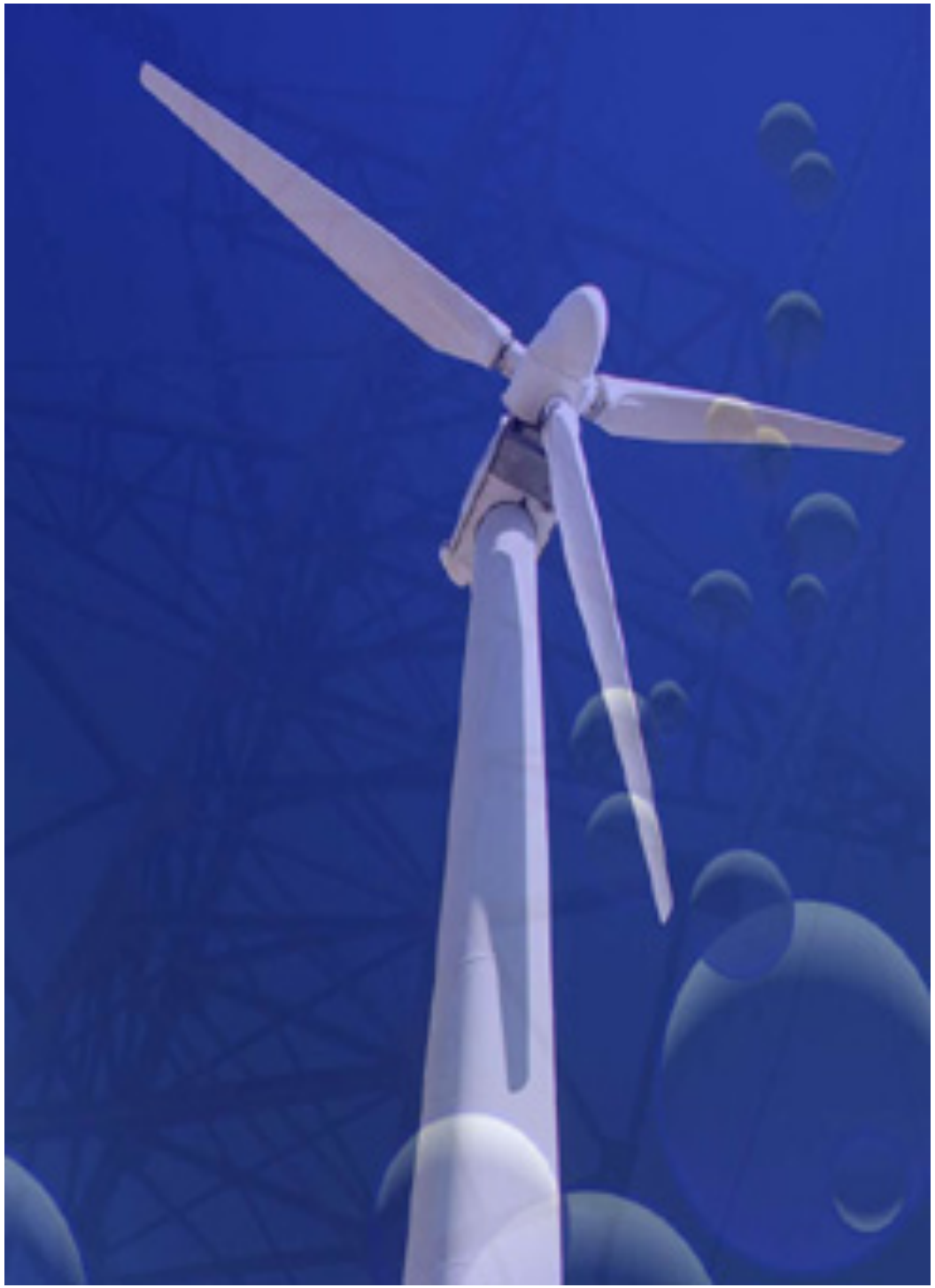

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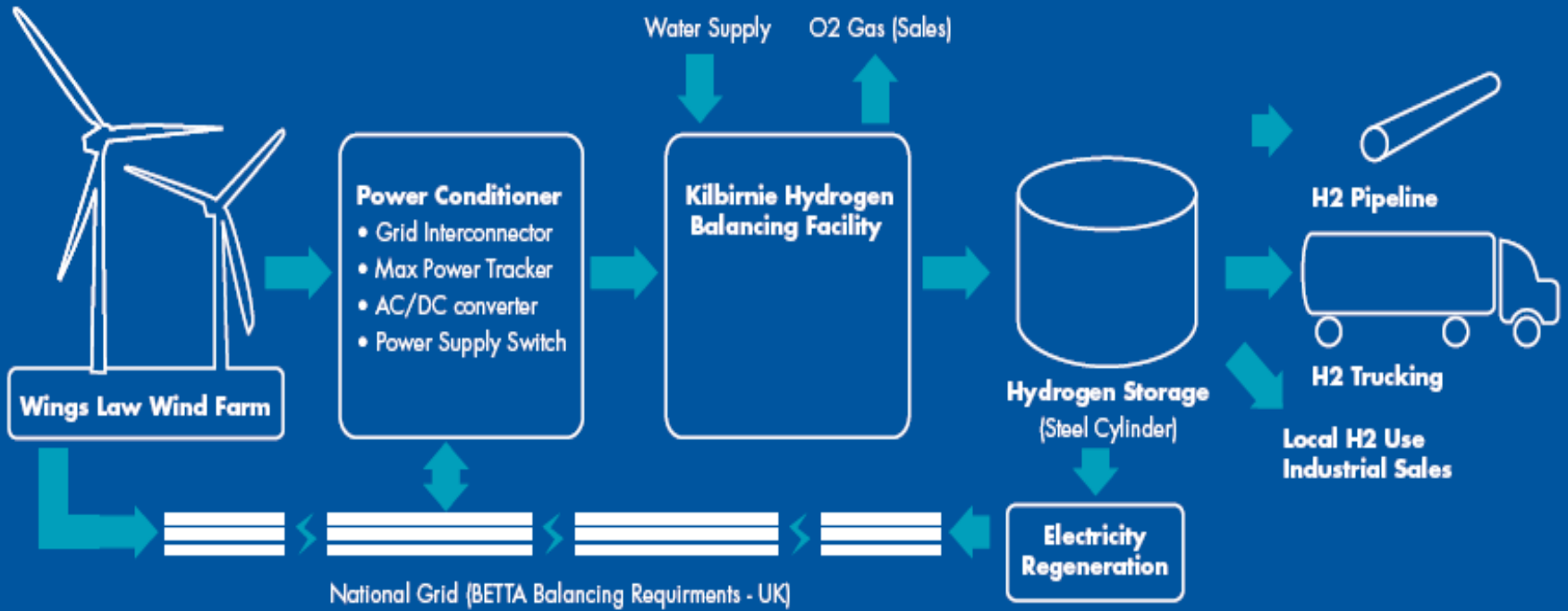
Wind Hydrogen Balancing

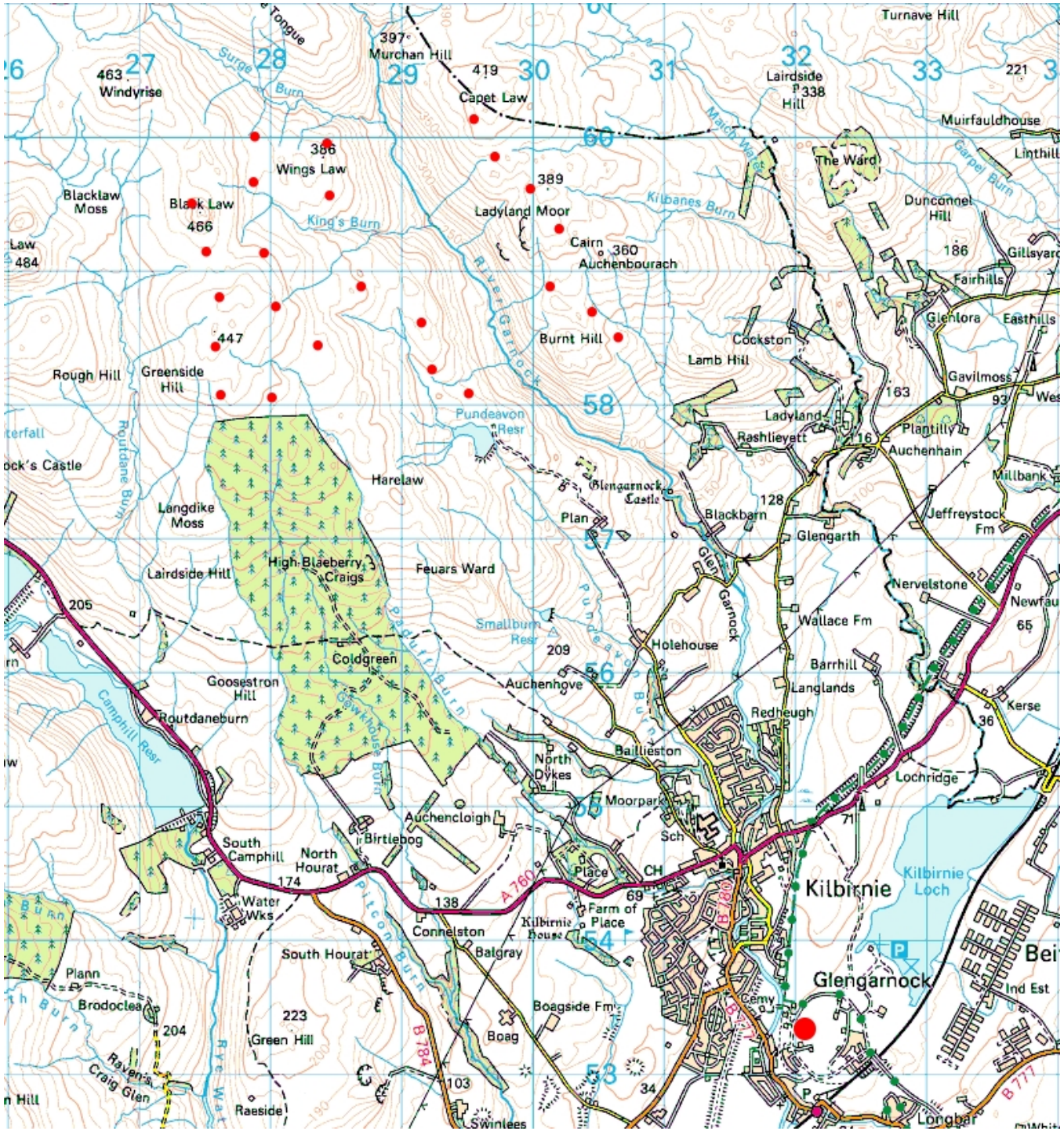
A wind-hydrogen plant operates in the following way:

- When wind levels are high, equivalent output from the turbines in excess of the pre-determined supply is used via the grid to electrolyse water into hydrogen and oxygen. The hydrogen can then be liquefied or stored under pressure indefinitely.

- Conversely, during periods of low wind speeds, the electricity produced from the wind turbines is supplemented on demand by the combustion of stored hydrogen through internal combustion gensets

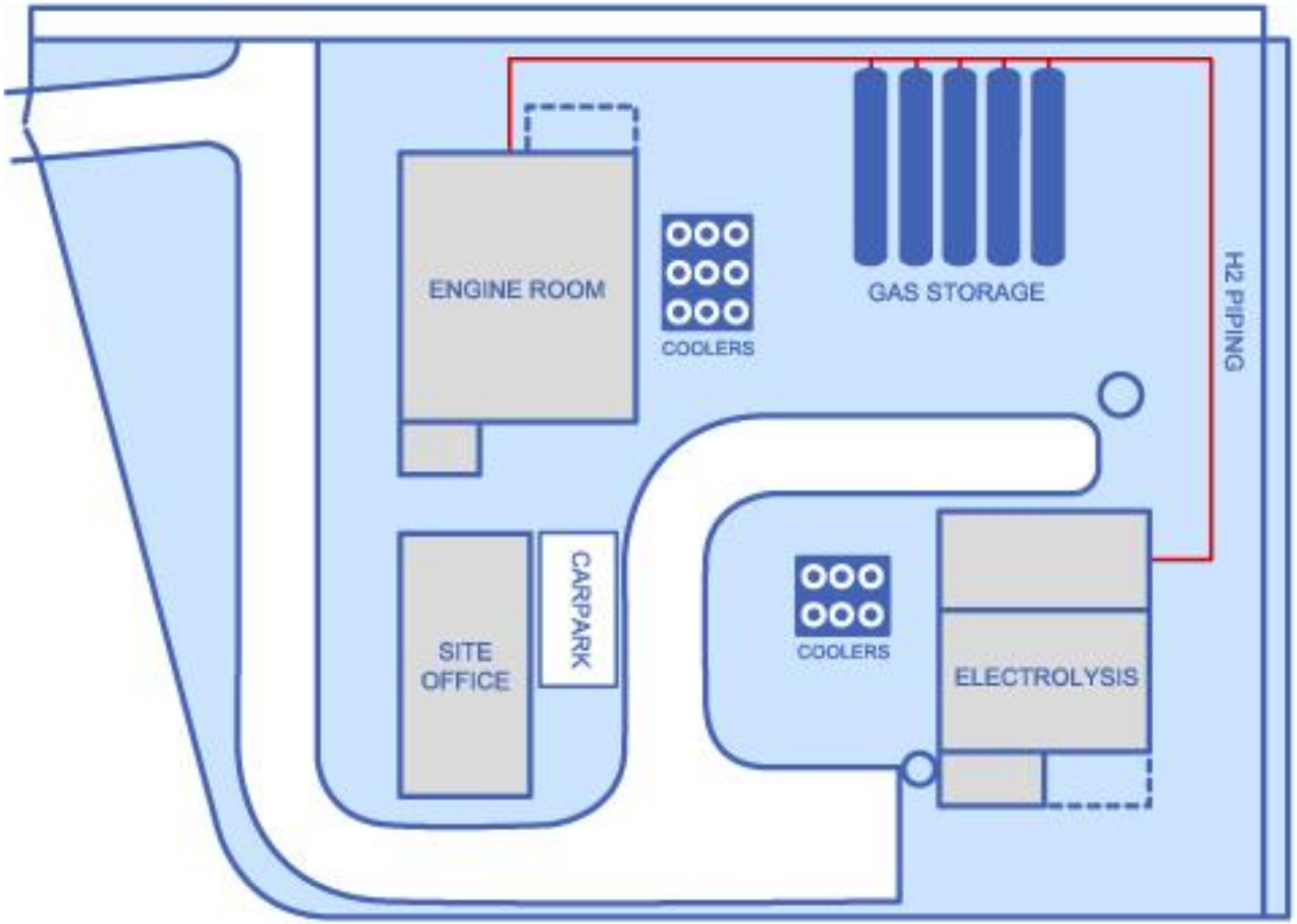
How it works

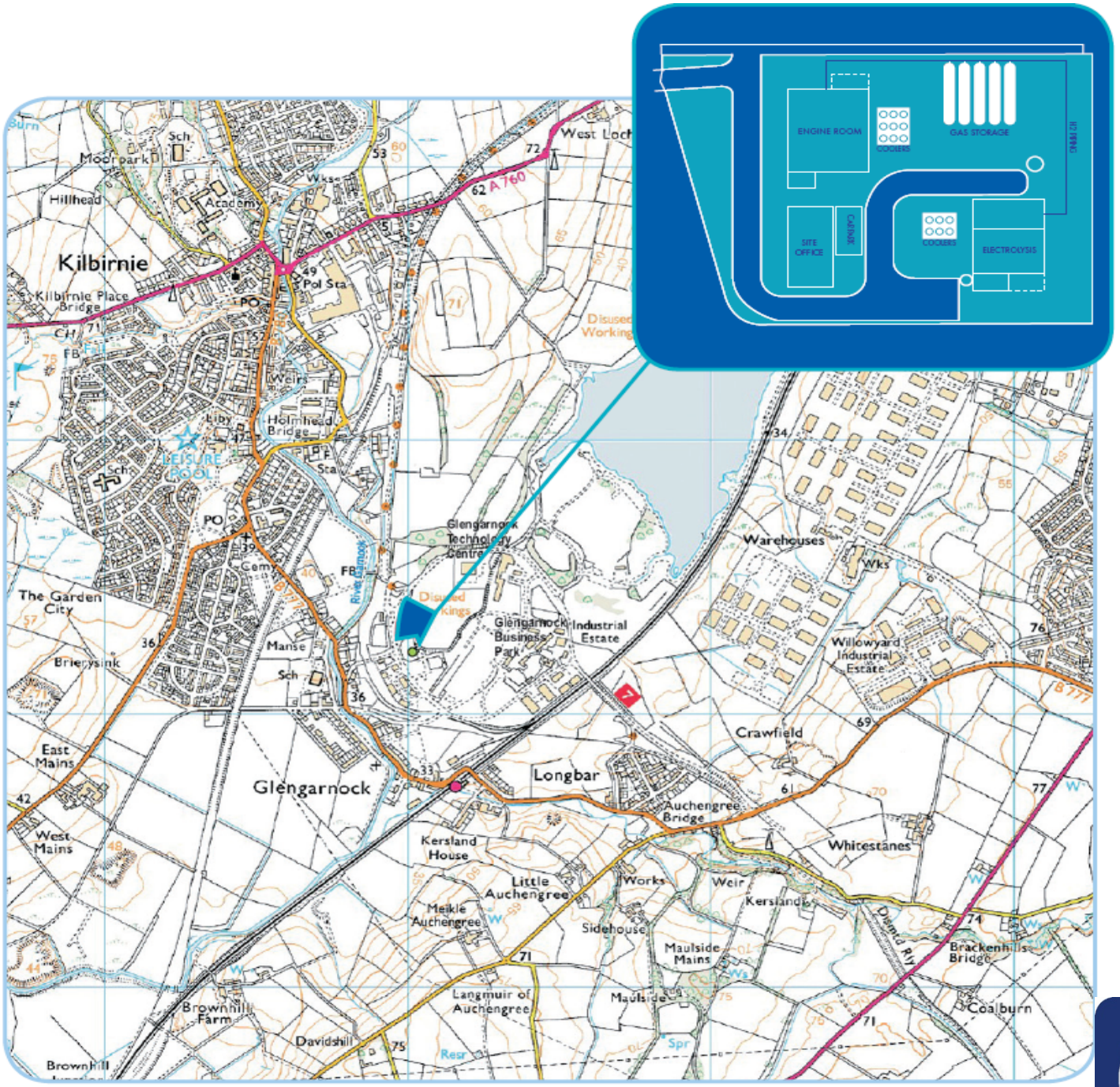

Water Supply
O2 Gas (Sales)
Wings Law Wind Farm
Power Conditioner
• Grid Interconnector
• Max Power Tracker
• AC/DC converter
• Power Supply Switch
Kilbirnie Hydrogen Balancing Facility
Hydrogen Storage
(Steel Cylinder)
H2 Pipeline
H2 Trucking
Local H2 Use
Industrial Sales
Electricity Regeneration
National Grid (BETTA Balancing Requirments - UK)



Ladymoor Renewable Energy Scheme

Hydrogen Facility





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Ladymoor Renewable Energy Scheme

- 48MW Wings Law Wind farm
- 5MW Kilbirnie Hydrogen Balancing facility
- The potential to establish Kilbirnie as a world-leading centre of excellence in the development and exploitation of hydrogen as an alternative fuel source
- Delivery of a new industry for North Ayrshire. Introduction of up to 21 full time jobs from the Hydrogen Balancing facility and a further 4 from the associated wind farm

Summary

- WHL Energy hold the exclusive patent on this technology in the UK. WHL's patents provide the right to develop the fundamental process of hydrogen balancing as well as facilitating demand load management from wind generation

- Subject to Planning approval for both elements ,the project will contain the UK's first grid connected commercially-sized hydrogen balancing
facility.

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