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# Exit Capacity Substitution

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# A Guide to the Exit Capacity Substitution Methodology

## Introduction

- This presentation provides a brief overview of the steps to be undertaken to determine the vulnerability of un-booked exit capacity, at specific Exit points, to being substituted to other Exit Points
- Exit Capacity Substitution is a Licence obligation placed on National Grid Gas Transmission (NGT) aimed at avoiding unnecessary investment. Proposed capacity substitutions are subject to approval by Ofgem
  - It works by moving the Exit Capacity release obligation from where it is not wanted (i.e. it is unsold) to where it is needed (incremental capacity signal)

**The only way to ensure that capacity is not substituted to another Exit Point is to buy it**

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## Incremental Capacity and Scenario Planning

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# Incremental Capacity and Scenario Planning

- Using market intelligence identify quantity and location of likely capacity increase requests.
- Using market intelligence identify quantity and location of likely capacity decrease requests.
- Using the Long Term Summary Report, identify where Incremental Obligated Exit Capacity release is likely to be triggered.

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Recipient Exit Point  
Order

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# Recipient Exit Point Order

- The Exit Capacity Substitution Methodology defines a merit order for determining which incremental exit capacity request should be considered for substitution. This order is irrelevant to the effect on potential donor Exit Points.

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Potential Donor Exit  
Points

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# Potential Donor Exit Points

- Potential donor Exit Points are those with Substitutable Capacity.
- For the scenario in question, and using the Long Term Summary Report, Exit Points with Substitutable Capacity should be identified.
- Dependant upon the specific scenario, analysis to find potential donor Exit Points can be limited to a few Exit Points downstream of the recipient.



# Long Term Summary Report

Exit Point Licence Name	Location name on Gemini Exit	Month	Units	Jan-19	Feb-19	Mar-19	Apr-
Lauderhill	LAUDERHILLOT	Baseline Obligation (BFLEC)	kWh/d	1,790,000	1,790,000	1,790,000	1,79
		Incremental Obligation (IFLEC)	kWh/d	0	0	0	
		Non-Obligated Released	kWh/d	0	0	0	
		<b>Total Monthly Release Obligation</b>	kWh/d	<b>1,790,000</b>	<b>1,790,000</b>	<b>1,790,000</b>	<b>1,79</b>
		Quantity Reserved	kWh/d	0	0	0	
		Total Quantity Sold	kWh/d	0	0	0	
		Quantity Unsold	kWh/d	1,790,000	1,790,000	1,790,000	1,79
Leamington	LEAMINGTONOT	Baseline Obligation (BFLEC)	kWh/d	4,260,000	4,260,000	4,260,000	4,26
		Incremental Obligation (IFLEC)	kWh/d	0	0	0	
		Non-Obligated Released	kWh/d	0	0	0	
		<b>Total Monthly Release Obligation</b>	kWh/d	<b>4,260,000</b>	<b>4,260,000</b>	<b>4,260,000</b>	<b>4,26</b>
		Quantity Reserved	kWh/d	0	0	0	
		Total Quantity Sold	kWh/d	3,634,748	3,634,748	3,634,748	3,63
		Quantity Unsold	kWh/d	625,252	625,252	625,252	62
Little Burdon	LTBURDONOT	Baseline Obligation (BFLEC)	kWh/d	17,750,000	17,750,000	17,750,000	18,65
		Incremental Obligation (IFLEC)	kWh/d	3,169,521	3,169,521	3,169,521	2,26
		Non-Obligated Released	kWh/d	0	0	0	
		<b>Total Monthly Release Obligation</b>	kWh/d	<b>20,919,521</b>	<b>20,919,521</b>	<b>20,919,521</b>	<b>20,91</b>
		Quantity Reserved	kWh/d	0	0	0	
		Total Quantity Sold	kWh/d	20,919,521	20,919,521	20,919,521	20,91
		Quantity Unsold	kWh/d	0	0	0	

- Leamington. Substitutable capacity = Quantity Unsold.

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## Ranking of Donor Exit Points



# Ranking of Donor Exit Points

- The order in which potential Exit donor points are selected is documented in the Exit Capacity Substitution Methodology.
  - Essentially furthest downstream, working upstream.
- The order should be reconfirmed after each donor Exit point has been confirmed.
  - E.g. substituting capacity from C to A may mean B is no longer downstream of A
- The order should be reconfirmed after substitution for each recipient Exit point, in the scenario being considered, has been confirmed.
  - Accepted substitutions for recipient A1 should be modelled for analysis for recipient A2

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Enhanced Network

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# Enhanced Network

- We know that the current Network cannot cope if all Exit demands simultaneously take gas at obligated levels. Assured Pressures will not be met.
- As potential Exit donor points are raised to obligated levels for substitution analysis, the Network is reinforced to accommodate those obligations.
- The resultant model is known as the Enhanced Network.
- The Enhanced Network is built up from the current Network using the Principals of the Transmission Planning Code, and existing pressure and capacity obligations.

# Enhanced Network

- As Entry supplies cannot satisfy all existing Entry obligations, the Enhanced Network is developed for the 'area' around the recipient Exit point.
  - This may require repeating for individual recipient Exit points.
  - The 'area' is the part of the Network that has a high degree of interactivity with the recipient Exit points, and includes all potential donor Exit points
- The order should be reconfirmed after substitution for each recipient Exit point, in the scenario being considered, has been confirmed.
  - Accepted substitutions for recipient A1 should be modelled for analysis for recipient A2

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Substitution Analysis

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# Substitution Analysis

- Using the Enhanced Network.
  - Set flows at the recipient and interactive Exit points to the (pre increase) obligated level.
  - Elsewhere set the relevant demand level, but not less than sold.
  - Balance at the least interactive Entry point
  - Move demand from potential donor Exit points to the Recipient Exit point.
- The less demand you need to move the better the Exchange rate.
- If the Exchange rate is greater than 3:1 the donor Exit point is not considered for substitution.
- The order for eventual substitution is determined by the best Exchange rate.



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