

Meeting Agenda

Meeting Title:	WEM Investment Certainty Review Working Group (WICRWG)			
Date:	Thursday 6 August 2026			
Time:	9:30 AM – 11:30 AM			
Location:	Online via TEAMS			
Item	Item	Responsibility	Type	Duration
1	Welcome and Agenda - Conflicts of interest - Competition Law	Chair	Noting	5 min
2	Meeting Apologies/Attendance	Chair	Noting	5 min
3	Recap from previous WICRWG meeting related to the Benchmark Technology Review 2026	RBP/Jacobs	Noting	5 Min
4	Benchmark Technology Review 2026 - Technology costs - Gross/Net CONE	RBP/Jacobs	Discussion	100 min
5	General Business	Chair	Discussion	5 min
	Next meeting: 20 August 2026			

Please note, this meeting will be recorded.

Competition and Consumer Law Obligations

Members of the MAC (**Members**) note their obligations under the *Competition and Consumer Act 2010* (**CCA**).

If a Member has a concern regarding the competition law implications of any issue being discussed at any meeting, please bring the matter to the immediate attention of the Chairperson.

Part IV of the CCA (titled “Restrictive Trade Practices”) contains several prohibitions (rules) targeting anti-competitive conduct. These include:

- (a) **cartel conduct**: cartel conduct is an arrangement or understanding between competitors to fix prices; restrict the supply or acquisition of goods or services by parties to the arrangement; allocate customers or territories; and or rig bids.
- (b) **concerted practices**: a concerted practice can be conceived of as involving cooperation between competitors which has the purpose, effect or likely effect of substantially lessening competition, in particular, sharing Competitively Sensitive Information with competitors such as future pricing intentions and this end:
 - a concerted practice, according to the ACCC, involves a lower threshold between parties than a contract arrangement or understanding; and accordingly; and
 - a forum like the MAC is capable being a place where such cooperation could occur.
- (c) **anti-competitive contracts, arrangements understandings**: any contract, arrangement or understanding which has the purpose, effect or likely effect of substantially lessening competition.
- (d) **anti-competitive conduct (market power)**: any conduct by a company with market power which has the purpose, effect or likely effect of substantially lessening competition.
- (e) **collective boycotts**: where a group of competitors agree not to acquire goods or services from, or not to supply goods or services to, a business with whom the group is negotiating, unless the business accepts the terms and conditions offered by the group.

A contravention of the CCA could result in a significant fine (up to \$500,000 for individuals and more than \$10 million for companies). Cartel conduct may also result in criminal sanctions, including gaol terms for individuals.

Sensitive Information means and includes:

- (a) commercially sensitive information belonging to a Member’s organisation or business (in this document such bodies are referred to as an Industry Stakeholder); and
- (b) information which, if disclosed, would breach an Industry Stakeholder’s obligations of confidence to third parties, be against laws or regulations (including competition laws), would waive legal professional privilege, or cause unreasonable prejudice to the Coordinator of Energy or the State of Western Australia).

Guiding Principle – what not to discuss

In any circumstance in which Industry Stakeholders are or are likely to be in competition with one another a Member must not discuss or exchange with any of the other Members information that is not otherwise in the public domain about commercially sensitive matters, including without limitation the following:

- (a) the rates or prices (including any discounts or rebates) for the goods produced or the services produced by the Industry Stakeholders that are paid by or offered to third parties;
- (b) the confidential details regarding a customer or supplier of an Industry Stakeholder;
- (c) any strategies employed by an Industry Stakeholder to further any business that is or is likely to be in competition with a business of another Industry Stakeholder, (including, without limitation, any strategy related to an Industry Stakeholder’s approach to bilateral contracting or bidding in the energy or ancillary/essential system services markets);
- (d) the prices paid or offered to be paid (including any aspects of a transaction) by an Industry Stakeholder to acquire goods or services from third parties; and
- (e) the confidential particulars of a third party supplier of goods or services to an Industry Stakeholder, including any circumstances in which an Industry Stakeholder has refused to or would refuse to acquire goods or services from a third party supplier or class of third party supplier.

Compliance Procedures for Meetings

If any of the matters listed above is raised for discussion, or information is sought to be exchanged in relation to the matter, the relevant Member must object to the matter being discussed. If, despite the objection, discussion of the relevant matter continues, then the relevant Member should advise the Chairperson and cease participation in the meeting/discussion and the relevant events must be recorded in the minutes for the meeting, including the time at which the relevant Member ceased to participate.



Department of
**Energy and Economic
Diversification**

WEM Investment Certainty Working Group

Benchmark Technology Review
2026 – Technology Costs and
Gross/Net CONE

Acknowledgement of Country

The Government of Western Australia acknowledges the traditional custodians throughout Western Australia and their continuing connection to the land, waters and community.

We pay our respects to all members of the Aboriginal and Torres Strait Islander communities and their cultures, and to Elders past and present.

Agenda

Item		Time	Presented by
1	Welcome, introductions and apologies	10 min	Chair
2	Recap from previous session	5 min	RBP/Jacobs
3	Technology costs	50 min	RBP/Jacobs
4	Gross/Net CONE	50 min	RBP/Jacobs
5	Next Steps	5 min	Chair

Recap



Scope

- Under ESM Rule 4.16.11, the Coordinator must determine the Benchmark Technologies within six months of a revised ESR Duration Requirement being published in the ESOO.
- In the 2026 ESOO, the ESR Duration Requirement was increased from 6 hours to 7 hours, so the Coordinator is reviewing the Benchmark Technologies as per the ESM Rules.
- The Coordinator must determine the Benchmark Technology for:
 1. Peak Capacity; and
 2. Flexible Capacity.
- The selected Benchmark Technologies should:
 - provide efficient investment signals to ensure system security and reliability; and
 - ensure that customers don't overpay for the desired system security and reliability.

Approach

1. Establish a long list of technologies
2. Pre-filter long list based on technology readiness and credibility for service by 2029
3. Create potential configurations of remaining technologies for assessment
4. Identify the requirements that must be met to provide each capacity service
5. Filter configurations based on service requirements
6. Identify cost data (based on the existing BRCP determination approach) for each configuration to deliver each capacity service
7. Identify additional data for determination of net Cost of New Entrant (CONE) assessment
8. Conduct market modelling to inform Benchmark Technology and Gross/Net CONE proposals
9. Develop Benchmark Technology and Gross/Net CONE proposals
10. Consultation and Determination

EPWA has completed steps 1-9 and step 10 will commence shortly.



Proposed configuration shortlist

The resulting eligible shortlisted candidate configurations proposed are as follows:

	Industrial SCGT*			Aero SCGT*			CCGT*	Recip.*		BESS	
	2x GT13E2	2x SGT5-2000E	2x GE 9FA.04	4x LMS100PB	6x LM6000PF-SPRINT	12x LM2500 G4 DLE	2x GT13E2 2+1 w/. bypass stacks	12x Wartsila med speed	24x Jenbacher med speed	7h BESS	8h BESS
Peak Service	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	$\frac{7}{8}$ cap
Flex Service	✓	✓	✓	✓	✓	✓	$\frac{2}{3}$ cap	✓	✓	✓	$\frac{7}{8}$ cap

Cost calculation methodology

- Data sources – Public where possible, with minimal adjustment:
 - CSIRO GenCost
 - Thermoflow where GenCost does not cover a technology configuration
 - BESS: IASR values, with interpolation for 6 and 7-hour storage
- Calculating the expected value of a generic build cost
- It is a hypothetical project for commissioning only a few years into the future
- Thermal plant evaluated separately with two fuel supply alternatives:
 - Certified on gas, gas fueled with a fat lateral to provide the necessary 14-hour fuel supply
 - Certified on distillate, but assume gas is primary with a skinny lateral

Technology Costs

Assumptions (1)

Description	Value	Unit	Source/Notes
BRCP date	30/06/2029		Date the plant is assumed to be built by. BRCP costs expressed in these dollars
Fx rate	0.655		As of 30/06/2025 - GHD, CSIRO and IASR values are \$2025
Ref date for technology costs	30/06/2025		Same as fx date
CPI index at Ref date	98.43		
CPI index at current date	101.7		
CPI index at BRCP date	111.3868116		
WACC	0.1085		ERA: 2026-brcp-final-determination-calculation-spreadsheet
Amortisation period	15		ERA: 2026-brcp-final-determination-calculation-spreadsheet
Tilt factor	1		
Owner's cost allowances for thermal plant	0.12		GHD for AEMO. Note incl land as well as owners and development costs but this is ignored as small and not dissected
Notional BESS size	200MW net		Used to convert \$/kW and \$/kW/y parameters (from IASR) into \$
Pre-FID development cost	20\$M		Nominal allowance. Same for all configurations
Include Fixed Capital charge?	YES		
Fixed Capital charge value	100,000\$/MW		https://www.wa.gov.au/organisation/energy-policy-wa/fixed-capital-contribution-consultation

Assumptions (2)

Description	Value	Unit	Source/Notes
Land cost	536,250	\$/Ha	
Proportion of installation cost that is labour	30%		
Fixed maintenance factors (% of capex)			
- Electricity connection	0.005		Jacobs
- Gas connection	0.0025		Jacobs
TUOS charge parameters:			
- Use of system	2.147c	/kW/day	
- Control system service price	0.305c	/kW/day	
- Metering charge	1211.979c	/meter/day	
DBNGP tariff	1.818828	\$/GJ/day	
Corporate overhead and consulting costs	1,312,875	\$/y	GHD report 2028/29 Table 20
Insurance adjustment	0.003		of capex/year (excl extras which are offsite or N/A)
Site security	168,480	\$/y	GHD report 2028/29 Table 21
Rates	221,986	\$ per 7.3 Ha	GHD report 2028/29 Table 22
Fuel stored - Gas Only case	14	Hours	
Fuel stored - DF case	36	Hours	1.5 days when distillate is the RCP fuel, allows for order lag, leaving some in tank etc
Cash cycle for WC calc	45	Days	Assumption

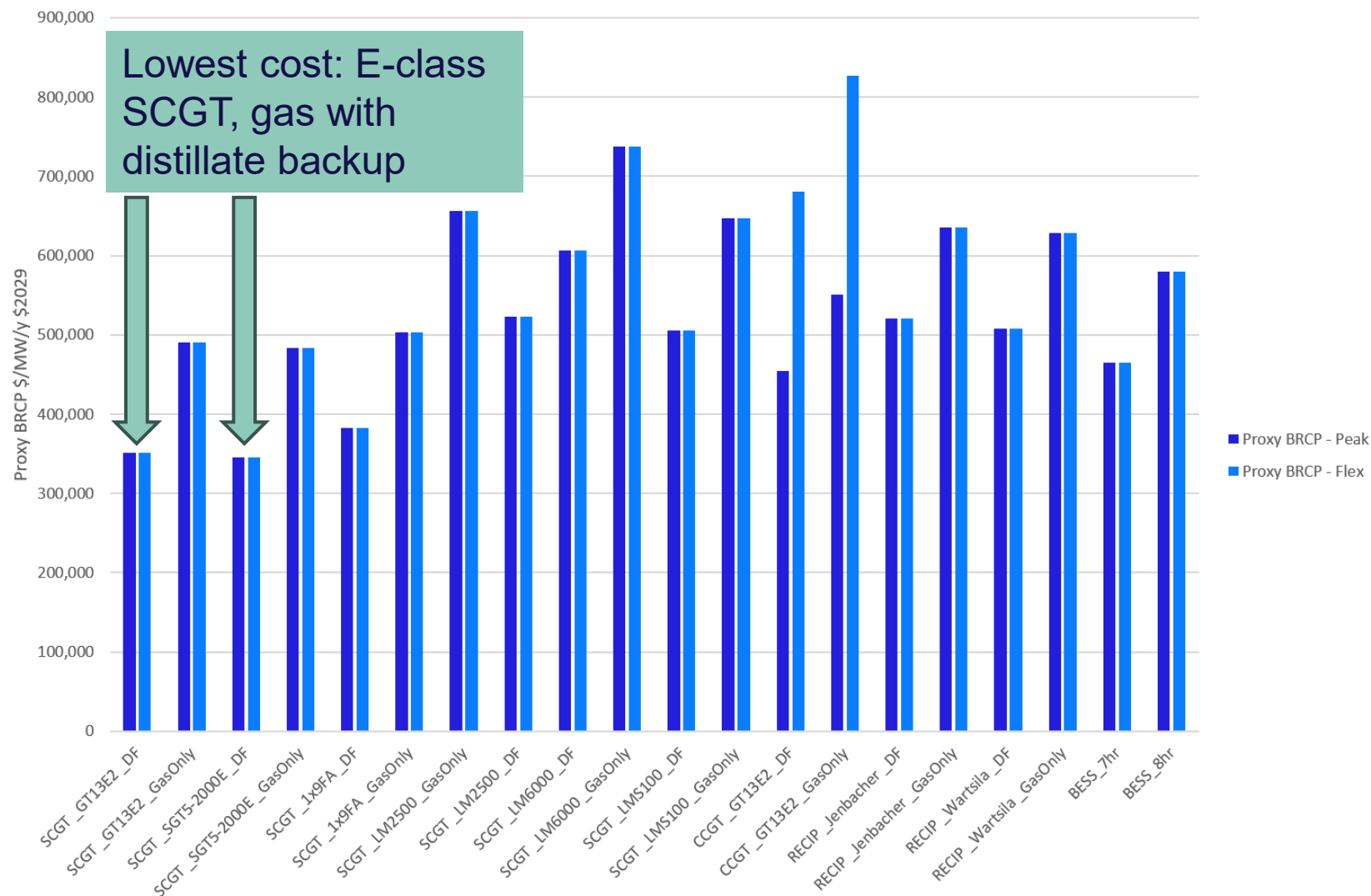
Assumptions (3)

Configuration		SCGT	SCGT	SCGT	SCGT	SCGT	SCGT	SCGT	SCGT	SCGT	SCGT
		GT13E2	GT13E2	SGT5-2000E	SGT5-2000E	1x9FA	1x9FA	LM2500	LM2500	LM6000	LM6000
	Unit	DF	GasOnly	DF	GasOnly	DF	GasOnly	GasOnly	DF	DF	GasOnly
Configuration Net MW (clean-as-new)	MW	341.2	341.2	347.8	347.8	258.2	258.3	380.2	380.2	264.1	264.1
HR, net, LHV (clean-as-new)	GJ/MWh	9.771	9.771	10.057	10.057	9.61	9.608	9.392	9.392	8.98	8.98
Gas supply pressure at skid edge	Bara	26.6	26.6	20.75	20.75	28.37	28.37	37.61	37.61	50.91	50.91
Fuel (on gas, approx)	GJ/h	3,690	3,690	3,872	3,872	2,747	2,747	3,953	3,953	2,625	2,625
Proportion of powerplant capex that is installation		30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
Localisation factor for capex		104%	104%	104%	104%	104%	104%	104%	104%	104%	104%
# Electrical connections		2	2	2	2	1	1	2	2	1	1
Area (powerplant excl switchyard)	Ha	2.7	2.3	2.6	2.2	2.4	1.8	3.8	4.6	3.2	2.8
Electrical Connection Cost	\$M	41.50	41.50	41.50	41.50	26.55	26.55	41.50	41.50	26.55	26.55
Gas connection cost	\$M	28.79	102.63	28.79	95.58	22.10	78.72	118.16	28.79	22.10	87.21
Water connection cost	\$M	0	0	0	0	0	0	0	0	0	0
MDQ	GJ/day	0	51,667	0	54,205	0	38,463	55,345	0	0	36,753
MDQ cost	\$M/year	0.0	34.3	0.0	36.0	0.0	25.6	36.8	0.0	0.0	24.4
Capacity credits multiplier - Peak		1	1	1	1	1	1	1	1	1	1
Capacity credits multiplier - Flex		1	1	1	1	1	1	1	1	1	1
TUOS											
- Use of system	\$M	2.68	2.68	2.73	2.73	2.03	2.03	2.98	2.98	2.07	2.07
- Control system service price	\$M	0.38	0.38	0.39	0.39	0.29	0.29	0.42	0.42	0.29	0.29
- Metering charge	\$M	0.0089	0.0089	0.0089	0.0089	0.0089	0.0089	0.0089	0.0089	0.0089	0.0089
-Total	\$M	3.06	3.06	3.12	3.12	2.32	2.32	3.41	3.41	2.37	2.37
Working capital											
- Fuel inventory	hours	36	14	36	14	36	14	14	36	36	14
- Fuel inventory	\$	4,089,368	719,198	4,290,293	754,535	3,044,184	535,398	770,397	4,380,486	2,908,952	511,608
- FOM/year (excl WC)	\$	11,429,537	45,888,488	11,576,017	47,704,088	9,142,112	34,710,337	51,969,390	15,073,096	11,299,662	35,817,112
- Cash cycle WC	\$	1,408,157	5,653,612	1,426,203	5,877,300	1,126,338	4,276,428	6,402,800	1,857,055	1,392,155	4,412,786
- Total WC	\$	5,497,525	6,372,810	5,716,497	6,631,835	4,170,522	4,811,826	7,173,197	6,237,541	4,301,108	4,924,394
WC annual cost	\$M	0.60	0.69	0.62	0.72	0.45	0.52	0.78	0.68	0.47	0.53

Assumptions (4)

Configuration		SCGT	SCGT	CCGT	CCGT	RECIP	RECIP	RECIP	RECIP	BESS	BESS
		LMS100	LMS100	GT13E2	GT13E2	Jenbacher	Jenbacher	Wartsila	Wartsila	7hr	8hr
	Unit	DF	GasOnly	DF	GasOnly	DF	GasOnly	DF	GasOnly		
Configuration Net MW (clean-as-new)	MW	356.2	356.2	489.3	489.3	245.8	245.8	217.4	217.4	200.0	200.0
HR, net, LHV (clean-as-new)	GJ/MWh	8.72	8.72	6.818	6.818	7.836	7.836	7.868	7.868		
Gas supply pressure at skid edge	Bara	60.21	60.21	26.6	26.6	11.35	11.35	6.993	6.993		
Fuel (on gas, approx)	GJ/h	3,439	3,439	3,693	3,693	2,132	2,132	1,894	1,894	0	0
Proportion of powerplant capex that is installation		30%	30%	30%	30%	30%	30%	30%	30%	17%	17%
Localisation factor for capex		104%	104%	104%	104%	104%	104%	104%	104%	103%	103%
# Electrical connections		2	2	2	2	1	1	1	1	1	1
Area (powerplant excl switchyard)	Ha	5.7	4.8	4.1	3.6	3.1	2.5	2.5	2.1	12.1	13.8
Electrical Connection Cost	\$M	41.50	41.50	41.50	41.50	26.55	26.55	26.55	26.55	26.55	26.55
Gas connection cost	\$M	25.44	136.96	28.79	102.69	18.75	75.64	18.75	74.44	0.00	0.00
Water connection cost	\$M	0	0	0	0	0	0	0	0	0	0
MDQ	GJ/day	0	48,141	0	51,699	0	29,846	0	26,510	0	0
MDQ cost	\$M/year	0.0	32.0	0.0	34.3	0.0	19.8	0.0	17.6	0.0	0.0
Capacity credits multiplier - Peak		1	1	1	1	1	1	1	1	1	0.875
Capacity credits multiplier - Flex		1	1	0.666666667	0.666666667	1	1	1	1	1	0.875
TUOS											
- Use of system	\$M	2.79	2.79	3.84	3.84	1.93	1.93	1.70	1.70	1.57	1.57
- Control system service price	\$M	0.40	0.40	0.55	0.55	0.27	0.27	0.24	0.24	0.22	0.22
- Metering charge	\$M	0.0089	0.0089	0.0089	0.0089	0.0089	0.0089	0.0089	0.0089	0.0089	0.0089
-Total	\$M	3.20	3.20	4.39	4.39	2.21	2.21	1.96	1.96	1.80	1.80
Working capital											
- Fuel inventory	hours	36	14	36	14	36	14	36	14	0	0
- Fuel inventory	\$	3,810,256	670,120	4,091,906	719,652	2,362,294	415,457	2,098,275	369,024	0	0
- FOM/year (excl WC)	\$	14,143,346	46,323,785	17,161,356	51,637,354	13,049,960	32,953,330	11,655,735	29,351,465	11,843,653	12,853,129
- Cash cycle WC	\$	1,742,507	5,707,242	2,114,335	6,361,892	1,607,798	4,059,958	1,436,025	3,616,197	1,459,177	1,583,548
- Total WC	\$	5,552,762	6,377,362	6,206,241	7,081,543	3,970,092	4,475,416	3,534,300	3,985,221	1,459,177	1,583,548
WC annual cost	\$M	0.60	0.69	0.67	0.77	0.43	0.49	0.38	0.43	0.16	0.17

Estimated BRCP by Technology



Conclusions

- An E-class SCGT running on gas, certified on distillate for backup, is the lowest cost Benchmark Technology, for both Peak and Flex service.
 - In general, using a fat lateral for backup fuel is significantly more expensive.
 - This technology has a 26% lower BRCP than a 7-hr BESS.
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Gross/Net CONE

Net/Gross CONE : Criteria

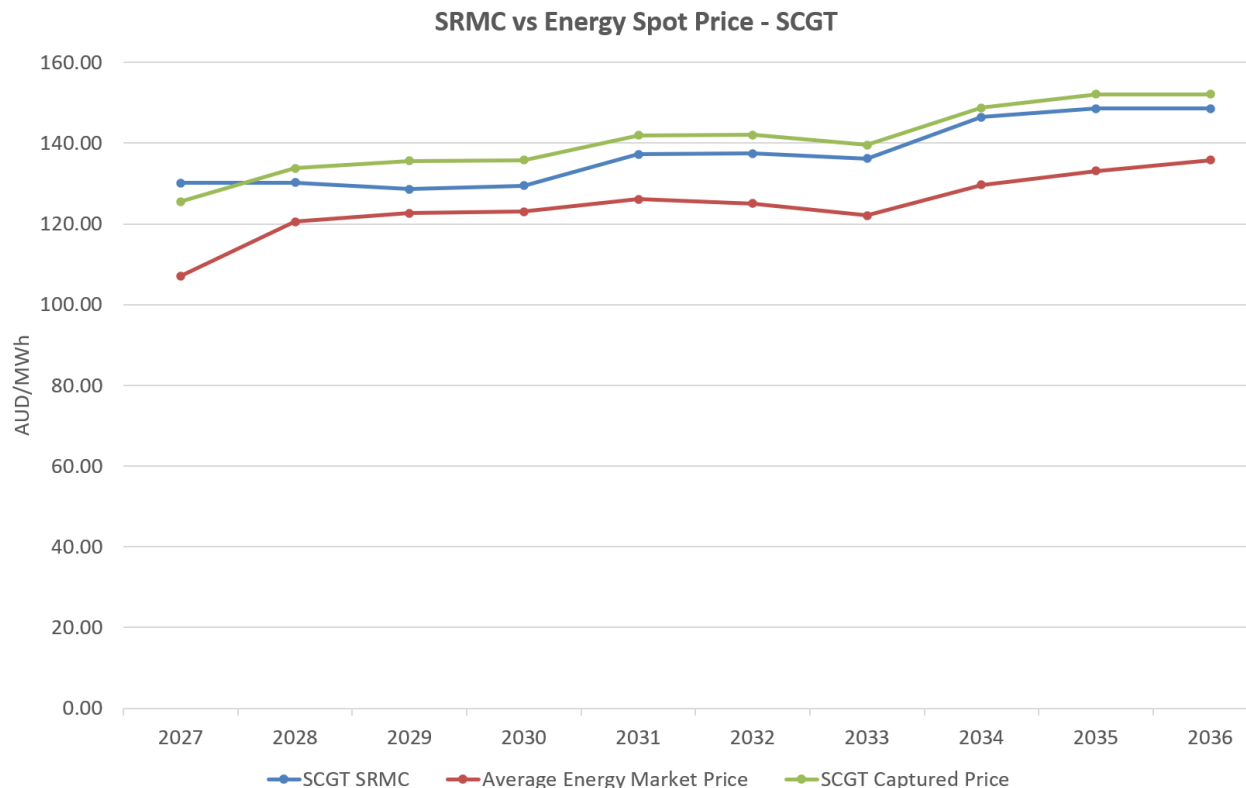
- For Peak BRCP:
 - If the Benchmark Technology would be the marginal energy supplier: gross CONE should be applied
 - If not: further assess whether applying net CONE would be more appropriate.
 - For Flexible BRCP:
 - If the Benchmark Technology would be the marginal energy supplier in the intervals Flexible Capacity would be required: gross CONE should be applied
 - If not: further assess whether applying net CONE would be more appropriate.
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Gross/Net CONE– Methodology

- Perform market modelling of the WEM under new Market Rules using RBP's WEMSIM model
 - Include a facility representing a unit of the recommended Benchmark Technology – i.e. E-class SCGT (specifically a SGT5-2000E)
 - The model forecasts:
 - Energy market prices
 - Marginal cost of generation for the SCGT facility, including captured prices at time of charging
 - Net market revenue for the SCGT facility, including captured prices at time of discharging, and ESS revenues
 - CONE and Net CONE
 - Note that the following results are indicative only
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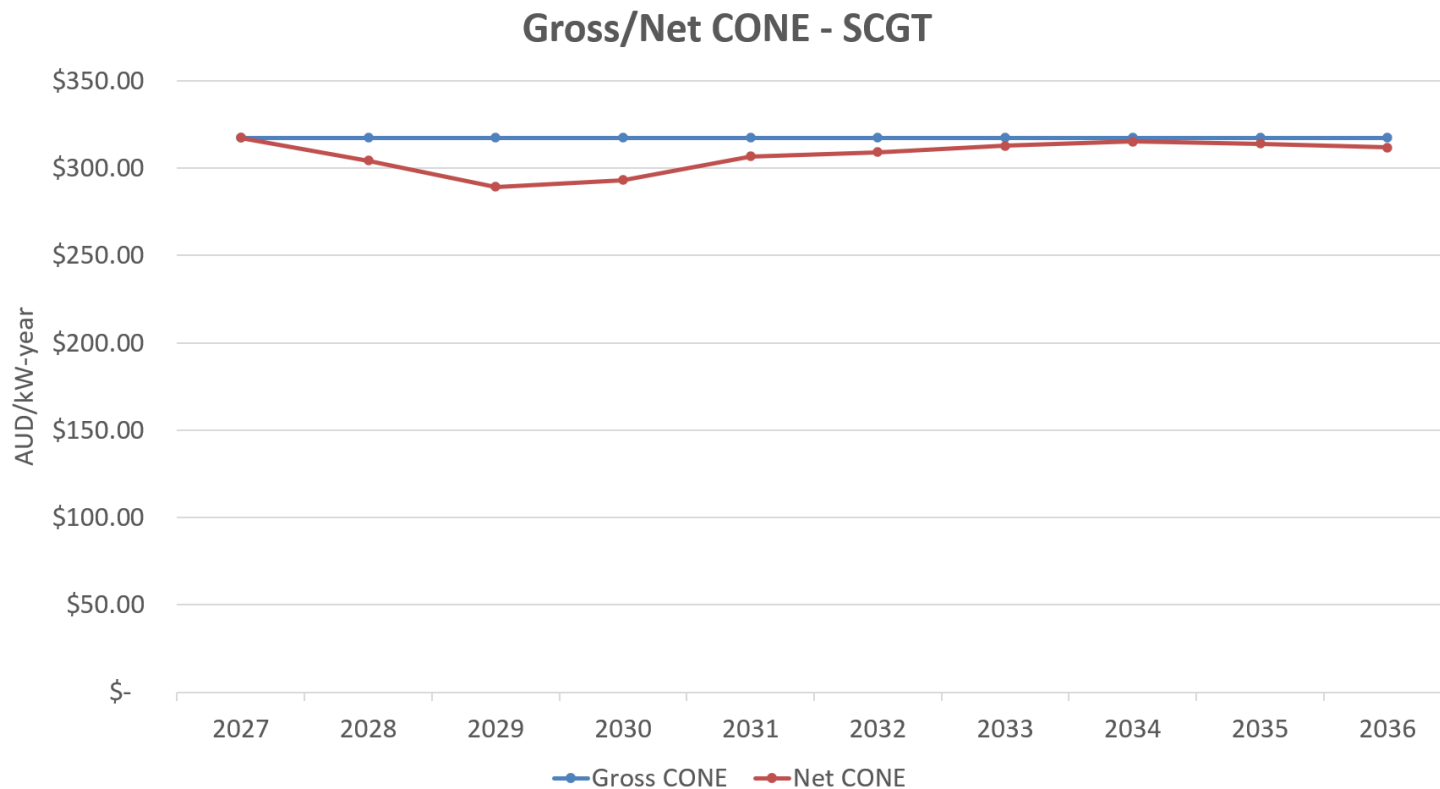
Marginal Energy Supplier – Initial Results

- The SRMC of the SCGT is close to the price captured by the SCGT and is above the average energy market price.
- This indicates that the SCGT is frequently the marginal energy supplier.



Gross/Net CONE – Initial Results

- The Net CONE of the SCGT is lower than the Gross CONE, but not by a large margin.
- Note that this assumes that FCESS revenues are not included in the Net CONE calculation, as per current policy.



Gross/Net CONE – Assessment

	Gross CONE	Net CONE
Advantages	• Relatively predictable BRCPs provide investment certainty • More straightforward BRCP determination process • Consistent with current BRCP methodology	• Potentially lower cost to consumers
Disadvantages	• Potentially higher cost to consumers	• Requires forward-looking modelling to forecast net revenues • This is highly sensitive to input assumptions, such as cost changes, other new build, retirements, renewables output, fuel prices, etc. • Consensus will be difficult to achieve • Resulting uncertainty may deter investment, undermining cost savings and reliability

Recommendation: Retain Gross CONE

Next steps



Next steps

1. Consultation Paper published
2. Consultation period
3. Determination



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**Energy and Economic
Diversification**

Thank-you