

Eggborough Power Station ExCS Informal Notice - Appendix 1

30th November 2017

Our Ref: 2017 – Eggborough Power Station ExCS

This Appendix relates to the proposed substitution of NTS Exit Capacity to Eggborough power station exit point from the following Distribution Network (DN) offtakes and Direct Connect (DC) load (both power stations and industrials exit points);

- Pannal (DN)
- Burley Bank (DN)
- Asselby (DN)
- Baldersby (DN)
- Towton (DN)
- Ganstead (DN)
- Goole Glass Industrial (DC)
- Pickering DC
- Blyborough (Brigg) Power Station (DC)
- Eastoft Keadby Power Station (DC)
- West Burton Power Station (DC)

1. Recipient selection:

The PARCA application in respect of Eggborough power station for Enduring Annual NTS Exit (Flat) Capacity was received through a PARCA Exit Window triggered by Sutton Bridge power station. Also during that Window, a further PARCA application was received from Knottingley power station.

Sutton Bridge power station is downstream of Hatton compressor station, while Eggborough and Knottingley are upstream. Thus, for the purpose of substitution, it was deemed best to carry out a combined assessment for Eggborough power station and Knottingley separately from that of Sutton Bridge power station.

To reduce the number of substitution iterations, and since Eggborough and Knottingley power stations are assumed to connect close to each other on feeder 29, they were modelled as an aggregated recipient exit point.

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, three (3) 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 (GWh/d)	Unsold Capacity (at 1st October 2017)(GWh/d)
Pannal	DN	148.41	28.23
Asselby	DN	4.59	1.00
Goole Glass	DC	1.62	1.62
Eastoft (Keadby) Power Station	DC	36.06	36.06
Towton	DN	80.73	21.17
Burley Bank	DN	20.31	6.44
West Burton Power Station	DC	26.84	26.84
Blyborough	DN	79.33	23.50
Blyborough (Cottam) Power Station	DC	19.30	19.30
Ganstead	DN	23.15	6.54
Blyborough (Brigg) Power Station	DC	16.89	15.29
Saltend HP (BP Saltend HP)	DC	9.10	0.04
Baldersby	DN	1.34	0.21
Pickering	DN	9.38	1.05
Thornton Curtis	DN	118.19	22.85
Thornton Curtis (Killingholme) Power Station	DC	91.00	91.00
Stallingborough Power Station	DC	68.01	15.31
Walesby	DN	0.97	0.44

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

<i>From</i>	<i>To</i>	<i>Pipeline distance (km)</i>
Eggborough Power Station	Pannal	46.62
	Asselby	15.53
	Goole Glass	23.99
	Eastoft (Keadby) Power Station	40.40
	Towton	47.28
	Burley Bank	52.92
	West Burton Power Station	61.31
	Blyborough	62.26
	Blyborough (Cottam) Power Station	62.29
	Ganstead	67.88
	Blyborough (Brigg) Power Station	76.12
	Saltend BPHP (BP Saltend HP)	85.66
	Baldersby	90.04
	Pickering	136.40
	Thornton Curtis	95.54
	Thornton Curtis (Killingholme) Power Station	95.56
	Stallingborough Power Station	108.60
Walesby	111.90	

As a result of these analyses, based on the maximum requested capacity, final NTS Exit Points selected were as follows;

NTS Exit Point	Type	Recipient / Donor	Current Baseline (kWh/d)	Proposed Baseline (kWh/d)	Remaining unsold capacity (kWh/d)
Eggborough Power Station	DC	Recipient	0	106,494,300	0
Pannal	DN	Donor	148,410,000	120,179,959	0
Burley Bank	DN	Donor	20,310,000	13,868,151	0
Asselby	DN	Donor	4,586,470	3,586,201	0
Baldersby	DN	Donor	1,340,000	1,126,642	0
Towton	DN	Donor	80,730,000	59,564,671	0
Ganstead	DN	Donor	23,150,000	16,610,330	0
Goole Glass	DC	Donor	1,620,000	0	0
Pickering	DN	Donor	9,380,000	8,332,710	0
Blyborough (Brigg) Power Station	DC	Donor	16,890,000	1,600,000	0
Eastoft Keadby Power Station	DC	Donor	36,060,000	0	0
West Burton Power Station	DC	Donor	66,000,000	0 ¹	0

¹ Takes into account the amounts reserved for Keadby 2 power station and that being proposed for reservation for Knottingley power station

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)
Pannal	0.9965 : 1	1.1401 : 1
Burley Bank	1.0050 : 1	
Asselby	0.9904 : 1	
Baldersby	1.0160 : 1	
Towton	1.0040 : 1	
Ganstead	1.0899 : 1	
Goole Glass	0.8526 : 1	
Pickering	1.1024 : 1	
Blyborough (Brigg) Power Station	1.5321 : 1	
Eastoft Keadby Power Station	1.2846 : 1	
West Burton Power Station	1.4894 : 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 Eggborough power station, and is also the year Knottingley power station has requested their capacity.
- 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.
- Eggborough Power station NTS exit point was set at the level of prevailing Obligated Exit Capacity in 2020 (0 kWh/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 are 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 6121 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 October 2020

Donor NTS Point	Type	Unsold capacity at donor exit points in kWh/d (Post- October 2020) Eggborough power station capacity reservation
Pannal	DN	0
Burley Bank	DN	1,145,664

January 2021

Donor NTS Point	Type	Unsold capacity at donor exit points in kWh/d (Post- January 2021) Eggborough power station capacity reservation
Pannal	DN	0
Burley Bank	DN	0
Asselby	DN	0
Baldersby	DN	0
Towton	DN	0
Ganstead	DN	0
Goole Glass	DC	0
Pickering	DN	0
Blyborough (Brigg) Power Station	DN	407,004

From April 2021

Donor NTS Point	Type	Unsold capacity at donor exit points in kWh/d (Post- April 2021) Eggborough power station capacity reservation
Pannal	DN	0
Burley Bank	DN	0
Asselby	DN	0
Baldersby	DN	0
Towton	DN	0
Ganstead	DN	0
Goole Glass	DC	0
Pickering	DN	0
Blyborough (Brigg) Power Station	DC	0
Eastoft Keadby Power Station	DC	5,112,889

From October 2022

Donor NTS Point	Type	Unsold capacity at donor exit points in kWh/d (Post- October 2022) Eggborough power station capacity reservation
Eggborough Power Station	DC	0
Pannal	DN	0
Burley Bank	DN	0
Asselby	DN	0
Baldersby	DN	0
Towton	DN	0
Ganstead	DN	0
Goole Glass	DC	0
Pickering	DN	0
Blyborough (Brigg) Power Station	DC	0
Eastoft Keadby Power Station	DC	0
West Burton Power Station	DC	0

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

Sequence 1

<i>Recipient NTS Exit Point</i>	<i>Donor NTS Exit Points</i>	<i>Capacity Donated (kWh/d)</i>	<i>Capacity Received (kWh/d)</i>	<i>Exchange Rate (Donor : Recipient)</i>	<i>Total Exchange Rate (Donor : Recipient)</i>
Eggborough Power Station	Walesby	440,365	189,635	2.3222 : 1	2.2741 : 1
	Stallingborough Power Station	15,312,169	5,522,168	2.7729 : 1	
	Thornton Curtis (Killingholme) Power Station	91,000,001	30,339,996	2.9993 : 1	
	Thornton Curtis	22,853,961	7,623,960	2.9976 : 1	
	Saltend BPHP (BP Saltend HP)	44,105	24,105	1.8297 : 1	
	Blyborough (Brigg) Power Station	15,290,000	8,509,999	1.7967 : 1	
	Ganstead	6,539,670	4,829,670	1.3541 : 1	
	Blyborough (Cottam) Power Station	19,300,000	13,069,999	1.4767 : 1	
	Blyborough (DN)	23,504,144	20,414,144	1.1514 : 1	
	West Burton Power Station	47,889,513	15,970,624	2.9986 : 1	

Sequence 2

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)
Eggborough Power Station	Asselby	1,000,269.02	917,678.00	1.0900 : 1	1.2704 : 1
	Goole Glass	1,619,999.90	1,369,284.00	1.1831 : 1	
	Eastoft Keadby Power Station	36,060,000.37	25,886,576.00	1.3930 : 1	
	Towton	21,165,329.07	24,720,076.00	0.8562 : 1	
	Burley Bank	6,441,849.28	6,332,923.00	1.0172 : 1	
	West Burton Power Station	26,839,693.79	18,195,169.00	1.4751 : 1	
	Blyborough (DN)	23,504,144.65	15,938,255.00	1.4747 : 1	
	Blyborough (Cottam) Power Station	19,299,999.50	13,635,721.00	1.4154 : 1	

Sequence 3 (Selected)

Recipient NTS Point	Donor NTS Points	Capacity Donated (kWh/d)	Capacity Received (kWh/d)	Exchange Rate (Donor : Recipient)	Total Exchange Rate (Donor : Recipient)
Eggborough Power Station	Pannal	28,230,041	28,330,000	0.9965 : 1	1.1401 : 1
	Burley Bank	6,441,849	6,410,000	1.0050 : 1	
	Asselby	1,000,269	1,010,000	0.9904 : 1	
	Baldersby	213,358	210,000	1.0160 : 1	
	Towton	21,165,329	21,080,000	1.0040 : 1	
	Ganstead	6,539,670	6,000,000	1.0899 : 1	
	Goole Glass	1,620,000	1,900,000	0.8526 : 1	
	Pickering	1,047,290	950,000	1.1024 : 1	
	Blyborough (Brigg) Power Station	15,290,000	9,980,000	1.5321 : 1	
	Eastoft Keadby Power Station	36,060,000	28,070,000	1.2846 : 1	
	West Burton Power Station	3,804,474	2554300	1.4894 : 1	