

ECR-2025-2009

Announced commitments to establish a civil nuclear program including operating nuclear power	r
plants in 7 locations across the country	

Party: T	The Coalition

#### Additional note:

This minute presents the budget impacts of the 4 elements relating to establishing nuclear power identified in the Coalition's election platform, including the headline equity investment.<sup>1</sup>

# Summary of proposal:

The proposal would establish a civil nuclear power program in Australia with nuclear plants to be built at 7 locations, completed by 2050. Two establishment projects would be chosen and completed in the mid 2030's followed by the remaining buildout of projects through to 2050.

The 2 establishment projects would use either modern large reactor designs such as AP1000 or APR1400, or small modular reactors (SMR's) The plants would begin producing electricity by 2035 (for SMR's) or 2037 (for large scale plants).

The proposal commits to the following elements:

- Establishing a regulatory environment by expanding and boosting the capability of the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) to licence and regulate civilian nuclear power stations.
- Establishing a Nuclear Energy Coordinating Authority (Coordinating Authority) and developing plans for a national nuclear fuels laboratory and nuclear training facility.
- Community consultation at the 7 locations identified for nuclear power plants.
- Establish a Government Business Enterprise (GBE), financed by the Australian Government, through \$36.4 billion in equity through to 2035, rising to a total of \$118.2 billion through to 2050. The GBE, through partnership with experienced international nuclear companies, will own, develop and operate the establishment projects.

The proposal would start on 1 July 2025.

Additional information (based on further advice provided):

The Coalition advised that the equity profile would be for a total \$42.4 billion over the 10 years to 2035-36 with the following profile (\$ million). Some of this equity could be used towards sites to be completed after 2035-36 for a full construction of 14 gigawatts.

								2035-36
-50.0 -43	-1,010.0	-2,210.0	-3,570.0	-4,800.0	-5,490.0	-6,270.0	-8,320.0	-10,260.0

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<sup>&</sup>lt;sup>1</sup> Our Plan for a Sustainable Budget - Liberal Party of Australia, accessed 20 May 2025.

# Costing overview

Over the 2025-26 Budget forward estimates period the proposal would be expected to decrease the fiscal balance by \$692.2 million, the underlying cash balance by \$682.2 million and the headline cash balance by around \$2.2 billion (see Table 1). This impact reflects an increase in administered and departmental expenses for the feasibility and regulatory activities required before the deployment of the equity investments for construction of the 2 establishment nuclear power plants. The impact also includes public debt interest (PDI) costs as the proposal includes balance sheet financing.

The majority of the costs of this proposal occur after the forward estimates and towards the end of the medium-term period to 2035-36. This costing relates to 2 of the 7 sites proposed to be in operation with the 4 elements as specified, but not the costs associated with the additional 5 sites. Further costs, representing the bulk of the total cost to fully build all 7 sites, are assumed to be incurred beyond the medium term through to 2050. A breakdown of the financial implications (including PDI) over the period to 2035-36 is provided at Attachment A.

The Parliamentary Budget Office (PBO) has not made any assessment as to whether the specified equity amount would be sufficient to meet the objectives of the proposal. The PBO has also made no assessment of the viability of the proposal.

Table 1: Announced Commitments to establish a civil nuclear program including operating nuclear power plants in 7 locations – Financial implications (\$m)<sup>(a)(b)</sup>

	2025-26	2026-27	2027-28	2028-29	Total to 2028-29
Fiscal balance	-153.7	-174.6	-197.8	-166.1	-692.2
Underlying cash balance	-153.7	-174.6	-197.8	-156.1	-682.2
Headline cash balance	-153.7	-224.6	-627.8	-1,166.1	-2,172.2

<sup>(</sup>a) A positive number represents an increase in the relevant budget balance; a negative number represents a decrease.

# Resourcing and sequencing of tasks

The International Atomic Energy Agency (IAEA) describes 3 broad phases of work to establish a civil nuclear power program, with 3 accompanying milestones, in their publication *Milestones in the Development of a National Infrastructure for Nuclear Power (2015).*<sup>2</sup>

#### Milestones include:

- Milestone 1: ready to make a knowledgeable commitment to a nuclear power program
- Milestone 2: ready to invite bids and negotiate a contract for the first nuclear power plant
- Milestone 3: ready to commission and operate the first nuclear power plant.

Australia's existing nuclear regulatory agencies and continued operation of the Lucas Heights facility by Australian Nuclear Science and Technology Organisation could be considered to be sufficient to achieve Milestone 1 once the moratorium on nuclear power generation is repealed, and the enabling legislative and regulatory framework established.

Activities, culminating in achieving Milestone 2, would occur over the first 4 years of the proposal (2025-26 to 2028-29) and include expanding ARPANSA, establishing the Coordinating Authority and standing up a taskforce within the Department of Finance for 2 years to commence GBE establishment

<sup>(</sup>b) PDI impacts are included in the totals as the proposal involves alternative financing.

<sup>&</sup>lt;sup>2</sup> Milestones in the Development of a National Infrastructure for Nuclear Power | IAEA

planning. The community consultation item would also be part of this milestone and continue into Milestone 3.

#### Commitment elements

# Regulatory and Coordination Agencies (ARPANSA and Coordinating Authority)

The resourcing and sequencing of tasks required to implement a civil nuclear power program used in this costing are based on the IAEA publication *Resource Requirements for Nuclear Power Infrastructure* (2022).<sup>3</sup> This publication describes the indicative timeframes and resourcing requirements for the activities.

In the Australian context and under the Coalition proposal, activities would be required to be completed over 4 years by the expanded ARPANSA and the new Coordinating Authority in order to deliver 2 operational power plants by the end of the medium term, including the pre-feasibility studies, policies and strategies. After 2028-29, the remainder of activities would be completed by the Regulatory and Coordination Agencies with an ongoing staffing profile.

# Community engagement

Community engagement would be conducted by the relevant regulatory body or department. Engagement activity would be assumed to be conducted in all 7 locations identified in the proposal specifications and intensify after 2 years in the 2 locations selected for the establishment projects. Consultation would continue throughout the period to the end of the medium term (2035-36).

# GBE and equity Investment

The Coalition election commitment proposed that the build of nuclear power plants be completed by a GBE with the specific build costs funded through equity investments. As specified, the GBE would be initially established over the period 2025-26 to 2027-28. After 2027-28, the operations and staffing of the GBE would be funded from the equity profile specified by the Coalition. The PBO has made no assessment as to whether the specified equity amounts would be sufficient to meet the operational requirements of the GBE in any year.

The <u>Charter of Budget Honesty - Policy Costing Guidelines</u> governs how such investments should be made to qualify as equity. Although the exact structure and financing arrangements are not specified, common to all equity investments is that the government will own all or part of the business and will receive a return at least equal to the long-term inflation rate (2.5%) through dividends and/or capital returns.<sup>4</sup>

Depending on which type of reactor is chosen to be developed first, civil nuclear power generation is not expected to generate revenue for the operator, or dividends for government, until the end of the medium term or later.

Included in this costing is an equity investment profile specified by the Coalition to complete the build of the first 2 establishment projects. Equity funding has no immediate impact on the underlying cash balance or fiscal balance but is included in the headline cash balance. Future sales of generated electricity would have a positive impact on all 3 budget aggregates. Public debt interest (PDI) on any

<sup>&</sup>lt;sup>3</sup> Resource Requirements for Nuclear Power Infrastructure Development | IAEA

<sup>&</sup>lt;sup>4</sup> For more information, see the PBO report <u>Alternative financing of government policies</u>

funds borrowed to finance the equity investment would have an ongoing negative impact on all 3 budget balances.

In accordance with the principal objective of GBE's that they add to shareholder value and the requirement that Public Non-Financial Corporations are market producers<sup>5</sup>, the GBE would engage in final pre-construction work such as obtaining and reviewing its' licences, and training of operational staff. Once construction begins, the GBE would oversee the build and installation of equipment, with staff operating the power plants once the establishment projects are completed.

#### **Uncertainties**

The cost estimates presented in this proposal have a high level of uncertainty and are based on a narrow set of assumptions, including a specified equity funding profile, and very limited available data and information to draw on in the Australian context. Any change away from the assumptions, in particular the required equity investments, as well as build, own and operate timeframes and costs, would significantly change the cost estimates presented.

The financial impacts are based on the outlined commitments and specifications. As such some costs are not included in this estimate such as:

- Follow on and additional costs associated with establishing the remainder of the 5 of the 7 total nuclear sites.
- Additional funding that may be required for Australian Nuclear Science and Technology Organisation (ANSTO).
- Site acquisition and readiness costs.
- Potential costs associated with the total energy system (i.e. transmission costs) as well as energy transition (i.e. supporting existing energy generation such as longer operation of coal fired power).

This costing does not consider the effects of the Coalition's commitment on other sources of energy, such as solar, wind, hydro, coal or gas – neither the costs required to produce enough energy from alternative sources to meet consumer demand prior to nuclear coming online or transmission infrastructure changes required. This costing does not consider any effects of Commonwealth energy production on State Government budgets, or the price of electricity.

We note that Australia currently does not have a civil nuclear power industry and there are significant uncertainties and risks to estimating what it would cost to develop one. This includes creating an effective legal and regulatory framework to ensure the safe construction and operation of nuclear power stations and disposal of waste material.

We also note that the Coalition proposal has possible options of producing electricity by 2035 (for SMRs) or 2037 (for large scale plants), the final choice of sites and reactors will impact any costs.

Attachment B highlights the high level of uncertainty with large complex infrastructure costings.

# Key assumptions

The PBO has made the following assumptions in costing this proposal.

Funding for a Department of Finance led taskforce would be established to determine the operating structure, financing arrangements and finalise a business case for the GBE, consistent with usual

<sup>&</sup>lt;sup>5</sup> <u>Government Business Enterprises (GBEs) (RMG 126) | Department of Finance</u> and ABS public sector unit classification decisions | Australian Bureau of Statistics

practice when establishing a new GBE. Provision would also be made for ongoing shareholder oversight.

The GBE would be fully Australian Government owned and would build, own and operate the nuclear plants, consistent with the specification.

# **Regulatory and Coordination Agencies**

Regulatory and Coordination Agencies would proceed along the IAEA milestone framework as detailed in the *Milestones in the Development of a National Infrastructure for Nuclear Power* and *Resource Requirements for Nuclear Power Infrastructure Development* publications. Activities would progress over the medium term with the appropriate approvals required before advancing through milestones.

The newly established agencies would be able to attract and retain staff at the required level of competency to fulfill their new functions.

These agencies would engage with a departmental taskforce (not included in this commitment as a quantified element), and that taskforce would develop the legal and regulatory framework to establish a civil nuclear program, including addressing the moratorium.

# Community engagement

For the community engagement element, each community would have a drop-in centre, comprehensive community survey, regular engagement events and mailouts. Each drop-in centre would be rented on an ongoing basis.

# Methodology

### **Regulatory and Coordination Agencies**

The cost estimates of these elements were based on calculating the required staffing profile to complete activities as outlined in the *Resource Requirements for Nuclear Power Infrastructure Development*. Staffing levels equivalent to 760 person years of effort (around 200 additional ASL per year). Costs were calculated using the PBO's departmental costs calculator, indexed to Wage Cost Index 3 less an efficiency dividend. Additional salary loading was given to attract the required talent in the specialist fields required to complete the work programme.

Costs include an executive board and an expert advisory panel for Coordinating Authority and were estimated using relevant Remuneration Tribunal determinations. Additional provision for one-off start-up costs for the establishment were made for the first 2 years of its operation.

### Community engagement

Staffing costs were estimated using a staffing profile of 4 people per centre and calculated using the PBO's departmental costs calculator, indexed to Wage Cost Index 3 less an efficiency dividend. The costs for each community drop-in centre were estimated using standard commercial fit out and rental rates on a per square metre basis using  $160\text{m}^2$  as the footprint for each centre. Other costs including travel, mailouts, community surveys etc were estimated based on previous budget measures for activities with a similar function and scope.

# **GBE** and equity Investment

Staffing costs for the Department of Finance taskforce are based on the Net Zero Economy Taskforce with a staffing profile of 150 and a timeframe of at least 24 months to complete the work programme to establish the GBE. Shareholder oversight of the GBE is also allowed for as part of ongoing costs.

The equity profile over 10 years is as specified by the Coalition.

Consistent with *PBO Guidance 02/2015* PDI is included for alternative financing arrangements involving financial assets.

Financial implications were rounded consistent with the PBO's rounding rules.<sup>6</sup>

# Data sources

Australian Submarine Agency (ASA) (2024) Annual Report, ASA, accessed 20 May 2025

Australian Bureau of Statistics (2017) Report on the conduct of the Australian Marriage Law Postal Survey 2017 (abs.gov.au) accessed on 20 May 2025

CBRE (2024) Australian Office Figures Q2 2024 | CBRE Australia accessed 20 May 2025

City of Parramatta Community Space Report <u>03 CIS - Community Space.pdf (nsw.gov.au)</u> accessed on 20 May 2025

Commonwealth of Australia (2025) *Pre-election Economic and Fiscal Outlook 2025,* Commonwealth of Australia

Commonwealth Scientific and Industrial Research Organisation (2024) <u>GenCost: cost of building</u>
<u>Australia's future electricity needs - CSIRO</u> accessed 20 May 2025

EDF Energy Holdings (2024) 2023 Annual Report Stats 2003 accessed 20 May 2025

EDF (2024) Hinkley Point C Update <u>Hinkley Point C Update - 2024/01/23 | EDF FR</u> accessed 20 May 2025

Financial Times (2024) <u>UK nuclear plant hit by new multiyear delay and could cost up to £46bn</u> accessed 20 May 2025

Frontier Economic (2024) <u>Microsoft Word - Report 2 - Nuclear power analysis - Final - STC</u> accessed 20 May 2025

International Atomic Energy Agency (IAEA) (2015) <u>Milestones in the Development of a National Infrastructure for Nuclear Power</u>, IAEA, accessed 20 May 2025.

JLL 2024 Australia Fit-Out Cost Guide 2023/2024 (ill.com.au) accessed 20 May 2025

National Faster Rail Agency (2022) <u>National Faster Rail Agency Annual Report 2021-22</u> (<u>transparency.gov.au</u>) accessed 20 May 2025

The Treasury and the Department of Finance provided economic parameters as at the 2025-26 Budget.

Remuneration Tribunal (2024) <u>Remuneration Tribunal (Remuneration and Allowances for Holders of Part-time Public Office) Determination 2024 Compilation No. 6</u>, (Date of effect 16 Aril 2025) Remuneration Tribunal, 20 May 2025.

<sup>&</sup>lt;sup>6</sup> https://www.pbo.gov.au/for-parliamentarians/how-we-analyse/pbo-rounding-rules

Attachment A – Announced Commitments to establish a civil nuclear program including operating nuclear power plants in 7 locations

Table A1: Announced Commitments to establish a civil nuclear program including operating nuclear power plants in 7 locations – Fiscal cash balance (\$m)(a)

	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	Total to 2028-29	Total to 2035-36
Expenses													
Administered													
GBE - establishment and capitalisation	-30.4	-47.0	-70.0	-	-	-	-	-	-	-	-	-147.4	-147.4
Deploy equity investment to build 2 nuclear power plants	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0
Total – administered	-30.4	-47.0	-70.0	-	-	-	-	-	-	-	-	-147.4	-147.4
Departmental													
Department of Finance taskforce and ongoing oversight (for GBE)	-10.6	-19.6	-2.5	-2.5	-2.5	-2.6	-2.6	-2.6	-2.7	-2.7	-2.7	-35.2	-53.6
Expand ARPANSA	-31.9	-27.0	-21.8	-22.1	-20.3	-20.6	-20.8	-21.1	-21.4	-21.7	-21.9	-102.8	-250.6
Establish Coordinating Authority, nuclear fuels & training laboratories	-51.2	-55.0	-53.1	-56.4	-56.8	-57.1	-57.4	-57.7	-58.0	-58.3	-58.6	-215.7	-619.6
Conduct community engagement	-29.6	-16.0	-20.4	-15.1	-15.5	-15.8	-16.2	-16.5	-16.9	-17.2	-17.6	-81.1	-196.8
Total – departmental	-123.3	-117.6	-97.8	-96.1	-95.1	-96.1	-97.0	-97.9	-99.0	-99.9	-100.8	-434.8	-1,120.6
Total – expenses	-153.7	-164.6	-167.8	-96.1	-95.1	-96.1	-97.0	-97.9	-99.0	-99.9	-100.8	-582.2	-1,268.0
Total (excluding PDI)	-153.7	-164.6	-167.8	-96.1	-95.1	-96.1	-97.0	-97.9	-99.0	-99.9	-100.8	-582.2	-1,268.0
PDI impacts		-10.0	-30.0	-70.0	-150.0	-290.0	-490.0	-750.0	-1,060.0	-1,440.0	-1,930.0	-110.0	-6,220.0
Total (including PDI)	-153.7	-174.6	-197.8	-166.1	-245.1	-386.1	-587.0	-847.9	-1,159.0	-1,539.9	-2,030.8	-692.2	-7,488.0

<sup>(</sup>a) A positive number for the fiscal balance indicates an increase in revenue or a decrease in expenses or net capital investment in accrual terms. A negative number for the fiscal balance indicates a decrease in revenue or an increase in expenses or net capital investment in accrual terms.

<sup>-</sup> Indicates nil.

<sup>..</sup> Not zero but rounded to zero.

Table A2: Announced Commitments to establish a civil nuclear program including operating nuclear power plants in 7 locations – Underlying cash balance (\$m)<sup>(a)</sup>

	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	Total to 2028-29	Total to 2035-36
Payments													
Administered													
GBE - establishment and capitalisation	-30.4	-47.0	-70.0	-	-	-	-	-	-	-	-	-147.4	-147.4
Deploy equity investment to build 2 nuclear power plants	-	-	-	-	-	-	-	-	-	-	-	-	-
Total – administered	-30.4	-47.0	-70.0	-	-	-	-	-	-	-	-	-147.4	-147.4
Departmental	Departmental												
Department of Finance taskforce and ongoing oversight (for GBE)	-10.6	-19.6	-2.5	-2.5	-2.5	-2.6	-2.6	-2.6	-2.7	-2.7	-2.7	-35.2	-53.6
Expand ARPANSA	-31.9	-27.0	-21.8	-22.1	-20.3	-20.6	-20.8	-21.1	-21.4	-21.7	-21.9	-102.8	-250.6
Establish Coordinating Authority, nuclear fuels & training laboratories	-51.2	-55.0	-53.1	-56.4	-56.8	-57.1	-57.4	-57.7	-58.0	-58.3	-58.6	-215.7	-619.6
Conduct community engagement	-29.6	-16.0	-20.4	-15.1	-15.5	-15.8	-16.2	-16.5	-16.9	-17.2	-17.6	-81.1	-196.8
Total – departmental	-123.3	-117.6	-97.8	-96.1	-95.1	-96.1	-97.0	-97.9	-99.0	-99.9	-100.8	-434.8	-1,120.6
Total – payments	-153.7	-164.6	-167.8	-96.1	-95.1	-96.1	-97.0	-97.9	-99.0	-99.9	-100.8	-582.2	-1,268.0
Total (excluding PDI)	-153.7	-164.6	-167.8	-96.1	-95.1	-96.1	-97.0	-97.9	-99.0	-99.9	-100.8	-582.2	-1,268.0
PDI impacts		-10.0	-30.0	-60.0	-130.0	-250.0	-440.0	-690.0	-980.0	-1,340.0	-1,810.0	-100.0	-5,740.0
Total (including PDI)	-153.7	-174.6	-197.8	-156.1	-225.1	-346.1	-537.0	-787.9	-1,079.0	-1,439.9	-1,910.8	-682.2	-7,008.0

<sup>(</sup>a) A positive number for the underlying cash balance indicates an increase in receipts or a decrease in payments or net capital investment in cash terms. A negative number for the underlying cash balance indicates a decrease in receipts or an increase in payments or net capital investment in cash terms.

<sup>-</sup> Indicates nil.

<sup>..</sup> Not zero but rounded to zero.

Table A3: Announced Commitments to establish a civil nuclear program including operating nuclear power plants in 7 locations – Headline cash balance (\$m)<sup>(a)</sup>

	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	Total to 2028-29	Total to 2035-36
Payments													
Administered													
GBE - establishment and capitalisation	-30.4	-47.0	-70.0	-	-	-	-	-	-	-	-	-147.4	-147.4
Deploy equity investment to build 2 nuclear power plants (Coalition specified profile)	-	-50.0	-430.0	-1,010.0	-2,210.0	-3,570.0	-4,800.0	-5,490.0	-6,270.0	-8,320.0	-10,260.0	-1,490.0	-42,410.0
Total – administered	-30.4	-97.0	-500.0	-1,010.0	-2,210.0	-3,570.0	-4,800.0	-5,490.0	-6,270.0	-8,320.0	-10,260.0	-1,637.4	-42,557.4
Departmental	Departmental												
Department of Finance taskforce and ongoing oversight (for GBE)	-10.6	-19.6	-2.5	-2.5	-2.5	-2.6	-2.6	-2.6	-2.7	-2.7	-2.7	-35.2	-53.6
Expand ARPANSA	-31.9	-27.0	-21.8	-22.1	-20.3	-20.6	-20.8	-21.1	-21.4	-21.7	-21.9	-102.8	-250.6
Establish Coordinating Authority, nuclear fuels & training laboratories	-51.2	-55.0	-53.1	-56.4	-56.8	-57.1	-57.4	-57.7	-58.0	-58.3	-58.6	-215.7	-619.6
Conduct community engagement	-29.6	-16.0	-20.4	-15.1	-15.5	-15.8	-16.2	-16.5	-16.9	-17.2	-17.6	-81.1	-196.8
Total – departmental	-123.3	-117.6	-97.8	-96.1	-95.1	-96.1	-97.0	-97.9	-99.0	-99.9	-100.8	-434.8	-1,120.6
Total – payments	-153.7	-214.6	-597.8	-1,106.1	-2,305.1	-3,666.1	-4,897.0	-5,587.9	-6,369.0	-8,419.9	-10,360.8	-2,072.2	-43,678.0
Total (excluding PDI)	-153.7	-214.6	-597.8	-1,106.1	-2,305.1	-3,666.1	-4,897.0	-5,587.9	-6,369.0	-8,419.9	-10,360.8	-2,072.2	-43,678.0
PDI impacts		-10.0	-30.0	-60.0	-130.0	-250.0	-440.0	-690.0	-980.0	-1,340.0	-1,810.0	-100.0	-5,740.0
Total (including PDI)	-153.7	-224.6	-627.8	-1,166.1	-2,435.1	-3,916.1	-5,337.0	-6,277.9	-7,349.0	-9,759.9	-12,170.8	-2,172.2	-49,418.0

<sup>(</sup>a) A positive number for the headline cash balance indicates an increase in receipts or a decrease in payments or net capital investment in headline cash terms. A negative number for the headline cash balance indicates a decrease in receipts or an increase in payments or net capital investment in headline cash terms.

<sup>-</sup> Indicates nil.

<sup>..</sup> Not zero but rounded to zero.

# Attachment B - Uncertainties

There are significant uncertainties in trying to estimate the expected impact on the budget aggregates to build, own and operate large and complex infrastructure projects such as the development and construction of nuclear power plants.

Figure B-1 illustrates an indicative range of cost scenarios (from international experience) encompassing modelling with various technology choices (including AP1000, APR1400, EPR-1750 and SMR), with and without an allowance for First of a Kind (FOAK) premiums and/or location premiums (all excluding remediation costs). The heaviest shading in the figure reflects the amounts shown in Table A3. Taking into account adjustments for a consistent build time to meet the announced timeframe for operation, recent international examples all fall within this range.

There are no international examples of costs for completed commercial SMRs.

The PBO has made no assessment on the extent to which the total cost of the international projects are comparable to this proposal.

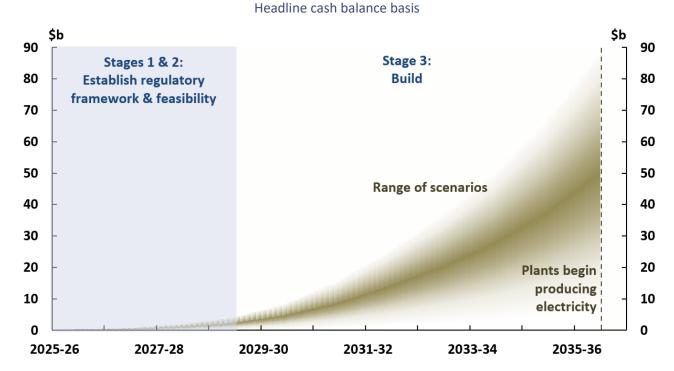


Figure B-1: Illustrative uncertainties in cumulative cost estimates

Source: PBO analysis, based on consultation with the Commonwealth Scientific and Industrial Research Organisation (CSIRO), the Department of Finance, The Department of Climate Change, Environment, Energy and Water, the Parliamentary Library, and international experience.

Note: The range of cost scenarios encompasses modelling with various technology choices (including AP1000, APR1400 and SMR), with and without an allowance for First of a Kind premiums. Excludes remediation costs.