



## Pilbara Networks Rules Rule Change Proposal Submission

### PRC\_2022\_01 Integrated LNG Systems

Submitted by:

<b>Name:</b>	Anirban Choudhury, Manager Operations - Utilities, Rio Tinto Iron Ore
<b>Phone:</b>	+61 8 6213 0613
<b>Email:</b>	Anirban.Choudhury@riotinto.com
<b>Organisation:</b>	Pilbara Iron Pty Ltd
<b>Address:</b>	Level 18 Central Park, 152-158 St Georges Terrace, Perth WA 6000
<b>Date submitted:</b>	7 September 2022

Submissions on Rule Change Proposals can be sent by:

Email to: [energymarkets@energy.wa.gov.au](mailto:energymarkets@energy.wa.gov.au)

Post to: Coordinator of Energy  
Attn: Director, Wholesale Markets  
C/o: Energy Policy WA  
Locked Bag 11, Cloisters Square  
PERTH WA 6850

---

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

Please refer to the enclosed submissions.

---

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

Please refer to the enclosed submissions.

---

**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.**

Please refer to the enclosed submissions.

---

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

Not applicable.

---

## OVERVIEW OF SUBMISSIONS

Pilbara Iron Pty Ltd being a member of the Rio Tinto Group (**Rio Tinto**), in its capacity as a registered NSP and the operator of the Rio Tinto power system that forms part of the North West Interconnected System (**NWIS**), provides this submission in response to the “Rule Change Notice: Integrated LNG Systems (PRC\_2022\_01)” (**Notice**) issued by the Coordinator of Energy (**Coordinator**).

The Notice relates to a rule change proposal (**Proposal**) made by Woodside Energy Ltd. (**Woodside**) on 19 July 2022 under the *Pilbara Networks Rules* (**PNRs**).

In general terms, the Proposal asks the Coordinator to approve changes to the PNRs to support the connection of Woodside’s Pluto LNG Facility and its on-site (approximately 140MW) gas fired power station, which are connected to each other through an internal distribution network, (together the **Pluto Facility**) to the Horizon Power electricity network (which forms part of the NWIS). That connection is intended to facilitate the development of a large scale solar photovoltaic power facility (**Solar Facility**) which can then be used to supply electricity to the Pluto Facility and third party consumers.

Rio Tinto supports efforts by participants in the Pilbara resources industry to decarbonise their operations, including Woodside’s proposal to develop the Solar Facility, in order to mitigate the effects of climate change and potentially provide economic and social benefits for the State.

However, Rio Tinto has a number of concerns about the Proposal, which are set out in the **Attachment** to this document.

In summary, Rio Tinto’s main concerns are as follows:

1. Rio Tinto is concerned about the potential for significant changes to be made to the PNRs to deal with the position of a single third party access user, generator and load when the PNRs are intended to be a common and system-wide set of rules for the NWIS that promote the efficiency and effectiveness of electricity services in the Pilbara for the long-term interests of all Pilbara electricity consumers. Approving user specific rules and derogations may result in a piece-meal, fragmented and inconsistent regulatory regime for the NWIS. The application of the PNRs to the Rio Tinto network was considered as an integral part of the design of the regulatory regime to recognise its unique nature and characteristics and should not be used as a model for the Pluto Facility.
2. The creation of a new “integrated LNG network” category in the PNRs is problematic. The core issue is that, in order to limit the application of the PNRs and Harmonised Technical Rules (**HTRs**) to the Pluto Facility, the Proposal treats the Pluto distribution network as if it is a network of the type operated by Rio Tinto, Horizon Power and Alinta, when it is not. This leads to a range of issues in relation to how the PNRs (which are principally designed to deal with the networks of the kind operated by Rio Tinto, Horizon Power and Alinta) apply to a distribution network supplying a sole customer and leads to Woodside making a proposal to introduce a range of new rules to limit the application of the PNRs and HTRs to that distribution network.
3. Rio Tinto is also concerned about rules proposed by Woodside which seek to limit the application of the PNRs and HTRs where they relate to the “integrated LNG network”. Ultimately, a facility connecting to a covered network and obtaining the benefit of such access must also recognise that its connection will have an impact on the overall power system, particularly given the size of the consumer facility and the embedded generators connecting to the covered network. Rio Tinto has some difficulty understanding how the proposal that the Pluto Facility be required to comply with the HTRs only at the point of connection can practically be achieved given the inherent nature of the power system and the technical requirements in the HTRs which are specifically placed on generators and consumer facilities to maintain the power system within a secure state.
4. Further, Woodside proposes to limit the nature of certain notices, protocols or directions that can be given under the PNRs to the Pluto Facility. Given that these notices, protocols and directions are designed to respond to contingencies which threaten power system security for the purpose of maintaining or restoring power system security, Rio Tinto cannot see how creating a limit that only

applies to the Pluto Facility can be consistent with the objective in section 119(2) of the *Electricity Industry Act 2004 (WA)* (**Pilbara Electricity Objective**).

In Rio Tinto's view, the PNRs and HTRs already provide a framework for allowing third party users such as Woodside to connect to a covered network while seeking to balance the legitimate concerns and interests of those users with the need to maintain overall power system security and reliability. In doing so, the PNRs and HTRs promote efficient investment in, and efficient operation and use of, the services of the Pilbara networks for the long-term interests of Pilbara electricity consumers. They do not operate as a barrier to connection to the NWIS – rather, they encourage connection and facilitate entry onto the NWIS in a way that ensures the NWIS can operate reliably, safely and securely in the long-term interests of all Pilbara electricity consumers. Any proposal to change the PNRs and HTRs for the purpose of allowing particular third party users to connect, but which frees them from complying with core operational and technical components of the rules, fails to recognise this important principle. It carries a real risk of undermining the efficient investment in, and efficient operation of, NWIS services, contrary to the long-term interests of Pilbara electricity consumers in relation to the reliability, safety and security of the NWIS.

To that end, Rio Tinto suggests that Woodside's project should be supported within the existing "fit-for-purpose" framework of the PNRs and HTRs that was developed to facilitate third party access to Horizon Power and Alinta's covered networks. That is, some minor clarifications to the PNRs could be made to clarify the application of existing categories of electricity infrastructure to the Pluto Facility and any exemptions from the HTRs for the Pluto Facility should be dealt with by way of specific derogations to those rules as provided for in the PNRs.

## ATTACHMENT

### 1 BACKGROUND

#### 1.1 *Description of Woodside's proposed project*

Woodside currently operates the Pluto LNG Facility on the Burrup Peninsula. Rio Tinto understands that the Pluto LNG Facility currently relies on an on-site gas fired power station with capacity of approximately 140MW to generate the electricity required to operate it. Woodside wishes to develop renewable generation capacity to supply power to the facility.

In order to facilitate a renewable power supply for the Pluto LNG Facility, Woodside proposes the following:

- the development of the Solar Facility at the Maitland industrial estate, initially with capacity of approximately 100MW with the ability to increase such capacity to approximately 500MW, along with a battery energy storage system (**BESS**) and other associated infrastructure;
- Horizon Power will construct, own and operate a new high voltage transmission line from Maitland to the Burrup Peninsula, including a substation at Maitland (**Maitland Substation**) (being the connection point for the Solar Facility) and a substation near the Pluto LNG Facility on the Burrup Peninsula (**Burrup Substation**) (being the connection point for the Pluto Facility), which will form a part of its coastal network and the NWIS;<sup>1</sup>
- the Solar Facility will be connected to Horizon Power's high voltage transmission line at the Maitland Substation;
- the Pluto Facility (being the Pluto LNG Facility and its existing approximately 140MW gas fired power station which are currently connected to each other through an internal distribution network) will connect to Horizon Power's high voltage transmission line at the Burrup Substation;
- a BESS (being a generation facility or a consumer facility) will be installed at the Pluto Facility and the capacity of the existing gas fired power station at the Pluto Facility will be expanded from approximately 140MW to 175MW<sup>2</sup> in the near future. These additional facilities will form part of the Pluto Facility and will all be connected to the NWIS via the electrical connection at the Burrup Substation;
- Woodside will enter into an access contract with Horizon Power so that Woodside obtains the right to transfer electricity generated by the Solar Facility into the NWIS at the Maitland Substation and transfer that electricity from the NWIS at the Burrup Substation for consumption at the Pluto LNG Facility; and
- the Solar Facility will be fully compliant with the PNRs and the HTRs and not be treated as being part of Woodside's proposed "integrated LNG network".

#### 1.2 *Existing categories under the PNRs*

The scheme in the PNRs contains a number of "categories" for electricity infrastructure. The categories in relation to the NWIS are:

---

<sup>1</sup> Rio Tinto assumes that Horizon Power will be the owner of the Burrup Substation and Maitland Substation. However, even if these substations will be owned by Woodside, this should not affect the classification of the Pluto Facility under the PNRs.

<sup>2</sup> This is Rio Tinto's estimate based on its understanding that Woodside proposes to add a further generating unit at the Pluto Facility.

- **networks**, which are further divided into “covered networks” and “non-covered networks”, and include:
  - “integrated mining networks”; and
  - “excluded networks”;
- **generation facilities**;
- **storage works**; and
- **consumer facilities**.

Rio Tinto understands that the current status of key participants in the NWIS is as follows:

- (a) Horizon Power – owns transmission and distribution lines and supplies electricity to both residential, commercial, industrial and mining customers. Horizon Power’s network is a covered network and Horizon Power is a registered NSP;
- (b) Alinta – owns transmission and distribution lines and power stations and supplies electricity to commercial, industrial and mining customers. Alinta’s network is a covered network and Alinta is a registered NSP;
- (c) Rio Tinto – owns a system of transmission and distribution lines and power stations for the purpose of supplying its iron ore mining operations in the Pilbara and maintains a limited connection with the NWIS for the purpose of providing redundancy for Horizon Power’s distribution line in Dampier and frequency control and limited spinning reserve for the NWIS. Rio Tinto’s network is a non-covered network and Rio Tinto is a registered NSP;
- (d) TransAlta and ATCO – each owns power stations (the maximum installed capacity of each power station is around 100MW) that are connected to Horizon Power’s network and each power station is a registered generation facility; and
- (e) BHP, FMG and Roy Hill – each have distribution networks in Port Hedland which connect to Horizon Power or Alinta’s substations. They use either Horizon Power or Alinta’s network to transport electricity that they purchase from power generators or retailers for consumption at their consumer facilities. Whilst it is recognised that the distribution networks that they each have is a “network”, the PNRs treat them as excluded networks and therefore, being part of the “consumer facilities” they supply. BHP, FMG and Roy Hill are each a registered controller of a large consumer facility supplied by their respective excluded networks.

## **2 PROPOSAL FOR A NEW “INTEGRATED LNG NETWORK” CATEGORY**

### **2.1 Proposal**

In the Proposal, Woodside argues that none of the “existing network categories” in the PNRs can appropriately apply to the Pluto Facility. For example, it says that Woodside cannot apply for the Pluto Facility to become an “excluded network” because that category does not allow generation facilities with a capacity of more than 10MW to connect to such a network.<sup>3</sup>

On that basis, Woodside proposes the creation of a new category of network – an “integrated LNG network” modelled<sup>4</sup> on the “integrated mining network” concept that applies to the Rio Tinto network.<sup>5</sup>

---

<sup>3</sup> Proposal, para 23.

<sup>4</sup> While the concept is modelled on the “integrated mining network” definition, it also duplicates and expands the scope of rule 5 of the PNRs with a new rule 5A. Rio Tinto addresses the expansion of scope below.

<sup>5</sup> Proposal, para 13.

## 2.2 ***The Pluto Facility should and can be covered by an existing category***

At the heart of Woodside's Proposal is a proposal to treat the distribution network that forms part of the Pluto Facility as a network of the type operated by Rio Tinto, Horizon Power and Alinta. As such, it also proposes to treat Woodside as if it is a network service provider (**NSP**) like Horizon Power, Alinta and Rio Tinto.

There is a conceptual difficulty with that proposal because the Horizon Power, Alinta and Rio Tinto networks are fundamentally different to the Pluto distribution network. While the Pluto distribution network is an on-site distribution network that will connect embedded generators and the Pluto LNG Facility to Horizon Power's network, the Horizon Power, Alinta and Rio Tinto networks are substantial transmission and distribution networks that cover large areas and transport electricity between generators and consumers located at numerous sites across the Pilbara region. For example, the Rio Tinto network is an extensive electricity transmission network that connects Rio Tinto's port operations with a number of inland power stations and mines in the Pilbara region.

One of the consequences of treating the Pluto distribution network as if it is equivalent to the Rio Tinto, Horizon Power and Alinta networks is that the PNRs and HTRs that apply to a full scale network and its NSP will apply to the Pluto distribution network and Woodside as the NSP. In order to address this issue, Woodside proposes a new rule 5A in the PNRs to limit the application of the PNRs and HTRs which would otherwise apply to registered NSPs of distribution networks of the kind owned/operated by Woodside.

Another consequence is that the PNR regime is then left with the odd result that a small distribution network which, when accurately characterised is only a part of a single consumer facility, is placed in the same category as major transmission networks. This is difficult to reconcile with the fact that the PNRs treat other distribution networks that solely supply a single major consumer facility as being part of the consumer facility they supply rather than as separate networks. That is the case for the networks operated by BHP, FMG and Roy Hill, all of which are treated as "excluded networks" under the PNRs and, therefore, as part of the consumer facilities they supply.<sup>6</sup>

In Rio Tinto's view, Woodside's proposed approach is neither warranted nor appropriate. It is not warranted because there is no need to treat the Pluto distribution network as if it is equivalent to the Rio Tinto, Horizon Power and Alinta networks. That is because the existing categories under the PNRs can (with minor changes) apply to the Pluto Facility, including the Pluto distribution network. Under those categories:

- (a) the Pluto LNG Facility together with the Pluto distribution network at the Pluto Facility should be treated as a consumer facility (in the same way that the BHP, FMG and Roy Hill distribution networks and the facilities that are connected to them are treated under the PNRs);
- (b) the embedded generators at the Pluto Facility should be treated as a generation facility in the same way as any other generator that is connected to the Horizon Power network; and
- (c) the BESS to be installed at the Pluto Facility (being "storage works") should be treated as a generation facility in respect of its injections and a consumer facility in respect of its withdrawals (as appropriate).<sup>7</sup>

Woodside's approach is not appropriate for the following reasons:

- (a) First, it is not appropriate to create new categories to accommodate one third party user when there are existing categories that can be used (with minor changes). The

---

<sup>6</sup> PNRs rules 21(2) and 23.

<sup>7</sup> HTRs rule 3.7.

introduction of special classes of categories for different third party access users could result in inefficient, inconsistent and piece-meal technical regulation across the NWIS, contrary to the purpose of the PNRs and HTRs and the Pilbara Electricity Objective.

- (b) Second, it is not appropriate to treat the Pluto distribution network as if it is a network like the Rio Tinto network when it is not. The Pluto distribution network is a minor distribution network that is part of a consumer facility and should be treated as such. It is nothing like the Rio Tinto, Horizon Power and Alinta networks and should not be treated as if it is the same as any of them.
- (c) Third, it is not appropriate to treat the Pluto distribution network as being the same as the Rio Tinto, Horizon Power and Alinta networks when the category scheme reflected in the registration requirements in Chapter 4 of the PNRs suggests that it should be treated in the same way as other generation facilities, consumer facilities and distribution networks which are solely servicing those customers. In particular, Rio Tinto notes that:
  - (i) rules 91(2)(a) and (b) respectively require the registration of the controllers of “a generation facility on a covered NWIS network” and “a large consumer facility which is supplied by an excluded network”; and
  - (ii) rules 93(1)(a) to (c) require controllers of generating works, storage works and large consumer facilities to register under rule 91 if the ISO is satisfied, relevantly, that an outage of the facility might credibly be expected to adversely affect security or reliability, the ability of any part of a covered transmission network to benefit from an essential system service, or the ability of a covered NSP to provide transmission voltage contracted network services, or where the facility might credibly need to be the subject of a constraint direction.

The approach proposed by Rio Tinto of treating the Pluto LNG Facility and the Pluto distribution network as a registered consumer facility, the embedded generators as a registered generation facility, and the BESS as a generation facility and a consumer facility (as appropriate) would have a number of benefits. It would maintain the integrity of the current PNR scheme and promote consistency and, thereby, efficiency. It would avoid the need to carve-out the application of certain rules which Woodside has assumed will apply to it as a registered NSP when, in reality, Woodside will not actually carry out the relevant functions of a registered NSP (as the Pluto distribution network is not a network like the Horizon Power, Rio Tinto and Alinta networks).

In Rio Tinto’s view, the connection point between the Pluto Facility and the Horizon Power network (being the Burrup Substation) should be classified as an exit point (rather than an “interconnection point” as referred to in the Proposal) at which Woodside draws electricity generated by the Solar Facility from the NWIS.

Rio Tinto notes that while the Solar Facility will not form part of the proposed “integrated LNG network”, Woodside appears to express the view that it will be an NSP in respect of the Solar Facility and that “different Woodside entities may become registered NSPs at Pluto and at Maitland”.<sup>8</sup> Rio Tinto submits that it is not appropriate to treat the Solar Facility, the BESS and the distribution lines that connect to the Maitland Substation as a “network”. Rather, the distribution lines should be treated as part of the power station and not be separately classified as a “network”.

Further, Rio Tinto submits that the Coordinator should be concerned about the precedent that approving Woodside’s Proposal might set. It would signal to NWIS participants that the

---

<sup>8</sup> Proposal, para 22 and p. 22.



Coordinator is prepared to make significant changes to the PNRs to deal with the specific circumstances of a single user and load – changes that involve the creation of new categories of NWIS participants which enjoy material exemptions from common and system-wide rules that were intended to improve the efficiency and effectiveness of electricity services in the Pilbara and support regional economic growth and development. Such an inefficient and piece-meal approach would, Rio Tinto suggests, be inconsistent with the Pilbara Electricity Objective.

### **2.3 Rio Tinto special class – not a template**

Rio Tinto submits that it is not appropriate to use the “integrated mining network”<sup>9</sup> concept as a template for other industries and third party access users that wish to be given exemptions from the PNRs and HTRs. Such industries and persons should use the existing exemption mechanisms that are available under the PNRs and HTRs, including rules 57, 64 and 68 of the PNRs.

It is important to recognise that the “integrated mining network” concept was included in the PNRs to deal with the unique nature of the Rio Tinto power system. The particular circumstances of the Rio Tinto power system were carefully considered during the detailed design process as an integral feature of the PNRs and *Pilbara Networks Access Code (PNAC)*. The circumstances include that:

- (a) the Rio Tinto power system was, at the commencement of the PNRs, a substantial privately owned and operated power system, including an extensive transmission network that spans hundreds of kilometres between Rio Tinto’s tightly integrated ports and mining operations, that had operated for decades before the PNRs were developed;
- (b) the Rio Tinto power system has its own control room, control system, and system operator in order to operate the system and ensure the quality, reliability, safety and security of electricity supply, as well as the reliability, safety and security of the Rio Tinto network, for the purposes of its integrated mining network;
- (c) the Rio Tinto network is not used for third party access, so no third party is connected to it or uses it to transport electricity, whether within the network or to or from the interconnected Horizon Power network;
- (d) the Rio Tinto network is only weakly interconnected with the Horizon Power network and has, historically, only been interconnected for the limited purpose of:
  - (i) providing redundancy in the capacity of the Horizon Power distribution network that supplies residential loads in the town of Dampier (as a guard against external contingency events such as cyclones) and vice versa; and
  - (ii) enabling Rio Tinto to provide frequency control for the whole of the NWIS and a limited level of spinning reserve;
- (e) although the Rio Tinto power system is large and could be subjected to the same operational regulation as the Horizon Power and Alinta power systems, the fact that it is only weakly interconnected with the Horizon Power network for the limited purposes set out above, makes no use of the Horizon Power and Alinta power systems, and has independent system control, means that that the reliability, safety and security of the NWIS does not require all aspects of the operational regulation in the PNRs to apply to it;

---

<sup>9</sup> The Rio Tinto network is the only network that falls within the scope of the definition of “integrated mining network” because such a network must form part of an “integrated mining system”, the definition of which specifically and exclusively applies to Rio Tinto’s integrated mining system in the Pilbara region.

- (f) although it is not necessary for all aspects of the operational regulation in the PNRs to apply to the Rio Tinto power system, it is necessary and desirable for all networks, generators and loads that form part of the NWIS (including the Rio Tinto power system) to comply with common system-wide technical rules of the type set out in the HTRs (for the reasons discussed below).

In Rio Tinto's view, the Rio Tinto power system is of a fundamentally different character and scale to the Pluto Facility, which is essentially a consumer facility with large scale embedded generators that wishes to connect to the NWIS and to transfer electricity from the NWIS for consumption within the facility. The Pluto Facility should not be treated in the same way as the Rio Tinto power system and the "integrated mining network" concept should not be used as the template for the appropriate treatment of the Pluto Facility under the PNRs.

#### **2.4 Treatment of expansions of the Pluto Facility**

Under the Proposal, Woodside proposes that the treatment of the Pluto Facility outlined in the Proposal:

"...remain in place for the life of the Pluto Facility to provide Woodside certainty that there will not be perverse outcomes in the event it pursues a material upgrade. For example, if the Pluto Facility complies with the HTR at the interconnection point upon initial connection it is difficult to see the merits of duplicate expenditure being incurred within the Pluto Facility (which will already be compliant with the HTR at the interconnection point)."<sup>10</sup>

Accordingly, Woodside proposes that any expansion of the Pluto Facility also enjoy the benefit of the exemptions that it seeks for the existing capacity of the facility.

Rio Tinto has concerns about this proposal given that, as noted above, Woodside has plans to install BESS at the Pluto Facility and expand the capacity of the existing gas fired power station from approximately 140MW to 175MW in the near future. Those additional facilities will form part of the Pluto Facility and will all be connected to the NWIS via the electrical connection at the Burrup Substation.

Such an expansion in the Pluto Facility will significantly change the character and scale of the facility and increase its significance in the context of the Horizon Power network and, therefore, the NWIS. In addition, it will provide Woodside with the ability to install and operate whatever capacity and electricity infrastructure it chooses regardless of its effect on the reliability, safety and security of the NWIS, as long as it complies "at the connection point" (whatever that might mean).

Further, the HTRs specifically provide for a regime under which any new equipment connected to the NWIS or any material changes to existing equipment are reviewed and assessed against the HTRs to ensure that they will not adversely affect system security and reliability. For instance, rule 4.1.3 of the HTRs provides for testing of generating units connecting to an NSP's network and allows an NSP to conduct special tests to ensure that the "security and performance standards of the power system and the quality of supply to other controllers will not be adversely affected by the connection or operation of a generator's equipment".<sup>11</sup>

Woodside's Proposal would, if approved, release it from this carefully crafted and balanced regime. Such a release would increase the technical risks associated with reliability and security of the NWIS, contrary to the Pilbara Electricity Objective.

In Rio Tinto's view, the position in relation to any expansions of capacity and new electricity infrastructure should be considered on a case by case basis as they would be for any other consumer facility or generator that is connected to the NWIS.

---

<sup>10</sup> Proposal, para 19(g).

<sup>11</sup> Also see HTRs rule 4.1.3(b)(2).

Rio Tinto further notes that the NWIS will evolve and mature over time to cater for the growth in renewable generation as participants in the Pilbara resources industry seek to decarbonise their operations. Recent developments in the SWIS, the National Electricity Market and the Interim Northern Territory Electricity Market have (among other things) seen the revision of generator technical requirements, which were historically put in place for power systems dominated by fossil fuelled synchronous generators, to make them technology neutral so that they are suitable for, and can apply to, a power system that is rapidly transitioning towards higher levels of renewable generation (which are seeking to replace or operate in parallel with synchronous generation). Similar developments in the NWIS will likely involve amendments to the HTRs to provide for requirements which seek to balance the objectives of promoting the greater integration of renewable energy generation to the network on the one hand, and the need to maintain power system security and reliability on the other given the intermittency of renewable generation. If approved, Woodside's Proposal would have the effect of excluding the application of any amended HTRs to the Pluto Facility and future expansions to it provided that they are all connected behind the Burrup Substation.

Rio Tinto submits that there is no basis for providing Woodside an exemption from the assessment required to be undertaken under the HTRs (including any future amendments to it) in relation to the connection of new equipment to the NWIS or material changes to existing equipment.

### **3 PROPOSAL TO LIMIT THE APPLICATION OF HARMONISED TECHNICAL RULES TO COMPLIANCE AT THE CONNECTION POINT**

#### **3.1 Proposal**

Woodside proposes that its Pluto Facility (comprising the distribution network, generating facility and consumer facility connected to Horizon Power's network) should only be required to comply with the HTRs at the relevant "interconnection point between the integrated LNG system and a covered network forming part of the NWIS".

#### **3.2 Overview of HTRs**

The HTRs are a set of technical rules governing the standards according to which NSPs and controllers connect, commission, maintain and operate various facilities on the NWIS.

The HTRs set out overall power system technical requirements as a whole across the NWIS as well as technical requirements which apply specifically to network elements, generation facilities and consumer facilities that are electrically connected to the NWIS.

The purpose of the HTRs is to set out certain minimum standards that are required to maintain overall power system security and reliability across the NWIS so as to:

- maintain the "normal operating state" of the power system as set out in rule 165 of the PNRs, and
- meet the "system security objective" set out in rule 162 of the PNRs.

Relevant to this is the maintenance of the power system "inside the technical envelope". The power system operates "inside the technical envelope" and therefore, within a "secure state" when (among other things) the:

"...frequency at all energised busbars is within the frequency operating standards set out in the harmonised technical rules".<sup>12</sup>

One of the key criteria for maintaining system security is to keep the entire power system within the frequency range provided for in the HTRs. It is inherent in the nature of a power system

---

<sup>12</sup> See the definition of "inside the technical envelope" in PNRs, rule 163(1)(a).

that every generator or large consumer facility that is electrically connected to a power system has an impact on the frequency of the power system.

The HTRs also provide for technical requirements and procedures for identifying, responding to and managing any contingencies which might credibly be expected to, or do, affect system security or reliability, the ability of any part of a covered network to benefit from essential system services or the ability of a covered NSP to provide transmission voltage contracted network services.<sup>13</sup>

It should also be noted that, in the context of Woodside's proposal, Horizon Power is the relevant NSP that has the following additional obligations to Woodside as its "network user" or a "controller". That is, Horizon Power as the NSP must manage, operate and maintain its network in such a way that (subject to terms of access contracts and any constraints):

- (a) when the power system is in the normal operating state, electricity may be transferred continuously at a connection point up to the agreed capability of that connection point; and
- (b) minimises to the extent reasonably practicable the number and impact of interruptions or service level reductions to controllers.<sup>14</sup>

### **3.3 Rio Tinto submission**

Given the above context and purpose of the HTRs, it is difficult to understand how Woodside's proposed rule 5A(2)(g) is intended to operate. It essentially provides that the Pluto Facility will only be required to comply with the HTRs at the relevant "interconnection point".

Woodside states in its Proposal at paragraph 19(f):

*"Accordingly, Woodside proposes to connect so that it will, from day one, be fully compliant with the HTR at an interconnection point (but not behind it). Provisions of the HTR that apply 'behind' a relevant interconnection point between the Pluto Facility and Horizon Power's network will not apply to the Pluto Facility. In practice, Woodside will ensure (including via the interconnection works to be performed by Horizon Power) that connection equipment is designed in a way that corrects for any technical non-compliance of facilities behind an interconnection point (and its success in so doing will ultimately be adjudicated by the ISO when it decides whether or not to permit the connection to proceed)."*

However, it is difficult to reconcile the above statement with some of the key provisions of the HTRs.

For example, Chapter 3 of the HTRs sets out the technical requirements for user facilities including embedded generating units. The objective of this chapter is stated as being to:

*"...facilitate maintenance of the power system performance standards specified in clause 2.2, so that other controllers are not adversely affected, and so that personnel and equipment safety are not put at risk following, or as a result of, the connection of a controller's equipment."<sup>15</sup>*

In order to maintain the overall power system inside the technical envelope, frequency must be managed across the entire power system. One critical element of maintaining frequency is the role of each generating unit connected to the NWIS. This is dealt with in the HTRs in rule 3.3.4.4 where all generating units must comply with certain technical requirements in relation to frequency control, including operating the generating unit in the mode specified in rule 3.3.4.4(b). This ensures that all generators are operating in a mode that:

---

<sup>13</sup> PNRs rule 58.

<sup>14</sup> HTRs rule 1.8.2.

<sup>15</sup> HTRs rule 3.1(c).

- (a) enables the ESS provider to manage frequency control across the power system; and
- (b) does not “compete” with or “fight against” those generating units which are configured to provide that FCESS service.

In the past, generating units were sometimes set in conflicting modes with the FCESS service provider’s generating units, which led to contingency events occurring in the NWIS. In this context, it is difficult to understand how the proposed rule 5A(2)(g) of the PNRs would apply rule 3.3.4.4 to the embedded generators at the Pluto Facility, which will be connected to the Burrup Substation (being the connection point). Rio Tinto considers that this is not a matter that can be complied with or addressed at the point of connection.

The example above illustrates only one instance of the difficulty involved in interpreting and applying rule 5A(2)(g) to the HTRs. It also demonstrates that a general exemption for “controllers” behind the connection point will potentially mean that Woodside is not required to comply with core provisions of the HTRs that are critical to maintaining system security and reliability in the NWIS.

Rio Tinto considers that, in many circumstances, it is not possible to procure compliance with the HTRs at a point of connection without requiring the facility that is connected to it (whether it is a load consuming facility or an embedded generator) to comply with those rules.

Another example can be found in rule 3.2.4 of the HTRs, which relates to power system simulation studies. Prior to a controller’s facility being connected to the power system, the impact on power system performance due to the controller’s facility is to be determined by power system simulation studies and modelling. As noted in rule 3.1(c) of the HTRs, the purpose of such studies is to guard against any adverse impacts on other controllers and their people and equipment.

It is unclear whether rule 5A(2)(g) of the PNRs would exempt Woodside from having to comply with rule 3.2.4 of the HTRs in relation to any existing or future facilities which are connected behind the connection point, and how any adverse system impacts would be addressed once the facilities are connected, if those facilities are exempt from complying with the HTRs by reason of them being “behind” a connection point.

For instance, rule 4.1.3(c) of the HTRs requires a generator and its NSP to agree on a compliance monitoring program to ensure that its generating units continue to comply with the applicable technical requirements of rule 3.3 and the relevant access contract following commissioning. The HTRs contemplate that the compliance monitoring program will involve compliance testing or monitoring of in-service performances and that in the event of any non-compliance, the generator must notify the NSP, undertake any necessary remedial work and conduct further tests or monitoring following completion of the remedial work to confirm ongoing compliance with the relevant technical requirement.<sup>16</sup> If an NSP has reason to believe that a generating unit does not comply with the applicable technical requirements, it has powers of direction including requiring the generator to operate its generating unit at a particular output or in a particular mode until the generator can satisfy the NSP that the generating unit is complying with the applicable technical requirements.<sup>17</sup>

Other examples of ongoing testing and inspection of generating units and other equipment required under the HTRs include:

- rule 4.1.6 under which the NSP must require the generator to test its generating units connected to the network on a 12 monthly basis to determine analytic parameters for modelling purposes or to assess the performance of the generating unit;

---

<sup>16</sup> HTRs rule 4.1.3(d).

<sup>17</sup> HTRs rules 4.1.3(f)-(h).

- rule 4.2.1 which requires a controller to ensure that prior to the connection of any new or replacement equipment to the network, the equipment is inspected and tested to demonstrate that it complies with relevant Australian Standards and international standards, the HTRs, the *Electricity Networks Access Code* or PNAC, any relevant access contract and GEIP; and
- rule 4.2.5 which gives the NSP and ISO the right to witness commissioning tests in relation to new or replacement equipment seeking to connect to the network.

The handful of example provisions in the HTRs referred to above makes it clear that ongoing compliance with the HTRs is required of equipment (including generating units) connected both at, and behind, a connection point to maintain power system security and reliability and to guard against adverse effects on other controllers who are connected to the NWIS.

Rio Tinto submits that, despite assurances from Woodside that it will ensure the Pluto Facility complies with the HTRs at the connection point at the time of initial connection, the fact that the Pluto Facility and any existing or future facilities connected to it behind the Burrup Substation connection point will be exempt from the ongoing compliance testing and inspection regime under HTRs will significantly undermine the objectives of the HTRs and pose a risk to power system security and reliability to the detriment of other NWIS participants.

Given the fundamental importance of the HTRs in ensuring power system safety, security and reliability in the NWIS, Rio Tinto submits that:

- (a) any derogations or exemptions from the requirements of the HTRs need to be provided for in clear language that is capable of clear application; and
- (b) further work needs to be undertaken to specifically identify which rules are capable of being, and should be, appropriately limited to compliance at the relevant connection point to Horizon Power's network and which rules should be applied to the Pluto Facility, either with or without derogations from the rules.

Rio Tinto submits that it is not appropriate to progress a rule change of the nature proposed without such analysis being undertaken. To do so would be inconsistent with the Pilbara Electricity Objective. Given that the PNRs and the HTRs already provide a framework for undertaking such assessments and providing specific derogations, it is appropriate to apply that existing framework to the Pluto Facility and expressly identify the derogations that are permitted in respect of those facilities.

In addition, Rio Tinto notes that Woodside's proposed rule 5A(2)(g) appears to stem from Woodside's classification of its facilities as a "network" and Woodside as a "network service provider" or an "NSP" (as discussed above). Rio Tinto submits that the HTR obligations placed on NSPs are obligations which, in relation to the Pluto Facility, should properly be discharged by Horizon Power as the "network service provider" that is connecting a facility to its network at a connection point. Woodside should discharge those obligations in the HTRs that apply to it as the controller of the consumer facilities and generation facilities forming part of the Pluto Facility.

## **4 PROPOSAL TO LIMIT DIRECTIONS OF ISO, NSPs AND INCIDENT COORDINATOR**

### **4.1 Proposal**

In the Proposal, Woodside requests a rule change with the effect that the only direction, protocol, notice (other than a constraint direction under rule 258) that can be given to any of the facilities forming part of the "integrated LNG system" for the purpose of managing system security are the following:

- (a) reduce its withdrawal of electricity at the connection point;

- (b) disconnect the Pluto Facility from the Horizon Power’s network at the connection point; or
- (c) reduce its injection of electricity (but only if the controller or network user believes in good faith it can do so in a way that does not affect the reliability, security and/or safety of the integrated LNG system) at the connection point.

Woodside also proposes that where it forms the view that it cannot reduce its injection of electricity in accordance with a notice or direction given to it or a procedure or protocol, then it must instead disconnect the relevant interconnection point.

#### **4.2 Rio Tinto submission**

By way of context to this proposed rule change, the relevant PNRs which are affected by Woodside’s rule change proposal are broadly outlined as follows:

- (a) if ISO determines that particular equipment connected to a network is creating a credible risk to security or reliability and that risk is not adequately managed by the registered NSP, then ISO can issue a notice to take steps to remedy the situation under rule 191;
- (b) pre-contingent directions can be given in response to a credible imminent threat to system security (arising from an approaching external threat or impending material equipment failure) that can be mitigated if appropriate preparatory actions are taken;
- (c) system operations directions can be given if the power system is outside normal operating conditions in order to seek to maintain the power system inside the technical envelope and a secure state where practicable, and otherwise return it to inside the technical envelope and a secure state as soon as practicable; and
- (d) directions that can be given in emergency circumstances.

Rule 170 of the PNRs outlines the manner in which each registered NSP (including an ESS provider) and ISO seek to maintain system security in the NWIS, through collaboration at times of contingencies and external threats which threatens power system security.

The current design of the NWIS is that ISO does not operate a centralised, real-time control room in respect of the NWIS. The approach that has been adopted in the PNRs is an “Administrative ISO model” discussed in AEMO’s report to the Public Utilities Office.<sup>18</sup>

Relevantly, in that report, AEMO describes the manner in which contingencies affecting power system security would need to be dealt with in the NWIS:

*“When an event threatens system security, that event will be managed through a combination of internal procedures, co-operative arrangements and NWIS ISO directions to relevant participants...”<sup>19</sup>*

*“The core NWIS ISO functions require an operating framework to determine when and how the NWIS ISO may intervene to manage contingencies and emergencies to ensure power system security is maintained.*

*However, without the NWIS ISO having real-time visibility, more detailed operating protocols will be required to manage power system security.*

*The contingency and emergency events for which protocols will be developed are events that have occurred historically or are otherwise readily identifiable. For many*

<sup>18</sup> AEMO - Review of Independent System Operator Role in North West Interconnected System, November 2018 - Final Report for the Public Utilities Office.

<sup>19</sup> AEMO - Review of Independent System Operator Role in North West Interconnected System, November 2018 - Final Report for the Public Utilities Office at p.17

*of these events, network operators will already have operating protocols to manage them. The NWIS ISO will leverage existing operating protocols and input from all network operators to ensure new fit-for-purpose NWIS operating protocols are developed with full technical and operational understanding of an event...*<sup>20</sup>

*"The NWIS ISO will not have real-time visibility of the NWIS, so it cannot direct the actions of participants in response to events. Therefore, to maintain or return the power system to a secure state, the NWIS operating protocols and operating framework will be developed and documented in advance of the commencement of the access regime to give participants an understanding of the actions they will be required to take in specified situations."*<sup>21</sup>

The above is consistent with how Rio Tinto, Horizon Power and Alinta as the current NSPs in the NWIS plan for and respond to contingencies affecting the NWIS. There are agreed sets of protocols and automated system configurations which respond to specific contingency events occurring to any facility or network connected to the NWIS so as to enable the power system as a whole to "ride through" a contingency event rather than trigger a cascading effect resulting in multiple contingencies arising.

Any notices, protocols or directions which require decision making are likely to be too slow to react to threats to system security as a power system must be managed real-time, on an almost millisecond by millisecond basis. To that end, they are last resort measures to ensure that NSPs and ISO have the power to ultimately restore power system security if major, large scale events occur in the NWIS.

Rio Tinto notes that certain actions, for instance, a decision to disconnect a large scale facility from the NWIS may in fact have the effect of escalating a single contingency event to multiple contingencies for the overall power system and lead to a greater threat to system security and reliability unless that disconnection occurs in a coordinated manner. However, if multiple contingencies occur in such a way that power system security is not able to be maintained, then there will be protocols dealing with how networks and facilities are islanded (or disconnected) ultimately to protect their individual systems such that the islanding and disconnection occurs in a coordinated manner.

It should be noted that Subchapter 3.7 of the PNRs "operationalises a critical element in the informal and collaborative model implemented by these rules for the Pilbara" and "at the heart of the model is the protocol framework...which establishes a suite of protocols which will govern how the ISO control desk and registered NSPs, and on occasion registered controllers, respond to system incidents".<sup>22</sup> NWIS participants are required to collaborate, coordinate and cooperate with each other to maintain and restore power system security and reliability.

It should also be noted that rule 172 of the PNRs already provides allowances for persons who cannot comply with protocols or notices and directions given to it (including by ISO, a NSP or the incident coordinator).

In this context, to prescribe and limit the type of notices or directions that can be given to one particular facility connected to the NWIS is neither appropriate nor warranted in the PNRs and is contrary to the Pilbara Electricity Objective. Whilst such a rule change may have regard to a particular facility's circumstances, it does not recognise that, by virtue of that facility's connection, it has an impact on the broader power system and therefore, its controller must perform its part in maintaining overall power system safety, security and reliability by cooperating and coordinating its response to system incidents with other NWIS participants.

---

<sup>20</sup> AEMO - Review of Independent System Operator Role in North West Interconnected System, November 2018 - Final Report for the Public Utilities Office at p.21.

<sup>21</sup> AEMO - Review of Independent System Operator Role in North West Interconnected System, November 2018 - Final Report for the Public Utilities Office at p.21.

<sup>22</sup> See the lead in words to Subchapter 3.7 of the PNRs.



Woodside's Proposal on this issue has no precedent in the PNRs and no other NWIS participant (including the NSP of an integrated mining system or controllers connected to that system) has the benefit of a similar rule.