



POWER 2 X
LEADING IN ENERGY

Biomass Gasification

Perspective of a project developer

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01

Introduction

Power2X aims to deliver top-quartile, most competitive green molecule projects for industrial decarbonization

Company introduction

World class capabilities and long-term capital

Consulting and origination

Technical and delivery

Industry operations

Leading global partners

Committed capital

Offices in Amsterdam (HQ) and London

Team of approximately 70+ people






























Power2X Projects
Large scale green molecule projects under development



Power2X Consulting
50+ Energy transition projects across the globe



- Project leads
- Project developments
- Consulting engagements

Industrial scale new energy value chains

 Industrial decarbonization

 Hydrogen

 Energy & chemicals

 Proven technology, world scale

 Ammonia, methanol, Feedstocks

 Heavy industry

 Greenfield and brownfield

 Sustainable Fuels

 Energy infrastructure

 Investors, governments



Power2X is part of the CPPIB Sustainable Energy Group portfolio, providing capital & adding experience

Capital & experience

Power2X has secured a long-term investment partnership which accelerate Power2X's growth

CPP Investments

- **CPPIB** is a **world-leading investment manager** with **EUR 400 bn** assets under management (2023). CPP's Sustainable Energy group holds an investment portfolio of > EUR 20 bn in energy, power and infrastructure
- Power2X is CPPIB's platform company for **investments in green molecules, industry & transport decarbonization**
- Long-term investment partnership aimed at advancing Power2X's leading role in the global clean energy transition
- **Initial €130 million commitment** to accelerate growth of Power2X as a development platform and fund green molecule projects

Power2X can draw from extensive portfolio experience in energy & chemicals from other CPPIB investments / platform companies, such as:



Major US Renewables developer with over 6GW capacity under operation



India-based renewables & hydrogen developer with over 13 GW planned/operating



EU Renewable power & storage company with a pipeline of over 6.5GW



France based Offshore Wind developer, founded in 2019 as joint venture between CPP & Enbridge Inc.

Other CPPIB investment platform companies include:



Source: Power2X

Our projects and services accelerate the clean molecule transition in competitive and dynamic global markets

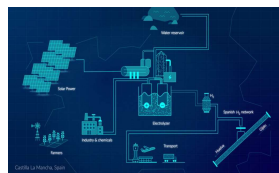
Power2X Project Development

World-scale clean molecule assets and infrastructure



MadoquaPower2X

GW-scale green ammonia
>€1Bn Capex, FEED (FID 2025)
€245mIn European Hydrogen Bank



ErasmusPower2X

650MW Green Hydrogen
>€1Bn Capex



Power2XEstonia

500kt Bio/e-Methanol
>€1Bn Capex

Various other projects under development incl. M&A

Power2X Consulting

World-class energy transition consulting across industries

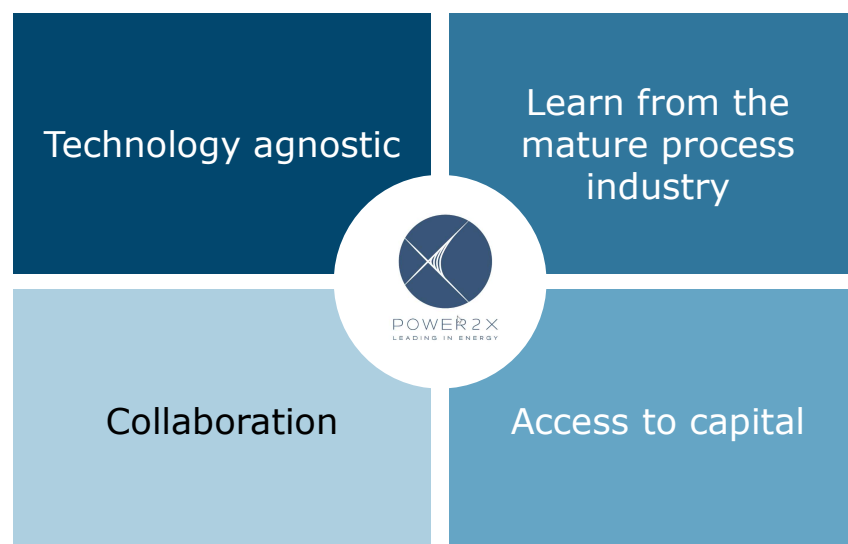
● Project developments ● Consulting engagements ● Project leads



- 50+ Projects globally
- Strategy, project delivery, and transaction support
- Clean molecule supply and value chains
- Industrial decarbonization & site transformation



Power2X differentiator



- Adapted stage gate process for the green molecules
- Flat organization
- Continuous interaction with stakeholders
- Focus on operating the plant of future

Specific Focus areas

- Feedstock and Offtake
- Land and Permit
- Commercial and Subsidies
- Technology and Delivery





02

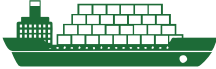
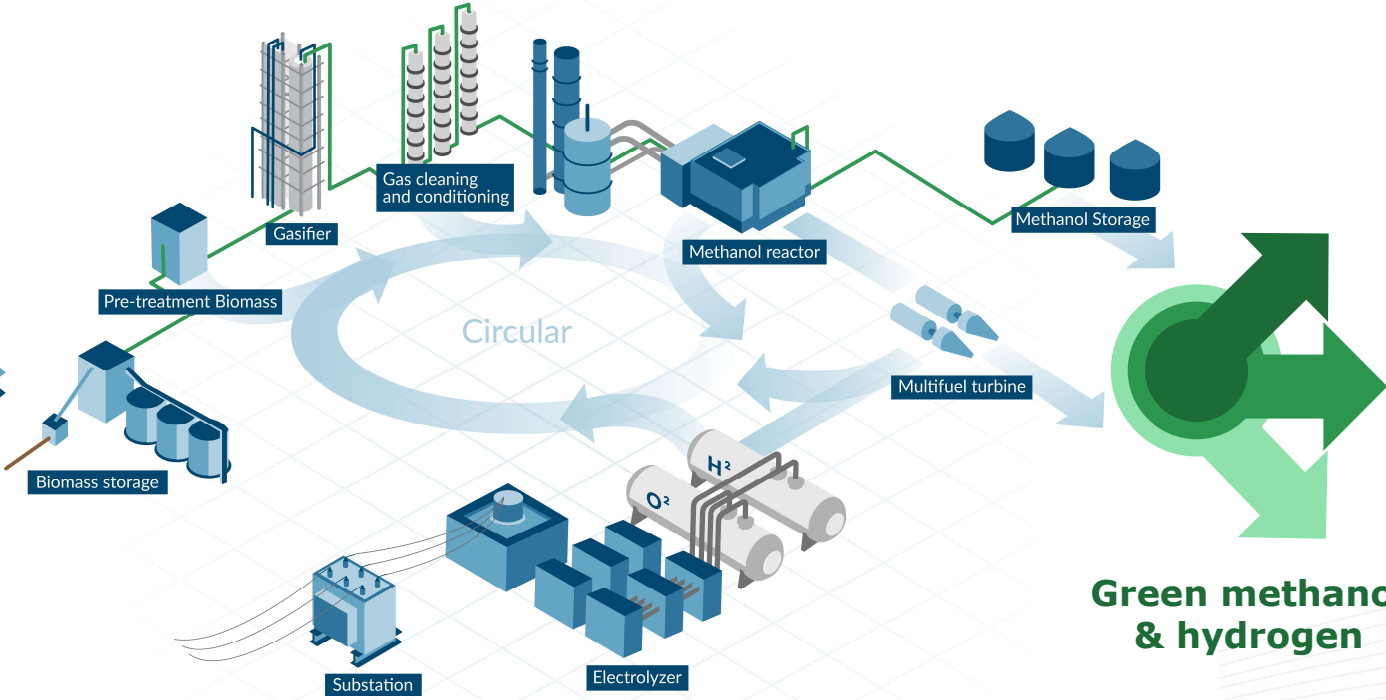
Power2X Estonia

Power2X presents a keystone green Methanol plant for decarbonizing fuels & chemicals

Green power



Sustainable biomass



Maritime



Industry



Aviation

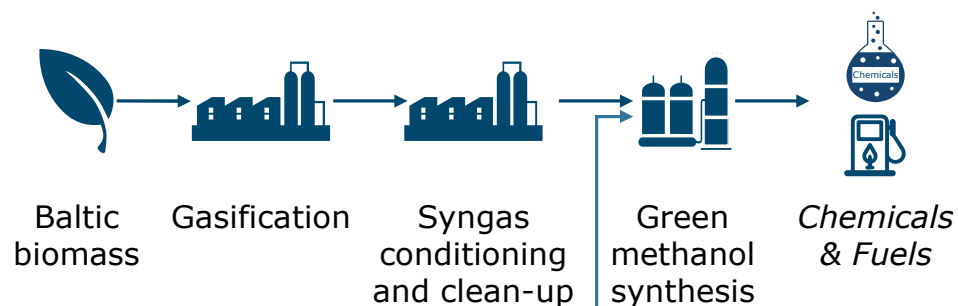


Green methanol will be produced in two phases enabled by biomass in phase I and green hydrogen in phase II

Project Concept

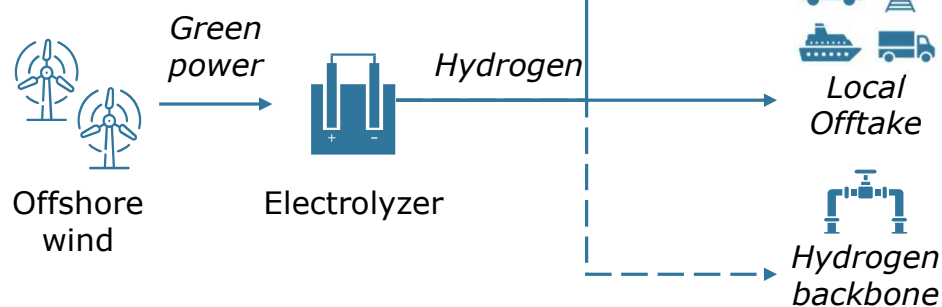
Simplified process diagram

Phase I: Start with biomass



- **Sustainable biomass** to be used as feedstock for the plant
- The biomass is **pre-treated** and **processed** on the site for the green methanol production process
- **REDII compliant bio-methanol** is produced and exported to targeted end-markets

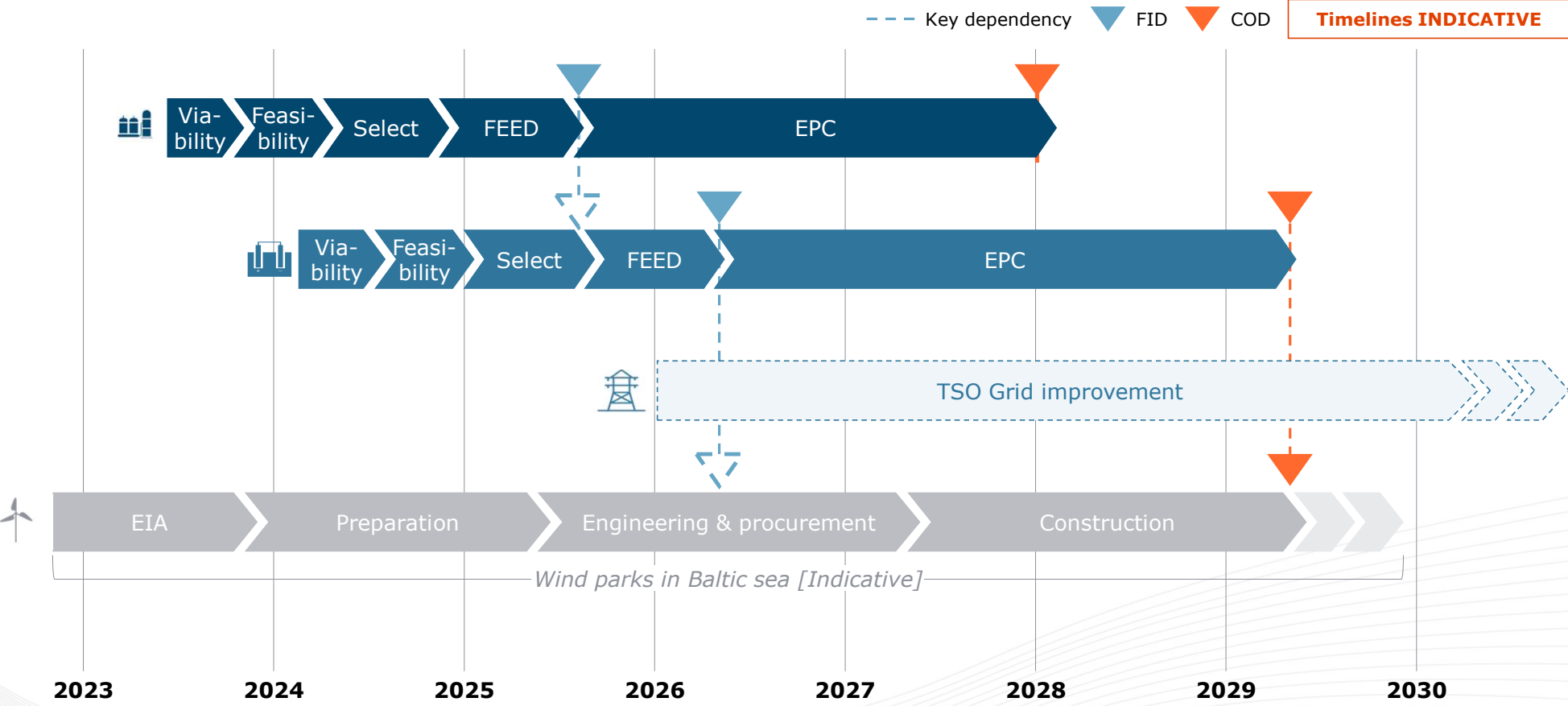
Phase II: Add green hydrogen



- Offshore wind parks produce green power for **green hydrogen production**
- Green hydrogen enables doubling the output to **REDII compliant biomass-methanol and E-methanol**
- Excess green hydrogen will be used for **local demand** and the hydrogen backbone to kickstart Estonian's green hydrogen economy



Power2X biofuels to start as biomass-only project, partnering with wind power for second phase



Source: Power2x analysis



03

Technology Derisking

Outlook towards gasification

A mature technology with question marks

Maturity

- Coal gasification
- POX for hydrogen production

- Highest carbon yield for bio carbon utilization
- Flexibility in feedstock, products
- Integration with CO₂ capture

Carbon utilization

- When feedstock is sorted

Overall Optimistic

CBC¹ news says

Waste-to-ethanol biofuels plant in Edmonton closes 11 years ahead of schedule

Bloomberg² says

Green | Cleaner Tech

Waste-to-Fuel Company That Raised \$1 Billion Verges on Collapse

Reliability is still an issue!!



Moving the Needle

How to improve technology confidence

Technology demonstration

- Demo scale operating for significant time
- Understand the reliability
- Sharing information

- Reliability crucial

Business case

Long term take on Bio feedstocks

- Crucial renewable carbon
- Short-term and Long-term drivers different
- Competition amongst technologies
- Feedstock??

Sample technical dilemma
How to best evaluate scale up for gasification

Single train gasifier

- Benefit of scale
- Capex Friendly

Multiple train gasifier

- More reliable?





04

Conclusion

The perspective of a project developer

Two key takeaway messages

1

Optimistic outlook on Gasification

- Power2XEstonia development is an example

2

Reliability is crucial

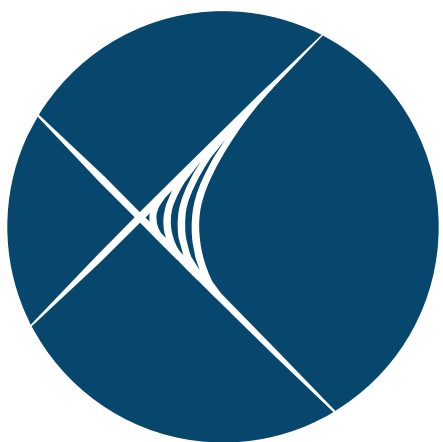
- Real life examples of /learnings from continuous operation
- Scale-up



Football is simple, but it is difficult to play simple.

Johan Cruyff





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