



Fhycamite

WEC: Vedyn tuottaminen metaanin
hajoittamisen avulla

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A DEEP-TECH STARTUP ON CLEAN HYDROGEN AND HIGH-QUALITY CARBON

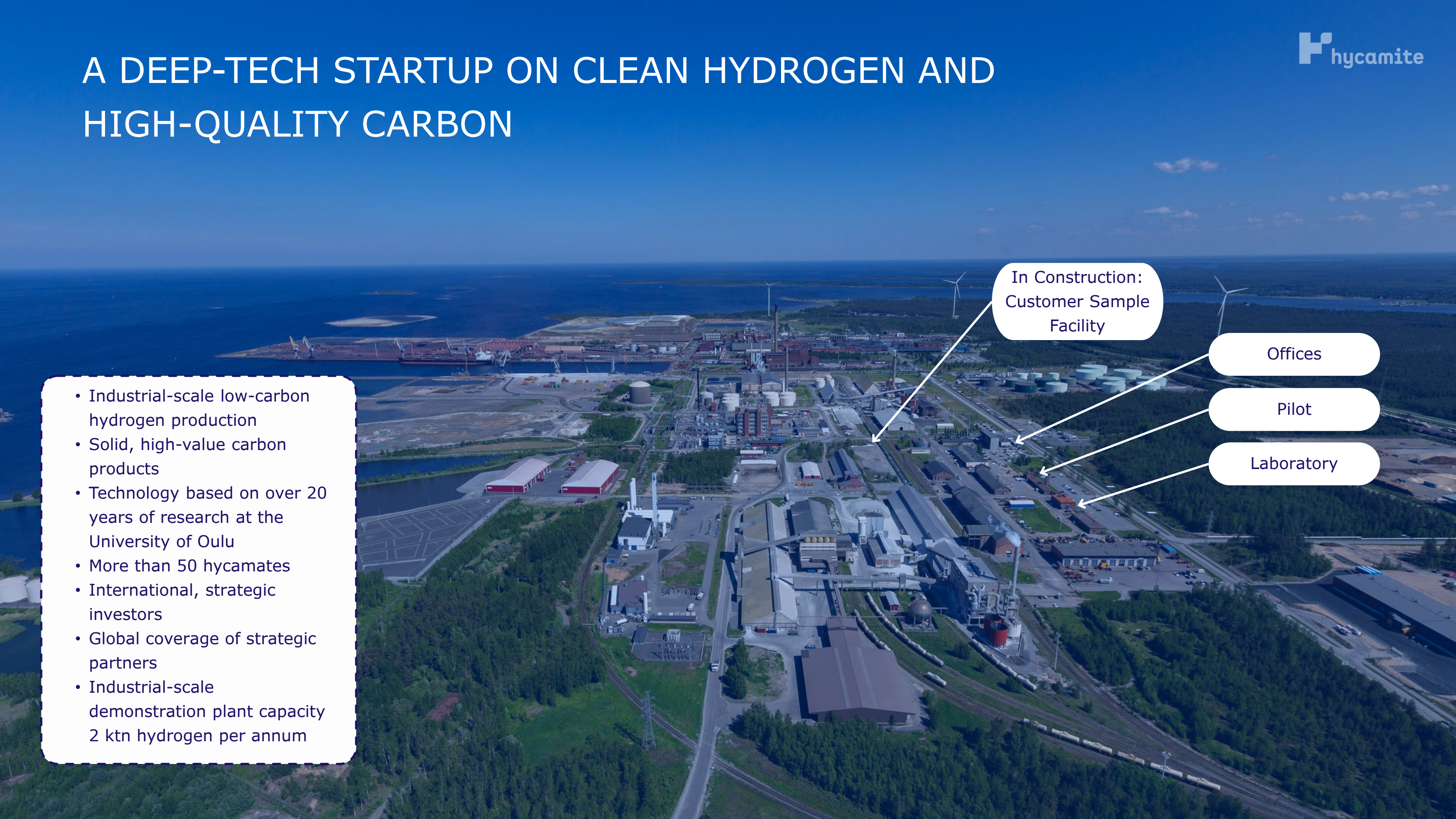
- Industrial-scale low-carbon hydrogen production
- Solid, high-value carbon products
- Technology based on over 20 years of research at the University of Oulu
- More than 50 hycamates
- International, strategic investors
- Global coverage of strategic partners
- Industrial-scale demonstration plant capacity 2 ktn hydrogen per annum

In Construction:
Customer Sample
Facility

Offices

Pilot

Laboratory



METHANE SPLITTING (THERMOCATALYTIC METHANE DECOMPOSITION)

Hydrogen and solid carbon

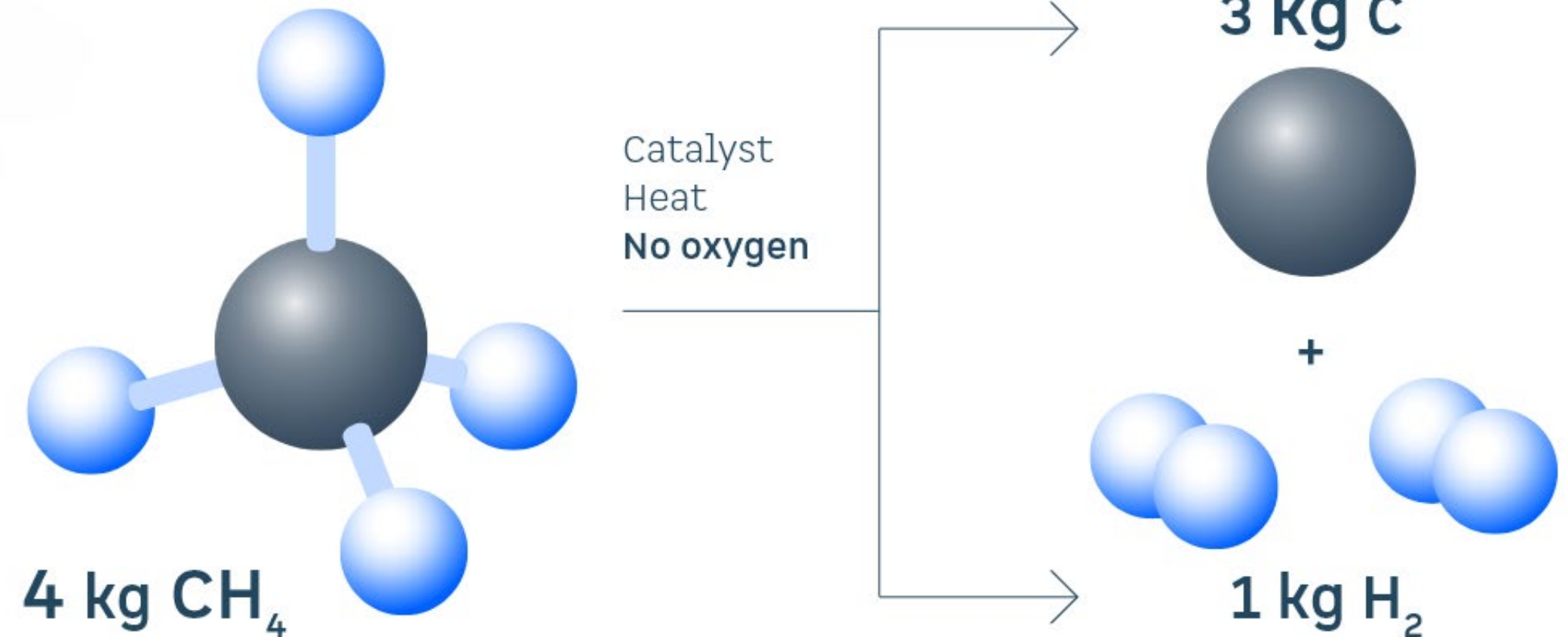
- Methane from natural gas or biogas
- No CO₂ emissions from the process

Total life cycle emissions

- less than 1 kgCO₂e/kg
- Negative if biogas is used as feedstock

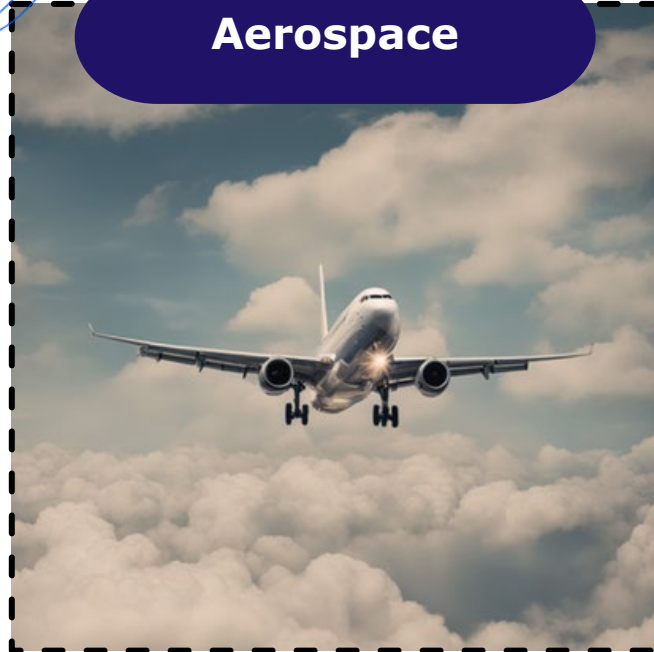
Applications for solid carbon

- The carbon can be further processed into synthesized graphite
- Steel industry; as an additive and in slag formation
- Replace part of the cement
- Electroconductive applications: batteries, supercapacitors, polymers
- Soil improvement material



BALANCED APPLICATION PORTFOLIO FOR THE CARBON PRODUCTS

Aerospace



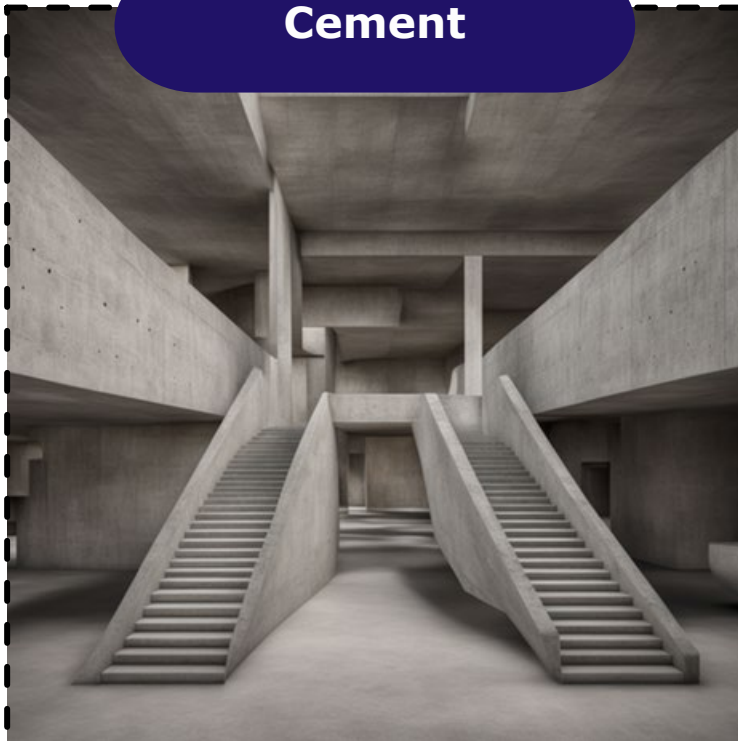
Automotive



Polymers



Cement



Supercapacitors



CUSTOMER SAMPLE FACILITY

**2 kt of H₂ &
6kt of solid carbon**
production capacity

18 kt CO₂ p.a.
emission reductions
(compared to SMR)

2024
Operational

**Three different
reactors for testing**
2 industrial
1 marine



Kokkola, Finland

Partners



KEY BENEFITS OF THE TECHNOLOGY

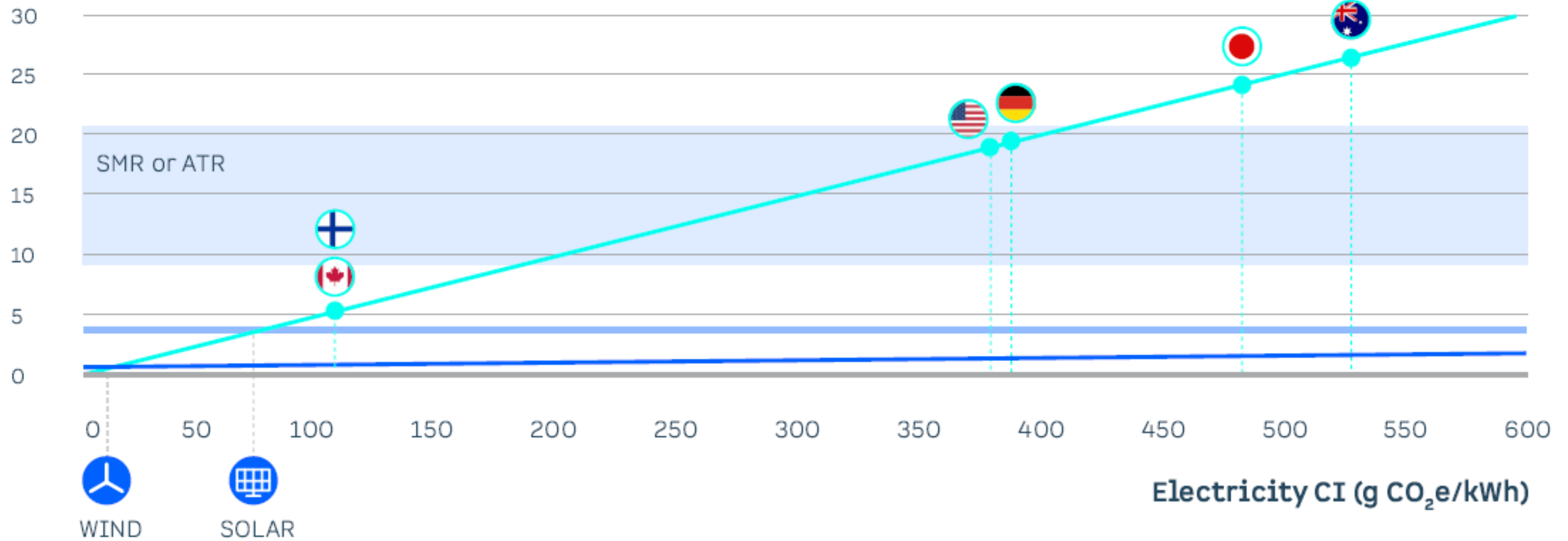


Benefits

- The high-value carbon product serves as a secondary revenue stream
- The plants can be built next to the hydrogen customer
 - No need for additional infrastructure (H₂ , CO₂ , power)
 - Enables the use of waste heat from the customer
 - Easier permitting process
- Scalability
 - Even up to 100's of kton hydrogen per annum
- Energy efficient process
 - Only 1/8th of the energy the electrolyzers need to produce the same amount of hydrogen
 - Approximately half of the energy needed as heat
- Possibility to reach negative emissions via the use of bio-feedstock

EFFECT OF THE CARBON INTENSITY OF ELECTRICITY

Footprint (kg CO₂e/kg H₂)



■ Electrolysis
 ■ Hycamite*
 ■ Low-carbon hydrogen limit***
 ○ Grid averages

* ourworldindata.org/grapher/carbon-intensity-electricity

** Hycamite's emissions are based on the EU LNG mix (upstream) and the shown electricity CI

*** EU renewable H₂ and Japan: 3.4 kg CO₂e/kg H₂, U.S.A. and Canada: 4 kg CO₂e/kg H₂

ATR: autothermal reforming

SMR: steam methane reforming



THANK YOU

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