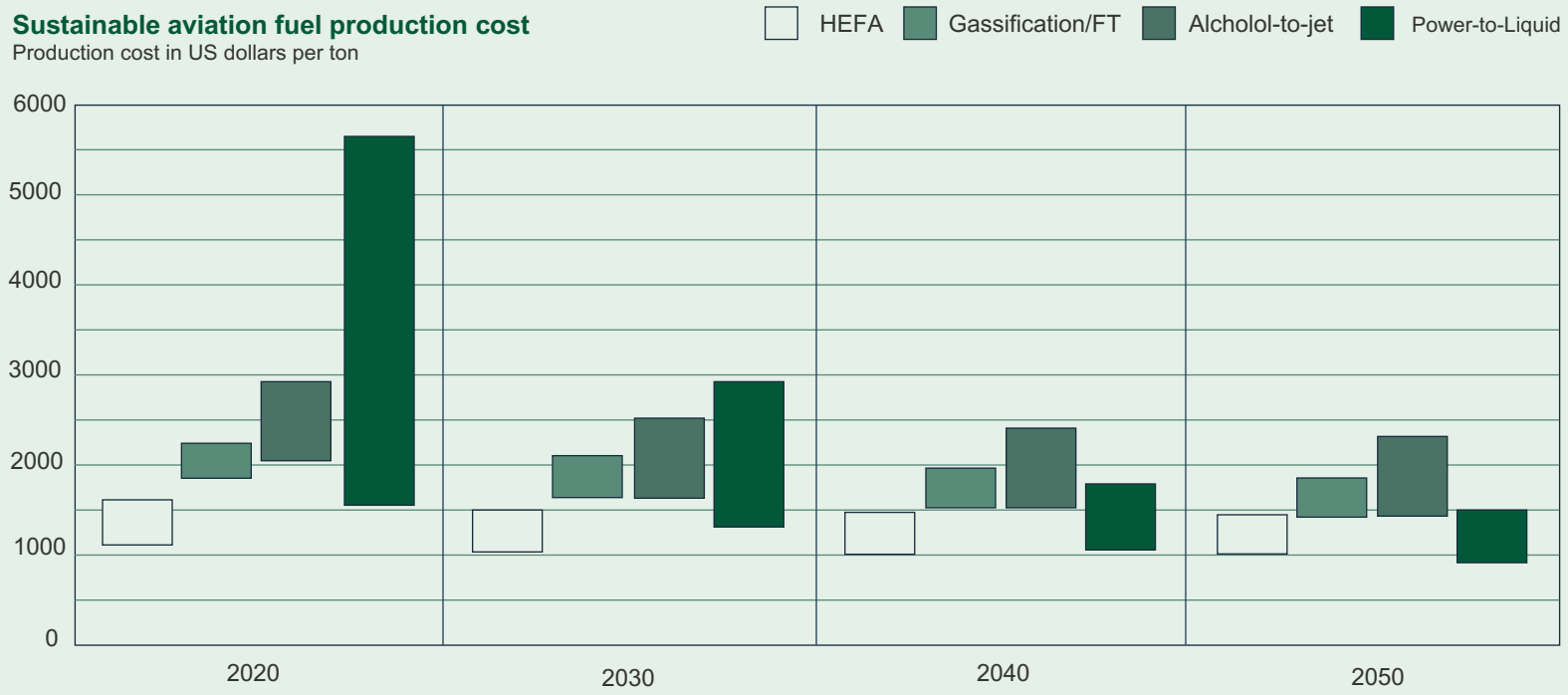
Power-to-Liquid expected to become the most cost competitive source for sustainable aviation fuel

PtL has significant cost reduction potential propelled by scale effects and technology advancements.

A large market for renewable power makes Norway an attractive market for developing Power-to-Liquid sustainable aviation fuel production.

Nordic Blue Crude is well positioned both in terms of first mover advantage, and technology and cost leadership.

Sustainable aviation fuel production cost
Production cost in US dollars per ton



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

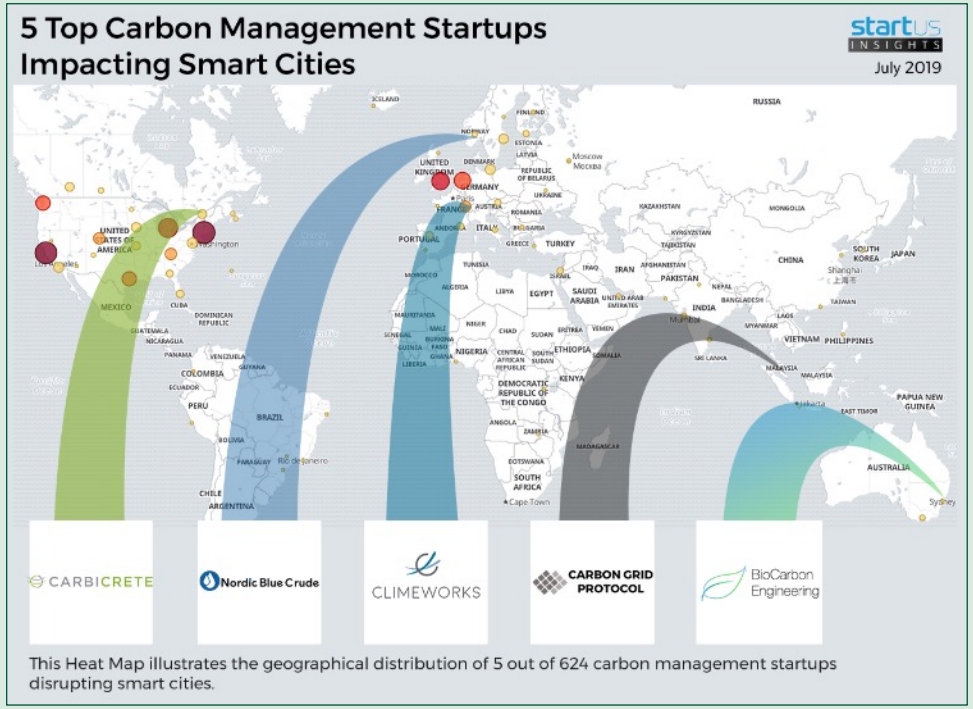
Awards

Picked top 5 (out of 624) carbon management startups to watch out for globally.

by StartUs Insights, 2019

StartUs Insights is a worldwide operating data science company headquartered in Austria.

https://www.startus-insights.com/



Awarded #2 best CO2 utilization project

by Nova Institute, 2018

Nova Institute is a leading research company within renewable fuel, focused on the transition of the chemical and material industry to renewable carbon.

http://nova-institute.eu/

In my opinion, Nordic Blue Crude is currently the leading initiative in reference to the industrialization of E-fuels.

Therefore I expect that it will be the first initiative to deliver sustainable E-fuels in an industrialized mass production.

August 27 2019

Daniel Böhner

Audi E-fuel project
AUDI AG

Highly experienced team with strong execution power

NBC has a highly experienced team of seven professionals. The team has on average 30+ years of professional experience, combining expertise in research and development, project management, renewables and investment banking.

Team members

6

Average years of professional experience

30+

Core team overview

Gunnar Holen

CEO
30+ yrs

Tom H. Sundby

CFO
25+ yrs

Rolf Bruknapp

Founder
30+ yrs

Rune Løvstad

Project Director
30+ yrs

Bjørn Bringedal

Chief Technical Officer
30+ yrs

Terje Dyrstad

CEO, Nordic Wind (100% NBC)
30 yrs

Professional Board of Directors

NBC has a highly experienced Board of Directors, with members holding extensive management and board experience from listed and non-listed companies.

Board members

5

Average years of professional experience

30+

Overview of Board of Directors

Rolf Bruknapp

Chairman

Harald Norvik

Board Member

Ronald Tuft

Board Member

Markku Korvenranta

Board Member

Håvard Lillebo

Board Member