



Hydrogen Roadmap

Oslo, April 15, 2021

- **Key drivers of structure**
- **What is a “hub”**
- **Challenge to the players**

Everfuel – the green hydrogen fuel company

Making hydrogen happen, starting in Scandinavia

- ❑ Everfuel is connecting the **complete value chain to commercialize hydrogen fuel** across Europe by adding innovations and removing inefficiencies
- ❑ Ambition of establishing a **Scandinavian fueling network** with **40-50 public hydrogen stations by 2023**, enabling transport in and between major cities and corridors
- ❑ Engaging in **close dialogue with end-users and OEMs** to develop the optimal roll-out of dedicated hydrogen stations
- ❑ Aligning end-user and OEM requirements, timelines and budgets to **optimize pilot deployment program** for accelerated transition to **zero-emission mobility**



**Power
generation**

Strategic integration
potential



**Hydrogen
production**

Can be owned by Everfuel
or partners

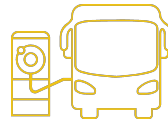


**Hydrogen
distribution**

Always owned/controlled by Everfuel



**Hydrogen
stations**



**Hydrogen
fueled vehicles**

Strategic opportunities via
partnerships and services

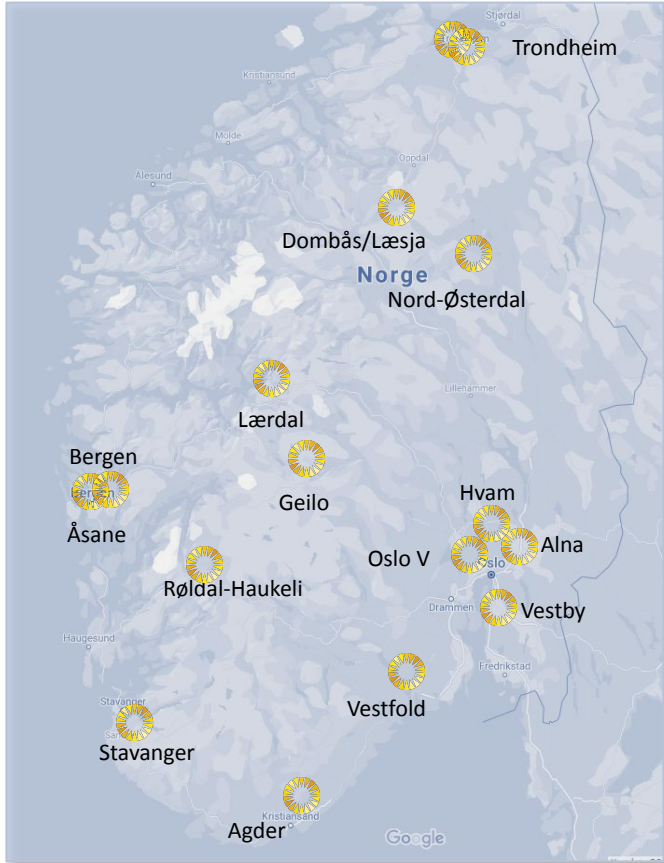


Initial target markets



Following markets

Preliminary 2023 Norway station network



- ❑ Minimum coverage
- ❑ Exact locations are pending alignment with customers on roll-out plans
- ❑ Alignment with Sweden, Denmark and the rest of EU ongoing

Important drivers of structure – beware of what you are hunting for

Factor

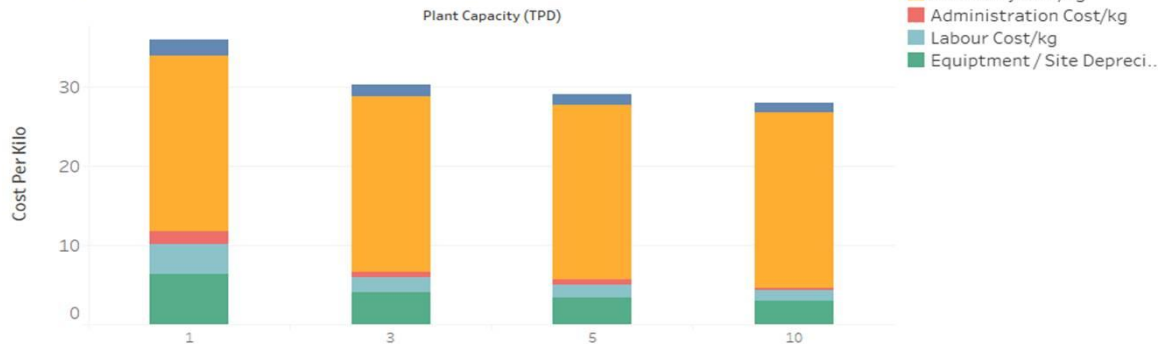
Importance

- ☐ Scale in hydrogen production
- ☐ Power price and power availability
- ☐ Logistics
 - In electrical power distribution
 - In hydrogen distribution
- ☐ Technology and technology-mix



Production scale effects in current electrolysis quickly level out at 4-6 Mt/day

Cost Per Kilo H2
Assuming Full Capacity Use



Capital Costs
*Without On-site Storage

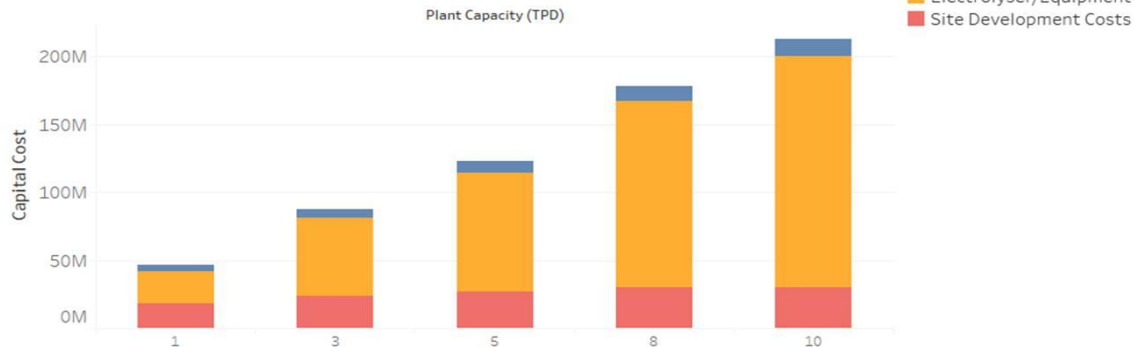
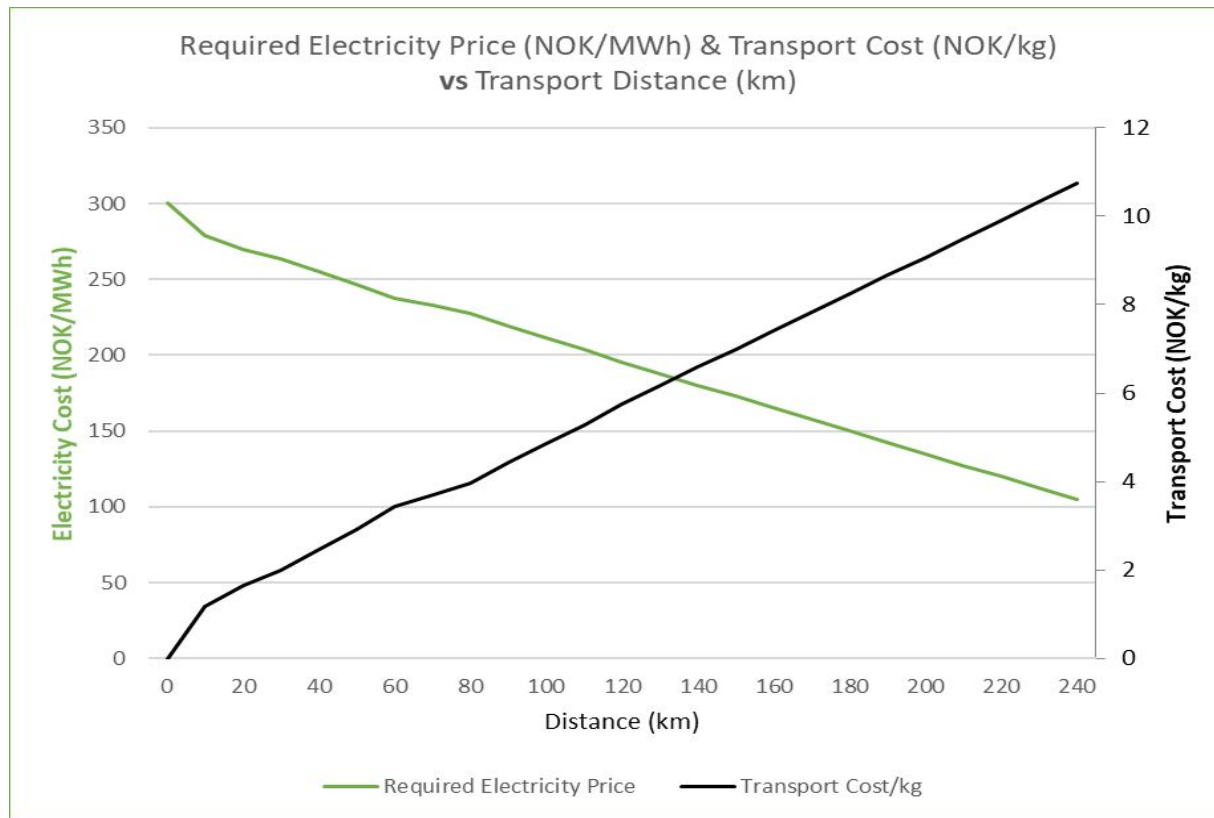



Illustration of the opposing cost of El vs logistics (Not an equilibrium curve!)



«What is a Hub» must start bottom up and not limit further initiatives

Size and complexity



Large scale fully integrated blue hydrogen mega site

- Gas reformation w/CCS
- Ammonia etc.

Large scale fully integrated Industrial green hydrogen site

Fully integrated mid size green hydrogen site

Diversified 700/350 bar site with redundancy

To policy makers

Industrial initiatives must drive the selection of locations based on clear guidelines

- not political ideas

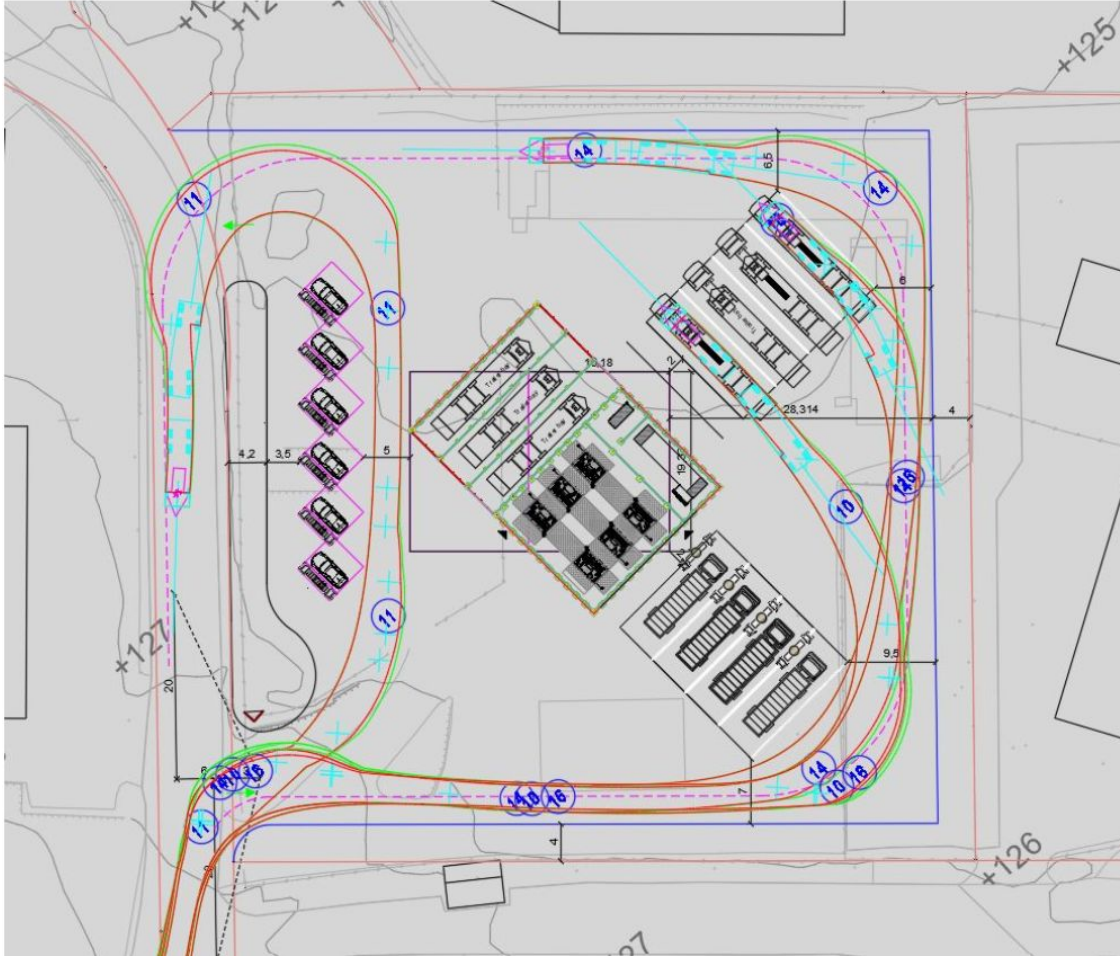
Policy level – Say:

- We want to support site development based on sound industrial initiatives and “100 % zero”
- We want to support production, fuelling and charging infrastructure for both PV and HD
- Local availability of H2 will spur adoption in further applications that cannot justify scale alone

Regulation

- + CO2 cost without compensation but gradual
- Public purchasing requirements
- Willingness to pay

A large diversified fuelling and charging site is just an example on the complexity scale



Challenges for the players

Entity	Challenge
Politicians	Dare to set direction for the pace and ambition for the green shift Allocate funds to Enova to match European levels
Grid companies	Guide on ideal locations for local H2 production to balance the grid and avoid unnecessary “Monsternaster” and CO2 footprint
Power companies	Share the value of balancing to support H2 competitiveness
Enova	Execute on the political ambition and direction <ul style="list-style-type: none">- Project development cost- Investment support – Hi to Lower- Why is EU more ambitious and flexible