

Building Finland's Hydrogen Future with Offshore Wind



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The hydrogen economy is key to building Finland's prosperity and supply security, combined with achieving climate goals.

2025

The Hydrogen Economy Roadmap for Finland

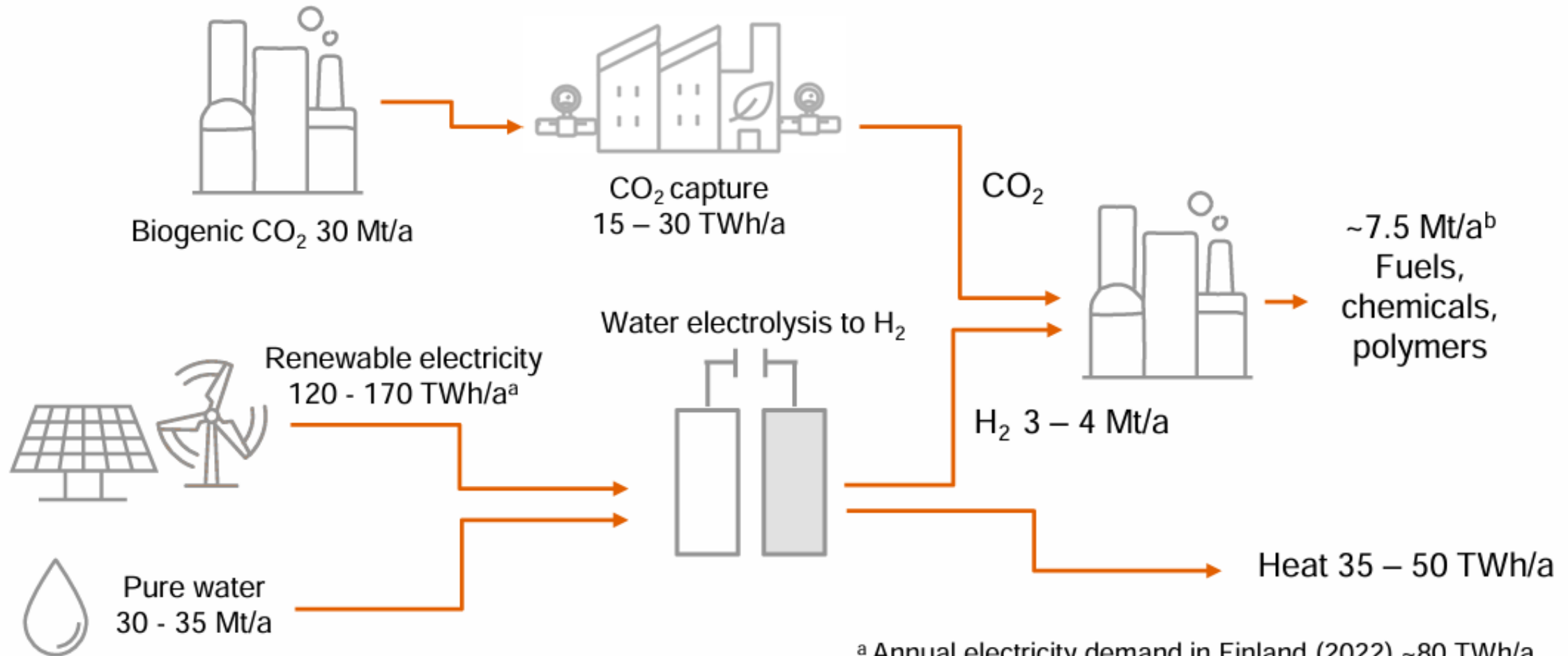
2030

Finland produces 10% of Europe's clean hydrogen at a competitive price.

2035

The hydrogen economy has created 100,000 new jobs in Finland and contributed over EUR 30 billion to the national economy

Biogenic flue gas CO₂ to CCU products



^a Annual electricity demand in Finland (2022) ~80 TWh/a

^b Annual diesel fuel consumption in Finland (2023) 2.4 Mt/a

^b Annual Finnish aviation fuel consumption (2019) 1.0 Mt/a

Snapshot Finland 2026

~60

hydrogen economy projects

~1.5

million tons potential capacity of hydrogen production per year

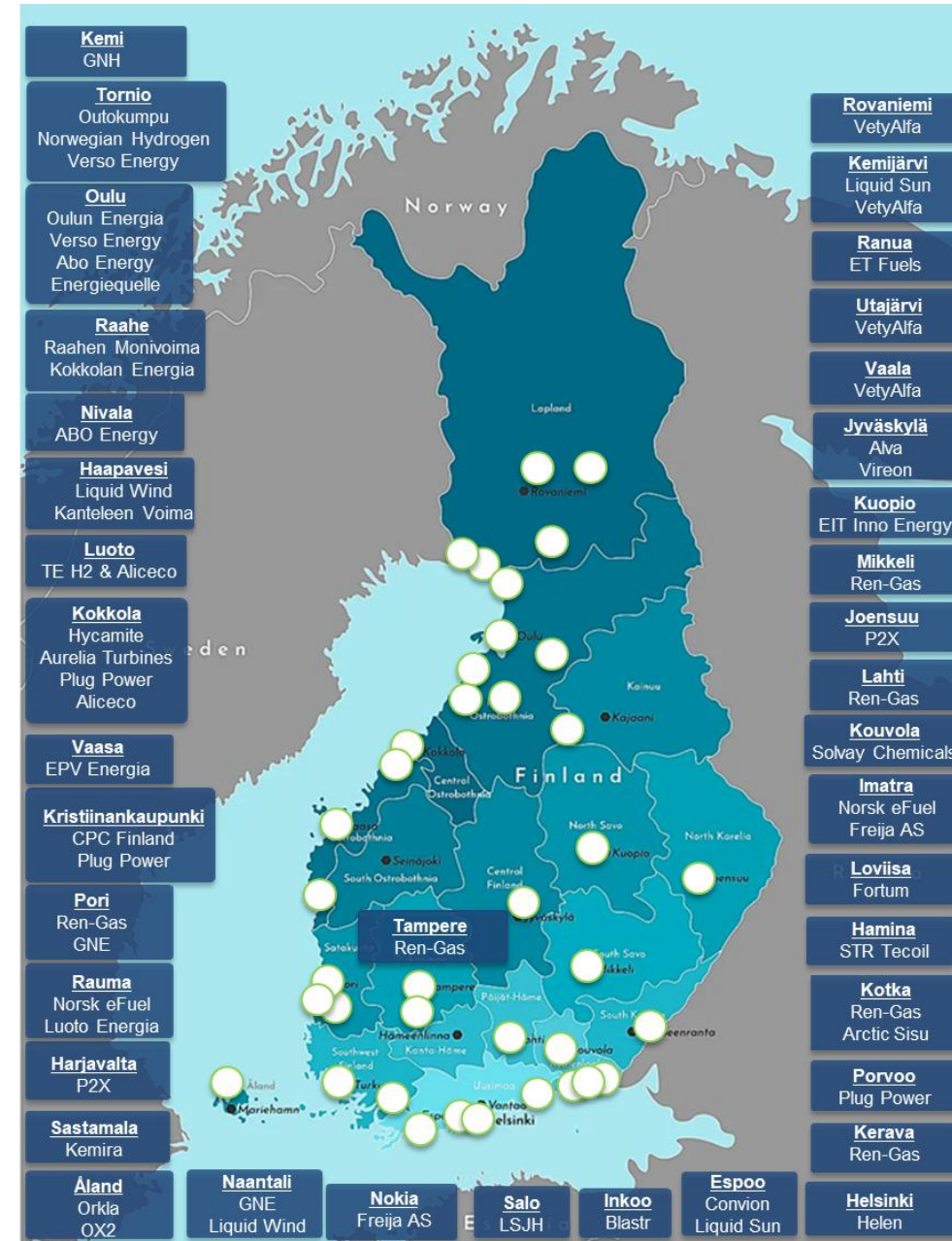
~30

billion euros in investments

Requiring

~60 TWh/a

Clean electricity



Minimum case scenario: Demand outlook based on mandates in the EU*

By 2030

Regulatory demand for RFNBO hydrogen in EU is

2.8 Mt

If 10 % is produced in **Finland**

12 Twh/a
Renewable electricity is required.

By 2035

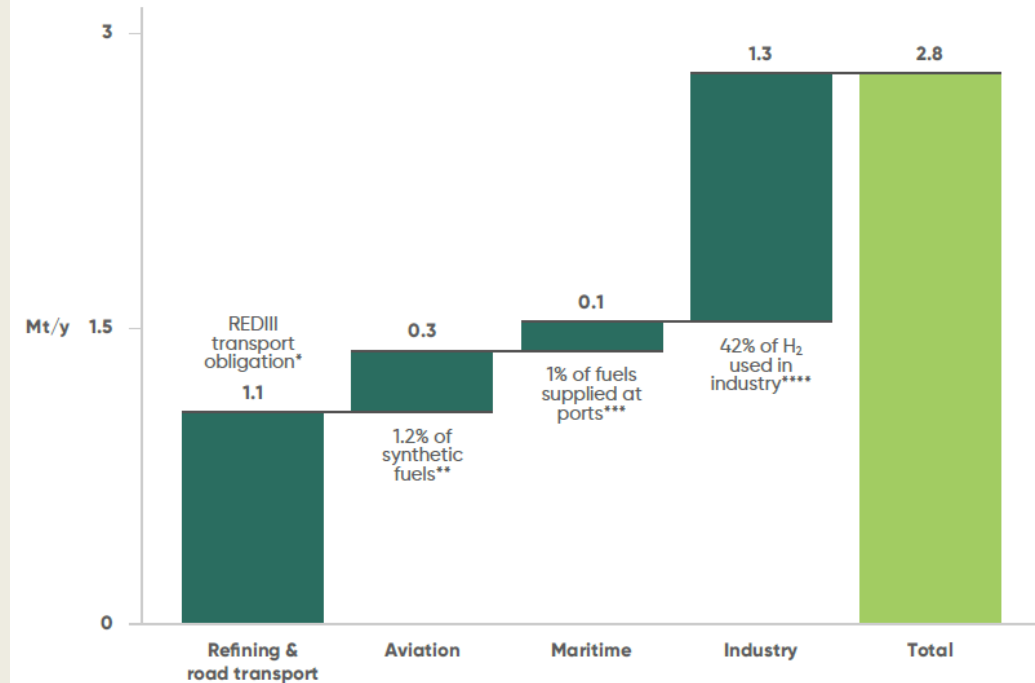
Regulatory demand for RFNBO hydrogen in EU is

4 Mt

If 10 % is produced in **Finland**

17 Twh/a
Renewable electricity is required.

Regulatory demand for RFNBO hydrogen in the EU by 2030



2030

60 000

2035

250,000

tonnes of eSAF aviation fuel to be produced in Finland in 2035

1

4-5

operational production facilities, each with 250 MW of electrolysis capacity

Corresponding to

10 %

of the eSAF aviation fuel required by the mandates.

To achieve the target:

- 1) ReFuel Aviation mandates and respective penalty mechanisms have been implemented as currently planned
- 2) The 'book and claim' markets are operating seamlessly.

See beyond the minimum

**After 2035 mandates will grow quickly
and we need to be ready to scale.**

See beyond the minimum

These markets will emerge and grow creating significant opportunities for scalable expansion:

Green steel

Ammonia to fertilizer and chemicals

Raw materials for chemical industry replacing fossil

Proteins

Voluntary markets in traffic sector

Roadmap overview

Regulation

- Climate targets and distribution obligations create the market
- CCU competitiveness alongside CCS is ensured

Hydrogen production

- Pilots and demonstrations support technology development and exports
- Hydrogen economy production scales up

Safety

- Global / EU safety requirements emerge
- Safety ensures acceptability

Innovation and Technology

- Finland offers an environment where hydrogen innovations scale up fastest

Utilization of biogenic CO₂

Increasing clean energy production

Infrastructure expansion

2026

The Hydrogen Economy Roadmap for Finland

Market creation

2030

Finland produces 10 % of Europe's clean hydrogen

Hydrogen economy as part of the market

2035

100,000 new jobs created and contributed over EUR 30 billion added to the national economy

Lead Markets to ramp up the hydrogen economy



Hydrogen is Freedom

H₂cluster
FINLAND