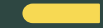


European Energy



## Hydrogen Academy

# Lessons learnt from the Danish PtX Tender

Mathias Berg  
Head of Regulatory Affairs



# European Energy is built on 4 pillars

Solar  
power



Onshore  
wind



Offshore  
wind



Power-to-X



# The European Energy Business Model

## Screening

We screen our markets for relevant locations for solar, wind and Power-to-X-facilities, using our bespoke GIS-based IT-tools as well as our local knowledge and network. Based on a careful screening of environmental and technical concerns as well as a mapping of key stakeholders, we enter into a cooperation with the landowners to secure the land for development.



## Development

During development we secure the grid and work to obtain the necessary permits. We conduct environmental studies and discuss mitigation measures with key stakeholders. Technical specifications may be adjusted, and hybrid and storage solutions are considered as part of the optimisation of the project. When land, grid and all necessary permits are secured, the project is ready-to-build.



## Engineering & procurement

Our design and engineering expertise ensures the strong operational performance of our projects. Our procurement team selects suppliers on the basis of thorough evaluation and closely monitors their delivery. We perform quality management of all our engineering and procurement processes



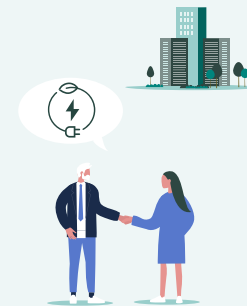
## Construction

With rights and permits secured, we continue with procurement, power offtake and financing, before we initiate construction of a project. We have a strong track record for managing contractors and suppliers on-site and, as the final construction step, connect the projects to the grid and produce Power-to-X solutions.



## Power Purchase Agreements

Power Purchase Agreements are long-term, fixed-price energy supply contracts. These agreements ensure that we have offtakers for our renewable energy projects. The agreements are often made prior to the construction of a project.



## Financing

Funding is raised at both parent company and project level. We have a treasury and project financing team that designs and optimises the Group's capital structure, parent funding, liquidity and financial risk management.



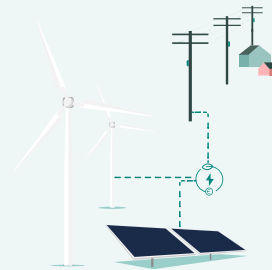
## Project sales

We assess each project individually and take risk-and-reward profiles into consideration. In some cases, we divest the projects to long-term investors. In these cases, we often continue to manage the assets for the investors, to optimise production output and minimise operating costs.



## Power sales

In some cases, it is advantageous for us to retain ownership of a project for a period of time, and sell the renewable power as an independent power producer, or to use the power for production of Power-to-X solutions.



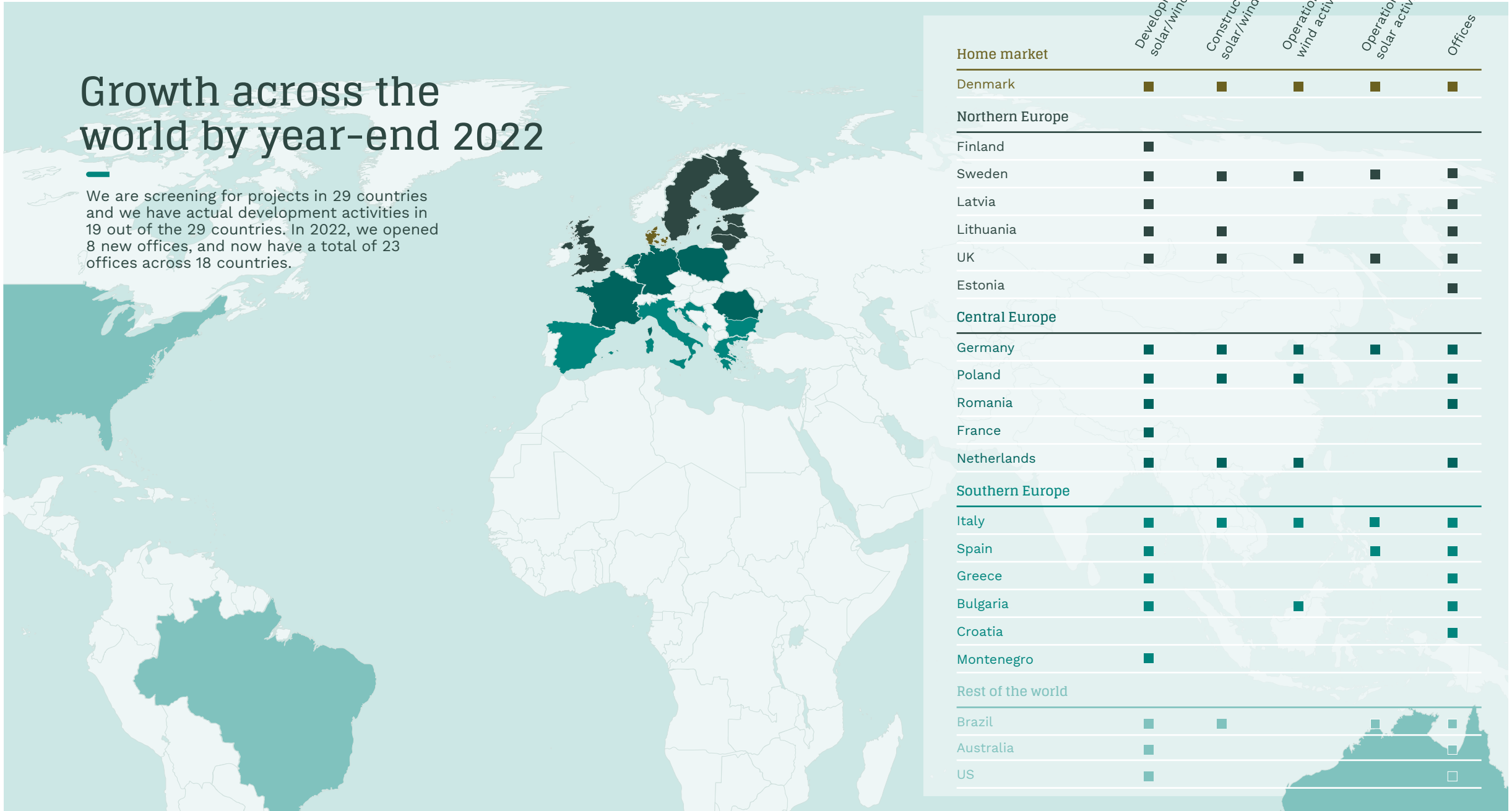
## Asset management & operations

We have in-house expertise in the technical, commercial and financial aspects of managing our projects. We also deliver operational services for solar plants, including scheduled preventive maintenance, corrective maintenance, technical support and plant monitoring.



# Growth across the world by year-end 2022

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.



\*Operational activities include power generation and asset management. We only undertake asset management in markets with their own power generation.

# Kassø Power-to-X on market terms



Why we need PtX-tenders?

## The Danish Power-to-X tender was

- Running from April 19<sup>th</sup> until September 1<sup>st</sup>
- Total grants of DKK 1.25 bn
- 10-year period of support with a fixed price premium
- Contracts awarded to lowest bid price per GJ
- Green hydrogen according to RFNBO
- Full production capacity must start 4 years after contract conclusion

# Danish PtX-tender part of a bigger picture

- 1) Denmark has a Power-to-X-strategy with a target of 4-6 GW of electrolysis capacity by 2030.
- 2) Enabled direct lines, geographically differentiated tariffs, and local collective tariff structures.
- 3) In process with the build-out of infrastructure for hydrogen in Denmark.
- 4) Appointment of a PtX Taskforce to support developing a market for hydrogen and infrastructure for hydrogen in Denmark.
- 5) European regulators have agreed on Rules for Renewable Fuels of Non-Biological Origin by mid 2023



# Outcome of the Danish tender:

- 1) Bids totaling more than DKK 4 bn equivalent to more than 675 MW of new electrolysis capacity
- 2) 280 MW capacity awarded public support.
- 3) Bids way below the support ceiling of DKK 70/GJ

Overall conclusion:  
Green hydrogen is now – not only from 2030



# European Energy winning bids

Project	Price	MW	Total subsidy	% of total cost	Localisation
Vindtestcenter Måde	40,0000	9	43.994.973	3,3	Esbjerg
Padborg	46,0000	150	910.800.000	69,1	Padborg
Kassø PtX Expansion	67,0000	10	81.879.549	6,2	Røddekro



# Most important learnings

- Danish tender conditions worked well
- Minimum requirements met by market actors
- Winners are geographically located along expected hydrogen infrastructure – signal to Danish Government.
- Danish authorities were relatively well prepared.



Where do we stand today?

European Hydrogen Bank is open!

Not included learnings from Danish tender though.

# Looking ahead

Publication of EU Hydrogen Bank Round 1 results

EU Hydrogen Bank Round 2 totaling EUR 2.2 bn

# Future tenders on green hydrogen in Denmark?

## Danish tender 2.0?

The European Commission has already approved the first Danish tender. The Danish Government can decide to undertake a second round of hydrogen tenders on same conditions.

## Auction as a service

To enable countries to use their national budget resources to award support to projects located on their territory while relying on an EU-wide auction mechanism to identify the most competitive projects.

Bubney,  
UK



# Questions?



# The Power of Tomorrow, Today



EUROPEAN  
ENERGY