

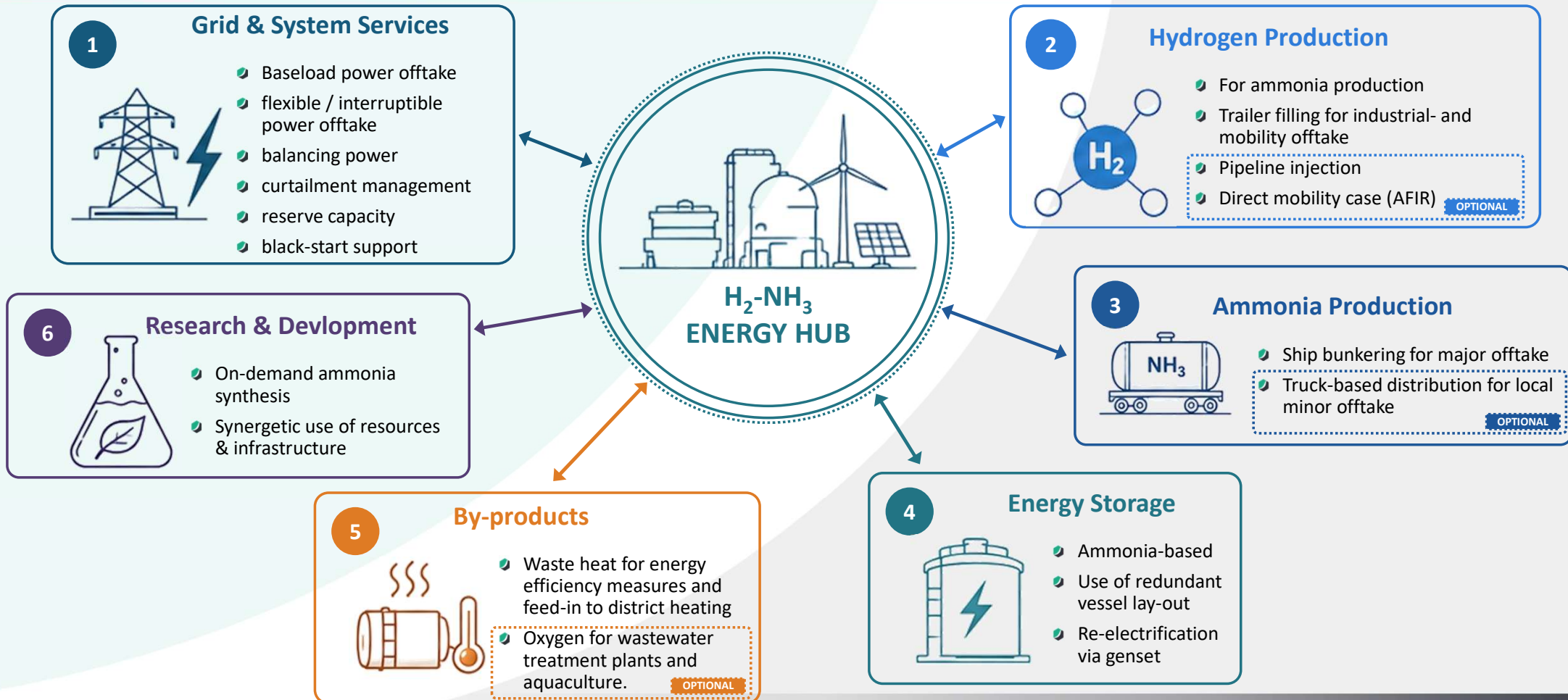


MAT ENERGY
SYSTEMS

Green Ammonia from Run-of-River Hydropower in the Danube Region

A cross-border development concept for Austria, Slovakia and Hungary

26 May, 2026



Hydrogen-Ammonia Energy Hub

Value & Impact



Ammonia

Strengthening Fertilizer & Industrial Supply Chains

Secure regional green NH₃ supply for agriculture, industry and future energy applications.



Up to 300 t NH₃/day

Regional green production

Hydrogen

Anchoring the Regional Hydrogen Economy

A scalable electrolyser park as a cornerstone for an H₂ ecosystem and potential interconnection with the hydrogen backbone pipelines



120 MW electrolysis

Up to 53 t H₂/day

Grid and System Services

Enabling Flexibility, Storage & Energy Resilience

Use electrolysis, NH₃ storage and reconversion to increase grid flexibility and long-duration energy storage.



96 MW of flexible load

+ 50 MW / ~ 85 hours NH₃ re-electrification

Jobs & Innovation

Creating a Regional Research & Skills Hub

Establish high-value jobs and a shared R&D platform for on-demand ammonia production, hydrogen integration and industrial innovation.

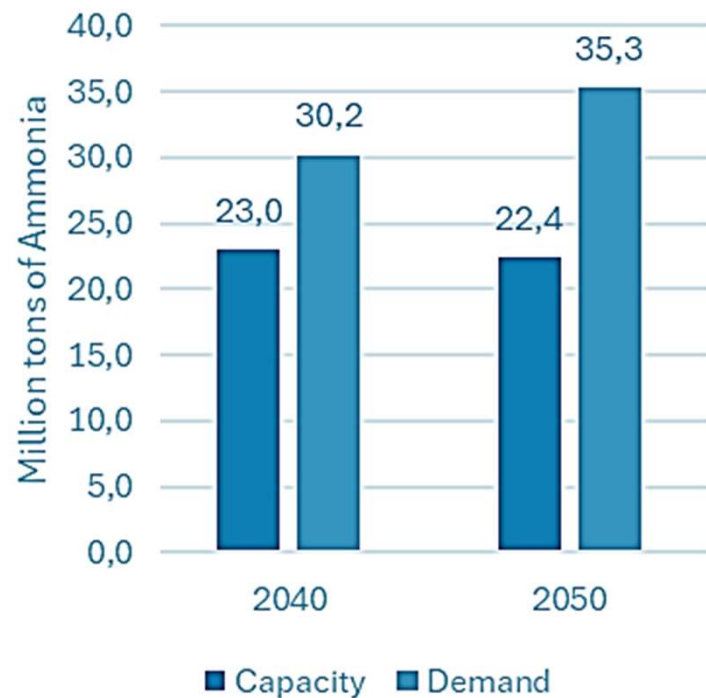


Up to 60 direct jobs

O&M, commercial roles & R&D on nuclear-H₂ integration and flexible NH₃ synthesis

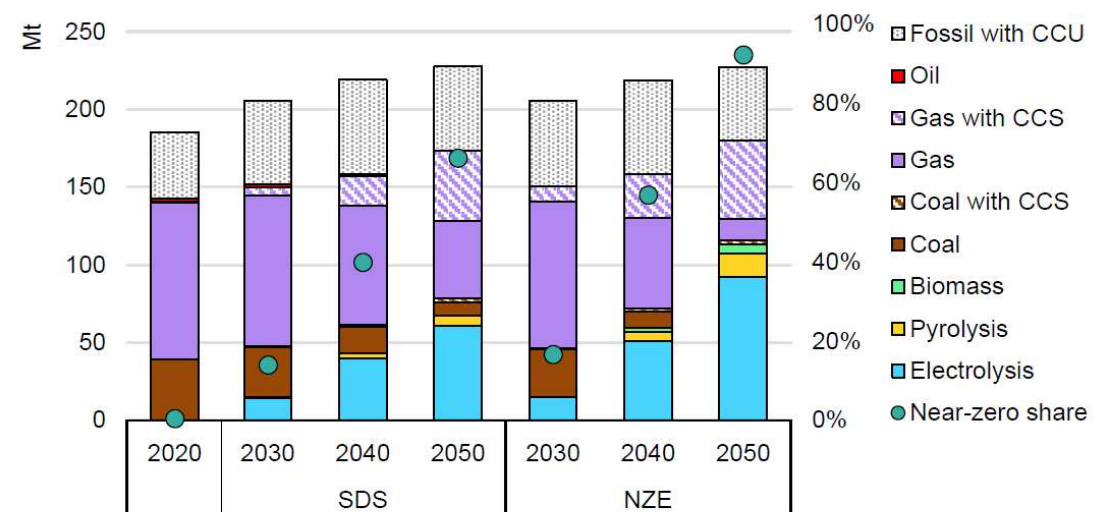
NH₃ market overview: Capacity & Demand Outlook

Europe ammonia Demand vs. Capacity - Outlook



Graph adapted from KBR; The Future of Ammonia Supply in Europe; 2024

Global ammonia production by technology and scenario



IEA, 2021.

Graph adapted from IEA, 2021; SDS = Sustainable Development Scenario; NZE = Net Zero Emissions by 2050 Scenario; CCS = carbon capture and storage; CCU = carbon capture and utilisation for urea production. Near-zero share = aggregated share of near-zero-emission routes, excluding CCU.

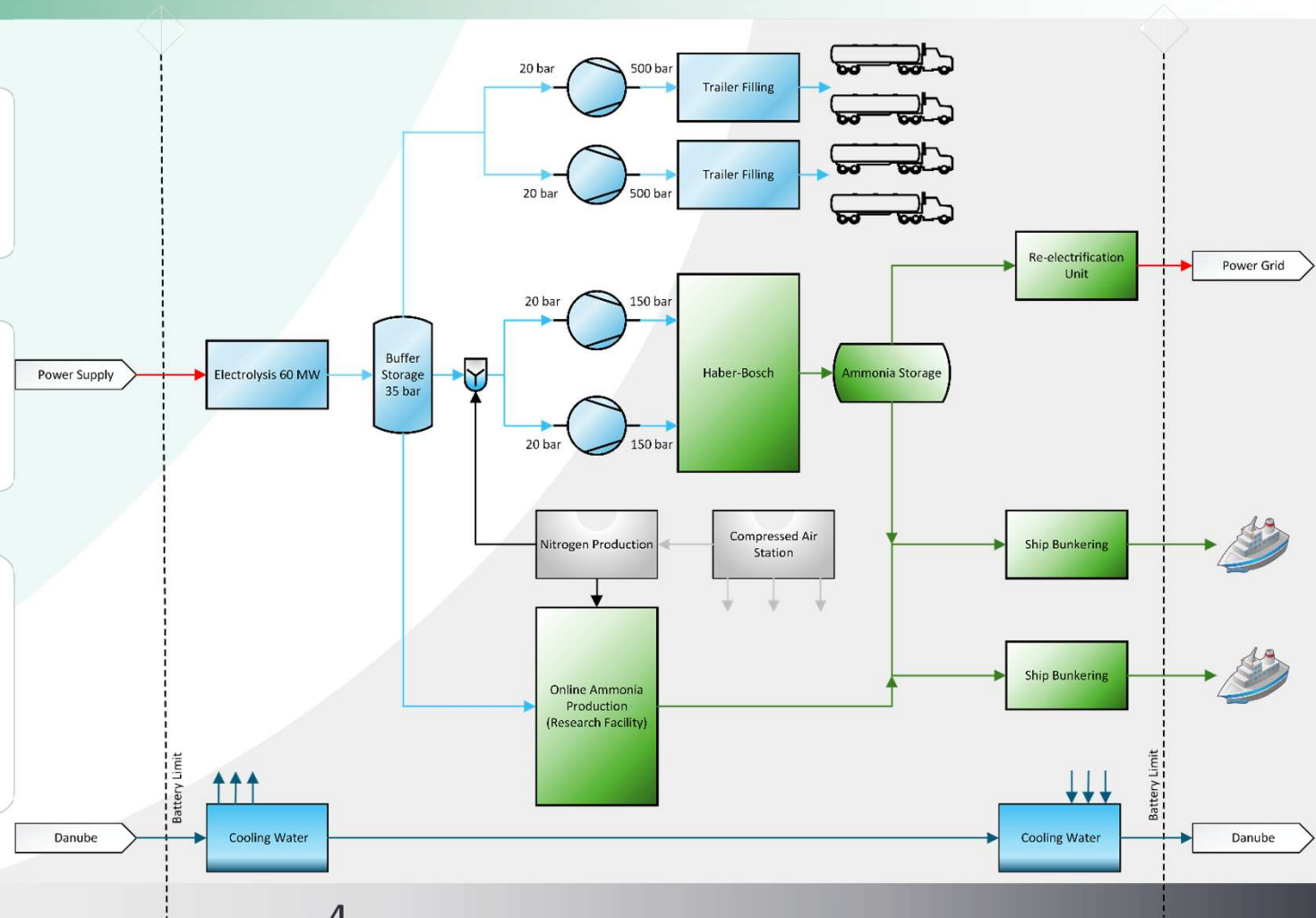
Block Flow Schematic



Modular & scalable platform

Multiple offtake routes

Online/on-demand NH₃ synthesis (R&D) as independent side stream



Why 120 MW: The Industrial-Scale Module



Parameter \ Case	Base Case NH3 + Power Flexibility	Max NH3 Case	Max H2 / Pipeline Case
Operating focus	Stable NH3 production + flexibility reserve	Maximum NH3 production	Maximum H2 production / Pipeline injection + H2 Trailer Filling
Electrolyser input	~92–98 MW	~120 MW	~120 MW
NH3 output	~240 t/d	up to ~300 t/d	0 t/d or minimum NH3 standby
H2 production / use	~43 t/d H2	~53 t/d H2	~53 t/d H2
H2 destination	NH3 synthesis	NH3 synthesis	Pipeline injection / H2 trailer
N2 demand	~200 t/d	~250 t/d	0 t/d
Demin. water, stoich. min.	~380 m ³ /d	~475 m³/d	~475 m ³ /d
O2 by-product	~340 t/d	~420 t/d	~420 t/d
Annual H2 @ 8,000 h/a	~14.2 kt/a	~18 kt/a	~18 kt/a
Annual NH3 @ 8,000 h/a	~80 kt/a	~100 kt/a	0 kt/a

Up to ~470 t CO₂e/day avoided vs. EU-ETS ammonia benchmark — equivalent to ~157 kt CO₂e/year

Hydrogen-Ammonia Energy Hub

Concept Lay-out



R&D demonstrator unit
on-demand
NH₃-Synthesis

NH₃ Production
Haber-Bosch

2 x NH₃ Bunkering
(2.000 tones each)

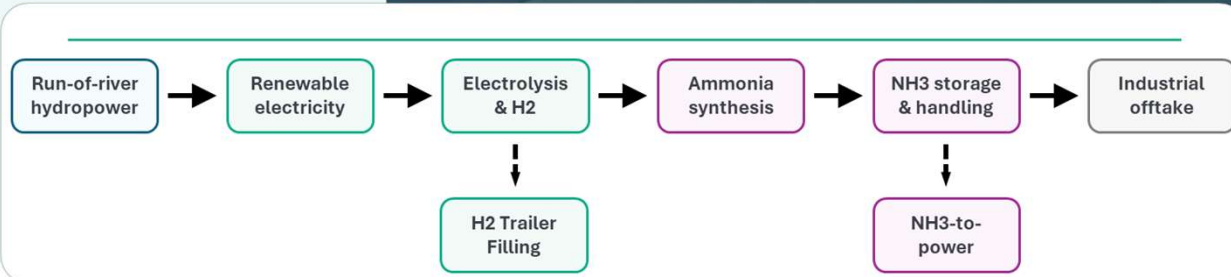
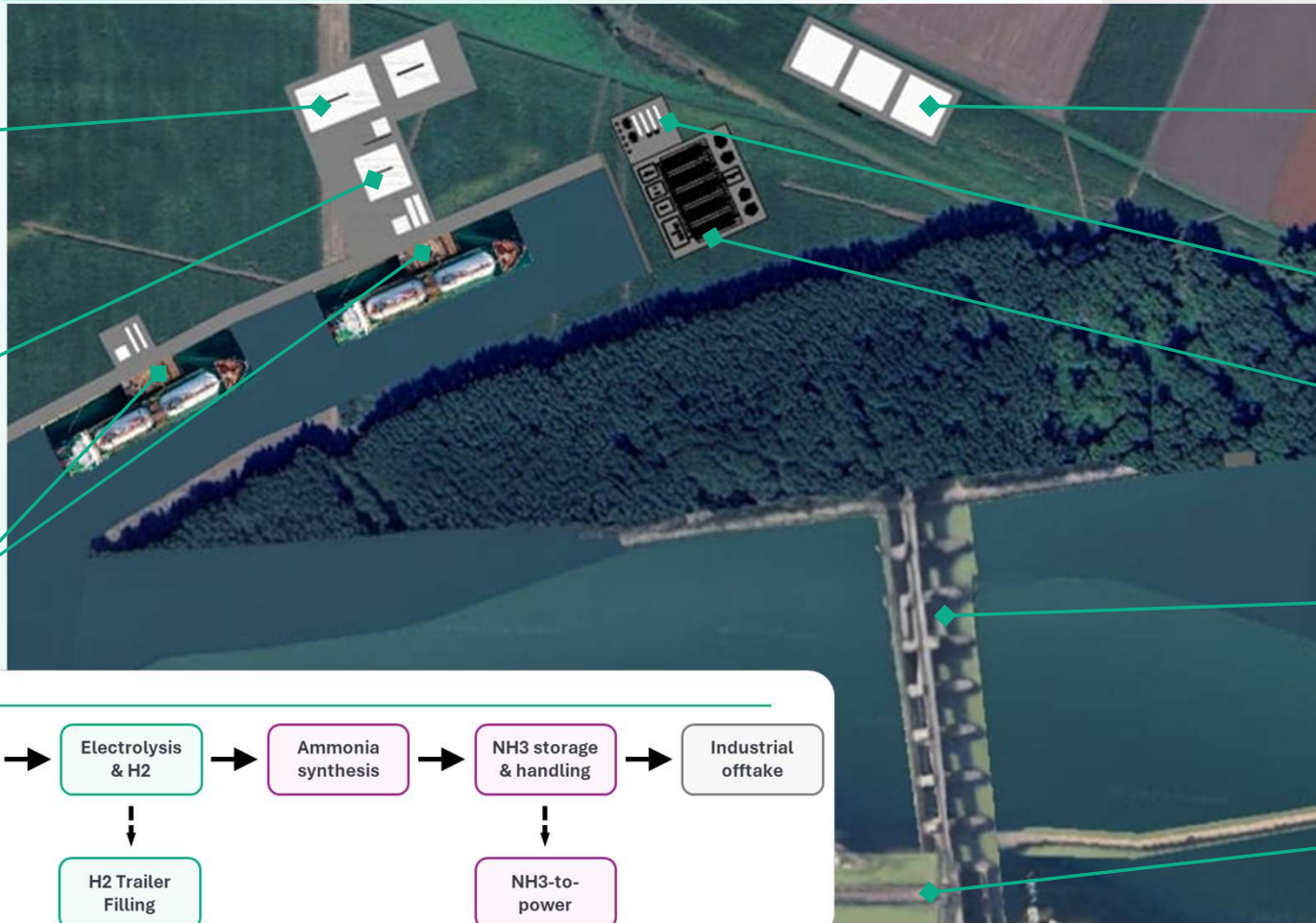
Ammonia-2-power
re-conversion

Hydrogen Trailer
Filling

Electrolyser Park

300 MW
Run-of-River
Power Plant

River Lock





MAT ENERGY
SYSTEMS

*“At **MAT** Energy Systems we passionately shape a sustainable future
by transforming visions into competitive technologies”*