

HIF Global

Fueling Our World with Renewable Energy

International Energy Forum – Thought Leaders' Roundtable

Riyadh

February 2025



Cautionary Statements

Forward-looking Statements



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Plans for the HIF e-Fuels projects discussed herein are in the early stages of development and numerous aspects of the projects, such as detailed engineering and permitting, have not commenced. Accordingly, the nature, timing, scope and benefits of those projects may vary significantly from our current plans due to a wide variety of factors, including future changes to the proposals.

Projected future cash flows as set forth herein may differ from cash flows determined in accordance with GAAP.

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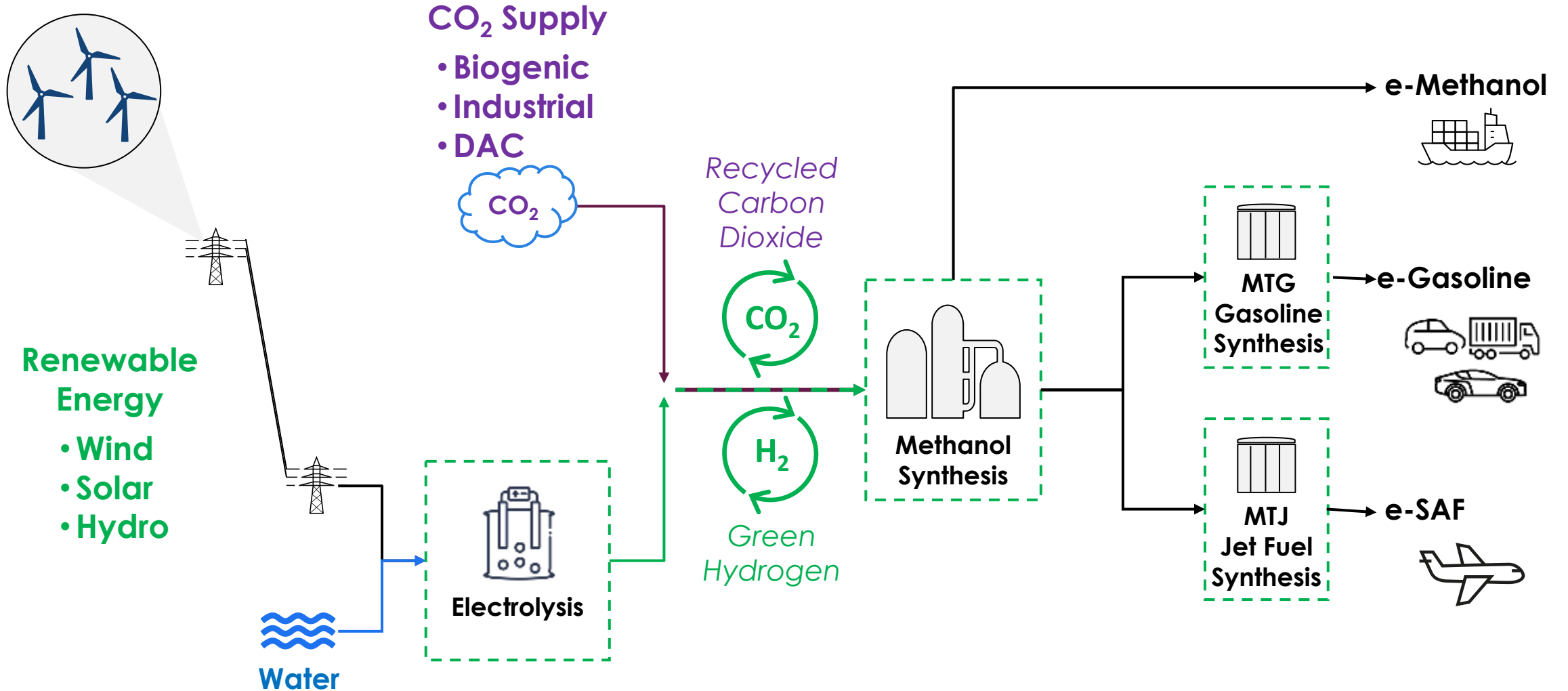
The forward-looking statements made in or in connection with this presentation speak only as of the date hereof. Although we may from time to time voluntarily update our prior forward-looking statements, we disclaim any commitment to do so except as required by securities laws.

What are e-Fuels?

Zero / Near Zero carbon fuels made from renewable energy, water, and recycled CO₂

~90% reduction in carbon intensity compared to fossil fuels

drop-in fuels that use existing infrastructure and can be blended

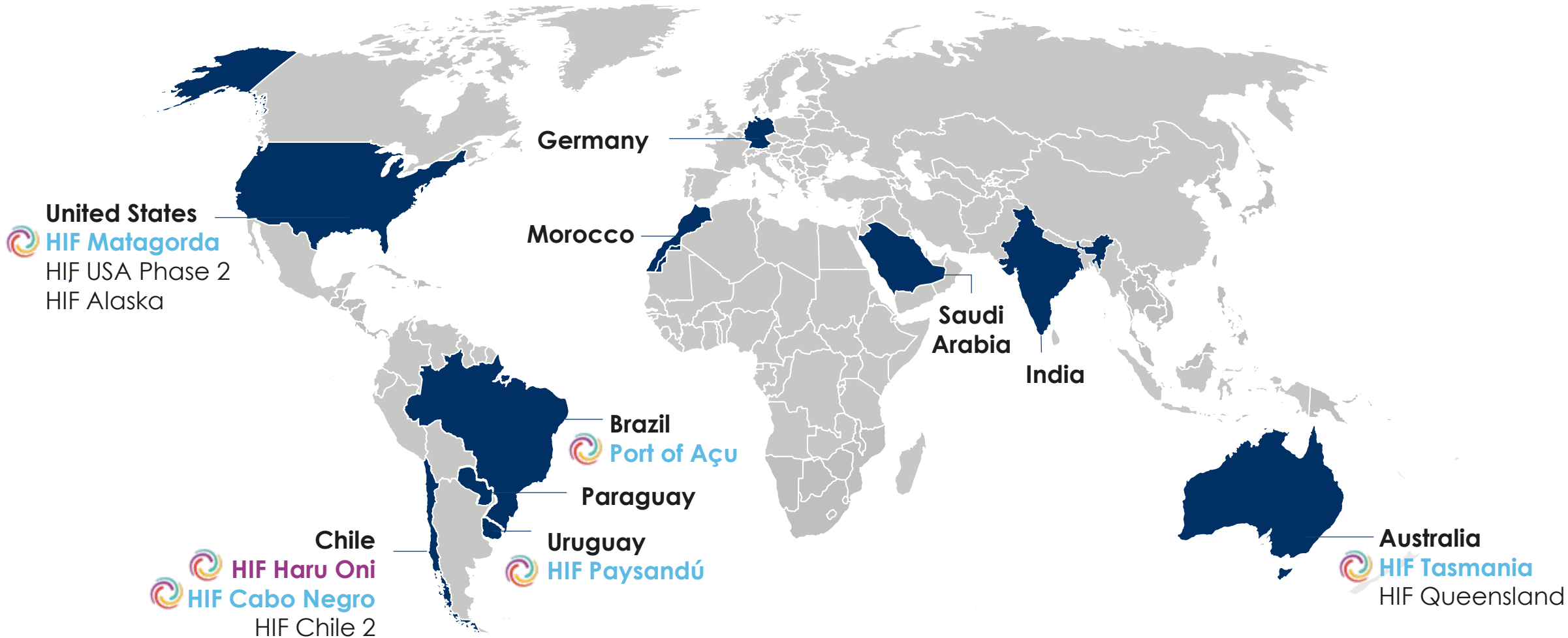


HIF Global portfolio ~15 mtpa e-Methanol capacity



- ~\$300 million spent at risk 2021-2024
- Haru Oni e-Fuels facility operating in Southern Chile
- Site Selection and preliminary engineering for 4 projects
- Executed >1 mtpa of preliminary offtake agreements

Map Legend:
Presence
 **Operating Facility**
 **Project in Advanced Development**



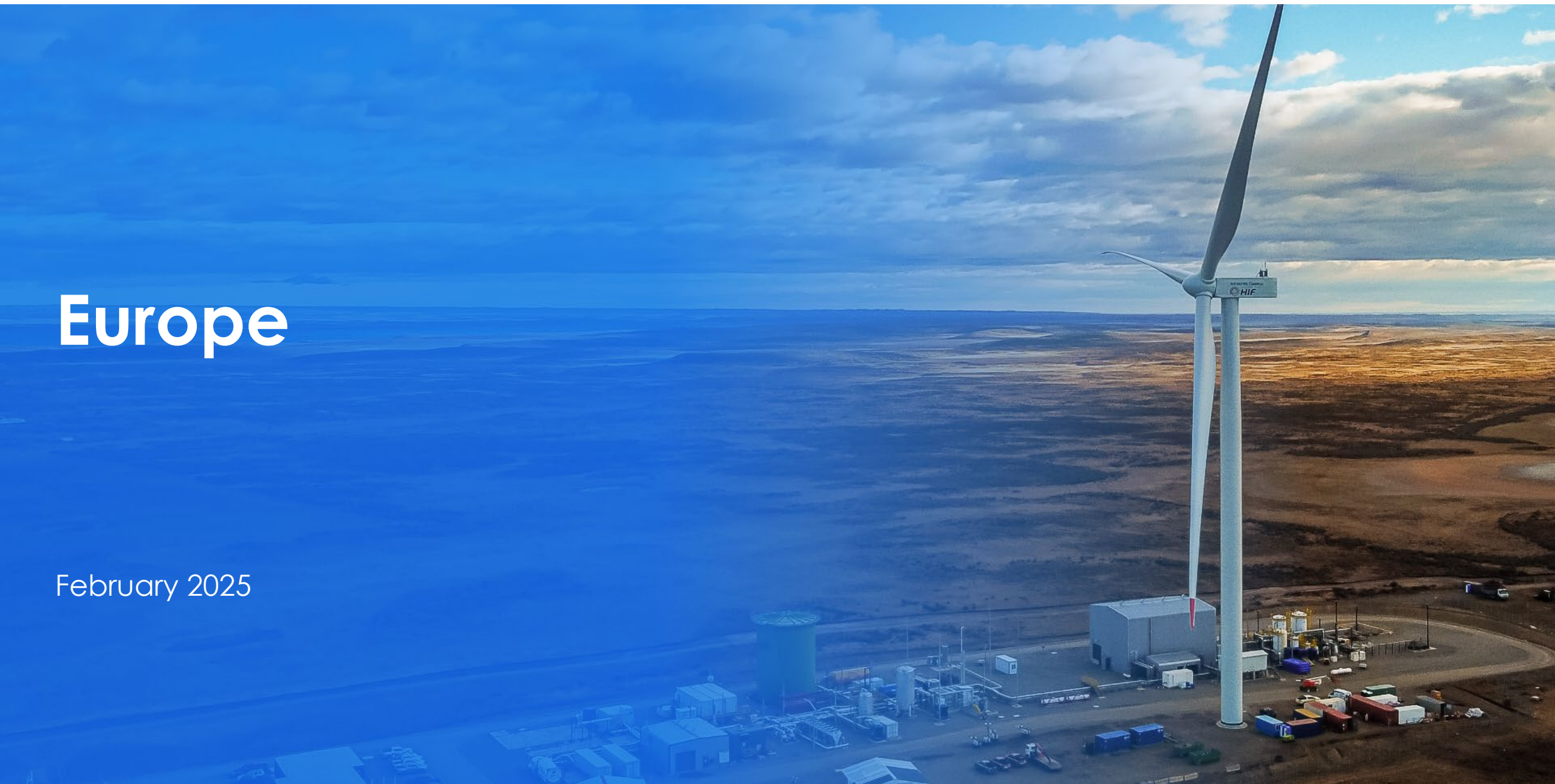
Global E-Fuels Regulatory Landscape

Policy should result in certainty and clarity of ambition and requirements. Long-term offtake agreements guaranteeing cash flow are necessary for final investment decisions on the first fuel supply, which will require billions of dollars to construct.

- E-Fuels regulatory landscape globally is still evolving; including eMethanol, e-gasoline and e-saf markets
- Currently, incentives are not specific to e-fuels but for inputs such as renewables, carbon capture and/or utilization, and hydrogen production
- Lack of regulatory harmonization drives off-takers to fall back on regulatory precedent e.g. EU RFNBO
- Regulatory landscape should focus on **clarity, certainty, and optimizing for cost savings** when supporting innovation; **simple trade-offs can shave of large percentages of cost without sacrificing carbon intensity**
- Current Opportunities that HIF sees are
 - **International Maritime Organization**
 - **The European RFNBO Market**
 - **Switzerland E-Gasoline**

Europe

February 2025



Current European Regulatory Environment

- There are several opportunities that are created in Europe through
 - **FuelEU Maritime**
 - sets GHG intensity reduction targets for ships above 5,000 GT calling at European ports, regardless of their flag
 - between January 1, 2025, and December 31, 2034, the use of RFNBOs is incentivized by applying a "multiplier of 2," meaning each tonne of RFNBO used counts twice towards a ship's GHG intensity reduction targets. Additionally, a 2% sub-target for RFNBO use is set to be introduced from 2034, contingent upon market readiness
 - **European E-SAF regulation**
 - To encourage the adoption of RFNBOs in aviation, RED III applies a 1.5x multiplier to the energy content of RFNBOs used in this sector. This means that each unit of RFNBO energy is counted as 1.5 units towards renewable energy target
 - **RED II**
 - Transport Sector Targets: By 2030, RFNBOs are expected to constitute at least 1% of the total energy supplied to the transport sector.

European Union EU RED III Mandated Volumes

Potential Theoretical Volume Ranges by Member State



Key Messages:

RED III 2030 minimum RFNBO volumes in theory are **2.1 – 3.2 Mio. eMeOH eq.** depending on end sector use*.

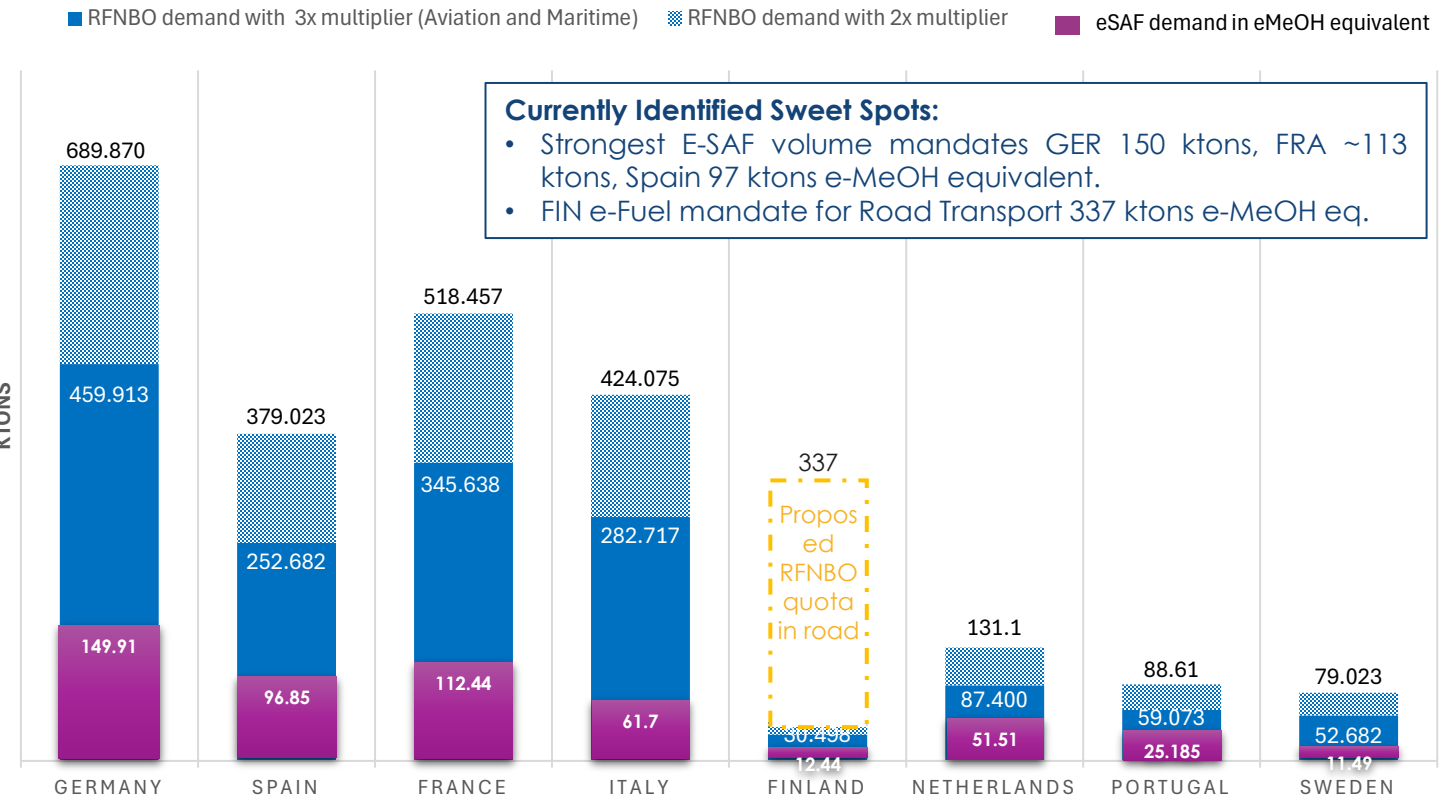
- **e-SAF Mandate** would already capture **1.56 Mio** tons of eMeOH equivalent,
- leaving a **rest of 0,6 – 0,9 Mio. eMeOH eq.** for RFNBO in maritime, e-gasoline or **H2 in refineries**

Commercial opportunities are Member State specific for two reasons:

1. **Member State specific legislation** decides on real value and how the quota is allocated within a state (e.g., Finland with a 4% RFNBO quota only in road, no multiplier so far)
2. **Obligations on fuel suppliers** players will be **unique** to each Member State market and **fragmented** across the EU

Currently, most member states (except FIN, NED and LTU) **have not yet presented a legal draft of their legislation** (deadline May 2025); expected solidification of key markets in **Q2/Q3 2025**

EU 2030 RFNBO DEMAND IN E-METHANOL EQUIVALENT



* GHG multiplier of 3 for Aviation and Maritime; GHG multiplier of 2 for road (e-Gasoline, H2 in refineries)

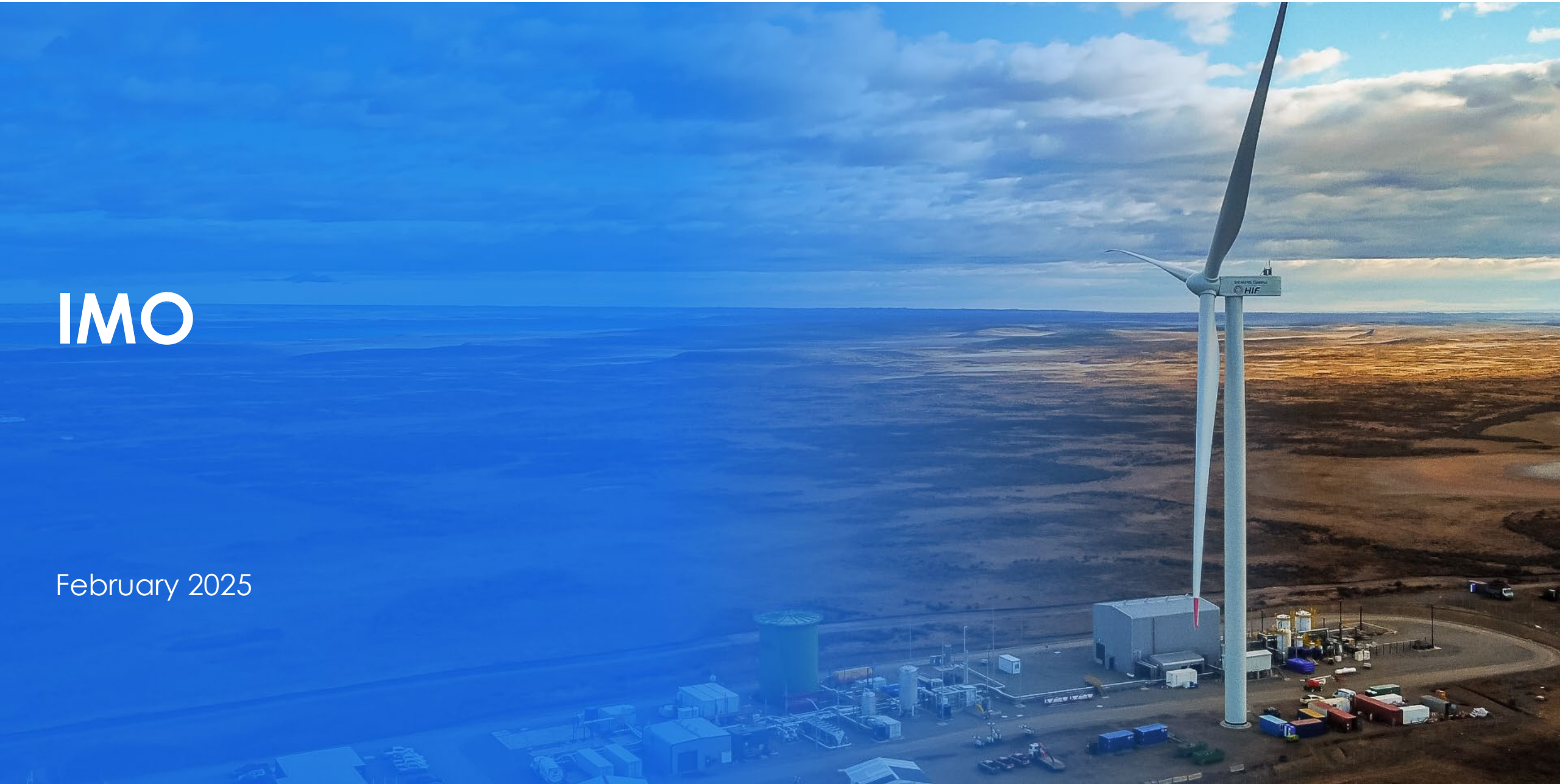
Current European Policy Environment

Given market size and opportunity, HIF is working on European policy changes

- New European Commission likely to fast track simplifying regulatory environment and focus on industrial decarbonization opportunities such as refining, chemicals and sustainable transportation fuels
- HIF is seeking changes in the regulatory environment that create further investment certainty and clarity.
 1. **Postpone the date for qualifying for the “transitional period” to allow for later phase-in of “Additionality”** test for renewable electricity used for low-carbon fuels production (as proposed by German Vice Chancellor Habeck).
 2. Include a **grandfathering provision to protect project developers from changes in regulation** after investments have been made. The way
 3. Clarification on permitted CO2 sources emitted from biomass combustion and **industrial CO2**.

IMO

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Downstream fuel delivery



HIF builds e-Fuels value chain with strategic Japanese investors



Investment announced May 2024



Investment announced Aug 2024



Investment announced Sept 2024



Renewable electricity and e-Fuels production



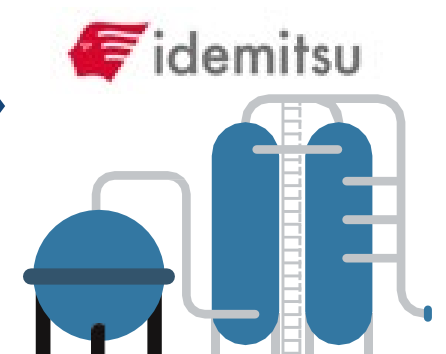
e-Fuels transport and liquid CO₂ transport



Bunkering and maritime end use



e-Methanol synthesis to e-Gasoline or e-SAF in Japanese refineries



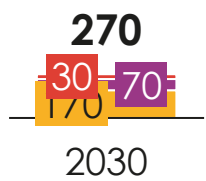
>500 mtpa e-Methanol feedstock available plus >17,000 potential with industrial CO₂ & DAC

Sustainable fuels demand, announced supply and feedstock availability

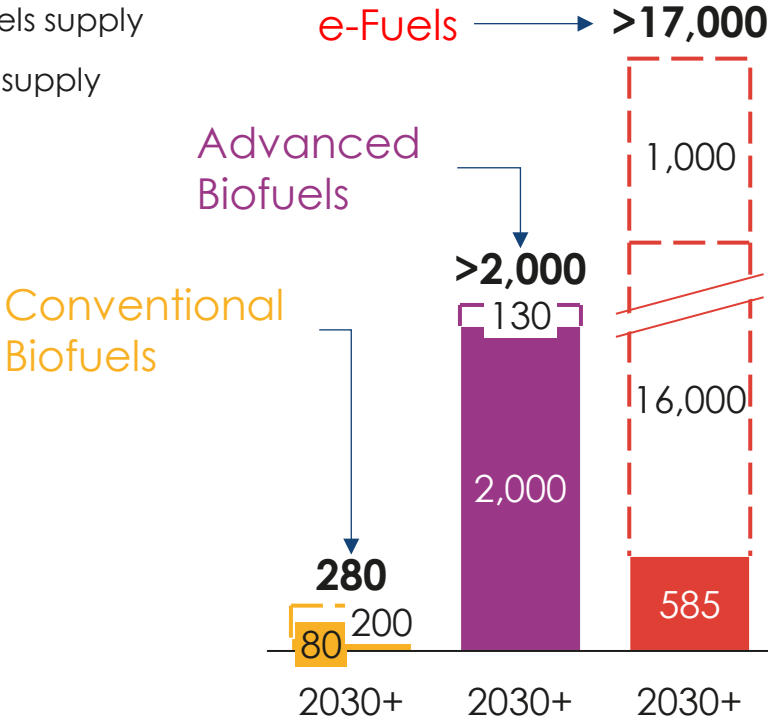
Mtpa of MeOH eq

Announced supply

- Conventional biofuels supply
- Advanced biofuels supply
- eFuels supply
- Upside

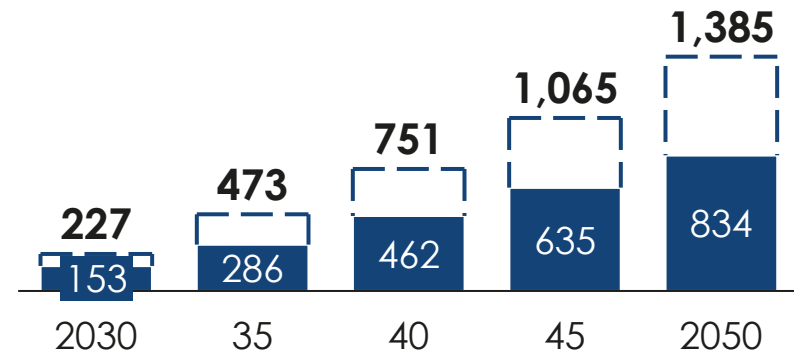


Feedstock availability



Sustainable Fuels Demand for Transport Sector

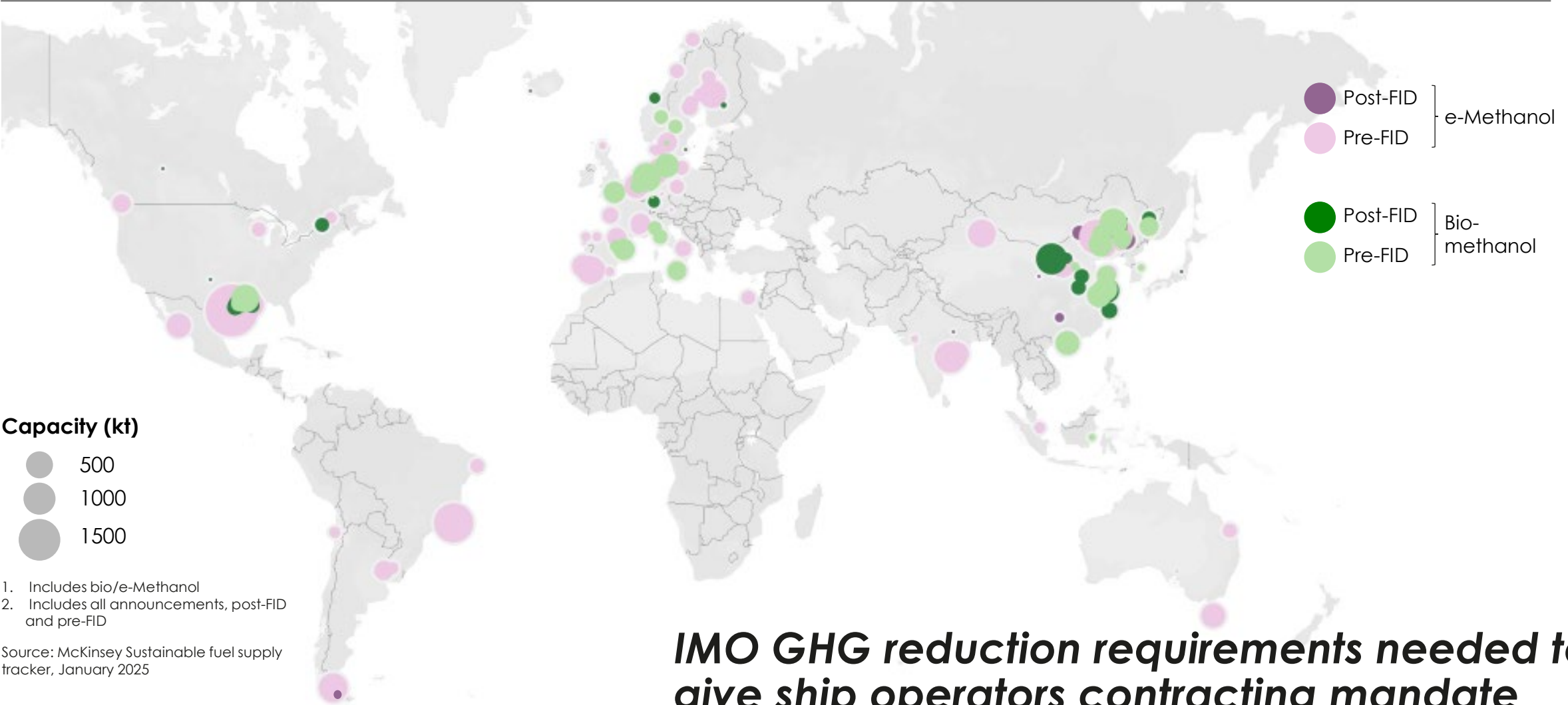
- Upside
- Total demand



>30 mtpa e-Methanol projects announced... but few FIDs . . . need IMO regulation

Announced sustainable methanol projects, 2030^{1,2}, Thousand tons

AS OF JANUARY 2025



IMO GHG reduction requirements needed to give ship operators contracting mandate

e-Methanol / bio-Methanol production cost, FOB

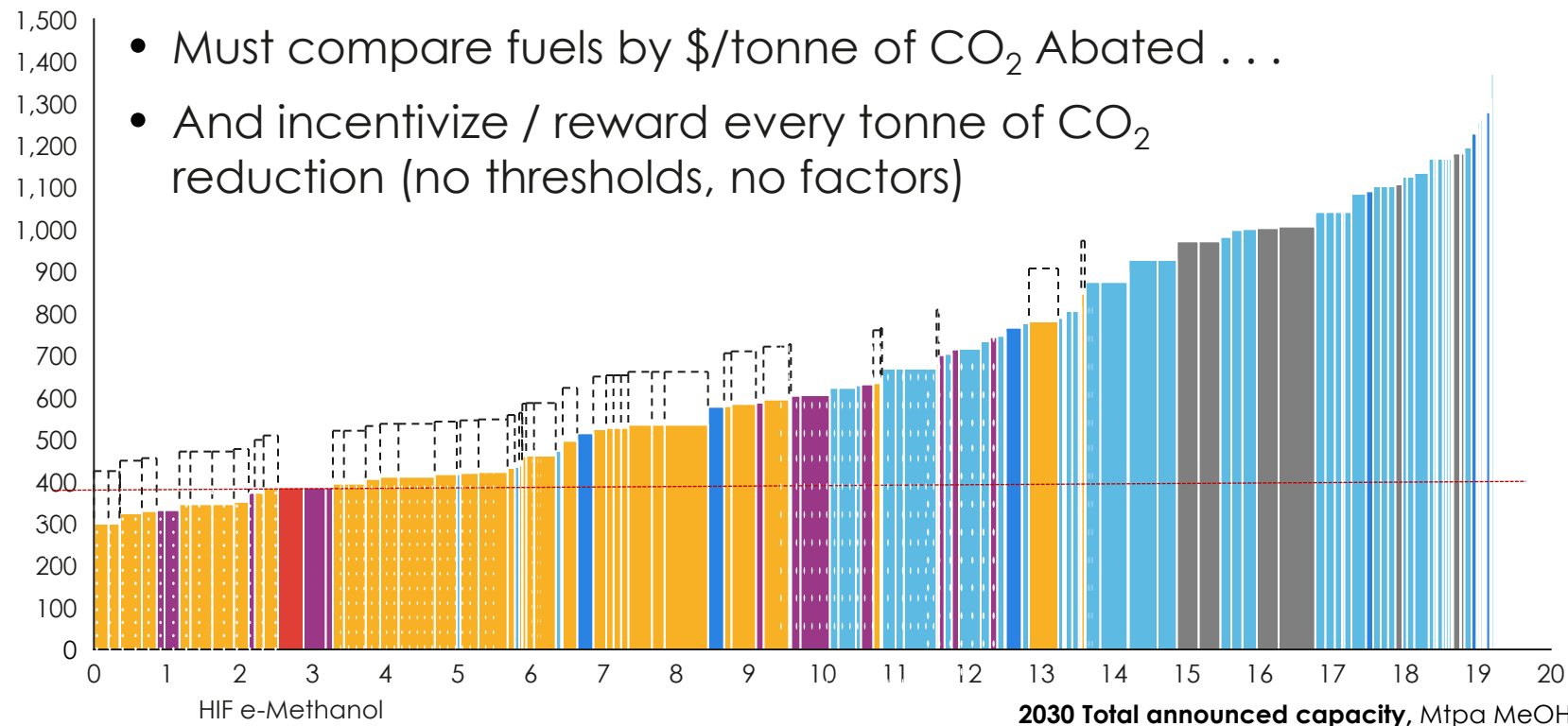
\$300 – \$1,200 / tonne of CO₂ Abated



ORDERED BY AGGREGATED PRODUCTION AND TRANSPORT COST

INDICATIVE

Global methanol CO₂ abatement cost curve based on announced capacity 2030¹, \$USD/CO₂eq



- Must compare fuels by \$/tonne of CO₂ Abated . . .
- And incentivize / reward every tonne of CO₂ reduction (no thresholds, no factors)

Key assumptions

Assumptions

- VLSFO CO₂
91.6 gCO₂e/MJ
- VLSFO Price
\$600 \$/tonne, FOB basis
- VLSFO Heat Value
41 MJ/kg
- e-Fuel Heat Value
19.9 MJ/kg

We need IMO to set the assumptions for CO₂ abatement calculations

1. Excluding contingency, transportation, taxes costs. Including lower WACC for Chinese plants; IRA subsidy for USA-based supply; assumed 10% cost reduction for >100ktpa plants; 2. Projects with similar costs to HIF could include developments from Maersk/Orsted (Gulf) and Maersk/European energy (Victoria)

Policy to support Guaranteed Cash Flow



20% GHG emissions reduction by 2030 | [5] % ZNZ quota | effective enforcement

Regarding LCA

1. Adopt current IMO LCA framework
2. Allow for local third-party certification
3. Allow for pre-financing provisional certification to be confirmed upon operations
4. Provide an option to fuel suppliers to keep LCA rules that were effective as of FID
5. Require WtW emissions accounting via LCA
6. No default emissions factors for e-Methanol
7. Allow use of appropriate industrial CO₂
8. Confirm approved LCA Guidelines allow annual matching of renewable power

Regarding Mid-term measures

1. Set clear GHG emissions reduction trajectory
2. Allow for auto-acceleration upon SU oversupply
3. Implement SU/RU system with banking of credits
4. Consider SU floor price
5. Set a fixed price for RUs > e-Fuels cost
6. Increase SU/RU prices for annual inflation
7. Implement a Book and Claim system
8. Set reference values for fossil fuels
(VLSFO \$600/tonne, 91.16 gCO₂e/MJ, 41 MJ/kg)
9. Define ZNZ fuels as e-Fuels
10. Establish a [5]% quota for ZNZ fuels by 2030
11. Implement multipliers for ZNZ fuels
(e-Fuels = 3x)

Switzerland

February 2025



The Swiss CASE

- Switzerland's revised CO₂ Act, effective January 1, 2025, introduces a significant policy shift by allowing vehicle importers and manufacturers to account for CO₂ emissions reductions achieved through the use of e-fuels. **This approach provides an alternative compliance pathway alongside vehicle electrification**
- **Under the new regulation, ICEVs powered by CO₂-neutral e-fuels are considered on par with electric vehicles (EVs) concerning CO₂ emissions.** This means that if an importer supplies a vehicle and ensures that an equivalent amount of e-fuel is introduced into the market to cover the vehicle's lifetime consumption, that vehicle can be recorded as emitting zero grams of CO₂ per kilometer in fleet calculations.
- To maintain transparency and accuracy, **a certification system** will verify the quantity and quality of e-fuels supplied by fuel producers.
- **This policy shift not only incentivizes the adoption of e-fuels but also provides flexibility for vehicle importers and manufacturers in meeting stringent CO₂ emission targets.** By embracing a technology-neutral stance, Switzerland aims to foster innovation and accelerate the transition to sustainable transportation solutions.

The Swiss Case

Business Case to reduce fleet emissions with e-Fuels

Starting Point and how it works

Car sellers must prove they introduced the **vehicle's lifetime eFuel amount** into the Swiss market within 18 months of sale, **verified by a certificate**.

The fuel supplier will receive certificates for bringing eFuels into the Swiss market and can sell them to the car manufacturer/importer.

This will lower their overall fleet emissions or offset an ICE or hybrid car sold.

~ 93 liters of e-Fuels to offset 1 g of CO2

Current DRAFT Swiss law assumes; 220,000 km lifetime mileage of a car & tailpipe CO2 emissions of fossil fuel to be replaced by e-Fuels.

Current business case calculation

Penalty price
breaks even at
certificate price

1,50 \$/l

$$= \text{price e-Fuel} - \text{fossil value} - \text{energy tax (exempted)}$$

$$= 3,16 \text{ \$/l} - 0,73 \text{ \$/l} - 0,92 \text{ \$/l}$$

