

Development of a Linepack Product

Review Group 291 – May 2010



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NTS Linepack – high level principles

- ◆ NTS Linepack product released as an end-of-day quantity
- ◆ Allows a User to ‘inject’ a quantity of gas into linepack on the day of release and ‘withdraw’ (same quantity) from linepack the following day
- ◆ At the User-level, the product is effectively an inter-day energy transfer

Strawman Options

- ◆ Primary Option
 - ◆ Park (and Loan) Service (Quantity based)
- ◆ Potential alternatives for valuing Linepack
 - ◆ Linepack Swing Service
 - ◆ Linepack Tolerance Service

Linepack: Park and Loan (PaL) Service - Strawman

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Linepack: Facilitation of Inter-day PaL Transfer

- ◆ Release to be discretionary e.g. subject to NTS operational parameters such as system supply-demand imbalance, transmission constraints, emergency

NTS Linepack Manager

- ◆ NTS LpM / User NBP transfers

Considerations..

Linepack will be treated as an NBP-related product

Users' energy Daily Imbalance not known until M+15

How to release product – platform and timing of LP quantities?

How to assign LP quantities e.g. priced; auction or administered?

Linepack: PaL Service Participants

The Service Provider

- ◆ For the purpose of delivering NG NTS obligations under its Licence Condition C27; NG NTS is the sole provider able to offer the NTS linepack service.
- ◆ Recognise that other providers may wish to offer other linepack services. Additionally 3rd party market operators may see value in facilitating a linepack market, however at present these considerations are not in the scope of this strawman.

Linepack Service Participants

- ◆ Proposed that Participants will acquire the PaL product through an NBP based linepack service, which will register imbalance park and loan quantities as NBP trades. Therefore any participant eligible to trade may participate in the linepack service.

NTS Linepack Manager (NTS LpM)

- ◆ Determines the Linepack quantity to be released (daily)
- ◆ Linepack 'Park' service initially – 'Loan' service to follow?
- ◆ The NTS LpM will undertake the following transactions with the User(s) that are successful in their request for the 'Park' service:-

Day-1 initiate 'NBP buy' trades (User NBP sell)

Day-2 reverse Day-1 with NBP 'sell' trades (User NBP buy)

Note. A 'Loan' service would be vice versa

NTS LpM Account to operate the PaL Service

- ◆ A new Gemini Account will be required for the NTS LpM.
- ◆ The NTS LpM will operate the PaL service 'flexmex'.
- ◆ The NTS LpM account will not be subject to energy imbalance charges and will not pick up neutrality smears.

High-level Principles for User acquiring the PaL Product

- ◆ The User may acquire the PaL product by specifying the imbalance quantity it seeks to carry over from D to D+1.
- ◆ In order that the individual Users quantity of product may be carried over from D to D+1 the imbalance quantity must be accounted for as not being part of the Users balance at the EoD on D with its EoD balance re-adjusted on D+1.
- ◆ The User(s) will submit a bid for the imbalance quantity required.
- ◆ Where a User has a bid accepted the following transactions will be undertaken:
 - ◆ Day-1 User initiates 'NBP sell' trade and NTS LpM matches with NBP buy trade
 - ◆ Day – 2 reverse on Day-1 User initiates an NBP buy trade and NTS LpM matches with NBP sell trade.

Daily Energy Transfers - outline

- ◆ Energy (kWh) inter-day transfer
 - ◆ Day-1 Park (or Loan)
 - ◆ Day-2 Park (or Loan); and reversal of Day-1 (if req'd)
 - ◆ Day-3 Park (or Loan); and reversal of Day-2 (if req'd)
 - ◆ Day-4, 5, 6 etc

Example of 2mcm Linepack 'park & adjust'

- ◆ NTS LpM releases a total of 2mcm (~21m kWh) of Linepack 'Park' to several counter-parties:

	Day-1	Day-2
	Buy / Sell	Buy / Sell
NTS LpM	21m (<i>kWh</i>)	21m
User-1	5m	5m
User-2	10m	10m
User-3	6m	6m

Example of 2mcm (User-1) 'park & adjust'

	Day-1	Day-2
	Buy / Sell	Buy / Sell
<i>NTS LpM</i>	5m (kWh)	5m

User-1

Input

Physical	25m	20m
OCM/NBP Buys	20m	15m
Linepack Buy/ <i>sell adj</i>	0	5m

Output

Physical	30m	25m
OCM/NBP Sells	10m	15m
<i>Linepack Sell/buy adj</i>	5m	0

Net imbalance	0	0
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PaL Allocation Methodology

- ◆ **What methodology for allocating the PaL product?**
- ◆ How is the product allocated to the bids?:
 - ◆ Stack
 - ◆ Volume weighted price/quantity
 - ◆ Price
 - ◆ First come first served
 - ◆ Percentage of Bid quantity

Pricing of the PaL Product

- ◆ **Pricing the Product**

- ◆ Pay as Bid
- ◆ Auction
- ◆ Administered price

- ◆ **Influences on the Service Price**

- ◆ In order to ascertain the value of the EOD Linepack product we must understand what prices and alternative products will influence whether there is an appetite for this product. Consider interactions with:
 - ◆ Default cashout
 - ◆ Day ahead price
 - ◆ Medium Range (fast recycle) Storage price
 - ◆ Difference of SAP between Gas Day and Gas Day+1

Revenues and Incentives

- ◆ Revenue from the PaL service to be re-apportioned to Users through Energy Balancing Neutrality.
- ◆ EBI invoicing.. new charge types req'd?
- ◆ National Grid NTS incentivised on daily Linepack quantity (kWh) released/utilised for example; 1-2mcm @ 0.001p/kWh, 2.1-3.99mcm @ 0.002p/kWh, 4.0-5.0mcm @ 0.003p/kWh, etc, etc.

Linepack: PaL Issues and Benefits

Issues:–

- ◆ The amount of product that can be offered and the margin for gain in terms of avoiding cashout on D may mean that the value of the service is limited.
- ◆ Indications are that the service may have a ceiling price, it would be expected that the bid prices will be below the day ahead price and the default cashout, as well as the fast cycle storage.
- ◆ Maybe unintended consequences between the proposed PaL service and other roles National Grid NTS undertakes.

Benefits:

- ◆ Provides greater certainty, to National Grid of the quantity of gas expect to be delivered on D+1, therefore improve management of EOD and opening linepack; however, this may only be in the order of 2mcm

Analysis is required to determine what level of commercial linepack is available and the potential value of the product.

Linepack: Swing Service - strawman

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Linepack: Swing Service - initial thoughts

- ◆ Daily assessment of the physical NTS Linepack (LP) swing quantity between adjacent (inter) Gas Days
- ◆ LP swing quantity to be assigned proportionally to a User based on its % share of the total NTS LP swing
- ◆ User LP swing quantity 'charged' at the differential of the daily cashout prices between the relevant Gas Days
- ◆ Application of new LP swing imbalance mechanism to all users
- ◆ Effected through Energy Balancing Neutrality
- ◆ This would be in addition to the Users' prevailing Daily Energy Imbalance (cashout)
- ◆ National Grid revised incentive based on linepack swing volumes?

Linepack: Swing Service - example

- ◆ NTS Daily Linepack **swing** between Day-1 & Day-2 ~ +5m kWh
- ◆ 3 Users: Daily imbalances cashed-out for Day-1 & Day-2
- ◆ Linepack swing: User-1 +4m kWh, User-2 +1m kWh & User-3 0 kWh
- ◆ SAP Day-1: 0.050 p/kWh & Day-2: 0.048 p/kWh
- ◆ SAP 'swing price differential' 0.002 p/kWh
- ◆ LP 'swing' charge: User-1 £800, User-2 £200 & User-3 £0
- ◆ Swing charges revenue into neutrality

Linepack: Swing Service - discussion

- ◆ The prevailing UNC Energy Balancing arrangements provide incentives for Users to balance on a daily (Gas Day) basis
- ◆ National Grid manages the system primarily utilising NTS linepack in the first instance; incentivised on Linepack for a Gas Day
- ◆ Is it appropriate for those that utilise NTS Linepack swing (end of day) to place a value on this service
- ◆ Your thoughts and views welcome.....

Linepack: Tolerance Service - Strawman

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Linepack: Tolerance Service

- ◆ Raised as an option by members of the Transmission Workstream.
- ◆ Linepack Tolerance Service has previously been developed as a balancing tool
- ◆ Modification Proposal 0373 – ‘Introduction of a Tolerance Service’ approved by Ofgem in Feb 2000,
- ◆ As a result of Modification Proposal 0440 – ‘Cancellation of the Tolerance Service’ the service was removed later in the same year, before it was implemented.
- ◆ An inventory service was considered in 2001, but the industry had little appetite for this type of service
- ◆ NG NTS proposes a review of the of the Tolerance service work undertaken so far.

Next?

- ◆ National Grid now seeking views (please) as to which of the Linepack strawman options tabled should Review Group 291 now develop..
- ◆ We believe the PaL strawman closely aligns to the SC27 Licence obligation re. 'Linepack product' – the primary option
- ◆ National Grid would support Users wishing to consider other secondary options being developed within Review Group 291
- ◆ National Grid is however mindful of its obligations within SC27 - the timetable might be unattainable if the scope (options) of RG291 becomes too varied