CATALSYS
TRANSFORMING ENERGY

Electrification Without the Grid: Why Ammonia matters for Future Propulsion Systems

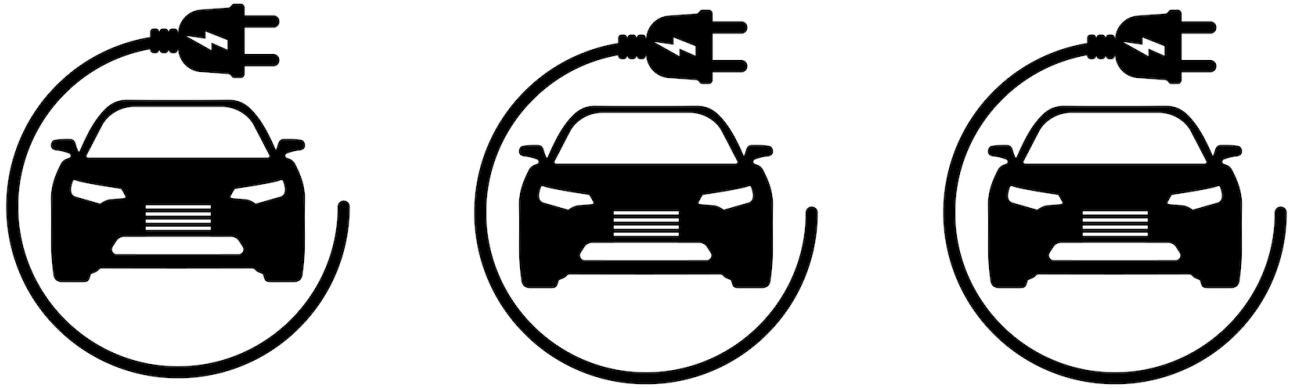
Kevin Fothergill
CEO, Catalsys Limited

26th February 2026

Electrification Without the Grid:
Why Ammonia matters for Future Propulsion Systems

Electrification = Decarbonisation

But electrification assumes grid capacity

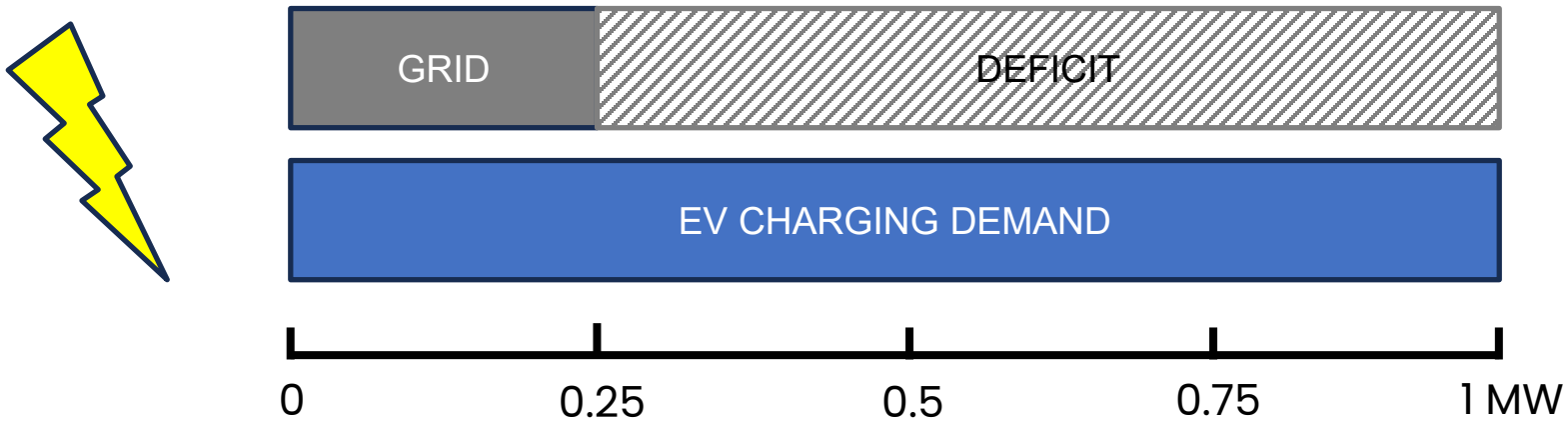


What happens when the grid cannot deliver?

Electrification is Infrastructure-Limited

- Fleet electrification requires MW-scale power
- Typical site grid supply: 250-500kW
- Reinforcement wait: 12-48 months (or more)

Diesel fills the gap – Decarbonisation is delayed



Electrification ≠ Infrastructure-ready

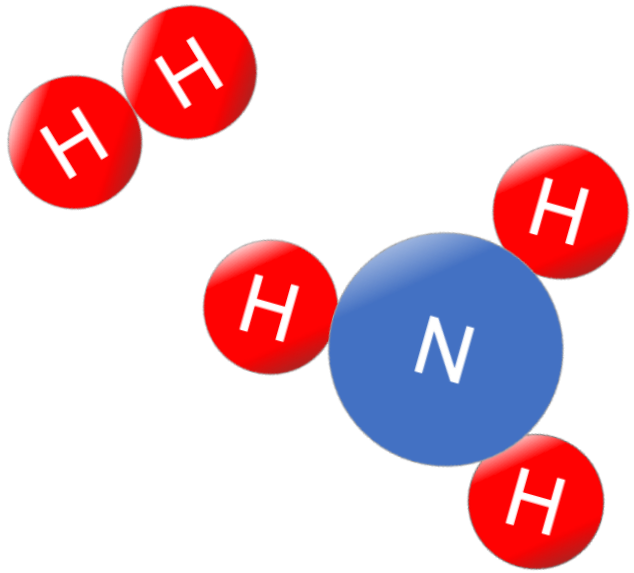
Energy must travel differently

If electrons can’t move through wires…

They must move in molecules.

Hydrogen → difficult to store and transport

Ammonia → liquid, dense, globally traded

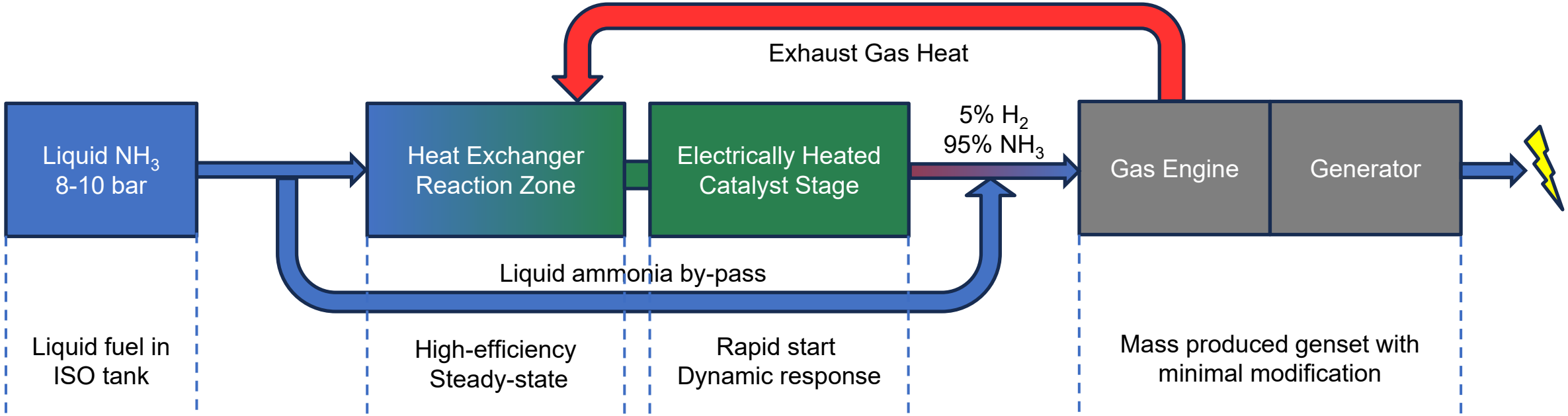


	Hydrogen (H_2)	**Ammonia (NH_3)**
Storage & transport	180–700 bar gas	8–10 bar liquid
Cryogenics	Often	No
Global trade	Limited	Established (as fertiliser)
Hydrogen density	High	Higher

Hydrogen is moved at scale as ammonia

Producing Electricity From a Conventional Genset

A controlled, dynamic NH_3 + H_2 fuel blend for optimised combustion



At steady-state, 100% of reaction energy is recovered from engine exhaust

Automotive catalyst heating technology enables rapid response to load

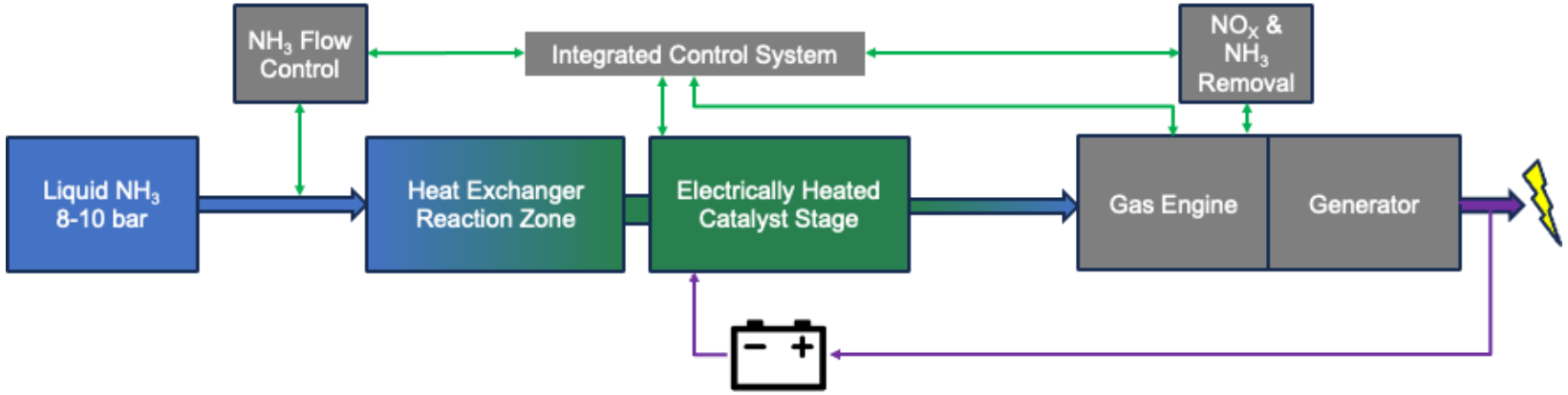
An Integrated Fuel-Engine Platform

Fuel conditioning is not enough.

Performance depends on:

- Real-time NH3/H2 ratio control
- Engine software adaption
- Load following stability
- Integrated emissions management

Diesel-like operability
Zero-carbon fuel



Case study: Delivery fleet – depot with 50 vans

CATALSYS converts green ammonia into electrical power to charge all types of battery electric vehicles, with no grid connection required

- Fleet of 50 Rivian EDV-700 vans
- Recharging between 10pm and 6am each day (8 hours)
- Average of 150km per van per day, 0.3kWh/km
- Max power output 500kW
- System contained within a 40’ shipping container plus ammonia storage tank
- Std. T50 ISO tank contains 26MWhe and lasts 11 days

- Lower cost electricity than fossil fuel generator options
- Zero CO_2, particulates & hydrocarbon emissions
- NOx emissions better than Euro VI

Catalsys Power

Why This Matters for Future Propulsion

Electrification is delayed by the need for grid expansion

Ammonia + CATALSYS enables:

- Delivery of renewable energy to site (convenient & cost-effective)
- Fuel adaptation – Existing generation technology
- Dispatchable on-site electricity
- Infrastructure independence

- **Decarbonisation of transport**

CATALSYS
TRANSFORMING ENERGY

Transforming energy:

Lower Cost.
Zero Carbon.

Real-World Ready.

Kevin Fothergill, Chief Executive
kevin.fothergill@catalsys.com

CATALSYS
TRANSFORMING ENERGY