



# Paving the way for commercial scale E-Methanol supply



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Kassø  
Integrated PV and  
e-methanol  
facility  
Denmark

# About European Energy

Solar  
power



Onshore  
wind



Offshore  
wind



Power to X



# Growth across the world

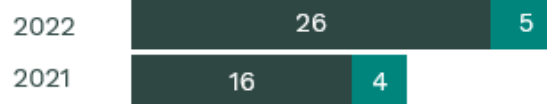
We are screening for projects in 29 countries and we have actual development activities in 19 out of the 29 countries. In 2022, we opened 8 new offices, and now have a total of 23 offices across 18 countries.



	Development solar/wind	Construction solar/wind	Operational wind activities	Operational solar activities	Offices
<b>Home market</b>					
Denmark	■	■	■	■	■
<b>Northern Europe</b>					
Finland	■				
Sweden	■	■	■	■	■
Latvia	■				■
Lithuania	■	■			■
UK	■	■	■	■	■
Estonia					■
<b>Central Europe</b>					
Germany	■	■	■	■	■
Poland	■	■	■		■
Romania	■				■
France	■				
Netherlands	■	■	■		■
<b>Southern Europe</b>					
Italy	■	■	■	■	■
Spain	■			■	■
Greece	■				■
Bulgaria	■		■		■
Croatia					■
Montenegro	■				
<b>Rest of the world</b>					
Brazil	■	■		■	■
Australia	■				■
US	■				■

## Development pipeline\*

GW



## Under construction

MW



\*Operational activities include power generation and asset management. We only undertake asset management in markets where we generate power.

# European Energy's

# Power-to-X



EUROPEAN  
ENERGY

# How it started



REintegrate



VIA/ritzau/

Forside

Mødtag pressemeddelelser

Kunder

Om Via Ritzau



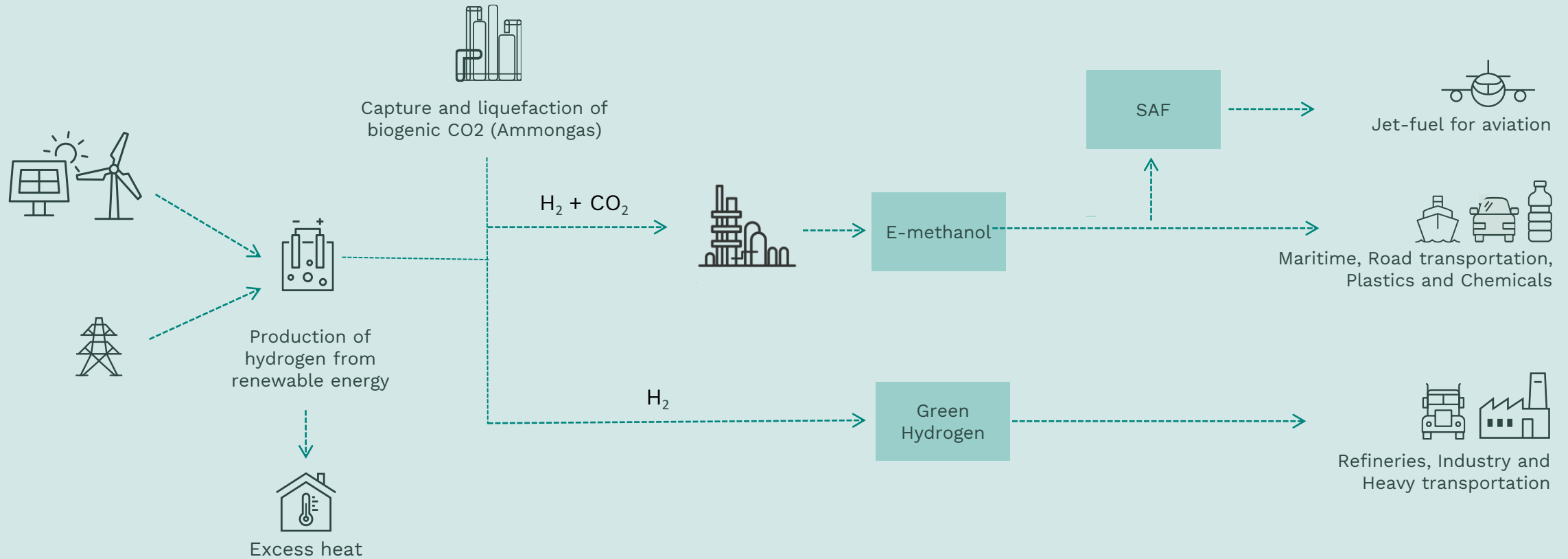
## European Energy køber REintegrate

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European Energy har besluttet at købe virksomheden REintegrate som led i et øget fokus på Power-to-X-sektoren.

# Power-to-X in European Energy includes the entire value chain from power generation to end-product



*Pipeline of + 30 GW worldwide*

*Different electrolyzer technologies to be tested at our sites*

*Our group company Ammongas supplies CO2-capture equipment*

*We are constructing worlds largest e-methanol plant*

*We are constructing a green hydrogen plant in Denmark*

*EE will prototype-test methanol-to-SAF production in 2024/25*

*Securing offtake agreements in multiple sectors*



Our Danish green hydrogen  
plant

Måde – A PtX Test Center

# Måde PTX – a commercial test center

**Power supply**

Power sourced from co-located wind turbines and from the grid → robust and cost-optimal power supply

**Grid Balancing**

12 MW electrolysis from up to 3 different types of unites → flexible operation with the ability to provide grid balancing services

**Excess heat**

Excess heat to supply approx. 300 average households

**Utilization**

Green hydrogen plant will be used to provide shore-power to vessels and for industrial use



February 2023



September 2023



Explosion wall



Transformer and electrical building



# Delivering E-Methanol in 2024 - the Kasso Project

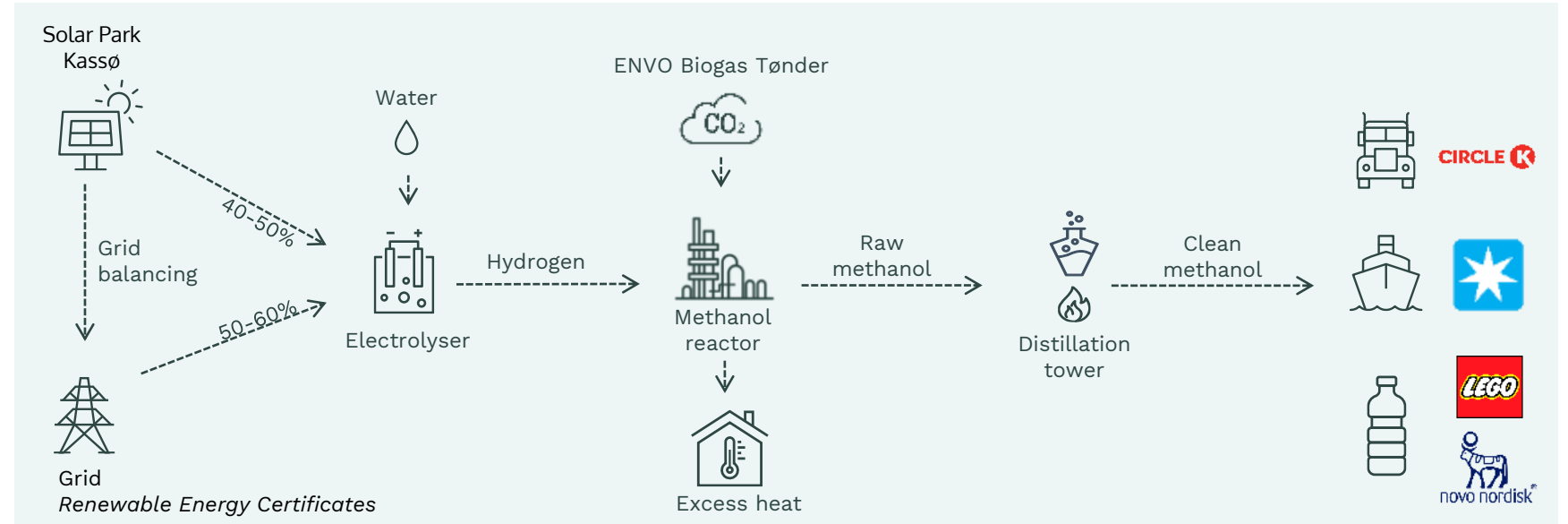


# Our e-methanol plant in Kassø, Denmark

Input (consumption)	
Water	~90.000 tons
Electricity	~360-380 GWh
Biogenic CO <sub>2</sub>	~45.000 tons
Output (production)	
Hydrogen	~6.000 tons
Clean methanol	~32.000 tons (nom. cap. 42.000)
Excess heat	~50 GWh



## How we produce e-methanol in Kassø



## Sector coupling

### Power supply

Power sourced from own 304MW solar farm and from the grid → robust and cost-optimal power supply

### Grid Balancing

52 MW PEM electrolyser from Siemens Energy capable of fast ramp times → flexible operation with the ability to provide grid balancing services

### Excess heat

Excess heat produced from production process delivered to the district heating grid to supply approx. 2500 households

### Utilization

E-methanol from the plant is shipped out from Port of Ensted to be used across three different sector for the benefit of the green transition

## Milestones

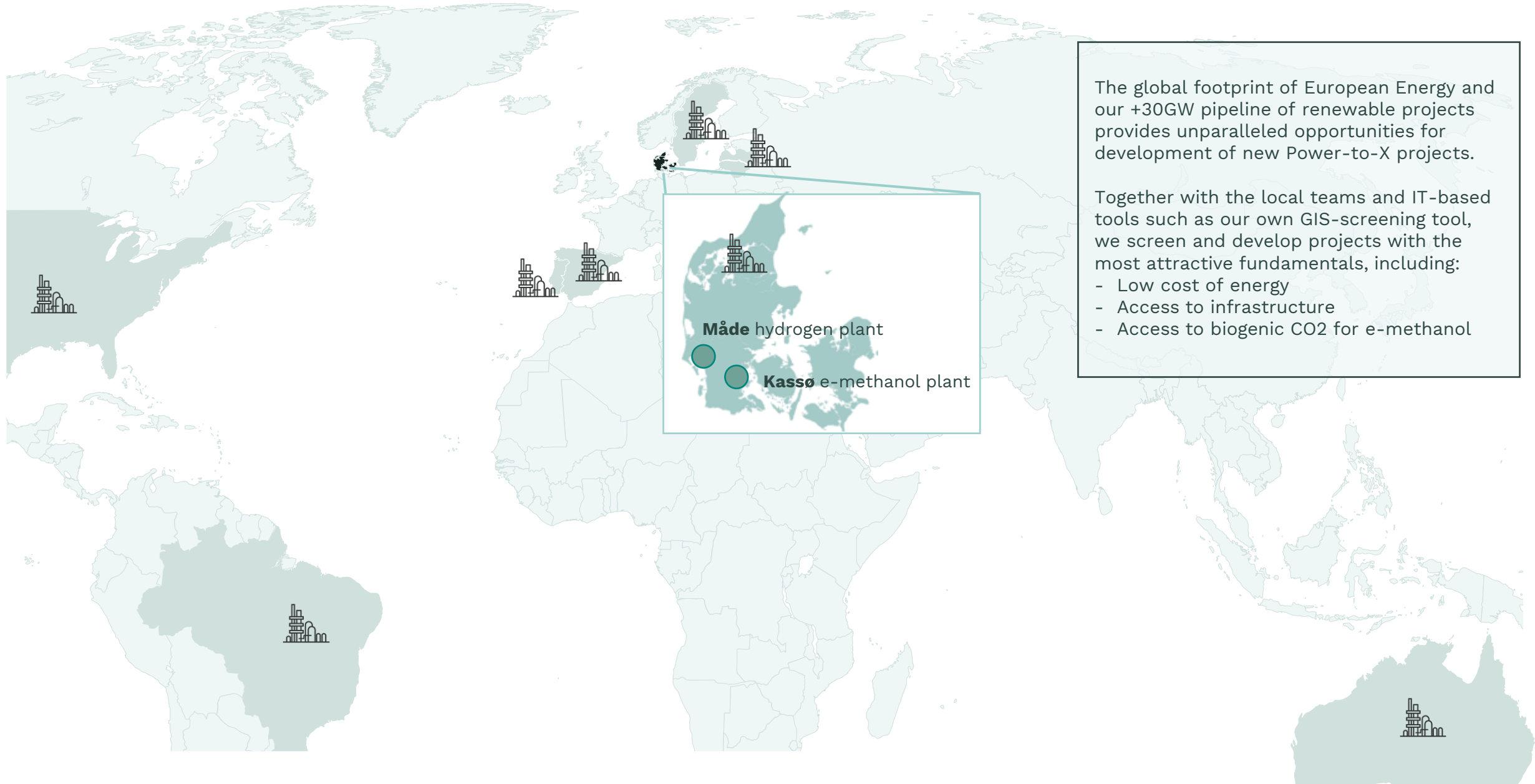
- ✓ Final Investment Decision
- ✓ All permits secured
- ✓ Offtake agreements signed for e-methanol
- ✓ Methanol plant detailed design completed
- ✓ Construction initiated and on-track
- First methanol, COD 2024



# Outlook

## Build out of E-methanol supply

# Strong and growing global pipeline of Power-to-X projects



The global footprint of European Energy and our +30GW pipeline of renewable projects provides unparalleled opportunities for development of new Power-to-X projects.

Together with the local teams and IT-based tools such as our own GIS-screening tool, we screen and develop projects with the most attractive fundamentals, including:

- Low cost of energy
- Access to infrastructure
- Access to biogenic CO<sub>2</sub> for e-methanol

# Next PtX plants: 100.000 ton e-methanol per year



Way ahead and challenges...

Thank you for listening!



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