

Kings Lynn B ExCS Informal Notice - Appendix 1

29th April 2019

Our Ref: 2018 – Kings Lynn B ExCS

This Appendix relates to the proposed substitution of NTS Exit Capacity to Kings Lynn B NTS exit Point from Wragg Marsh (Spalding) DC, Gosberton DN, Kirkstead DN & Horndon (Barking) DC NTS exit Points.

1. Recipient selection:

The PARCA application is in respect of Kings Lynn B for Enduring Annual NTS exit (Flat) Capacity and triggered a PARCA Exit Window. During the PARCA Exit Window, no further PARCA applications were received.

2. Donor selection:

Substitution from individual donor NTS exit Points were 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, six (6) 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 (GWh/d)	Unsold Capacity (at 01/10/2021) (GWh/d)
Peterborough Eye	DN	23.35	1.21
Wragg Marsh (Spalding)	DC	37.28	37.28
Gosberton	DN	15.23	2.91
Kirkstead	DN	1.21	0.35
Little Barford	DC	35.20	35.20
Peters Green OT	DN	151.86	39.90
Peters Green South Mimms	DN	197.18	32.30
Hardwick	DN	123.70	28.56
Didcot	DC	137.76	137.76
Mappowder	DN	44.68	10.01
Braishfield B	DN	58.87	1.73
Braishfield	DN	107.28	33.05
Ipsden2	DN	15.68	4.95
Ipsden	DN	12.39	3.98
Winkfield (SO)	DN	71.86	35.36
Winkfield (SE)	DN	106.26	61.40
Winkfield (NT)	DN	15.91	15.81
Shorne	DN	62.35	42.52
Stanford Le Hope (Coryton)	DC	38.60	38.60
Horndon	DN	46.41	13.10
Horndon (Barking) PS	DC	58.59	58.59
Matching Green	DN	92.34	41.87

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

From	To	Pipeline distance (km)
Kings Lynn B	Peterborough Eye	44
	Wragg Marsh (Spalding)	40
	Gosberton	52
	Kirkstead	82
	Little Barford	107
	Peters Green OT	157
	Peters Green South Mimms	157
	Hardwick	159
	Didcot	210
	Mappowder	355
	Marchwood	289
	Braishfield B	286
	Braishfield	286
	Ipsden2	205
	Ipsden	205
	Winkfield (SO)	234
	Winkfield (SE)	234
	Winkfield (NT)	234
	Shorne	229
	Stanford Le Hope (Coryton)	229
Horndon	226	
Horndon (Barking) PS	226	
Matching Green	186	

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>
Kings Lynn B	DC	Recipient
Wragg Marsh (Spalding)	DC	Donor
Gosberton	DN	Donor
Kirkstead	DN	Donor
Horndon (Barking)	DC	Donor

3. Network analysis: Supply & demand scenario

- Substitution analysis was conducted for the Gas Year 2021/2022 as the first year the capacity will be required by Kings Lynn B.
- The analysis starting point is our 2021/2022 1-in-20 peak day demand network. From this a South East sensitivity network is created, taking the most onerous credible demand levels for power stations (and other DCs), and GDN offtakes from sold and forecast levels

for the South East zone as detailed in Section 5, and with South East supplies reduced to a credible minimum.

- The substitution network is created from South East sensitivity network, with the potential GDN 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.
- Kings Lynn B NTS exit Point was set at the level of prevailing Obligated Exit Capacity in 2021/2022 (0 kWh/d).

4. Enhanced Network

- Reinforcement of feeder 5 from Bacton to Tatsfield was required to facilitate flow of potential donors at baseline levels.
- Reinforcement of feeder 7 from Huntingdon to Mappowder was required to facilitate potential donors at baseline levels.
- Compressor re-wheels at Hatton & Peterborough compressor stations as well as compressor re-wheels with flow modifications at Huntingdon, Diss, Chelmsford, Wormington compressor stations. This was also done to facilitate potential donors at baseline levels.

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

- All South 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 South 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 6335 GWh/d, which is higher than the 1 in 20 peak demand (including sold capacity levels at GDN NTS Exit Points).

7. Summary of network analysis key parameter changes:

- No significant parameter changes were required between substitution networks.

8. Exchange Rate Validation

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

Sequence 1

<i>Recipient NTS 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>
Kings Lynn B	Shorne	42,523,893	41,780,050	1.0178:1	1.0175:1
	Horndon	13,102,331	12,890,042	1.0165:1	
	Horndon (Barking)	18,030,025	17,717,005	1.0177:1	

Sequence 2

<i>Recipient NTS 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>
Kings Lynn B	Wragg Marsh (Spalding)	37,283,600	36,639,958	1.0176:1	1.0933:1
	Gosberton	2,908,880	2,850,033	1.0206:1	
	Kirkstead	351,297	350,025	1.0036:1	
	Didcot	38,600,033	32,547,081	1.1860:1	

Sequence 3

<i>Recipient NTS 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>
Kings Lynn B	Wragg Marsh (Spalding)	37,283,600	36,639,958	1.0176:1	1.0121:1
	Gosberton	2,908,880	2,850,033	1.0206:1	
	Kirkstead	351,297	350,025	1.0036:1	
	Shorne	32,720,000	32,547,081	1.0053:1	

Sequence 4 (selected)

<i>Recipient NTS 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>
Kings Lynn B	Wragg Marsh (Spalding)	37,283,600	36,639,958	1.0176:1	1.0121:1
	Gosberton	2,908,880	2,850,033	1.0206:1	
	Kirkstead	351,297	350,025	1.0036:1	
	Horndon (Barking)	32,720,000	32,547,081	1.0053:1	

Sequence 5

<i>Recipient NTS 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>
Kings Lynn B	Wragg Marsh (Spalding)	37,283,600	36,639,958	1.0176:1	1.0121:1
	Gosberton	2,908,880	2,850,033	1.0206:1	
	Kirkstead	351,297	350,025	1.0036:1	
	Stanford Le Hope (Coryton)	32,720,000	32,547,081	1.0053:1	

Sequence 6

<i>Recipient NTS 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>
Kings Lynn B	Mappowder	10,013,650	8,250,017	1.2138:1	1.1750:1
	Braishfield B	1,726,693	1,469,975	1.1746:1	
	Braishfield	33,046,153	28,210,325	1.1714:1	
	Ipsden2	4,950,570	4,239,950	1.1676:1	
	Ipsden	3,979,655	3,400,042	1.1705:1	
	Winkfield (SO)	31,339,967	26,816,788	1.1687:1	