

Keadby Power Station ExCS Informal Notice - Appendix 1

2nd May 2018

Our Ref: 2018 – Keadby Power Station ExCS

This Appendix relates to the proposed substitution of NTS Exit Capacity to Eastoft (Keadby) NTS Exit Point from West Burton, Stallingborough and Thornton Curtis (Killingholme) DC Exit Points.

1. Recipient selection:

The PARCA application in respect of Keadby 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, a further PARCA application was received from Thornton Curtis DN.

Keadby power station, Ferrybridge D power station and Thornton Curtis DN are all upstream of Hatton compressor. Thus, for the purpose of substitution, it was deemed best to carry out the assessment for all these PARCA applications together.

During the assessment of the PARCA applications Knottingley power station cancelled their Phase Two PARCA. This released their substituted capacity back to their donor sites. One of these donor sites was Thornton Curtis DN. The released capacity fully met the capacity Thornton Curtis DN requested in their PARCA application. Therefore Thornton Curtis DN was removed from the assessment and the assessment proceeded with Keadby and Ferrybridge D power stations only.

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, two (2) 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 (pre-Ferrybridge D power station substitution):

<i>NTS Exit Point</i>	<i>Type</i>	<i>Obligated Capacity (GWh/d)</i>	<i>Unsold Capacity (at 1st March 2018) (GWh/d)</i>
West Burton	DC	66.00	23.04
Blyborough	DN	79.33	23.50
Blyborough (Cottam)	DC	19.30	19.30
Saltend BPHP (BP Saltend HP)	DC	9.10	0.04
Thornton Curtis (Killingholme)	DC	91.00	91.00
Stallingborough	DC	68.01	15.31
Kirkstead	DN	1.21	0.35
Gosberton	DN	15.23	2.91
Wragg Marsh (Spalding)	DC	37.28	37.28
Staythorpe	DC	82.00	82.00

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

<i>From</i>	<i>To</i>	<i>Pipeline distance (km)</i>
Eastoft (Keadby)	West Burton	27.88
	Blyborough	28.83
	Blyborough (Cottam)	28.85
	Saltend BPHP (BP Saltend HP)	94.99
	Thornton Curtis (Killingholme)	102.51
	Stallingborough	109.92
	Kirkstead	78
	Gosberton	107.74
	Wragg Marsh (Spalding)	120.13
	Staythorpe	134.39

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

<i>NTS Point</i>	<i>Type</i>	<i>Recipient / Donor</i>	<i>Current Baseline (kWh/d)</i>	<i>Proposed Baseline (kWh/d)</i>	<i>Remaining unsold capacity (kWh/d)</i>
Eastoft (Keadby)	DC	Recipient	0	36,060,000	0
West Burton	DC	Donor	23,035,220	10,758,425	10,758,425 ¹
Stallingborough	DC	Donor	68,012,169	52,700,000	0
Thornton Curtis (Killingholme)	DC	Donor	91,000,001	44,401,819	44,401,819

¹ This corrects the notice 'Ferrybridge D Power Station ExCS Informal Notice (including exit Substitution & Baseline Revision) and Appendix, published on 29th March 2018. As a result of this notice, the Proposed Baseline at West Burton from 1st October 2022 will be 10,785,425kWh/d, all of which is substitutable capacity. The remaining 10,785,425kWh/d will be reserved for substitution to Ferrybridge D power station on 1st April 2023. From 1st April 2023, the Proposed Baseline at West Burton will be 0 (zero) kWh/d. This will be reflected in the Long Term Summary Report which is accessible via this link - <http://mip-prod-web.azurewebsites.net/ExitCapacityPublication/Index>.

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:

<i>Donor NTS Exit Points</i>	<i>Exchange Rate (Donor : Recipient)</i>	<i>Total Exchange Rate (Donor : Recipient)</i>
West Burton	1.0431 : 1	2.0573 : 1
Stallingborough	2.4001 : 1	
Thornton Curtis (Killingholme)	2.6017 : 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 Keadby power station.
- The analysis starting point is our 2020/21 1-in-20 peak day demand network. From this a North East 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 North East Exit zone as detailed in Section 5, and with North East supplies reduced to a credible minimum.
- The substitution network is created from the North East 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.
- Eastoft (Keadby) NTS Exit Point was set at the level of prevailing Obligated Exit Capacity in 2022 (0kWh/d).

4. Enhanced Network

- No System enhancements for the substitution network were required.

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

- All North East 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 North East 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 6012 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 tables.

From April 2021:

NTS Exit Point	Type	Remaining unsold capacity (kWh/d) (Post-April 2021) Eastoft (Keadby) capacity reservation
West Burton	DC	14,562,899*
Stallingborough	DC	0
Thornton Curtis (Killingholme)	DC	57,704,022

*Remaining unsold capacity to be substituted to Eggborough power station in October 2022 and Ferrybridge D power station in April 2023.

From October 2022:

NTS Exit Point	Type	Remaining unsold capacity (kWh/d) (Post-October 2022) Eastoft (Keadby) capacity reservation
West Burton	DC	10,758,425*
Stallingborough	DC	0
Thornton Curtis (Killingholme)	DC	44,401,819

*Remaining unsold capacity to be substituted to Ferrybridge D power station in April 2023.

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, two different donor sequences were assessed. These are listed, with their respective exchange rates, in the following tables:

Sequence 1

Recipient NTS Exit Point	Donor NTS Exit Points	Capacity Donated (kWh/d)	Capacity Received (kWh/d)	Exchange Rate (Donor : Recipient)	Total Exchange Rate (Donor : Recipient)
Eastoft (Keadby)	West Burton	23,035,220	18,805,220	1.2249 : 1	1.2033 : 1*
	Blyborough	20,354,781	17,254,780	1.1797 : 1	

*The overall exchange rate for Sequence 1 when combined with Ferrybridge D substitution is 1.9982 : 1.

Sequence 2 (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)
Eastoft (Keadby)	West Burton	12,276,795	11,769,528	1.0431 : 1	2.0573 : 1*
	Stallingborough	15,312,169	6,379,805	2.4001 : 1	
	Thornton Curtis (Killingholme)	46,598,182	17,910,667	2.6017 : 1	

*As mention in section 1, the analysis was carried out in combination with Ferrybridge D. The overall exchange rate for Sequence 2 when combined with Ferrybridge D substitution is 1.805 : 1. Therefore Sequence 2 is the best exchange rate overall when combined with the Ferrybridge D substitution.