

Corrected Overnight Capital Cost in Australia of Nuclear Power, Renewables and Fossil Fuels with CCS (figures in AUD)

Corrected overnight capital costs are a way of depicting the most economical way of generating electricity within assumed environmental and operational constraints.

Issue	Nuclear	Renewables		Fossil fuels with CCS	
	SMRs	Large Scale Solar	Wind	CCGT with 90% CCS	USC coal with 90% CCS
Basic overnight cost	\$5,316/kW ¹	\$1,100/kW ²	\$1,700/kW ²	\$3,855/kW ²	\$7,500/kW ²
Adjustment for capacity factor: Nuclear = 95% Large scale solar = 20% ³ Wind = 35% ³ Fossil = 90%	\$5,596/kW	\$5,500/kW	\$4,857/kW	\$4,283/kW	\$8,333/kW
Adjustment for plant lifetime (cf nuclear): Nuclear = 60 years large scale solar = 25 years Wind = 30 years CCGT with CCS = 25 years Coal with CCS = 50 years	\$5,596/kW	\$13,200/kW	\$9,714/kW	\$10,280/kW	\$10,000/kW
Adjustment for firming: nuclear and fossil fuels = 0 Large scale solar with BESS 4 hours storage ⁴ at \$1,682/kW Wind with 12 hours pumped hydro at \$2,658/kW ⁵ (Additional cost of round trip losses for storage not included)	\$5,596/kW	\$14,882/kW	\$12,372/kW	\$10,280/kW	\$10,000/kW
Adjustment for additional cost of transmission connection for remote location renewables + correction for transmission losses		+	+		
		(Site specific)	(Site specific)		
Adjustment for additional cost of interstate transmission to run a system with high renewables + correction for transmission losses		+	+		
Corrected overnight cost	\$5,596/kW	> \$14,882/kW	> \$12,372/kW	\$10,280/kW	\$10,000/kW

¹ NuScale estimate for a 12 module plant (884 MWeN) FOAK built in Australia, AUD

² Aurecon 2021 for CSIRO GenCost 2021-22 for new build, AUD 2021 basis

³ Clean Energy Council - Clean Energy Australia report 2021

⁴ Aurecon for GenCost 2020-21

⁵ AEMO ISP Dec 2020 from GenCost 2020-21