



Engineer's Workshop:

A Simpson Prefeasibility Study



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Selection of Project for Prefeasibility Study



Connectivity to the Grid.



Is demand sufficient to absorb energy produced?
E.g., geothermal for Savusavu.



Economic ranking based on preliminary assessment.



Land/ sea availability



Alignment with strategy




Environment



Added Value

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Prefeasibility Studies.

- ☞ A preliminary feasibility study enables exploration of potentially interesting options before deciding to proceed with the project and for preparation of the preliminary business case. It assesses the basic conceptual, economic and financial viability of the proposed project chiefly to identify the costs and benefits of each opportunity and to eliminate those opportunities that are unsuitable.
- ☞ Improves accuracy of project costs and benefits compared to a preliminary assessment.
- ☞ Consider added value options

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Nauru Prefeasibility Pump Storage

1. Is there enough capacity on Command Ridge?
2. Technical requirements for pumping and generating?
3. Confirm porous soil and options for sealing water.
4. Added value – Water piping system.



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Pump Storage Hydro for Nauru- Prefeasibility

- This study concluded that PHES schemes could be proposed in Nauru for CAPEX of US\$ 34 million to US\$ 47 million for the 70% and 90% options respectively. These capital costs compare with the Okinawa Yanbaru scheme that is a reference in seawater PHES scheme worldwide (US\$ 29.7 million CAPEX for a seawater PHES scheme of 30 MW maximum output power). At this early stage it is nonetheless recommended that additional contingencies of about 25% be applied to account for uncertainty on some of the material costs, freight and labour in Nauru.
- Considering the CAPEX above, the net present value of the PHES scheme is evaluated at between US\$ 43 million and US\$ 85 million for the 70% and 90% options respectively over an estimated 30-year lifespan of the asset at a 3% discount rate
- The levelised cost of storage (LCOS) is evaluated at between 325 and 365 US\$/MWh. If this is considered high for a regular PHES scheme, it is to be compared with estimated LCOS for battery energy storage system in Nauru that are estimated at between 490 and 570 US\$/MWh

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Exercise

- Add to your mind map of key factors to be confirmed by a prefeasibility study of the options identified during your preliminary assessment.

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