

# Haru-Oni Project

*Haru Oni = Strong Wind*

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European  
Innovation  
Council



**Shapping the  
future:  
renewable fuels  
and chemicals  
from solar  
energy**

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# Power-to-Methanol/Fuels: Example for Decarbonizing the Mobility Sector

## Description

- **Lowest levelized cost of electricity** in Patagonia/Chile and high load factors from wind and partly solar
- **Hydrogen production at large scale**
- Export **Green Methanol to Europe**

## Business drivers/objectives

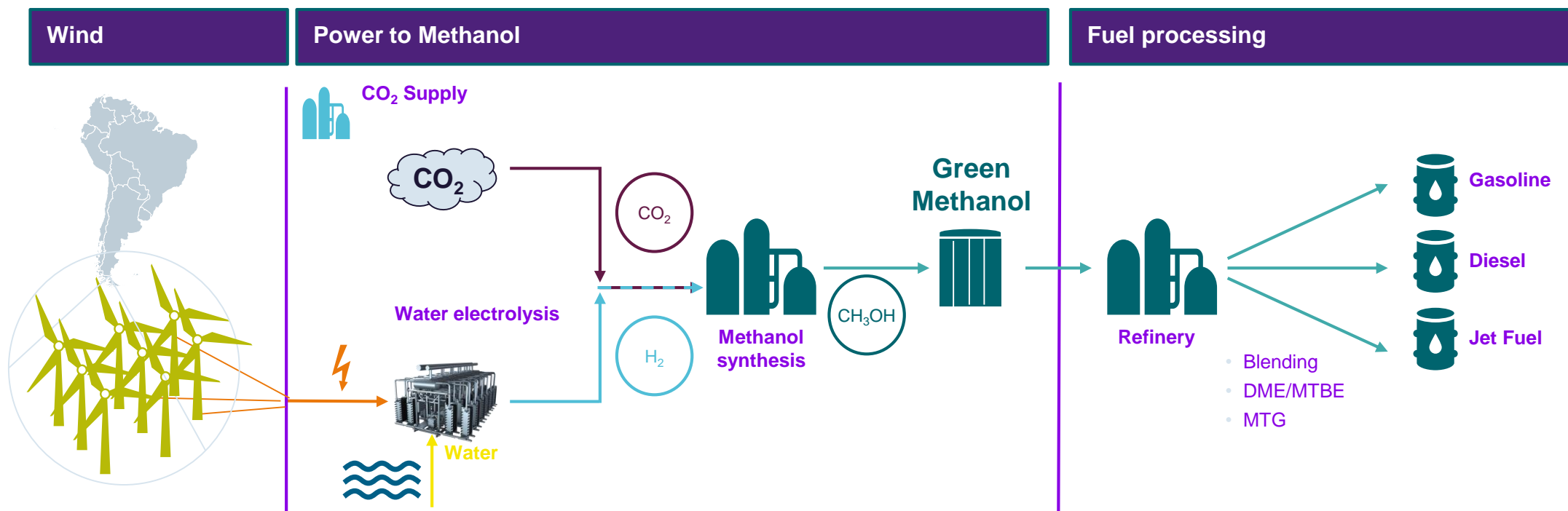
- **Green Methanol market** with huge potential and the option to displace Bio-Ethanol
- Green Methanol **market price driven by RED-II and other regulation**
- Contributes to the **EU's objectives of decreasing CO<sub>2</sub> emissions** through carbon neutral fuels

## Fuel Options

Methanol as a base chemical to:

- Blend with fossil fuel
- DME and MTBE as add-in to fuels
- Methanol-to-Gasoline process
- Synthesis of hydrocarbon chains as the future fuel

# The project:



## Technological details:

- Siemens Gamesa wind turbine SG 3.4-132 with 3.4 MW, then expanded to around 280 MW, industrial scale 2.5 GW.
- Silyzer PEM technology from Siemens Energy to convert wind energy to green hydrogen
- Start with Global Thermostats (GT) direct air capture equipment to harvest CO<sub>2</sub>.
- MAN supplying the methanol synthesis reactor based on Johnson Matthey's design.
- Fluidized bed MTG (Methanol To Gasoline) technology to convert green methanol to synthetic gasoline, licensed and supported by ExxonMobil.

# The team:



Owner and lead developer Haru  
Oni pilot project



Co-Founder, offtake of the fuel



Supplier and system integrator  
wind energy through electrolysis  
to the production of fuel



Co-Founder, focus on wind  
power and electrolysis



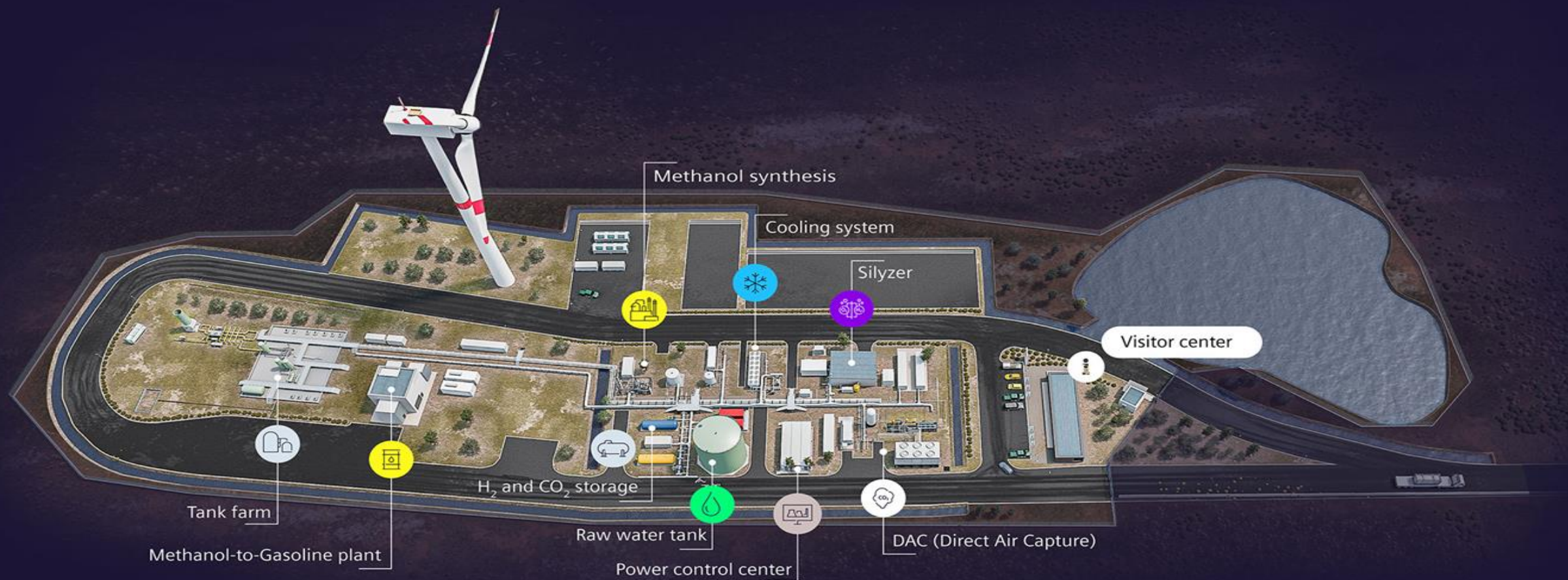
Contributor of MTG technology



Infrastructure, logistics, and  
service provider



R&D and product development  
of liquified gas (eLG)



1<sup>st</sup> phase  
until **2022**

**~130,000** liters e-fuel  
per year

Pilot phase  
until **2025**

**~55 million** liters e-fuel  
per year

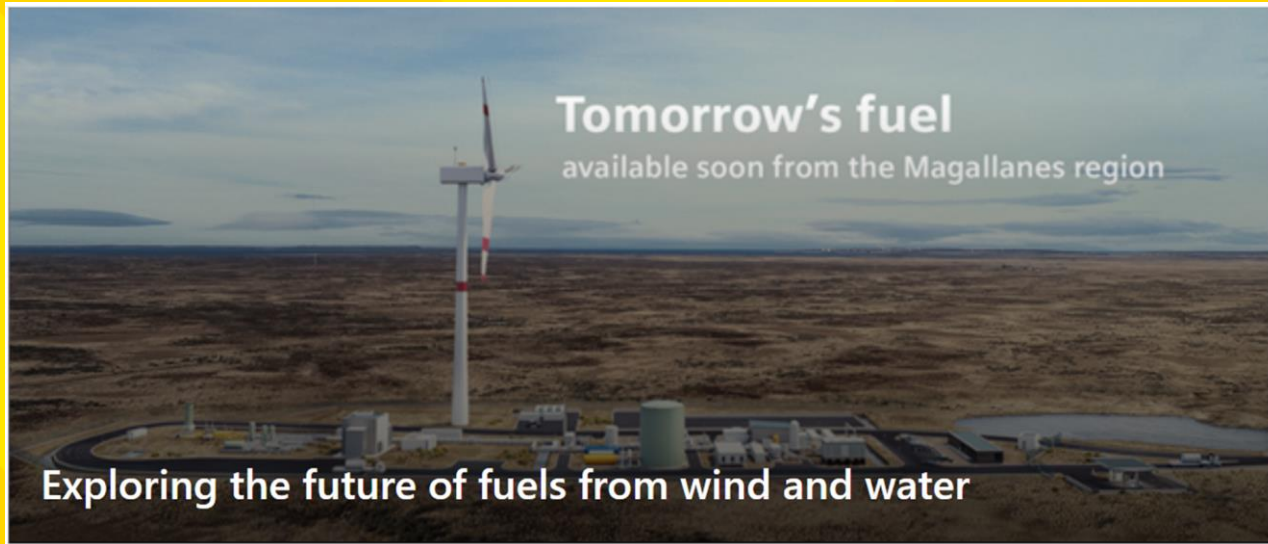
2<sup>nd</sup> phase  
until **2027**

**~550 million** liters e-fuel  
per year



Details and virtual tour available  
<https://www.haruni.com/#/en>

Video on:  
<https://www.siemens-energy.com/global/en/news/magazine/2021/haru-oni.html>



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**Shapping the  
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**Industrial Venture Funding with public funding  
support (German National H2-Strategy)**