

Gas System
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0669R – Review of MN & GDW Arrangements

15th April 2019

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Contents page

01	Recap of Proposal	03
02	D-1 Nominations	05
03	Interconnector Methodology	11
04	LNG Methodology	15
05	Next Steps	18

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01

Recap of
Proposal

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Proposed new process for Margins Notice calculation

Margins Notice triggered if: Total Max Use (NSS Assumption + Storage Max Use + LNG Assumption + Interconnectors Assumption) < Demand Forecast

- **NSS** [Monthly review] – Just UKCS & Norway, with LNG & Interconnectors removed
- **Storage** [Daily process] – Current process to remain
- **LNG** [Daily process] – New methodology
- **Interconnectors** [Daily process] – New methodology

And an ANS to be issued when we reach a certain percentage of the Margins Notice trigger.

We propose to include in UNC these changes to the methodology, and the frequency of these processes and reviews.

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02

D-1
Nominations

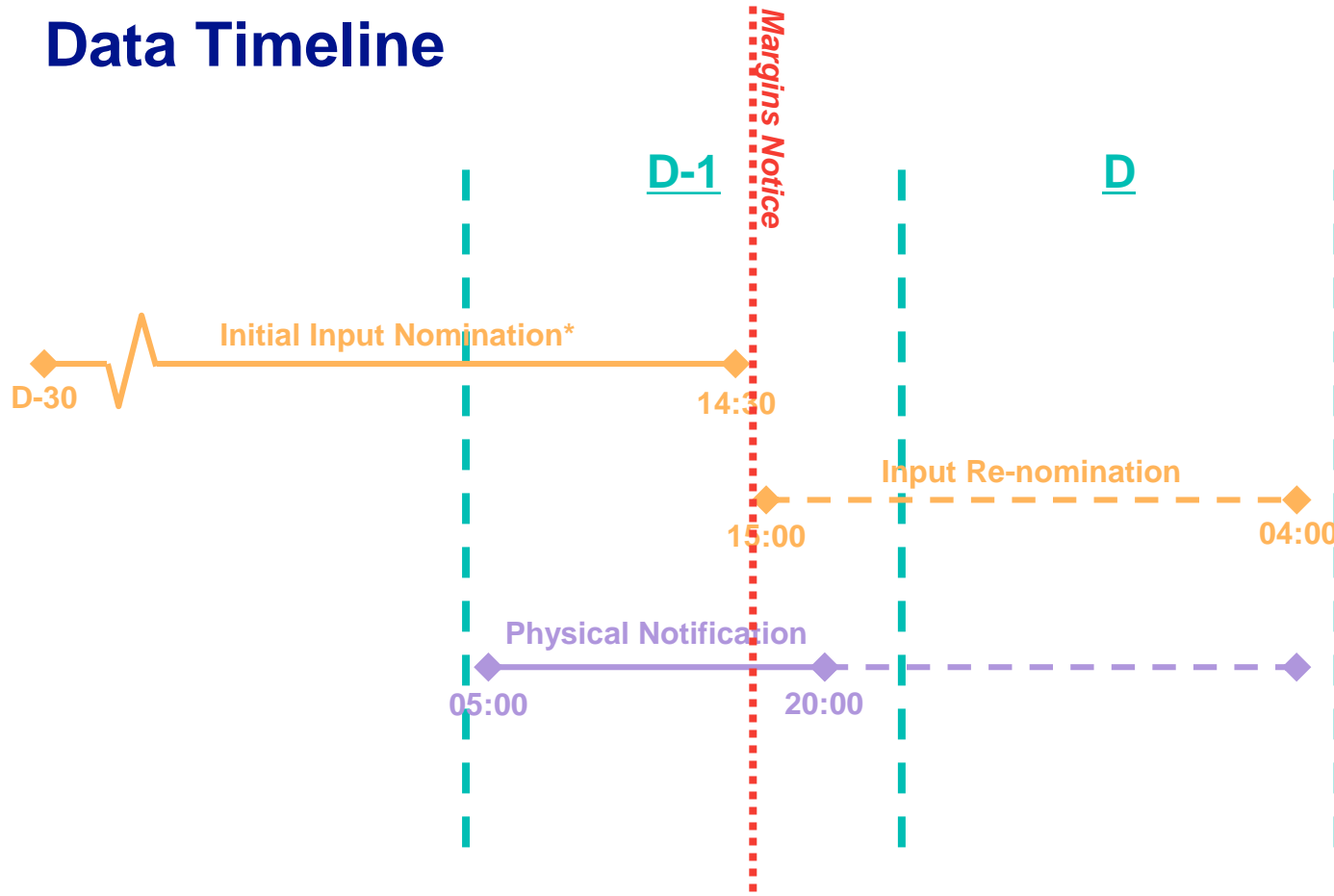
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New Interconnector & LNG Methodology: D-1 Nominations

- At the last meeting, the Workgroup indicated a preference for using D-1 nominations as a predictor of flow at LNG importation facilities and interconnectors
- We have looked at the data on days of high demand (1st March 2018, 23rd January 2019) and an average day's demand (19th March 2019)
- The data shows that 15:00 D-1 nominations for ICs and LNG are not a reliable indicator of actual flow for the following day
- We therefore do not propose to use this method

Data Timeline



D-1 Nominations – 1st March 2018

Gas Day	Site	D-1 15:00 Nomination (kWh)	Actual Flows M+15 (kWh)	Difference between D-1 Noms & Actual Flows
01/03/2018	Bacton Interconnector Entry	27,134,210	557,650,384	530,516,174
01/03/2018	Bacton – BBL Interconnector Entry	27,136,216	331,162,325	304,026,109
01/03/2018	Aldborough Storage Entry	227,051,237	259,580,594	32,529,357
01/03/2018	Milford Haven – Dragon LNG	1,859,000	252,383,575	250,524,575
01/03/2018	Grain NTS 1 LNG	0	80,011,264	80,011,264
01/03/2018	Grain NTS 2 LNG	110,691,761	279,099,216	168,407,455
01/03/2018	Holford Storage Entry	0	246,606,496	246,606,496
01/03/2018	Hornsea Storage Entry	97,500,000	127,500,000	30,000,000
01/03/2018	Humbly Grove Storage Entry	0	37,895,833	37,895,833
01/03/2018	Stublach Storage Entry	56,900,660	197,398,591	140,497,931
01/03/2018	Bacton – Shell Sub Terminal Entry	105,624,895	45,883,333	-59,741,562
01/03/2018	St Fergus – Mobil Sub Terminal Entry	60,984,014	95,275,016	34,291,002
01/03/2018	St Fergus – NSMP Sub Terminal Entry	377,875,345	525,948,507	148,073,162
01/03/2018	St Fergus – Shell Sub Terminal Entry	210,250,977	99,195,528	-111,055,449

D-1 Nominations – 23rd January 2019

Gas Day	Site	D-1 15:00 Nomination (kWh)	Actual Flows M+15 (kWh)	Difference between D-1 Noms & Actual Flows
23/01/2019	Bacton Interconnector Entry	24,354,498	178,064,976	153,710,478
23/01/2019	Bacton – BBL Interconnector Entry	9,141,814	480,222,222	471,080,408
23/01/2019	Aldborough Storage Entry	0	102,093,441	102,093,441
23/01/2019	Milford Haven – Dragon LNG	0	116,456,848	116,456,848
23/01/2019	Grain NTS 1 LNG	0	60,039,168	60,039,168
23/01/2019	Grain NTS 2 LNG	0	281,023,370	281,023,370
23/01/2019	Holford Storage Entry	0	177,015,472	177,015,472
23/01/2019	Humbly Grove Storage Entry	0	73,223,056	73,223,056
23/01/2019	Stublach Storage Entry	14,800,085	122,233,724	107,433,639
23/01/2019	Bacton Seal – Sub Terminal Entry	129,861,830	42,180,556	-87,681,274
23/01/2019	Easington – Langede Sub Terminal Entry	724,784,716	817,325,339	92,540,623
23/01/2019	St Fergus – Mobil Sub Terminal Entry	60,594,735	189,265,136	128,670,401
23/01/2019	St Fergus – NSMP Sub Terminal Entry	466,725,396	548,147,205	81,421,809
23/01/2019	Teesside – PX Sub Terminal Entry	102,685,184	139,266,667	36,581,483

D-1 Nominations – 19th March 2019

Gas Day	Site	D-1 15:00 Nomination (kWh)	Actual Flows D+2 (kWh)	Difference between D-1 Noms & Actual Flows
19/03/2019	Aldborough Storage Entry	0	48,637,802	48,637,802
19/03/2019	Grain NTS 1 LNG	0	57,933,824	57,933,824
19/03/2019	Grain NTS 2 LNG	148,000,000	237,144,433	89,144,433
19/03/2019	Holford Storage Entry	0	84,987,440	84,987,440
19/03/2019	Milford Haven – South Hook LNG	252,319,836	83,520,561	-168,799,275
19/03/2019	Stublach Storage Entry	36,862,690	74,670,642	37,807,952
19/03/2019	Bacton – Perenco Sub Terminal Entry	86,269,660	147,643,389	61,373,729
19/03/2019	Barrow Sub Terminal Entry	41,000,000	76,259,169	35,259,169
19/03/2019	Easington – Dimlington Sub Terminal Entry	16,370,973	59,617,441	43,246,468
19/03/2019	St Fergus – Mobil Sub Terminal Entry	48,795,895	184,596,320	135,800,425
19/03/2019	Teesside – CATS Sub Terminal Entry	14,351,340	95,009,278	80,657,938
19/03/2019	Teesside – PX Sub Terminal Entry	56,096,385	92,782,222	36,685,837

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Interconnector Methodology

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Interconnector Methodology

- We have observed a correlation between interconnector flow and hub price differentials
- Our alternative proposal is to use average flow and price differential data to calculate the interconnectors figure for the Margins Notice on a daily basis

BBL Interconnector

$$= \text{Min} \left(\text{Max BBL Technical Capacity, Average Flow from last [2 or 7] Days} * \frac{D - 1 \text{ NBP:TTF Differential}}{\text{NBP:TTF Average Differential from last [2 or 7] Days}} \right)$$

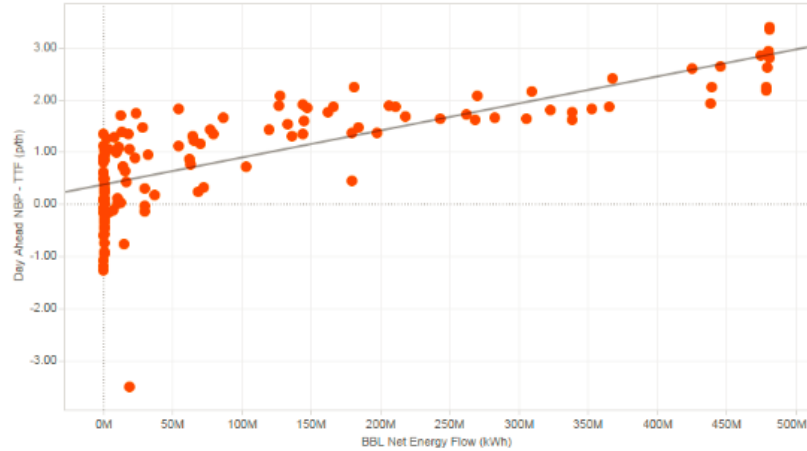
IUK Interconnector

$$= \text{Min} \left(\text{Max IUK Technical Capacity, Average Flow from last [2 or 7] Days} * \frac{D - 1 \text{ NBP:ZEE Differential}}{\text{NBP:ZEE Average Differential from last [2 or 7] Days}} \right)$$

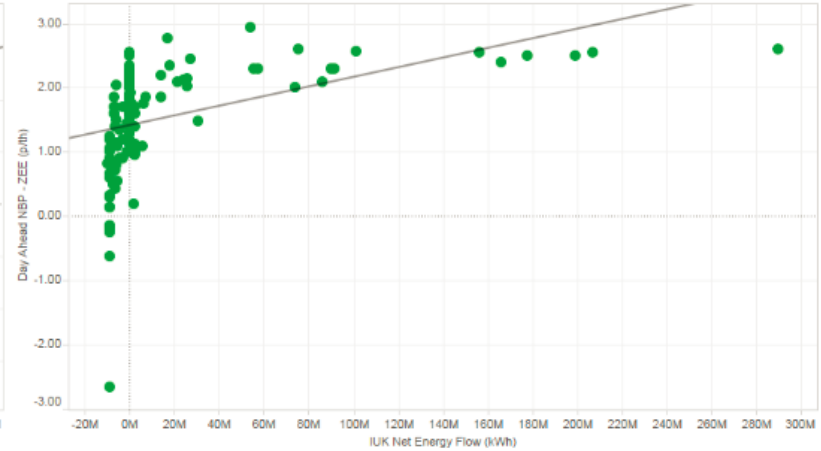
- The following charts show the flow vs price data and apply the above equations for the 2018/19 winter

Forecasting Interconnector Flows using Inter-hub Spreads

BBL



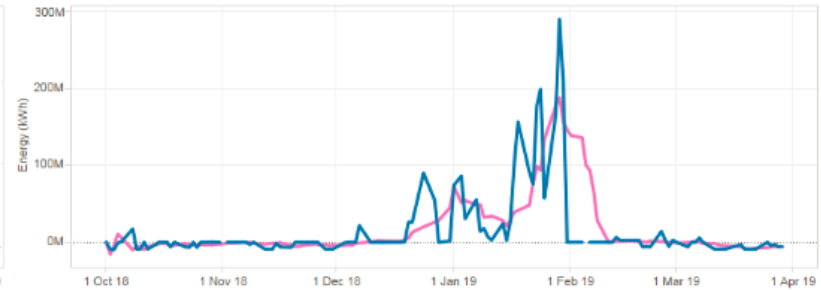
IUK



BBL Flow v Forecast



IUK Flow v Forecast

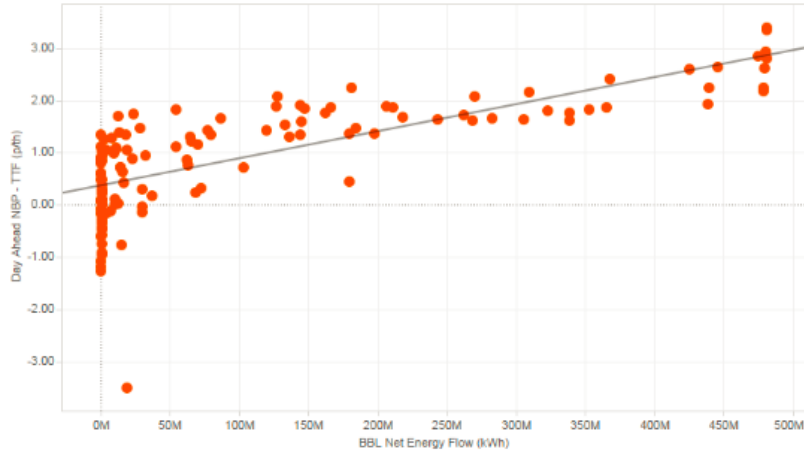


■ Actual Flow (kWh) ■ Forecast Flow (kWh)

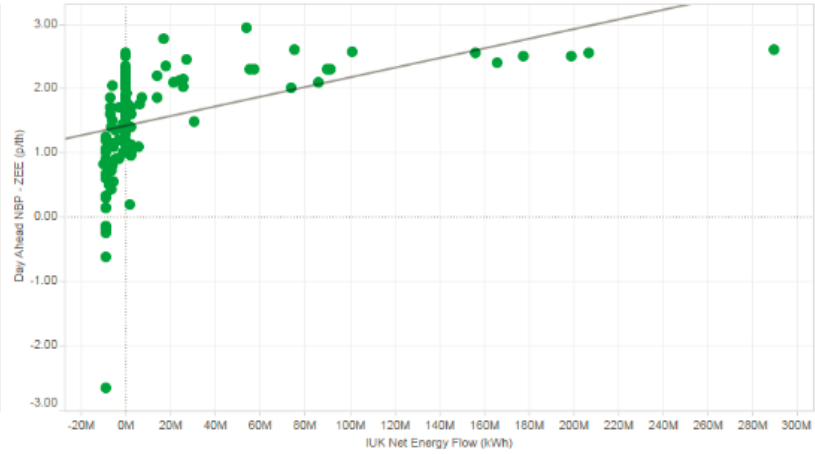
Based on flows for the previous 7 days

Forecasting Interconnector Flows using Inter-hub Spreads

BBL



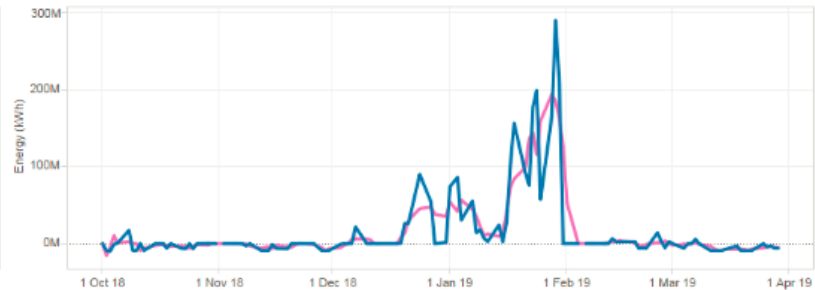
IUK



BBL Flow v Forecast



IUK Flow v Forecast



Actual Flow (kWh) Forecast Flow (kWh)

Based on flows for the previous 2 days

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LNG
Methodology

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LNG Methodology

- Considered 2 options for calculating the LNG contribution to the Margins Notice on a daily basis
 - Using the Composite Weather Variable (CWW)

$$LNG = \text{Min} \left(\text{Max Deliverability}, \text{Average Flow} * \frac{\text{Average CWW}}{\text{Forecast CWW}} \right)$$

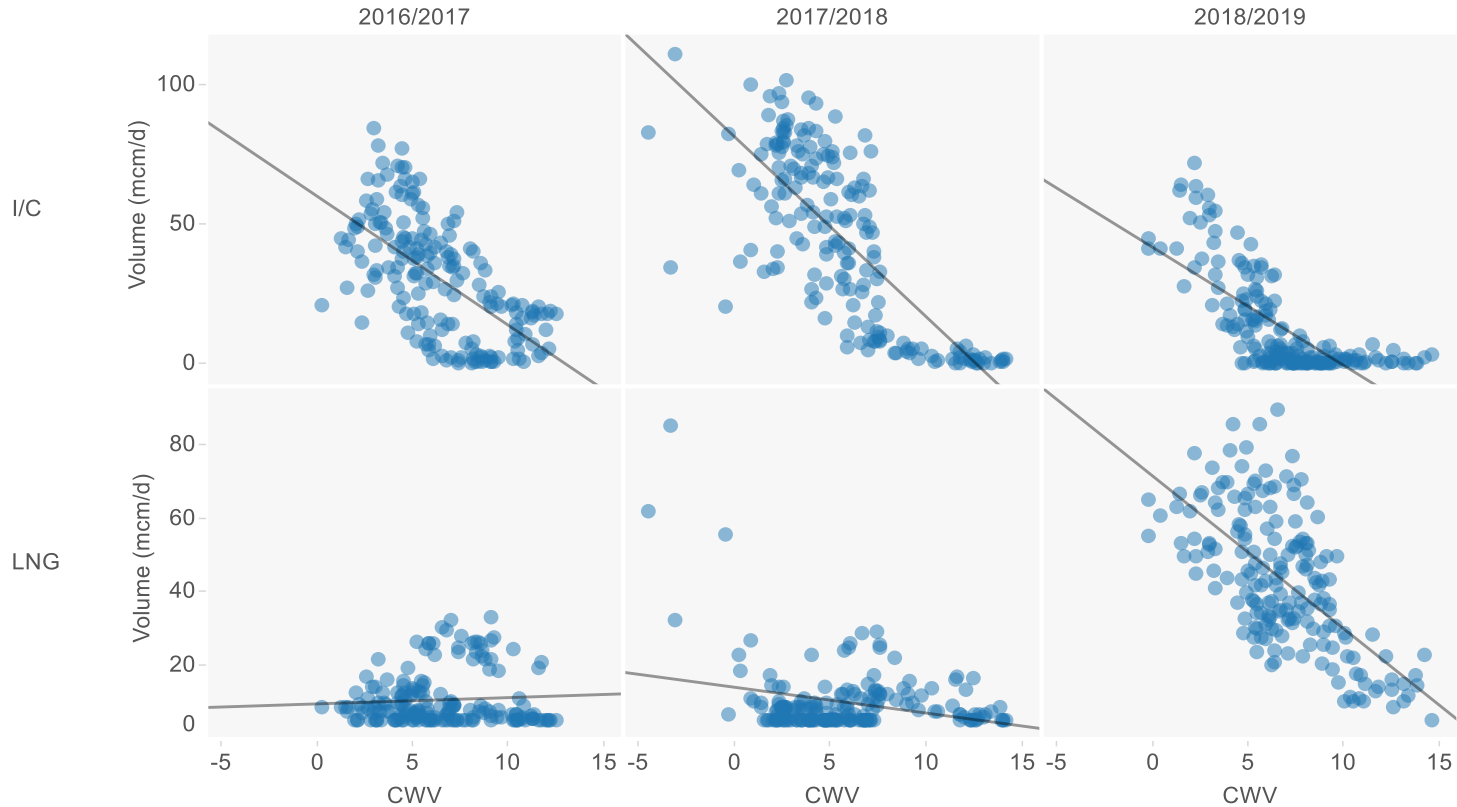
- Using an alternative methodology based on usable stock

$$LNG = \text{Min}(\text{Max Deliverability}, \text{Usable Stock})$$

- We also considered CWW for interconnectors and our conclusions were:
 - Price was a stronger indicator than CWW for IC flows
 - LNG shows a correlation to CWW for 2018/19 but not the previous two winters
- We therefore propose to develop an LNG methodology based on usable stock

Composite Weather Variable (CWV)

Volume & CWV (Winter)



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Next Steps

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Next Steps

- Seek feedback from the Workgroup today
- Develop and quantify LNG methodology
- Analyse the impact of the proposed new IC and LNG methodologies on Margins Notice historically
- Agree recommendations with the Workgroup
- Close 0669R, Workgroup Report to June Panel
- Raise a new mod to implement recommendations

Updated UNC Timeline

