

Submission to Select Committee on Energy Planning and Regulation
Ben Beattie
20 September 2024

Ben Beattie BE (elec) RPEQ CPEng
Brisbane, Queensland

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Select Committee on Energy Planning and Regulation in Australia
PO Box 6100
Parliament House
Canberra ACT 2600

Dear Sir

RE: Submission to Select Committee on Energy Planning and Regulation

I am an electrical engineer with over two decades experience in the power and gas industries. Please accept my submission addressing two specific areas of concern:

1. The inclusion of emissions reduction in the National Energy Objectives
2. ISP costs
 - a. Repeated claims that the Integrated System Plan represents the least cost electricity system
 - b. \$122 billion is the ISP total cost

These areas of concern relate directly to the following items in the Terms of Reference:

(a) the three overarching laws within which energy markets are governed:

- i. National Electricity Law,*
- ii. National Gas Law, and*
- iii. National Energy Retail Law;*

(c) the role and function of the Australian Energy Market Operator (AEMO), including its development of the Integrated System Plan in accordance with the National Electricity Objectives;

1. National Electricity Objective (NEO), emissions reduction

<https://www.aemc.gov.au/regulation/neo>

The NEO and related objectives are guiding principles for the regulatory bureaucracies overseeing Australia's electricity markets. The Objective guides regulators to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to price, quality, safety, reliability and security.

These goals are consumer-focused and directs the bureaucracies in control of the electricity markets to prioritise consumers during decision making.

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In 2023 the Objective was modified to include emissions reduction. This is a drastic change from the original intent of the Objective. There is no direct consumer benefit gained by reducing emissions in electricity markets, and none claimed in the supporting documentation. The intent of making emissions reduction a priority of the Objective, is only to achieve policy targets.

The purpose of an electricity market is only to provide safe, reliable and lowest possible cost electricity to consumers. It is NOT the role of an electricity market to reduce emissions. If governments are elected with a mandate to reduce emissions, then specific emissions reduction policy should be passed to achieve that goal. Bastardising guiding principles to achieve political targets can only degrade and befuddle the process of making decisions in the best interest of the consumer.

Recommendation: remove emissions reduction from the National Energy Objective.

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2. a) AEMO's Integrated System Plan, least cost

Politicians and bureaucrats across the country refer to AEMO's Integrated System Plan (ISP) as the cheapest electricity system plan. Mr Bowen claims the total cost of investment out to 2050 is \$122 billion, and refers to the ISP as the source. Mr Westerman says the ISP is the least cost plan. Mr Kean says similar. State energy ministers say similar. Planning reports throughout the state and federal bureaucracies refer to the ISP as the lowest costs plan, and as a forecast.

All of these claims are incorrect, with the ISP misunderstood and misused.

Claim: least cost by AEMO

1. Select a mix of generation technology capacities in future years to meet current political emissions reduction and renewable energy targets – call that 'step change scenario'
2. Choose transmission line projects required to connect those future renewable projects – 'call these 'actionable projects''
3. Call the entire model 'optimal development path' and label it the cheapest option

AEMO specifically excludes coal-fired power station refurbishment from its modelling. Refer to the Inputs Assumptions and Scenarios Report 2023, Section 3.5.2 for a list of other exclusions.

While the idea of coal refurbishment may seem unlikely, assessing the 'do-nothing' approach is fundamental to comparing costs. The majority of existing coal-fired power stations are dispatched into the electricity market at lower wholesale prices than wind, gas and hydro. These generators provide the added benefit of inertia at no additional marginal cost and spinning reserve that can be called on to stabilise the grid and fill supply gaps with no additional capital cost.

AEMO's claims of least cost also rely on CSIRO's GenCost report, which quotes unrealistically high capacity factors and lifespans for wind and solar, and unrealistically high costs and low lifespans for coal and nuclear. Nowhere in the ISP does it acknowledge that most of the existing coal-fired power stations are the lowest cost electricity supply available in Australia.

No modelling exists that considers the effect of a fully or partly realised ISP on consumers. Without considering the effect of the ISP on total system costs, it is misinformation to claim the ISP represents a least cost system.

Recommendations:

1. **AEMO acknowledge that the ISP does not attempt to determine the 'least cost' electricity system**
2. **AEMO model the effects of the ISP on consumer electricity bills**

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2. c) Claim: \$122 billion total cost of ISP

Mr Bowen has repeatedly claimed in media and in parliament that the total cost of ‘the transition’ is \$122 billion. This number can be calculated from AEMO’s Generation and Storage Outlook spreadsheet and is shown below.

[AEMO | 2024 Integrated System Plan \(ISP\)](#)

	H	I
14	Real July 2023 dollars (\$m)	NPV
15	Generator capital	\$108,119
16	FOM	\$42,542
17	Fuel	\$21,519
18	VOM	\$4,231
19	DSP+USE	\$545
20	REZ augmentation	\$1,512
21	Flow path augmentation	\$13,888
22	Emissions cost	\$42,020
23	NPV and annual costs	\$232,377
24	*Net present value as at 1 July 2023	\$121,519

Screenshot of the Generation and Storage Outlook \$122 billion figure

Notes on the costs quoted by AEMO:

1. The NPV sum of **Generator capital**, **REZ augmentation** and **Flow path augmentation** from 2024-25 to 2049-50 comes to \$122 billion
2. The annual sum of ‘expected’ costs for **Generator capital** alone out to 2049-50, comes to \$332 billion
3. The annual sum of **ALL** the costs in the spreadsheet come to \$690 billion
4. AEMO states there will be more gas generation but excludes the cost of gas pipelines
5. AEMO states there will be a huge amount of home batteries but excludes the cost
6. AEMO relies on projects such as Snowy 2, Borumba and planned transmission not yet built, but excludes these costs

It is clear that when the ISP data shows \$690 billion in costs, while excluding many other large costs, claiming AEMO’s ISP total cost of \$122 billion is incorrect.

Recommendation: AEMO state the full cost of the ISP, with no exclusions