

A comparison of the total cost of variable renewable energy (VRE) vs. nuclear energy is given here.. First are VRE costs applied to the gov. mandated 82% of variable RE by 2030 and expected AEMO ISP 2024 figures by 2030 in GW or GWh were chosen.

Variable Renewable Cost Calculations:

Pumped Storage: Snowy 2.0 at 2GW/350GWh, \$12bn so far and rising,

LS Batteries: 50GWh required, using the cost of the Kwinana battery: 50GWh = 50,000MWh / 800MWh x \$625m = \$39bn,

Grid: 4,000km + 1,000km to be upgraded was mentioned in 2024 by Bowen for the next decade. Until I get a more accurate average cost/km of the average kV line, I have to use the total Hume Link 500kV cost of \$5bn for 360km, 5000km / 360km x \$5bn = \$69bn.

ISP On-shore Wind: 35GW @ \$2bn/GW = \$70bn, ignoring offshore wind, most likely not available by 2030,

ISP LS Solar/ARENA cost figure: 55GW @ \$1.39bn/GW = \$76bn,

Gas Firming: 16GW needed by 2030 and 2050, using Kurri Kurri figure of \$1bn for 750MW = \$21bn,

Private PV cost: Presently there are four million roof-top PVs @ \$3,000 min. or \$12bn,

By 2030 there will still be 11GW of brown and black coal in use and STCs are “carbon tax” certificates, which CO2 emitting generators and sellers have to purchase and consumers have to pay for, but not with CO2-free nuclear. Four million roof-top PVs @\$3,000 in STCs = \$12bn,

Compensations to landowners for the new grid and battery/PV/windmill fields – unknown billions. Not included in Gencost.

On-going federal and state subsidies to 2030, cost-of-living adjustments, industry curtailments and subsidies to keep coal going – unknown billions. Not included in Gencost.

Total cost of VRE is more than \$300bn by 2030 and includes part gov. money and private funds. Private PV funds are included as the CSIRO Gencost report

only works on the requirement of 65% VRE by 2030 and not 82% as it includes private PV.

Nuclear Cost Calculations:

Four Korean APR-1400 reactors were installed at Barakah (UAE) for a total cost of \$32bn. Each reactor produces 1,400MW or 1.4GW, so a total of 5.6GW of electricity's capital cost is \$32bn or about \$6bn/GW. Assuming higher labour costs and stricter regulations, a figure of \$10bn/GW can be used. At one stage we used 20GW of coal, so at a total cost of 20GW x \$10bn/GW or \$200bn our entire coal-produced energy could have been taken over by CO2-free nuclear energy and we would not have to wait until 2035 for coal to disappear entirely.