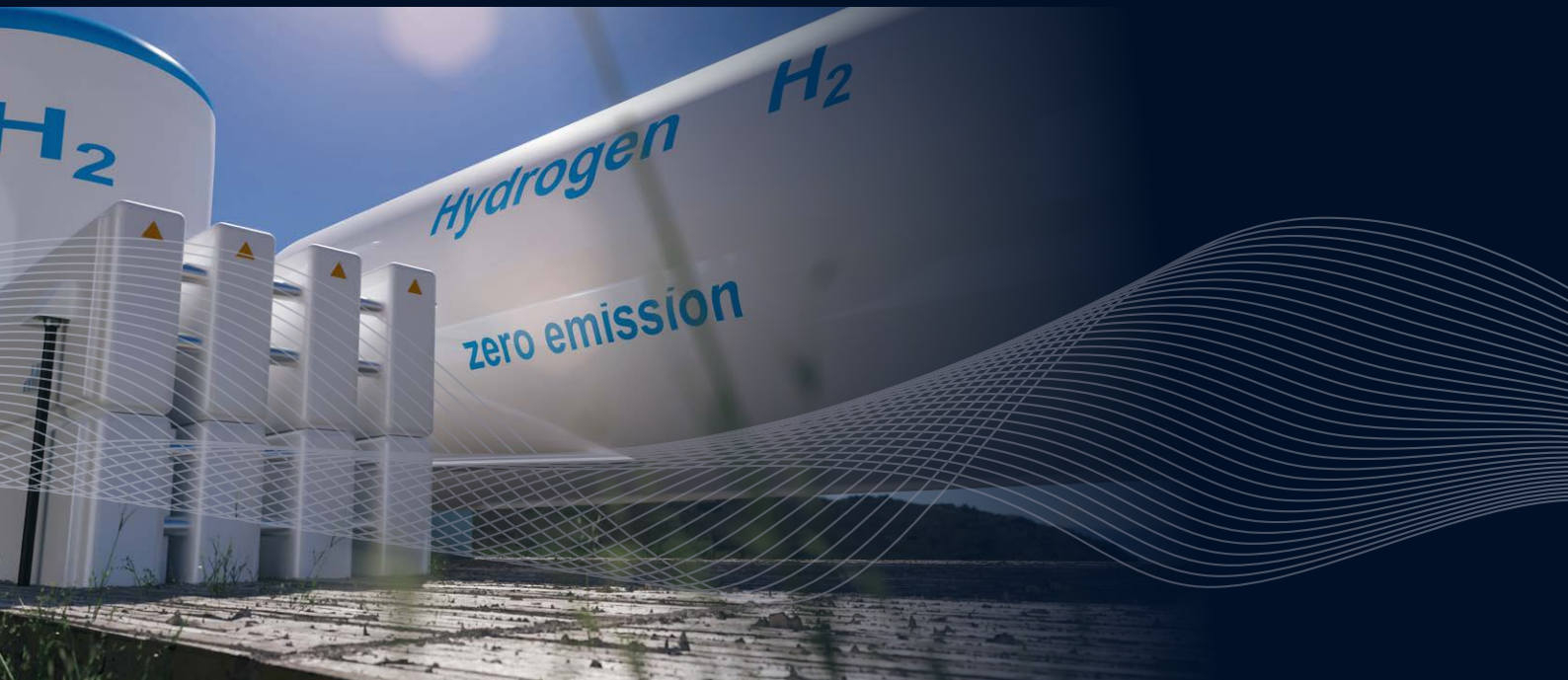




Waste Heat to Zero Emission Hydrogen



The HYTEN technology (patent pending) is a waste heat to hydrogen production system. Industrial waste heat is captured and exploited to generate low-cost, zero emission electricity that powers a water electrolyser to produce hydrogen fuel gas.

The establishment of a technically & commercially viable hydrogen transition market requires low-risk & low-cost hydrogen production technologies that encourage existing energy market supply and demand participants to productively engage the hydrocarbon / hydrogen energy transition.

Existing energy market supply & demand participants own and utilize significant legacy energy infrastructure that vents a large waste heat footprint to atmosphere.

The HYTEN System has the potential to exploit this waste heat resource to produce zero incremental

emission hydrogen at up to a ~70% lower cost than unsubsidised Green Hydrogen produced by solar / wind generated electricity.

Critically, these waste heat resource locations can utilise the zero-emission hydrogen produced by HYTEN to displace fossil fuel use at that same site location.

This circumstance eliminates the requirement for new safe and viable transport and storage technologies for hydrogen between alternative supply and demand locations.

THE HYTEN SYSTEM

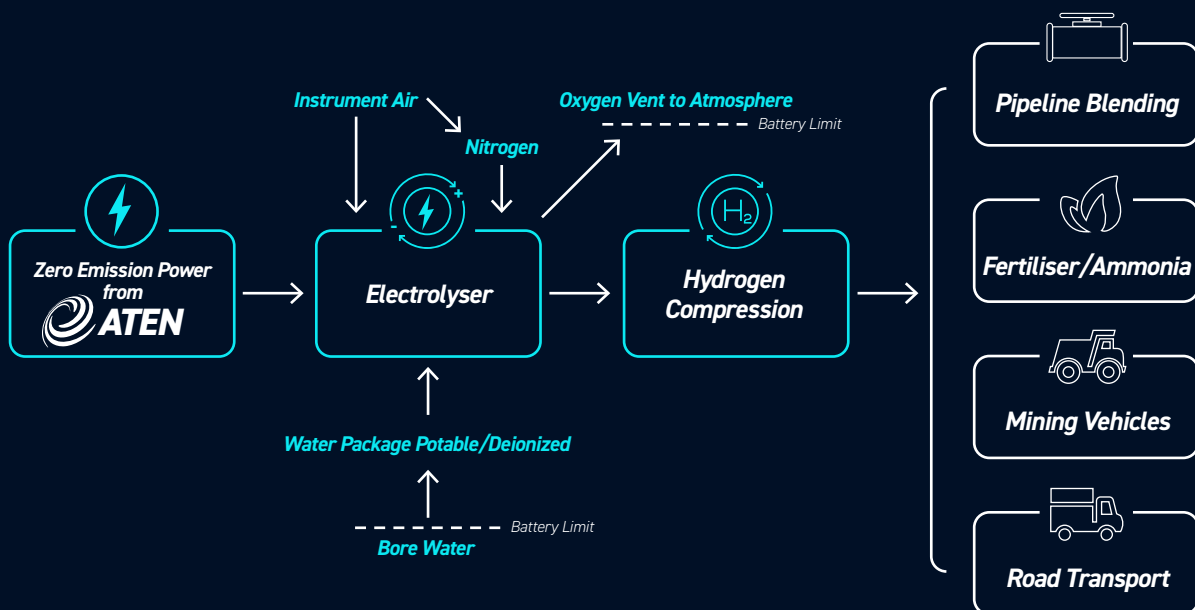
The HYTEN System design comprises three proven and well established primary sub-system solutions:

1. The ATEN waste heat recovery and thermal oil sub-system (Waste Heat Recovery Package); and
2. The ATEN organic rankine cycle and power generation sub-system including modular air-cooled or water-cooled condenser (ORC Package); and
3. An alkaline water electrolyser and hydrogen separation system (Electrolyser Package).

Simply put, the HYTEN System incorporates the VOLT ATEN – waste heat to power technology – integrated with an alkaline water electrolyser to produce zero emission hydrogen.

HYTEN Flowsheet and Market Opportunity

This figure provides a high-level overview of the electrolyser sub-system (including battery limits) that when combined with the ATEN Waste Heat to Power solution comprises the complete HYTEN Technology.

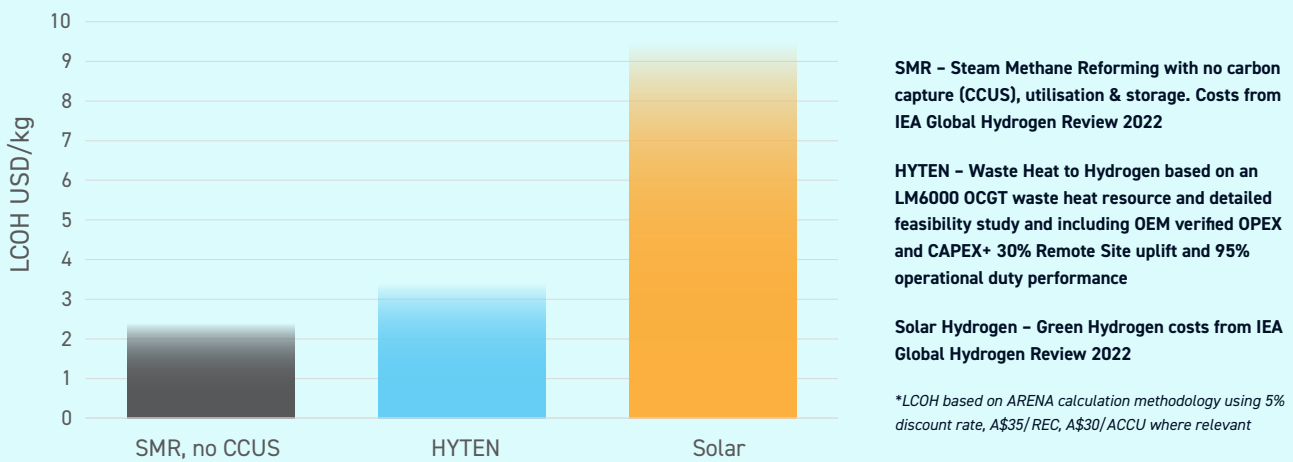


THE **HYTEN ADVANTAGE**

HYTEN has salient competitive advantages and the potential to produce zero emission hydrogen fuel gas for a ~70% lower CAPEX and ~60 – 80% lower lifecycle cost compared to Solar & Wind Green Hydrogen systems.

THE HYTEN COST CONTEXT

Levelised Cost of Hydrogen (LCOH*) Technology Comparison (equiv. annual H₂ production)



The HYTEN Technology is competitively advantaged and capable of a low Levelised Cost of Hydrogen (LCOH) due to the following performance capabilities and characteristics:

- **Zero Cost Energy Input** - Exploits waste heat energy vented at existing energy infrastructure assets
- **Proven Technology** - Proven OEM sub-systems
- **Cheaper than Diesel** - HYTEN hydrogen at a diesel cost (energy equivalent) of ~A1.40 - \$A1.80/litre
- **Creates ACCUs** - Carbon Credits (CFI) Act 2011 'Offset Project' / ACCU eligibility
- **Compact / Small Footprint** - Minimal site footprint Vs Solar / Wind alternatives
- **H₂ Produced at Demand Location** - Existing resource sector and industrial assets produce waste heat and have significant on-site hydro-carbon energy displacement options including mining mobile fleet (hydrogen fuel cell powered) and gas fuelled power generation displacement

THE HYTEN OPPORTUNITY

Global governments have developed zero emission Hydrogen growth strategies and policy to support new technologies that produce zero emission hydrogen for less than US\$2/kg (H₂ Cost Target) to allow the viable 'free market' displacement of hydrocarbon fuel use.

The strategic commercial rationale for HYTEN Technology's design development is based on the increasingly urgent movement to decarbonize the global economy. Governments across the world are introducing carbon reporting and carbon-based financial incentives / penalties to encourage industry transition from hydrocarbon fuels to zero carbon emission fuels.

The HYTEN Technology (patent pending) provides a significant, low-cost transitional technology pathway option to achieve

initial zero emission hydrogen production at approximately the H₂ Cost Target, when deployed at existing gas processing, power generation and other energy intensive industrial facilities. Working collaboratively with existing energy industry will deliver an accelerated and lowest-cost transition.

In contrast, existing "renewable energy" hydrogen production systems (solar & wind) cannot achieve the H₂ Cost Target without significant public funding support.

- **Global government policies have encouraged the following existing industries that generate significant waste heat to advance new infrastructure initiatives including:**
- Oil & natural gas industry to introduce gas pipeline hydrogen blending (up to 5-10% initially);
- Extractive industries to displace diesel in heavy train, haul truck and other equipment with combined hydrogen fuel cell and battery storage electrification solutions; and
- Chemical industries that have energy or hydrogen feedstock requirements (ammonia, urea etc.) to explore zero emission hydrogen supply options.

THE HYTEN APPLICATIONS

Numerous industrial scale operations worldwide generate a significant waste heat resource, currently vented to the atmosphere (Primary Targets), including:

- Pipeline compressor stations (facilitating hydrogen / natural gas pipeline blending at each pipeline compressor station)
- Onshore LNG and domestic gas supply facilities (waste heat to hydrogen and transmission pipeline blending)
- Extractive industry power generation (resource sector site hydrogen production potential)
- Industrial aluminium & steel smelters
- Downstream lithium processing and existing chemical industry facilities (i.e.: ammonia production)

Primary Targets with the potential to utilise HYTEN produced zero emission hydrogen to displace hydrocarbon fuels used as energy feedstock (H₂ Supply/Demand Sites) exist across Australia and globally. At these Primary Target sites, significant storage and transport infrastructure investment, is not required.

Existing critical hydrocarbon and industrial infrastructure can become a reliable, transitional source of low cost, zero emission

hydrogen production, greatly assisting initial energy transition commercialisation.

H₂ Supply/Demand Sites represent a high-value commercial opportunity for hydrogen fuel transition.

Where the H₂ Cost Target can be achieved, the value potential of HYTEN to decarbonize industries, is compelling.