IN THE WESTERN AUSTRALIAN ELECTRICITY REVIEW BOARD

No.1 of 2019

B E T W E E N :

ECONOMIC REGULATION AUTHORITY

Applicant

and

ELECTRICITY GENERATION AND RETAIL CORPORATION TRADING AS SYNERGY

Respondent

DIRECTIONS

Date of Document:	10 May 2021
Place:	Perth

A hearing of the preliminary issue listed (**Preliminary Hearing**) has been listed for hearing commencing 10 May 2021.

The Electricity Review Board orders and directs that:

1 Subject to paragraph 2 below, until further order of the Board, the following confidentiality regime will apply in respect of the Preliminary Hearing:

   a. attendance at the Preliminary Hearing be restricted to persons identified in 'Schedule 3 – Approved Persons'.

   b. the contents of all documents produced to, or evidence given to, the Board at the Preliminary Hearing, including exhibits and transcripts, be kept confidential, with access limited to persons identified in 'Schedule 3 – Approved Persons'.

2 Delivery of oral opening submissions in the Preliminary Hearing will occur in open court save that no mention shall be made of the confidential information highlighted in yellow in:

a. Schedule 1 – Applicant's outline of opening submissions; and

b. Schedule 2 – Respondent's outline of opening submissions.

3 Notwithstanding Orders 1 - 2 above, leave be given for:

a. Synergy to disclose information to the Minister in accordance with sections 116 and 117 of the *Electricity Corporations Act 2005* (WA); and

b. the parties to disclose Synergy's Confidential Information (as defined in the orders dated 20 December 2019 but excluding information regarding Synergy's contracts with third parties and third party information produced by AEMO pursuant to the Board's summons dated 17 February 2021) to:

i. the Minister of Energy (**Minister**) in order to brief the Minister and the staff of the Minister on the progress of the Preliminary Hearing; and

ii. the Treasurer and the staff of the Treasurer in order to brief the Treasurer on the progress of the Preliminary Hearing,

save that the Parties must request that the Minister and the Treasurer keep the information confidential.

4 Prior to publications of its reasons for decision in the Preliminary Hearing, the Board shall provide a draft version of its reasons to the parties.

5 Within 2 business days of being provided with the draft version of the Board's reasons (referred to in Order 4 above), the parties shall identify any confidential material (**Confidential Hearing Information)** which they propose to be redacted on the basis that its publication:

a. is third party information produced by AEMO pursuant to the Board's summons dated 17 February 2021 on condition that its production would be subject to the confidentiality regime set out in orders 3 to 10 of the orders dated 17 February 2021;

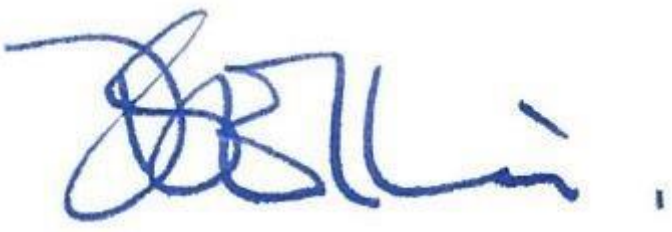
b. would breach contractual or legislative confidentiality obligations owed by the party claiming confidentiality; and/or

c. is commercially sensitive confidential information, disclosure of which may adversely affect the party claiming confidentiality.

6 Following notification by the parties of the Confidential Hearing Information, and subject to any further directions the Board may make (including as to the filing of materials that explain the basis for the identification of information as Confidential Hearing Information), the Board will publish a version of its reasons for its decision in which the Confidential Hearing Information has been redacted.

7 Prior to and following the Preliminary Hearing, the confidentiality regime as set out in the orders dated 20 December 2019 and 1 February 2021 shall continue.

Date: 10 May 2021



SCHEDULE 1 – APPLICANT'S OUTLINE OF OPENING SUBMISSIONS

ECONOMIC REGULATION AUTHORITY v SYNERGY

OUTLINE OF OPENING SUBMISSIONS

A. Introduction

1. These proceedings concern clause 7A.2.17 of the Wholesale Electricity Market (**WEM**) Rules.[1] Clause 7A.2.17 provides:

> Subject to clauses 7A.2.3, 7A.2.9(c) and 7A.3.5, a Market Participant must not, for any Trading Interval, offer prices in its Balancing Submission in excess of the Market Participant's reasonable expectation of the short run marginal cost of generating the relevant electricity by the Balancing Facility, when such behaviour relates to market power.

2. Synergy and other generators make offers in the Balancing Market to supply electricity in respect of each 30 minute trading interval. These offers are called Balancing Submissions. The offers record how much electricity the generator is prepared to dispatch and at what price. The offers take the form of particular quantities at particular prices, in ascending price order. The lowest prices might be negative, to ensure dispatch (for example, to ensure that a coal-fired power plant does not need to turn off, which is difficult and expensive). In broad terms, generators are selected for dispatch by the Australian Energy Market Operator (**AEMO**) in ascending price order based on their Balancing Submissions. The price at which the last MW of electricity is dispatched (the marginal price) becomes the price paid for all generation dispatched in the Balancing Market (even that offered at a lower price), but those who bid above that price do not get dispatched.[2]

3. Synergy, uniquely, is permitted to make a single Balancing Submission for all of its plant, i.e. as if it was a single generator. For Synergy, the "Balancing Facility" referred to in clause 7A.2.17 is its fleet of generators (the "**Balancing Portfolio**"). Different generating units within Synergy will have different costs, including because of distinctions between the nature of the generating unit.

4. Short run marginal cost (**SRMC**) is the additional cost of producing one additional unit of electricity over the short term. The "short term" here is referring to a short period over which certain costs are fixed because they cannot be varied, such as plant, rent, and long term contracts. SRMC therefore captures costs that vary in the short term in response to a slight increase in production. Synergy's SRMC varies depending (inter alia) on the level of output.

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1 The Wholesale Electricity Market Rules are made pursuant to the *Electricity Industry Act 2004*.

2 Expert Report of Jeffery Balchin, *Short Run Marginal Cost, Gas Input Prices and Market Power in the WEM*, December 2020 (**Balchin 2020 Report**), p 16 [58].

For example, if Synergy is generating 1,000MW using a particular fleet of generation, and would need an additional generator to start up for it to generate 1,200MW, then its marginal cost at 1,000MW will be different from its marginal cost at 1,200MW. Thus Synergy's bid stack in its Balancing Submission, which has different levels of output, has different levels of SRMC associated with those different levels of output. Pursuant to clause 7A.2.17, the prices offered for each level of output in a Synergy Balancing Submission cannot exceed the SRMC associated with that level of output, if that conduct is related to market power.

5. The Economic Regulation Authority (**ERA**) alleges that during the period from 16 April 2016 to 10 July 2017, Synergy, in some 11,000 Trading Intervals, offered prices in its Balancing Submission for those Trading Intervals in excess of Synergy's reasonable expectation of the SRMC of generating the relevant electricity, and that this behaviour related to market power.

6. Notwithstanding the veneer of complexity suggested by some of the evidence in these proceedings, the case against Synergy is reasonably straightforward. In summary:

   (a) In 2016, Synergy undertook a cost review of both its gas supply costs and its start-up costs, and revised each of them upwards very materially. For the reasons explained below, neither of these increases was justified, and Synergy had no reasonable basis for them. The consequence is that Synergy's calculation of its SRMC and prices it offered in Balancing Submissions were inflated by the inflated costs assumptions.

   (b) Synergy could only engage in this conduct because it was unconstrained by competition and had market power. It is clear from Synergy's conduct that the relevant constraint on its behaviour was its concern about satisfaction of clause 7A.2.17, rather than any competitive constraint from other generators. Further, only an entity with market power could price above the extended notion of SRMC adopted by the ERA. There are, in any event, other matters indicating that Synergy has market power.

7. The changes Synergy implemented in relation to the calculation of its costs were, in summary, as follows:

   (a) Commencing on 14 July 2016, Synergy significantly increased its estimated fuel costs (i.e. the cost of gas) from [redacted] per GJ to [redacted] per GJ, by having regard to the price paid under Synergy's Gorgon Contracts. Those contracts are take or pay contracts, meaning that Synergy has to pay for a quantity of gas whether or not it uses it, such that the marginal cost of gas under the contract is nil. Synergy originally justified its increase based on an assessment of the opportunity cost of gas. Whilst an opportunity cost framework is conceptually sound, Synergy has (at a late stage) abandoned that approach. Synergy now says that clause 7A.2.17 should be interpreted to permit the recovery of its contractual cost of gas.

(b) Synergy also undertook a review of its variable operating and maintenance costs (including start-up costs), which led to a significant increase in those costs. In particular, Synergy seeks the recovery in advance of the cost of parts replacement and inspection/maintenance expenditure, where such expenditure is based on the number of starts. These costs would not actually be incurred if the generator is retired before, or shortly after, the requisite number of starts was reached. However, Synergy says it does not need to undertake any lifecycle analysis.

B. Balancing Submissions

8. A Balancing Submission is a submission by a Market Participant to AEMO, for a Balancing Facility or the Balancing Portfolio, for one or more Trading Intervals.[3] The Balancing Submissions made by Synergy are made for the Balancing Portfolio, being Synergy's Registered Facilities with AEMO. A Balancing Submission must, among other things, have Balancing Price-Quantity Pair prices within the Price Caps. For Synergy, the Balancing Price-Quantity Pair means the specified MW quantity at which Synergy is prepared to have the Balancing Portfolio dispatched at as at the end of a Trading Interval and the Loss Factor Adjusted Price, in $/MWh, at which Synergy is prepared to provide from the sum of all its Sent Out Capacity of each Facility in the Balancing Portfolio by the end of the Trading Interval.[4]

9. A Trading Interval is a period of 30 minutes commencing on the hour or half-hour during a Trading Day.[5] A Trading Day is a period of 24 hours commencing at 8:00AM on any day.[6]

C. Synergy's SRMC in its Balancing Submissions

10. Synergy used an energy market model (PowrSym) to provide it with the least cost dispatch given its input assumptions. The inputs included: the calculated bilateral position; generation availability; fuel availability and prices; generation operating costs including starts; operating characteristics (such as maximum generation, minimum generation and heat rate), and ancillary service commitments. Relevant to the current proceedings is the input concerning generation operating costs, including starts. The objective function of the model was to determine the economic least cost dispatch of Synergy's generation fleet to meet load, system stability and constraints. PowrSym optimises over a 3.5 day period (some 168 Trading Intervals), calculating the least cost dispatch of Synergy's fleet of generators, given the inputs. The PowrSym model is run 41 times, with each run differing by changing the load (demand) as a fixed MWh step up/down from the expected bilateral position for each Trading Interval.

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3 WEM Rules, Chapter 11, definition of "Balancing Submission".

4 WEM Rules, Chapter 11, definition of "Balancing Price-Quantity Pair".

5 WEM Rules, Chapter 11, definition of "Trading Interval".

6 WEM Rules, Chapter 11, definition of "Trading Day".

11. At the completion of the 41 PowrSym runs, the price/quantity curve is constructed through a program which extracts, for each Trading Interval, the average operating cost of the marginal generator:[7] that is, the average operating cost of the Synergy generator that, based on the particular model run (i.e. at the modelled level of demand), is the last generator in the cost stack that Synergy would offer to be dispatched. This is the price setting unit for the purposes of Synergy's offer. The 41 marginal cost curves are arranged into an array aligned with the corresponding load increments, and smoothed to remove price volatility between hours and between price steps.[8]

12. Synergy uses what it describes as "averaging operating cost" of the marginal generator as a proxy for the SRMC of the Balancing Portfolio. This term is a slight misnomer: what Synergy describes as "averaging operating cost" could better be described as average variable cost plus a limited number of avoidable fixed costs.[9] The ERA has published a non-binding guideline which indicates that although avoidable fixed costs (being start-up costs) may not strictly form part of SRMC, they are an average variable cost and are a valid cost component for the purposes of calculating SRMC.[10] For example, if Synergy is generating an output of 1,000MW, the cost of one extra MW would usually not include a start-up cost. However, if Synergy was to move to an output of 1,200MW, it may need to start up an additional generator.

13. Thus, subject only to any adjustment to ensure that prices increase with increasing output (as required by the WEM Rules) and the smoothing referred to in [11] above, the prices offered by Synergy in its Balancing Submissions are the output of this process, which in turn is based on Synergy's estimate of the SRMC for its marginal generator.

D. Synergy's revision of input costs in calculating SRMC

Gas input prices

14. Since 1 July 2012, Synergy had adopted an approach of calculating its gas input price based on the cost under its North West Shelf contract, plus an opportunity cost allowance (calculated by reference to the spot price of gas).[11] It is notable that, at least until 31 December 2015, Synergy was recovering *more* than its contract costs, on the basis that opportunity cost was the correct measure. The gas input price that Synergy had used in Balancing Submissions from 31 March 2016 to 13 July 2016 was [redacted][12]

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7 Synergy presentation: *Portfolio Pricing in the WEM: Wholesale Business Unit*, 1 February 2017, p 6.

8 Synergy presentation: *Portfolio Pricing in the WEM: Wholesale Business Unit*, 1 February 2017, pp 6–7.

9 The matters included are identified in the report of Mr Bruce Layman of 14 December 2020 (**Layman Report**) at [44] (pp 15-16).

10 ERA, *Guideline to Inform Balancing Market Offers*, 22 February 2019, pp 3–4.

11 See footnote 28 below.

12 Synergy response dated 22 December 2017 to ERA information request issued under section 51 of the *Economic Regulation Act 2003* dated 21 December 2017, Schedule 3.

15. On 8 August 2016, Synergy advised the ERA that it had determined a change to its opportunity cost of gas associated with the advent of the new Gorgon gas supply and end-of-life North West Shelf supply constraints. As such, commencing with the Balancing Submissions for Trading Day 14 July 2016, the gas price modelling input was changed to reflect a revised opportunity cost, which Synergy determined to be [redacted][13] In this regard, from 1 January 2016 until 29 November 2016, the volume weighted average price of gas purchased by Synergy under the North West Shelf Gas Agreement was [redacted] and the Gorgon Contracts did not commence until 6 December 2016.[14] Gas supply agreements had been signed with the Gorgon Joint Venture on 29 November 2011: one for the purchase of [redacted] and one for the purchase of [redacted]. They were both for a 20-year term with high take-or-pay obligations of [redacted] for the [redacted] agreement and [redacted] for the [redacted] agreement.[15]

16. The gas input price applied by Synergy during the period 1 December 2016 to 10 July 2017 varied between [redacted] and [redacted] undelivered (between [redacted] and [redacted] delivered), based on Synergy's calculations of opportunity cost. These variations reflected changes in Synergy's gas supply arrangements, demand and accounting [redacted][16]

Start-up costs

17. During the period March 2015 to March 2016, Synergy reviewed its approach to estimating variable operating costs for its generators, which formed the basis of the start-up input costs applied by Synergy from 16 April 2016 in calculating its SRMC. Synergy changed its estimate of variable operating and maintenance costs for its Open Cycle Gas Turbines (**OCGT**) from a combined regime, based on both the number of times a facility starts and the number of hours it operates, to a starts-based regime.[17] (For example, a rotor might be replaced after 5,000 starts. A particular type of inspection might occur every 2,500 starts. Depending on how often a unit was dispatched, it might take many years to reach these numbers). The starts-based regime was applied to OCGT that were not High Efficiency Gas Turbines. Synergy also changed the proportion of fixed and variable costs for routine maintenance for certain generators from [redacted] fixed to [redacted] fixed.[18]

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13 Letter from Synergy (A Everett) to ERA (G Watkinson), 8 August 2016. The value assigned to gas storage arrangements was based on the gas tranche price in the Gorgon Contracts (approximately [redacted] which Synergy considered to be the correct opportunity cost estimate, See: Balchin 2020 Report, page 98-99.

14 Witness Statement of Carole Clare, filed 24 March 2021, [30], [35].

15 Witness Statement of Carole Clare, filed 24 March 2021, [32]–[33].

16 Balchin 2020 Report, pages 98-99.

17 Witness Statement of Yanqiu Lou, filed 16 April 2021, [17]–[23].

18 Witness Statement of Yanqiu Lou, filed 16 April 2021, [25], [34].

E. SRMC: Fuel costs

18. Fuel costs can be a valid cost component of SRMC, where fuel is a cost that changes with the level of production. That is not the starting point here, because Synergy obtains its gas under take-or-pay obligations, and therefore the cost does not change with level of production.

19. The gas input prices used by Synergy to calculate its SRMC during the investigation period were:

    (a) [redacted] undelivered [redacted] delivered) from 1 April 2016 to 13 July 2016 (**Period 1**);

    (b) [redacted] delivered from 14 July 2016 to 30 November 2016 (**Period 2**);

    (c) between [redacted] and [redacted] undelivered (between [redacted] and [redacted] delivered) from 1 December 2016 to 10 July 2017 (**Period 3**).

20. Synergy informed the ERA that in formulating its Balancing Submissions, Synergy has sought advice from Frontier Economics (**Frontier**) to ensure that its application of opportunity cost principles was correct and that it had diligently implemented the advice it had received from Frontier, including the use of an opportunity cost model provided by Frontier.[19] During the course of the ERA's investigation, Synergy provided the ERA with a report from Frontier which it said confirmed that Synergy has correctly applied the opportunity cost principles and the model provided.[20] That report does not do that. The Frontier report states:[21]

> We have not found any major issue with the calculations in the provided spreadsheets. Nor have we identified any transcription issues or other input errors. However, we note that, ultimately, we are unable to determine from the information made available to us whether Synergy has accurately applied the Frontier Report and Frontier Model when determining gas price inputs. The reason is that the accurate application of the Frontier Report and Frontier Model depends on appropriately reflecting within the model the opportunities that Synergy has available to it to buy, sell, transport and store gas. We are not in a position to assess whether this has occurred.

21. Synergy sought to support its pricing on an opportunity cost basis, and engaged in lengthy debates with the ERA about whether its opportunity cost calculations were supportable (involving debates about the ability to store gas and use it in later periods, price estimates in later periods, and the like).

22. Somewhat extraordinarily, Synergy has now abandoned that approach. Synergy has not sought to defend the basis on which it determined gas input prices in Periods 2 and 3, being the method recommended by Frontier and the Frontier model as implemented by Synergy.[22]

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19 Letter from Synergy (W Bargmann) to ERA (R Challen), 3 September 2018, p 1.

20 Frontier Economics, *Expert Report: ERA Investigation of Synergy's Pricing Behaviour*, 3 September 2018 (**Frontier September 2018 Report**).

21 Frontier September 2018 report, p 12 [14].

22 Balchin 2020 Report, p 4 [10].

The approach of Synergy's current expert, Professor Christopher Knittel, is quite different, and Dr Knittel does not rely in any relevant respect on the Frontier work.[23] Synergy is also not intending to rely upon the evidence filed from Mr Dominic Regnard, a Trading Analyst in the Wholesale Business Unit with Synergy, who would have given evidence about the implementation of the Frontier model and its use in estimating the value of the gas input price in Synergy's SRMC estimate.

23. The ERA relies on the expert report of Mr Jeffery Balchin in relation to gas input prices. Mr Balchin identifies SRMC, as a general concept, in the following way:[24]

> In broad terms, the SRMC is the cost of producing an additional unit of a good or service holding the stock of capital assets constant; meaning capacity is held constant. The short-run is the period where it is not possible to adjust capacity, meaning more capacity cannot be built or retired. The 'marginal' aspect of the term reflects that we are concerned with the cost of producing one more unit, or conversely, one less unit, rather than all the units or the average number of units.

24. Importantly for the purposes of this case, SRMC does not include "fixed costs"—being costs that are not dependent on changes in output in the short term. Mr Balchin explains that this is because SRMC focuses on the change in costs associated with the next (or marginal) unit of production. As such, costs that have been incurred in the past and relate to things that cannot be reversed (also known as "sunk costs") are also not included in a calculation of SRMC.[25]

25. The economic concept of "opportunity cost" is also relevant to a proper identification of SRMC. For example, if Synergy can sell the gas for $4/GJ instead of using it for generation, then the marginal cost of using the gas is not zero, but is at least $4/GJ. An efficient firm will continually assess the changes in the opportunities available to it which in turns ensures that the goods and services on which consumers place the highest value are those that are produced. As Mr Balchin explains:[26]

> The idea that a firm, when making decisions, should consider only those things that will be affected by those decisions – and hence ignore sunk costs – while also undertaking a holistic assessment of the effect of the relevant decision – and so include opportunity costs – are fundamental principles in economics. A proper estimate of SRMC will incorporate both of these principles.

26. Applying those concepts, the price under the Gorgon Contracts is not itself a marginal cost. It is a sunk cost: it is payable regardless of the level of generation. It is only relevant if it has some bearing on the opportunity cost of gas – i.e. the value of any alternative use that could be made of it. However, it has no such bearing – the price under the Gorgon Contracts is not the current market price, and is not the value of any alternative use. This does not appear to be in dispute. Dr Knittel's report charts the reason that the Gorgon Contracts were based

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23 See Expert Report of Christopher Knittel, Ph.D, 26 March 2021 (**Dr Knittel Report**), pp 67 (footnote 179), 87 (footnote 228).

24 Balchin 2020 Report, p 19 [69].

25 Balchin 2020 Report, p 20 [73].

26 Balchin 2020 Report, p 21 [77].

on assumptions of rising consumption and gas prices, which has been confounded by the increase in renewables.

27. Mr Balchin further identifies a number of reasons why, in calculating SRMC, it would be unreasonable to apply Synergy's actual contracted position to constrain the estimate of the opportunity cost of gas and why doing so would be inconsistent with the WEM objectives and good regulatory practice.[27] In competitive markets, the prices that are observed are independent of how firms choose to contract. Rather, in competitive markets, prices tend towards the cost structure of efficient firms. As such, calculating a major input into the estimation of SRMC in a manner that is affected by how a firm chooses to contract risks creating an outcome that departs from that which would be observed in a competitive market, and therefore inconsistent with the WEM objectives. If a firm's actual contracts are used in a calculation of its SRMC, this has the potential to alter how the firm contracts, and so potentially encourage inefficient behaviour, with the associated potential for this inefficiency to raise the cost of electricity, which would be inconsistent with the WEM objectives (see clause 1.2.1). Further, using the actual contractual position of a firm may lead to outcomes that are objectively unfair to the firm in question. For example, if a firm had access to gas pursuant to historical contracts at below the prevailing market price of gas, it would be unfair to constrain that firm to charging no more than the price it had contracted for. It should be permitted to price at the opportunity cost of gas—which is the prevailing market price of gas.[28] The corollary of this is that if a firm has historical contracts at above the prevailing market price of gas, it is properly constrained to only charging at that prevailing market price—in a competitive market it could not price above that level.

28. The price of variable gas in the Gorgon Contracts [redacted] was not a reasonable estimate of the market price of gas in Periods 2 and 3, and was not a reasonable estimate of the value of an alternative use of the gas. A review of the contemporaneous material indicates that the prevailing market price of gas was materially lower than the price in the Gorgon Contracts.[29] Importantly (and contrary to the suggestions made in Dr Knittel's report), Mr

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27 Balchin 2020 Report, pp 33–34 [113].

28 This is consistent with the position taken by Synergy in 2012 where the relevant entity at the time (Verve Energy) adopted the following position: "…Verve Energy is entitled to set its gas price between the contract gas price and a reasonable expectation of the gas spot price (market price). The gas commodity cost includes the concept of "opportunity cost…Anecdotally the Market gas commodity price (identified as part of the IMO's 2012 Review of Gas Prices in the WEM and used in the 2012 Energy Price Limits) ranges from $5.24 to $12.08 per GJ, mean of $8.23 per GJ. SRMC is predicated on the Market Participant's 'reasonable estimate'. Verve Energy has always taken a conservative approach in determining the relevant prices (i.e. the gas commodity price of [redacted] per GJ when in fact it would be reasonable to use a much higher number)." See: email from Verve Energy (J Papps) to the ERA (N Jackson), 20 July 2012. Between January 2011 and December 2013, North West Shelf Gas was the only supplier of gas for generation to the Electricity Generation Corporation (trading as Verve Energy). Between 1 April 2011 and 1 April 2015, the volume weighted average price of gas purchased by Electricity Generation Corporation/Synergy under the North West Shelf Gas Agreement was [redacted] See Witness Statement of Carole Clare, filed 24 March 2021, [23] and [29(a)].

29 Balchin 2020 Report, pp 37–39 [121]–[129].

Balchin did *not* simply rely upon the spot price of gas. Rather, Mr Balchin looked at a range of sources of evidence.

(a) First, the spot price of gas in the relevant spot markets—over the investigation period, the spot price of gas reports from the gasTrading Australia service averaged $4.29/GJ, with a peak of $4.93/GJ. Although the volumes of gas traded in this market are not substantial, they are material, with volumes of up to 17/TJ/day being traded via this platform during the investigation period. The operators of gasTrading Australia noted that, around the time of the investigation, there were known to be large volumes of gas being traded on a spot or spot-like basis outside of the gasTrading Australia platform but whose prices were linked to those reported by the platform.[30]

(b) Second, the industrial gas sales made by Synergy—Synergy had entered into multiple agreements for the sale of gas at prices that, with one exception, were materially lower than the price of the Gorgon Contracts. Synergy made 11 industrial gas market sales during the investigation period where, aside from the one exception noted, the price was in the range of [redacted] to [redacted] A rational firm would not sell gas at prices so much lower than its reasonable expectation of its opportunity cost of gas.[31] The witness statement of Ms Carole Clare confirms that Synergy's retail sales of gas have typically been at prices lower than the price Synergy pays for gas pursuant to its gas supply contract price because: (a) it was necessary for Synergy to charge such price to secure sales and meet competition; and (b) if Synergy did not make those sales, it would still incur the cost of the gas through its take or pay obligations and the sales allowed Synergy to recoup at least some of its cost of the take or pay gas[32].

(c) Third, the terms of an agreement entered into between Synergy and [redacted]—the swap arrangements under this agreement, which commenced in November 2016 and went out to 2020, covering much of the relevant period and future periods, assumed a gas price for GST purposes of [redacted] representing a net delivery price of [redacted] and a receipt price of [redacted][33]

(d) Fourth, the price in the contract with the North West Shelf gas producers—the price was reviewed in 2015, with the outcome being a volume weighted average price

30 Balchin 2020 Report, p 37 [121]–[122].

31 Balchin 2020 Report, p 38 [125]–[126].

32 Witness Statement of Carole Clare, filed 24 March 2021, [52].

33 Balchin 2020 Report, p 39 [127].

under the contract of [redacted] between 1 April 2015 and 31 December 2015, and [redacted] between 1 January 2016 and 29 November 2016.[34]

29. Synergy relies on the expert report of Dr Knittel in relation to gas input prices. Dr Knittel supports the use of the Gorgon Contracts price. However, Dr Knittel does not justify that approach by reference to any particular articulated definition of SRMC. Rather, Dr Knittel approaches the matter on the basis that unless Synergy can recover its liability under the Gorgon Contracts there will be a "missing money" problem, because Synergy cannot recover that liability under any other pricing mechanism in the WEM Rules. There are three problems with this approach. First, it does not engage with the specific language of clause 7A.2.17, or explain how the price under the Gorgon Contracts is a marginal cost. It simply is not. Secondly, a more general criticism about cost recovery under the WEM Rules does not assist the ERB in dealing with the specific issue in the present case – the ERB is not engaged in a rule-setting exercise, for example. Thirdly, the concern expressed by Dr Knittel is misplaced in any event.

30. As Mr Balchin analyses in his reply report, there is no "missing money" problem and restricting Synergy to the recovery of SRMC is not at odds for good economic practice and principles. Firms in a competitive market may enter into a long-term supply contract. In doing so, they make a prediction as to whether the pricing under that contract will be beneficial (including whether it will be greater or less than the future market price). If they get that right, they will profit. If they get that wrong, they may lose money. That is the nature of business. In the present case, at the time of entering into the Gorgon Contracts, and for reasons including those identified by Dr Knittel, Synergy expected that market prices in 2016 – 2017 would be above the Gorgon Contracts prices. Documents from the time indicated that Synergy expected to make money in the Balancing Market. In that world, SRMC would be above the contract price (because the opportunity cost would be higher than the contract price), and Synergy would be able to recover more than its contract costs. Indeed, Synergy was doing just that under its previous contract, as identified above. The suggestion that Synergy must recover its contract price through its Balancing Submissions in the present circumstances is a nonsense, as Mr Balchin explains.

31. Dr Knittel also criticises Mr Balchin for taking what he describes as an "ultra-short-run" approach, rather than a "short run" approach. In this regard:

    (a) Dr Knittel does not identify what he says is the period over which SRMC should be estimated. Rather, implicit in his criticism is that there are likely to be many potential short runs that align with the term of firm fuel supply contracts.[35] In order to avoid a "missing money" situation, Dr Knittel theorises that generation resources

[34] Balchin 2020 Report, p 39 [128]–[129].

[35] Knittel Report, p 9, 36–37 [19], [95].

must earn prices that are sufficient to cover the cost of inputs that are variable over longer timeframes that are nevertheless shorter than the long run.[36] That is not SRMC.

(b) In any event, Dr Knittel's criticism is conceptually flawed. As Mr Balchin explains in his reply report, if one expands the time for the "short run marginal cost" analysis, one is permitting more aspects of production to be varied. For example, if one takes a medium term perspective, then contract costs, instead of being a fixed cost, could be a variable cost – one could renegotiate the contract or enter into a new one. But it will be renegotiated or replaced at the current market price, not some historical price. There is no time adjustment to the SRMC analysis that would permit or justify having regard to a sunk cost under a historic contract, i.e. the price of the Gorgon Contracts.

32. For completeness, we note that, in any event, deliveries of gas under the Gorgon Contracts only commenced on 1 December 2016, which is some four and a half months after Synergy applied an input gas price of [redacted] based on the "advent of the new Gorgon gas supply".[37] Synergy has not filed any evidence in these proceedings that supports a gas input cost of [redacted] for the period 14 July to 30 November 2016.

33. The Synergy approach to fuel costs is unjustifiable, and Synergy's fuel input costs are overstated. A reasonable expectation of SRMC would be based on lower fuel costs.

F. SRMC: Start-up costs

34. Variable operating and maintenance costs are a component of the "start-up" costs of a generator. Variable costs are those part replacement and maintenance costs that are directly affected by the operation of the generator—the longer or more frequently the generator is operated, the more maintenance that will be required.[38] For example, certain inspections/routine maintenance are carried out after a certain number of starts (e.g. every 2,500 starts). As Mr Reid's table of average starts per year suggests, it may take many years to reach the requisite number of starts.[39] The Original Equipment Manufacturer establishes required refurbishment cycles and will typically allow one to two refurbishment cycles prior to reaching end-of-life which then requires replacement with a set of new parts.[40]

35. Variable maintenance costs are spread out over time. In his report, Mr Reid explains:[41]

> Various inspection procedures are carried out on various schedules which in turn depend on the total hours and total starts accrued by the generating unit…certain components

36 Knittel Report, p 58 [96].

37 See paragraph 17.

38 Witness Statement of Thomas Reid, 13 December 2020 (**Reid 2020 Report**), p 5 [5].

39 Witness Statement of Thomas Reid, filed 27 April 2021 (**Reid 2021 Report**), p 9.

40 Reid 2020 Report, p 5 [6].

41 Reid 2020 Report, p 6 [11].

> have prescribed lifetimes, and in a sense, those lifetimes are "consumed" by the accumulated hours or starts. At end of life, some specific components require mandatory replacement if operation is to be continued. Some components, such as combustor assemblies, or turbine rotors are very costly to replace.

36. For example, a rotor costs more than $5 million to replace. If a rotor is to be replaced after 5,000 starts, then it will never be replaced if the unit is retired at 4,800 starts. Further, if the unit gets to 5,000 starts and is planned to be retired at 5,200 starts, it would not be economically sensible to replace the rotor. In either of these scenarios, to recover charges in advance for the cost of replacing the rotor would lead to Synergy being paid in advance over $5 million in respect of an expense which Synergy never in fact incurs. But that is Synergy's approach: Synergy assumes that rotor replacement will be necessary because it makes a working assumption that the unit will continue indefinitely. The same problem arises for routine inspections / maintenance which might cost millions of dollars, and which is carried out after, e.g., every 2,500 starts. Before recovering in advance for the inspection, one needs to assess whether it will ever be carried out.

37. The primary difference between the ERA and Synergy in connection with start-up costs is whether, in estimating variable maintenance costs as an input into SRMC:

    (a) it is necessary to take a view as to the economic life of the particular generator; or

    (b) it can be assumed that the generator will continue to operate indefinitely beyond the current maintenance or part replacement cycle.

38. Synergy's justification for the latter is that it is difficult to predict when a generator will be retired. The ERA's position is that a failure to consider the economic life of the particular generator for which SRMC is being determined will not provide a reasonable expectation of the SRMC of that generator, and, during the period 16 April 2016 to 10 July 2017, resulted in Synergy offering prices in excess of the SRMC of generating the relevant electricity. As explained by Mr Reid, a sensible approach is to prepare a lifecycle plan, but update it regularly (e.g. annually) to incorporate the latest information (including how often the generator has run) and the latest lifecycle predictions.

39. Synergy's approach to start-up costs was to assume that all capital parts of a facility would be subject to replacement until a date was actually set for the retirement of a facility. Mr Lou's witness statement provides: [redacted][42]

    Synergy took a similar approach to inspections/scheduled maintenance.

40. Unless a generating unit was in the very early years of its life where it was highly likely that the generator would continue operating past its current maintenance cycle, Synergy's

[42] Witness Statement of Yanqiu Lou, filed 16 April 2021, [65].

approach would not provide a reasonable expectation of this component of SRMC. Mr Reid observes:[43]

> The difficulty with this approach is that it will, almost inevitably, lead to the overcharging of costs. The actual setting of a date for retirement is likely to occur after Synergy has been recovering maintenance costs in advance for the replacement parts for some time, in respect of a part that Synergy is not now going to replace.
>
> In my opinion, a significant issue with a 'snapshot' approach is the necessity that each future expenditure must be established initially and then reestablished following each point in time that funds are fully accrued for the purchase of said component or inspection. If the expenditure is not required, then it either should not appear in the calculation to begin with or must be removed at the correct point in time to avoid compensation for purchases that never will occur. Thus, in my opinion, end of life planning and future run projections are necessary regardless of what stage the generator is in its lifecycle. This planning should be updated regularly as additional information and actual operating data is available. Failure to complete this planning can lead to compensation for components that never will be replaced (e.g. the rotor). The overcompensation can increase with time as the final capital part replacements or inspections are completed.

41. So much is conceded by Synergy's expert, Mr Adam Aspinall in setting out his opinion of a report prepared by Merz that reviewed Synergy's calculations of start-up costs:[44]

> I would have added that there is one component of the maintenance costs included in the Synergy spreadsheets that needs to be questioned further and that is the recovery of replacement capital part costs for those components that Synergy is, at the time of undertaking its modelling, not expecting to replace in the plant life. This cost needs to be considered more in the light of an insurance spare acquisition that could cover multiple gas-turbine units.

42. Mr Reid explains in his reply report why a generator such as Synergy would not purchase "insurance spares" for the units in question.

43. Synergy does not explain how its approach does not involve overcharging. In particular, given that its approach involves the charging for the replacement of parts (e.g. a rotor) and expensive inspection/maintenance whether or not the part is ever replaced or the inspection/maintenance occurs, some overcharging is inevitable.

44. By way of an amended witness statement of Mr Lou filed on 16 April 2021, Synergy provided models developed in May 2015, November 2015 and February 2017 that included information as to the forecast annual number of starts for Synergy's generators for the next 19 to 21 years and the contemporaneous business-wide view of the retirement date for Synergy's generators.[45] Also provided was information in the historical number of starts per week.[46] This information was provided extremely late, and had not been provided to the ERA as part of its investigation or as part of Mr Lou's original witness statement.

45. Mr Reid reviewed the additional information produced by Synergy. He found that information revealed that some of the generating plants were further through their lifecycle than his

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43 Reid 2021 Report, pp 2, 3 [4], [8].

44 Technical Expert Report of Adam Aspinall in Response to the Expert Report of Mr Thomas Reid dated 13 December 2020, 26 March 2021, p 12 [46] (**Aspinall Report**).

45 Witness Statement of Yanqiu Lou, filed 16 April 2021, [71]–[72].

46 Witness Statement of Yanqiu Lou, filed 16 April 2021, [73].

original model calculated (which had been based on the more limited information he had at that time). He concluded that the new information increased the amount of replacement cost and maintenance that Synergy was over-recovering as part of its SRMC calculation.[47]

46. Therefore, Synergy's SRMC calculations are overstated by this input cost being overstated. A reasonable expectation of SRMC would not be based on overstated start-up costs.

G. Balancing Submissions above SRMC

47. Although there are numerous pages of expert reports devoted to this topic, the issue is quite straightforward. As recorded in Section C above, Synergy's Balancing Submissions are the product of the output of its energy market model, and specifically the price for each level of output is the AOC (as defined above) of the marginal generator at that output level.

48. As set out above, the AOC calculation is inflated by overstated input costs. Therefore, the price for each level of output in the Balancing Submission is inflated, and is above what would be Synergy's reasonable estimate of SRMC. That is sufficient for the purposes of establishing a contravention. It should be noted that the relevant overstatement is not just of the price at which electricity is ultimately dispatched, but extends to higher prices offered in the Balancing Submissions which also assume gas-fired generation at inflated costs.

49. Further consideration is given in the expert material to whether, in a counter-factual world where reasonable input costs are used in Synergy's model, that would cause a different fleet of Synergy generators to be used to produce a given level of output. On a proper construction of clause 7A.2.17, such a counter-factual exercise is not required. If Synergy, an entity with market power, has unreasonably increased its cost calculations and is bidding in a particular fleet of generators for a given level of output at a price that is above the SRMC of that fleet, then that is a contravention of clause 7A.2.17.

50. In any event, even if the counter-factual exercise was undertaken, it does not assist Synergy. As the report of Mr Bruce Layman analyses, the increased input costs raise the AOC for each of Synergy's gas-fired generators.[48] Across the price/quantity levels in the relevant Balancing Submissions, there will be at least some prices which are above the AOC of the marginal generator in the counter-factual world. We are not just concerned with the price (if any) at which electricity was dispatched, but with the full range of offered prices. Synergy has not put forward any coherent basis on which that result would somehow be avoided, and indeed (other than evidence criticising Mr Layman's model) have not put forward any evidence on this topic at all.

51. Mr Layman has also utilised a model to simulate the output of the changing cost inputs. Synergy's expert, Dr Knittel, has criticised the use of that model. However, that criticism is

47 Reid 2021 Report, pp 5–6 [11].

48 Layman Report pp 28-30 [80]-[85] and pp 33-34 [100]-[108].

misdirected and misconceived. It misunderstands the point of the model. It is not being utilised to precisely model the prices that would appear in the Balancing Submissions if reasonable input costs were used instead of Synergy's input costs. Rather, it is being used to demonstrate the relationship between input costs and offer prices: i.e. it illustrates why increasing input costs increases offer prices, and therefore why Synergy's prices in its Balancing Submissions are above SRMC.

52. In any event, one does not need the model to conclude that increasing input costs will increase prices in the Balancing Submissions, for the reasons set out above. We expect that time will be taken up by Synergy at the hearing focussing on alleged deficiencies with Mr Layman's model. That is likely to be somewhat of a distraction from the real issues in the case.

H. Market power

53. A generator will be in breach of clause 7A.2.17 where it offers prices in its Balancing Submission in excess of its reasonable expectation of the SRMC of generating the relevant electricity by the Balancing Facility, "when such behaviour relates to market power".

54. The words "relate to" are words of wide and general import. Their precise scope is to be determined by the context in which it appears.[49] There is nothing in the context of the WEM Rules to indicate that the words "relate to" should be construed as having some limited operation. The WEM objectives support a broad operation. Importantly, those objectives include: minimising the long-term cost of electricity supplied to consumers from the South West Interconnected System (**SWIS**); to promote the economically efficient production and supply of electricity in the SWIS and to encourage competition among generators. The existence of market power has the potential to be antithetical to those objectives. Therefore, where a generator has offered prices in excess of SRMC and that generator has market power, this will be sufficient to satisfy the requirement that the behaviour (offering prices in excess of SRMC) relates to market power.

55. In relation to the Trading Intervals of concern, being some 11,012 Trading Intervals commencing at 6:00AM and ending at the Trading Interval commencing at 11:30PM each day during the period 31 March 2016 to 10 July 2017 where the prices offered by Synergy in its Balancing Submission exceeded $40/MWh, Synergy's behaviour related to market power.

56. Mr Balchin examined a number of indicia in concluding that Synergy had market power, and that its behaviour related to market power, in offering prices above SRMC in the relevant Trading Intervals. Some of these indicia are set out below.

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[49] See, for example: *Tooheys Ltd v Commissioner of Stamp Duties (NSW)* (1961) 105 CLR 602; *Oceanic Life Ltd v Chief Commissioner of Stamp Duties* (1999) 154 FLR 129.

(a) Market shares—by reference to market shares based on both capacity credits assigned to generators and energy dispatched, Synergy had a substantial share of the total generation capacity in the Balancing Market during the investigation period, and the Balancing Market generally was highly concentrated. In 2016, Synergy had some 53.8% of the capacity credits market. In 2017, this was 52.3%. Over the investigation period, Synergy had 53.3% of the energy sent out.[50]

(b) Herfindahl-Hirschman Index (**HHI**)—Mr Balchin calculates a HHI for the market for the investigation period as a whole of 3,353, which he observes would ordinarily be interpreted as implying a highly concentrated market, and so the prospect for Synergy to exercise market power. Further, Mr Balchin found that the HHI tends to be higher, and so the market more concentrated, as demand increases.[51]

(c) Pivotal and residual supplier analysis—Mr Balchin's analysis found that Synergy was pivotal (in the sense of being required to meet total demand) in 90% of the Trading Intervals where demand response is excluded and Synergy is pivotal in almost all Trading Intervals if the substantially higher cost capacity is ignored.[52]

(d) Merit order analysis—Mr Balchin looked at the Balancing Market merit order during the investigation period in order to identify whether there are price bands along the supply curve where Synergy does not face material competition such that it is able to "price up" within those bands without the threat of retaliation by competitors. The analysis demonstrated that for large bands of prices on the supply curve, Synergy faced little competition in offering capacity into the market. In particular, Synergy was almost alone in offering capacity to the market between $40/MWh and $240/MWh.[53]

57. Synergy's conduct was also consistent with a firm that had market power: pricing above AOC (as defined above) is not conduct that would be engaged in by a firm in a competitive market. Further, the fact that Synergy considers that the operative constraint on its behaviour is the SRMC limit in clause 7A.2.17, rather than competitive pricing, and that it took steps to raise that limit, is indicative of market power.[54]

58. Dr Knittel's primary attack on Mr Balchin's conclusions with respect to market power is that Mr Balchin does not evaluate whether Synergy had an incentive to increase prices through higher profits.[55] Dr Knittel's criticisms are otherwise theoretical and do not engage with the actual manner in which the Balancing Market was operating during the investigation period,

50 Balchin 2020 Report, p 58 [190]–[191].
51 Balchin 2020 Report, pp 58–60 [193]–[198].
52 Balchin 2020 Report, pp 60–63 [199]–[206].
53 Balchin 2020 Report, pp 63–65 [207]–[211].
54 Balchin 2020 Report, p 70 [231]–[232].
55 Knittel Report, pp 121–122 [217]–[222].

or are immaterial to Mr Balchin's analysis.[56] Whether Synergy had an incentive to increase prices through higher profits is not a relevant element of clause 7A.2.17 of the WEM Rules. What is necessary is that the behaviour relates to market power. In any case, the very actions of Synergy in revising upwards its SRMC calculations is evidence that Synergy had an incentive to do so—that is, that it would be profitable for Synergy to do so.[57] In other words, Dr Knittel's concerns are theoretical rather than real.

3 May 2021

Cameron Moore SC **Catherine Dermody**

Banco Chambers Castan Chambers

[56] Balchin 2021 Report, pp 25–31 [88]–[113].

[57] Balchin 2021 Report, p 24 [86].

SCHEDULE 2 –RESPONDENT'S OUTLINE OF OPENING SUBMISSIONS

ELECTRICITY REVIEW BOARD OF WESTERN AUSTRALIA

PROCEEDING 1 OF 2019

Economic Regulation Authority
Applicant

Electricity Generation and Retail Corporation (trading as Synergy)
Respondent

SYNERGY'S OUTLINE OF OPENING SUBMISSIONS

A. INTRODUCTION

1. The respondent (**Synergy**) is a vertically integrated generator of electricity and retail supplier of electricity and natural gas. It participates in the Wholesale Energy Market (**WEM**) as both a generator and a customer.

2. This proceeding is a claim by the applicant (**ERA**) that Synergy contravened cl 7A.2.17 of the Wholesale Electricity Market Rules (**Market Rules**).[58] Clause 7A.2.17 states:

> a Market Participant must not, for any Trading Interval, offer prices in its Balancing Submission in excess of the Market Participant's reasonable expectation of its short run marginal cost of generating the relevant electricity by the Balancing Facility, when such behaviour relates to market power.

3. The ERA claims that, in Trading Intervals where the Balancing Market Price was above $40/MWh during the period 16 April 2016 to 10 July 2017 (**Relevant Period**), Synergy's estimates of its gas costs and its start-up costs, used in its estimation of its short run marginal cost of generating electricity, were above reasonable estimates of those costs.

4. The ERA claims that this caused Synergy's offers in its Balancing Submissions to exceed a reasonable expectation of Synergy's (overall) short run marginal costs (**SRMC**) of generating the relevant electricity, in 11,012 Trading Intervals in the Relevant Period (**Relevant Trading Intervals**).

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[58] Defined terms in the Market Rules have the same meaning as in these submissions, unless otherwise stated.

5. Further, the ERA claims that Synergy had market power in each of the Relevant Trading Intervals, and that its offers in its Balancing Submissions for those intervals related to its market power.

6. Synergy denies each of the ERA's allegations.

7. The issues in dispute in the proceeding may be described, broadly, as follows:

   (a) During the Relevant Period, did Synergy's estimate of its cost of gas exceed a reasonable estimate of those costs?[59]

   (b) During the Relevant Period, did Synergy's estimate of its start-up costs exceed a reasonable estimate of those costs?

   (c) If the answer to (a) and/or (b) is "yes", in what – if any – of the relevant 11,012 Trading Intervals did Synergy's estimate of its gas and/or start-up costs cause the prices it offered in its relevant Balancing Submissions to exceed a reasonable estimate of Synergy's SRMC of generating the relevant electricity?

   (d) Did Synergy have market power at all relevant times?

   (e) Was Synergy's relevant behaviour related to any such market power?

8. Issues (a) to (c) may be conveniently described as "SRMC issues". Issues (d) and (e) may be conveniently described as "market power issues".

9. We set out key facts, including an overview of the WEM and Synergy's business, in **Section B** below. In **Section C** we address the SRMC issues, and in **Section D** we address the market power issues.

B. KEY FACTS

The WEM

10. The sale and purchase of electricity in the South West Interconnected System (**SWIS**)[60] occurs in the WEM. The WEM is created and regulated by the Market Rules, which are made pursuant to regulations made under the *Electricity Industry Act 2004* (WA).

11. The objectives of the market are as follows:[61]

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59 For reasons we explain below, this issue may alternatively be framed as: can the (actual) cost of gas acquired pursuant to an efficient, long-term contract be a component of a firm's SRMC for the purpose of cl 7A.2.17?

60 The SWIS is the primary electricity grid in Western Australia. It extends south to Albany, north to Kalbarri and east to Kalgoorlie.

61 Rule 1.2.1. and s 122(2) of the *Electricity Industry Act 2004* (WA).

(a) to promote the economically efficient, safe and reliable production and supply of electricity and electricity related services in the SWIS;

(b) to encourage competition among generators and retailers in the SWIS, including by facilitating efficient entry of new competitors;

(c) to avoid discrimination in that market against particular energy options and technologies, including sustainable energy options and technologies such as those that make use of renewable resources or that reduce overall greenhouse gas emissions;

(d) to minimise the long-term cost of electricity supplied to customers from the SWIS; and

(e) to encourage the taking of measures to manage the amount of electricity used and when it is used.

12. To achieve these objectives, the WEM includes a Short-Term Energy Market (**STEM**), a Balancing Market and a Reserve Capacity Mechanism.[62]

The STEM

13. Wholesale suppliers and buyers of electricity in the WEM typically enter into contracts for the supply of electricity known as bilateral contracts (or power purchase agreements). During the Relevant Period, the vast majority of electricity traded in the WEM (over 90%) was traded through bilateral contracts.

14. The STEM is an auction process that takes place a day before each Trading Day, which allows Market Participants to modify positions they have adopted through bilateral contracts.

15. By 9 am on the day before a Trading Day, AEMO reports to Market Participants, in respect of each Trading Interval in that Trading Day: the total demand to be supplied under bilateral contracts;[63] the total forecasted demand; and information about the amount of electricity generation reserve capacity available.

16. Market Participants then submit offers to buy or sell electricity (in price-quantity pairs[64]) relative to each participant's net contract position for each Trading Interval of the Trading Day.

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62 The Market Rules also require, *inter alia,* procurement of, and payment for the provision of, ancillary services, which are designed to maintain the security and reliability of electrical supply in the short term.

63 Generators are required to provide to AEMO (daily) details of the net amount of electricity they have agreed to supply pursuant to bilateral contracts.

64 I.e., offers that specify the amount of electricity the participant offers to buy or sell and at what price.

17. Based on those offers, AEMO engages in a process by which it matches supply with demand,[65] which leaves Market Participants with positions that are equal to their net bilateral contract positions, as modified by net purchases or sales in the STEM.

The Balancing Market

18. The Balancing Market is where electricity is dispatched, and any differences between Market Participants' net positions (resulting from bilateral contracts and the STEM) and the volume of electricity they dispatch or consume are settled.

19. By 6 pm on the day before each Trading Day, generators must submit Balancing Submissions to AEMO, which identify the prices at which they offer to generate and dispatch different volumes of electricity. Generators may offer up to 35 price-quantity pairs for each Trading Interval.

20. Various restrictions apply to the making of Balancing Submissions. Generators must, *inter alia*:

    (a) offer for dispatch all of their installed capacity for each Trading Interval;

    (b) offer prices below specified caps;

    (c) when offering multiple price-quantity pairs for a Trading Interval, offer prices that increase monotonically (i.e., each offer must be higher than the preceding offer); and

    (d) offer prices that do not exceed a reasonable expectation of their SRMC of generating the relevant electricity where doing so relates to market power.

21. Further, during the Relevant Period, Synergy was required to make offers on a portfolio basis; that is, it must offer the capacity of all of its generation facilities in a single supply curve.

22. Generators other than Synergy (**IPPs**) are permitted to revise their Balancing Submissions (as often as they wish) until two hours before the start of a Trading Interval. Synergy is able to revise its Balancing Submissions between 4 and 9.5 hours before the start of a Trading Interval.

23. Following gate closure for IPPs (i.e., the time when offers can no longer be revised), AEMO collects all of the Balancing Submissions and creates an aggregated Balancing Merit Order (**BMO**) for the relevant Trading Interval, by

[65] See the report of Professor Christopher Knittel dated 26 March 2021 (**Knittel report**) at [42] ("AEMO forms a market aggregate offer curve and a market aggregate bid curve, then calculates the market clearing STEM quantity and STEM price based on the crossing point of the offer and bid curves") and footnote 75.

stacking all of the quantities offered in Balancing Submissions, from the lowest priced offer to the most expensive offer.

24. During the Trading Interval, AEMO then issues dispatch instructions to generation facilities, with the lowest cost facilities, based on the costs for those facilities set out in the relevant Balancing Submissions (and therefore in the BMO), required to meet all demand being consumed by end users at that time.

25. The market clearing price (the Balancing Price) is determined by the point at which electricity dispatched intersects with the BMO, plus 1 MW. Accordingly, it is determined by the offer of the last generator required to be scheduled to meet demand.

26. Differences between Market Participants' net positions (resulting from bilateral contracts and the STEM) and the volume of electricity they dispatch or acquire are settled at the Balancing Price. For example:

    (a) if a generator dispatches more electricity than it had agreed (through bilateral contracts and the STEM) to sell, it will receive the Balancing Price for that electricity; and

    (b) if a market customer acquires more electricity than it agreed (through bilateral contracts and the STEM) to acquire, it pays the Balancing Price for that electricity.

27. The STEM and the Balancing Markets are settled by AEMO. Settlement is net of any bilateral contract positions already notified to AEMO. That is, AEMO does not charge Market Participants for energy they have agreed to buy or sell through bilateral contracts.

Reserve Capacity Mechanism

28. The Reserve Capacity Mechanism involves the making of payments to capacity providers (i.e., owners of generation facilities or demand response providers) for making their facilities available to generate electricity (or reduce consumption) for supply in the WEM.

29. Two years before each Capacity Year (which starts on 1 October), AEMO specifies a Reserve Capacity Requirement based on the minimum amount of generation capacity it considers is required in the SWIS. It then allocates to capacity providers Certified Reserve Capacity and Capacity Credits to meet that capacity requirement, based on their facilities' technical capabilities.

30. Generators must apply to AEMO for certification for the amount of Reserve Capacity they can provide. To satisfy AEMO of their capability to provide Reserve Capacity, generators must, *inter alia*, have firm fuel procurement and transportation contracts sufficient to run their generators for 14 hours consecutively, for the entire Capacity Year. During the Relevant Period,

Synergy relied principally upon the Gorgon Contracts to satisfy this requirement.

31. If insufficient capacity is procured through allocation of Capacity Credits, a Reserve Capacity Auction may be held.[66] In any such auction, there is a price cap, being the Benchmark Reserve Capacity Price, which is based on certain costs of developing and operating a 160 MW distillate-oil-fuelled open cycle gas turbine generation facility.

32. If no capacity auction is held, the Reserve Capacity Price paid to all facilities that supply capacity is 85% of the Benchmark Reserve Capacity Price, adjusted for system capacity excess.[67]

Synergy

33. Synergy is wholly owned by the State of Western Australia. Prior to 2006 it formed part of the state-owned power company, Western Power Corporation (**WPC**). In 2006, WPC was split into four separate entities, including an electricity generation business, Electricity Generation Corporation (**Verve**), and an electricity retail business, Electricity Retail Corporation (**ERC**). In 2014, Verve and ERC were re-merged, creating Synergy.

34. As noted above, Synergy's business comprises the generation of electricity and the retail supply of electricity and natural gas. It is a Market Participant in the WEM, both as a Market Generator[68] and a Market Customer.[69]

35. Until 29 November 2016, Synergy acquired gas for its generation facilities from the North West Shelf Gas Project. Since 6 December 2016 it has acquired gas pursuant to two contracts with producers from the Gorgon Gas Project (**Gorgon Contracts**). The Gorgon Contracts have terms of 20 years and take-or-pay (**TOP**) obligations that require Synergy to pay for [redacted] of gas per day regardless of whether or not it actually consumes the gas.

36. Since 2006, Synergy has faced increasing competition in the generation of electricity. Its share of electricity generated in the SWIS declined from 80% in 2007 to [redacted]. During the Relevant Period, Synergy generated 49% of electricity in the SWIS.

37. Synergy is the sole supplier of electricity to consumers that acquire less than 50 MWh of electricity per year (i.e., most residential and small business

66 No auction has been held to date.

67 As to how the adjustment is calculated, see Balchin at [**51**] and Knittel at footnote 105.

68 I.e., a person who owns, controls or operates a generation system which has a rated capacity that equals or exceeds 10 MW and is electrically connected to a transmission system or distribution system which forms part of the SWIS, or is electrically connected to that system.

69 I.e., a person who sells electricity to Contestable Customers in respect of facilities electrically connected to a transmission system or distribution system which forms part of the SWIS, or is electrically connected to that system.

consumers). In 2016, supply to those consumers comprised 33.8% of the total electricity consumed in the SWIS. The prices Synergy charges those consumers are set by the Western Australian State Government.

38. During the Relevant Period, Synergy's relevant generation facilities comprised two coal fired generators,[70] three wind farms[71] and 18 gas fired generators comprised of five separate generation units,[72] which were a mix of base load[73] mid-merit[74] and peaking[75] plants.

39. Synergy formulates its Balancing Submission offers using software known as PowrSym. Broadly speaking, PowrSym identifies, for different levels of demand, the lowest cost dispatch of Synergy's portfolio.[76]

40. Determining the lowest cost dispatch of Synergy's portfolio for any particular level of demand is complex and depends on, *inter alia*, the relevant generators' respective:

    (a) minimum stable generation rates (i.e., the ranges within which they were capable of generating electricity stably[77]);[78]

    (b) heat rates (i.e., the amount of fuel required to generate a unit of electricity);[79]

    (c) ramp rates (i.e., the rate at which units can increase their output);[80] and

    (d) start-up costs (including the cost incurred from damage that is caused to components of generators each time they start[81]).[82]

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70 The Collie and Muja plants.

71 The Albany and Grasmere Wind Farm, the Kalbarri Wind Farm and the Bremer Bay wind-diesel facility.

72 Cockburn (one Combined Cycle Gas Turbine), Pinjar (9 Open Cycle Gas Turbines (**OCGTs**)), Kwinana (3 OCGTs), Mungarra (3 OCGTs) and Kalgoorlie (2 OCGTs).

73 Base load generators are designed to be operated continuously for long periods at or near full capacity. They have relatively high capital costs, long start-up times and limited stable ranges of operation.

74 Mid-merit plants typically stop generating during daily low demand and do not operate to full load except during daily demand peaks. They have medium and operating capital costs, medium start-up times and medium or high ramp rates.

75 Peaking plants run infrequently had have a relatively low level of capacity utilisation. They have relatively low capital costs, high operating costs, high ramp rates, fast start-up times and relatively low individual start-up costs.

76 Report of Bruce Dean Layman dated 14 December 2020 (**Layman report**) at [**40**], [**40a**].

77 E.g., base load generators cannot generate less than specified amounts of electricity.

78 Layman report at [**36b**].

79 Layman report at [**36e**].

80 Layman report at [**36d**].

81 Each time gas-fired generators start, some components go from being at a standstill at room temperature to rotating at extremely high speed and temperature in seconds. This causes damage to (and, over time, failure of) the components: see witness statement of Yanqui Lou dated 16 April 2021 at [14]-[16].

82 Layman report at [**36c**].

41. The highest cost generator that is forecast to be dispatched for each forecast level of demand is referred to as the marginal generator for that level of demand.[83]

42. The ERA contends that, for each relevant level of demand, Synergy treats its estimate of the average operating cost (**AOC**) of the marginal generator as the SRMC of its Balancing Portfolio. But the AOC of Synergy's marginal generators do not constitute the supply curve that Synergy offers in its Balancing Submissions. Significant adjustments are required to ensure that Synergy's offers comply with the requirements of the Market Rules referred to in [20(a)] to [20(c)] above. Indeed, it is often impossible for Synergy's offers to reflect its actual SRMC of generating the relevant electricity.[84]

43. PowrSym is highly sensitive to its inputs and technical assumptions made when it is run.[85] Small differences in assumptions and inputs can lead to large differences in the offer prices it generates.[86] In fact, as the evidence at the hearing will make good, increasing the cost of an input (such as the estimated cost of gas) may cause in some Trading Intervals a decrease in the price of a particular price-quantity pair in a Balancing Submission.

Gas markets

44. Long-term natural gas supply is an important input for reliable electricity generation in Western Australia. The vast majority of gas supplied in Western Australia is procured under long-term TOP agreements.[87] There has been a distinct focus by the West Australian government on ensuring sufficient, long-term gas supply for the region.[88]

45. There are also "spot markets" in which gas can be bought and sold. There is little publicly available information concerning those markets, although volumes traded on them appear to be very small[89] and they are for interruptible supply.[90] In the year leading up to the signing of the Gorgon Contracts, an average of 4.9 TJ per day was transacted on the gasTrading

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83 Unless that facility was deemed to be in-service only for the purpose of providing ancillary services.

84 See, similarly, report of Jeffrey John Balchin dated December 2020 (**Balchin report**) at [**87**]-[**89**]; Layman report at [**34**]-[**37**] and [**59**]; joint report of Professor Knittel, Mr Balchin and Mr Layman (**Economists' joint report**) at p 12 (responses to [**16**]).

85 Report of Bruce Layman in response to the report of Professor Knittel (**Layman reply report**) at [**47**].

86 Layman reply report at [**52**].

87 Knittel report at [**71**], [**106**]. When the Gorgon Contracts were executed, the Energy Minister was supportive of them and described them as having "strategic importance": Knittel report at [**124**].

88 See Knittel report at [**124**], [**125**]; Economists' joint report at p 18 (Prof Knittel's response to [**28**]).

89 Knittel report at [**71**].

90 Knittel report at [**73**].

Spot market.[91] Current natural gas consumption in Western Australia is approximately 1,000 TJ per day on average.[92]

Lay witnesses

46. Synergy will call two lay witnesses: Ms Carole Clare and Mr Yanqui Lou.

47. Ms Clare is Synergy's Fuel Contracts Manager. She has prepared a witness statement that addresses, *inter alia*: the contracts by which Synergy acquires gas (including the Gorgon Contracts); Synergy's gas management during the Relevant Period; Synergy's gas swaps and storage; and gas spot markets.

48. Mr Lou is the Asset Performance Manager of Synergy's Generation Business Unit. He has prepared a witness statement that addresses, *inter alia*: the fleet of generators that Synergy operates and maintains and their features; the costs incurred by generators; the process of starting generators; and matters relating to Synergy's estimates of its start-up costs.

C. SRMC ISSUES

Gas costs

49. The first SRMC issue is whether Synergy's estimate of its gas costs was above a reasonable estimate of those costs. In respect of that issue, the ERA relies on the evidence of Mr Balchin; Synergy relies on the evidence of Professor Knittel.

Mr Balchin's evidence

50. Mr Balchin opines that Synergy's estimate of its short run marginal gas costs was above a reasonable estimate of those costs.

51. He says that the standard definition of the "short run" (within the meaning of SRMC) is the period during which capital assets are fixed.[93] Under that definition, only capacity is assumed to be constant (i.e., capacity cannot be built or retired);[94] all non-capital costs are assumed to be variable.[95]

52. Fuel (including gas) is not a capital cost.

53. Mr Balchin, however, considers that the cost of gas acquired pursuant to a long-term TOP contract is a fixed cost, and therefore not a component of Synergy's SRMC.[96] In his view, if a generator acquires gas pursuant to such a contract, its short run marginal gas costs comprise only the "opportunity

91 Amended Statement of Carol Clare dated 24 March 2021 at [**54**].
92 Economists' joint report at p 19 (Prof Knittel's response to [**31**]).
93 Balchin report at [**69**]; Economists' joint report at p 8 (response to [**5**]).
94 Balchin report at [**69**].
95 Economists' joint report p 9 (response to [**7**]).
96 Balchin reply report at [**62**].

cost" of that gas[97] - i.e., the value of any benefit that could be derived from using the gas for some other purpose.

54. Moreover, Mr Balchin opines, allowing generators to treat their (actual) cost of gas as a component of their SRMC would be inconsistent with how competitive markets work[98] and would reduce the (productive and allocative) efficiency of the WEM.[99]

55. Mr Balchin therefore assesses whether Synergy's estimated cost of gas was reasonable by considering matters that he considers informed Synergy's opportunity cost of gas only.[100]

56. He says that the opportunity cost of gas is determined by the "market price" of gas.[101] He does not define the relevant gas market. Instead, he says that an "appropriate basis" for estimating the market price is the price of gas in the spot market, "cross-checked" against other prices such as contract prices.[102] He considers the spot market prices and other contract prices,[103] but does not identify a relevant "market" price. He says, instead, that if Synergy had estimated the market price in accordance with the methodology he says is appropriate, there would have been a "substantial reduction" to its estimate of its gas costs.[104]

Professor Knittel's evidence

57. The principal disagreement between Mr Balchin and Professor Knittel concerns whether the cost of gas acquired under an efficiently procured long-term TOP contract may constitute a component of a SRMC within the meaning of cl 7A.2.17 of the Market Rules.

58. According to Professor Knittel, whether such costs are components of a firm's SRMC depends on how one defines the "short run". He says that there is no one unique "short run" in economic theory. In electricity markets, the short run can vary from an "ultra" short run where all inputs except instantaneous

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97 Balchin report at [**7b**], [**75**]-[**77**]; report of Jeffrey John Balchin dated 23 April 2021 (**Balchin reply report**) at [**3**].

98 Balchin reply report at [**28**]-[**30**], [**34**]-[**36**].

99 Balchin reply report at [**32**], [**33**].

100 A predicate of Mr Balchin's opinion, and the ERA's case concerning gas costs, is that this approach was required by the Market Rules. There is no allegation (or evidence) that Synergy's estimated cost of gas exceeded a reasonable estimate of the cost of gas under any long-term TOP contract.

101 Balchin report at [**16**], [**17**], [**121**].

102 Balchin report at [**18**].

103 Specifically, he has regard to spot prices, industrial gas sales made by Synergy, the terms of a swap arrangement entered into by Synergy and the price of gas in a contract with North West Shelf gas producers: Balchin report at [**121**]-[**129**]; Balchin reply report at [**4**].

104 Balchin report at [**17**], [**121**].

fuel requirements are sunk, to a longer period where only the cost of capacity is sunk.[105]

59. Accordingly, in Professor Knittel's view, there are many costs that can be considered either fixed or variable, depending on the definition of the short run one adopts. They include, for example, start-up costs, fuel costs and (towards the longer extreme) costs associated with staff, investment in operations and maintenance and insurance.[106]

60. In each case, whether or not the costs constitute components of a SRMC depends on the definition of the "short run" one adopts.

61. Professor Knittel says that unless generators can expect to recover these costs, there will be "missing money" problems, whereby the generators may struggle to earn returns sufficient to pay down their costs over time.[107] Such problems, he explains, may lead to underinvestment in generation assets, deterrence of potential entrants, harm to overall electric system reliability and increased system costs.[108]

62. Professor Knittel says that the Reserve Capacity Price provides a mechanism by which generators can expect to recover longer term costs associated with staff, investment in some operations and maintenance and insurance. However, there is no mechanism by which they can expect to recover start-up and gas costs, unless they can be included in prices in Balancing Submission offers.[109]

63. With respect to fuel costs, he notes that if generators do not expect to recover the cost of (efficiently procured) gas, they would have an incentive to rely instead on an alternative source of fuel such as diesel (the cost of which they would be guaranteed to recover), even if it were more expensive, and would cause the prices in the generators' Balancing Submissions to be higher than they would otherwise be.[110]

64. In Professor Knittel's view, one cannot assume that generators would enter into the (more efficient) gas supply contracts on the basis that that is what would occur in "competitive markets". In the WEM, he says, generators' incentives differ from those of firms in "competitive markets", due to distortions created by the Market Rules.[111]

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105 Knittel report at [**19(b)**]; [**95**]-[**100**].
106 Knittel report at [**96**]-[**99**].
107 Knittel report at [**82**].
108 Knittel report at [**82**]-[**83**], [**90**]-[**92**], [**127**]-[**144**]; Economists' joint report, p 12 (response to [**18**]).
109 Knittel report at [**94**]-[**100**].
110 Knittel report [**132**]-[**144**].
111 Economists' joint report, p 8 (Prof Knittel's response to [**1**] to [**3**]), p 12 (response to [**16**]).

65. For example, in the WEM, there are price caps.[112] While price caps may insulate customers from large price increases, they may cause certain generators to receive prices below actual production costs at times, foreclosing opportunities for cost recovery. They can prevent generators from earning revenues in high-load, high-price trading intervals that might offset the costs of long-term firm supply contracts.[113]

66. The objective of the Market Rules is to mimic the competitive market outcome *in the absence of distortions*.[114] For that to occur, in Professor Knittel's view, generators must be able to include the cost of (efficiently procured) firm gas in their Balancing Submission offers. Otherwise, the long-term cost of supplying electricity to WEM customers will increase, contrary to the objectives of the WEM.[115]

67. Professor Knittel also says that, in any event, spot market prices in Western Australia are not an accurate measure of relevant natural gas supply opportunity costs. Spot and long-term firm contracts are fundamentally different products with different terms. Spot prices are not indicative of a relevant "market price" for gas.[116]

Start-up costs

68. In respect of the second SRMC issue – whether Synergy's estimate of its start-up costs exceeded a reasonable estimate of those costs – the ERA relies on the evidence of Mr Reid; Synergy relies on the evidence of Mr Aspinall.

Mr Reid's evidence

69. Mr Reid considers that Synergy's estimate of its start-up costs exceeded a reasonable estimate.

70. He says that the estimates were not based on "detailed lifetime operation, maintenance and retirement plans" with forecasts of the life of each generating unit and annual maintenance costs required for the unit.[117]

71. Instead, Mr Reid says, Synergy considered only the maintenance costs to be incurred between "major overhauls" (which he refers to as a "snapshot" approach), and that it claimed amounts for future expenditure on inspections

112 Economists' joint report, p 12 (response to [**16**]).

113 Economists' joint report, p 14 (response to [**21**]), p 16 (Prof Knittel's response to [**23**]).

114 Economists' joint report, p 11 (response to [**14**]).

115 Knittel report at [**142**].

116 Knittel report at [**19**], [**20**], [**116**], [**117**], [**148**]-[**150**], [**155**]; Economists' joint report, p 20 (response to [**33**]).

117 Report of Thomas Robert Reid dated 13 December 2020 (**Reid report**) at [**30**], [**34**]-[**52**]; report of Thomas Robert Reid dated 27 April 2020 (**Reid reply report**) at [**4**], [**8**]-[**10**].

and parts, regardless of whether or not the expenditure was likely to be incurred.[118]

72. In Mr Reid's view, this led Synergy to include in its estimated start-up costs expenses that were not likely to be incurred, particularly for Pinjar units 1, 2, 3, 4, 5 and 7, and thus to over-estimate its reasonable start-up costs.[119]

73. Mr Reid also says that Synergy included in its estimates of start-up costs, certain costs that it identified as "routine maintenance" costs.[120] He considers that, "in the absence of further definition", those costs are fixed, and therefore not SRMCs.[121]

74. Mr Reid developed his own model by which he estimated the amount of Synergy's reasonable start-up costs.[122] Relevant features of the model include the following:

    (a) it assumes that Synergy's estimates of its start-up costs were in 2017 dollars;

    (b) it adopts an Australian inflation rate, including for components imported from overseas; and

    (c) it assumes strict retirement dates for each of Synergy's relevant facilities.

75. Based on that model, in his primary report, Mr Reid set out what he considered to be a reasonable estimate of Synergy's relevant start-up costs. In his reply report he said that these estimates are too high, based on further information Synergy has provided.[123]

76. During the engineering experts' conferral, Mr Reid accepted that adopting a snapshot approach can be reasonable, so long as it incorporates "lifetime planning".[124] However, in his view, Synergy's snapshot approach did not do so.

Mr Aspinall

77. Mr Aspinall also considers that adopting a "snapshot" approach to estimating start-up costs is reasonable, and that it should incorporate "lifetime planning".[125]

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118 Reid report, e.g., at [**1**], [**40**], [**42**]; Reid reply report, e.g., at [**46**]-[**68**], [**99**].
119 Reid reply report, e.g., at [**46**]-[**68**], [**99**].
120 Reid report at [**87**]; Reid reply report at [**97**], [**98**].
121 Reid report at [**87a**].
122 Reid report at [**53**]-[**86**]; Reid Reply report [**40**]-[**68**].
123 Reid reply report at [**11**].
124 Joint report of Mr Aspinall and Mr Reid (**Engineering experts' joint report**), p 3.
125 Rreport of Adam Aspinall dated 26 March 2021 (**Aspinall report**) at [**42**]-[**46**], [**53**], [**174**]; Engineering experts' joint report, pp 1, 2.

78. However, in Mr Aspinall's view, accurately forecasting the future number of starts of gas fired generators (and, therefore, required inspections and parts) is extremely difficult. Such generators can be used for the "peaking market" and the "ancillary services" market. In both markets, demand is driven largely by factors that are inherently difficult to forecast accurately, namely weather and failures of other generation and/or system equipment.[126]

79. Further, Mr Aspinall considers that if generators forecast that future inspections or replacement of parts will not be required, and that forecast proves wrong, there is no mechanism in the Market Rules for expenditure on those inspections or parts to be recovered.[127] In his view, that may lead to underinvestment and put system stability at risk.[128]

80. Consequently, Mr Aspinall considers that "lifetime planning" should involve "probability assessed risk-based analysis."[129] He says that for a relevant start-up to be "expected" and recoverable, the probability of it being incurred must be greater than 20%.[130]

81. Based on the material he has reviewed, Mr Aspinall considers that many of the relevant start-up costs Synergy included in its estimates are likely to have been reasonably based on such an assessment. However, without carrying out a probability adjusted risk analysis on all of the units, which is not possible based on the information he has reviewed, one cannot determine this conclusively.[131]

82. Mr Aspinall considers that various aspects of Mr Reid's model are inappropriate, including its reliance on the matters referred to in [73] above.[132]

Effect of gas and start-up costs on Synergy's estimates of its SRMC

83. In respect of the third SRMC issue – whether increasing Synergy's estimate of its gas and/or start-up costs caused its estimate of its (overall) SRMC of generating the relevant electricity to increase – the ERA relies on the evidence of Mr Layman; Synergy relies on the evidence of Professor Knittel.

Mr Layman's evidence

84. Mr Layman is an officer of the ERA. He has conducted two analyses.

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126 Aspinall report at [**158**]-[**169**]; Engineering experts' joint report, p 1.

127 Engineering experts' joint report at pp 2, 5.

128 Engineering experts' joint report at p 6.

129 Aspinall report at [**55**], [**56**]; Engineering experts' joint report, p 2.

130 In Mr Aspinall's experience, calculation of this "threshold" probability is normally undertaken by determining, by simulation techniques, a distribution of potential replacement outcomes and then defining a Probability of Exceedance": see report of Adam Aspinall dated 26 March 2021 at [**56**].

131 Economic experts' joint report, pp 8-10.

132 Aspinall report, e.g., at [**5**], [**6**], [**93**]-[**103**].

85. First, he has sought to identify the effect of increasing Synergy's gas and start-up costs by particular amounts[133] on Synergy's estimates of its AOC for each of its generators. He says, based on modelling he performed, that the effect would be to increase Synergy's estimated AOC for all of its generators, for all levels of production and runtimes. In its written opening submissions, the ERA submits, based on this evidence, that if Synergy's estimates of its gas and start-up costs were inflated, "the price for each level of output in the Balancing Submission is inflated".[134] One predicate of that submission is this: increasing the AOC for Synergy's generating units always results in an increase in the price in each price-quantity pair in Synergy's Balancing Submissions.

86. Second, Mr Layman has constructed a balancing market offer formation model for the purpose of showing a relationship between Synergy's gas and start-up cost inputs, and the prices in Synergy's Balancing Submission offers.[135]

87. Mr Layman ran his model using (only):

    (a) the gas and start-up cost assumptions that Synergy used in the formulation of its relevant Balancing Offers; and

    (b) the gas costs the ERA considered reasonable (in the investigation it conducted before starting this proceeding),[136] and start-up costs that Synergy used prior to 16 April 2016 when formulating Balancing Submission offers.[137]

88. The model has the following significant features:[138]

    (a) it is not the same as Synergy's model. It is constructed and run differently and makes various simplifying assumptions;[139]

    (b) it does not replicate the output of Synergy's model;[140]

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133 In the case of gas costs, the increase is from the costs the ERA considered reasonable during the investigation it conducted before starting those proceeding, to those Synergy used during the Relevant Period. In the case of start-up costs, the increase is from those Synergy used before 16 April 2016 to those it used during the Relevant Period.

134 ERA's outline of opening submissions at [**48**].

135 Layman report at [**17**], [**18**]; Layman reply report at [**9**].

136 In this proceeding, there is no allegation (or evidence) that those gas costs were, in fact, reasonable.

137 See, e.g., Layman report at [**74**]; Layman reply report at [**10**], [**11**].

138 Layman report at [**17**], [**18**]; Layman reply report at [**9**].

139 Layman reply report at [**31**], [**36**], [**37**], [**39**].

140 When run with the gas and start-up cost assumptions Synergy used during the Relevant Period, for many Trading Intervals the outputs are significantly different to the outputs of PowerSym: Layman reply report at [**37**], [**50**], Chart 1.

(c) it indicates that, in some Trading Intervals, the effect of *increasing* gas and/or start-up inputs would be to *decrease* the prices in price-quantity pairs in Balancing Submissions;[141] and

(d) it assumes that if Synergy were to increase its gas and/or start-up costs, there would be no other change to the assumptions it uses to prepare its Balancing Submissions.

89. Based on the results of his modelling, Mr Layman considers that during the Relevant Period, the gas and start-up input assumptions Synergy used during the Relevant Period caused it to offer electricity into the Balancing Market prices that were higher than what it would have offered had it used lower input assumptions.[142]

Professor Knittel's evidence

90. Professor Knittel considers that Mr Layman's modelling is not reliable.[143]

91. First, he notes that Mr Layman does not purport to identify the effect of altering Synergy's gas and start-up cost assumptions on the Balancing Price during any Trading Interval. The model purports only to estimate the effect of increasing Synergy's gas and start-up cost assumptions on the prices in Synergy's offers in its Balancing Submissions.[144]

92. Consequently, even if it were reliable, Mr Layman's modelling would not establish that Synergy's conduct caused the Balancing Price to increase in any relevant Trading Interval.

93. Professor Knittel notes also that Mr Layman's model does not replicate the output of the model Synergy used for the formation of Synergy's Balancing Submissions. When it is run with the gas and start-up cost inputs that Synergy actually used during the Relevant Period, it produced Balancing Submission prices that in many cases were either materially above, or below, the prices that that Synergy actually offered.[145]

94. Further, Professor Knittel notes that Mr Layman's modelling assumes that if Synergy were to increase its gas and/or start-up costs, there would be no other change to the assumptions that it uses to prepare its Balancing Submissions. That assumption, Professor Knittel says, may be incorrect. For example, changing a gas input price may affect the volume of electricity Synergy forecasts that it will generate and the volume of gas it therefore needs

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141 Economists' joint report, p 41 (per Prof Knittel). Mr Layman claims only that increasing an input would increase an offer price in a Balancing Submission for "*some portion*" of the relevant offer curve; Economists' joint report, p 41 (response to [**33**]).

142 Layman report at [**73**].

143 Knittel report at [**253**].

144 Knittel report at [**252**].

145 Knittel report at [**254**]-[**263**].

to use, which may in turn affect its forecast number of starts and start-up costs and the price it needs to pay for gas.[146]

D. MARKET POWER ISSUES

95. In respect of the questions whether Synergy had market power, and its offers in its relevant Balancing Submissions were related to market power, the ERA relies on the evidence of Mr Balchin. Synergy relies on the evidence of Professor Knittel.

Mr Balchin's evidence

96. In considering whether Synergy had market power, Mr Balchin first defines the relevant market. He considers that it is a market for the generation of electricity in the WEM, with a temporal dimension of a single Trading Interval.[147]

97. He then considers matters he says are relevant to an assessment of the existence of market power including, *inter alia*: market concentration; pivotal and residual supplier indices; the extent to which Synergy offered capacity in certain price bands compared to other generators; analysis performed by the ERA regarding Synergy's residual demand curve; and the extent of excess capacity during the Relevant Period.[148]

98. Having regard to those matters, Mr Balchin forms the view that Synergy had market power in all relevant Trading Intervals.

99. He then opines that if Synergy's offers in its Balancing Submissions were above Synergy's SRMC of generating the relevant electricity, its offers were related to market power, because firms without market power do not offer prices above their SRMC.[149]

100. In forming these opinions, Mr Balchin does not analyse whether or not raising the price of its Balancing Submission offers above its SRMC would have been profitable.

Professor Knittel's evidence

101. The principal disagreement between Mr Balchin and Professor Knittel is whether an entity can only have market power if it can raise prices above competitive levels profitably.

102. According to Professor Knittel, as a matter of orthodox economic principle, firms will only have market power if they can sustainably raise prices above

146 Knittel report at [**264**], [**265**].
147 Balchin report at [**181**]-[**187**].
148 Balchin report at [**36**], [**187**]-[**249**].
149 Balchin report, e.g., at [**33**], [**38**].

competitive levels profitably. He says that this is reflected in the definition of market power adopted by competition regulators, including in Australia, the United Kingdom and United States.[150]

103. Professor Knittel explains that there are two reasons why raising prices may not be profitable for a generator in the WEM. First, increasing its prices may cause them to lose sales. Any benefit from raising prices may therefore be offset by lost sales.[151]

104. Second, generators may also be retailers and therefore buyers in the Balancing Market. That is the case with Synergy. Any benefit they receive from being able to sell electricity at higher prices may therefore be (partially or wholly) offset by the higher prices they pay as buyers of electricity.[152]

105. As noted above, Mr Balchin did not assess whether or not raising prices would have been profitable for Synergy. He did not do so for any of the 11,012 Trading Intervals, let alone on a sustained basis (which Professor Knittel says would be required for market power to exist). Accordingly, Professor Knittel says, Mr Balchin's analysis is incapable of showing whether or not Synergy had market power.[153]

Date: 6 May 2021

Philip Solomon

Andrew Barraclough

150 Knittel report at [**160**]-[**163**].
151 Knittel report at [**187**]-[**189**].
152 Knittel report at [**190**]-[**199**].
153 Knittel report, e.g., at [**217**]-[**222**].

Schedule 3 - Approved Persons

Persons approved to receive Confidential Information:

1. Nicola Cusworth, Economic Regulation Authority;
2. Greg Watkinson, Economic Regulation Authority;
3. Ray Challen, Economic Regulation Authority;
4. Jenness Gardner, Economic Regulation Authority;
5. Lorna Clarke, Economic Regulation Authority;
6. Sarah Costa, Economic Regulation Authority;
7. Rajat Sarawat, Economic Regulation Authority;
8. Bruce Layman, Economic Regulation Authority;
9. Manuel Arapis, Economic Regulation Authority;
10. Shibli Khan, Economic Regulation Authority;
11. Adrian Theseira, Economic Regulation Authority;
12. Governing Body of the Economic Regulation Authority;
13. Secretariat of the Economic Regulation Authority;
14. Matthew Knox, MinterEllison;
15. Lauren Zambotti, MinterEllison;
16. Adam Lippiatt, MinterEllison;
17. Kylie O'Keeffe, MinterEllison;
18. Annabel Falkner, MinterEllison;
19. James Case, MinterEllison;
20. Simon Adams, Squire Patton Boggs (AU);
21. Caroline Brown, Squire Patton Boggs (AU);
22. Ben Williams, Squire Patton Boggs (AU);
23. Yvonne Yap, Squire Patton Boggs (AU);
24. Swati Gupta, Squire Patton Boggs (AU);

25. Jason Waters, Synergy;
26. Melanie Brown, Synergy;
27. Andrea Chapman, Synergy;
28. Kurt Baker, Synergy;
29. Andrew Everett, Synergy;
30. Rudolf Vorster, Synergy;
31. Mark Chambers, Synergy;
32. Dominic Regnard, Synergy;
33. Brad Huppatz, Synergy
34. Paul Chaperon, Synergy;
35. The Board of Directors of Synergy;
36. any lay witness for the purpose of the conduct of this proceeding;
37. any independent expert retained by a Party for the purpose of the conduct of this proceeding;
38. any counsel retained by a Party for the purpose of the conduct of this proceeding;
39. any administrative or secretarial support of the persons or class of persons listed above;
40. any administrative or secretarial support of the Board; and
41. any other appropriate persons as ordered by the Board.