Everfuel

20th June 2024

HySynergy I

The making of a 20 MW electrolyzer plant

Jesper Veilstrup – Senior Project Manager

Electrolyser building and trailer bay from above | HySynergy

HySynergy - the concept

Phase I

- **20MW green hydrogen** production facility next to refinery
- Surplus heat used for district heating to **~1,800 households**
- H2 delivery by pipeline and Distribution Centre

Phase II

- **300MW** electrolyzer, 3x 100MW
- **Commercial agreement** with Crossbridge refinery
- Conditional **O2 offtake** agreement with industrial neighbour

Phase III

- **Ambition of 1 GW** in HySynergy
- Land reserved for full implementation

Phase 1: **20MW** operational in 2024| Phase 2: **~300MW** | Phase 3: **1GW**

The making of HySynergy 1

- **Offtake agreement with main stake holder Crossbridge Refinery**
- **Funding from Danish EUDP scheme (48 mill DKR) and CEF funding (max 20 %)**
- **Project to be "Proof of business" not "Proof of concept"**
  - Operation to be "as the wind blows"
- **Technology choice conservative to assure stable operation and de-risk the project timeline**
  - Atmospheric alkaline electrolyzers with a track record
  - 200 bar compression on 2 units from experienced vendor
  - 5 t 200 bar H2 storage in ceramic vessels
  - 380 bar trailer fill compression and 5 trailer filling bays
  - Waste heat utilization and district heating integration for ~1,800 households
- **Design and integration of all plant parts not done before**
  - Prioritized inhouse engineering and competence development
  - Experienced consultant engaged for process design and process safety engineering
  - Close cooperation with all vendors

Sunrise behind the Crossbridge Energy refinery | HySynergy

Everfuel

HySynergy 1 – Project completion and status

- **Main electrolyser facility ready for start-up**
  - First hydrogen produced in test mode
- **Mechanical and electrical installation well progressed**
- **Remaining commissioning ongoing**
  - Low pressure and utility systems functioning
  - Medium pressure system ongoing
  - High pressure system expected second half of 2024
  - Automation and signal testing has priority
- **Permitting and compliance**
  - Environmental and fire permits in place
  - PED certification and installation control almost done

Storage containers | HySynergy

Everfuel

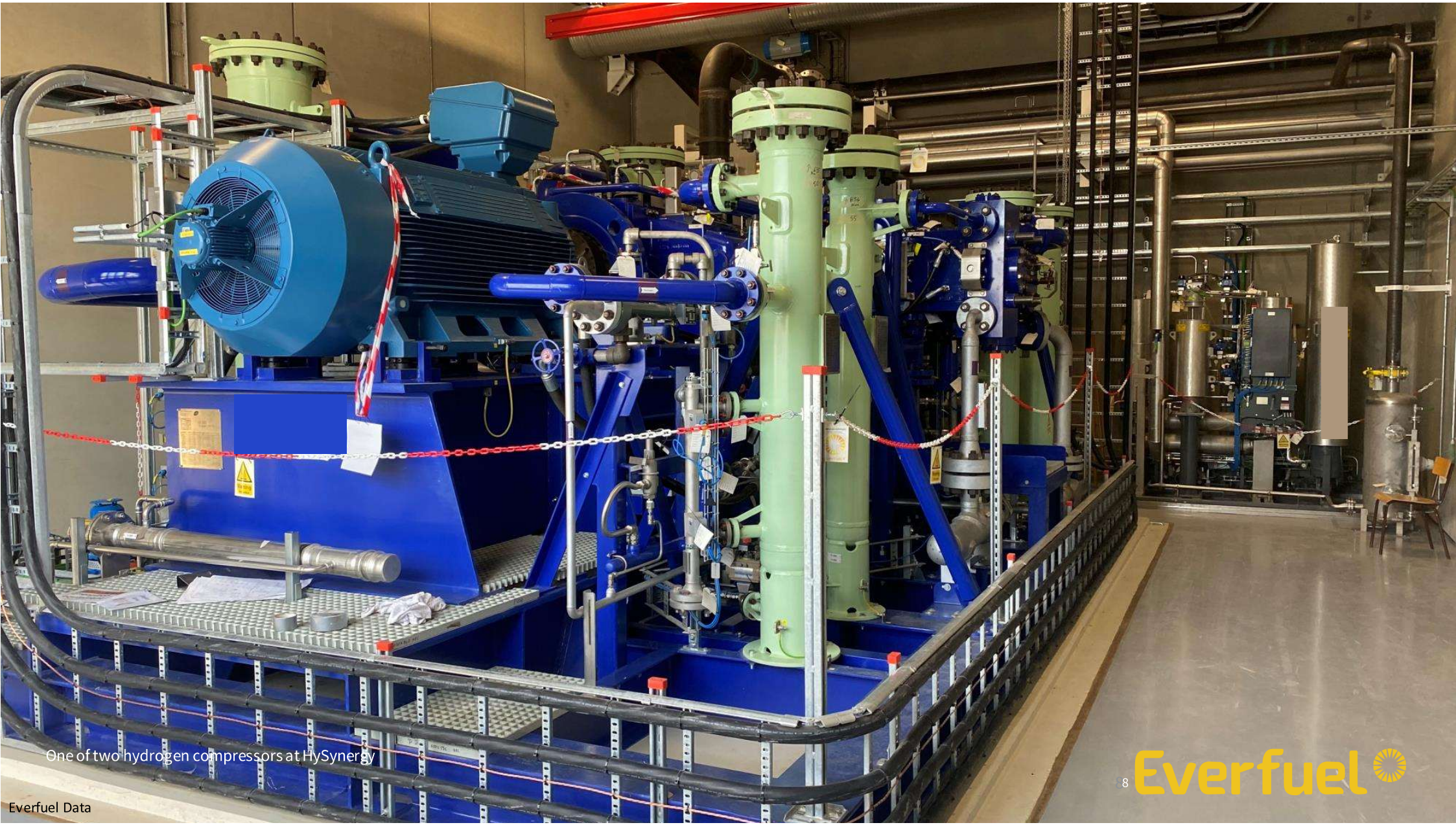
Pictures from HySynergy

Everfuel

Electrolyser room at HySynergy

Electrolyser room at HySynergy

Everfuel



One of two hydrogen compressors at HySynergy

Everfuel Data

Hydrogen distribution centre and distribution trailer | HySynergy

Everfuel

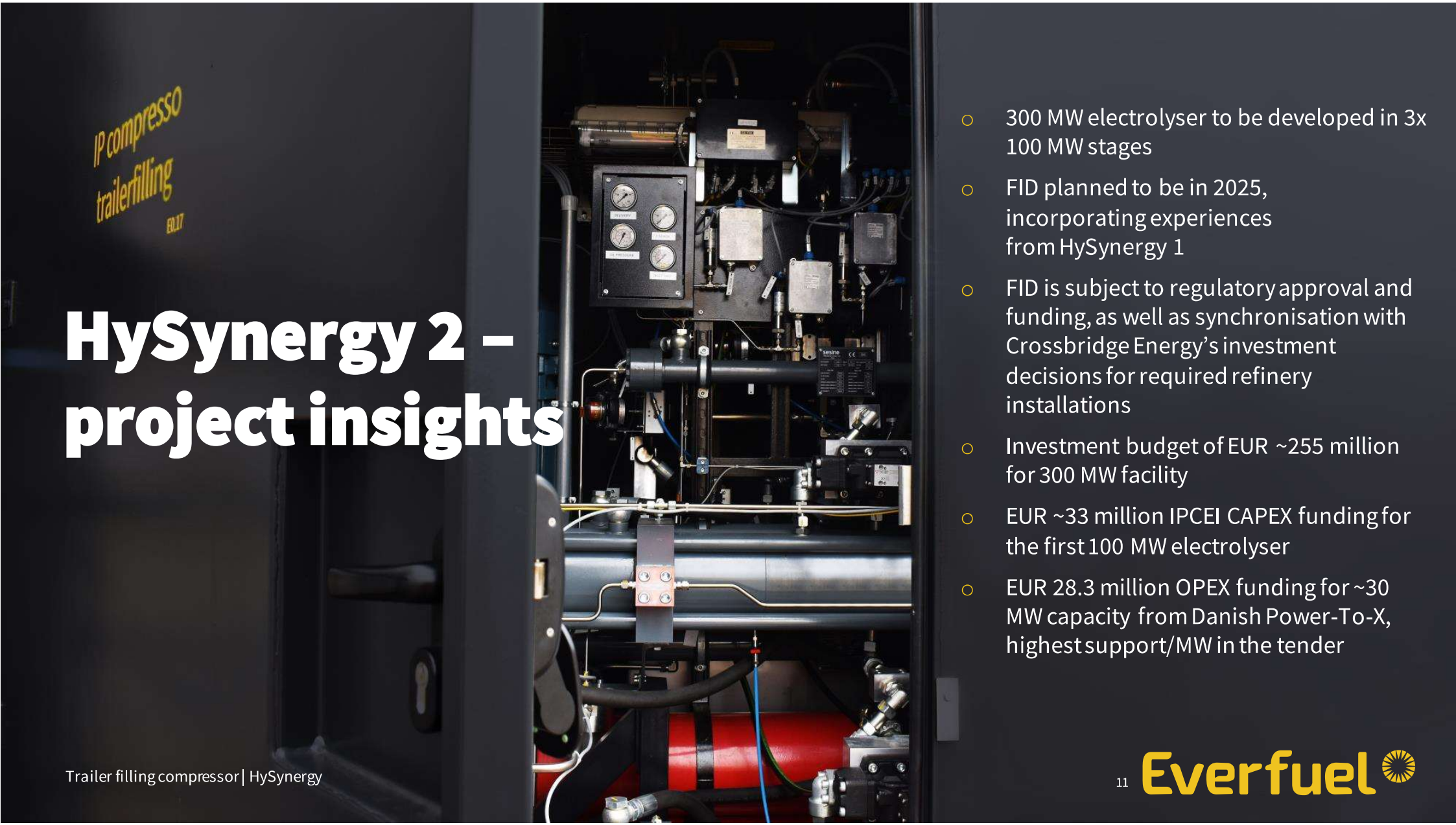
Learnings

- Front load the project with resources and competencies
- Spend time on planning
- Anticipate challenges
- Use authorities as sparring partners
- Do your research
- Focus on safety!

Transformer area with entrance to Electrolyser | HySynergy

Everfuel

HySynergy 2 – project insights



- 300 MW electrolyser to be developed in 3x 100 MW stages
- FID planned to be in 2025, incorporating experiences from HySynergy 1
- FID is subject to regulatory approval and funding, as well as synchronisation with Crossbridge Energy's investment decisions for required refinery installations
- Investment budget of EUR ~255 million for 300 MW facility
- EUR ~33 million IPCEI CAPEX funding for the first 100 MW electrolyser
- EUR 28.3 million OPEX funding for ~30 MW capacity from Danish Power-To-X, highest support/MW in the tender

Trailer filling compressor | HySynergy

Expected sector coupling

Power

- 350 MW TSO grid agreement with Energinet
- Power to assure green hydrogen production – ongoing work for local solar power and PPA agreements

Water

- Consumption not to be from local drinking water sources
- Several sustainable paths to follow

Oxygen

- Offtake agreement for oxygen supply subject to FID for HySynergy 2 and offtaker

Waste heat

- Expected integration with district heating grid

Strong strategic partnerships

- Everfuel and Hy24 JV completed 2023
- Framework model to develop large-scale H2 production in SPVs
- Winner of first Danish PtX tender with highest OPEX support

- Strategic collaboration agreement with Japanese Majors
- Leverage competencies and resources to commercialise H2
- Committed to support potential future Everfuel equity financing