

ECONOMIC REGULATION AUTHORITY v SYNERGY

ECONOMIC REGULATION AUTHORITY: OUTLINE OF CLOSING SUBMISSIONS

A. Introduction

1. In the period in question, being the relevant period in 2016 and 2017, Synergy materially increased its estimates of costs for its gas-powered generators. Specifically, it increased its estimates of its gas fuel costs and its start-up costs. For the reasons set out below, those costs estimates are not reasonable and the costs are overstated. This is now admitted by Synergy in the case of the start-up costs.
2. Those costs form a critical input to Synergy's calculation of its costs for its marginal generator in respect of each quantity of electricity included in Synergy's Balancing Submissions over the relevant period, and which it utilised as its offer price for that quantity. The consequence is that Synergy's offer prices in its Balancing Submissions were in excess of its reasonable expectation of the short run marginal cost (**SRMC**) of generating the relevant quantities of electricity.
3. Synergy has market power in the relevant market. This is apparent from the various analyses conducted by Mr Balchin, but it is readily apparent in any event from Synergy's behaviour in materially increasing its input costs and passing those increases on through its pricing in the Balancing Market, free from any competitive constraint or even any apparent concern about a competitive response.
4. Because the increase in the two input costs increases the costs of each gas-powered generator in Synergy's offer model, for most of the offer curve in each Trading Interval (where the offer curve is formulated on the basis of gas powered generation being required), Synergy's offer prices exceeded a reasonable expectation of SRMC. The Electricity Review Board should conclude that Synergy has contravened clause 7A.2.17 of the Wholesale Electricity Market Rules (**WEM Rules**) in respect of each of the Trading Intervals the subject of the present application.

B. Background

WEM Rules and concepts

5. These proceedings concern clause 7A.2.17 of the WEM Rules (**HB5-090**).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

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

reasonable expectation of the short run marginal cost of generating the relevant electricity by the Balancing Facility, when such behaviour relates to market power.

6. The WEM Rules are subsidiary legislation made pursuant to sections 122 and 123 of the *Electricity Industry Act 2004 (WA)* (**Electricity Industry Act**). The WEM Rules concern the market relating to the wholesale supply of electricity in the South West interconnected system.²

The “South West interconnected system”, or SWIS, comprises the interconnected transmission and distribution systems, generating works and associated works located in the South West of Western Australia into which electricity is supplied by one or more of the electricity generation plants at Kwinana, Muja, Collie and Pinjar or any prescribed electricity generation plant³ (Annexure A). Annexure A

7. Figure 1 in Annexure A is a map of the SWIS. Figure 2 in Annexure A identifies the scheduled generators in the SWIS in 2017-18.
8. A “Market Participant” is a person registered as a Rule Participant in accordance with Chapter 2 of the WEM Rules that is a Market Generator or a Market Customer.⁴ The present matter concerns Synergy, a Rule Participant registered as a Market Generator under clause 2.28.6 of the WEM Rules.⁵
9. The WEM Rules provides a number of different mechanisms or markets via which participants are able to trade with each other. There are three that are of particular relevance:
 - (a) bilateral trades;
 - (b) the short term energy market (**STEM**); and
 - (c) the Balancing Market.
10. Bilateral trades are private contracts between Market Generators and Market Customers (typically retailers or large purchases / users). The contracts can have terms of hours to many years. Each day the generator will inform the Australian Energy Market Operator (**AEMO**) as to how much energy it will be supplying, and how much energy the retailer will consume, in each half hour of the next day.
11. The STEM is a day-ahead or forward market which allows Market Participants to adjust their net bilateral position and hedge against Balancing Prices. Market Participants can buy additional energy or sell surplus energy through AEMO. Market Participants can lock in a forward price, the STEM price, for the consumption or generation of electricity depending on their bilateral contract position and their exposure in the Balancing Market.
12. The Balancing Market is the subject of Chapter 7A of the WEM Rules.

² Electricity Industry Act, sections 122 and 123.

³ Electricity Industry Act, section 3 (definition of “South West interconnected system”).

⁴ WEM Rules, chapter 11 (definition of “Market Participant” and “Rule Participant”) (**HB5-090**).

⁵ Clause 2.28.6 of the WEM Rules relevantly provides: “...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 South West Interconnected System, or is electrically connected to that system, must register as a Rule Participant in the Market Generator class. (**HB5-090**).

13. The Balancing Market is operated by AEMO.⁶ The objectives of the Balancing Market include to: enable Balancing Facilities to participate in the Balancing Market; dispatch the lowest cost combination of Facilities made available for balancing the market; and to establish a Balancing Price which is consistent with dispatch.⁷
14. A Balancing Submission is made in respect of a Balancing Facility or the Balancing Portfolio.⁸
15. In general terms, for generators other than Synergy, a Balancing Submission is one made in respect of each of its Scheduled Generators⁹ and Non-Scheduled Generators¹⁰. A Balancing Submission for a Balancing Facility is:
 - (a) for Scheduled Generators, for each Trading Interval or Trading Intervals, a ranking of Balancing Price-Quantity Pairs for each MW of its capacity from zero capacity to its maximum capacity;
 - (b) for Non-Scheduled Generators, for each Trading Interval or Trading Intervals, the Market Generator's best estimate of the quantity for the Balancing Price-Quantity Pair, in MW, the Facility is able to reduce its output.
16. For Synergy however, its Balancing Submissions are made in respect of the Balancing Portfolio. With some exceptions not presently relevant, the Balancing Portfolio comprises all of Synergy's generation systems.¹¹ That is, whereas generators other than Synergy make their Balancing Submissions in respect of individual generation systems, Synergy makes its Balancing Submissions in respect of its generation portfolio and all of the output of that portfolio.
17. Balancing Submissions are made for each Trading Interval. A Trading Interval is a period of 30 minutes commencing on the hour or half-hour during a Trading Day.¹² A Trading Day is a period of 24 hours commencing at 8:00 AM.¹³
18. As noted above, a Balancing Submission for a Balancing Facility contains Balancing Price-Quantity Pairs.
19. In general terms for generators other than Synergy, this is the MW quantity, in \$/MWh, at which the generator is prepared to provide that quantity by the end of that Trading Interval.¹⁴

⁶ WEM Rules, clause 7A.1.1 (**HB5-090**).

⁷ WEM Rules, clause 7A.1.3(a), (b) and (c) (**HB5-090**).

⁸ WEM Rules, Chapter 11 (definition of "Balancing Submission") (**HB5-090**).

⁹ A Scheduled Generator is a generation system that can increase or decrease the quantity of electricity it generates and sends out into a network forming part of the SWIS in response to instructions from System Management and is registered in accordance with clause 2.29.4(b) and (c). WEM Rules, Chapter 11 (definition of "Scheduled Generator") (**HB5-090**).

¹⁰ A Non-Scheduled Generator is a generation system that can be self-scheduled by its operator (with the exception that System Management can require it to decrease its output subject to its physical capabilities) and which is registered as a Non-Scheduled Generator in accordance with clauses 2.29.4(a) or 2.29.4(d). WEM Rules, Chapter 11 (definition of "Non-Scheduled Generator") (**HB5-090**).

¹¹ WEM Rules, Chapter 11 (definition of "Balancing Portfolio") (**HB5-090**).

¹² WEM Rules, Chapter 11 (definition of "Trading Interval") (**HB5-090**).

¹³ WEM Rules, Chapter 11 (definition of "Trading Day") (**HB5-090**).

¹⁴ WEM Rules, Chapter 11 (definition of "Balancing Price-Quantity Pair") (**HB5-090**).

20. Synergy's Balancing Submissions for the Balancing Portfolio are made by way of the Balancing Portfolio Supply Curve. The Balancing Portfolio Supply Curve is a ranking of the Balancing Price-Quantity Pairs for the Balancing Portfolio.¹⁵ This is the MW quantity at which Synergy is prepared to have the Balancing Portfolio dispatched at as at the end of a Trading Interval and the price, in \$/MWh, at which Synergy is prepared to provide from the sum of all of its generation capacity for each generator in the Balancing Portfolio by the end of the Trading Interval.¹⁶
21. MFI-2 contains examples of Balancing Price-Quantity Pairs submitted by generators. It is a document produced by AEMO that records the Balancing Submissions provided by generators for the Trading Interval starting at 8:00 AM on 1 December 2016. For generators other than Synergy it can be observed that Balancing Submissions are made in respect of individual generating systems (or Facilities) and comprise various prices and quantities for those generating systems. Synergy's Balancing Price-Quantity Pairs appear at the bottom of MFI-2, labelled with the participant code "WPGENER". It can be seen that the various Balancing Price-Quantity Pairs are made in respect of the Balancing Portfolio.
22. MFI-1 is the raw data in MFI-2 in "Balancing Merit Order", which is essentially a ranked list of Balancing Submissions obtained by ranking the Balancing Price-Quantity Pairs for a Trading Interval and associated Balancing Facilities contained in Balancing Submissions in order of lowest to highest prices.¹⁷ As can be seen from MFI-1, the lowest prices might be negative (including at the minimum price of negative \$1,000), 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 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 "Balancing Price", being 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.¹⁸ In the case of the Trading Interval the subject of MFI-1, the Balancing Price is the red circled price of \$42.68.
23. It is relevant to note that, when considering the recovery of the costs of generation, those costs are recovered in a number of ways. First, certain costs are recovered through the capacity mechanism, where generators are paid for making capacity available even if the generator is not actually dispatched. Secondly, costs may be recovered through a generator's contracting activities by bilateral contracts. Thirdly, although these proceedings are focussed on the recovery of a generator's SRMC of producing the relevant electricity, when the marginal generator (i.e. the generator that is the last to be dispatched) sets the price, then all other generators that are dispatched receive that price for their generated electricity, even if that is well above the SRMC

¹⁵ WEM Rules, Chapter 11 (definition of "Balancing Portfolio Supply Curve") (HB5-090).

¹⁶ WEM Rules, Chapter 11(definition of "Balancing Price-Quantity Pair") (HB5-090).

¹⁷ WEM Rules, clause 7A.3.2 and Chapter 11 (definition of "Balancing Merit Order") (HB5-090).

¹⁸ 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] (HB4-080).

of those generators. Such generators are referred to as “infra-marginal generators”. In the case of Synergy, because it has a portfolio of generating units, in each Trading Interval it is likely that at least some of its generators are receiving above SRMC because they are infra-marginal generators. These matters were explained in the course of the cross-examination of Professor Knittel.¹⁹ Last, peculiarly to Synergy, it receives an ‘operating subsidy’ from the Western Australian Government to reflect the losses made by selling electricity at retail prices that are below the cost of service.²⁰

Synergy’s generation portfolio

24. During the period 31 March 2016 to 16 July 2017, Synergy’s fleet of generators included:²¹
- (a) Collie Power Station, a coal fired power station: one unit generating 340MW;
 - (b) Muja Power Station, a coal fired power station: consisting of eight units generating about 1,094MW;
 - (c) Cockburn Power Station: one Combined Cycle Gas Turbine (**CCGT**), generating 240MW;
 - (d) Pinjar Power Station: nine Open-Cycle Gas Turbines (**OGCT**), generating 581MW;
 - (e) Kwinana Power Station: three OCGTs, generating 220MW;
 - (f) Mungarra Power Station: three OCGTs, generating 112MW; and
 - (g) Kalgoorlie Power Station: two OCGTs, generating 62MW.
25. Muja and Collie Power Stations are “base load” generators. They have high capital costs, long start-up times and high start-up costs. They are designed to be operated continuously for long periods at or near full capacity.²²
26. Cockburn Power Station is a mid-merit or intermediate plant. Compared to the base load plants such as Muja and Collie Power Station, mid-merit plants such as Cockburn have medium capital costs and start-up times. Mid-merit plants usually stop generating during daily low demand troughs and do not operate to full load except during daily demand peaks.²³
27. The OCGTs, such as those at Pinjar Power Station, are peaking plants with relatively low capital costs, relatively high operating costs and fast start-up times. They have lower individual start-up costs relative to base-load and mid-merit plant, although start-up costs can be high if annualised

¹⁹ Day 4, T353.16 – 357.4.

²⁰ Expert Report of Jeffery Balchin, *Gas Input Prices and Market Power in the WEM: Reply to the Report of Dr Knittel – Report for Minter Ellison*, 23 April 2021 (**Balchin 2021 Report**) (**HB4-085**).

²¹ Amended Witness Statement of Yanqiu Lou, filed 6 May 2021, [6] (**HB2-077A**).

²² Amended Witness Statement of Yanqiu Lou, filed 6 May 2021, [8(a)] (**HB2-077A**).

²³ Amended Witness Statement of Yanqiu Lou, filed 6 May 2021, [8(b)] (**HB2-077A**).

costs are averaged over a low number of starts per year.²⁴ Peaking plants are generally operated to meet peaks in demand and run infrequently.²⁵

28. Returning to clause 7A.2.17 of the WEM Rules, it provides that 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 SRMC of generating the relevant electricity by the Balancing Facility, when such behaviour relates to market power. In connection with Synergy, the reference in clause 7A.2.17 to "Balancing Facility" is to be read as a reference to the "Balancing Portfolio".²⁶
29. Therefore, the issue that arises in this proceeding is whether, in any relevant Trading Intervals in the period 16 April 2016 to 10 July 2017 that were the subject of investigation by the Economic Regulation Authority (**ERA**), Synergy offered prices in its Balancing Submission in excess of its reasonable expectation of the SRMC of generating the relevant electricity by the Balancing Portfolio. In order to consider that question it is necessary to understand the manner in which Synergy determined the SRMC of the generating systems comprising the Balancing Portfolio and how that SRMC was ultimately reflected in offer prices in Balancing Submissions.
30. Estimated start-up costs and estimated gas fuel costs are two significant input costs used to determine Synergy's SRMC for the Balancing Portfolio.²⁷ The revisions Synergy made to these two inputs are summarised immediately below and then discussed in more detail.
31. The gas input prices used by Synergy to calculate its SRMC during the period 1 April 2016 to 10 July 2017 (the **investigation period**) were:
 - (a) ████████ undelivered (████████ delivered) from 1 April 2016 to 13 July 2016 (**Period 1**);
 - (b) ████████ delivered from 14 July 2016 to 30 November 2016 (**Period 2**);
 - (c) between ██████ and ██████ undelivered (between ██████ and ██████ delivered) from 1 December 2016 to 10 July 2017 (**Period 3**).
32. In these proceedings the ERA does not raise any issues in relation to the gas input price used by Synergy during Period 1.
33. In relation to start-up costs, Synergy applied updated variable operating and maintenance costs in its Balancing Submissions from 16 April 2016, with estimates derived using a starts-based regime. The ERA says that these start-up costs are overstated.
34. Therefore:

²⁴ Amended Witness Statement of Yanqiu Lou, filed 6 May 2021, [8(c)] (**HB2-077A**).

²⁵ Amended Witness Statement of Yanqiu Lou, filed 6 May 2021, [8(c)] (**HB2-077A**).

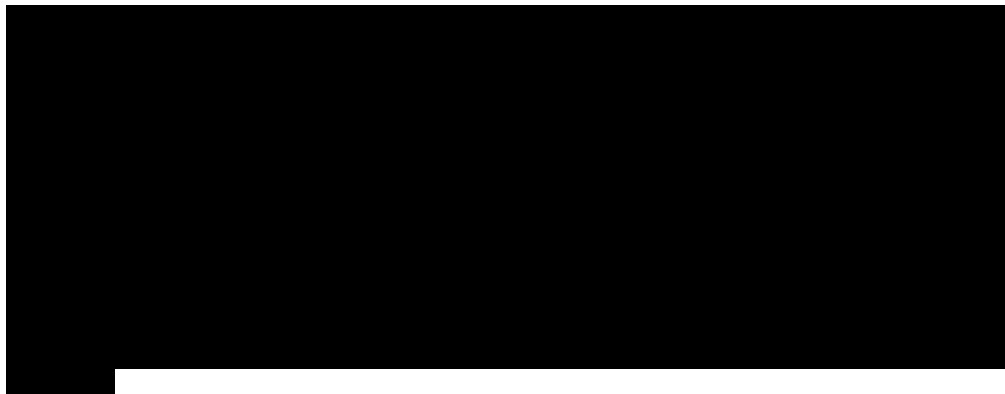
²⁶ WEM Rules, clause 7A.1.14 provides: "For the purposes of this Chapter 7A only, unless otherwise indicated, the Balancing Portfolio is to be treated as a single Balancing Facility and references in this Chapter 7A to a Balancing Facility are to be read as including a reference to the Balancing Portfolio". (**HB5-090**).

²⁷ Respondent's Further Amended Statement of Facts, Issues and Principal Contentions, 9 May 2021, [51] (**Respondent's SFIC**) (**HB1-002C**).

- (a) the ERA says that start-up costs were overstated for most of Period 1, and for the whole of Periods 2 and 3; and
- (b) the ERA says that gas input prices were overstated for Periods 2 and 3.

Synergy revised gas fuel costs

35. Dealing first with gas fuel costs, from at least around July 2012 to 13 July 2016, Synergy estimated this gas input price to be [REDACTED] (undelivered).²⁸ The ERA has been informed by Synergy (then Verve Energy) that this had been estimated by [REDACTED] [REDACTED], using the concept of “opportunity cost”.²⁹



36. Synergy’s main supply of gas for generation during the period January 2011 and November 2016 was under a long-term gas purchase agreement with North West Shelf Gas (**NWSG Agreement**). The contract prices under the NWSG Agreement were as follows:
- (a) between 1 April 2011 and 1 April 2015, the volume weighted average price of gas purchased by the Electricity Generation Corporation trading as Verve Energy / Synergy under the NWSG Agreement was [REDACTED] (i.e. materially less than the cost of gas that Synergy was using for its Balancing Submissions, which was based on an opportunity cost assessment);
 - (b) from 1 April 2015 until 31 December 2015, the volume weighted average price of gas purchased by Synergy under the NWSG Agreement was [REDACTED]; and
 - (c) from 1 January 2016 until 29 November 2016, the volume weighted average price of gas purchased by Synergy under the NWSG Agreement was approximately [REDACTED].³⁰

37. In summary, for the period immediately prior to 13 July 2016:

²⁸ Email from Verve Energy (J Papps) to ERA (N Jackson), 20 July 2012 (**HB2-006**); Respondent’s SFIC, [41] (**HB1-002C**).

²⁹ Email from Verve Energy (J Papps) to ERA (N Jackson), 20 July 2012 (**HB2-006**); Respondent’s SFIC, [41] (**HB1-002C**).

³⁰ Amended Witness Statement of Carole Clare, filed 24 March 2021, [29]–[30] (**HB2-076**).

- (a) the estimated gas input price used by Synergy when calculating the SRMC of any particular gas-fired generator was [REDACTED] (undelivered) ([REDACTED] delivered);³¹
- (b) and the volume weighted average price of gas purchased by Synergy at least under the NWSG Agreement was approximately [REDACTED].
38. From 14 July 2016 Synergy changed the estimated gas input price it used when calculating the SRMC of any particular gas-fired generator. From 14 July 2016 to 30 November 2016 it used an estimated gas input price of [REDACTED] delivered.³² Synergy informed the ERA of this change by way of letter dated 8 August 2016, and ascribed the change to [REDACTED]
[REDACTED]³³
- Associated with changes to gas supply arrangements, [REDACTED] a change to the opportunity cost of gas has been determined. Commencing with the balancing market submission for Trading Day 14 July 2016 and all subsequent wholesale market submissions, the gas price modelling input was changed to reflect that revised opportunity cost (currently determined to be [REDACTED] per GJ).
39. The Gorgon gas supply noted in Synergy's letter of 8 August 2016, referred to two gas supply contracts signed by the Energy Generation Corporation (**EGC**) and the Electricity Retail Corporation (**ERC**) on 29 November 2011 (**Gorgon Contracts**).³⁴ One of these contracts was for [REDACTED], and the other for [REDACTED].³⁵
40. The Gorgon Contracts were both for a 20-year term with high take-or-pay obligations of [REDACTED] for the [REDACTED] Gorgon Contract and [REDACTED] for the [REDACTED] Gorgon Contract. This gave rise to a take-or-pay obligation of [REDACTED] for the EGC and [REDACTED] for the ERC, a total of [REDACTED].³⁶
41. The "Base Reference Gas Price" in the [REDACTED] Gorgon Contract was [REDACTED] (as at 1 July 2009).³⁷ The Base Reference Gas Price in the [REDACTED] Gorgon Contract was [REDACTED] as at 1 July 2009.³⁸ The gas price under the Gorgon Contracts when they commenced in December 2016 was [REDACTED].³⁹
42. The [REDACTED] gas price used by Synergy from 14 July 2016 was an opportunity cost calculation based on, among other things, [REDACTED]

³¹ Applicant's Amended Statement of Facts, Issues and Principal Contentions, 5 November 2020 (**Applicant's SFIC**), [55] (**HB1-001**), which is not disputed in the Respondent's SFIC, [55] (**HB1-002C**).

³² Applicant's Amended Statement of Facts, Issues and Principal Contentions, 5 November 2020 (**Applicant's SFIC**), [55] (**HB1-001**), which is not disputed in the Respondent's SFIC, [55] (**HB1-002C**).

³³ Letter from Synergy (A Everett) to ERA (G Watkinson), 8 August 2016 (**HB2-011**).

³⁴ EGC Generation Corporation was renamed the Electricity Generation and Retail Corporation, or Synergy: Amended Witness Statement of Carole Clare, filed 24 March 2021, [6] (**HB2-076**).

³⁵ Amended Witness Statement of Carole Clare, filed 24 March 2021, [32] (**HB2-076**).

³⁶ Amended Witness Statement of Carole Clare, filed 24 March 2021, [33] (**HB2-076**).

³⁷ Annexure CC-3 of the Amended Witness Statement of Carole Clare, filed 24 March 2021, p 215 (**HB2-076**).

³⁸ Annexure CC-4 of the Amended Witness Statement of Carole Clare, filed 24 March 2021, p 355 (**HB2-076**).

³⁹ Excel spreadsheet untitled (described in email as 'Schedule 4A') (**HB2-035.3**, Sheet 1, Gas Data - Cell H17).

operates, to a starts-based regime.⁴⁵ (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 OCGTs that were not High Efficiency Gas Turbines (**HEGT**). Synergy also changed the proportion of fixed and variable costs for routine maintenance for certain generators from [REDACTED] fixed to [REDACTED] fixed.⁴⁶

Synergy's offer prices in Balancing Submissions

47. Synergy used an energy market model (PowrSym) to provide it with the least cost dispatch given its input assumptions. The cost inputs included the inputs the subject of focus in the present proceedings, being fuel costs and start-up costs. 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.
48. At the completion of the 41 PowrSym runs, the price/quantity curve is constructed through a program which extracts, for each Trading Interval, what Synergy describes as the "average operating cost" of the marginal generator:⁴⁷ 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 for each Trading Interval, and smoothed to remove price volatility between hours and between price steps.⁴⁸
49. Synergy uses what it describes as "averaging operating cost" of the marginal generator as a proxy for the SRMC of Synergy's overall generation fleet. That requires more clarity: it consists of fuel costs, load-dependent variable operating and maintenance costs, avoidable costs per hour that are incurred only when the generator is running but which are not load-dependent (and are therefore incurred when the generator is operating to meet the demand), and start-up costs.⁴⁹
50. 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 paragraph 48 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 generating costs for each generator.

⁴⁵ Amended Witness Statement of Yanqiu Lou, filed 6 May 2021, [17]–[23] (**HB2-077A**).

⁴⁶ Amended Witness Statement of Yanqiu Lou, filed 6 May 2021, [25], [34] (**HB2-077A**).

⁴⁷ Synergy presentation: *Portfolio Pricing in the WEM: Wholesale Business Unit*, 1 February 2017, p 6 (**HB2-051**).

⁴⁸ Synergy presentation: *Portfolio Pricing in the WEM: Wholesale Business Unit*, 1 February 2017, pp 6–7 (**HB2-051**).

⁴⁹ The matters included are identified in the report of Mr Bruce Layman of 14 December 2020 (**Layman Report**) at [44] (pp 15-16) (**HB4-081**).

ERA position

51. The 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 Submissions 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.
52. That Synergy offered prices in its Balancing Submissions in excess of Synergy's reasonable expectation of the SRMC of generating the relevant electricity follows from:
 - (a) the inference that can be drawn that Synergy was calculating the SRMC of the relevant generators on a reasonable basis prior to 1 April 2016 and the ERA had taken no issue with the inputs used to calculate SRMC prior to that time;
 - (b) in 2016, Synergy undertook a cost review of both its estimate of gas supply costs and start-up costs, and revised each of them upwards very materially. For the reasons explained in the next two sections, neither of these increases were 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 cost assumptions.

C. Revised gas input costs

53. As set out earlier, with effect from 14 July 2016, Synergy dramatically increased its estimate of its gas fuel input costs for gas-powered generation. It increased that estimate from [REDACTED] to [REDACTED], an increase of 69.8%.
54. At the time of notifying that increase, and until relatively recently, Synergy sought to justify that increase on the basis that it reflected a revised opportunity cost. The concept of opportunity cost is discussed below. In its letter notifying the ERA of the change, it was described in the following terms:⁵⁰

Associated with changes to gas supply arrangements, [REDACTED] a change to the opportunity cost of gas has been determined. Commencing with the balancing market submission for Trading Day 14 July 2016 and all subsequent wholesale market submissions, the gas price modelling input was changed to reflect that revised opportunity cost (currently determined to be [REDACTED] per GJ).

55. Although the ERA accepts that the opportunity cost of gas may form an appropriate input cost for a calculation of the SRMC of a gas-powered generator, the ERA did not (and does not) accept that [REDACTED] was an appropriate assessment of Synergy's opportunity cost. That debate occurred at a level of detail in the course of the investigation process. That Synergy's opportunity cost calculation was not appropriate or reasonable was also the subject of detailed examination by Mr Balchin in his first report. Mr Balchin concluded that the method employed by Synergy was

⁵⁰ Letter from Synergy (A Everett) to ERA (G Watkinson), 8 August 2016 (HB2-011).

not reasonable and led to a significant over-estimation of Synergy's gas input costs.⁵¹ That analysis has not been challenged by Synergy in these proceedings.

56. Synergy no longer seeks to justify the increase on the basis of opportunity cost. Synergy has revised its Statement of Facts Issues and Contentions accordingly (e.g. paragraph [90]).⁵² Instead, in these proceedings, Synergy relies upon the expert report of Professor Knittel, which adopts a different approach entirely, and one that seeks to justify the recovery of Synergy's cost of gas under its long term Gorgon Contracts as forming part of its SRMC. In light of that change in approach, it is not necessary to consider in any detail the original justification provided by Synergy. However, it is a relevant background matter when considering the first report of Mr Balchin, who was in part responding to Synergy's then-current explanations.
57. At the end of the evidence, including the joint session of the economists, the issue in relation to the proper calculation of gas input costs is a very narrow one. It turns on whether there should be acceptance of Professor Knittel's argument that gas contract costs under take-or-pay contracts, which would not ordinarily form part of any calculation of SRMC, should legitimately be used to calculate SRMC on the basis that SRMC could include a cost under a historic agreement if there was a contract or bargain between the regulator and Synergy that all pricing over the life of the contract was to be at the contract price, rather than the market price. That proposition is untenable: historic take-or-pay commitments are not a marginal cost, let alone a SRMC, and there was no such bargain between Synergy and the ERA in any event – on the contrary to the extent there could be said to be any expectation or understanding of Synergy and the ERA as to the approach to be taken to estimating input gas prices at the time the Gorgon Contracts were signed, it was that such costs would be estimated by reference to opportunity cost.⁵³

Background to the Gorgon Contracts

58. Before considering the position of Professor Knittel, it is relevant to consider some salient details of Synergy's gas contracts. Further details are set out in Annexure B, together with relevant references. Annexure B contains the historical information, including chronological information, requested by the Electricity Review Board in the course of the ERA's opening submissions.⁵⁴
59. On 29 November 2011, Synergy's predecessors (Verve (the generator) and Synergy (the then retailer)) entered into long-term gas supply contracts known as the Gorgon Contracts with substantial take or pay obligations.⁵⁵ Supply of gas under those contracts did not, however, commence until 1 December 2016. (It was originally scheduled to commence earlier, but commencement was delayed). In the meantime, Synergy obtained its gas under its existing NWSG Agreement (with some minor supplementation later in 2016). In that regard:

⁵¹ Balchin 2020 Report, [108]–[155] (**HB4-080**).

⁵² Respondent's Further Amended Statement of Facts, Issues and Contentions, filed 9 May 2021, (**HB1-002C**).

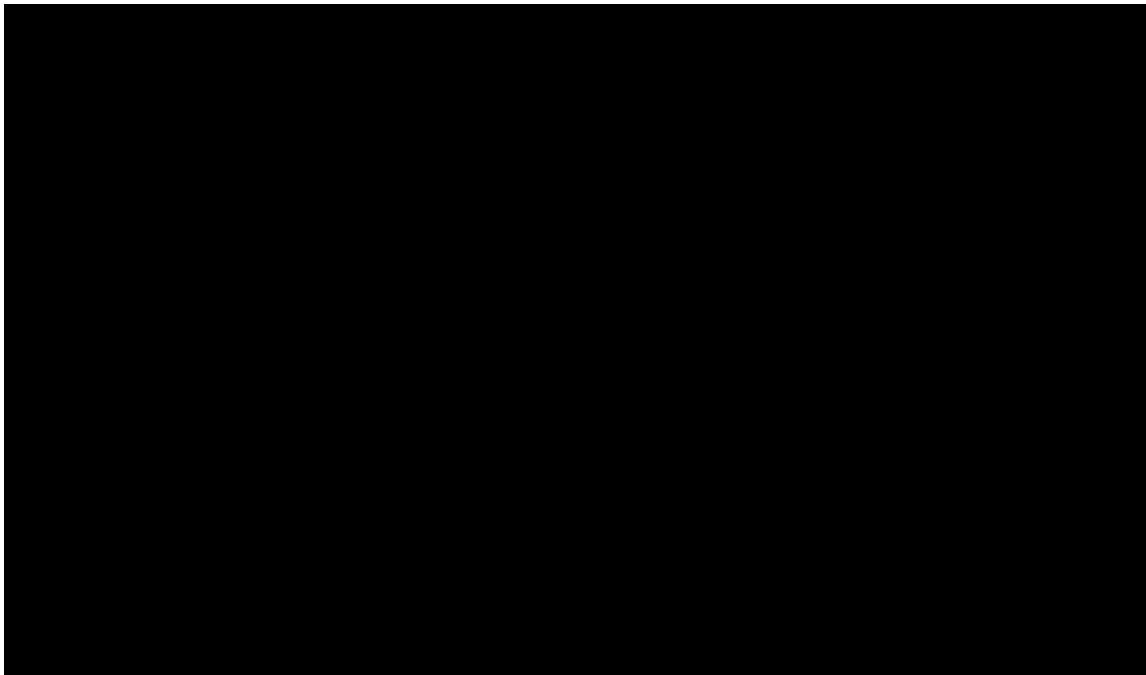
⁵³ Email from Verve Energy (J Papps) to ERA (N Jackson), 20 July 2012 (**HB2-006**).

⁵⁴ Day 2, T194.15 – 194.22.

⁵⁵ Amended Witness Statement of Carole Clare, filed 24 March 2021, [33] (**HB2-076**).

- (a) between 1 April 2011 and 1 April 2015, Synergy's weighted average gas costs under the NWSG Agreement was [REDACTED];⁵⁶
- (b) from 1 April 2015 to 1 December 2015, Synergy's weighted average costs under the NWSG Agreement was [REDACTED];⁵⁷
- (c) however, from at least July 2012 to 13 April 2016, Synergy used a gas input cost of [REDACTED] in calculating its Balancing Submissions. The rationale for this was set out above. It involved Synergy using an opportunity cost approach, whereby Synergy asserted that the prevailing market cost of gas was greater than Synergy's cost of gas under its NWSG Agreement;
- (d) therefore, for a number of years Synergy was recovering more than its contractual gas costs on the basis of an opportunity cost approach.

60. At the time of entry into the Gorgon Contracts (in 2011), Synergy's predecessors expected that the pricing under those contracts would provide an attractive gas price in the future because it was expected that gas prices would be significantly higher in future years. It was anticipated that there would be a shortage of gas, and that the market price of gas would be above the contract price in the Gorgon Contracts. Synergy's predecessors expected that this would confer financial benefits. The following documents are relevant in this regard:



⁵⁶ Amended Witness Statement of Carole Clare, filed 24 March 2021, [33] (HB2-076).
⁵⁷ Amended Witness Statement of Carole Clare, filed 24 March 2021, [29(b)] (HB2-076).
⁵⁸ Submission to Synergy Board of Directors, [REDACTED] (HB3-079.4).
⁵⁹ Submission to the Synergy Board of Directors, [REDACTED] (HB3-079.5).
⁶⁰ Submission to the Verve Board of Directors, [REDACTED] (HB3-079.7).

[REDACTED]

(d) In Professor Knittel's expert report, he identifies the prevailing domestic circumstances that existed prior to the entry into the Gorgon Contracts, including market perceptions that there would be gas shortages in the future. This included a perception that demand for domestic natural gas would continue to grow due to an increase in gas fired electricity generation. Professor Knittel observes that, contrary to those expectations, gas usage for electricity generation has not grown appreciably due to increasing production from renewable sources of electricity. He observes that, given the state of the market around 2010, large domestic gas consumers in Western Australia were incentivized to execute long-term contracts that were competitive with international LNG sales in order to lock in reliable supply.⁶¹

61. These matters are important background when considering the approach of Synergy (through Professor Knittel) in the present case. Professor Knittel suggests that if generators are not guaranteed that they will recover their gas contract costs through the Balancing Market then they will not enter into long term gas contracts. That is plainly wrong. In a competitive (unregulated) market, firms enter into long term supply contracts all the time: they do so when they think that the contracts will be beneficial and prudent, e.g. when they think the price under the contract will be less than the prevailing market price in subsequent years. In the present case, Synergy's predecessors entered into the Gorgon Contracts because they believed that those contracts would be prudent and would provide an attractive price in the future (being a price below the market price). It turns out they were wrong: expectations in 2011 of future gas demand and gas pricing have not been realised. Synergy's predecessors certainly did not consider that they were entitled to a guaranteed ability to pass on their contract costs. The submissions to the Board

[REDACTED]

[REDACTED]⁶² Indeed, Synergy's predecessors proceeded on the basis that if the Gorgon Contract prices were below the prevailing market prices, then they would earn profit, in the same way that Synergy benefitted from pricing above its contract costs under the NWSG Agreement in the years prior to 2016.

62. These matters are also highly relevant to Professor Knittel's central contention, which finally emerged with clarity in the course of cross-examination, that there was an exceptional circumstance where a calculation of SRMC could properly include a fixed contract cost under a historical contract – namely, where the regulated entity had entered into a pact or agreement with the regulator to price in accordance with the contract cost of an input, regardless of whether the market price was above or below the contract cost. For the reasons discussed below, this central

⁶¹ Report of Professor Christopher Knittel, 26 March 2021, [64], [68], [69] (HB4-083).

⁶² For example, in Synergy's Business Case for the Gorgon Contract (HB2-079.5A), [REDACTED]

[REDACTED]

contention is wrong as a matter of principle: a fixed contract cost under a historical contract is simply not a marginal cost, let alone a SRMC. But even if it was correct as a matter of principle, it clearly has no application in the present case. Neither Synergy nor its predecessors entered into any pact or arrangement with the ERA (or indeed anyone else) to price in accordance with its contract cost. On the contrary, it is very clear that Synergy always intended to benefit and make profits when its contract price was below the market price, and indeed Synergy did so in previous years. It is very clear that Synergy did not bind itself in any way to price in accordance with its contract cost.

63. In short, and as discussed in more detail below, Professor Knittel's central contention has no validity in the present case, and Synergy has no proper basis for claiming ██████ as an input cost (in Period 2) or between ██████ and ██████ undelivered (in Period 3) in any reasonable estimation of its SRMC.

Short run marginal cost

64. A marginal cost is the change in total cost caused by an additional unit of production. The “short run” is the period of time over which certain production inputs are fixed. The experts agreed with the following definition of SRMC:⁶³

SRMC is the cost of producing an additional unit of a good or service, holding the stock of capital assets constant.

65. As Mr Balchin explained,⁶⁴ the short run is the period where it is not possible to adjust capacity, meaning more capacity cannot be built or retired.
66. The concept may be elucidated by considering a factory making widgets. If a factory was to make an additional widget, the SRMC might include the additional cost of electricity to run the machine to produce the widget. If the machine consumes a raw material, and the raw material is paid on a consumption basis (not a fixed commitment basis), then the SRMC could include the cost of the raw materials consumed to make the additional widget. If the production of an additional widget requires an employee to work overtime, then there could be a labour cost included in SRMC. Professor Knittel accepted these concepts in cross-examination.⁶⁵
67. What SRMC would not include is the cost of altering the capital assets. Thus the factory itself and its machinery is fixed. Other costs may also not vary with the production of an additional unit of production.
68. If raw materials are not paid on consumption, but are purchased in fixed price commitments, then the average cost of the particular raw material is not part of SRMC because it does not vary with an additional unit of production, i.e. it does not vary with consumption. However, SRMC in that context is not necessarily zero. There may be an opportunity cost associated with the

⁶³ Joint Report Knittel/Balchin, First Proposition, p 3 (**HB4-088**).

⁶⁴ Balchin 2020 Report, [69] (**HB4-080**).

⁶⁵ Day 4, T280.7 – 281.15.

consumption of a raw material, if that raw material was saleable or usable in some other way to produce value. To consume it to make a widget deprives the manufacturer of that alternative value.

69. The same logic applies to gas obtained under a take or pay gas contract. Pursuant to a take or pay contract, the purchaser has to pay for gas whether or not it is used. Therefore, generating an additional megawatt of electricity does not incur any additional cost – the cost of the gas used for the generation is already incurred regardless. The gas may have an opportunity cost, but that is not the contract price under the take or pay agreement. It is the alternative value of the gas – i.e. what it is worth in the market, or what it might be worth in the market at a different time if the generator chooses to store the gas and sell it later.
70. The impact of a take-or-pay contract on the calculation of SRMC was explained by Synergy's economic advisers, Frontier Economics, in their report provided by Synergy to the ERA in the course of the investigation, in the following terms:⁶⁶

The difference between the short-run and long-run in economics is defined by reference to the flexibility of production decisions rather than being defined by a particular period of time. The long-run is defined as the period in which all factors of production are variable while the short-run is defined as the period in which at least one factor of production is fixed. Typical text-book examples define capital as fixed in the short-term and variable in the long-term, and labour as variable in both the short-term and the long-term. In this text-book example, short-run production decisions can only involve changes in the amount of labour employed and short-run marginal costs consist of the change in total labour costs as a result of a marginal change in production.

In the context of fuel costs, the distinction between short-run and long-run is important. Long-term take-or-pay contracts constitute a short run constraint and the costs associated with these unavoidable take-or-pay pricing components do not factor into SRMC.

71. As Frontier explained in more detail later in their report:⁶⁷

Consider a case in which the simple long-term gas contract from the example above now has a take-or-pay component of 80 TJ/d, and that there is no ability to take make-up gas.

In a simple case in which there is nothing that the generator can do with gas it buys under this contract than burn the gas for generation, the best alternative to burning the gas for generation is doing nothing. The value of that alternative is \$0/GJ, which means that the generator needs to be able to earn at least that value by using the gas to generate. Since the short-run marginal cost of the gas under the take-or-pay component is \$0/GJ (the costs under the take-or-pay component are sunk fixed costs and therefore are not included in short run marginal costs), the generator need only recover \$0/GJ for the gas from its generation revenues, meaning that the marginal opportunity cost of gas in this case is \$0/GJ.

72. With one material qualification, Professor Knittel agreed with these observations.⁶⁸ The qualification was his central proposition – that it was possible to have an alternative view of SRMC pursuant to the regulatory contract approach of entering into a bargain in advance with the regulator. We will return to that particular proposition.

⁶⁶ Frontier Economics, *SRMC Estimates for Synergy's Gas and Coal Position: Final Report prepared for Synergy*, February 2016, pp 3–4 (**HB2-023.9**).

⁶⁷ Frontier Economics, *SRMC Estimates for Synergy's Gas and Coal Position: Final Report prepared for Synergy*, February 2016, p 8 (**HB2-023.9**).

⁶⁸ Day 4, T291.14 – 295.1.

73. As Mr Balchin observed in his report, in the present case Synergy was substantially over-contracted for gas compared to its requirements for electricity.⁶⁹ Therefore, the production decisions taken by Synergy in relation to the Trading Intervals the subject of these proceedings did not cause Synergy to incur any additional gas costs: such costs were already liabilities incurred by Synergy. That explains why Synergy's original approach was to approach the proper calculation of its gas input costs on an opportunity cost basis – that is, what is the value of the alternative uses of that gas.
74. In Mr Balchin's first report, he considered Synergy's contentions as to the opportunity cost of gas. He considered different forms of information as to the market price of gas. In this regard, he considered:
- (a) The spot price of gas reported from the gasTrading Australia service, which over the investigation period averaged \$4.29 per GJ, with a peak of \$4.93/GJ. Related to that, Mr Balchin noted information which suggested that there was material additional volume trading in private contracts but based on the sport market price.⁷⁰
 - (b) Importantly, Synergy's own industrial sales of gas. Synergy entered into 11 contracts for the sale of gas during the investigation period, with prices generally ranging between [REDACTED] to [REDACTED].⁷¹ The evidence of Ms Clare in these proceedings was that [REDACTED]
[REDACTED]. As Mr Balchin observes, it would be non-sensical for Synergy to sell gas at prices materially below the true opportunity cost, because in that scenario there would be more valuable uses for that gas.⁷²
 - (c) A swap arrangement with [REDACTED], which assumed a gas price for GST purposes of [REDACTED], with a fee of [REDACTED] for delivery and [REDACTED] for receipt, which means a net delivery price of [REDACTED] and a receipt price of [REDACTED].⁷³
 - (d) The price of the North West Shelf Gas contract was reviewed in 2015. The outcome of this review was that the volume weighted average price under the contract was [REDACTED] between 1 April 2015 and 31 December 2015, and [REDACTED] between 1 January 2016 and 29 November 2016.⁷⁴
75. To this evidence can be added Synergy's own internal assessment. In the CEO report to the Synergy Board of April 2017, the following was said about [REDACTED]:

⁶⁹ Balchin 2020 Report, [100]–[101] (HB4-080).

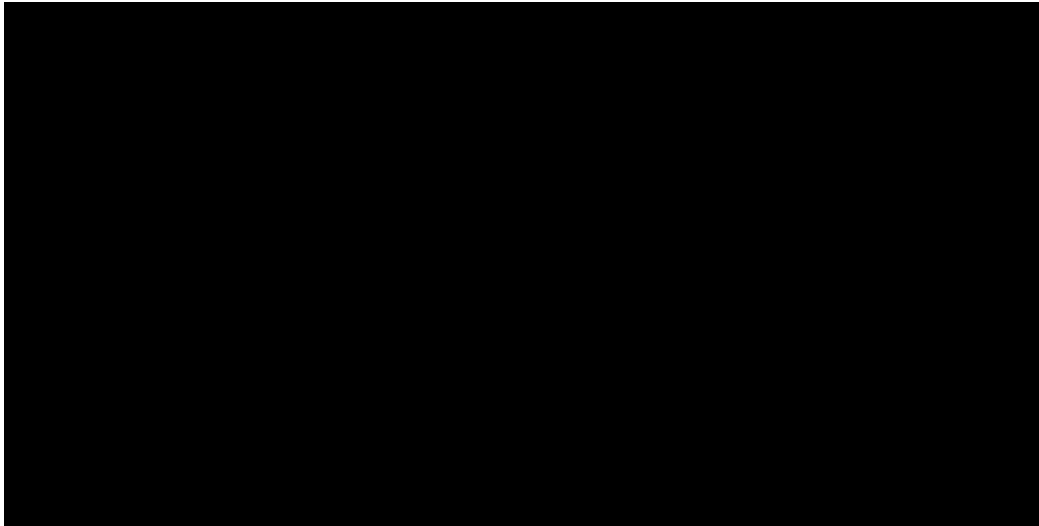
⁷⁰ Balchin 2020 Report, [122] (HB4-080).

⁷¹ Balchin 2020 Report, [125] (HB4-080).

⁷² Amended Witness Statement of Carole Clare, filed 24 March 2021, [51]–[52] (HB2-076).]

⁷³ Balchin 2020 Report, [127] (HB4-080).

⁷⁴ Balchin 2020 Report, [128] (HB4-080).



- 76. All of the information above is consistent with the earlier observations that Synergy entered the Gorgon Contracts on the assumption that gas prices would rise and demand would be tight. However, that expectation was not realised.
- 77. It is clear that the prevailing market price of gas during the relevant period was materially less than the gas input costs used by Synergy in calculating its Balancing Submissions for Period 2 and Period 3. We reiterate that Synergy no longer seeks to justify its gas input costs on an opportunity cost basis.

Professor Knittel's approach

- 78. As noted above, Synergy's revised approach is based on the approach of Professor Knittel. Professor Knittel's opinion, in short, is that it is justifiable for Synergy to recover its gas contract costs under its take-or-pay Gorgon Contracts. There are two principal difficulties with this view.
 - (a) First, it does not assist Synergy at all in relation to Period 2 (14 July 2016 – 30 November 2016). That is because Period 2 is prior to the Gorgon Contracts commencing. In Period 2, Synergy was using as its gas input cost [REDACTED] [REDACTED] but prior to supply under the Gorgon Contracts commencing, which did not occur until 6 December 2016. [REDACTED] was not Synergy's actual gas contract cost over Period 2. Rather, its cost of gas over this period was [REDACTED].⁷⁵ None of the various rationales advanced by Professor Knittel apply at all in this period.
 - (b) Secondly, it is not a proper measure of marginal cost, let alone SRMC. It is not the cost of producing an additional unit of electricity because the relevant obligations under the Gorgon Contracts, being take-or-pay obligations, are the same whether or not the additional unit of electricity is generated.

⁷⁵ Amended Witness Statement of Carole Clare, filed 24 March 2021, [30] (HB2-076).]

79. Professor Knittel’s analysis took various forms, and it was not until the concurrent evidence session that the basis of his view was clarified. In light of the subsequent clarification, it is not necessary to consider in detail the views expressed in his report. However, one aspect of his report in this regard is worth noting. Professor Knittel stated that the “WEM market design does not account for long-term fuel supply costs, leaving no clear means by which Synergy could recover the cost of the gas required to generate the electricity associated with its offers at the Gorgon Contracts’ prices unless that cost were included in its Balancing Submissions.”⁷⁶ This led Professor Knittel to describe this as a “missing money” problem.⁷⁷
80. The Electricity Review Board would reject any notion that the construction or application of the WEM has to be stretched in an unnatural way so as to guarantee that generators can recover their gas costs under their contracts. That does not promote economic efficiency and is not a feature of a competitive market. As explained above, participants in a competitive market are in no sense guaranteed of recovering the costs they incur under a contract. A firm will enter into a contract based on the firm’s assessment as to whether it will likely be a prudent contract. Further, Synergy in no sense assumed that it would recover its gas costs under its contracts. Nor did Synergy think it should be confined to its contract costs when they were below the market price.
81. The next step in Professor Knittel’s analysis was that there are different versions of the “short run” and that SRMC is not defined in the WEM. He emphasised that the strict definition of a SRMC was a period over which at least one input was fixed. Thus, he said, capital assets may be fixed but fuel contracts be allowed to vary. This, he said, would permit consideration of existing fuel contracts as forming part of SRMC on one definition of that term.
82. That proposition involves error. The difficulty with it, as Mr Balchin explained, is that the releasing of constraints on which costs are able to be viewed as variable in response to production decisions is a future-looking concept. As Mr Balchin forcefully said in the concurrent evidence session:⁷⁸

So the central proposition of Dr Knittel is that when we define short-run marginal cost in 2016, we can define that with reference to the opportunities that were available in 2011, so therefore whether or not the signed Gorgon contract is an opportunity. In my view that is not a standard definition of opportunity cost, nor of short-run marginal costs. Opportunity cost in 2016 depends on the opportunities available in 2016. One of the first rules I recall learning in undergraduate economics is that everything is forward-looking. The past does not matter. If you can reverse something, it matters; but you can do that in the future, what matters is the future. That is -- so I couldn’t disagree more that that is in any way a standard definition of opportunity cost or of short-run marginal costs.

83. Thus, to return to the example of the factory making widgets:
- (a) if viewed over a short period, the only costs that might vary in response to an increase in production might be electricity, some raw material, and overtime;

⁷⁶ Report of Professor Knittel, 26 March 2021, [93] (HB4-083).

⁷⁷ Report of Professor Knittel, 26 March 2021, [20], [82]–[85], [97]–[98], [137], [140], [149], [159] (HB4-083).

⁷⁸ Day 4, T299.3 – 299.18.

- (b) if viewed over a slightly longer period, the manufacturer might be able to reorganise its labour in response to an increase in production, so that some change in labour costs more broadly could become a marginal cost;
- (c) if viewed over a longer period, the manufacturer might be able to reorganise its production line in response to an increase in production, so that the costs of doing that are marginal costs (subject to the difficulty that, in accordance with the agreed definition of SRMC, the machinery is probably a capital cost).

However, all of this is forward-looking. None of this would alter the position that the manufacturer would face certain costs that were already incurred, and which would not change if production were to increase. Those costs are not marginal costs, because they do not change with production, however much time is allowed to alter the production process. Fixed costs under take-or-pay gas contracts are one such cost.

- 84. Professor Knittel did not at any point explain how a previous contractual commitment became a marginal cost: i.e. a cost that varied with production. Still less did he explain how a contractual commitment from 2011 became a cost that varied with a production decision taken in 2016 or 2017.
- 85. In this regard, Professor Knittel was cross-examined in a number of respects about the example of a factory making widgets which had purchased a large quantity of raw materials in 2019. He was then asked about the SRMC of an increase in production in response to a production decision taken in May 2021. The following exchange took place:⁷⁹

MR MOORE: Well, if I'm looking at May 2021 of the additional cost, or the change in total cost of producing one more unit of production, it's a production decision that I'm taking in May 2021, and some of my costs, including my raw materials sitting outside in the warehouse, are fixed costs, subject to any opportunity costs if I could sell some of those raw materials in a market. You'd agree with that?

PROFESSOR KNITTEL: I would agree in the sense that if you're setting prices or offer strategies in May 2021, that's correct. But you could have set an offer strategy and committed to that to offer strategy in 2019, prior to receiving those raw materials. And then that offer strategy would have been based on a different definition of the short run.

- 86. That answer does not assist Synergy, because we are simply not dealing in the present case with some offer strategy set by Synergy years earlier (in 2011). We are dealing with an offer strategy set at the time of lodging Synergy's Balancing Submissions. Put shortly, and as set out in more detail below, Synergy engaged in a contemporaneous exercise of analysing the most cost effective output of its generating fleet and calculated how much to output from particular generators, and what price to offer, for each distinct level of output included in Synergy's offer curve. In doing so, it had to calculate the SRMC of offering electricity at that level of output.

⁷⁹ Day 4, T285.20 – 286.9.

87. More generally, Professor Knittel's approach involved the notion of a pricing commitment made *prior* to entry into the relevant Gorgon Contracts (i.e. in 2011). Thus in his opening explanation in the concurrent session, Professor Knittel said:⁸⁰

So in my opinion, the most efficient definition of the short-run marginal cost is the time period right before signing a long-term firm natural gas contract, in which case the opportunity cost, because it's before they've signed it, the opportunity cost of gas is actually the contracted price. Now, we – this isn't a free lunch. In defining it this way, any generation company would commit to using that gas contract in all of their bids for the duration of the contract. So they would not enjoy the windfall profits and they would limit the downside risks associated with that and that would again meet the WEM's objectives of trying to minimise long-term costs for consumers.

88. Likewise, Professor Knittel said:⁸¹

It's as if you signed a long-term contract yourself for selling it at your contracted gas price.

89. As Professor Knittel explained, this would involve the generator committing to the regulator at the time of entry into the long-term gas contract (i.e. in 2011) to price in accordance with the gas contract, including by forgoing any opportunity to price *above* the cost in the gas contract if the market price was lower than the contract price.
90. It is impossible to see how this involves a marginal cost for a production decision taken in 2016 or 2017, for the reasons set out above. But there is a further obvious problem which is that there was no such generator/regulator arrangement to price at the contract price reached in 2011. Thus Professor Knittel's approach, whatever other difficulties it has, is entirely theoretical and of no relevance to the present case.
91. In these circumstances, the Electricity Review Board should conclude that in Periods 2 and 3, Synergy used gas input costs that were too high for any objectively reasonable estimation of Synergy's SRMC.

D. Start-up costs

92. The position in relation to start-up costs is more straightforward. This is because:
- (a) Synergy has admitted that it made an error in calculating its start-up costs, which means that its estimate of start-up costs was overstated;⁸² and
 - (b) Synergy's own expert, Mr Aspinall, says that Synergy should at least have used a probabilistic assessment of which items of replacement and maintenance expenditure would not be required, rather than simply assuming that its generator lives would be perpetual and that all types of expenditure would be required. That is, even Synergy's own expert does not support the reasonableness of Synergy's approach, and there is no other support for that approach.

⁸⁰ Day 4, T265.4 – 265.17.

⁸¹ Day 4, T296.13. – 296.15

⁸² Amended Witness Statement of Yanqui Lou, filed 6 May 2021, [41A] (HB2-077A).

93. In those circumstances, it is not strictly necessary for the purposes of resolving whether there was a contravention for the Electricity Review Board to resolve the debate between Mr Reid and Mr Aspinall. On any view, Synergy's start-up costs used as input costs in the calculation of its SRMC for generation were overstated.
94. Synergy's calculation of start-up costs has been outlined earlier in these submissions. Synergy undertook an estimate of those costs which varied per generator start. For example, certain types of maintenance are recommended by the original equipment manufacturer (**OEM**) to be conducted after a certain number of starts, e.g. 2,500 starts. Certain items of equipment (for example, a rotor) might also need to be replaced after a certain number of starts, e.g. 5,000 starts. On Synergy's approach, it charges an amount per start in advance of the expenditure in question in order to permit recovery (through prices in Balancing Submissions) of the cost of the relevant maintenance or replacement. To take an example identified by Synergy's witness Mr Yanqui Lou, if a gas turbine rotor may need replacement after 5,000 starts at a cost of \$5.5 million, then an estimated cost per start for the rotor alone might be \$1,100.⁸³
95. In very broad terms, the recovery of a cost per start in advance of anticipated expenditure that is dependent upon the number of starts is a reasonable approach. However, this is subject to a number of important caveats, as follows:
- (a) *First*, it is very important to consider whether the expenditure in question will actually be incurred. Some of Synergy's generating units are gas peaking plants that are only dispatched infrequently and therefore may be started up only a limited number of times per year. For example, if the unit will only reach 4,000 starts prior to retirement, then the rotor is unlikely to be replaced. If the generator simply recovers \$1,100 per start for a rotor without assessing whether such expenditure will be required, then by the time of the unit's retirement the generator will have recovered \$4,400,000 in prepayments for a rotor replacement that will never occur, permitting the generator to pocket \$4,400,000 in unnecessary payments. The inclusion of a \$1,100 cost per start up may not be reasonable in those circumstances.
 - (b) *Secondly*, even if the generator is estimated to just reach the requisite number of starts, it would not be economically sensible to undertake an expensive inspection or maintenance regime if the unit only has a limited number of starts left in its life. For example, a generator would not rationally replace a rotor at 5,000 starts if the unit was expected to be retired at 5,100 starts.
 - (c) *Thirdly*, the number of starts at which inspections or maintenance occur might, consistently with sound engineering practice, vary from the OEM recommendations based on the experience of the generator of the unit in operation. For example, in the case of Synergy, Mr Reid calculated that the average number of starts between certain

⁸³ Amended witness statement of Yanqui Lou, filed 6 May 2021, [54] (**HB2-077A**).

types of inspections varied from the OEM recommendations. It is appropriate to use the intervals in practice, rather than the theoretical intervals, in calculating future inspection and maintenance requirements.

- (d) *Fourthly*, it is necessary to identify in a proper manner items of expenditure that are starts-based, rather than not varying with the number of starts. For example, if a particular inspection is undertaken each year regardless of the number of starts, then the marginal cost of increasing production (i.e. by turning on a generator) does not include the cost of the annual inspection.
- (e) *Fifthly*, it is necessary to calculate in a proper manner the cost of the inspection or maintenance concerned.

96. In relation to the **fifth** caveat, Synergy made an error in this regard. Synergy's calculation of start-up costs for its Pinjar generators assumed that certain inspection costs were additive. Synergy assumed that [REDACTED]

[REDACTED]

[REDACTED] These were errors originally identified by Mr Reid. One can see the relevant changes by viewing the marked-up corrections that have been made to paragraph 41 of Mr Lou's Amended Witness Statement.⁸⁴ As Mr Lou records in paragraph 41A of his amended statement, this meant that the start-up costs were overstated in the manner recorded in that paragraph. The errors are material. For that reason alone, Synergy's calculations of its SRMC were inflated by excessive and unreasonable start-up costs. On one view, it is unnecessary to go further.

97. In relation to the **first** caveat, a proper approach to dealing with this important issue requires a form of lifecycle planning.

98. In fact, Synergy undertook lifecycle planning of its generators for other significant business purposes, but then did not apply its own analysis for the purposes of calculating start-up costs. Instead, in relation to start-up costs, Synergy took the approach that [REDACTED]

[REDACTED]

[REDACTED]⁸⁵ That approach would inevitably lead to substantial over-recovery. At the time that a decision is taken to retire a generator, it will have accrued amounts in respect of items of maintenance costs that will never be incurred.

⁸⁴ Amended witness statement of Yanqui Lou, 6 May 2021,[41] (HB2-077A).

⁸⁵ Amended witness statement of Yanqui Lou, filed on 6 May 2021, [65] (HB2-077A).

99. Mr Lou explained that at least once a year, [REDACTED]



[REDACTED]⁸⁹ Thus looking at Pinjar 1, this unit is only expected to start [REDACTED] number of times each year (commencing at [REDACTED], and rising up to [REDACTED], before falling away to [REDACTED]), and is expected to be retired in [REDACTED].

100. In his reply report, Mr Reid took these Synergy forecasts and used them to prepare tables identifying the inspections, maintenance and replacements that would not be required based on the actual starts to 2016 and in accordance with those forecasts.⁹⁰ For example, in the case of many of the units, the Synergy approach of [REDACTED] [REDACTED] involved a dramatic overstatement of the amounts actually required to be collected.
101. As Mr Reid explained, an appropriate approach is to undertake a lifecycle analysis (which Synergy [REDACTED]) and also undertake a regular review (at least once a year) of that analysis so that, if new information causes the forecasts to change, adjustments can be made at an early stage to ensure the estimated recovery of start-up costs is as reasonable as possible in the circumstances.⁹¹
102. In the course of the Joint Report and in the joint evidence session, Synergy's expert, Mr Aspinall, made some relevant concessions:
- (a) First, Mr Aspinall accepted that it was "certainly less likely that some of the units would require the full range of capital replacement";⁹²

⁸⁶ Amended witness statement of Yanqui Lou, filed on 6 May 2021, [67] (HB2-077A).

⁸⁷ Day 3 T225.8 – 226.23.

⁸⁸ YL-6 'SBF_2017_retirements (starts only).xism (HB2-077.6).

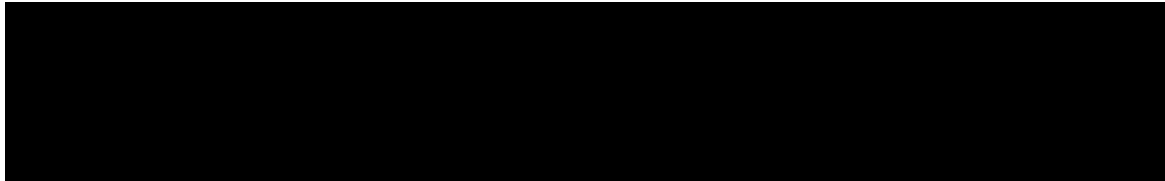
⁸⁹ Amended witness statement of Yanqui Lou, filed on 6 May 2021, [72(c)] (HB2-077A).

⁹⁰ Witness Statement of Thomas Reid, 27 April 2021 (Reid 2021 Report), [40]–[68], [78]–[86] (HB4-087).

⁹¹ Reid 2021 Report, [3]–[10].

⁹² Day 6, T553.21 – 553.23.

- (b) Secondly, it would be unreasonable for a generator owner to recover start-up costs on the basis that the generator would have a perpetual life;⁹³
- (c) Thirdly, some form of lifetime assessment of the generator is necessary to avoid over-recovery;⁹⁴
- (d) Fourthly, if one could predict the lifetime starts with accuracy, Mr Reid's coloured tables otherwise correctly set out the position in terms of what expenditure would be required;⁹⁵



103. It is therefore clear that Mr Aspinall did not endorse the approach adopted by Synergy, and that both experts said that there needed to be a lifecycle analysis.

104. The difference between the experts was that:

- (a) Mr Reid said that, on the basis of that lifecycle analysis, there should be a determination of whether the expenditure was required or not, and recovery made on that basis.
- (b) Mr Aspinall said that there should be a probabilistic assessment, whereby if there is at least a one in five chance that you might need to recover the expenditure, then you should be entitled to recover the expenditure (i.e. only if the expenditure is less than 20% likely to be required should it be excluded).⁹⁷

105. Mr Aspinall accepted that his approach meant that if there was a four in five chance that the generator will not need the expenditure, his probabilistic approach would still say it is reasonable to recover that expense, and that this also meant that if his approach was adopted across generators and over time, the probability of not incurring the expense, and therefore obtaining recovery from customers in respect of any expense that is not incurred, is four times the probability of incurring the expense.⁹⁸ Importantly, he accepted that means that over time and on average, adopting that approach, Synergy would over-recover four times as often as it under-recovered.⁹⁹

106. In seeking to justify this approach which is biased in favour of over-recovery, Mr Aspinall posited a scenario (on Mr Reid's approach) of a board dealing with a risk that it would fail to recover sufficient expenditure in one case out of two. Mr Aspinall indicated that a board would be reluctant

⁹³ Day 6, T554.10 – 555.5.

⁹⁴ Day 6, T555.6 – 555.12.

⁹⁵ Day 6, T555.14 – 555.23.

⁹⁶ Day 6, T556.3 – 556.22.

⁹⁷ Day 6, T561.6.

⁹⁸ Day 6, T561.10 – 561.21.

⁹⁹ Day 6, T561.22 – 562.1.

to proceed with those odds. However, Mr Aspinall seems to have overlooked that there would be an equal chance of over-recovery, and that this would be particularly relevant to an owner of generating units (such as Synergy) with a whole fleet of units being dispatched. In cross-examination, Mr Aspinall drew a distinction between a board of a company that had “one or two” gas turbines, and a company that had “a dozen gas turbines”.¹⁰⁰ Synergy, of course, has significantly more than a dozen turbines.

107. Mr Aspinall’s approach is therefore significantly biased in favour of over-recovery without any proper basis for that in the circumstances of the present case. The Electricity Review Board would not readily accept an approach that permitted a generator with a fleet of units to over-recover from consumers four times as often as it under-recovered. Such an approach is not reasonable. By contrast, Mr Reid’s approach, which involves making the best estimate possible in the circumstances, is a proper approach to the calculation of a reasonable estimate of start-up costs.
108. In any event, on any view, Synergy’s approach was not a reasonable estimate of an input to its SRMC calculation and is not supported by either expert.
109. In relation to the **second** caveat above, this was built into Mr Reid’s approach to his coloured tables (the grey shading), which tables Mr Aspinall accepted in the course of the concurrent evidence session as noted above.
110. In relation to the **third** caveat above, Mr Reid’s analysis, which Mr Aspinall did not criticise in this respect, was that there were a number of inspections which Synergy was performing less often than the OEM recommendation, and that these outweighed (in value terms) any that went the other way.¹⁰¹ Mr Reid’s evidence was that the consequence of this was that his analysis was, if anything, conservative, and that the actual number of starts before certain inspections would be required was *higher* than in this table, making it *less likely* that the relevant expenditure would be incurred in the lifetime of the generating unit.
111. In relation to the **fourth** caveat above, Mr Reid analysed that there were certain expenditures included in Synergy’s estimates of start-up costs that appeared to be incurred on a regular basis (i.e. regular in time, e.g. annually) and did not seem to be related to the number of starts, including because different generators undertaking the same maintenance routine would have very different numbers of starts between the maintenance, which suggests that Synergy was performing this on a time basis rather than a starts basis, and therefore was not a start-up cost.¹⁰² In cross-examination, Mr Aspinall agreed that Synergy appeared to be incurring these costs on a time basis rather than a starts basis, but said this did not mean they were not costs of a type that are variable with production such that it would be possible to recover them on a starts basis. He

¹⁰⁰ Day 6, T563.2 – 563.7.

¹⁰¹ Reid 2021 Report, [69]–[78] (**HB4-087**),

¹⁰² Witness Statement of Thomas Reid, 13 December 2020 (**Reid 2020 Report**), [87]–[95] (**HB4-082**); Joint Expert Report – Aspinall and Reid, 4 May 2021, pp 11–12 (**HB4-089**).

said, however, that he did not have any information to determine what would be an appropriate charge to levy as a start-up cost.¹⁰³ Again, this is not an endorsement of the Synergy approach, or the amounts claimed by Synergy.

112. It is clear that Synergy has overstated its start-up costs. This affects all three investigation periods.

Inter-relationship between gas fuel costs and start-up costs

113. Because both gas fuel costs and start-up costs were cost inputs into Synergy's calculating of its SRMC, the ERA can succeed if the Electricity Review Board is satisfied that *either* gas fuel costs or start-up costs were overstated in the relevant period (although it should be noted that only start-up costs are said to be overstated in Period 1). Subject to the Period 1 limitation, the ERA does not need to demonstrate that both types of input costs were overstated, although that is a correct characterisation.

E. The approach to SRMC

114. This topic was the subject of considerable attention at the hearing. We will deal first with the treatment of start-up costs as a SRMC. We will next deal with the relationship between input costs, prices in Synergy's Balancing Submissions, and pricing above a reasonable expectation of SRMC.

Start-up costs and SRMC

115. When Synergy is using a portfolio of generators to generate electricity, and we are considering the SRMC of the Balancing Portfolio, it is apparent that different levels of output will require different generators.

116. Take a simplistic example of a company (Company X) with a fleet of generators.

- (a) X's fleet is generating at 500MW total output. It has a coal-fire generator (Generator A) with a rated output of 600MW. It is using Generator A to generate the 500MW.
- (b) Output then rises to 600MW. X is still using Generator A. However, if demand rises by 1 MW, X will need to use Generator B, a gas-fired generator.
- (c) Demand rises to 601MW. X has to turn on Generator B and incur a significant start-up cost.
- (d) Demand rises to 650MW. X continues to use Generators A and B.
- (e) Demand rises to 800MW. X now needs to use Generators A, B and C. There is another start-up cost, being for Generator C.

¹⁰³ Day 6, T576.4 – 577.8.

117. The above example is stylised. In reality, X might not run Generator A up to its full rated capacity. There might be cost or practical limitations that come into play. X might therefore, in its offer stack in a particular Trading Interval, offer 550MW at \$-100/MWh (to be met by Generator A), and then a further 100MW at \$50/MWh (to be met by Generator B). What is the SRMC of the further 100MW?
118. In a strict sense, because SRMC measures the change in total cost of one additional unit of production (e.g. 1 MW), there must be a point (a particular megawatt) at which Generator B was needed, and needed to incur the start-up cost. Therefore, strictly speaking, the start-up cost is a marginal cost spike at a particular point.¹⁰⁴
119. However, the practical reality is more complicated. This is for a number of reasons.
- (a) *First*, Synergy does not offer separate prices for each individual MW of generation. For example, on the example above, Synergy offers one price for 550MW, and another price for 100MW. The start-up cost of Generator B is somewhere in the 100MW.
 - (b) *Secondly*, Synergy does not know in advance precisely when Generator B will actually be required to turn on. In each Trading Interval, Synergy offers a set of price/quantity pairs. It does not know in advance what demand will actually be in that Trading Interval. Nor, at the time it is running its price calculation model, does it know what demand will be in the previous Trading Interval. Therefore, it does not know whether Generator B will need to turn on in this Trading Interval (because, for example, demand jumped up by 100MW), or whether Generator B will need to turn on in the previous Trading Interval (because demand for Synergy generation was 600MW in that Trading Interval), or in the Trading Interval before that, and so on. Put another way, there are innumerable different pathways to an output in this particular Trading Interval of 550MW by Generator A and 100MW by Generator B. As explored with Professor Knittel in cross-examination,¹⁰⁵ this leads to an apportionment of the start-up cost across different Trading Intervals. Synergy's approach is to divide the start-up cost over Trading Intervals.
 - (c) *Thirdly*, the WEM Rules require that bids be monotonically increasing. If all of the start-up cost was regarded as being incurred at 601MW, then a bid for one price quantity pair (e.g. 10MW from 600 – 610MW) might be higher than the bid for a higher level of output (e.g. a further 10MW from 610 – 620MW). But that would not be permissible under the WEM Rules.
120. In these circumstances, a practical way of calculating the SRMC for the Balancing Portfolio is the approach adopted by Synergy of apportioning start-up costs over blocks of output and over different Trading Intervals. Put another way, the ERA has not complained in the present case

¹⁰⁴ Day 4, T360.21 – 361.3.

¹⁰⁵ Day 5, T392.12 – 395.3.

about Synergy's general approach to incorporating start-up costs in its pricing in Balancing Submissions.

121. However, if Synergy uses over-inflated start-up costs, then this will cause Synergy's calculation of its costs to be over-inflated and therefore for its prices in its Balancing Submissions to be above the SRMC of the Balancing Portfolio. If Synergy uses materially inflated start-up costs, then (subject to the matters discussed in the next section) the prices in its Balancing Submissions will be above a reasonable expectation of the SRMC of generating the relevant electricity by the Balancing Portfolio.

The relationship between cost inputs, prices in Balancing Submissions, and SRMC

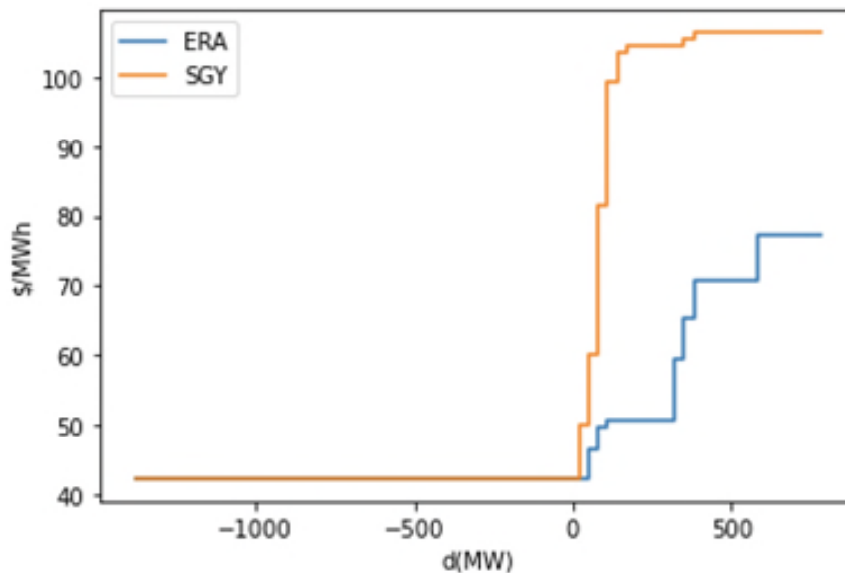
122. It appears, from some of the cross-examination that occurred in the course of hearing, that Synergy may place some emphasis on this issue. However, when properly understood, the issue is relatively straight-forward.
123. For convenience (to avoid the need to look back in the document), it is worth repeating the explanation of Synergy's price calculation methodology from Section B above, with some elaboration.
124. Synergy used an energy market model (PowrSym) to provide it with the least cost dispatch given its input assumptions. The cost inputs included the inputs the subject of focus in the present proceedings, being fuel costs and start-up costs. 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.
125. In other words, Synergy modelled the economic least cost dispatch of its fleet given the inputs (which included gas costs and start-up costs), for different levels of output. Thus, to take a stylised example just to illustrate the concept, for a particular Trading Interval Synergy has calculated that at an output of 1,200MW it will have Generators A, B and C, where C will be the marginal generator, and that at an output of 1,400MW it will have Generators A, B, C and D, where D is now the marginal generator.
126. At the completion of the 41 PowrSym runs, the price/quantity curve is constructed through a program which extracts, for each Trading Interval, the relevant cost for the marginal generator:¹⁰⁶ that is, 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 for each Trading Interval,

¹⁰⁶ Synergy presentation: *Portfolio Pricing in the WEM: Wholesale Business Unit*, 1 February 2017, p 6 (HB2-051).

and smoothed to remove price volatility between hours and between price steps.¹⁰⁷ Synergy is performing a calculation of SRMC (see below), and using that for its pricing offers.

127. In other words, to use the stylised example above, when offering an amount of generation that will utilise Generator D (say 50MW on top of 1,400MW already being generated), the relevant cost of Generator D will be utilised for pricing purposes. If that figure is, say, \$78/MWh, then Synergy will (subject to the smoothing referred to) offer that 50MW at \$78/MWh.
128. That figure of \$78/MWh is directly impacted by Synergy's choice of input costs. As noted earlier, on 1 July 2016, Synergy increased its gas input costs, without justification, by 69.8%. Synergy has also used significantly overstated start-up costs.
129. Just by way of illustration, one can see what happens when you adopt Synergy's methodological approach, but materially vary the input costs, from Chart 10 in Mr Layman's first report.¹⁰⁸

Chart 10: Modelled Synergy Monotonically Increasing Offer Curve, ERA vs Synergy Input Cost Assumptions, 5:00 PM, 15 January 2017 (\$/MWh)



130. This illustrates that not only will prices vary, but output quantities and the number of pricing steps will vary.
131. Further, Synergy's methodology will lead to higher prices at output levels utilising gas generation. For example, there might be another gas generator (Generator E) with a cost calculated by Synergy, using its revised input costs, of \$123. And there might be another one at \$256. And so on. What that means is that the revised input costs will not just affect one price in Synergy's Balancing Submissions, but will affect multiple prices in the offer curve in the Balancing Submissions. Synergy has multiple gas generating units.

¹⁰⁷ Synergy presentation: *Portfolio Pricing in the WEM: Wholesale Business Unit*, 1 February 2017, pp 6–7 (HB2-051).

¹⁰⁸ Expert Report of Bruce Layman, *Report for MinterEllison: The Relationship between the Prices Offered by Synergy in Balancing Submissions and the Short-Run Marginal Cost of Generating the Relevant Electricity*, 14 December 2020 (Layman 2020 Report), [70] (HB4-081).

132. Therefore, the conclusion that a material overstatement of input costs will lead to pricing in each Balancing Submission above SRMC is relatively straightforward. It does not depend upon, or require, some alternative calculation of SRMC, nor some simulation exercise.
133. As we understand it, Synergy cavils with this conclusion. Synergy has not yet made entirely clear what its case is in this regard. We may have to respond to the way it is put in closing submissions. However, doing the best we can, it appears likely that the conclusion is contested on two main bases.
134. The *first* basis involves the hypothetical possibility that, if higher input costs are put into Synergy's model, this could lead to a different generator being selected for dispatch at a particular output level in a particular Trading Interval that is a lower cost generator, and therefore leading to a lower price being offered in the Balancing Submission than would be the case in a hypothetical world where the input costs were different, and lower. In Synergy's Further Amended Statement of Facts, Issues and Principal Contentions (**HB1-002C**), this contention is put in a very general way in the following terms, at [52A(c)]:

if Synergy were to increase its gas and/or start-up costs, this would change the assumptions its uses to prepare its Balancing Submissions for generators in the Balancing Portfolio. In some cases, increasing inputs such as gas or start-up costs can increase the prices in some Balancing Submissions and decrease the prices in other Balancing Submissions.

135. There are two problems with any such contention.
136. The first is that clause 7A.2.17 of the WEM Rules does not require any hypothetical counter-factual analysis. For a generator that is bidding in a portfolio, the SRMC for a particular quantity of electricity is the cost, assessed in a proper manner, of the marginal generator. Synergy has ascertained the marginal generator and has made an offer of electricity to be generated, including by that marginal generator. If the price it offers is above the appropriate cost of the marginal generator, then it is bidding above SRMC. There is no occasion to consider an alternative set of generators.
137. Further, any such counter-factual analysis would be impossible. As appears from Chart 10 above, using different input costs alters not only the price, but also the quantities and the price steps (including the number of steps). There is, for example, a horizontal area at the very top of the orange curve. It looks like roughly 300MW offered at a price of about \$110. What would be the price for that 300MW in the counterfactual world? Answer: there is no such price, because there would be no offer of 300MW in the counter-factual world. There is no corresponding horizontal area of 300MW on the blue curve. Clause 7A.2.17 of the WEM Rules refers to "the relevant electricity". Here, that is the 300MW. There is no such "relevant electricity" in the hypothetical counterfactual world, and therefore no basis for assessing the SRMC of the "relevant electricity" in such a world. To speak of undertaking any such counter-factual exercise is nonsensical. Synergy's language in its Further Amended Statement of Facts Issues and Principal Contentions, quoted above, contends that increasing input costs can "increase the prices" or "decrease the

prices". However, this is missing critical words, and does not connect the contention to the relevant electricity, as required by clause 7A.2.17.

138. The second problem with the contention is that it is raised at a level of a speculative hypothetical possibility. It is possible to assert in a vacuum that such a thing could occur at a particular output level because of some difference in the process of optimisation with different assumptions. However, it is more difficult to describe actual situations of this occurring in practice, and the actual mechanism in practice by which a price would be lower where the input costs were materially higher. Synergy has not put forward a single worked example of this occurring, or identified any Balancing Submission in which this led to a reduction in price at any level of output. Further, whilst it is possible to conceive (in a vacuum) the possibility of this affecting the price for one level of output, it is impossible to conceive the possibility of this affecting all prices in a Balancing Submission in this way. This is because if some optimisation process caused a particular generator (e.g. Generator D) to be delayed in starting and to only start generating at some higher level of output, Generator D would nevertheless be generating at that higher level of output and prices for that higher level of output would be overstated because of the overstatement of input costs for Generator D.
139. Therefore, even if, which has not been established by any actual example, some reorganisation of generator dispatch could affect the pricing in a particular Trading Interval, it is clear that it would only affect a small area of the relevant offer curve in that Trading Interval. Mr Layman explained one aspect of that in his opening statement in the concurrent evidence session:¹⁰⁹

However, once Synergy's offer quantities rise above its coal-fired capacity, and I'll use the term coal - gas boundary, and I'll keep coming back to that, which includes leaving room for a bit of spinning reserve because if nothing is on outage, then that's somewhere between [REDACTED] megawatts in Synergy's generation portfolio. That's more or less where it starts running out of coal and the ability to dispatch it. After this point it must dispatch the gas-fired segment in its portfolio. This segment of Synergy's generators becomes [REDACTED]. Regardless of what offer formation method Synergy uses, as long as it is reasonably tied to this cost structure, [REDACTED] then at some point in response to higher cost input prices, Synergy must draw from its [REDACTED] gas-fired generators to form its offers. Synergy's offer formation method can at least in theory fight this inevitability for a limited portion of Synergy's Balancing Submissions for a limited period of time in limited trading intervals. But eventually that cost structure will prevail.

140. Even Synergy's expert, Professor Knittel, said that any relevant impact (higher costs causing lower prices) might be for "certain portions of the offer curve".¹¹⁰
141. That is not enough for Synergy's purposes. Pricing above SRMC at any point of the offer curve is a contravention of clause 7A.2.17 of the WEM Rules.
142. The *second* basis for Synergy's cavilling with the conclusion that higher input costs leads to higher prices in Balancing Submissions, appears to be because of the process of smoothing or the requirement that bids be monotonically increasing. It is difficult to say very much about this before

¹⁰⁹ Day 5, T464.16 – 465.13.

¹¹⁰ Day 5, T488.4 – 488.11.

we see precisely how Synergy puts it in submissions. The rule in question has to be given a practical operation in the context of other rules. Further, the issue would appear to elevate the trivial. As Mr Layman explained in his opening statement,¹¹¹ this is “not the main issue we’re talking about”, in circumstances where there was a very significant and unjustifiable change in Synergy’s input cost assumptions. Mr Layman drew attention to his Chart 10, which has been set out above, and noted that we were not dealing with very small changes in price around the margins that might be impacted by some process of smoothing, or minor variations of price around a price trend.

143. More generally, in relation to Synergy’s stance at the hearing, some of the questions in cross-examination appeared directed possibly to some question of onus. Certainly, the raising by Synergy of the hypothetical possibility of raised input costs leading to lower prices, but not providing a single example of this, seems directed to some question of onus. As discussed in section G below, any such approach is inapt. No question of onus ordinarily arises in administrative proceedings. The ERA does not bear an evidentiary onus in the ordinary sense. Rather, the Electricity Review Board is seeking to draw conclusions based on inferences and probabilities having regard to the available information. In the present case, the Electricity Review Board would comfortably conclude that the use of input costs for gas generators that are significantly overstated when calculating the SRMC-based prices for dispatch of those generators led to prices in those Balancing Submissions reflecting the output of Synergy’s fleet of gas-powered generators which were above a reasonable expectation of the SRMC of generating the relevant electricity by the Balancing Portfolio. That leaves only the issue of market power, which we discuss in the next section.

F. Market power

144. 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 “when such behaviour relates to market power”.
145. 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.¹¹² 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 Wholesale Market Objectives support a broad operation. Importantly, the Wholesale Market Objectives include: minimising the long-term cost of electricity supplied to consumers from the 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 the Wholesale Market Objectives. Therefore, where a generator has offered

¹¹¹ Day 5, T461.4 – 461.25.

¹¹² 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.

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.

146. 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 16 April 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.
147. Mr Balchin examined a number of market structure indicia in concluding that Synergy had market power in the relevant Trading Intervals. Details of these indicia are set out below.
148. First, 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.¹¹³ In 2016, Synergy had some 53.8% of the capacity credits market.¹¹⁴ In 2017, this was 52.3%.¹¹⁵ Over the investigation period, Synergy had 53.3% of the energy sent out.¹¹⁶
149. Second, the Herfindahl-Hirschman Index (**HHI**) measure—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.¹¹⁷ Further, Mr Balchin found that the HHI tends to be higher, and so the market more concentrated, as demand increases.¹¹⁸
150. Third, 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.¹¹⁹
151. Fourth, 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

¹¹³ Balchin 2020 Report, p 57 [190] (**HB4-080**).

¹¹⁴ Balchin 2020 Report, p 57 [191] (**HB4-080**). Note that the figure of 53.8% is higher than the figure of 48.6% referred to in the Applicant's Further Amended Statement of Facts, Issues and Principal Contentions filed on 31 May 2021 at paragraphs 28 and 106. The figure of 48.6% is not disputed by Synergy in its Further Amended Statement of Facts, Issues and Principal Contentions filed on 9 May 2021 at paragraph 28. The reasons for the difference are explained in the Balchin 2020 Report, p 58 [192] (**HB4-080**).

¹¹⁵ Balchin 2020 Report, p 57 [191] (**HB4-080**).

¹¹⁶ Balchin 2020 Report, p 58 [190]–[191] (**HB4-080**). Note that the figure of 53.3% is higher than the figure of 47.7% for the 2016 calendar year referred to in the Applicant's Further Amended Statement of Facts, Issues and Principal Contentions filed on 31 May 2021 at paragraphs 29 and 106. The figure of 47.7% is not disputed by Synergy in its Further Amended Statement of Facts, Issues and Principal Contentions filed on 9 May 2021 at paragraph 29. The reasons for the difference are explained in the Balchin 2020 Report, p 58 [192] (**HB4-080**).

¹¹⁷ Balchin 2020 Report, p 59 [195] (**HB4-080**).

¹¹⁸ Balchin 2020 Report, p 60 [198] (**HB4-080**).

¹¹⁹ Balchin 2020 Report, pp 60–63 [199]–[206] (**HB4-080**).

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.¹²⁰

152. That analysis is quite striking. It goes a considerable way to explaining Synergy's conduct, which apparently disregards any consideration of a competitive response. In the example of the offer curve for the single Trading Interval which was handed up to the Electricity Review Board (and became MFI-1 and MFI-2), it was notable that there was a zone of pricing, consistent with Mr Balchin's identified zone, where there were no offers other than Synergy offers.
153. Fifth, elasticity of residual demand—Mr Balchin referred to analysis conducted by the ERA as part of its investigation which found that if Synergy's price offers were raised by 5%, Synergy would have lost only 0.3% of sales, with the implication being that revenue would increase substantially. Mr Balchin considered that the ERA's analysis could be interpreted as an estimate of the price elasticity of Synergy's residual demand curve, and that the fact that a price increase by Synergy would be expected to generate an almost proportionate increase in revenue is indicative of market power.¹²¹ Mr Balchin observed that the finding of the ERA corroborated the analysis that he had undertaken which indicated that Synergy is virtually the sole supplier in a wide range of price bands.¹²²
154. Sixth, Mr Balchin found that the prospect of new entry disciplining conduct during the investigation period was very low.¹²³ In the WEM, the payments made for generation capacity under the Reserve Capacity Mechanism are intended to provide the incentive for entry and exit from the industry and, as such, are linked to the overall balance between demand and supply. Mr Balchin found that during the investigation period there was substantial excess capacity and, as such, the payments for capacity were set at a level intended to motivate exit rather than entry with the consequence that entry was unlikely.¹²⁴ Further, that new entrants would be hesitant to invest in a market already experiencing excess capacity.¹²⁵ Mr Balchin said that it could be inferred from this that, during the investigation period, incumbent market participants would have faced limited threat of new entry in response to the exercise of market power.¹²⁶ Additionally, Synergy's dominance across all price points in the market, but particularly at price points where gas fuel sets the Balancing Price, could increase the perceived risk for new entrants such that they are reluctant to enter. Mr Balchin considered that with such dominance, other firms may be concerned about the potential for Synergy to retaliate post-entry, which would then lessen the likelihood of that entry occurring.¹²⁷

¹²⁰ Balchin 2020 Report, pp 63–65 [207]–[211] (**HB4-080**).

¹²¹ Balchin 2020 Report, p 65 [212]–[213] (**HB4-080**).

¹²² Balchin 2020 Report, p 65 [213] (**HB4-080**).

¹²³ Balchin 2020 Report, p 66 [215] (**HB4-080**).

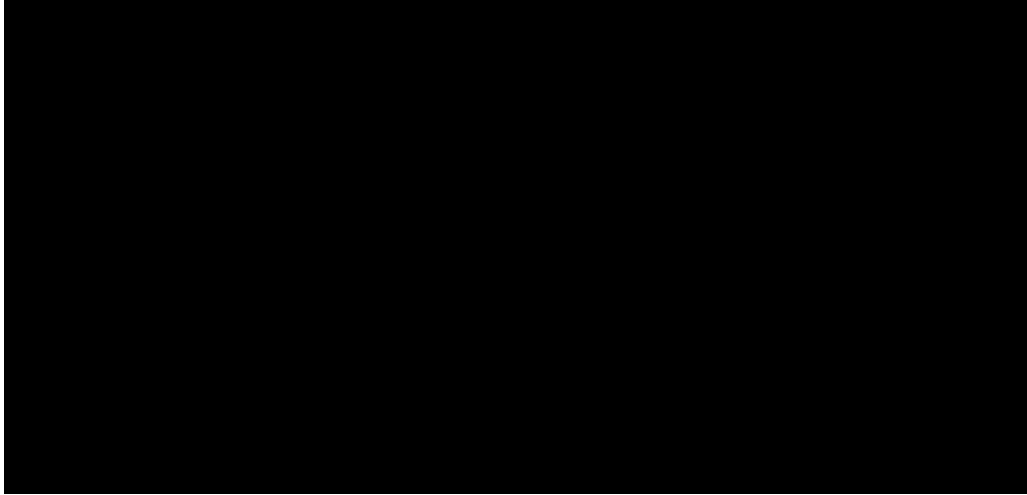
¹²⁴ Balchin 2020 Report, p 66 [215] (**HB4-080**).

¹²⁵ Balchin 2020 Report, p 66 [215] (**HB4-080**).

¹²⁶ Balchin 2020 Report, p 66 [215] (**HB4-080**).

¹²⁷ Balchin 2020 Report, p 66 [216] (**HB4-080**).

155. A further indicator of the exercise of market power was that during the investigation period, Synergy sold gas into the industrial gas market at prices that were materially lower than the price at which it sold gas implicitly for electricity generation.¹²⁸ The amended witness statement of Carole Clare notes this connection:¹²⁹



156. An example of such an arrangement entered into by Synergy is the gas swap arrangement with ██████████ entered into on 16 June 2016. This arrangement provided for:

- (a) a substitution period (originally 21 June 2016 to 1 January 2017, the commencement of which was deferred to 14 November 2016) where Synergy agreed to supply up to ██████████ to ██████████ at a cost of ██████████ minus a fee payable to ██████████, making the net cost ██████████, and where the maximum volume Synergy was entitled to deliver to ██████████ was ██████████;
- (b) a supply period (originally between 1 January 2017 and 1 May 2020, the commencement of which was deferred until 28 April 2018) where ██████████ supplied up to ██████████ back to Synergy for ██████████ plus a fee payable by Synergy, making the net cost ██████████, and where Synergy was entitled to nominate a maximum of ██████████ to be supplied by ██████████.¹³⁰

157. Mr Balchin opines that a firm that faced effective competition in all of the markets in which it participated could not sustain a higher price in one market than the other, and so the observation that a different price has been charged (explicitly or implicitly) between the markets for gas is evidence of market power. The evidence tendered by Synergy referred to above, suggests that the industrial gas market was a competitive market, and so the price observed in that market provides evidence about the price that would be observed in a competitive market.¹³¹

¹²⁸ Balchin 2020 Report, p 71 [233] (HB4-080).

¹²⁹ Amended Witness Statement of Carole Clare, filed 24 March 2021, [50]–[52] (HB2-076).

¹³⁰ Applicant's Further Amended Statement of Facts, Issues and Principal Contentions filed on 31 May 2021, [45]; Respondent's Further Amended Statement of Facts, Issues and Principal Contentions filed on 9 May 2021, [45] (HB1-002C).

¹³¹ Balchin 2020 Report, p 71 [234] (HB4-080).

158. A further significant indicator of market power in the present case is Synergy's conduct. This had a number of aspects.
- (a) *First*, pricing above SRMC is not conduct that would be engaged in by a firm in a competitive market.¹³²
 - (b) *Secondly*, and importantly, Synergy's conduct more generally was to disregard any pricing constraint from competitors. For example, Synergy increased its calculation of gas input costs by 69.8% from 1 July 2016, and simply passed these costs through to its pricing model for calculating the pricing in Balancing Submissions. Synergy did not undertake some process of considering whether it could afford to do so in a competitive sense: it did not pause to consider whether a price increase would lead to a loss of market share.
 - (c) *Thirdly*, the very process by which Synergy set its prices in its Balancing Submissions, as disclosed to the ERA and as outlined in earlier sections, which simply involved undertaking a cost calculation based on (inter alia) input prices and outputting prices based on those cost calculations, indicates that Synergy considered that the real constraint on its behaviour was clause 7A.2.17, not pricing constraint from competitors. 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.¹³³
159. Professor Knittel's response to these matters was to advance a thesis that it was not possible to ascertain whether Synergy had market power without evaluating whether Synergy had an incentive to exercise that power. Professor Knittel referred, for example, to the possibility that Synergy's retail load, or contract position, might be such that the raising of prices would cause financial harm rather than benefit to Synergy. This criticism and analysis was advanced at some length in Professor Knittel's report.
160. The considerable weakness with Professor Knittel's analysis, however, is that it failed to have any proper regard to Synergy's conduct. Synergy's conduct in raising its estimate of input costs, and flowing those estimates through to increased prices, would make no sense – would be irrational – if Synergy did not benefit from the increased prices. Synergy is clearly the person best placed to make an assessment as to whether it has an incentive to exercise any market power.
161. As Mr Balchin explained in his reply report and in the concurrent session, the concern with whether a firm with putative market power has an incentive to exercise that market power is pertinent in a merger approval context, or similar context where the analysis is forward-looking, because the assessment being undertaken is attempting to analyse whether any there will be any exercise of market power in practice. It is therefore necessary to speculate about how the firm in

¹³² Balchin 2020 Report, pp 66–67 [218], [221]–[222] (HB4-080).

¹³³ Balchin 2020 Report, p 70 [231]–[232] (HB4-080).

question will behave. However, when one can observe the actual conduct of the firm in question, and see that it has increased its own prices, and thereby raised prices in the market, then it is not necessary to consider questions of incentives, or profitability, to conclude that the firm in question has market power.¹³⁴

162. Professor Knittel was cross-examined about these matters, and in particular his continued assertion that it was necessary to consider incentives and profitability before concluding that a firm had market power, notwithstanding that the firm in question had increased market prices on an ongoing basis. When asked whether he accepted that if a firm has increased prices for a sustained period, one would infer that it was profitable for the firm if there was no indication to the contrary, the following exchange occurred:¹³⁵

PROFESSOR KNITTEL: No, not necessarily. that's one possibility, but it's not the only one.

MR MOORE: Well, you'd have to infer that the firm saw some pay-off in raising the prices to be bahving [sic, behaving] in that way?

PROFESSOR KNITTEL: No, I can give you two counterexamples, if you'd like.

MR MOORE: Well, yes, all right.

PROFESSOR KNITTEL: Well, one is the firm can make a mistake. There is lots of examples in history where firms make mistakes. The second is – I mean, this isn't as important, I think, in this context, but I throw it out there only because in a general sense it's a reason: firms often do experimentation with their prices, so they'll rando[m]ise prices over a certain interval and then do that over a period of time.

163. In our submission, the Electricity Review Board can safely discount the possibility that Synergy was acting under a sustained mistake extending over at least 18 months, or that it was conducting some grand experiment over the same period. Rather, the overwhelming likelihood was that Synergy was acting in the way that it did because it was rational and profitable for it to do so.

164. In this regard, it is worth quoting Mr Balchin's response:¹³⁶

So the other matter I just want to make a short comment on is just to underline that this is obvious, the point at where there is an obvious point of disagreement between myself and Dr Knittel, which is about whether -- in order to demonstrate purpose a person has market power you both need capacity to cause outcomes that aren't seen in competitive markets as well as the incentive. As I said in my opening remarks yesterday, I disagree, and disagree quite strongly, that it is a sensible interpretation of the concept of market power to say that you have a firm that has set prices above marginal cost on a sustained basis, and moved the market in a way that is, therefore, substantially materially raised prices above cost and caused outcomes that aren't those that will be observed in a competitive market, and therefore caused some of the substantial losses in economic efficiency that might be -- that might flow from that.

You'll recall there is a reason why these sorts of measures exist. This is an essential product: electricity. Electricity in Western Australia, and like in all jurisdictions, is an essential input into many other productive processes, so charging -- having monopoly prices flow through has the potential to cost jobs, income, production. So there is a -- it is a serious issue, so the proposition that not only can you have conduct, the outcome and the economic loss, that you then need to prove that there was an incentive, I find that hard to digest.

¹³⁴ Day 4, T256.1 - 256.15.

¹³⁵ Day 5, T434.20 – 435.12.

¹³⁶ Day 5, T448.4 – 450.13.

And could I just go back to my final report, where I was taken to -- we've talked a lot about definitions of market power, and Dr Knittel talked about the definitions that he uses in graduate school classes, and I certainly mean no disrespect, but in Australia I was pointed, I was taken to paragraph 170 from my report for the ACCC definition, this is on page 51, the immediately preceding definition, the then immediately preceding paragraph quotes the Australian Competition Tribunal, and this is from the case in Queensland, the QCMA case, one of the classic precedent-setting cases in Australian competition law, and this is a statement, and this is a paragraph that would have been drafted by Dr Maureen Brunt, who would be the preeminent Australian economist on competition law. Her definition is that "the antithesis of competition is undue market power in the sense that the power to raise prices to exclude entry. That power may or may not be exercised ...". And you can go on, and I'll just read the last sentence: "Firms may be public-spirited in their motivation, but if their business conduct is not subject to severe market constraints, this is not competition."

So what I will conclude by saying is I think the better economic interpretation is that market power does not require proof of incentive; it is the capacity to cause prices to diverge from the competitive market prices and other outcomes to diverge from the competitive market. Irrespective of what the definitions may require elsewhere, my firm belief is that is the concept that economists use that the term in Australia.

165. The Electricity Review Board would likewise conclude that Synergy had market power. To the extent to which it is necessary (and the ERA submits it is not), Synergy also exercised that market power in increasing its prices, including in circumstances where that conduct was undertaken without regard to competitive constraint.

G. Legal principles applicable to Electricity Review Board's determination

166. The Electricity Review Board is established pursuant to section 50(1) of the *Energy Arbitration and Review Act 1998*. The WEM Rules provide that where there is an alleged breach of the WEM Rules that relates to a Category C Market Rule, and following an investigation the ERA reasonably believes that a breach of the WEM Rules has taken place, the ERA may bring proceedings before the Electricity Review Board.¹³⁷ Clause 7A.2.17 of the WEM Rules is a Category C Market Rule.¹³⁸
167. The *Electricity Industry (Wholesale Electricity Market) Regulations 2004* provide that if the Electricity Review Board determines that there has been a contravention of the WEM Rules, the Electricity Review Board may make various orders, including the payment of a civil penalty, that the relevant market participant cease the act or omission causing the contravention, and that the participant take such action, or adopt such practice, as the Electricity Review Board requires for remedying the contravention or preventing a recurrence of the contravention.¹³⁹
168. The hearing before the Electricity Review Board is by way of a fresh hearing.¹⁴⁰ That is, the Electricity Review Board is to determine from the beginning (or "de novo"), on the basis of the material before the Electricity Review Board, whether Synergy has contravened clause 7A.2.17 of the WEM Rules. The Electricity Review Board is not bound by the rules of evidence and may

¹³⁷ WEM Rules, clause 2.13.18 (**HB5-090**).

¹³⁸ *Electricity Industry (Wholesale Electricity Market) Regulations 2004*, Schedule 1.

¹³⁹ *Electricity Industry (Wholesale Electricity Market) Regulations 2004*, regulation 33.

¹⁴⁰ *Energy Arbitration and Review Act 1998*, section 57(1).

inform itself as it thinks fit.¹⁴¹ The Electricity Review Board must act according to equity, good conscience and the substantial merits of the case and without regard to technicalities and forms.¹⁴²

169. In de novo administrative review proceedings the common law principle relating to the onus of proof does not apply.¹⁴³ This is because, as here, the decision making body is required to make its own decision on the basis of the material before it. As observed by Woodward J in *McDonald v Director-General of Social Security* (1984) 1 FCR 354, 356–357:

The first point to be made is that the onus (or burden) of proof is a common law concept, developed with some difficulty over many years, to provide answers to certain practical problems of litigation between parties in a court of law. One of the chief difficulties of the concept has been the necessity to distinguish between its so-called “legal” and “evidential” aspects. The concept is concerned with matters such as the order of presentation of evidence and the decision a court should give when it is left in a state of uncertainty by the evidence on a particular issue.

The use outside courts of law of the legal rules governing this part of the law of evidence should be approached with great caution. This is particularly true of an administrative tribunal which, by its statute “is not bound by the rules of evidence but may inform itself on any matter in such manner as it thinks appropriate” (AAT Act, s 33(1)(c)).

Such a tribunal will still have to determine practical problems such as the sequence of receiving evidence and what to do if it is unable to reach a clear conclusion on an issue, but it is more likely to find the answer to such questions in the statutes under which it is operating, or in considerations of natural justice or common sense, than in the technical rules relating to onus of proof developed by the courts. However these may be of assistance in some cases where the legislation is silent.

Whether the principles adopted by such a tribunal, arising from these various considerations, are appropriately dealt with under the heading “onus of proof”, becomes a matter of choosing labels. It would probably be more convenient to avoid using that expression in cases such as the present.

There is certainly no legal onus of proof arising from the fact that this is an “appeals” tribunal, because the AAT is required, in effect, by s. 43 of the AAT Act, to put itself in the position of the administrator in carrying out its review and, in the light of the material before the AAT, (not the material before the administrator, *Drake v Minister for Immigration and Ethnic Affairs* (1979) 46 F.L.R. 409 at 419) make its own decision in place of the administrator’s. The AAT itself, in a series of cases beginning with *re Ladybird Children’s Wear Pty Ltd* (1976) 1 A.L.D. 1, has taken the view that there is no presumption that the administrator’s decision is correct. This is clearly the right approach to the matter.

170. The observations of Woodward J above were cited with approval by Flick J in *Sun v Minister for Immigration and Border Protection* [2016] FCAFC 52, [66]; 243 FCR 220. At [63], Flick J noted: “The concept of an “onus or burden of proof” is a concept buried in common law rules of evidence and the practice and procedure of superior courts of law entrusted with resolving disputes between parties to litigation”.

¹⁴¹ *Energy Arbitration and Review Act 1998*, section 57(2)(a).

¹⁴² *Energy Arbitration and Review Act 1998*, section 57(2)(b).

¹⁴³ *McDonald v Director-General of Social Security* (1984) 1 FCR 354, 356–357, applied in *Evans v Secretary of Department of Families, Housing, Community Services and Indigenous Affairs* (2012) 289 ALR 237, [18]–[20]; [2012] FCAFC 81. See also: *Bushell v Repatriation Commission* (1992) 175 CLR 408, 425 (Brennan J), applied in *Minister for Immigration and Citizenship v Li* [2013] HCA 18, [10]; 249 CLR 332, 342 (French CJ).

171. Although no formal onus of proof applies in proceedings such as the present, a practical onus may arise in particular circumstances. For example:

- (a) where there are facts that may be peculiarly within the knowledge of a party, and a failure by that party to produce evidence as to those facts may lead to an unfavourable inference being drawn;¹⁴⁴
- (b) where the evidence before the administrative decision maker is pointing in one direction and it the likely decision is obvious unless contrary material is put before the decision maker.¹⁴⁵

172. It is open to the Electricity Review Board to draw inferences from the materials that are before it in these proceedings. In *Department of Social Security v Danielson* (1996) 44 ALD 19, Cooper J observed:¹⁴⁶

...that there is no direct evidence of a fact does not necessarily mean that there is no evidence of a fact. Courts and Tribunals are frequently asked to infer the existence of a particular fact from the existence of a series or number of other facts which, taken together, suggest that the existence of the particular fact in question is more probable than not. The particular fact (the principal or ultimate fact or factum probandum) is inferred from the existence of the other fact or facts (the evidentiary fact or factum probans). Proof of a fact in issue is legitimately undertaken in this way...

173. So long as there is some basis for an inference drawn by the Electricity Review Board, there will be no error of law in the Electricity Review Board drawing any necessary inferences in making its determination.¹⁴⁷

174. In considering whether it is open to the Electricity Review Board to draw particular inferences, the Electricity Review Board may be assisted by the following observations of Sir Fredrick Jordan in *Carr v Baker* (1936) 36 SR (NSW) 301, 306 and Lord Wright in *Caswell v Powell Duffryn Associated Collieries Ltd* [1940] AC 152, 169–170 respectively, cited by Spigelman CJ in *Selstam Pty Ltd v McGuinness* [2000] NSWCA 28; 49 NSWLR 262:

The existence of a fact may be inferred from other facts when those facts make it reasonably probable that it exists; if they go no further than to show that it is possible that it may exist, then its existence does not go beyond mere conjecture. Conjecture may range from the barely possible to the quite possible. (Sir Fredrick Jordan)

Inference must be carefully distinguished from conjecture or speculation. There can be no inference unless there are objective facts from which to infer the other facts which it is sought to establish. In some cases the other facts can be inferred with as much practical certainty as if they had been actually observed. In other cases the inference does not go beyond reasonable probability. But if there are no positive proved facts from which the inference can be made, the method of inference fails and what is left is mere speculation or conjecture. (Lord Wright)

¹⁴⁴ *McDonald v Director-General of Social Security* (1984) 1 FCR 354, 358; *Re Pinesales Pty Ltd and Commissioner of State Revenue* [2006] WASAT 202, [46]. See also, *Evans v Secretary of Department of Families, Housing, Community Services and Indigenous Affairs* (2012) 289 ALR 237, [18]–[20]; [2012] FCAFC 81.

¹⁴⁵ *McDonald v Director-General of Social Security* (1984) 1 FCR 354, 358; *Re Pinesales Pty Ltd and Commissioner of State Revenue* [2006] WASAT 202, [46].

¹⁴⁶ Cited with approval in: *Amandeep v Minister for Immigration and Citizenship* [2011] FMCA 757, [30]; *Singh v Minister for Immigration* [2013] FCCA 1547, [25].

¹⁴⁷ *Australian Broadcasting Tribunal v Bond* [1990] HCA 33, 356; 170 CLR 321 (Mason CJ).

175. The question is whether, on the basis of the primary facts, it is reasonable to draw the inference.¹⁴⁸

2 June 2021

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¹⁴⁸ See for example: *Luxton v Vines* (1952) 85 CLR, 358 (Dixon, Fullagar and Kitto JJ).

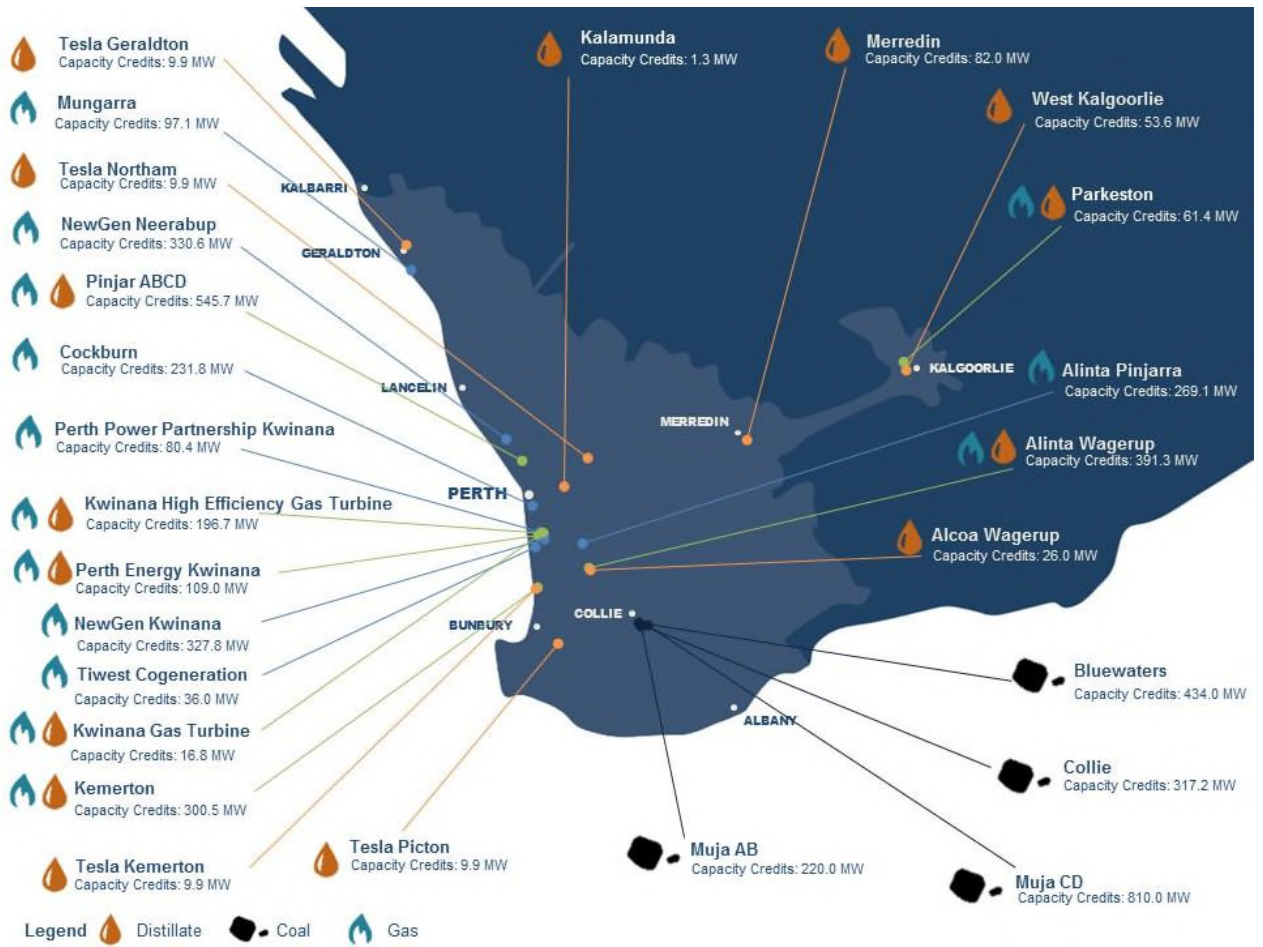
Annexure A

Figure 1: Map of the South West Interconnected System¹⁴⁹



¹⁴⁹ AEMO, 2017 Electricity Statement of Opportunities for the Wholesale Electricity Market, June 2017, p 14 (HB1-080.18).

Figure 2: Scheduled generators map for the SWIS, 2017-18¹⁵⁰



¹⁵⁰ AEMO, 2017 Electricity Statement of Opportunities for the Wholesale Electricity Market, June 2017, p 21 (HB1-080.18)

Annexure B

Summary of Synergy gas costs and gas input prices applied by Synergy in determining its SRMC

| Date | Synergy Gas Costs under North West Shelf Gas Agreement and Gorgon Agreements | Gas Input Price Applied By Synergy | Principal Gas Source | The method Synergy informed the ERA it was using to determine Gas Input Price; Synergy expectation of market price of gas |
|---|--|--|----------------------|---|
| Synergy Gas Arrangements Prior to ERA Investigation Period | | | | |
| 1 April 2011 to 1 April 2015 | The approximate volume weighted average cost under the North West Shelf Gas (NWSG) Agreement was [REDACTED] (HB2-076) | [REDACTED] undelivered ([REDACTED] delivered) (HB2-006) | NWSG Agreement | From at least 12 July 2012, Verve Energy set its gas price [REDACTED] |
| 29 November 2011 | Verve entered into Gorgon Contract for [REDACTED] with a Base Reference Gas Price of [REDACTED] as at 1 July 2009 (100% CPI escalated) with a [REDACTED] (or [REDACTED]) take or pay obligation. Synergy, which at the time was a retailer of electricity and gas only, entered into Gorgon Contract for [REDACTED] with a Base Reference Gas Price [REDACTED] as at 1 July 2009 (100% CPI escalated) with a [REDACTED] (or [REDACTED]) take or pay obligation. (HB2-076, [32] – [33]) | | | [REDACTED] (HB3-079.7, p2) |
| 1 April 2015 to 31 December 2015 | The approximate volume weighted average cost under the NWSG Agreement was [REDACTED] (HB2-076, [26(b)]) | [REDACTED] undelivered ([REDACTED] delivered) (HB2-006) | NWSG Agreement | [REDACTED] (HB2-006) |
| Period 1 (commencement of ERA Investigation Period) | | | | |
| 1 April 2016 to 13 July 2016 | The approximate volume weighted average cost under the NWSG Agreement was [REDACTED] (HB2-076, [30]) | [REDACTED] undelivered ([REDACTED] delivered) (HB2-006) | NWSG Agreement | [REDACTED] (HB2-006) |
| Period 2 | | | | |
| 14 July 2016 to 30 November 2016 | The approximate volume weighted average cost under the NWSG Agreement of [REDACTED] (HB2-076, [30]) <i>Note at [36] Clare references [REDACTED]</i> | [REDACTED] delivered (HB2-011) | NWSG Agreement | A new opportunity cost of gas determined by reference to the [REDACTED] (HB2-011) |

| Date | Synergy Gas Costs under North West Shelf Gas Agreement and Gorgon Agreements | Gas Input Price Applied By Synergy | Principal Gas Source | The method Synergy informed the ERA it was using to determine Gas Input Price; Synergy expectation of market price of gas |
|-------------------------------------|---|--|---|---|
| Period 3 | | | | |
| 1 December 2016 to 5 December 2016 | [REDACTED] (HB2-076, [30]). Note at [36] Clare references s [REDACTED] | [REDACTED] delivered (HB4-080, Table 15, pp 98 – 99) | NWSG Agreement | Opportunity cost of gas. |
| 6 December 2016 | Supply from Gorgon Contracts commenced at [REDACTED] (HB2-035.3, Sheet 1, Gas Data) | | | Opportunity cost of gas. |
| 6 December 2016 to 31 December 2016 | [REDACTED] (HB2-035.3, Sheet 1, Gas Data) | [REDACTED] delivered (HB4-080, Table 15, pp 98-99) | Gorgon Contracts (HB2-076, [33], [35A]) | Opportunity cost of gas. |
| 1 January 2017 to 10 March 2017 | [REDACTED] (HB2-035.4, Sheet 1, Gas Data) | [REDACTED] delivered (HB4-080, Table 15, pp 98-99) | Gorgon Contracts | Opportunity cost of gas. |
| 11 March 2017 to 31 March 2017 | [REDACTED] (HB2-035.4, Sheet 1, Gas Data) | [REDACTED] delivered (HB4-080, Table 15, pp 98-99) | Gorgon Contracts | Opportunity cost of gas. |
| April 2017 | Supply from Gorgon Contracts. | | | Current producer pricing is [REDACTED] than the Gorgon Contract price of [REDACTED] (HB3-079.30) |
| 1 April 2017 to 3 May 2017 | [REDACTED] (HB2-035.6, Sheet 1, Gas Data) | [REDACTED] delivered (HB4-080, Table 15, pp 98-99) | Gorgon Contracts | Opportunity cost of gas. |
| 4 May 2017 to 14 May 2017 | [REDACTED] (HB2-035.7, Sheet 1, Gas Data) | [REDACTED] delivered (HB4-080, Table 15, pp 98-99) | Gorgon Contracts | Opportunity cost of gas. |
| 15 May 2017 to 28 May 2017 | [REDACTED] (HB2-035.8, Sheet 1, Gas Data) | [REDACTED] delivered (HB4-080, Table 15, pp 98-99) | Gorgon Contracts | Opportunity cost of gas. |
| 29 May 2017 to 31 May 2017 | [REDACTED] (HB2-035.9, Sheet 1, Gas Data) | [REDACTED] delivered (HB4-080, Table 15, pp 98-99) | Gorgon Contracts | Opportunity cost of gas. |
| 1 June 2017 to 10 July 2017 | [REDACTED] (HB2-035.9, Sheet 1, Gas Data) | [REDACTED] delivered (HB4-080, Table 15, pp 98-99) | Gorgon Contracts | Opportunity cost of gas. |

