

snowyhydro

Hunter Power Project

A SNOWY HYDRO PROJECT

Good for prices. Good for jobs. Underpinning renewables

ZERO HARM

our people go home in the same shape they arrived; across all health and wellness measures

WORLD-CLASS DESIGN AND DEVELOPMENT

we leverage the very best the local and global marketplace has to offer

COLLABORATIVE

a collaborative and cohesive project team in a disaggregated contract environment

WE INVEST LOCALLY

a Snowy Hydro project for the Hunter region

A FULLY-APPROVED PROJECT

ready to begin site-based execution by the end of January 2022

ON-TIME AND ON-BUDGET

we deliver the project on-time and on-budget

VALUES-DRIVEN

a project delivered with Snowy Hydro Values at every step

Contents

1 Executive Summary	3
2 The Project	4
3 Summary business case	5
3.1 Sources of revenue and costs	6
3.1.1 Energy firming net revenue	6
3.1.2 Capacity revenue	6
3.1.3 Transmission synergy	7
3.1.4 Cost components	7
3.2 Scenario outcomes	8
4 Key strategic benefits for Snowy Hydro	9
5 Snowy Hydro's history of gas developments	10
6 Programme	10
7 Fuel supply	12
8 Key risk and opportunity considerations	13
8.1 Risk identification and management	13
9 Key cost considerations	15
10 Definitions and abbreviations	16

1 Executive Summary

This document sets out a high level overview of the business case for the Kurri Kurri Gas-fired Power Station (*Kurri*, or the *Project*).

Snowy Hydro is committed to the delivery of affordable, reliable, environmentally-benign energy, and to play a key role in facilitating the least-cost decarbonisation of the NEM.

Open-cycle gas turbine (**OCGT**) plants have historically operated as "capacity" providers, that operate essentially as a supply source of last resort when demand is particularly high or there are other causes of supply stress, such as transmission curtailment or outages. For Snowy, gas plants have also played a crucial role in mitigating the risk of low water inflows. At times of severe drought, gas plants have provided significant amounts of back-up energy to replace the usual hydro-electric generation, benefiting both Snowy and the NEM.

The evolving NEM has recast the role of OCGT plants, namely as enablers of renewables. The Project will play its most important role when the wind is not blowing and the sun is not shining. Like Snowy 2.0 and the existing Snowy Hydro scheme, Kurri will fill in the supply gaps when renewable generation is low.

This function, in "firming" the non-firm supply of wind and solar, is reflected in the projected earnings of the Kurri plant in both the NEM spot and contract markets. In the context of replacing coal-fired generation, gas plants are critical to the NEM's prospective success in reducing CO₂ emissions. The combination of a dominant proportion (in an energy sense) of wind and solar, firmed by OCGT, storage hydro and batteries, promises to solve the trilemma of least-cost, least-CO2, reliable energy production in the NEM.

The Project is considered by Snowy Hydro as a meaningful step in that direction, noting that many more gas plants will need to be built in the NEM to underpin the decarbonisation trajectory that is now a clear goal of Governments, commercial and industrial (*C&I*) customers, and mums and dads end users.

Snowy Hydro is confident that the Project can be delivered to high safety and environmental standards, achieve or surpass the commercial business case presented herein and ultimately meet the deadline to have dispatchable gas-fired capacity commissioned by December 2023.

The economic assessment demonstrates favourable returns across a wide range of scenarios, and a projected Asset Internal Rate of Return (IRR), for the base case, of 12.3%. A number of sensitivities were assessed; the lowest projected IRR of these cases was 8.4%, corresponding to the composite downside case (described below).

The robustness of the business case is due to the fact that the Project earns revenue from multiple sources, which will increase competition in each of the NEM's relevant market segments while playing a material role in safeguarding supply reliability in the NEM.

Addendum: These return metrics do not reflect the recent announcement by the NSW Government to implement a large-scale renewable and storage procurement. This initiative, to whatever extent it is eventually implemented, would put a further premium on firm, flexible, dispatchable capacity. This would produce a material value uplift for the Project and for any other proponents of OCGT plants in the NEM.

2 The Project

Snowy Hydro Limited (*Snowy Hydro*) considers its portfolio of asset options critical to the continued success of its business model, particularly as this evolves to service the growing demand for firmed renewable energy among C&I customers.

The Project involves the construction and operation of a power station and electrical switchyard, together with other associated fuel gas and diesel supply assets. The business case is to build 660 MW using two high-efficiency, hydrogen-ready industrial units.

The proposed power station would operate in the Snowy Hydro portfolio predominantly as a "peaking" generation facility supplying firming energy throughout the year and reliable capacity at short notice when there is a requirement in the NEM. The project will also play a role in mitigating Snowy's exposure to transmission risk, which is becoming an increasingly material problem along the congested Snowy - Sydney transmission corridor.

The Project's major supporting infrastructure consists of a 132 kV electrical switchyard located adjacent to the Project Site and a circa 20 km new gas lateral pipeline plus 14 km of looping.

The Project site is located at the old Kurri Kurri aluminium smelter site in the Hunter region and enjoys favourable core parameters for developing a gas fired peaking power station:

- 1. With a new 132 kV switchyard to be built, located adjacent to the power station, the station will have access to a strong 132 kV network with three outgoing lines (existing lines to be re-terminated), and has potential augmentation options to provide adequate redundancy.
- 2. Gas connection is to the same Jemena Gas Networks Sydney-to-Newcastle pipe as Snowy Hydro's Colongra Power Station and at the gas lateral length being contemplated, multiple optimisations exist to minimise the lifecycle costs (capital and operating expenditure) of gas storage capacity.
- 3. The land parcel that sits within a future greater industrial redevelopment is right-sized, has no existing neighbours and has permitted the team to select the optimal site from a cost, risk and programme perspective.
- 4. A favourable stakeholder environment in a region valuing jobs and growth, and a site that is pre-existing industrial use.

3 Summary business case

The project will deliver development of two F-Class machines totalling 660 MW, with practical completion expected in December 2023. The indicative economic assessment indicates:

- 1. Asset IRR of 12.3%.
 - a. Downside sensitivities were assessed in detail for each of the main economic parameters, and were found to return asset IRRs between 11.8% to 8.4%.
 - b. The least favourable case was the "Compound downside" case, which was specified as:
 - i. Capacity prices reduced by 20%
 - ii. Capital expenditure increased by 20%; and
 - iii. The demand-weighted average price of generation reduced by 10%.

A summary of the key project parameters is presented in Table 1:

Key items	Project Development
Plant & Equipment	2 x OCGT F-Class turbines (nameplate capacity: 330 MW each)
COD	Units 1&2 commissioned by December 2023
Electrical Connection	Minimal upgrades to existing infrastructure needed
Gas Transmission	19 km @ 14 inch 13.5 km @ 42 inch 43 TJ of storage (with optionality to increase to 70 TJ)

Table 1: Key assumptions

The business case is robust to significant variation in economic parameters:

- The assumed curve of capacity values lies well below the current forward market for capacity products. This assumption is deliberately conservative. It is further underpinned by the fact that the MJA modelling is based on a profile of coal plant closures or de-rating that is considered conservative (i.e. least favourable to the Project).
- Eliminating the transmission synergies results in a projected asset IRR of 9.7%.
- A material reduction in capacity factor, associated with reduced demand for firming products, results in a projected asset IRR of 11.8%. This is considered highly improbable, in light of the already moderate assumption for firming demand that is contained in the base case. It is considered much more likely that Kurri will be called upon more than assumed, for both NEM reliability management and *economically* filling-in the troughs of wind and solar output (noting that these factors are connected).
- An increase in capital costs of 20% results in a projected asset IRR of 10.5%. This is considered an improbable outcome, as the components of the plant's capital costs are all transparent and subject to competition between vendors in a highly competitive global market.

3.1 Sources of revenue and costs

3.1.1 Energy firming net revenue

Plants such as OCGT peaking plants, which have historically earned the great majority of their revenue from the sale of capacity-based products, have the inherent flexibility to supply bulk energy when required.

For Snowy, this mode of operation has proven invaluable during past events such as the 2007 drought, when both Laverton and Valley Power ran at capacity factors of up to 30% for extended periods. At those times, the key benefit was that the energy represented a reliable source of energy supply risk mitigation. At times of droughts, whether they be related to water, wind or sun, OCGT plants are able to augment the reduced energy available, benefiting supply reliability and stabilising NEM prices.

In the future, the NEM's OCGT plants will play an additional role: they will fill in the supply gaps created by the inherently intermittent production of wind and solar generation.

This "firming" of intermittent renewable generation, to produce a reliable demand-following energy product that is saleable to customers, has been modelled by MJA and manifests as sporadic and variable running hours to support NEM reliability.

The forecast energy profile of the plant for the purposes of firming was estimated as part of the MJA analysis, and as expected varies in line with expected market influences. The average expected energy firming generation is approximately 199 GWh per annum.

3.1.2 Capacity revenue

The next component of economic value created by the Project is the ability to underwrite capacity products, which include wholesale, mass market and C&I products (all of which require an element of capacity in the product mix). The increasing urgency for development of firm, dispatchable capacity in NSW, particularly in the context of the looming closure of Liddell, is highly relevant to the value proposition for the Project. Capacity value relates to the ability to sell and defend capacity "hedge" products, ranging from ASX-traded short term capacity products to bespoke, large, long-term and non-commoditised contracts. Capacity revenue also relates to supporting or firming the capacity shortfall of non-dispatchable or intermittent generation.

The visible trends and the observable supply/demand balance in the market for capacity products point to a base case in which the Kurri capacity will not only be saleable, driven by the outcomes of the forward capacity price modelling shown above for each scenario, but also underpin the Snowy portfolio for decades to come. Kurri will provide a valuable 'insurance' product for customers that will contribute to greater competition and lower costs to consumers.

The Project has a firm capacity of 644 MW. This includes adjustments to the nameplate capacity of the turbines to account for altitude and Marginal Loss Factors (*MLF*) assumed to be 0.99 (Jacobs). The value contribution from this component is a function of the firm capacity and the corresponding MJA forward capacity price curve capacity, described above.

These outcomes have been derived from the capacity price forward curves produced from the MJA market analysis and are used to assess the value of capacity for the business case described above. The variability in the curves reflects:

- 1. The retirement of Liddell in 2023;
- 2. The progressive commissioning of Snowy 2.0 across FY 2026;
- 3. The retirement of Vales Point during 2029 to 2030;
- 4. The timing of the proposed Kurri development; and
- 5. The supply / demand balance of capacity in the NSW market.

3.1.3 Transmission synergy

Transmission risk is one of the most significant risks for Snowy Hydro's business, emphasised by the spot market losses that Snowy suffered on 4 January 2020, which would have been in excess of \$100 million were it not for the availability of Colongra to manage both transmission flows and the NSW price, thereby limiting Snowy's financial exposures.

The construction of HumeLink under the RIT-T does not alleviate this risk, as the additional transmission capability will be required to serve the needs of both the rapidly growing wind and solar supply sector and also Snowy 2.0.

In the economic analysis of Colongra, conducted in 2014, the risk of losing 1,000 MW of market access to NSW was specifically identified in the analysis. The analysis demonstrated and quantified the value of reducing this risk by 600 MW through the acquisition of Colongra.

The value in materially reducing the original 1,000 MW of transmission risk, through the addition of the Kurri development to the 644 MW of tradable Colongra capacity, is assessed on a probabilistic basis, referring to forced and planned line outages and projections of transmission congesting along the Snowy - Sydney corridor.

3.1.4 Cost components

The following describes the cost components of the economic assessment:

- 1. **Capital Expenditure** The present value of a nominal capital expenditure of \$600 million;
- 2. **Fuel** This is the cost of gas utilised by the plant in defending, firming or hedging total capacity sold;
- 3. **Gas Lateral** This item includes the capital cost and ongoing O&M of the gas lateral, modelled as an fixed annuity over the life of the plant; and
- 4. Other OpEx This includes the following ongoing costs:
 - a. Fixed plant operations and maintenance costs;
 - b. Major and Minor inspections and overhauls as well as hot gas path inspections;
 - c. Fixed gas transport assumption; and
 - d. Market fees, insurance and rehabilitation costs.

3.2 Scenario outcomes

The table below summarises the key base case metrics and sensitivities:

Base case and sensitivities	IRR on assets						
Base case	12.3%						
-20% in cap price	10.4%						
+20% in capex	10.5%						
No Transmission synergies	9.7%						
Low capacity factor for firming	11.2%						
-10% in demand-weighted price (firming)	11.8%						
Composite downside	8.4%						

 Table 2: Projected economic outcomes

4 Key strategic benefits for Snowy Hydro

Snowy Hydro and its Shareholder recognise that the urgency of gas plant development in NSW is growing. The catalysts for this are listed below.

- 1. The shutdown of Liddell has the potential to create a repeat of the effects of the Hazelwood closure. A new gas plant, built by Snowy Hydro, represents an insurance policy for safeguarding system security and managing the NEM supply / demand balance;
- 2. **Peak demand growth is growing, despite average consumption remaining flat.** Peak demand is difficult to predict, but every material driver is pointing to the need for additional reliable, fast-start capacity;
- 3. Snowy Hydro's sold capacity portfolio is full in Victoria (no headroom available) and is increasingly full in NSW. The imminent sell-out of Snowy's capacity portfolio, even allowing for the additional headroom available from the updated system of financial risk limits, is beneficial to Snowy's earnings. The current portfolio settings have taken advantage of Snowy's diverse channels to market, but in doing so have nearly exhausted the current capacity supply; and
- 4. **Geographic diversification is a major value driver.** Due to increasing congestion on existing transmission networks, additional gas plant capacity that is not transmission-constrained will add material value.

By the time Snowy 2.0 is commissioned, even the proposed Integrated System Plan (*ISP*) transmission will be fully utilised: by approximately 12,000 MW of wind and solar across NSW and Victoria, all of which is located remotely to the major capital-city load centres.

If the proposed NSW Government initiative is fully implemented in the timeframes outlined, there must be accompanying appropriate transmission augmentation and investment. At the time of Kurri FID, this scenario has not been modelled, however if this scenario is to prevail it represents significant economic upside for the development due to the increase in demand for firming services in NSW.

5 Snowy Hydro's history of gas developments

Snowy Hydro has a successful history of owning and operating gas fired power stations, which commenced with the acquisition of Valley Power Power Station in 2005, followed by the construction of Laverton Power Station, completed in 2006.

Snowy Hydro has assessed numerous development opportunities in New South Wales and Victoria for OCGT and Combined Cycle Gas Turbine (*CCGT*) plant, which included identifying potential development sites, assessing gas and electrical connections, and keeping abreast of technological developments. In 2011-2012, Snowy Hydro undertook an extensive investigation into the development of a 600 MW Open Cycle Power Station at Bannaby, including gas route, connection enquiry, and development owner's requirements.

In 2014, Snowy Hydro acquired Colongra Power Station, being the largest gas-fired power station in NSW, and since then has operated and maintained a portfolio of three OCGT power stations, as well as diesel peaking stations in South Australia. The plant plays a critical role in our portfolio, and Snowy Hydro understands how to operate them effectively. Snowy Hydro has continued to pursue other development opportunities, in addition to the Kurri Kurri OCGT Plant.

6 Programme

The December 2023 commercial operation date (*COD*) on gas is achievable and confirmatory due diligence - primarily schedule analysis and approvals / procurement strategy - will determine if an earlier COD can be achieved.

Key milestones were identified. The critical path runs broadly through the milestones (refer to Figure 3):

- 1. 10 March 2021: Final Investment Decision (*FID*);
- 2. April 2021: OEM input to draft GPS;
- 3. May 2021: Site purchase option exercised;
- 4. August 2021: GT major equipment design and procurement signed;
- 5. October 2021: Civil and structural designer appointed;
- 6. November 2021: Gas lateral contracts signed;
- 7. December 2021: Site remediation complete;
- 8. August 2022: GT auxiliary equipment design and procurement;
- 9. November 2022: GT foundation and buildings
- 10. March 2023: GT power island build;
- 11. November 2023: Gas lateral commissioning;
- 12. December 2023: Practical completion or commercial operation date (*COD*).

PROCUREMENT ACTIVITY	0.10.0	10/00	4.4.10.0	10/00		0.04	0.04		5.0.4	0.04	7.04	0.04	0.04	10/04	11101	10.0	4.00		0.000	4.00	5.000	0.000	7.00	0.000	0.000	10/00	11100	10/00	410.0	0.000	0.000					0.00	0.000	10/001	
	9/20	10/20	11/20	12/20	1/21	2/21	3/21	4/21	5/21	6/21	//21	8/21	9/21	10/21	11/21	12/21	1/22	2/22	3/22	4/22	5/22	6/22	1/22	8/22	9/22	10/22	11/22	12/22	1/23	2/23	3/23	4/23	3 5/23	6/23	3 7/23	8/23	9/23	10/231	1/23 12
Power Island Equipment EOI																																							
Power Station key contractor EOI																																							
Power Island Equipment tender																																							
FID																																							
Power Island supplier selection																																							
OEM input to draft GPS and dyn studies for NER application								CRIT	TICAL	PATH																													
Power Island supplier contract award																																							
Tech clarifications and finalse GT design																																							
GT loading data for structural design																																							
GT major equipment design and procurement													CRIT	ICAL	PATH																								
Major shipments																								CRITI		PATH													
GT auxl equipment design and procurement																																							
Auxl shipments																								CRITI		PATH													
Engage design contractor																																							
Civil and structural design															CRIT	ICAL	PATH	1																					
Auxiliaries design																																							
Integration of design																																							
Cabling design																																							
Piping design																																							
BoP functional/performance spec																																							
Cabling interconnection																																							
Piping interconnection																																							
Overall Integration																							CRITI	CAL	PATH														
Site access																																							
Site construction procurements																	milestor	•																					
Site bulk earthworks, cut n fill																																							
Above ground structures																																							
GT PI Foundationa and buildings																														CRIT	ICAL	PATH	4						
GT Power Island build																															CRIT	ICAL	PATH	1					
Cabling and piping																																							
Commissioning (Distillate)							1																																-
COD (Distillate)																																							
Commissioning (Gas)																																						milestore	
COD (Gas)																																							-

Figure 3: Project critical path

The critical path will challenge proposed construction methodology and productivities from the tender responses. Interfaces between contracts on the critical path will be highlighted for management action.

7 Fuel supply

Snowy Hydro's preference is to construct a gas lateral with at least 43 Terajoules (*TJ*) of storage regardless of the timing of staging of the gas turbine development for the power station. At a minimum 43 TJ is enough to run two Open-Cycle Gas Turbines units at a station total 660 MW (two F-Class) at the Kurri Kurri Power Station for 6.5 hours on gas.

Snowy Hydro has engaged APA as its preferred partner to plan, construct and ultimately own the gas lateral infrastructure. As part of this process, a Design and Development Agreement (**DDA**) has been executed that provides for APA to complete planning works, present a commercial offer and then transition into a further Development Agreement for the construction and operation of the assets.

The gas infrastructure has been captured under the Projects CSSI status, which should help facilitate the planning approvals process. APA has conducted preliminary configuration and route analysis and a corresponding Multi Criteria Risk Analysis that has narrowed down the preferred route options (to three routes) and two design configurations. Further external stakeholder engagement will help narrow these options down further (prior to compilation and submission of an EIS for the lateral) and is expected during Q1 and Q2 2021.

The DDA establishes a timetable for the key development milestones that APA will be required to perform under the Development Agreement to achieve first gas by November 2023 which includes lodging an Environment Impact Statement (*EIS*) and obtaining a pipeline licence for the purposes of the gas lateral pipeline.

8 Key risk and opportunity considerations

The strategy of shifting delivery of the Project components to the individual Contractors opens up potential risks with the increased number of interfaces and packages.

A matrix of management plans will be developed and assessed to ensure compliance and approvals requirements are addressed. Oversight of a Contractor's execution through plans, approvals, reviews provides a secure management / mitigation framework to ensure the predictable delivery of the Project components.

8.1 Risk identification and management

The management of risk is an integral part of the Project. Throughout the pre-FID period, risks have been identified, analysed and mitigants identified. The assessment shows no obvious fatal flaws for the Project based on information obtained through the ongoing studies and investigations. Elevated risk issues include matters associated with activities of influence rather than direct control including permits being granted and community and stakeholder responses.

A summary of the major risks identified and the proposed risk controls are included below.

Key Risk	Proposed Risk Controls
Negative publicity from Stakeholders	Develop Stakeholder management plan.Prepare media holding statements.
The project is delayed during construction due to poor Contractor performance	 Adoption of disaggregated contracting model to assert control over project execution timeframe Ensure adequate Owner's team resourcing for managing multiple contract packages and interfaces Construction contracts to include liquidated damages for completion delay Procurement and Contracting Plan and Project Execution Plans developed.
There is community backlash which causes a delay or stalls the project	 Ensure adequate Owner's team resourcing for managing community relations Develop a community relations plan that has input from community specialists and is independently reviewed Establish a community communications procedure and train the project team and contractor on community relations response Prepare holding statements, Q&A and fact sheets and maintain these up to date with the community response plan.
Failure to meet the business case	 Base financial model on firm bids from the market at FID Undertake independent review of cost estimate and basis of estimate document at decision gates Undertake cost and schedule contingency analysis to support FID decision gate Develop a life cycle cost plan that aligns with the generation forecast Benchmark cost estimates FOREX / Escalation assumptions are incorrect in the Financial Model Financial modeling on lifecycle cost including O&M plan.
Gas (or fuel) supply is not available to meet the project demand	 Engage APA in a Design and Development Agreement Design basis includes dual fuel capability (Distillate operation) Interface schedules into a master schedule to monitor progress Contracts Manager assigned - ensure regular updates on status and manage interfaces between agreements.
Contractor failure due to industrial relations (<i>IR</i>), insolvency or non-performance	 Disaggregated procurement model to be implemented IR risks to be managed across Contractors on site with one lead IR Contractor Implement a robust market enquiry specification and evaluation process that suitably weights contractor experience Identify key management roles from the Contractor and scrutinise experience and references

The Site is less	 Specify robust construction safety requirements and undertake diligent review and of contractor safety and industrial relations performance during EOI and tender evaluation processes Undertake appropriate commercial and financial due diligence of the delivery contractors and monitor following contractor selection Ensure appropriate contractual protection mechanisms (bonding, title transfer, Intellectual Property (<i>IP</i>) protection). Manage geotechnical risk allocation in the contract structure
suitable than expected due to geology, zoning constraints or other unknown conditions	 Manage demolition risk allocation in regards to underground services Independent review of contractor interpretation of geotechnical factual report Undertake appropriate site based studies e.g. flood, drainage, bushfire, latent conditions as part of appropriate land acquisition site due diligence Closely monitor progress of the Planning Proposal for rezoning to Heavy Industrial.
There is a major safety event during construction of the Project	 Appoint a Principal Contractor taking full responsibility for site safety Specify comprehensive safety in design requirements in contractor specifications Robust review of Contractor safety performance during EOI and tender evaluation Health and safety management plan established.
The Power Station cannot be connected to the grid due to a failed Connection Agreement or other transmission related issues	 Undertake condition assessment and reliability analysis of transmission lines Schedule stakeholder (AEMO/AusGrid) engagements in master schedule Undertake static and dynamic system studies to support GPS agreement Confirm OEM technology capability to comply with agreed GPS except as agreed Ensure switchyard design is interfaced in the design schedule to prevent delay of 132kV switchyard construction.
Approval and permits are not obtained to meet the Project timeline or not obtained at all	 Assertively pursue CSSI approval path Ensure permit conditions are clearly specified and considered in plant design specification Include CASA & EPA in the stakeholder management plan.
The plant and equipment design does not meet the required performance standards set	 Ensure reliability run is specified Consider a LD regime (mechanism) that limits exposure Specify performance guarantee on reliability and heat rate in contract Specify heat rate and degradation limits Ensure start reliability is robustly specified Consider extended warranties on critical plant and equipment Screen technology solutions and seek operating experience.
The plant and equipment procured for the project does not meet the project timeline or the required specification	 Scope and define interfaces between construction packages Minimise interfaces where possible develop a robust interface management plan Develop and specify a comprehensive and transparent terminal points list Plan and adjust the scope and form of specification to match methods and procurement approach Freeze balance of plant scope as early as possible Early and robust definition of the procurement strategy Utilise term sheets to enable preferred contract structure from procurement process Monitor Contractor procurement and supply planning.
The Project construction does not meet quality and operational expectations	 Establish robust Quality Assurance surveillance on no redundant high value long lead plant.

9 Key cost considerations

The cost estimate analysis is split into four logical components that best represent the incremental capital expenditure applied as a function of each scenario. They are summarised below, and include contingency and escalation where required.

Cost Estimate	Description	Total Capital Cost Plant (A\$m, nominal)
Development project	 2 x F-Class machines at 330 MW in nameplate capacity Commissioning of both gas turbines by December 2023. Gas lateral of 43TJ with optionality to 70TJ to increase to 70TJ No electrical connection upgrades needed. 	600.0

The capital expenditure does not include the gas lateral, which will be expressed as an O&M annuity.

The operations and maintenance (**O&M**) program covers routine and unplanned maintenance costs (including 20% contingency for unplanned outages), plant management and staff as well as diesel for seasonal changeover. The program includes three minor inspections in 2027, 2035 and 2043, an extended minor inspection in 2030 and a major hot gas path inspection in 2038. These inspections amount to \$24.5m per unit over the life of the plant. An O&M set up cost of \$3.0m has been included in the Project budget.

Cost Estimate	Total Cost per annum (A\$M, nominal)
Kurri project	4.9

In addition to the O&M program, the Project assumes it incurs gas costs at an assumed \$9.1/GJ rate. Given the projected capacity factor and an efficient heat rate of 9.9 GJ/KWh, these costs will not be significant given the capacity factors being modelled.

Regarding the gas infrastructure, the service agreement with APA will take the form of an annuity covering the construction of the gas lateral and an O&M fee.

10 Definitions and abbreviations

- AEMO Australian Energy Market Commission ASX Australian Stock Exchange BOP Balance of plant CASA Civil Aviation Safety Authority CCGT Combined Cycle Gas Turbine COD Commercial operation date CSSI Critical State Significant Infrastructure DDA Design and Development Agreement Environmental Impact Assessment EIS EOI Expression of Interest Engineering, Procurement, Construction EPC FID Final Investment Decision FOREX Foreign Exchange FΥ **Financial Year** GJ Gigaioules GT Gas Turbine IP Intellectual Property IR Industrial Relations IRR Internal Rate-of-Return ISP Integrated System Plan MLF Marginal Loss Factors MW Megawatt National Electricity Market NEM Operations and maintenance O&M OCGT Open-Cycle Gas Turbines OEM **Original Engineering Manufacturer** Ы Power island SRA Settlement Residue Auction unit
- TJ Terajoules
- WACC Weighted Average Cost of Capital