

## Millbrook Power Station ExCS Informal Notice - Appendix 1

1<sup>st</sup> April 2022

Our Ref: 2022 – Millbrook Power ExCS

This Appendix relates to the proposed substitution of NTS Exit Capacity to Millbrook Power Station from Terra Nitrogen (aka ICI Terra Severnside) DC disconnected, Mappowder DN, Braishfield A DN, Winkfield (SO) DN, and Winkfield (NT) DN exit points.

### 1. Recipient selection:

The PARCA application is in respect of Millbrook Power Station for Enduring Annual NTS Exit (Flat) Capacity. The request triggered the opening of a PARCA Exit Window, but 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. Substitution from disconnected sites has been prioritised.

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

<i>NTS exit Point</i>	<i>Type</i>	<i>Obligated Capacity (GWh/d)</i>	<i>Substitutable Capacity<sup>1</sup> (at 1<sup>st</sup> September 2024) (GWh/d)</i>
Terra Nitrogen (aka ICI Terra Severnside) - disconnected	DC	12.5	12.5
Peters Green	DN	151.8	39.8
Peters Green South Mims	DN	197.1	19.1
Hardwick	DN	123.6	6.8
Didcot	DC	137.7	137.7
Ipsden	DN	12.3	3.0
Ipsden2	DN	15.6	0.7
Winkfield (SO)	DN	71.8	39.3
Winkfield (NT)	DN	15.9	15.9
Braishfield A	DN	107.2	4.4
Mappowder	DN	44.6	6.1

<sup>1</sup> NTS Exit Capacity required as a result of demand forecasts provided via Exit Capacity Planning processes as per Standard Special Condition A57 and the Exit Capacity Planning Guidance will not be Substitutable.

The pipeline distances to the potential donor NTS exit points are:

<i>From</i>	<i>To</i>	<i>Pipeline distance (km)</i>
Millbrook Power Station	Terra Nitrogen (aka ICI Terra Severnside) - disconnected	314.9
	Peters Green	36.9
	Peters Green South Mims	36.9
	Hardwick	39.1
	Didcot	91.0
	Ipsden	86.1
	Ipsden2	86.1
	Winkfield (SO)	115.4
	Winkfield (NT)	115.4
	Braishfield A	166.6
	Mappowder	237.0

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>
Millbrook Power Station	DC	Recipient
Terra Nitrogen (aka ICI Terra Severnside) - disconnected	DC	Donor
Mappowder	DN	Donor
Braishfield A	DN	Donor
Winkfield (SO)	DN	Donor
Winkfield (NT)	DN	Donor

### 3. Network analysis: Supply & demand scenario

- Substitution analysis was conducted for the Gas Year 2023/24 as the first year the capacity will be required by Millbrook Power Station.
- The analysis starting point is our 2025/26 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 GDN 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 the South West sensitivity network, with the potential donor NTS exit points in the area increased to obligation in accordance with the Methodology.
- Millbrook Power Station is a new NTS exit point and as such has initially been set at 0 kWh/d.

#### 4. Enhanced Network

- Wormington to Honeybourne (9.5km\*600mm dia)
- Huntingdon to Steppingley (46km\*900mm dia)
- Sapperton to Littleton Drew (31km\*600mm dia)

#### 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.
- GDN offtakes that are potential donors as listed above are also increased to their obligated level, with scaling back at other exit points so that the aggregate total matches the forecast total.
- All other GDN NTS exit points in the South West were at forecast undiversified levels, with the remaining GDN exit points scaled accordingly so that the aggregate total matches the sold total.

#### 6. Flow adjustments:

- Flow adjustments were made in accordance with Paragraph 47 of the Methodology.
- Flow adjustments are detailed in Section 3 above, and the substitution network demand is 5931 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

Five sequences from the list of potential donors were assessed to determine the best exchange rate, whilst prioritising substitution from the Terra Nitrogen (aka ICI Terra Severnside) DC disconnected exit point. The respective exchange rates are listed below in the following tables:

Sequence 1

<b>Donor NTS Exit Points</b>	<b>Capacity Donated (kWh/d)</b>	<b>Capacity Received (kWh/d)</b>	<b>Exchange Rate (Donor: Recipient)</b>
Didcot	20,700,000	25,800,000	0.8023:1

## Sequence 2

<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>
Peters Green	17,200,000	17,458,241	0.9852:1	0.9845:1
Peters Green South Mimms	8,200,000	8,341,759	0.9830:1	

## Sequence 3

<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>
Winkfield (SO)	14,600,000	18,366,504	0.7949:1	0.7946:1
Winkfield (NT)	5,900,000	7,433,496	0.7937:1	

## Sequence 4

<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>
Mappowder	6,136,337	8,400,000	0.7305:1	0.7395:1
Braishfield A	4,442,256	6,700,000	0.6630:1	
Winkfield (SO)	6,100,000	7,617,116	0.8008:1	
Winkfield (NT)	2,400,000	3,082,884	0.7785:1	

## Sequence 5 (Selected)

<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>
Terra Nitrogen (aka ICI Terra Severnside) - disconnected	12,580,000	7,400,000	1.7000:1	1.0217:1
Mappowder	6,136,337	7,700,000	0.7969:1	
Braishfield A	4,442,256	6,700,000	0.6630:1	
Winkfield (SO)	2,300,000	2,847,534	0.8077:1	
Winkfield (NT)	900,000	1,152,466	0.7809:1	