National Grid House
Warwick Technology Park
Gallows Hill, Warwick
CV34 6DA

Hirwaun Power Station ExCS Informal Notice - Appendix 1

29th May 2018

Our Ref: 2018 – Hirwaun Power Station ExCS

This Appendix relates to the proposed substitution of NTS Exit Capacity to Hirwaun NTS Exit Point from Dowlais GDN (WS) and Tonna (Baglan Bay) DC exit points.

1. Recipient selection:

The PARCA application in respect of Hirwaun power station for Enduring Annual NTS Exit (Flat) Capacity was received through a PARCA Exit Window triggered by Ferrybridge D power station. Also during that Window, further PARCA applications was received. However, these were not in the same region as Hirwaun.

2. Donor selection:

Substitution from individual donor NTS Exit Points was assessed by reducing the capacity at the most favourable NTS Exit Points that had Substitutable Capacity. The most favourable donor NTS Exit Points will normally be the furthest downstream NTS Exit Points from the recipient NTS exit point as measured by pipeline distance.

For the purposes of the NTS Exit Capacity Substitution analysis, four (4) donor sequences of NTS Exit Points were analysed to determine the best exchange rate.

The exit points identified as potential donor sites were as follows:

NTS Exit Point	***Type***	***Obligated Capacity (kWh/d)***	***Unsold Capacity (at 1st May 2018 (kWh/d)***
Dowlais	DN	105,977,456	14,608,249
Baglan Bay	DC	48,650,000	21,900,000
Gilwern	DN	82,680,000	7,275,846
Ross SW	DN	4,530,000	6,582,296
Ross WM	DN	16,520,000	4,659,044
Fiddington	DN	25,952,278	506,643

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The pipeline distances to the potential donor NTS Exit Points are:

From	*To*	*Pipeline distance (km)*
Hirwaun	Dowlais	18.18
	Baglan Bay	15.35
	Gilwern (GILWI)	34.95
	Ross SW	78.75
	Ross WM	77.96
	Fiddington	118.42

As a result of these analyses, the final NTS Exit Points selected were as follows;

NTS Point	*Type*	*Recipient / Donor*	*Current Baseline (kWh/d)*	*Proposed Baseline (kWh/d)*	*Remaining unsold capacity (kWh/d)*
Hirwaun	DC	Recipient	0	28,380,000	0
Dowlais OT	DN	Donor	105,977,456	91,369,207	0
Tonna (Baglan Bay)	DC	Donor	48,650,000	26,750,000	4,818,360

In accordance with paragraph 62 of the methodology the individual donor NTS Exit Point to recipient NTS Exit Point exchange rate was determined and is as follows:

Donor NTS Exit Points	*Exchange Rate (Donor : Recipient)*	*Total Exchange Rate (Donor : Recipient)*
Dowlais OT	1.0806 : 1	1.1166:1
Tonna (Baglan Bay)	1.1494 : 1	

3. Network analysis: Supply & demand scenario

- Substitution analysis was conducted for the Gas Year 2020/21 as the first year of the capacity will be required by Hirwaun power station.
- The analysis starting point is our 2020/21 1-in-20 peak day demand network. From this a South West sensitivity network is created, taking the most onerous credible demand levels for power stations (and other DCs) and DN offtakes from sold and forecast levels for the South West zone as detailed in Section 5, and with South West supplies reduced to a credible minimum.
- The substitution network is created from South West sensitivity network, with the potential donor distribution network NTS Exit Points in the area increased to obligation in accordance with the Methodology, as these were deemed to have a reasonable probability of being donors.

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- Hirwaun NTS Exit Point was set at the level of prevailing Obligated Exit Capacity in 2020 (0 kWh/d).

4. Enhanced Network

- System enhancements for the substitution network were required in the form of an additional 3 mcm/d at Milford Haven.

5. Exit points set at obligated, sold or otherwise:

- All South West DC sites are set at obligated level, with the remaining DCs being scaled back from the forecast so that the aggregate total matches the forecast total.
- Sites increased to their obligated level as part of the South West sensitivity network are the potential donors (DN offtakes) listed above; none of these sites had already been set to their obligated level.
- All other DN NTS Exit Points were at Sold level as booked through the annual NTS Exit (Flat) Capacity application processes.

6. Flow adjustments:

- Flow adjustments were made in accordance with Paragraph 45 of the Methodology.
- Flow adjustments are detailed in Section 3 above, the substitution network demand is 5621 GWh/d, which is higher than the 1 in 20 peak demand (including sold capacity levels at DN NTS Exit Points).

7. Remaining unsold NTS Exit (Flat) Capacity at the donor NTS Exit Points:

If substitution is effected as stated in this notice, the remaining unsold Annual NTS Exit (Flat) Capacity at the donor exit points is shown in the following table.

NTS Point	***Type***	***Remaining unsold capacity (kWh/d)***
Hirwaun	DC	0
Dowlais	DN	0
Tonna (Baglan Bay)	DC	4,818,360

8. Summary of network analysis key parameter changes:

- No significant parameter changes were required between substitution networks.

9. Exchange Rate Validation

In order to validate that the above donor list and the sequence of substitution provides the best exchange rate, four different donor sequences were assessed. These are listed, with their respective exchange rates, in the following tables:

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Sequence 1 (selected)

Recipient NTS Point	*Donor NTS Exit Points*	*Capacity Donated (kWh/d)*	*Capacity Received (kWh/d)*	*Exchange Rate (Donor : Recipient)*	*Total Exchange Rate (Donor : Recipient)*
Hirwaun	Dowlais	14,608,249	13,518,646	1.0806:1	1.1166 : 1
	Tonna (Baglan Bay)	17,081,640	14,861,354	1.1494:1	

Sequence 2

Recipient NTS Point	*Donor NTS Exit Points*	*Capacity Donated (kWh/d)*	*Capacity Received (kWh/d)*	*Exchange Rate (Donor : Recipient)*	*Total Exchange Rate (Donor : Recipient)*
Hirwaun	Baglan Bay	21,900,000	18,980,759	1.1538:1	1.1899 : 1
	Gilwern	7,275,846	6,108,510	1.1911:1	
	Ross WM	4,594,847	3,290,731	1.3963:1	

Sequence 3

Recipient NTS Point	*Donor NTS Exit Points*	*Capacity Donated (kWh/d)*	*Capacity Received (kWh/d)*	*Exchange Rate (Donor : Recipient)*	*Total Exchange Rate (Donor : Recipient)*
Hirwaun	Tonna (Baglan Bay)	21,900,000	18,980,759	1.1538:1	1.1300 : 1
	Dowlais	10,168,099	9,399,241	1.0818:1	

Sequence 4

Recipient NTS Point	*Donor NTS Exit Points*	*Capacity Donated (kWh/d)*	*Capacity Received (kWh/d)*	*Exchange Rate (Donor : Recipient)*	*Total Exchange Rate (Donor : Recipient)*
Hirwaun	Dowlais	14,608,249	13,518,646	1.0806:1	1.2168: 1
	Gilwern	7,275,846	6,221,330	1.1695:1	
	Ross WM	6,582,296	4,823,608	1.3646:1	
	Ross SW	506,643	371,221	1.3648:1	
	Fiddington	4,659,044	2,662,463	1.7499:1	
	Tonna (Baglan Bay)	901,238	782,732	1.1514:1	