Design 5551

PILBARA/NEWMAN POWER GRID SUMMARY-DRAFT

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Newman Mains/Grid Power Supply

*Please take note, most of these statements are simply quotes taken from the referenced documents, please see the original and **do not copy text from here into any submissions** (as it will likely constitute plagiarism).*

1.0 Summary

So from what I can gather from the scrambled facts and news articles…
BHP built the Newman power station in 1996.

https://www.mediastatements.wa.gov.au/Pages/Court/1996/07/Official-opening-of-BHP-Newman-gas-fired-power-station.aspx

"Mid-1998: BHP sold off the […] Newman power stations in WA to Duke Energy. "

https://www.crikey.com.au/2004/04/23/the-great-australian-power-sell-off/

Duke then Newman power station sold it to Alinta energy in 2004.

http://www.smh.com.au/articles/2004/03/15/1079199139112.html

Alinta operated it for BHP until ~2012/2013 when BHP built their own power plant at Yarnima

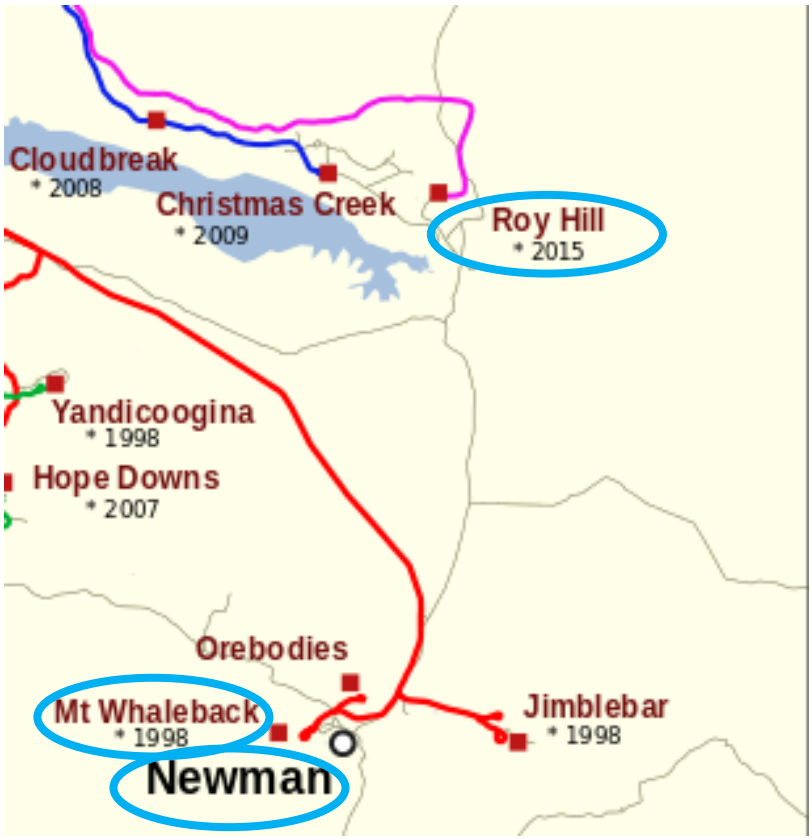
https://thewest.com.au/news/wa/roy-hill-in-legal-row-with-alinta-energy-ng-ya-107096

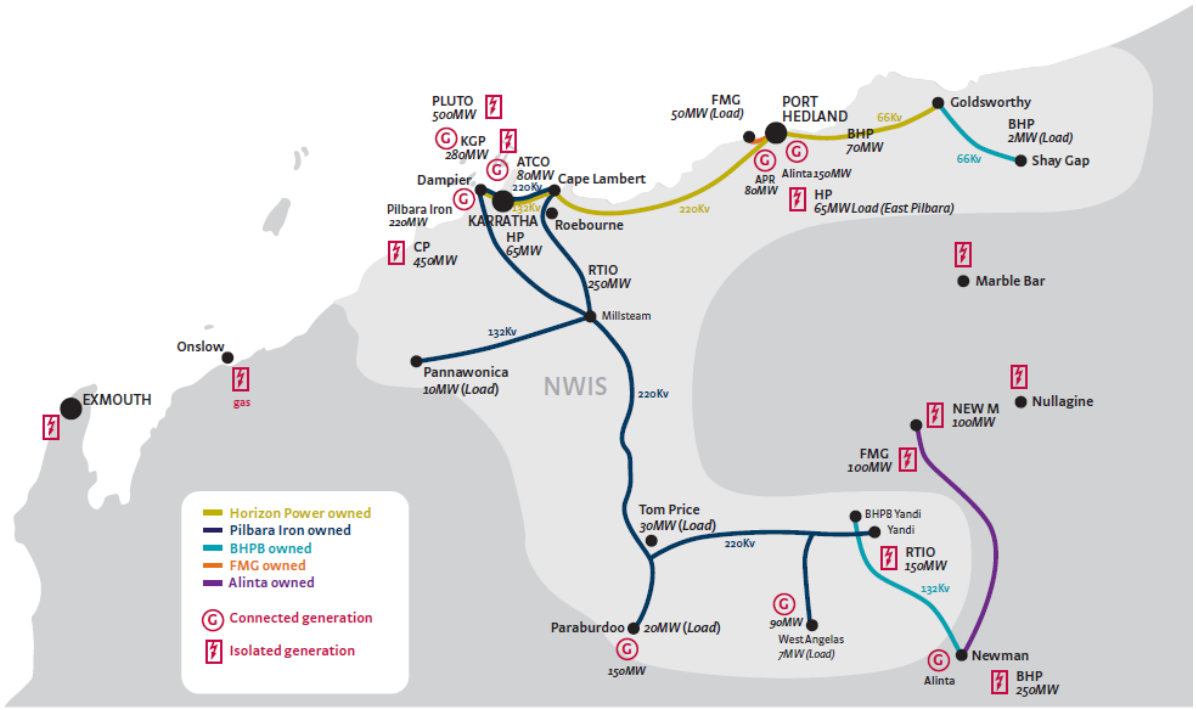
Alinta now supplies the Roy Hill mine (G rhineheart 70% owner)

https://www.alintaenergy.com.au/wa/about-us/power-generation/newman

We need to know whether we are hypothetically connecting to the Roy Hill iron ore or the BHP iron ore operations (Yarnima) power grid…

2.0 Maps and Diagrams





I assume “new M” is Roy Hill considering its location and considering it’s purple (Alinta owned)

3.0 Newman

"The township of Newman is located approximately 1200km to the north of Perth, within the Shire of East Pilbara. The electricity network is owned, governed and operated by BHP Billiton Iron Ore Supply Authority (BHPBIOSA). The network encompasses the township of Newman, Newman Airport, Capricorn Roadhouse, town water supply bore field, Mt Whaleback iron ore mine, and several smaller mine leases in the adjacent areas."

http://tinyurl.com/jn5xa9d

"At present, the township of Newman includes 2,938 registered premises comprised of a mixture of residential and commercial customers (compared to 2,546 customers for 2014/15 FY). ~~According to~~ Western Australia Electricity Industry (Network Quality and Reliability of Supply) Code 2005 (the Code), ~~an electricity distributor must prepare a report setting out the information described in Schedule 1 of the Code, in respect to each year ending on 30 June~~."

http://tinyurl.com/jpc8aar

4.0 Power Generation and Supply

Immediately below is as of 19/09/11:

"Stage two of Alinta's plan is to offer connections from the 178 megawatt Newman station to more of the -surrounding area, including the expanding BHP Billiton mines west of the town and Fortescue 's complex of mines to the north in the Chichester Hub. The final stage is to connect Newman back to Port Hedland and the Northwest Interconnected Grid via a new cross-country transmission line, the East Pilbara Link.

The exact route of the link will be determined by whichever customer is first to sign. "Our blueprint is that when Newman is on the grid all the way back to Port Hedland, we will have much better quality of supply in the region that other people could use," Mr Dimery said. The link's general route will run past mine projects being developed by Hancock Prospecting as well as rapidly growing mid-tier iron ore miners such as Atlas Iron and Brockman Resources: the type of customers for which Mr Dimery believes outsourced power could offer considerable scale economy over in-house generation. New mine projects can stand or fall on the cost of energy supply (one reason for the mining industry's sensitivity about the carbon tax), while the potential risk from unreliable supply is obvious. Grid power would have to beat both the diesel generation generally used in short-life mines or a more expensive direct connection to the gas pipeline network.

Alinta is putting great store on having existing generators which can be worked harder, giving it what Mr Dimery claims will be a lower cost offer than any other power industry entrant. Once the East Pilbara Link is in place, then the Newman station is also likely to be converted to combined-cycle technology, which reuses hot exhausts to boost the energy output of a power station for the same amount of fuel. The estimated three-year long -Pilbara plan is a priority for Alinta"

http://www.afr.com/markets/commodities/metals/battle-to-power-up-the-pilbara-20110918-i489o

Immediately below is as of 03/01/13

"Alinta chief executive Jeff Dimery told The West Australian newspaper the power line project was in response to the utility losing its contract to supply BHP Billiton's Newman operations from 2014, leaving its 140MW gas-fired plant stranded. BHP announced last year it would spend $US597 million building its own, on-mine, 190MW power station."

http://www.nationalminingchronicle.com.au/news/17-interview-3/6894-alinta-targets-roy-hill-supply

Immediately below is as of 27/3/15

"Alinta said yesterday it had completed construction and commissioning of a 121km long, 200 kilovolt transmission line from its Newman power station to the Roy Hill mine site, ahead of schedule and within its undisclosed budget.

[….]

For Alinta, it ends uncertainty around the future of its 178 megawatt gas-fired power station in Newman, which was on the verge of redundancy after previous anchor customer BHP Billiton decided to build its own electricity generator."

https://thewest.com.au/business/finance/roy-hill-gets-connected-ng-ya-387979

"Newman Power Station is a 178MW gas-fired power station that supplies power via a 220kV transmission line, that is owned by Alinta Energy, to the Roy Hill mine site which is approximately 120 km north of the Newman township in the Pilbara region of WA. Natural gas is transported to the Newman Power Station via the Goldfields Gas Transmission Pipeline of which Alinta Energy owns 11.8%. The Newman Power Station has approximately one million litres of diesel fuel stored on site at any time so that in the event of a gas supply interruption it can switch to diesel fuel and continue to generate electricity for its customers.

https://www.alintaenergy.com.au/wa/about-us/power-generation/newman

"Newman Power Station is a power station in Newman, WA part of the Pilbara region of Western Australia. It is located about 1,186 kilometres (737 mi) north of Perth, and 9 kilometres (5.6 mi) north of the Tropic of Capricorn. It is a 178MW natural gas-fired power station servicing BHP Billiton's "islanded grid". Newman currently provides 100% of the power requirement of the islanded grid which supplies electricity to the Mt Newman Joint Venture operated by BHP Billiton Iron Ore." The station was commissioned in 1996."

https://en.wikipedia.org/wiki/Newman_Power_Station

"BHP Billiton owns and operates a 132 kV transmission line from Newman to its operations at Yandi and 'Area C' with electricity provided to the towns of Newman and these operations from power stations in Newman owned by Alinta. Although this network is in close proximity to the North West Interconnected System, it is not interconnected."

"There are a number of generators that supply townships and resource/mining projects (predominantly iron ore), which are either on the fringe of, or isolated from, the North West Interconnected System (Table 4.4). As already noted, Newman's power is supplied by a 140 MW power station owned by Alinta in addition to its supply of power to BHP's mining operations."

"There is currently a significant amount of under-utilised generation capacity in the Pilbara due to the number of self-generation facilities, that are not articulated to interconnected networks. If these assets could be accessed to make more efficient use of existing capacity, it is likely that less new generation investment would be required to transport the electricity to the load centres."

Table 4.3. Pilbara energy generation – North West Interconnected System

Location	Plant name	Company	Size / type	Total capacity (MW)	Commissioned
Cape Lambert ^		Rio Tinto	Steam turbine	105	1972
Dampier ^		Rio Tinto	Steam turbine	120	1970
Karratha	Karratha Power Station	ATCO Power	2 x 43 MW GE LM6000 PD DLE gas turbines (HEGT)	86	2010
Karratha	Yurralyi Maya (7 Mile)	Rio Tinto	Gas turbine	160	2010
Port Hedland	Boodarie	Alinta Energy	2 x 32 MW GE Frame 6B open cycle gas turbines	64	1996
Port Hedland	Port Hedland Power Station	Alinta Energy	3 x 32 MW GE Frame 6B open cycle gas turbines	96	1998

Table 4.4. Pilbara energy generation – Detached (Island) Systems

Location	Plant name	Company	Size / type	Total capacity (MW)	Commissioned
Burrup Peninsula	Karratha Gas Plant	Woodside	6 off frame 5s GTG and 4 off LM6000s	240	007
Burrup Peninsula *	Pluto Phase 1	Woodside	4 off frame 6s GTG	160	2010
Cloud Break		Contract Power	Diesel generator	36	2001
Cloud Break (Emergency)		Contract Power	Diesel generator	2	2008
Newman	Iron Ore Mine	Alinta Energy	3 x 32 MW GE frame 6B open cycle gas turbines 1 x 44 MW Rolls Royce Trent open cycle gas turbine	140	1996 2009
Marble Bar		Horizon Power	Solar/diesel generator	0.3/1.28	2010
Nullagine		Horizon Power	Solar/diesel generator	0.2/0.96	2010
Onslow		Onslow Electric Power	Gas turbine	3.6	1999
Onslow		Horizon Power	Diesel generator	3 (standby)	
Paraburdoo		Rio Tinto	Gas turbine	120	2006
Paraburdoo		Rio Tinto	Gas turbine	20 (standby)	1985
Telfer	Telfer Gold Mine	Newcrest Mining	3 x 46 MW gas turbine/ 21 MW diesel generator	159	2005/1978
Wodgina		Energy Generation	Gas turbine	13.7	

* Yet to commence operation

Source: Office of Energy (2010)

https://www.planning.wa.gov.au/dop_pub_pdf/pilbara_part3(1).pdf

5.0 Further resources

Slides about the Pilbara eastlink

https://www.slideshare.net/informaoz/ken-woolley-and-michael-riches-alinta-energy

Alinta Pilbara battery storage

http://reneweconomy.com.au/alinta-mulling-huge-battery-storage-in-pilbara-to-displace-gas-generation-47833/