Coverage Application under the Electricity Networks Access Code 2004 (WA)

An application by Alinta Energy for coverage of network assets owned and operated by Horizon Power

August 2017



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1. Introduction

Alinta Sales Pty Ltd ('Alinta'), a wholly owned subsidiary of Alinta Energy Pty Limited ABN 64 614 975 629, makes this application to the Minister for Energy of the State of Western Australia for coverage of an electricity network under section 3.8 of the Electricity Networks Access Code 2004 ('the **Code**'), made under Part 8 of the *Electricity Industry Act 2004* (WA) ('the **Act**').

Section 3.8 of the Code provides that:

A coverage applicant may make a coverage application to the Minister requesting that the whole or any part of a network be covered.

The network that is the subject of this application is located in the Pilbara region of Western Australia, is owned by Horizon Power ('**Horizon**') and is part of the North West Interconnected System ('**NWIS**'¹). The network will be referred to in this application as the 'Horizon NWIS Network'.

This application is structured as follows:

- Section 2 provides background about Alinta, its business and the context in which it is seeking coverage of the Horizon NWIS Network;
- Section 3 describes:
 - the Horizon NWIS Network, and the network infrastructure facilities comprising it, that is the subject of this coverage application; and
 - the services provided by means of the Horizon NWIS Network that Alinta seeks to acquire;
- Section 4 addresses:
 - the Code objective generally;
 - how each of the coverage criteria is satisfied; and
 - the requirements in section 3.6 of the Code.
- Section 5 contains the conclusion.

¹ The NWIS is an extensive system in the Pilbara consisting of interconnected electricity facilities and infrastructure owned and operated by various private and government interests. See for example the definition below from section 2 of the *Electricity Transmission and Distribution Systems (Access) Act 1994* (WA):

North West interconnected system means the interconnected transmission and distribution systems, generating works and associated works -

⁽a) located in the Pilbara region of the State; and

⁽b) into which electricity is supplied by one or more of the electricity generation plants at Dampier, Port Hedland and Cape Lambert, as expanded or altered from time to time.

Horizon owns and operates a specific portion of the NWIS, referred to in this application as the 'Horizon NWIS Network'. Alinta seeks coverage of the Horizon NWIS Network only, not the broader NWIS.



2. Background

This section provides background to this application, namely:

- a description of Alinta's business and its operations in the NWIS; and
- Alinta's reason for making this coverage application.

2.1 Alinta's business

Alinta is a vertically integrated energy business, supplying gas and electricity to around 800,000 homes and businesses across Australia. This coverage application relates to Alinta's operations in the Pilbara region of Western Australia, including Alinta's Port Hedland Power Station.

The Port Hedland Power Station is a large gas-fired power station comprised of generating units at two sites described as 'Port Hedland Power Station' and 'Boodarie Power Station' (indicated in blue in Figure 1).

Alinta currently supplies electricity from the Port Hedland Power Station to a small number of large use customers in the Port Hedland region.

Alinta also owns and operates three high voltage transmission lines (indicated in red in Figure 1) that connect the Boodarie and Port Hedland generation sites and transmit power to the Wedgefield and Murdoch Drive substations (indicated in green in Figure 1). The Wedgefield and Murdoch Drive substations, and the transmission and distribution lines extending from them, are part of the Horizon NWIS Network.



Port Hedland Power Station

Figure 1 – Alinta's Port Hedland infrastructure

Source: Google earth with Alinta Energy mapping overlay.

rdoch Drive Substation (Horizon Power)

Google earth

South Hedlan



2.2 Reason for coverage application

Alinta is seeking to enter the market to supply electricity to customers connected to the Horizon NWIS Network, supported by generation from the Port Hedland Power Station and potentially other sources. Currently, Horizon is the electricity retailer to almost all customers in the NWIS.

Despite the existence of electricity full retail contestability (**FRC**) in the NWIS, a competitive market has not been able to develop in relation to customers supplied using the Horizon NWIS Network due to Horizon's control of the Horizon NWIS Network and the consequent need for any prospective new retail entrant to enter into an access agreement with Horizon. To date no new competing retailer has been able to negotiate access to the Horizon NWIS Network with Horizon.

In relation to NWIS business customers, Alinta has identified that electricity customers supplied using the Horizon NWIS Network are very interested in the opportunities that competition delivers: price differentiation, innovative and focussed product offers and enhanced customer service.

Alinta currently has access to only limited services on a specific section of the Horizon NWIS Network in the Port Hedland region under an existing agreement with Horizon and is for the sole purpose of supplying a single large use customer.

Alinta does not have access to the Horizon NWIS Network to enable it to retail electricity to any other customers. Without access to the Horizon NWIS Network, Alinta *cannot* retail electricity to those customers and a c competitive market cannot be created.

2.3 Negotiations with Horizon for Access

As demonstrated in Figure 2 Alinta has sought to gain access to the Horizon NWIS Network since April 2014. More detail on each of these steps is contained below.



Figure 2 – Timeline of access negotiations

Alinta first made a formal request to Horizon to access the Horizon NWIS Network in April 2014.

Following protracted access discussions between Alinta and Horizon, and absent any formal framework as to process, Alinta applied to the Minister for Energy on 24 October 2014 for coverage



of the Horizon NWIS Network to enable it entry into the market to supply electricity to customers connected to the Horizon NWIS Network. Horizon later applied to the Minister for Energy on 12 November 2014 for coverage of the high voltage network owned and operated by Alinta DEWAP Pty Ltd (a related body corporate to Alinta), which also forms part of the NWIS.

Following discussions with the Minister for Energy, Alinta and Horizon both agreed to withdraw their respective coverage applications on 5 January 2015 to make way for the (then) Minister for Energy's Pilbara Electricity Infrastructure Project ('PEIP').

In July 2015 the PEIP report was provided to the Minister for Energy, recommending a light handed access regime be implemented in the Pilbara. On 23 September 2015, the Minister for Energy requested that Horizon commence negotiations with Alinta on a network access contract. Alinta understands the Government made this decision in order to achieve the significant benefits of competition identified through the PEIP review.

In December 2015, Alinta and Horizon entered into a Memorandum of Understanding ('**MoU**') embodying a mutual objective to negotiate an Electricity Transfer and Access Contract ('**ETAC**') that would apply on a reciprocal basis and commence prior to 30 June 2016.

Between January and September 2016, Horizon and Alinta made some progress in negotiations on the terms and conditions of an ETAC. However, by November 2016 it became clear there were a number of material issues in respect of an ETAC which the parties were unable to agree.

In early 2017, Alinta and Horizon agreed to escalate one such issue under the dispute process of the MoU. Under the dispute process the two most senior executives of Alinta and Horizon were also unable to agree on the matter. Later Alinta withdrew its support for the dispute to advance to the next stage in the dispute process under the MoU, being independent expert determination.

Alinta decided not to proceed to expert determination because after several months Alinta and Horizon were unable to agree the terms of a 'binding agreement' required under the MoU to commence a process with an independent expert, and the dispute process was such that an independent determination in favour of Alinta would not have obliged Horizon to enter into an ETAC.

Accordingly, after more than 18 months of negotiations under the MoU, Alinta believed there was no prospect of a successful outcome in the absence of a formal regulatory framework and therefore terminated the negotiations under the MoU with Horizon.

Alinta now considers that its only prospect of obtaining access to the Horizon NWIS Network is under appropriate access laws.

Alinta therefore makes this application under section 3.8 of the Code to the Minister for coverage of the Horizon NWIS Network.



3. Description of network and services

This section describes:

- the Horizon NWIS Network (i.e. the network infrastructure facilities that are the subject of this coverage application); and
- the services provided by means of the Horizon NWIS Network that Alinta seeks to acquire.

3.1 Description of the network

The Code states that the term 'network' has the meaning ascribed to 'network infrastructure facilities' in the Act, namely:

'network infrastructure facilities means:

- (a) the electrical equipment that is used only in order to transfer electricity to or from an electricity network at the relevant point of connection including any transformers or switchgear at the relevant point or which is installed to support or provide backup to that electrical equipment as is necessary for that transfer; and
- (b) the wires, apparatus, equipment, plant and buildings used to convey, and control the conveyance of, electricity,

which together are operated by a person ... for the purpose of transporting electricity from generators of electricity to other electricity networks or to end users of electricity'

Alinta seeks access to the network that comprises the electricity transmission and distribution assets currently owned and operated by Horizon that form part of the NWIS, which in this application is referred to as the Horizon NWIS Network. For the avoidance of doubt, this is the Horizon-owned transmission and distribution network assets in the Port Hedland and Karratha region, including the 220 kV line connecting Port Hedland and Karratha and **does not** include the infrastructure of the following parties and their related bodies corporate:

- BHP Billiton Iron Ore Pty Ltd;
- Rio Tinto Limited; and
- The Pilbara Infrastructure Pty Limited.

Alinta requests that the whole of the Horizon NWIS Network be covered.

3.2 Description of services

The Code defines a covered service as follows:

"covered service" means a service provided by means of a covered network, including:

- (a) a connection service; or
- (b) an entry service or exit service; or
- (c) a network use of system service; or



(d) a common service; or

(e) a service ancillary to a service listed in paragraphs (a) to (d) above.

but does not include an excluded service.

If the Horizon NWIS Network is covered, Alinta proposes to acquire at least the 'covered services' (a) to (d) stated above on the Horizon NWIS Network. None of these services will constitute excluded services.



4. Coverage Criteria

Section 3.5 of the Code mandates that the Minister must make a decision that a network be covered if the following three questions are answered in the affirmative:

- (a) Would access (or increased access) to covered services provided by means of the network promote a material increase in competition in at least one market (whether or not in Western Australia) other than the market for the covered services provided by means of the network?
- (b) Would it be uneconomic for anyone to develop another network to provide the covered services provided by means of the network?
- (c) Would access (or increased access) to the covered services provided by means of the network not be contrary to the public interest?

In making the decision, the Minister must have regard to the objective of the Code in section 2.1:

The objective of this Code ("Code objective") is to promote the economically efficient:

(a) investment in; and

(b) operation of and use of,

networks and services of networks in Western Australia in order to promote competition in markets upstream and downstream of the networks.

In addition, section 3.6 of the Code states that:

The Minister must when exercising the Minister's functions under this Chapter 3 have regard to the geographical location of the network and the extent (if any) to which the network is interconnected with other networks.

This section addresses the Code objective generally, each coverage criterion, and the requirements of section 3.6 of the Code.

4.1 The Code Objective

The Code objective is to promote competition in upstream and downstream markets through the economically efficient investment in; and operation of and use of, networks and network services in Western Australia.

Alinta's application for coverage of the Horizon NWIS Network, to enable it to enter and compete for customers supplied using that network, meets precisely the objective of the Code. Specifically, Alinta seeks network coverage:

- as it is not economically efficient for Alinta to invest in developing and constructing additional networks given the existing Horizon NWIS Network; and
- in order to acquire covered services at economically efficient prices resulting in the efficient operation and use of the Horizon NWIS Network,



to promote competition in the retail electricity market that exists in the form of those customers supplied with electricity using the Horizon NWIS Network.

Alinta is of the view that in the absence of the Horizon NWIS network being covered under appropriate access laws, customers on the Horizon NWIS Network will not realise the benefits of competition.

Alinta has formed this view as since making its initial access request in April 2014, and despite significant resources and effort from both Alinta and Horizon, the parties have been unable to reach agreement on an ETAC. In particular, Alinta was unable to accept certain conditions being imposed under an ETAC by Horizon, as compliance with these conditions would have been cost prohibitive, and prevent Alinta from competing with Horizon on a reasonable basis in the electricity retail market.

Given Alinta's extensive experience in competitive energy markets, Alinta is of the view that no new entrant private company could or would accept the relevant conditions of access being demanded by Horizon and still be able to compete on a reasonable basis in the electricity retail market.

Alinta believes this is a fundamental competition issue that would not otherwise exist if the Horizon NWIS Network was a covered network under the appropriate access laws.

4.2 Criterion (a)

Criterion (a) of section 3.5 of the Code asks:

Would access (or increased access) to covered services provided by means of the network promote a material increase in competition in at least one market (whether or not in Western Australia) other than the market for the covered services provided by means of the network?

Alinta submits that access to covered services provided by means of the Horizon NWIS Network would promote a material increase in competition in the market for the retail supply of electricity to customers supplied using the Horizon NWIS Network.

For the most part, this market is currently served by a single, vertically integrated business, Horizon. Alinta possesses a retail licence and has electricity available to supply to customers connected to the Horizon NWIS network, but its ability to do so depends on having an entitlement to access the Horizon NWIS Network. Access to services provided by Horizon's NWIS Network is essential to supply those customers.

4.2.1 The NWIS has the prerequisites for a competitive market

FRC exists in the NWIS, including in respect of customers supplied using the Horizon NWIS Network. Thus there is no regulatory prohibition on an outside retailer entering the market to supply retail loads of any size.

In addition, a range of regulatory instruments are already in place to facilitate the retailing of electricity, including the:

- Electricity Industry Customer Transfer Code 2004; and
- Electricity Industry (Metering) Code 2012.



In such a regulatory environment, there are three key requirements a retailer must meet prior to competing for customers, these are:

- the ability for a retailer to generate electricity (or buy it wholesale);
- transport the energy through the network via an access agreement; and
- hold a retail licence.

Access to the Horizon NWIS Network is the only impediment to Alinta's entry to the market.²

4.2.2 Experience of competition in electricity markets

In other locations outside of the Pilbara, electricity retail markets have been opened to contestability in order to obtain the many benefits arising from competition.

WA's South West Interconnected System (**SWIS**) was first opened to competition for large use customers in the late 1990s. Since then further competition has been progressively introduced and a large number of customers have exercised choice and signed with a new retailers at discounted rates. In 2016, 33% of contestable customers were no longer with the incumbent Synergy.³

Competition in the National Electricity Market (**NEM**) has also been highly successful. Figure 3 below illustrates the impact that new entrants have had on incumbent retailers' market share in the NEM since those markets were opened to competition.

For example, in Victoria and South Australia, over 80% of customers have signed market contracts since FRC was introduced in early-mid 2000.



Figure 3: Small Energy Customers on Market Contracts, 30th June 2016⁴

4.2.2 Estimated impact of competition for NWIS customers

Electricity consumers supplied using the Horizon NWIS Network have voiced their interest in the opportunity to choose between electricity retailers. In fact, Alinta has pre-signed electricity

² Note that Alinta's Retail Licence (EIRL8) permits it to retail electricity to customers with loads of 160 MWh per annum or greater.

³ Economic Regulation Authority: 2016 Annual Performance Report: Energy Retailers, page 40, Table 37, January 2017.

⁴ Australian Energy Regulator: State of the Energy Market Report, Page 143, May 2017.



contracts with four customers (representing approximately 10%⁵ of the market, not currently contracted under long term power purchase agreements) since starting formal negotiations with Horizon in 2016.

Alinta is also aware that Horizon has negotiated market contracts with at least five major customers (representing approximately 40%⁵ of the market not currently contracted under long term power purchase agreements) following the threat of Alinta entering the NWIS and competing for customers on the Horizon NWIS Network.

In addition to customers demanding choice in the NWIS, Alinta is aware of at least two new entrants who wish to access the Horizon NWIS Network and supply retail customers.

Therefore based on the experience to date in the NWIS, and in Australian energy markets more broadly, Alinta believes that the acquisition by new entrants of a 30% market share in Horizon's 'large use' L4, P2 and the Horizon large-use customers who were previously supplied under the M2 tariff (Horizon Large Use Tariff Categories) over a 15 year period is a reasonable estimate.⁶

Based on this estimate of market share, new entrants (including Alinta) could be expected to acquire a market share, all things being equal, of at least 80 GWh per annum in the first ten years of competition – with this figure being heavily subject to the extent to which Horizon enters into market contracts with customers ahead of access to the Horizon NWIS Network being provided to new entrant access seekers.

After 15 years of competition, the new entrants' combined market share would be expected to around 110 GWh per annum. This analysis assumes a linear rate of acquisitions growth and a contestable load in the Horizon Large Use Tariff Categories of 363 GWh per annum.⁷

The estimated load acquisition by new entrants of 80-110 GWh per annum would comprise a significant portion of the electricity customers supplied using the Horizon NWIS Network. This would represent a material increase in competition in that market as compared with the circumstance where Horizon effectively remains the monopoly retailer, with no realistic prospect of new entry from a retail competitor.

4.3 Criterion (b)

Criterion (b) of section 3.5 of the Code asks:

Would it be uneconomic for anyone to develop another network to provide the covered services provided by means of the network?

Criterion (b) is expressed in virtually identical terms to section 44G(2)(b) in Part IIIA of the *Competition and Consumer Act 2010* (Cth) ("**CCA**"), i.e. that the National Competition Council ('**NCC**') cannot recommend that a service be declared unless it is satisfied:

⁵ Percentage share by volume.

⁶ Horizon's current large use NWIS tariff categories are the L4 Tariff (medium / large business tariff) and the P2 Tariff (State, Commonwealth and Foreign Government bodies)).

⁷ Alinta estimates a total load for Horizon of 550 GWh per annum. Of this amount, Alinta estimates that two thirds would fall into Horizon's Large Use Tariff Categories.



(b) that it would be uneconomical for anyone to develop another facility to provide the service....'

The extensive case law on the interpretation of section 44G(2)(b), including (relevantly) the High Court's interpretation of that section in *The Pilbara Infrastructure Pty Ltd v Australian Competition Tribunal* [2012] HCA 36, is relevant to interpreting the meaning of criterion (b) in the Code. This is for two interrelated reasons.

First, the Code is certified as an effective access regime under Division 2A of Part IIIA of the CCA, with the consequence that Part IIIA of the CCA does not apply to services covered by the Code. The legal effect of the Code therefore derives from both the CCA and the Act.

Second, given that criterion (b) in the Code is in virtually identical terms to section 44G(2)(b) of the CCA, it follows that the drafters of the Code intended criterion (b) in the Code to have a consistent meaning to that of section 44G(2)(b) of the CCA. As such, absent strong reasons to the contrary, the legal interpretation of criterion (b) in the Code should be consistent with the legal interpretation of section 44G(2)(b) of the CCA.

4.3.1 Meaning of 'uneconomical' in Part IIIA

As noted above, the precise meaning of the term 'uneconomical' in section 44G(2)(b) of the CCA has been the subject of a ruling by the High Court in *The Pilbara Infrastructure Pty Ltd v Australian Competition Tribunal.* The High Court ruled that:

The better view of criterion (b) is that it uses the word 'uneconomical' to mean 'unprofitable'. It does not use that word in some specialist sense that would be used by an economist.

Further, the High Court stated that:

... criterion (b) is to be read as requiring the decision-maker to be satisfied that there is not anyone for whom it would be profitable to develop another facility. It is not to be read as requiring the test of an abstract hypothesis: if someone, anyone, were to develop another facility. When used in criterion (b) "anyone" should be read as a wholly general reference that requires the decision maker to be satisfied that there is no one, whether in the market or able to enter the market for supplying the relevant service, who would find it economical (in the sense of profitable) to develop another facility to provide that service.

The NCC has provided guidance on the application of section 44G(2)(b) of the CCA in light of the High Court's finding that it is a test of private profitability, including the following relevant items:

(a) A declaration applicant needs to be able to demonstrate the basis on which it is unprofitable for it or anyone else to develop a new facility to provide the service.

...

(f) The consideration of profitability of a new facility involves, at least in part, an assessment of the ability of such a facility to successfully compete to supply the service for which declaration is sought and thus attract sufficient revenue to be profitable.



...

(h) Where it appears that the only party likely to be in a position to develop a new facility is the existing service provider/incumbent, the assessment of the profitability of the new facility should:

(i) be based upon the development of a separate, new facility, and

(ii) examine why an existing service provider would develop an alternative facility where there is the prospect that additional capacity could be provided at a lesser cost through augmentation of the service provider's existing facility. ⁸

For the reasons set out in this section, the High Court's decision in *The Pilbara Infrastructure Pty Ltd v Australian Competition Tribunal* sets out the legal principles applicable to the interpretation of criterion (b) in the Code. Accordingly, for the purposes of this coverage application, Alinta proceeds on the basis that criterion (b) of the Code requires the application of a private profitability test. Alinta further considers that the NCC's guidance on section 44G(2)(b) of the CCA is relevant to the application of the private profitability test in the context of criterion (b) of the Code.

4.3.2 Private profitability test for duplicating the Horizon NWIS Network

The development of a separate, new facility (by anyone) is infeasible due to existing physical barriers, such as access rights, tenure, and the physical availability of land in congested urban areas.

Setting this point aside, the costs incurred (by anyone) to develop a new facility would simply be prohibitive. The enormity of the costs required to duplicate a transmission and distribution network, to enable access to compete against an incumbent provider in order to supply only a portion of the existing market with lower (competitively priced) energy charges, clearly renders duplication unprofitable, and therefore uneconomic. The calculation presented in Figure 4 is used to demonstrate this point.

Consider a hypothetical third party new entrant who develops a duplicate network to supply customers in the Port Hedland and Karratha region. Figure 4 presents the estimated costs and revenues of that hypothetical third party seeking to supply electricity generated from gas to customers connected to the Horizon NWIS Network. The estimates of gas price, heat rate and other power generation costs, as well as network development costs, have been taken from various independent sources in order to develop a model that reasonably represents the costs that would be faced by any hypothetical third party entrant into the market. Accordingly, the power generation costs are not necessarily the same as Alinta's actual costs.

The example demonstrates that a duplication of the network cannot possibly be considered profitable or economic. Given duplication of the network would be so highly unprofitable and uneconomic, it is clear that the conclusion reached is not sensitive to the inputs used.

Put simply, the Horizon NWIS Network is a natural monopoly in which the duplication of the network infrastructure to supply end-use customers is inefficient, not profitable and highly uneconomic for any potential entrant.

⁸ National Competition Council, *Declaration of Services – A guide to declaration under Part IIIA of the Competition and Consumer Act 2010* (Cth), February 2013.



The estimate of market share acquisition by new entrants developed in section 4.2.2 above, i.e. 30% market share of large use electricity customers over a 15 year period (following a two year construction period), is adopted and it is assumed that the hypothetical third party acquires the entire 30% share itself. It is also assumed that the third party sets prices at the current Horizon L4 tariff level (at no discount).

Under this scenario, at a 6% cost of capital discount rate over a 15 year period, the investment incurred by the third party in years 1 and 2 to duplicate the subject network is not economically recoverable through energy sales revenue. The scenario results in a negative net present value (NPV) of \$1.1 billion. Therefore, such duplication of the Horizon NWIS Network (by anyone) is in no way close to being profitable or economic.

The key conclusion reached from the Figure 4 example is that the revenue earned by the hypothetical third party cannot achieve an amount anywhere close to what is required to fund the costs required to duplicate the Horizon NWIS Network.

As such, the duplication of the Horizon NWIS Network by construction of a separate new facility (by anyone) is infeasible and cannot be expected to be profitable or economic.



Figure 4 – Quantitative demonstration of the unprofitable / uneconomic nature of network duplication

NPV discount	6%	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
NPV calculation	units	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17
Horizon's NWIS load (estimate of L4 & P2)	MWh	363,000	363,000	363,000	363,000	363,000	363,000	363,000	363,000	363,000	363,000	363,000	363,000	363,000	363,000	363,000	363,000	363,000
Market share acquired (assumed)	%	0%	0%	10%	12%	14%	16%	18%	20%	22%	23%	24%	25%	26%	27%	28%	29%	30%
Load acquired	MWh	0	0	36,300	43,560	50,820	58,080	65,340	72,600	79,860	83,490	87,120	90,750	94,380	98,010	101,640	105,270	108,900
Horizon Power L4 tariff ex. GST	\$/MWh	330.08	330.08	330.08	330.08	330.08	330.08	330.08	330.08	330.08	330.08	330.08	330.08	330.08	330.08	330.08	330.08	330.08
Energy cost (inc. capacity charge)	\$/MWh	182.81	182.81	182.81	182.81	182.81	182.81	182.81	182.81	182.81	182.81	182.81	182.81	182.81	182.81	182.81	182.81	182.81
Network development cost	Real \$'M	-597	-597	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Energy revenue	Real \$'M	0	0	12	14	17	19	22	24	26	28	29	30	31	32	34	35	36
Energy cost	Real \$'M	0	0	-7	-8	-9	-11	-12	-13	-15	-15	-16	-17	-17	-18	-19	-19	-20
Gross revenue	Real \$'M	-597	-597	5	6	7	9	10	11	12	12	13	13	14	14	15	16	16
Net Present Value	Real \$'M	-597	-563	5	5	6	6	7	7	7	7	7	7	7	7	7	6	6
NPV sum	Real \$'M	-1,062																
Network development cost	units	input	source / com	ments														
HP total line length across WA	KM	7,843	Horizon Pow	er, Annual R	eport 2013	/14, p2												
NWIS percentage of HP total state investment	%	43%	ERA (2010), II	nquiry into t	the Funding	Arrangeme	nts of Horizo	n Power - Di	raft Report,	p4 & p91. W	here 43% re	presents th	e reported R	AB ratio of \$	3113.67M / \$	264.1M		
HP NWIS Tx & Dx line length	KM	3,372	Based on HP	ased on HP's total line length and ERA's reported percentage of NWIS versus total state investment														
TX percentage of total line length	%	20%	Assumption	ssumption														
HP NWIS Tx line length	KM	674	Calculated b	alculated based on assumed Tx line length														
HP NWIS Dx line length	КМ	2,698	Calculated based on assumed Tx line length															
220 kV transmission line length	KM	240	Google Maps	oogle Maps - distance between Karatha and Port Hedland ~240 KM														
220 kV transmission line cost	\$'M/KM	0.70	AEMO 2016 N	ITNDP datab	oase, Austra	lian Power (Generation a	nd Technolo	gy Report (date availab	le 11/08/20	L6), p213 - co	ost of single	circuit 220 k	V			
66 kV transmission line length	KM	434	Calculated as	the residua	al Tx after al	llocating the	220 kV											
66 kV transmission line cost	66 kV transmission line cost \$'M/KM 0.40 AEMO 2016 NTNDP database, Australian Power Generation and Technology Report (date available 11/08/2016), p213 - cost of single circuit 66 kV																	
Distribution line length	KM	2,698	Calculated															
Distribution line cost	\$'M/KM	0.22	AEMO 2016 N	ITNDP datab	oase, Austra	lian Power (Generation a	nd Technolo	gy Report (date availab	le 11/08/20	L6), p213 - co	ost of single	circuit 11-33	kV			
Substations & switchyards	no.	10	Assumption															
Substation & switchyard cost (per sub / s.yard)	\$'M	15.00	AEMO 2016 N	ITNDP datab	oase, Austra	lian Power (Generation a	nd Technolo	gy Report (date availab	le 11/08/20	L6), p208 - \$	10M-\$50M fo	or 132kV-330	kV switchge	ar & substa	tion.	
Transformers & associated equipment	Transformers & associated equipment % of costs 10% AEMO 2016 NTNDP database, Australian Power Generation and Technology Report (date available 11/08/2016), p208 - \$10M-\$50M for 132kV-330kV switchger					ar & substa	tion.											
Network development cost (estimated)	\$'M	>	1,194															
Calculation inputs units input source / comments																		
Plant heat rate	GJ/MWh	12.5	SKM MMA (2012), Margin Peak & Off-Peak Review 2013/14, table 4.5 - indicative HR *															
Gas price	\$/GJ	6.0	0 AEMO 2016 NTNDP database, Australian Power Generation and Technology Report (date available 11/08/2016), p130 - reflects lower end of price range.															
Gas transport	\$/GJ	1.5																
RECs costs	\$/MWh	6.56	5.56 <== LGC 12.70%*\$30.00 plus STC 7.01%*\$39.20															
Variable O&M	\$/MWh	7.50	Input estima	te														
Cost of energy (ex. return)	\$/MWh	107.81	Calculated															
Cost of energy (inc. capacity charge)	\$/MWh	182.81	Calculated															
Horizon Power L4 tariff ex. GST	\$/MWh	330.08	Calculated -	assumes an	average per	r day usage o	of 5,093 Horiz	zon 'units'										

Source: Alinta Energy modelling.



4.4 Criterion (c)

Criterion (c) of section 3.5 of the Code asks:

Would access (or increased access) to the covered services provided by means of the network not be contrary to the public interest?

The promotion of competition in the market for supply of electricity to customers connected to the Horizon NWIS Network brought about by new entrant retailers would have substantial benefits through the provision of choice to customers, and will drive lower price outcomes. Lower prices are a characteristic of competitive markets and would be particularly beneficial to consumers that are already operating in a high cost regional environment. A competitive market should decrease costs and increase productivity, contributing to higher output and growth for the region, and so would be in the broader public interest.

An independent economic study⁹ commissioned by Alinta into the economic benefits to the Pilbara from electricity market competition found the following:

- \$240m of direct energy cost savings in the Pilbara in the first 10 years;
- \$140m contribution to economic growth in the Pilbara over 10 years; and
- The creation of 22 new (indirect) jobs in the Pilbara.

In addition, to the broader economic benefits, Alinta's experience in competitive markets shows that increased competition will result in:

- improved customer service for energy consumers;
- more innovative and responsive retail products as retailers, such as Alinta, compete to acquire and retain customers;
- efficiency improvements in the wholesale acquisition of energy by retailers; and
- tariffs that more accurately reflect the cost to supply customers.

While there is likely be some regulatory costs for Horizon and the State associated with the introduction of competition, these costs should be weighed against the significant and long term benefits from the introduction of competition in the NWIS described above.

In addition, any increase in costs to Horizon and the State should be considered alongside the reduction in both costs and risks going forward.

In particular, it is noted that due to Horizon's monopoly retail position in the NWIS, it (and therefore the State) is required to underwrite the significant cost of any new power station supplying customers off its network.

It is noted the South Hedland Power Station (recently announced by its owner, TransAlta, as having being commissioned) and the Forge temporary generation facility that was constructed at the South

⁹ Economic benefits identified by independent expert REMPLAN, June 2017 (excluded large mining loads). See Report attached as appendix 1.



Hedland site and leased by Horizon have (or will), in aggregate cost approximately \$700 million – largely underwritten by Horizon. If retail competition had existed at the time, Horizon and therefore the State could have avoided underwriting these generators as new retailers would have built new generation themselves, contracted with existing generation facilities or used their own power generation or demand side management solutions, or deployed a combination of any or all these.

4.5 Geographical location and the extent of interconnection with other networks

Section 3.6 of the Code states that:

The Minister must when exercising the Minister's functions under this Chapter 3 have regard to the geographical location of the network and the extent (if any) to which the network is interconnected with other networks.

In terms of the geographical location of the Horizon NWIS Network, Port Hedland and Karratha are located within the broader Pilbara region. The Horizon NWIS Network is predominantly coastal and extends to the townships of Port Hedland, South Hedland, Goldsworthy, Karratha and Dampier, among others. The port infrastructure in this vicinity is used for exports by the major iron ore miners BHP Billiton, Rio Tinto and Fortescue Metals Group. It is also understood that it will be used to supply power to the Roy Hill Iron Ore project by Horizon utilising electricity purchased by Horizon from the South Hedland Power Station (referred to in section 4.4 above).

The area generally is a resources and energy hub, with the Pilbara Development Commission reporting¹⁰ that:

- Over a third of the world's iron ore comes from the Pilbara;
- in 2015 the North West Shelf accounted for 70% of Australia's LNG exports; and
- In 2015-16 the Pilbara contributed 13% to Western Australia's total revenue.

In terms of interconnectedness, as noted earlier, the Horizon NWIS Network is part of the broader NWIS, and is interconnected within the meaning of the Code with network infrastructure owned by the following parties and/or their related bodies corporate:

- BHP Billiton Iron Ore Pty Ltd;
- Rio Tinto Limited;
- The Pilbara Infrastructure Pty Limited; and
- Alinta.

The broader NWIS (non-Horizon owned) spans a significant part of the Pilbara and much of the power infrastructure extends inland to provide power for the iron ore mining operations of Rio Tinto and BHP Billiton.

As stated above, Alinta seeks coverage only of that portion of the NWIS which is comprised by Horizon's network infrastructure.

¹⁰ Pilbara Development Commission, "The New Pilbara," 2016.



Competition through the provision of lower costs to customers operating in a high cost regional environment should be paramount. As stated previously, competition in the retail market will arguably decrease costs and, therefore, increase productivity, contributing to higher output and growth for the region. Given the substantial output and economic significance of the geographical region, increased productivity through lower energy costs will deliver an economic multiplier, providing material benefits to the West Australian economy.



5. Conclusion

This application has demonstrated that the granting of coverage will promote competition in the retail electricity market that exists in the form of those customers supplied with electricity using the Horizon NWIS Network. This will occur through Alinta's economically efficient use of the network and its services, and so aligns with the Code objective.

Further, the benefits provided through lower energy costs and enhanced productivity will support and grow the contribution made by the NWIS geographical region, to benefit those in the region and the State more broadly. Given this and in circumstances where all three coverage criteria are satisfied, Alinta submits that the Minister should decide to cover the Horizon NWIS Network in accordance with the Code.



Appendix 1 – Alinta Energy Competitive Entry Economic Impact Analysis (REMPLAN report)



ALINTA ENERGY COMPETITIVE ENTRY: Economic Impact Analysis



PROJECT UNDERTAKEN FOR

Alinta Energy

June 2017



Alinta Energy Competitive Entry:

Economic Impact Analysis

This project has been conducted by REMPLAN

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> > June 2017

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DISCLAIMER

All figures and data presented in this document are based on data sourced from the Australia Bureau of Statistics (ABS), and other government agencies. Alinta Energy has provided all data in relation to large electricity customers, annual electricity consumption, current tariffs, and estimated tariff discounts associated with Alinta Energy market entry and the associated price response. Using ABS datasets, the regional economic modelling software REMPLAN, developed by REMPLAN has been applied to generate industrial economic data estimates. This document is provided in good faith with every effort made to provide accurate data and apply comprehensive knowledge. However, REMPLAN does not guarantee the accuracy of data nor the conclusions drawn from this information. A decision to pursue any suggestions mentioned in the report is wholly the responsibility of the party concerned. REMPLAN advises any party to conduct detailed feasibility studies and seek professional advice before proceeding with any action and accept no responsibility for the consequences of pursuing any of the findings or actions discussed in the document.

RESOURCES

All modelling has been undertaken using REMPLAN[™] software that has been authored by Principal Research Fellow (ret.), Ian Pinge, at La Trobe University Bendigo.

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Executive Summary

This report has been undertaken in response to a request by Alinta Energy to identify the potential price response from Alinta Energy's competitive entry into the portion of the North West Interconnected System (NWIS) in the Pilbara Region, Western Australia that is owned and operated by Horizon Power. Alinta Energy's entry into these market segments would increase competition and this is anticipated to deliver lower energy costs for customers across the NWIS.

Following the threat of their market entry, Alinta Energy is already observing that a price response has been elicited from its competitor. Regardless of whether companies ultimately transfer their business to Alinta Energy, it is estimated that all customers in this segment will benefit from the increased competition. Based on observations to date, Alinta Energy has estimated a price response of at least 10 percent.

The Australian Government's 2015 Energy White Paper states that improved energy productivity reduces household and business energy costs and encourages economic growth. Energy productivity aims to lower the ratio of energy costs to the value of output received from the use of that energy. Energy productivity can be improved through energy market reforms such as increased competition and cost-reflective pricing that are aimed at lowering costs as well as energy efficiency measures.

The Energy White Paper links competition with cost-effective pricing and positive economic outcomes in relation to:

- Improving Australia's competitive position in global markets
- Attracting investment
- Generating jobs.

In addition to competition, the Energy White Paper also highlights the role of energy efficiency in reducing costs for businesses and consumers. Therefore, whether electricity costs are reduced via the mechanism of competition and lower prices, or due to improved energy efficiency, the impacts for the economy are likely to be positively. Positive impacts for businesses and the broader economy include:

- Higher profits for businesses
- Capacity to offer lower prices
- Increased demand and market share
- Greater capacity to retain high performing staff through offering higher wages
- Capacity to hire more people.

Over a ten-year analysis period, it is estimated Alinta Energy's competitive entry and the associated market response in the form of lower electricity prices would deliver \$241 Million in direct energy cost savings for Pilbara businesses, stimulate economic growth to the value of \$140 Million and support the creation of 22 additional jobs in the Pilbara Region.

Figure 1-1 Summary of Total Economic Benefits

Increase to Economic Growth	\$140.0 M
Direct Energy Cost Savings	\$240.8 M
Peak Employment (from Year 6)	22 Jobs
Wages & Salaries	\$20.1 M
Value-Added	\$80.4 M

1 Introduction

1.1 Purpose and Aim

This report has been undertaken in response to a request by Alinta Energy to identify the economic benefits from its competitive entry into the portion of the North West Interconnected System (NWIS) in the Pilbara Region, Western Australia that is owned and operated by Horizon Power.

The report presents two competitive entry scenarios:

- 1. Alinta Energy Competitive Entry Large Commercial Segment Market Response
- 2. Alinta Energy Competitive Entry Large + Small Commercial + Residential Segments Market Response.

Alinta Energy's entry into these market segments would increase competition and this is anticipated to deliver lower energy costs for customers across the NWIS. The report estimates the implications for the Pilbara Region's economy that are associated with lower electricity costs for large businesses, small firms and residential customers.

The direct and indirect economic impacts for the Pilbara Region and Western Australia associated with Alinta Energy's competitive entry into the Horizon Power owned portion of the NWIS has been estimated in terms of:

- Output / Revenue (\$ M)¹
- Employment (Jobs)²
- Wages and Salaries³, and
- Value-added (\$ M)⁴

Economic analysis in this report was undertaken using REMPLAN – regional economic modelling and analysis system⁵. This study applies REMPLAN economic data for the defined geographies of the Pilbara Region and Western Australia, incorporating data sourced from the ABS 2011 Census, 2013/2014 ABS National Input / Output Tables, and ABS Gross State Product (June 2016).

¹ Output data represents the gross revenue generated by organisations in each of the industry sectors in a defined region. Gross revenue is also referred to as total sales or total income.

² Employment data represents the number of people employed by organisations in each of the industry sectors in a defined region. Employment data presented in this report is destination of work data. That is, no inference is made as to where people in a defined region reside. This employment represents total numbers of employees without any conversions to full-time equivalence. Retail jobs for instance represent typical employment profiles for that sector, i.e. some full time, some part time and some casual.

³ Wages and Salaries paid by organisations in each of the industry sectors in a defined region.

⁴ Value-Added data represents the marginal economic value that is added by each industry sector in a defined region. Value-Added can be calculated by subtracting local expenditure and expenditure on regional imports from the output generated by an industry sector, or alternatively, by adding the Wages & Salaries paid to local employees, the gross operating surplus and taxes on products and production. Value-Added by industry sector is the major element in the calculation of Gross Regional Product/Gross State Product/Gross Domestic Product.

⁵ <u>www.remplan.com.au</u>

1.2 Regions

The economic analysis focuses the market response and electricity price reductions associated with Alinta Energy's competitive entry into the Horizon Power owned portion of the NWIS.





Alinta Energy's entry into the Horizon Power owned portion of the NWIS will increase competition and this is anticipated to deliver lower energy costs for customers as well as economic stimulus for the Pilbara Region and Western Australia.



Figure 1-2 Pilbara Region

http://remplan.co/2gWFaPV

2 Background

2.1 Alinta Energy

Alinta Energy is an Australian utility with an owned and contracted generation portfolio of around 1,800 MW, over 790,000 electricity and gas retail customers and over 400 employees across Australia and New Zealand.

Alinta Energy is a national electricity and gas company spanning the South West Interconnected System (SWIS), North West Interconnected System (NWIS) and South East Pilbara region of Western Australia as well as the National Electricity Market (NEM). Alinta Energy operates seven power stations across Australia and New Zealand, managing fuel sources and transportation, and contributing to competitive prices through its retail and wholesale market operations. Alinta Energy operates in all states across Australia, as well as in New Zealand.

2.2 North West Interconnected System (NWIS)

The NWIS services the Pilbara Region is Western Australia, a region with a population of 65,675 people and with a local economy that is centred around mining. The Pilbara Region makes significant contributions to the State and National economies.



Figure 2-1 Pilbara Region Population

http://remplan.co/2gWQjAa ; ABS Estimated Residential Population

Figure 2-2 Pilbara Region Economic Output

Pibara Region Output by Industry All Industries - All Zones

http://remplan.co/2gWLCpN

The NWIS has grown, since the early 1970s when the iron ore mining companies installed generation and transmission systems to provide electricity for their own purposes. These standalone systems were interconnected in 1985 by the State Energy Commission of Western Australia to serve residential communities and commercial customers.

The NWIS services the communities of Dampier, Wickham, Pannawonica, Paraburdoo and Tom Price through the Pilbara Iron (Rio Tinto) Network and Port Hedland, South Hedland, Karratha, Roebourne and Point Samson through the Horizon Power Network (see figure 1-1).

2.3 Competitive Entry by Alinta Energy

As an initial move, the competitive entry into the NWIS relates to Alinta Energy's plans to sell electricity directly to high demand customers that sit within the dense networks of Karratha and Port Hedland.

Figure 2-3 Large Commercial Segment – Market Res
--

Total Customer Number (count)	150
Total Annual Consumption (MWh)	278,800
Total Annual Energy Costs (\$)	97,598,024
Reduction in Total Annual Energy Costs (\$)	9,759,802

Source: Alinta Energy

Following the threat of their market entry, Alinta Energy is already observing that a price response has been elicited from its competitor. Regardless of whether companies ultimately transfer their business to Alinta Energy it is estimated that all customers in this segment will benefit from the increased competition. Based on observations to date, Alinta Energy has estimated a price response of at least 10 percent.

In addition to the 150 large businesses referred to in figure 2-3 above, Alinta Energy estimates that there are an additional 400 small commercial customers, and 17,000 residential customers, corresponding to additional demand of 310,000 MWh per annum. The 'small commercial + residential customers' is the second market segment on the NWIS in which Alinta Energy would like to enter and compete.

Figure 2-4 Small Commercial + Residential Segments – Market Response

Total Customer Number (count)	17,400
Total Annual Consumption (MWh)	310,000
Total Annual Energy Costs (\$)	143,222,385
Reduction in Total Annual Energy Costs (\$)	14,322,238

Once Alinta Energy enters this market segment an approximate 10 percent price response is also anticipated.

The total price response across all NWIS market segments is detailed below.

Figure 2-5 Large Commercial + Small Commercial + Residential Segments – Market Response

Total Customer Number (count)	17,550
Total Annual Consumption (MWh)	588,800
Total Annual Energy Costs (\$)	240,835,054
Reduction in Total Annual Energy Costs (\$)	24,083,505

Upon Alinta Energy's competitive entry across all market segments, the total estimated reduction in electricity costs is \$24.084 Million per annum.

The large and small commercial and residential segments represent approximately 12.7 percent of electricity demand in the NWIS. The remainder of the demand relates to the mining or port operations of the major mining companies, including BHPB, FMG, Roy Hill and Rio Tinto. These major mining companies already source competitively priced electricity via direct arrangements.

3 Economic Analysis Framework

In the Australian Government's 2015 Energy White Paper the following points are made:

"Improved energy productivity will reduce household and business energy costs and encourage economic growth. Energy productivity aims to lower the ratio of energy costs to the value of output received from the use of that energy. Energy productivity can be improved through energy market reforms such as increased competition and cost-reflective pricing that are aimed at lowering costs as well as energy efficiency measures.

The productive use of energy can lower energy costs by improving both the output and benefit received per unit of energy consumed. The more productive use of energy can delay the need for new energy supply infrastructure, which in turn relieves the need for price increases to recover that investment.⁷⁶

The Energy White Paper links competition with cost-effective pricing and positive economic outcomes in relation to:

- Improving Australia's competitive position in global markets
- Attracting investment
- Generating jobs.

In addition to competition, the Energy White Paper also highlights the role of energy efficiency in reducing costs for businesses and consumers. Therefore, whether electricity costs are reduced via the mechanism of competition and lower prices, or due to improved energy efficiency, the impacts for the economy are likely to be positively. Positive impacts for businesses and the broader economy include:

- Higher profits for businesses
- Capacity to offer lower prices
- Increased demand and market share
- Greater capacity to retain high performing staff through offering higher wages
- Capacity to hire more people.

A 2013 report 'Energy Efficiency and Economic Growth' commissioned by The Climate Institute⁷ incorporates analysis across 28 countries in over 550 observations. The report makes the following observations:

"There is statistical evidence that energy efficiency positively contributes to economic growth. A 1 per cent increase in the level of energy efficiency causes a 0.1 percentage point increase in the rate of economic growth in that year."

⁶ <u>http://ewp.industry.gov.au/</u>

⁷ <u>http://www.climateinstitute.org.au/verve/ resources/Vivid Economics -</u> <u>Energy_efficiency_and_economic_growth_June_2013.pdf</u>

In the 2012 report 'The Energy Efficiency Strategy: The Energy Efficiency Opportunity in the UK' by the Department of Energy & Climate Change (UK)⁸ presented similar findings:

"Economic studies show that improved energy efficiency can bolster productivity, increasing growth and reducing inflation. A study of the Government's energy efficiency policy between 2000-2007 estimated that these policies increased the annual rate of economic growth by around 0.1 percentage points within that period. The study also estimated that these policies resulted in roughly 270,000 additional jobs in 2010 owing to the cumulative impact of higher growth."

This ratio between improved energy efficiency (i.e. reduction in energy costs) energy and economic growth of '1 percent : 0.1 percent', has been applied in this report to as a starting point for estimating the likely economic impacts of Alinta Energy's competitive entry into the NWIS.

⁸ <u>https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/65602/6927-energy-efficiency-strategy--the-energy-efficiency.pdf</u>

4 Economic Impact Scenarios

It is estimated that for every 1 percent improvement in energy efficiency / reduced energy costs, that economic growth increases by 0.1 percent.

The Department of Industry, Innovation and Science estimates that approximately 13 percent of the energy consumed by industry in Western Australia is electricity⁹.

For residential consumers in Western Australia, this is estimated at 53 percent.

On this basis, the following sensitivities have been estimated.

4.1 Commercial Customers

1 percent price reduction in electricity costs = 0.13 percent reduction in energy costs = 0.013 percent increase in economic growth.

4.2 Residential Customers

1 percent price reduction in electricity costs = 0.53 percent reduction in energy costs = 0.053 percent increase in economic growth.

The effect of price reductions for commercial customers and the corresponding economic growth is expected to follow the structure of the Pilbara Region's economy.

⁹ <u>https://industry.gov.au/Office-of-the-Chief-Economist/Publications/Pages/Australian-energy-statistics.aspx</u>

Figure 4-1 Economic Output by Industry – Pilbara Region

Pilbara Region Output by Industry	
All Industries - All Zones	
Industry	Output
Mining	\$32,122.481 M
Construction	\$7,362.396 M
Manufacturing	\$1,809.321M
Transport Postal & Warehousing	\$1,364.920 M
Accommodation & Food Services	\$482,369 M
Administrative & Support Services	\$476.397 M
Professional, Scientific & Technical Services	\$444.562 M
Electricity, Gas, Water & Waste Services	\$343.611 M
Public Administration & Safety	\$336.091 M
Wholesale Trade	\$281.443 M
Education & Training	\$228.011 M
Other Services	\$202.025 M
Health Care & Social Assistance	\$196.380 M
Retail Trade	\$193.979 M
Financial & Insurance Services	\$113.461 M
Information Media & Telecommunications	\$68.029 M
Agriculture, Forestry & Fishing	\$43.845 M
Arts & Recreation Services	\$21.663 M
Total	\$47,251.758 M

http://remplan.co/2gPNqTZ

Relative to electricity cost savings for residents in the Pilbara, it is estimated that the distribution of economic benefits will reflect local household expenditure patterns.

Figure 4-2 Household Expenditure by Industry – Pilbara Region



Total household consumption is the Pilbara Region is estimated at \$1.588 Billion.¹⁰

¹⁰ Household consumption expenditure that is captured in the Pilbara Region. Total household consumption is estimated at \$3.408 Billion which includes imports from the rest of Australia.

5 Economic Impact Analysis

5.1 Scenario 1 - Large Commercial Segment Competitive Entry

Figure 5-1 Large Commercial Segment – Market Response

Total Customer Number (count)	150
Total Annual Consumption (MWh)	278,800
Total Annual Energy Costs (\$)	97,598,024
Reduction in Total Annual Energy Costs (\$)	9,759,802

Source: Alinta Energy

The total reduction in annual energy costs is estimated at \$9.760 Million (10 percent), which is estimated to boost economic growth in the Pilbara Region by 0.13 percent. The Pilbara Region's economic output is estimated at \$47.252 Billion, with the large commercial customers representing \$2.853 Billion (6.0 percent) of this based on their proportionate electricity demand.

An increase in economic growth of 0.13 percent on a base of \$2.853 Billion would equate to \$3.708 Million per annum.

It is important to note that this represents a marginal increase on an economic base which may be increasing or decreasing at different points in time. Therefore, the net effects may higher or lower than the estimated marginal change.

It has also been assumed that the marginal increase in economic output of \$3.708 Million per annum includes all direct as well as follow-on impacts. However, the marginal increase in economic output of \$3.708 Million per annum occurs in addition to the reduction in annual energy costs for large commercial customers of \$9.760 Million per annum.

5.2 Scenario 2 - Small Commercial + Residential Segment Competitive Entry

Figure 5-2 Small Commercial + Residential Segment – Market Response

Total Customer Number (count)	17,400
Total Annual Consumption (MWh)	310,000
Total Annual Energy Costs (\$)	143,222,385
Reduction in Total Annual Energy Costs (\$)	14,322,238

Source: Alinta Energy

The total reduction in annual energy costs for small commercial and residential customers is estimated at \$14.322 Million (10 percent), which is estimated to boost economic growth in the Pilbara Region by 0.24 percent (reflecting the relative mix of small commercial and residential). The Pilbara Region's economic output estimated at \$47.252 Billion, with the small commercial and residential customers representing \$3.172 Billion (6.7 percent) of this based on their proportionate electricity demand. An increase in economic growth of 0.24 percent on a base of \$3.172 Billion would equate to \$7.612 Million per annum.

It is important to note that this represents a marginal increase on an economic base which may be increasing or decreasing at different points in time. Therefore, the net effects may be higher or lower than the estimated marginal change.

It has also been assumed that the marginal increase in economic output of \$7.612 Million per annum includes all direct as well as follow-on impacts. However, the marginal increase in economic output of \$7.612 Million per annum occurs in addition to the reduction in annual energy costs for small commercial and residential customers of \$14.322 Million per annum.

5.3 Scenario 3 – Large + Small Commercial + Residential Segment Competitive Entry

Figure 5-3 Large + Small Commercial + Residential Segment – Market Response

Total Customer Number (count)	17,550
Total Annual Consumption (MWh)	588,800
Total Annual Energy Costs (\$)	240,835,054
Reduction in Total Annual Energy Costs (\$)	24,083,505

Source: Alinta Energy

The total reduction in annual energy costs for large and small commercial and residential customers is estimated at \$24.084 Million (10 percent), which is estimated to boost economic growth in the Pilbara Region by 0.19 percent (reflecting the relative mix of large and small commercial and residential). The Pilbara Region's economic output corresponding to the large and small commercial and residential market segments is estimated at \$6.024 Billion (12.7 percent of the Pilbara Region's total economic output of \$47.252 Billion).

An increase in economic growth of 0.19 percent on a base of \$6.024 Billion would equate to \$11.320 Million per annum.

It is important to note that this represents a marginal increase on an economic base which may be increasing or decreasing at different points in time. Therefore, the net effects may be higher or lower than the estimated marginal change.

It has also been assumed that the marginal increase in economic output of 11.320 Million per annum includes all direct as well as follow-on impacts. However, the marginal increase in economic output of \$11.320 Million per annum occurs in addition to the reduction in annual energy costs for large and small commercial and residential customers of \$24.083 Million per annum.

5.3.1 Major Mining Companies

As stated above, the large and small commercial and residential customer segments represent approximately 12.7 percent of electricity demand in the Pilbara Region. The remainder of the demand relates to the mining or port operations of the major mining companies, including BHP Billiton, Fortescue Metals Group, Roy Hill Iron Ore, Citic Pacific Mining and Rio Tinto. These major mining companies already either self-supply or competitively source their power requirements through direct power purchase agreements.

While these major mining companies will not be directly impacted by Alinta Energy's competitive entry into the Horizon Power owned portion of the NWIS, indirect benefits are anticipated through lower costs, including for:

- energy requirements for mining camps and accommodation
- goods and services procured in the Pilbara to run and support mining operations.

The competitive entry by Alinta Energy will lower electricity prices in the broader environment that the major mining companies operate, thereby contributing to the following anticipated outcomes:

- improving the Pilbara Region's competitive offer in the context of the global environment
- increasing investment
- boosting local employment
- lowering electricity costs for residents and improving the attractiveness of locally base employment in the mining sector vis-à-vis FIFO employees
- placing modest downward pressure on direct electricity provision for the major mining companies over time.

In relation to the final point above, it is estimated that after five years following Alinta Energy's competitive entry, via the indirect factors detailed above, there will be a 1 percent reduction in electricity costs for the major mining companies.

After 5 years, the total reduction in annual energy costs for the major mining companies of 1 percent is estimated to boost economic growth in the Pilbara Region by 0.013 percent (the same ratio as estimated for the large commercial segment). The Pilbara Region's economic output corresponding to the major mining companies is estimated at \$41.228 Billion (87.3 percent of the Pilbara Region's total economic output of \$47.252 Billion).

An increase in economic growth of 0.013 percent on a base of \$41.228 Billion would equate to \$5.360 Million per annum.

It is important to note that this represents a marginal increase on an economic base which may be increasing or decreasing at different points in time. Therefore, the net effects may higher or lower than the estimated marginal change.

Figure 5-4 Total Annual Economic Growth (\$M) – For Years 1-5 of Analysis Period

Large Commercial Small Commercial & Residential	3.708 7.612
Major Mining Company	0.000
Total	11.320

Figure 5-5 Total Annual Economic Growth (\$M) – From Year 6 of Analysis Period

Small Commercial & Residential	7.612
Major Mining Company	5.360
Total	16.680

The following summarises the estimated direct and flow-on industrial (supply chain) and consumption (household expenditure) impacts associated with Alinta Energy's competitive entry and subsequent electricity price responses over a 10-year period.

5.4 Economic Growth Over 10 Years - Summary Impacts

Figure 5-6 Breakdown of Estimated Economic Growth Over Ten Years

\$ Million	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Large Commercial	3.708	3.708	3.708	3.708	3.708	3.708	3.708	3.708	3.708	3.708	37.080
Small Commercial & Residential	7.612	7.612	7.612	7.612	7.612	7.612	7.612	7.612	7.612	7.612	76.120
Major Mining Company	-	-	-	-	-	5.360	5.360	5.360	5.360	5.360	26.800
Total:	11.320	11.320	11.320	11.320	11.320	16.680	16.680	16.680	16.680	16.680	140.000

5.5 Economic Growth Over 10 Years - Output

Figure 5-7 Direct + Industrial + Consumption Effects – Output



5.6 Peak Employment (From Year 6) ¹¹

Figure 5-8 Direct + Industrial + Consumption Effects - Employment



¹¹ Employment data represents the number of people employed by businesses/organizations in each of the industry sectors in a defined region. Employment data presented in this report is destination of work data. That is, no inference is made as to where people in a defined region reside. This employment represents total number of employees without any conversion to full-time equivalence. Retail jobs for instance represent typical employment profiles for that sector, i.e. some full time, some part time and some casual.

5.7 Economic Growth Over 10 Years - Wages & Salaries

Figure 5-9 Direct + Industrial + Consumption Effects – Wages & Salaries



5.8 Economic Growth Over 10 Years - Value-Added

Figure 5-10 Direct + Industrial + Consumption Effects – Value-Added



6 Summary of Economic Benefits Over 10 Years

Figure 6-1 Total Economic Benefits – Summary

\$real, M	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Economic Growth											
Large Commercial	3.71	3.71	3.71	3.71	3.71	3.71	3.71	3.71	3.71	3.71	37.08
Small Commercial & Residential	7.61	7.61	7.61	7.61	7.61	7.61	7.61	7.61	7.61	7.61	76.12
Major Mining Companies	0.00	0.00	0.00	0.00	0.00	5.36	5.36	5.36	5.36	5.36	26.80
Total	11.32	11.32	11.32	11.32	11.32	16.68	16.68	16.68	16.68	16.68	140.00
Additional Direct Energy Cost Saving	gs										
Large Commercial	9.76	9.76	9.76	9.76	9.76	9.76	9.76	9.76	9.76	9.76	97.61
Small Commercial & Residential	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	143.22
Major Mining Companies	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	24.08	24.08	24.08	24.08	24.08	24.08	24.08	24.08	24.08	24.08	240.83

Figure 6-2 Total Effects – Summary

Increase to Economic Growth\$140.0 MDirect Energy Cost Savings\$240.8 MPeak Employment (from Year 6)22 JobsWages & Salaries\$20.1 M		
Direct Energy Cost Savings\$240.8 MPeak Employment (from Year 6)22 JobsWages & Salaries\$20.1 M	Increase to Economic Growth	\$140.0 M
Peak Employment (from Year 6)22 JobsWages & Salaries\$20.1 M	Direct Energy Cost Savings	\$240.8 M
Wages & Salaries \$20.1 M	Peak Employment (from Year 6)	22 Jobs
	Wages & Salaries	\$20.1 M
Value-Added \$80.4 M	Value-Added	\$80.4 M

Over the ten-year analysis period it is estimated that Alinta Energy's competitive entry will generate \$241 Million in direct energy cost savings for commercial and residential customers, support increased economic growth by \$140 Million and, from year 6, create 22 additional jobs in the Pilbara Region.