



Renewable Hydrogen Blending

Overview of pilot project – Perth, Australia

23 May 2023



ABOUT ATCO

ATCO AUSTRALIA

\$2 BN
IN ASSETS

700+
EMPLOYEES

2 POWER PLANTS
GENERATING 266MW

2 MODULAR BUILDING FACILITIES

MORE THAN

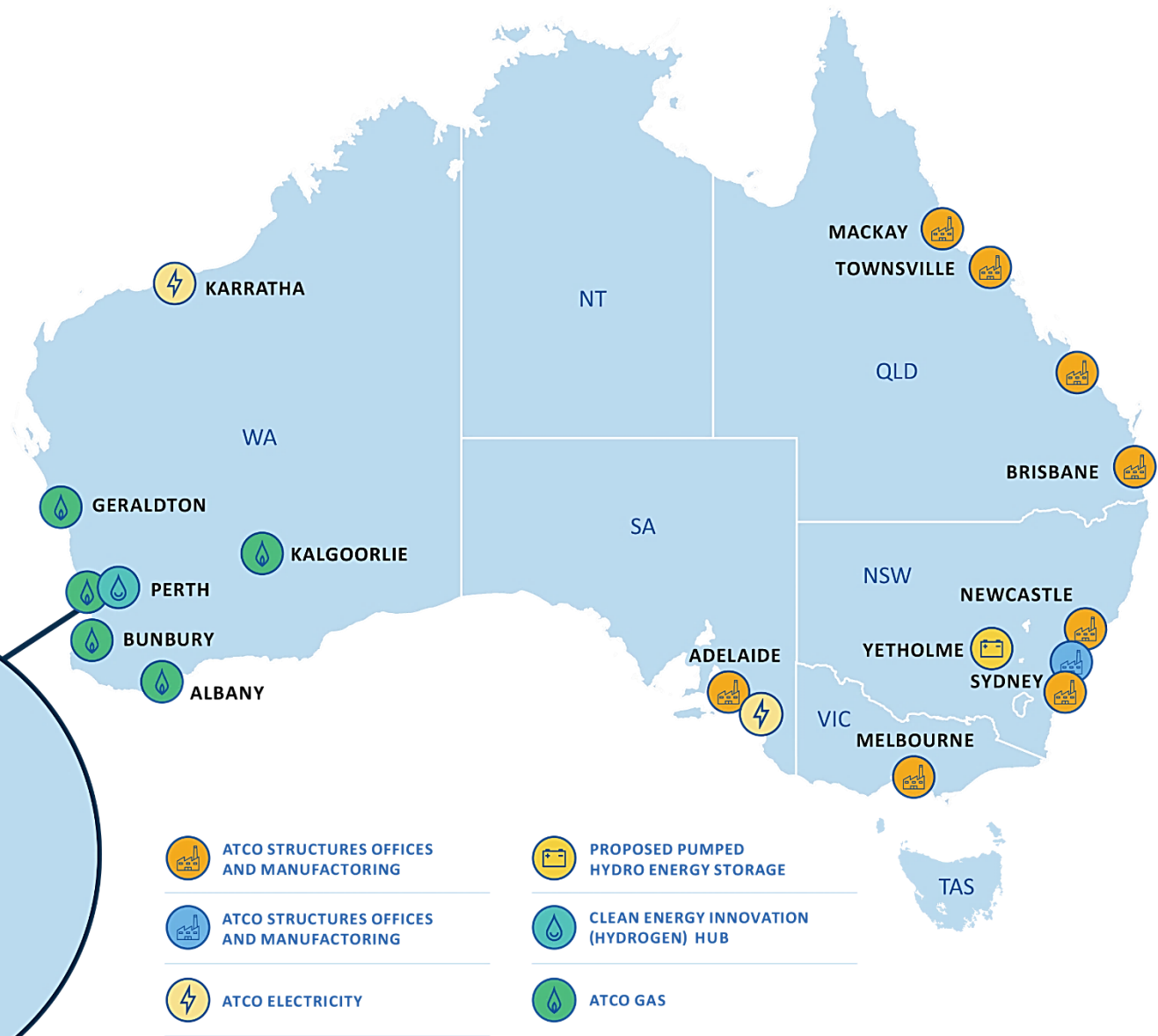
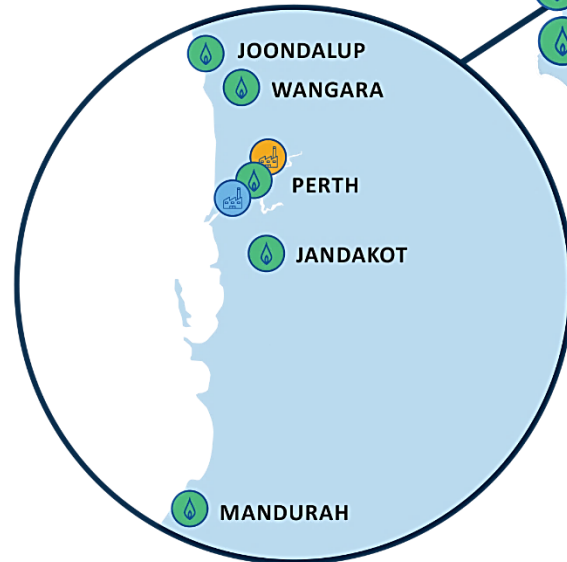
800,000

CONNECTION POINTS

MORE THAN

14,500km

OF PIPELINES



Renewable Hydrogen Experience - Australia

Operating



Clean Energy
Innovation Hub



Renewable Hydrogen
Blending Project



Renewable Hydrogen
Fuel Cell

Operating



Renewable Hydrogen
Refuelling Station



Renewable Hydrogen
Fleet

Feasibility



Commercial Production
Facilities



Export Scale Hydrogen
Facilities

South Australia Hydrogen Jobs Plan

- ATCO and BOC announced as preferred partners for SA Hydrogen Jobs Plan.
- Committed to an Early Contractor Involvement (ECI) agreement with the State Government – now in process of project and engineering design, procurement of critical equipment, finalise contracting arrangements, and cost estimations.
- Project includes:
 - 250MWe of electrolyzers
 - 200MW of power generation
 - Renewable hydrogen storage facility
- The 250MWe electrolyzers will be one of the world's largest.
- The 200MW renewable hydrogen power plant will be a new source of flexible power.
- The associated storage facility will be a source of hydrogen for the power plant and local industry looking to transition to net-zero production methods.



WHERE IT BEGAN - TESTING PHASE

Clean Energy Innovation Hub (CEIH)

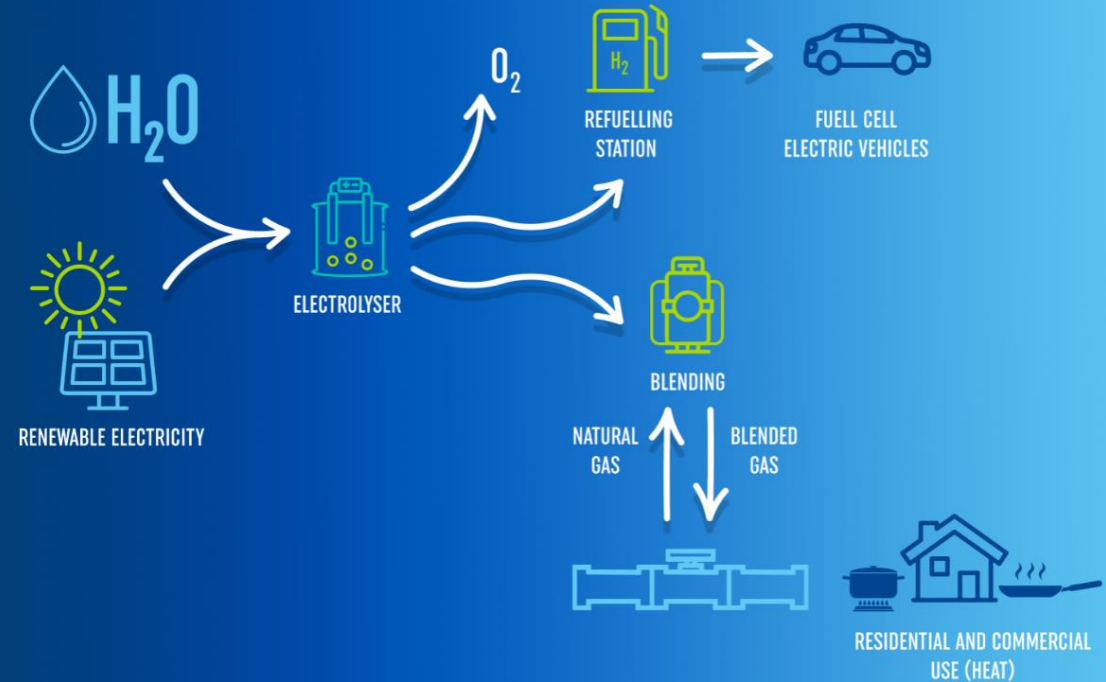
- One of the first renewable hydrogen facilities in Australia utilised for blending into residential networks.
- First real time power balancing micro grid generating renewable hydrogen in Australia.
- Assisted in meeting Western Australian Government’s Renewable Hydrogen Strategy goals.

OUTPUTS

RENEWABLE HYDROGEN
DISTRIBUTED
IN A WA GAS NETWORK

REFUELLING FACILITY FOR
HYDROGEN VEHICLES IN WA

POWER GENERATED IN
FUEL CELLS FROM GREEN HYDROGEN



* To produce sufficient hydrogen for the Project, ATCO will supplement the solar energy by purchasing electricity, backed by the surrender of Large-scale Generation Certificates (LGCs) to ensure the electricity used to produce hydrogen is recognised as renewable.”

ATCO'S CLEAN ENERGY INNOVATION HUB

ATCO

REGULATION AND SAFETY



IDENTIFY PATHWAY

UNDERSTAND THE LAWS, STANDARDS AND REGULATIONS
DETERMINE WHAT CHANGES WERE REQUIRED TO PROCEED AND DELIVER PROJECT ON TIME

KEY STAKEHOLDER ENGAGEMENT

EARLY ENGAGEMENT
GAUGE LEVEL OF KNOWLEDGE

COLLABORATIVE LEARNING APPROACH

RENEWABLE HYDROGEN BLENDING NEW AREA FOR ALL
SHARED LEARNING BETWEEN OUR TESTING AND STAKEHOLDERS

SAFETY CASE

*RECORD OF HOW THE GAS LAWS AND STANDARDS ARE BEING DELIVERED AND ADDRESSED
CLEAR UNDERSTANDING BETWEEN ATCO AND REGULATOR

APPROVALS

COLLABORATIVE APPROVED ASSISTED IN TIMELY APPROVALS FOR PILOT PROJECT TO PROGRESS

DESIGN AND COMMISSIONING PHASE



MATERIALS AND EQUIPMENT

JANDAKOT EQUIPMENT = DISTRIBUTION NETWORK EQUIPMENT

TESTING VALIDATION

DESK TOP ASSESSMENTS
ONSITE VALIDATIONS
INTERNATIONAL STUDIES

REGULATORY BODIES

PHYSICAL LOCATION FOR STAKEHOLDERS TO PARTICIPATE IN TESTING PROCESS

INFORMATION SHARING

QUESTIONS AND CONCERNS AROUND PROPOSED PLAN AND PROCESS
LESSONS LEARNT FOR IMPLEMENTATION OF INFRASTRUCTURE

IMPLEMENTATION AND APPROVALS

COLLABORATIVE APPROVED ASSISTED IN TIMELY APPROVALS AND IMPLEMENTATION

RENEWABLE HYDROGEN BLENDING SKID

10% by volume NG and Renewable Hydrogen blending skid

- The H2 generated from the CEIH is being utilised for a number of uses: Emission reduction through blending, Refueling passenger vehicles and power generation through fuel cells.
- Project financially supported by Government with the requirement to provide the knowledge sharing report.



BLENDING IN THE COMMUNITY

The blended network

The project was awarded almost \$2M in funding from WA's Renewable Hydrogen Fund to support the blending of hydrogen into the existing gas distribution network, lowering emissions for the West Australian community.

EXISTING NETWORK
SEGREGATED WITH PIPE
 CONNECTIONS
 REPLACED WITH VALVES

INITIAL
BLEND RATIOS
 AT **2%**

APPROX.

2,850

DOMESTIC GAS CONNECTIONS

BLEND RATIO **RIISING TO 10%**



- **Demonstrations: *Hydrogen Refuelling Station***

In Western Australia, ATCO developed the Hydrogen Refuelling Station (**HRS**), which builds on the success of the CEIH to enable the refuelling of hydrogen fuel cell powered passenger vehicles. This HRS provides evidence of hydrogen fuel cell technology to reduce transportation emissions.



ATCO™

Thank you

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