



Foto: Harald M. Valdeirmaug

Clean and Silent

HYDROGEN 15 - Prospect

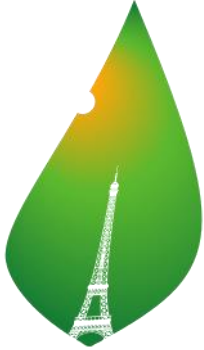


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Norwegian emission reduction targets



PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21·CMP11

40% CO₂ emission reduction by 2030



**REQUIRE
INSTANT ACTION**



PHOTO: www.norled.no



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Gasnor

PART OF THE SOLUTION



H2

HYDROGEN

Production and distribution
of green (renewable)
hydrogen



ZERO EMISSION

Contribute to zero emission
solutions for ferries and
high speed passenger
vessels



RENEWABLE

Contribute to clean,
renewable-based industry
building and energy
production



NEW WORKPLACES

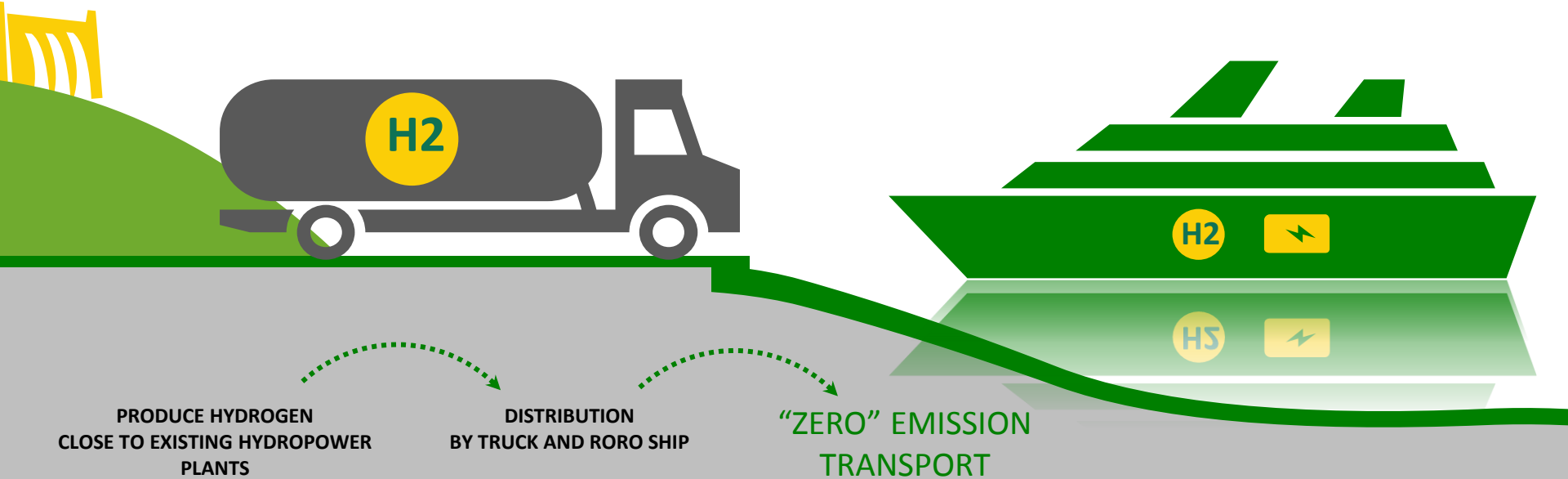
Create new green
workplaces in
Norway



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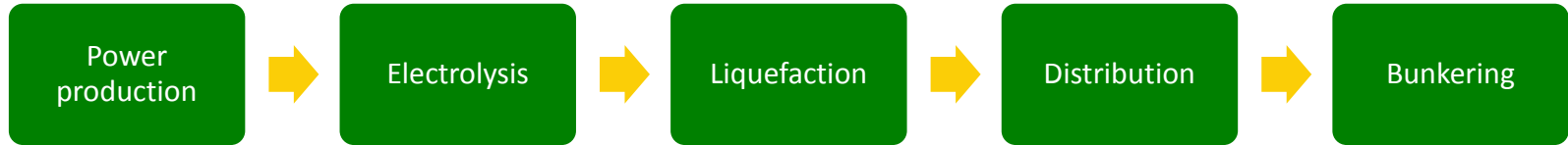
HYDROGEN FOR ELECTRIC PROPULSION

Hydropower > Gas > Hydropower onboard





Value Chain





Hydrogen pricing



AMBITION:

**COST COMPETITIVE
PRICING**

TO ALTERNATIVE FUELS



Early users

TYPICAL MARITIME CUSTOMERS



Ferries



High speed
passenger vessels



Coastal shipping
(Kystruten)



Coastal shipping
(Line transport)

Estimated hydrogen demand 2030 (tonnes H₂/year):

| CAR FERRIES | OFFSHORE | KYSTRUTEN | CRUISE | SERVICE/OTHERS | HIGH SPEED PASSENGER |
|-------------|----------|-----------|--------|----------------|----------------------|
| 10 000 | 2 500 | 2 000 | 1 200 | 1 200 | 1 000 |

= total of 18 000 tonnes H₂/year



Early users

TYPICAL ROAD/RAIL CUSTOMERS



Heavy transport



Bus



Rail

Estimated hydrogen consumption 2025 and 2030 (tonnes H₂/year):

| HEAVY TRANSPORT | | BUS | |
|-----------------|--------|-------|-------|
| 2025 | 2030 | 2025 | 2030 |
| 12 800 | 29 000 | 1 300 | 7 000 |

= total 37 000 tonnes in 2030



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Build H2 production and distribution

