

PUMPCHARGER AS

Investor Summary

A practical, low-risk technology enabling ~99% CO₂ capture and lower fuel consumption for the world's large internal combustion engines.

THE OPPORTUNITY

A global, urgent need for practical CO₂ reduction

Large internal combustion engines — marine and stationary — are responsible for massive CO₂ emissions. Regulations (EU ETS, FuelEU Maritime, IMO) are tightening rapidly.

PUMPCHARGER AS HAS DEVELOPED A SIMPLE, LOW-RISK, HIGH-IMPACT TECHNOLOGY THAT ENABLES:



~99%

CO₂ capture



Zero

NO_x emissions



Retrofit

capable on existing engines



900–1000

NOK per tonne CO₂ captured

~40% less expensive than amine-based capture — and requires no chemicals.

THE TECHNOLOGY

Synthetic air, unlocking direct CO₂ capture

Pumpcharger replaces atmospheric air with a controlled mixture of O₂, CO₂ and H₂O (“synthetic air”). The engine operates normally, but the exhaust contains only CO₂ and H₂O — enabling direct CO₂ capture by condensation.

**Only commercial components**

Nothing exotic to source or qualify

**The only change is synthetic air**

Engine hardware stays the same

**No new materials or chemistry**

Standard gases, standard engineering

**Low technical risk**

Builds on proven components

**Compatible with existing engines**

Retrofit-first design philosophy

**Scalable from 1–90 MW**

Stationary, marine and heavy-duty

A practical, near-term decarbonization solution.

MARKET SIZE

A vast, underserved installed base

Every one of these installed engines is a candidate for Pumpcharger retrofit.



STATIONARY ENGINES

~1,000,000

estimated units



MARINE ENGINES

~80,000

estimated units



HEAVY-DUTY ENGINES

Millions

estimated units

BUSINESS MODEL

Multiple, complementary revenue streams

Pumpcharger AS will generate revenue through:



Sale of synthetic-air systems



Retrofit packages



Licensing to engine builders



Service and maintenance



CO₂ capture modules



Future high-O₂ performance upgrades

The model scales globally with low marginal cost.

COMPETITIVE ADVANTAGE

A combination unmatched by competing technology

**Cost**

900–1000 NOK/t CO₂ vs. 1500–1700 NOK/t CO₂ for amine

**Simplicity**

No chemicals, no absorber towers, no regeneration heat

**Retrofit**

Works with existing engines

**Regulatory fit**

Directly aligned with EU ETS, FuelEU Maritime, IMO

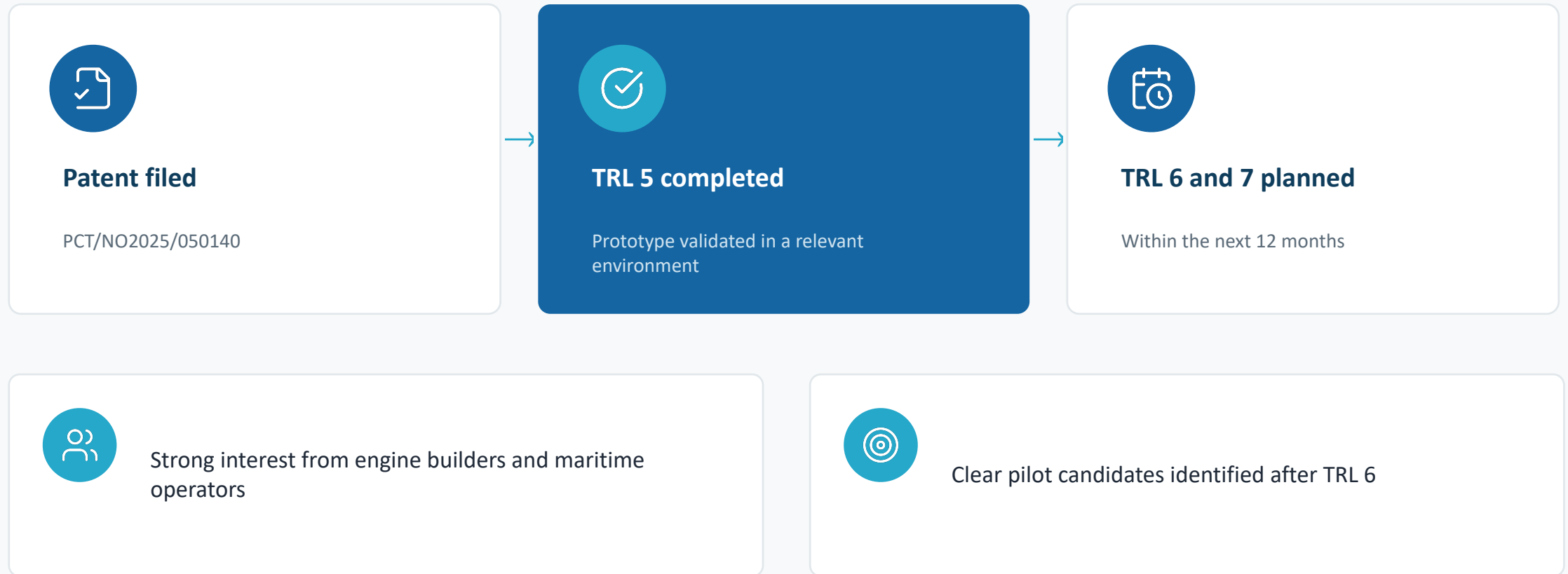
**Zero NOx**

Unique advantage in ECAs and coastal zones

This combination is unmatched by any competing technology.

TRACTION AND READINESS

De-risked and moving fast



Compelling per-engine economics

CO₂ EMISSIONS AVOIDED

95,000–100,000

tonnes / year

CO₂ TAX SAVINGS

140–150

MNOK / year (at 1,500 NOK/t)

NET BENEFIT PER ENGINE



~50–60 MNOK / year

Tax savings – capture cost

WHY INVEST NOW

A rare window to lead a global category



Regulatory pressure is accelerating



Market is enormous and underserved



Technology is low-risk and near-commercial



Norway has a unique competitive advantage



Internationally patentable according to the Patent Cooperation Treaty (PCT)



TRL 6 is the final step before pilots and revenue

Pumpcharger is positioned to become a global leader in practical CO₂ capture for engines.