Case studies

We are building partnerships as part of our participation in electricity and hydrogen

Case study 1
Tesla Virtual Power Plant pilot

- Ampol is working with Tesla and Enerven to pilot a virtual power plant (VPP) that can reduce our Scope 2 emissions and create new earnings opportunities over the longer term through aggregated participation in the electricity market and network services. The project involves the installation and connection of solar panels and Tesla Powerwall batteries at retail sites, capturing energy that will initially be used to reduce emissions and operating costs.
- This infrastructure has the long-term potential to power and accelerate the development of electric vehicle charging to customers across Ampol's retail network and to generate new earnings opportunities by trading electricity to third parties. One option is to use the aggregated capacities of multiple sites to provide grid stabilisation services to network operators.
- Ampol has signed an agreement with Enerven to install the technology at three trial sites in South Australia. Should the trial be successful and the solution scalable, Ampol will examine the possibility of a broader rollout and the establishment of its own registered VPP.
- The pilot installation at each retail site will be created through the installation of between 6–9 Tesla Powerwalls and between 55–99 kW of solar panels. At the three trial sites, the infrastructure will reduce electricity consumption by between 30 and 60 per cent and reduce carbon emissions by between 22 and 41 tonnes per year.
- This opportunity aligns with Ampol's intention to move into the electricity market to meet future energy needs of our mobility customers. We will use our assets to reduce costs and emissions and to monetise distributed energy resources for electricity price risk management, while testing the potential cost and customer opportunity through the integration of EV charging.

Combined solution to extract value

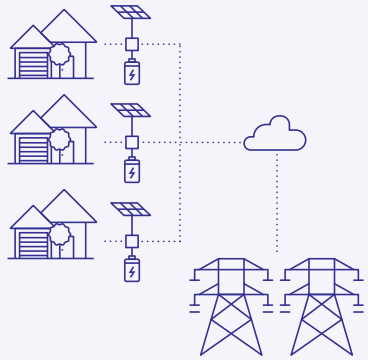
Energy Storage Systems ('Hardware')

- A well-designed and optimised energy storage system (ESS), such as Tesla Powerwalls, can deliver multiple benefits, i.e. 'stacking services'.
- Extracts value from 'behind-the-meter' services (demand charge reduction) and 'VPP-enabled' market-facing or network-initiated activities (wholesale electricity arbitrage and FCAS[1]).

1. Frequency control ancillary services.

Virtual Power Plant ('Software')

- Cloud-based network of Distributed Energy Resources (DER) (i.e. solar + battery) working together as a single power plant by:
  - Aggregating capacities of DERs to form a power generation asset.
  - Orchestrating power generation, storage and use across several sites enabling the monetisation of our generated electricity.



Case studies
Continued

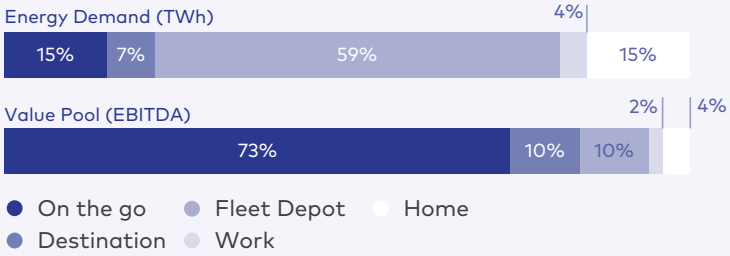
Case study 2
Ampol EV charging network opportunity

Opportunity

- Ampol is developing a strategy to transition with our mobility customers by providing an electric vehicle charging service at our retail sites.
- The roll out of a national network over time will leverage Ampol's experience with previous trials and its significant geographical footprint. Our national network of retail sites, along Australia's major highways and close to existing high-traffic road infrastructure, makes us uniquely placed to play a key role in the delivery of EV charging.
- Our initial rollout will help develop Ampol's internal capabilities in electric vehicle fast-charging and establish our credentials to pursue further opportunities as we scale the network to help support the energy transition.
- Ampol already has 10 EV charging stations across five sites, delivered in partnership with EVIE Networks, in Avenel, Taree, Seven Hills, Dandenong and Macksville, with Cockburn and Werribee to be added in 2021.
- Over the long-term we will look to develop our own charging network and build our capabilities, leveraging our current fleet vehicle and card business strength into the EV market.
- E-mobility infrastructure is a central pillar to capturing Ampol's existing customer base as they transition to future energies, providing a window to 'at-home', 'at-destination' and 'at-forecourt' electricity and charging offerings that Ampol will develop in the years ahead.

Our network/forecourt will play an important role

Share of EV charging demand and earnings*



* Source: Based on McKinsey's "Fuel Retail in the Age of New Mobility" paper. We have used ROW data as a proxy.

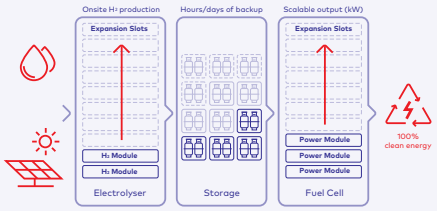
Case study 3
Energy storage solutions

Opportunity

- Ampol is focused on delivering energy storage solutions for customers and sees hydrogen edge-of-grid back up power as a good first application with a broader ambition to move into residential and other light industry applications.
- Ampol is partnering with an early-stage Australian developer of hydrogen-based microgeneration and storage technology. The technology has potential to deliver energy solutions that are economically and functionally competitive with diesel generators.
- The technology will help Ampol offer diesel customers a low carbon alternative to remote diesel generation and has potential broader application in the residential and industrial sectors.
- Ampol is well positioned to leverage this new technology through our existing customer base and to work with our partners to explore broader applications in other parts of the economy.

Overview of technology

- The Australian company is developing a hydrogen-based standalone microgeneration power systems that will aim to:
  - Capture renewable energy at time of generation
  - Store energy as hydrogen gas over long durations
  - Generate electricity on demand, using the H_2 as fuel
- Target applications include edge-of-grid and off-grid energy resources, backup power systems, distributed industrial assets, grid-independent sites and deep storage at sites (i.e. outside the bounds of Lithium-ion battery capacity)



The microgenerators are configurable subsystems – scalable in H_2 production rate, power output and energy storage size

Case studies
Continued

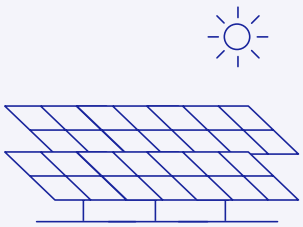
Case study 4
Green hydrogen plant pilot

Opportunity

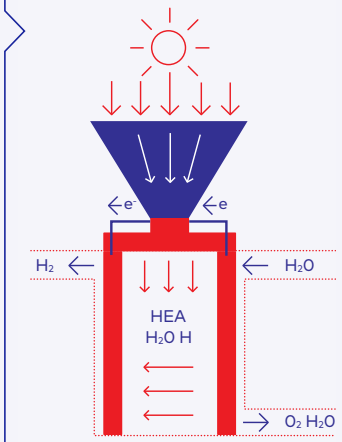
- Ampol has executed a Head of Agreement with Fusion Fuel Green PLC to develop a green hydrogen production plant at our Lytton refinery site in Queensland.
- With strong customer relationships, privileged infrastructure positions and transport fuel market leadership, we have a role to play in the emerging hydrogen industry.
- The plant, which will feature a number of units, will be commissioned over the next 12 months.
- The HoA provides Ampol with a significant test and learn opportunity to better understand hydrogen technology, as well as how to develop scalable, low cost, hydrogen projects.
- This is a unique new technology solution for the generation of green hydrogen, potentially at a lower/ comparable cost to conventional methods.
- Various channels of distribution will be explored as part of this pilot, including use at the refinery and use as a transport fuel.
- The Lytton site provides a perfect location for this pilot given available land, existing skills and expertise located at the refinery, access to distribution channels and the ability to tie in to key utilities.
- It is an opportunity to engage customers on hydrogen supply and remote generation opportunities.

Fusion Fuel Green PLC's core technology

1. CPV Solar Tracker
- MagP Product
- Exclusive to Fusion Fuel



2. Photon Electrochemical Hydrogen Generator
- Fusion Fuel's electrolyzer



3. Hydrogen Tanks
- Open market products