

A composite background image featuring a snowy mountain range, a city skyline at dusk, wind turbines, and an offshore oil rig in the sea.

THE ROLE OF LARGE SCALE HYDROGEN

HYPER Closing Seminar 10 - 11 December 2019

Renaissance Brussels Hotel, Brussels, Belgium

SINTEF – One of Europe's largest independent research organisations

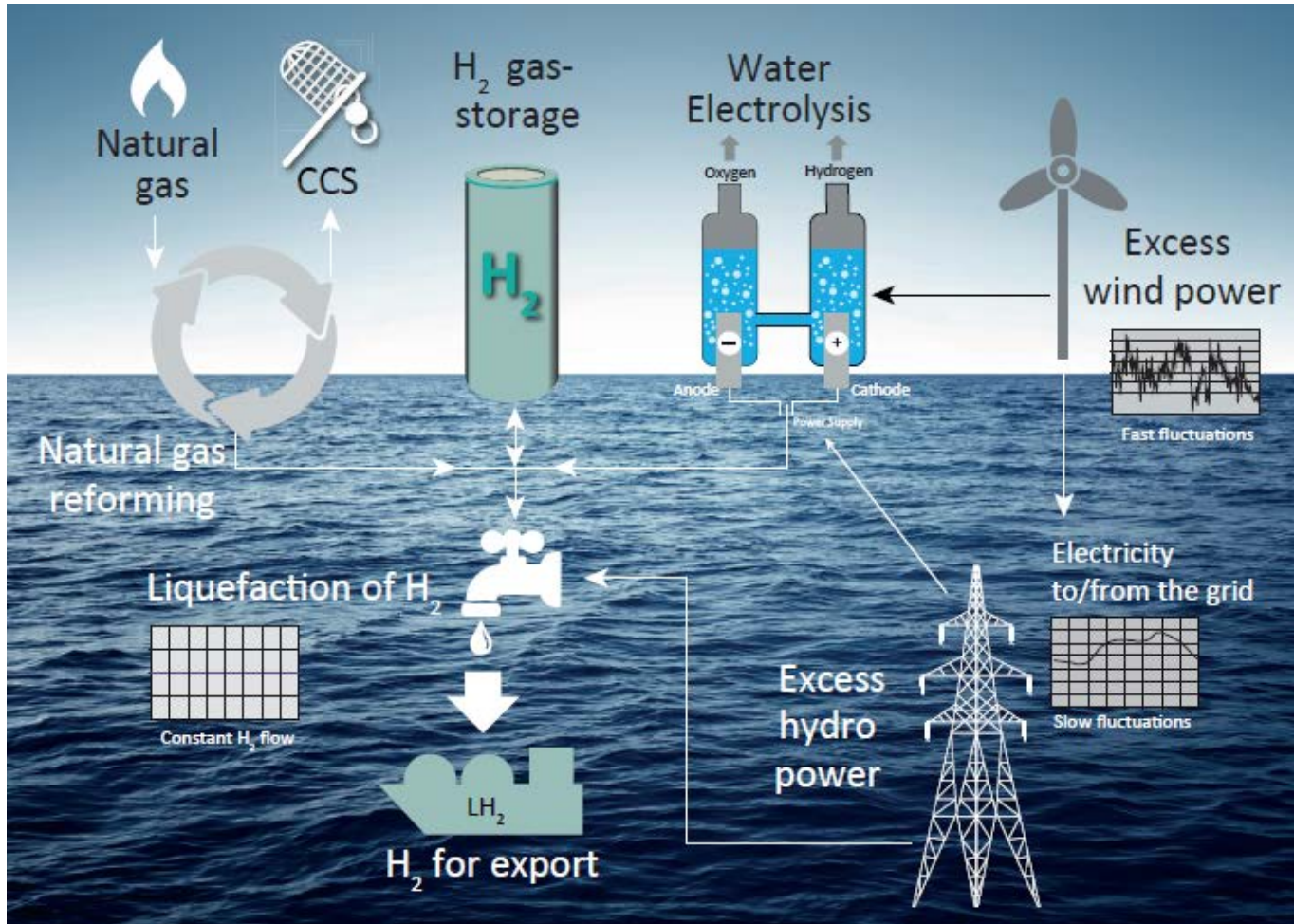


NOK 3.3 billion
Revenues

NOK 410 MILL
International sales

Hyper

Liquefied hydrogen production from surplus wind/hydro power and fossil sources in Norway



The Institute of Applied Energy



Powering your potential



With funding from
The Research Council of Norway

1. Security of supply

ENERGY

2. Cost

3. Environmental footprint



Programme day 1 – The role of large-scale hydrogen

09:00	Welcome and setting the scene	Sigmund Størset, <i>Research Manager, SINTEF Energy Research</i>
09:10	Hyper idea and concept	Petter Nekså, <i>Chief Scientist, SINTEF Energy Research</i>
09:30	EU-perspective on the role of hydrogen	Tudor Constantinescu, <i>Principal Advisor to The DG for Energy</i>
09:50	Hydrogen in a global perspective	Claude Heller, <i>Director R&D Programs, Air Liquide</i>
10:10	Coffee break	
10:40	The future of hydrogen by IEA	Simon Bennett, <i>Energy Supply and Investment Outlooks, IEA</i>
11:00	Norwegian National Hydrogen Strategy	William Christensen, <i>Deputy Director General, Norwegian Ministry of Petroleum and Energy</i>
11:20	Hydrogen Europe perspective	Nicolas Brahy, <i>Director, Hydrogen Europe</i>
11:40	Value chain analysis of liquefied hydrogen, ammonia and pipeline for long distance hydrogen transport	Yuki Ishimoto, <i>Senior Researcher, Inst. of Applied Energy</i>
12:00	Comparative techno-economic assessment of low-CO ₂ hydrogen production technologies	Stefania Gardarsdottir, <i>Research Scientist, SINTEF Energy Research</i>
12:20	LUNCH	
13:10	The role of hydrogen to balance increased variable renewables	Philipp Härtel, <i>Researcher, Energy Economics and System Analysis, Fraunhofer IEE</i>
13:30	Integration of renewables in large scale hydrogen production	Magnus Korpås, <i>Professor, NTNU</i>
13:50	Equinor - The role of hydrogen in decarbonisation	Hege Rognø, <i>Manager R&T Energy Systems, Equinor</i>
14:10	Coffee Break	
14:30	Linde - Latest Global Trend in Liquid Hydrogen Production	Lutz Decker, <i>Linde Technologist, Linde Kryotechnik</i>
14:50	Nel Hydrogen – Scaling up electrolyser manufacturing by 10x – causes and effects	Bjørn Simonsen, <i>VP Investor Relations and Corporate, NEL Hydrogen</i>
15:10	Kawasaki HI - Status of the Hydrogen Energy Supply Chain Project	Yoshichika Taira, <i>Hydrogen Project Development Center, Corporate Technology Division, Kawasaki Heavy Industries</i>
15:30	Gassco - Sustainable development program - hydrogen	Svein Erik Losnegård, <i>Principal Engineer, Gassco</i>
15:50	Panel discussion with industry and policy makers	Moderator: Sigmund Størset, <i>Research Manager, SINTEF Energy Research</i>
16:30	END	
18:30	DINNER at Restaurant Il Pasticcio – Rue Marie de Bourgogne 3, Brussels 1050	

Programme day 2 – Hydrogen technology

09:00	Wrap-up Day 1	Sigmund Størset, <i>Research Manager, SINTEF Energy Research</i>
09:15	Concepts for efficient hydrogen production and liquefaction	Øivind Wilhelmsen, <i>Senior Research Scientist, SINTEF Energy Research</i>
09:40	Importance of the heat exchangers in hydrogen liquefaction	Geir Skaugen, <i>Research Scientist, SINTEF Energy Research</i>
10:05	Hydrogen Expanders and Pumps	Simon Hautdidier, <i>Head of Sales, Marketing and Project Execution, Cryostar</i>
10:25	Economies of hydrogen production by electrolysis from wind and grid power	Espen Flo Bødal, <i>PhD Candidate, NTNU</i>
10:45	Coffee break	
11:05	Liquid hydrogen storage tank technology	Lutz Decker, <i>Linde Technologist, Linde Kryotechnik</i>
11:25	Salt cavern storage of hydrogen	Dilara G. Caglayan, <i>PhD candidate, Forschungszentrum Jülich GmbH</i>
11:45	Hydrogen production from natural gas with very low CO ₂ intensity	Julian Straus, <i>Research Scientist, SINTEF Energy Research</i>
12:05	Hydrogen safety, liquid and gaseous, issues and knowledge gaps	Simon Jallais, <i>R&D Engineer, Air Liquide</i>
12:25	Discussion and wrap-up	All
12:45	LUNCH	
13:30	SCM #8 of Hyper (by invitation)	Steering Committee members
16:00	END	

A satellite night view of Europe, showing the continent illuminated by city lights. The lights are concentrated in major urban centers and along coastlines, creating a glowing pattern against the dark background of the land and sea. The text is overlaid on the left side of the image.

Clean hydrogen used at large-scale
is an **opportunity** for Europe.



Technology for a better society