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

1. Wings Law Wind Farm
2. Power Conditioner
   - Grid Interconnector
   - Max Power Tracker
   - AC/DC converter
   - Power Supply Switch
3. Kilbirnie Hydrogen Balancing Facility
4. Water Supply
5. O2 Gas (Sales)
6. Hydrogen Storage (Steel Cylinder)
7. Electricity Regeneration
8. National Grid (BETTA Balancing Requirements - UK)
9. H2 Pipeline
10. H2 Trucking
11. Local H2 Use Industrial Sales
Ladymoor Renewable Energy Scheme
Hydrogen Facility
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
• 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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