

## Lake Lyell PHES Project

| <b>Key Project Data**</b>                                   |  |                   |                |
|---|--|-------------------|----------------|
| <b>Item</b>   | <b>Description</b>                             | <b>Unit</b>       | <b>Value</b>   |
| <b>LLPHES Facility</b>                                      | 335MW x 8 hours                                | MWhr              | 2680           |
|   | Round Trip Efficiency (RTE)                    | %                 | 80*            |
|   | Maximum cycles per day                         | /d                | 1.4            |
| <b>Upper Reservoir</b>                                      | Rockfill Dam                                   |                   |                |
|   | Working Volume                                 | GL                | 4.65           |
|   | Dam Crest Elevation (parapet)                  | EL m.             | 1051.5         |
|   | Dam Toe Elevation (lowest)                     | EL m.             | 908.5          |
|   | Full supply level (FSL <sub>U</sub> )          | EL m.             | 1050           |
|   | Minimum Operating Level (MOL <sub>U</sub> )    | EL m.             | 1010           |
|   | Working Water Level Range                      | m                 | 40             |
|   | Internal max Dam Height                        | m                 | 63.5           |
|   | External max Dam Height                        | m                 | 143            |
| <b>Lower Reservoir</b>                                      | Lake Lyell                                     |                   |                |
|   | Full Supply Level Volume                       | GL                | 34.1           |
|   | Minimum Operating Level Volume                 | GL                | 22.7           |
|   | Dam Crest Elevation                            | EL m.             | 795.5          |
|   | Full supply level (FSL <sub>L</sub> )          | EL m.             | 785.5          |
|   | Minimum Operating Level (MOL <sub>L</sub> )    | EL m.             | 780            |
|   | Cycle Water Level Range below FSL <sub>L</sub> | m                 | 2.1            |
|   | Cycle Water Level Range above MOL <sub>L</sub> | m                 | 2.5            |
| <b>Pump Turbines</b>  | Vertical Shaft Reversible Francis Type         | N° of             | 2              |
|   | Fixed speed, Synchronous                       | Hz                | 50             |
|   | Machine Speed                                  | rpm               | 333*           |
|   | Pumping rated power                            | MW                | 2 x 235*       |
|   | Generating rated power                         | MW                | 2 x 200*       |
|   | Firm generating power for 8 hours              | MW                | 2 x 167.5*     |
|   | Pumping rated discharge                        | m <sup>3</sup> /s | 2 x 81*        |
|   | Generating maximum discharge                   | m <sup>3</sup> /s | 2 x 105*       |
|   | Generating Firm rated discharge                | m <sup>3</sup> /s | 2 x 81*        |
|   | Maximum Gross Head                             | m                 | 270*           |
|   | Minimum Gross Head                             | m                 | 224.5*         |
| Submergence   | m  | -45*              |                |
| <b>Waterways</b>  | Unitised (1 set x each unit)                   | N° of             | 2              |
|   | Vertical Shaft (diameter, length)              | m                 | 2x (5,177)     |
|   | Headrace (diameter, length)                    | m                 | 2x (5,650)     |
|   | Tailrace (diameter, length)                    | m                 | 2x (5,590)     |
| <b>Tunnels</b>  | Total length including waterways               | m                 | 3960           |
|   | Main Access Tunnel (width, height, length)     | m                 | 7.5, 10.5, 460 |
|   | Emergency Cable Ventilation Tunnel (w, h, l)   | m                 | 5.5, 7.8, 595  |
| <b>Switchyard</b>   | 2 Bays, 6 x 330kV CB's 'breaker and a half'    | m                 | 168 x 80       |
| **Concept Design basis subject to change ( 5 December 2023) |  |                   |                |
| *Subject to final OEM equipment design                      |  |                   |                |