



Pilbara Networks Rules Rule Change Proposal Submission

PRC_2022_01: Integrated LNG Systems

Submitted by:

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1. Please provide your views on the proposal, including any support, objections, or suggested revisions.

The NWIS is comprised of interconnected electricity generation, transmission and distribution assets in the Pilbara region of Western Australia, including the major towns of Port Hedland and Karratha. The NWIS is made up of assets owned by many different parties, under both private and public ownership.

Historically, the NWIS has not been centrally planned and has therefore evolved in an ad hoc manner over several decades as resources and energy companies made individual investments in generation capacity and network infrastructure to meet their own needs.

The Pilbara region is a significant economic driver for Western Australia, yet the electricity system supporting the region has historically been fragmented and uncompetitive. The ad-hoc evolution of the supporting infrastructure has, at times, led to sub optimal outcomes.

Given this, Alinta Energy has long supported the Pilbara Electricity Reforms, recognising the significant benefits that will flow to both participants and customers of the NWIS from an open access regime which supports further interconnection, where all parties utilise the same technical rules and are obliged to do their part to maintain system security and reliability.

These benefits include significant energy cost savings for customers leading to material economic growth; greater innovation in the generation and retailing of electricity; allowing for more efficient use

of electricity infrastructure; and providing significantly improved opportunities for decarbonisation initiatives.

To that end, Alinta Energy is supportive of Woodside's desire to connect the Pluto Facility to the NWIS along with the development of a solar farm and battery energy storage system and other associated infrastructure.

However, Alinta Energy has material concerns with the Rule Change Proposal, which seeks to facilitate the connection of the Pluto Facility (including gas turbine generators and large industrial loads) by exempting it from certain system operation directions and the Harmonised Technical Rules (HTR) beyond the point of interconnection which could be contrary to the principle that all participants do their part to maintain system security and reliability. Woodside considers that the exemptions are required so that it can:

- retain operational control of the Pluto generating units¹, and
- avoid the cost and delays associated with undertaking upgrades that would be required for the Pluto Facility to comply with the HTR behind the interconnection point² for the life of the facility, even if Woodside pursues a material upgrade³.

Alinta Energy does not support the Rule Change Proposal as drafted, on the basis that:

- To operate securely and reliably, an interconnected system needs to be able to be managed. However, the proposal may limit the ability of the ISO to perform its primary function of maintaining and improving system security.
- An exit service is a contractual limitation not a physical limitation, so it is unlikely to avoid the whole-of-system security risks as suggested by the proposal.
- The introduction of new and bespoke participant categories with materially limited obligations to comply with the HTR and ISO directions is not good regulatory practice and may limit the ability of the ISO to perform its primary function.
- The PNR already contains processes for seeking exemptions and derogations from both the PNR and HTR and should be used if practicable.
- It has not been demonstrated that adequate consideration has been given to the technical issues associated with the proposal. A blanket exemption from compliance with the HTR beyond the point of interconnection, both initially, and for the life of the facility, may impact the security and reliability of the NWIS and expose other NWIS users⁴ to supply interruptions resulting in economic loss to those businesses and the State.
- The proposal may limit the ISO's role in the access and connections process.
- The proposal does not consider the impacts that an up to 500MW solar farm may have on the interconnected system following the disconnection of the Pluto Facility and how balancing and ESS requirements and cost allocations will be managed.

To operate securely and reliably, an interconnected system needs to be able to be managed

Interconnected systems such as the NWIS operate as a single electrical machine, every part of which (network elements, generators and loads) can influence every other part, almost instantaneously. To operate securely and reliably, an interconnected system needs to be managed, to ensure that voltage,

1 Para 16, PRC_2022_01, available here: [Microsoft Word - PRC_2022_01 - Rule Change Proposal \(www.wa.gov.au\)](https://www.wa.gov.au)

2 Paras 19(c) and (e), PRC_2022_01.

3 Para 19(g), PRC_2022_01.

4 Primarily the iron ore loading facilities of BHP, Rio Tinto, FMG and Roy Hill

frequency and other technical parameters remain within certain operational bounds, and to respond to contingencies (i.e. faults, outages and other incidents) as they occur.

For example, if a generator trips off (i.e. disconnects itself from the system in order to protect itself or the system during an equipment failure), voltage and frequency on the system will start to fall. Other generation will need to increase output to fill the gap left by the disconnected generator. Otherwise, the grid can become unstable and blackouts or equipment damage could occur.

Such responses to contingencies involve a mixture of automated systems and human intervention. In the NWIS, system operations directions can be issued by the ISO, the ISO control desk or a relevant NSP. However, Woodside's proposal limits the ability of the ISO and the ISO control desk to utilise a full suite of interventions should it be required.

By limiting the ISO's ability to direct a facility will not only dilute the effectiveness of any remediation but also drive the ISO to rely more heavily on directing other facilities, which may lead to a disproportionate loss of autonomy and unfavourable impact on other facilities. This would not be consistent with the "efficient operation and use of, services of Pilbara networks for the long-term interest of consumers".

An exit service is a contractual limitation not a physical limitation

Alinta Energy notes that the Rule Change Proposal appears to rely on the fact that "an exit only service will be sought, meaning that during normal operating conditions, the Pluto Facility will only import electricity from the NWIS" and that infers that this, coupled with the ability to disconnect, will remove the need for the ISO to issue certain directions to the facility to ensure the security and reliability of the other interconnected systems.

An exit service is merely a contractual limitation. Electrons follow the path of least resistance and while there may be a contractual requirement to only import electricity from the NWIS, Alinta Energy is concerned that following a contingency event in the Pluto system, uncontrolled active and reactive power flowing into the NWIS may trigger further disturbances before action can be taken.

The introduction of new and bespoke participant categories is not good regulatory practice and may limit the ISO performing its primary function

Alinta Energy is concerned that creating another new participant category for the PNR with derogations and exemptions in perpetuity is not good regulatory practice as it:

- leads to the potential for individual participants to seek their own market rules to allow similarly broad exemptions; and
- potentially limits the ISO's ability to perform its primary function of maintaining and improving system security (for example, if a significant power system security issue arose, the ISO may have to seek a rule change to remedy which could present a material risk to the NWIS as a whole).

Alinta Energy is also concerned that this would create an undesirable precedent for future interconnections and may not be consistent with the objectives of the Pilbara Electricity Reforms, which was, among other things, to improve coordination in network planning and system operation, with a view to improving both efficiency and security and to harmonise arrangements where practicable.

If new connections seek similarly broad exemptions from the HTR and obligations to follow ISO directions, then Alinta Energy questions whether the power system could be managed to the extent required to support further connections – a key objective of the Pilbara Electricity Reforms.

Additionally, connection applicants may face greater barriers to access, noting that exemptions that are not properly adjudicated per the processes contained in the PNR (see below) create an uneven playing field and may shift the burden of maintaining power system security onto a subset of users.

Alinta Energy suggests that the adverse impacts of this precedent, and potential barrier to access noting that Woodside's situation is unlikely to be unique and that many other large operations in the Pilbara may seek to connections to the NWIS to access renewable energy resources and integrate renewable energy into their operations more efficiently and securely.

The PNR already contains processes for seeking exemptions and derogations from both the PNR and HTR and this should be used where practicable

Rule 57 allows the ISO to grant an exemption from one or more requirements of the PNR and Rule 64 allows an NSP to grant an exemption from one or more requirements of the HTR.

Given the existence of an exemptions and derogations framework, and consistent with what was anticipated would occur when a non-covered non-NWIS network connects in to the NWIS⁵, Alinta Energy considers that the integrated mining network category should be utilised to cater for the connection of the Pluto facility (and therefore other integrated LNG networks in the future) and Woodside apply for specific exemptions and derogations under rules 57 and 64 of the PNR as and where required.

This approach will give all participants, the ISO and Government the certainty that each exemption will not impact the safety, security and reliability of the NWIS as a whole.

It has not been demonstrated that adequate consideration has been given to the technical issues associated with the proposal

A blanket exemption from compliance with the HTR beyond the point of interconnection both initially and for the life of the Pluto Facility may impact the security and reliability of the NWIS.

Initial exemption

Clearly, changing the compliance requirements after a facility has been commissioned can cause the facility owner to incur additional cost or risk. This should not be done unless there is a clear risk by not doing so and even then, it is usually appropriate to grandfather historic requirements applying to the facility for some time (if it can be proven that the grandfathered requirements do not cause any power system security and reliability concerns).

Given this, Alinta Energy does not support the Rule Change Proposal providing a blanket exemption to the HTR beyond the point of interconnection without further investigation and modelling. This is on the basis that we cannot be certain that this exemption would not compromise the reliability and security of other interconnected networks and may expose other NWIS users to supply interruptions resulting in economic loss to those businesses and the State. Avoiding these risks would require an assessment of: the technical requirements of the connection point; the scenarios that could cause adverse impacts on either side; and protections that could avert these impacts. However, no such analysis is provided to support the proposal's statement there would be "no adverse effect on safety, security and reliability of the NWIS".

Alinta Energy supports the establishment of a technical working group to assess the complex issues associated with the exemptions from the HTR sought by Woodside. This process is critical to ensure that

⁵ The anticipated regulatory outcome was that, once connected, the network would automatically get the same status as the Rio Tinto network. Refer to scenario 1 in the Pilbara Electricity Reforms Scope of Application discussion paper, dated May 2020.

the technical requirements required to be achieved at the point of connection are clearly defined and that these can be complied with for all dispatch scenarios and credible network events. Specifically, Alinta Energy considers that the following will need to be considered by the Technical Working Group:

- Define the steady state and dynamic technical requirements at the point of connection;
- Identify all credible “operating scenarios/events” on both sides of the point of connection that may lead to interaction between the two systems;
- Understand the control/protection philosophies and how they will deal with the identified scenarios/events; and
- Demonstrate that there is no risk to security and reliability of any interconnected network via modelling.

While supportive of the technical working group, Alinta Energy considers that there are several critical areas of the HTR where exemptions may not be able to be granted such as power quality parameters⁶ and under frequency load shedding.

Exemption for the life of the Pluto facility

Woodside has proposed that the blanket exemption to the HTR remain in place for the life of the Pluto Facility to provide “certainty that there will not be perverse outcomes in the event it pursues a material upgrade”.

Alinta Energy does not support granting this exemption in perpetuity via the rule change. This is on the basis that we cannot be certain that this would not compromise the reliability and security of the NWIS and any interconnected Pilbara system at any time in the future.

An overarching goal of the Pilbara Electricity Reforms was to maintain and improve power system security. Grandfathering and exemptions should not place this at risk.

Given this, Alinta Energy strongly recommends that either:

- the established PNR processes for losing this grandfathered status apply as they do for any other facility connected to the NWIS⁷; or
- a review of the technical requirements at the point of connection is triggered if the ISO identifies an impending security risk or there is a material change to the Pluto Facility.

Alinta Energy considers that this is appropriate as it means the ISO can continue to perform its primary function of maintaining and improving system security over the course of time, without requiring a rule change proposal of its own to resolve any emerging technical issues.

Further this this, adopting a similar basis for the treatment of grandfathering for all facilities connected to the NWIS ensures that no generation facility has a competitive advantage over another in this respect. This will become important as the NWIS regulatory regime evolves, particularly if an economic dispatch model is adopted.

The proposal may limit the ISO's role in the access and connections process.

⁶ For example: HTR section 2.2 (Frequency Variations, Steady State Power Frequency Voltage, Short Term Voltage Stability, Transient Rotor Angle Stability, Oscillatory Rotor Angle Stability), section 2.3 (Frequency Control, Harmonics, Power System Stability & Dynamic Performance) section 2.4 (UFLS & Islanding Scheme), section 2.5 (Transmission & Distribution Planning Criteria) and section 2.6 (Transmission and Distribution System Protection) and section 3 (Technical Requirements of User Facility).

⁷ Refer to PNR Appendix 3 – Legacy arrangements for harmonised technical rules

The PNR sets out the ISO's access and connection role, which is, among other things, to:

- supervise the standards being applied by registered NSPs for new connections⁸;
- provide modelling services for the preparation and processing of access applications and negotiation of network access contracts⁹; and
- Certify whether a new connection can or cannot proceed¹⁰.

The Rule Change proposal states that “Woodside is at an advanced stage of development of the Scarborough gas field and associated infrastructure at the Pluto Facility. There is currently no capacity to undertake any material upgrades to the power infrastructure at the Pluto Facility for a number of years. It is also uncertain what the scale of work or cost to bring the Pluto Facilities into full compliance with the HTR would be¹¹”.

Alinta Energy is concerned that this statement, and the associated rule change request, could limit the ISO's role in the access and connections process to both supervise the standards being applied by registered NSPs for new connections and certify whether a new connection can or cannot proceed. Alinta Energy strongly considers that if at any point in time the ISO's modelling indicates that the Pluto facility may jeopardise power system security, then Woodside must be obligated to remedy any issues, despite being “at an advanced stage of development”.

The proposal does not appear to consider the impacts that an up to 500MW solar farm may have on the interconnected system and how this relates to balancing and ESS requirements and cost allocations

The Rule Change Proposal notes that “initial solar PV generation capacity is expected to be up to 100 MW. As additional customer demand arises, the solar PV farm may be expanded in phases up to a maximum capacity of approximately 500 MW”¹² and that “the electricity infrastructure at the Pluto Facility, when connected to the NWIS, will be configured so that each of Woodside, Horizon Power (in accordance with the interconnection works to be performed by Horizon Power) and the ISO will be able, at any time and for any reason, to disconnect the Pluto Facility from the NWIS (including in response to a contingency event on either side of an interconnection point)¹³”.

Alinta Energy is concerned that there is no consideration in the Rule Change Proposal of the impacts that an up to 500MW solar farm may have on the rest of the interconnected system if the Pluto Facility is disconnected (and had been consuming electricity from the solar farm prior to the disconnection). In this case there would be an instantaneous impact on the rest of the NWIS. These issues could be exacerbated if there is patchy cloud cover which, from our experience from the 60MW solar farm on our inland Newman Network, can cause 80% loss of generation in less than 2 minutes

The PNR provides for a “dispatch to contract” regime and includes a broad energy balancing obligation on covered networks¹⁴ i.e. all energy generated should be consumed in real time. Management of unexpected solar generation on the covered networks may mean that the general obligation to balance may not be able to be met by the covered NSPs, which could lead to a covered NSP being liable for balancing charges through no fault of its own (which could be at the administered price or the administered penalty price if this unexpected solar generation causes it to operate outside the tolerance margin). If this rule change proposal were to proceed, Alinta Energy considers that the

8 Refer to PNR rule 268(1)(a)

9 Refer to PNR rule 268(1)(c)

10 Refer to PNR rule 270

11 Para 19(c), PRC_2022_01.

12 Para 6, PRC_2022_01.

13 Para 8(c), PRC_2022_01.

14 Refer rule 169 PNR

energy balancing regime may need to be reviewed to assess whether there are any perverse impacts on other interconnected networks such as the Alinta DEWAP network.

In addition to this, the ESS cost allocations may also need to be considered to ensure that these costs are allocated fairly and equitably and based on long term use/need/risk and the principal that causer pays.

Conclusion

Alinta Energy:

- Supports, in principle, Woodside's desire to connect the Pluto Facility to the NWIS along with the development of a solar farm and battery energy storage system and other associated infrastructure.
- Has material concerns with the Rule Change Proposal as drafted and considers that the integrated mining network category could be utilised to cater for the connection of the Pluto facility.
- Supports Woodside applying for specific exemptions and derogations under rules 57 and 64 of the PNR as this will give the ISO, other participants and Government the certainty that each exemption will not impact the safety, security and reliability of the NWIS as a whole.
- Supports the establishment of a technical working group with the objective of establishing an informed view regarding the technical and complex issues associated with the exemptions from the HTR sought by Woodside.
- Strongly considers that grandfathering or exemptions cannot exist in perpetuity: to support a level playing field and maintain security and reliability, the same loss of grandfathering rules should apply to all facilities; alternatively, the rules could be amended to trigger review of the technical requirements at the point of connection where the ISO identifies an impending security risk or there is a material change to the Pluto Facility.
- Considers that consequential amendments to the balancing and ESS regimes may be required should the rule change proceed.

2. Please provide an assessment whether the change will better facilitate the achievement of the Pilbara electricity objective.

The Pilbara electricity objective is to promote efficient investment in, and efficient operation and use of, services of Pilbara networks for the long-term interests of consumers of electricity in the Pilbara region in relation to —

- (a) price, quality, safety, reliability and security of supply of electricity; and
- (b) the reliability, safety and security of any interconnected Pilbara system.

Alinta Energy does not consider that the Rule Change Proposal, as drafted, will better facilitate the achievement of the Pilbara electricity objective as a whole. Specifically:

Objective	Assessment
Promote efficient investment in, and efficient operation and use of, services of Pilbara networks for the long-term interests of consumers	While the Rule Change Proposal encourages connection of the Pilbara LNG industry and incentivises more renewable generation projects, Alinta Energy is concerned that the proposal to limit the ISO's ability to direct certain facilities will not only dilute the effectiveness of any remediation but also drive the ISO to rely more heavily on directing other facilities, which may lead to a disproportionate loss of autonomy and

Objective	Assessment
	<p>unfavourable impact on other facilities. This would not be consistent with the “efficient operation and use of, services of Pilbara networks ...”.</p> <p>This precedent may also present barriers to entry for non-LNG users seeking to connect to the NWIS and undermine the ability of the ISO to support and manage large users seeking connection in future.</p>
<p>Promote efficient investment in, and efficient operation and use of, services of Pilbara networks for the long-term interests of consumers of electricity in the Pilbara region in relation to —</p> <p>(a) price, quality, safety, reliability and security of supply of electricity</p>	<p>Increased interconnection is likely to lead to higher reliability and security of supply in and of itself. However, Alinta Energy is not convinced that the proposal itself will lead to higher reliability and security of supply due to the blanket exemption to the HTR behind the connection point and the limitations placed on the ISO in directing the facility to maintain security and reliability. This will need to be tested via the technical working group and the NSP and ISO access and connection processes.</p> <p>Increased renewable generation capacity in the NWIS may lead to a reduction in the price of electricity. However, this will need to be offset by sufficient ESS (which comes at a cost itself).</p>
<p>Promote efficient investment in, and efficient operation and use of, services of Pilbara networks for the long-term interests of consumers of electricity in the Pilbara region in relation to —</p> <p>...</p> <p>(b) the reliability, safety and security of any interconnected Pilbara system.</p>	<p>While the Rule Change Proposal requires HTR compliance at the connection point and allows for the ISO and others to disconnect the Pluto Facility, Alinta Energy is not convinced that the proposal promotes the security and reliability of any interconnected system.</p> <p>The reason for this is that:</p> <ul style="list-style-type: none"> • There has been no modelling or technical assessment undertaken. • The ISO may be limited in performing its primary function if the HTR exemption beyond the connection point exists in perpetuity. • There has been no assessment of any additional rule changes required to accommodate an up to 500MW solar farm may have on the interconnected system and the balancing and ESS regimes. • If an incident occurred at the Pluto facility as a result of the HTR exemption, there may be an impact on an interconnected system before the ISO is able to disconnect the facility. • A blanket exemption to the HTR, including the UFLS scheme, will impact all participants connected to the NWIS from a power system security and stability during credible contingencies.

3. Please indicate if the proposed change will have any implications for your organisation (for example changes to your IT or business systems) and any costs involved in implementing the changes.

The proposal will not require Alinta Energy to make changes to its IT or business systems. However, if implemented in its proposed form the proposal may impact Alinta Energy’s network and the outworking of the current balancing and ESS regimes if not reviewed and addressed.

4. Please indicate the time required for your organisation to implement the change, should it be accepted as proposed.

N/a for Alinta Energy.
