



National Value Chain for Green Hydrogen

29. November 2019

Pål Tveitevåg – Head of Electrification



BKK – The largest renewable company on the western coast



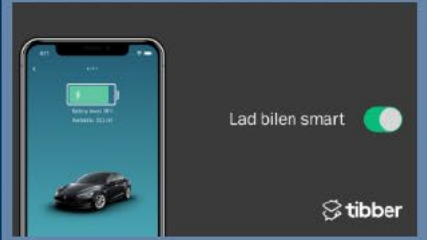
Production



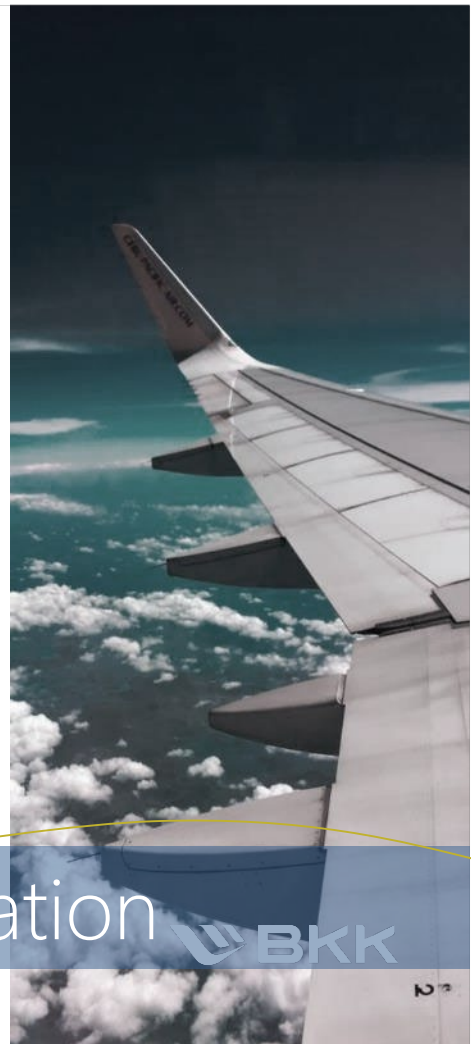
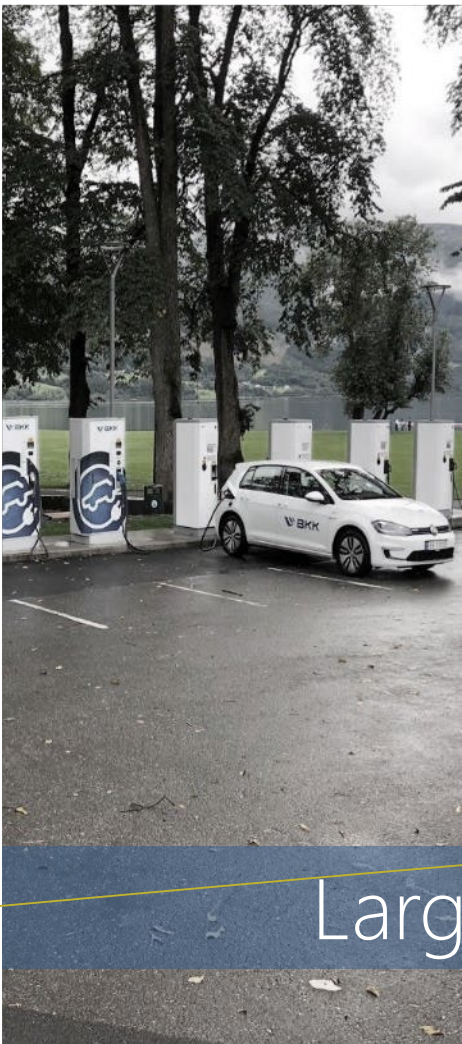
Grid



Construction



Innovation &
Research

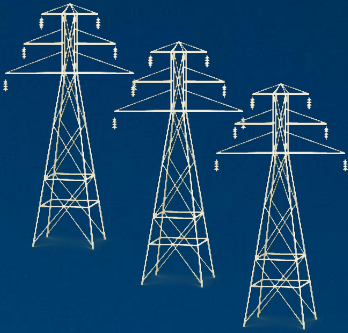


Largest in Norway on electrification



BKKs part within electrification is to develop, build, own and operate infrastructure between the grid and customer.

GRID



 **BKK**



CUSTOMER



 **BKK**

Charging infrastructure for the future

Charge at home – on the road – at work



50kW / 350 kW
to beat fossil refueling

- “Gasstation” behavior
- Higher density, better utilization



3,6 kW while parking

- Load balancing
- Time of use adjustments
- V1G/V2G



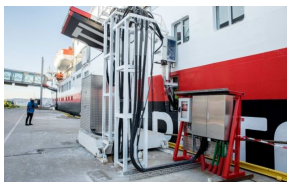
Supply



Cruise



Coastal Express



Cargo



Fast Ferrys



Fishing



Sightseeing



PLUS

Accelerate the development of shore power in Ports.

PLUS Bergen



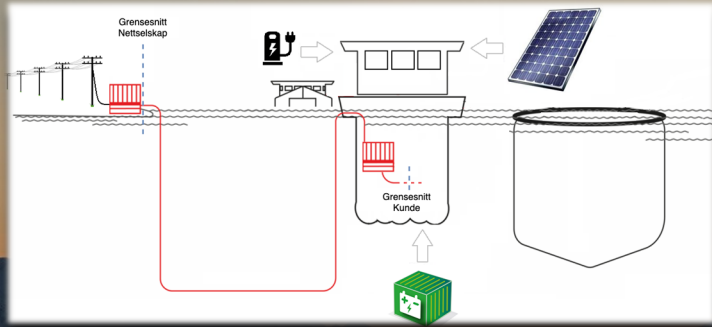
PLUS Ålesund



Port +  BKK =  Port



Electrification of fishfarms



- BKK develops, owns and operates Infrastructure for the fishfarm (shore power, batteries, solar panels etc.)
- BKK in charge of operation and maintenance
- Customer pays an annual fee(10 Years)

BKK and Hydrogen:

- **Part of our electrification strategy**
- **Zero emission for the transport and maritime sector. Where batteries are not enough**
- **Contribute to the realization of a large-scale Hydrogen production in Norway**
- **Contribute as a partner in Pilot E application**
- **Actively work with framework conditions**
- **Invest in profitable Hydrogen production**





Established a
Consortium for
Hydrogen



Norsk marked for flytende hydrogen 20-30 tonn/ dag fra 2024



Flytende hydrogen for fremtidens maritime marked



**3-4 GANGER HØYERE ENERGITETTHET
ENN TRYKKSATT HYDROGEN**



**FÆRRE LEKKASJEPUNKTER
OG LAVERE TRYKK**



4-5 GANGER RASKERE BUNKRING



LAVERE LOGISTIKKOSTNADER



**MARITIM SERTIFISERING
FORDEL FOR LH2**



**STORSKALA LITEN FORSKJELL I
PRODUKSJONSKOSTNADER**

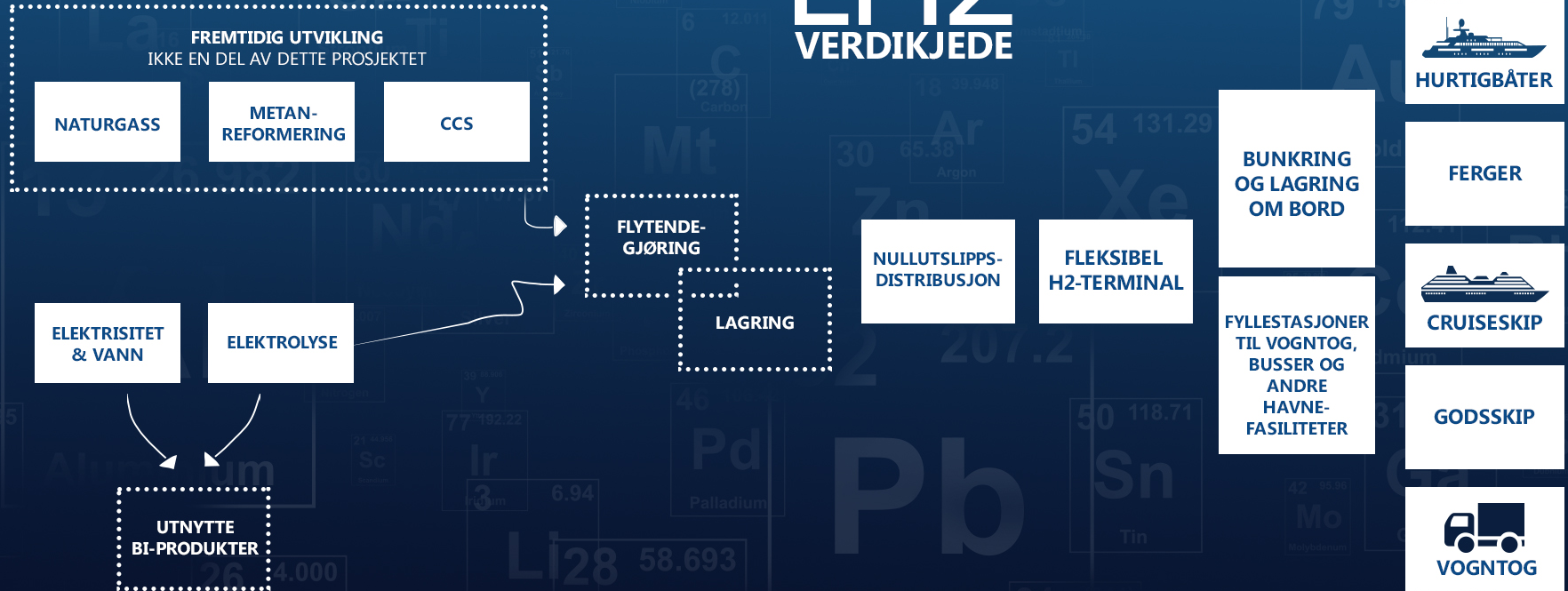


**MINDRE SKALA, ISOLERTE PROSJEKTER
FUNKERER MED TRYKKSATT HYDROGEN**

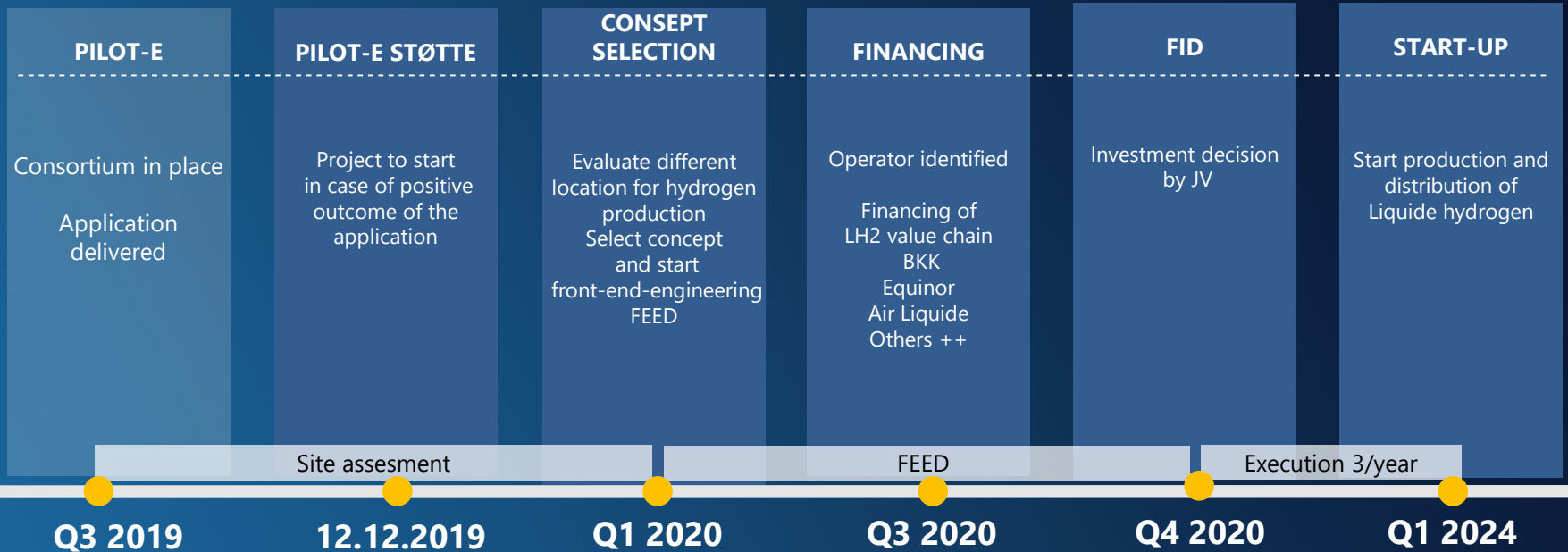


**LH2 TILBYR BEDRE DRIFTSLØSNINGER - OG MED
STORSKALA PRODUKSJON, LAVERE KOSTNADER**

LH2 VERDIKJEDE



PROJECT PLAN // MILESTONES



● Main Milestones ■ Activities between milestones



Vi skaper en bærekraftig framtid

SKIPET