Gas Transmission Charging Review

Market modelling – Part 1 of Slide Pack

Ian Alexander, Debra Hawkin and
Patrick Taylor

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Market modelling

Our proposed approach to the market modelling …

1) Take wholesale traded price input projections for each gas day and each year in the impact assessment

2) Determine – under modelled tariff policy options – the cross-border flows of interconnectors

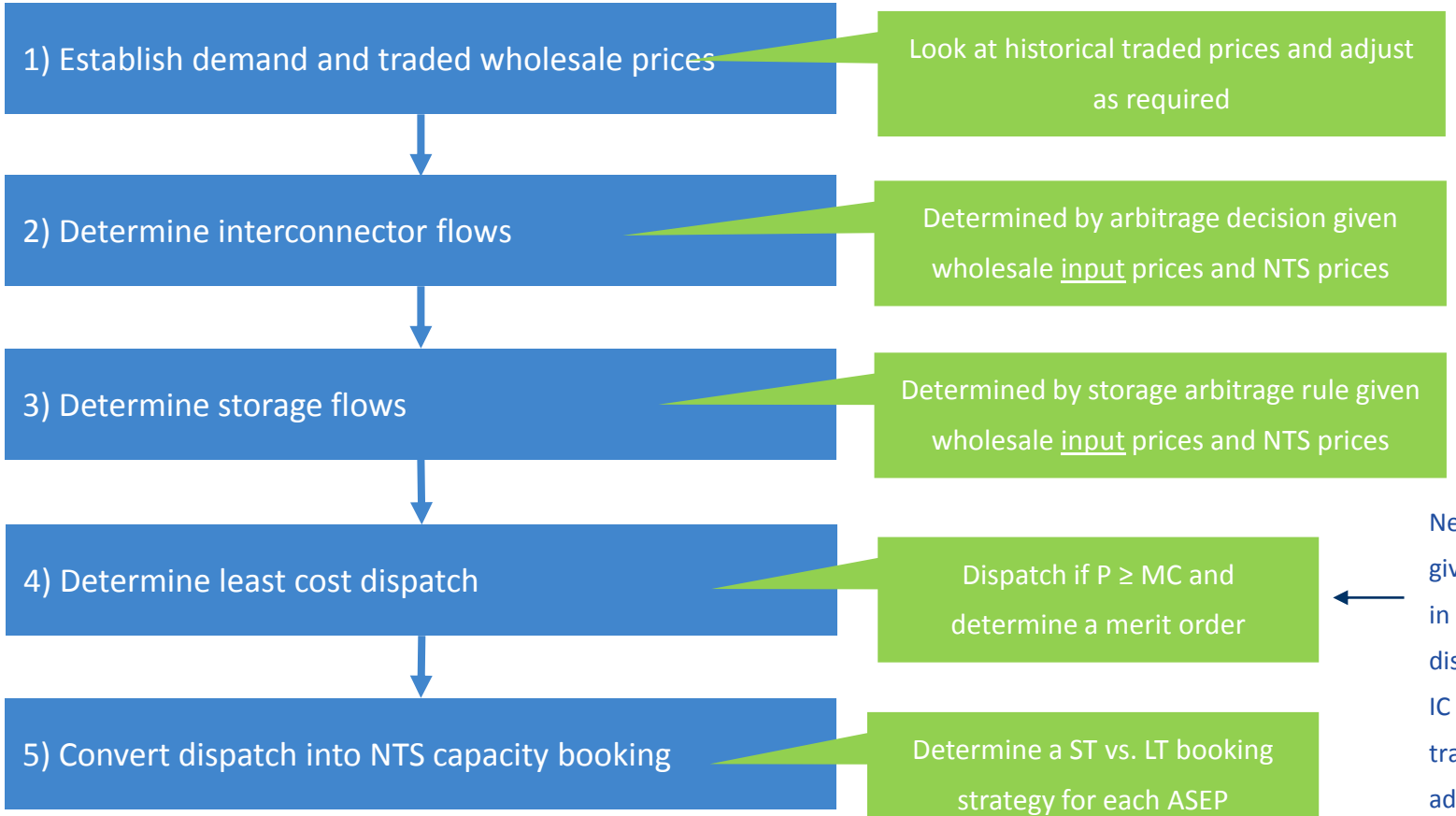
3) Determine – under modelled tariff policy options – the storage flows for the gas year – import and export

4) Run the dispatch schedule – having taken out and added back the storage and IC gas determined in steps 2 and 3

5) Determine the value of NTS capacity to determine whether a flow would choose to book ST or LT capacity

Market modelling

Dispatch schedule is determined as follows:



Need to balance the system given known storage offtake in summer, known storage dispatch in winter and known IC offtake and input to the GB transmission system in addition to modelled offtake demand for each gas day

Market modelling

The key assumption in our modelling …

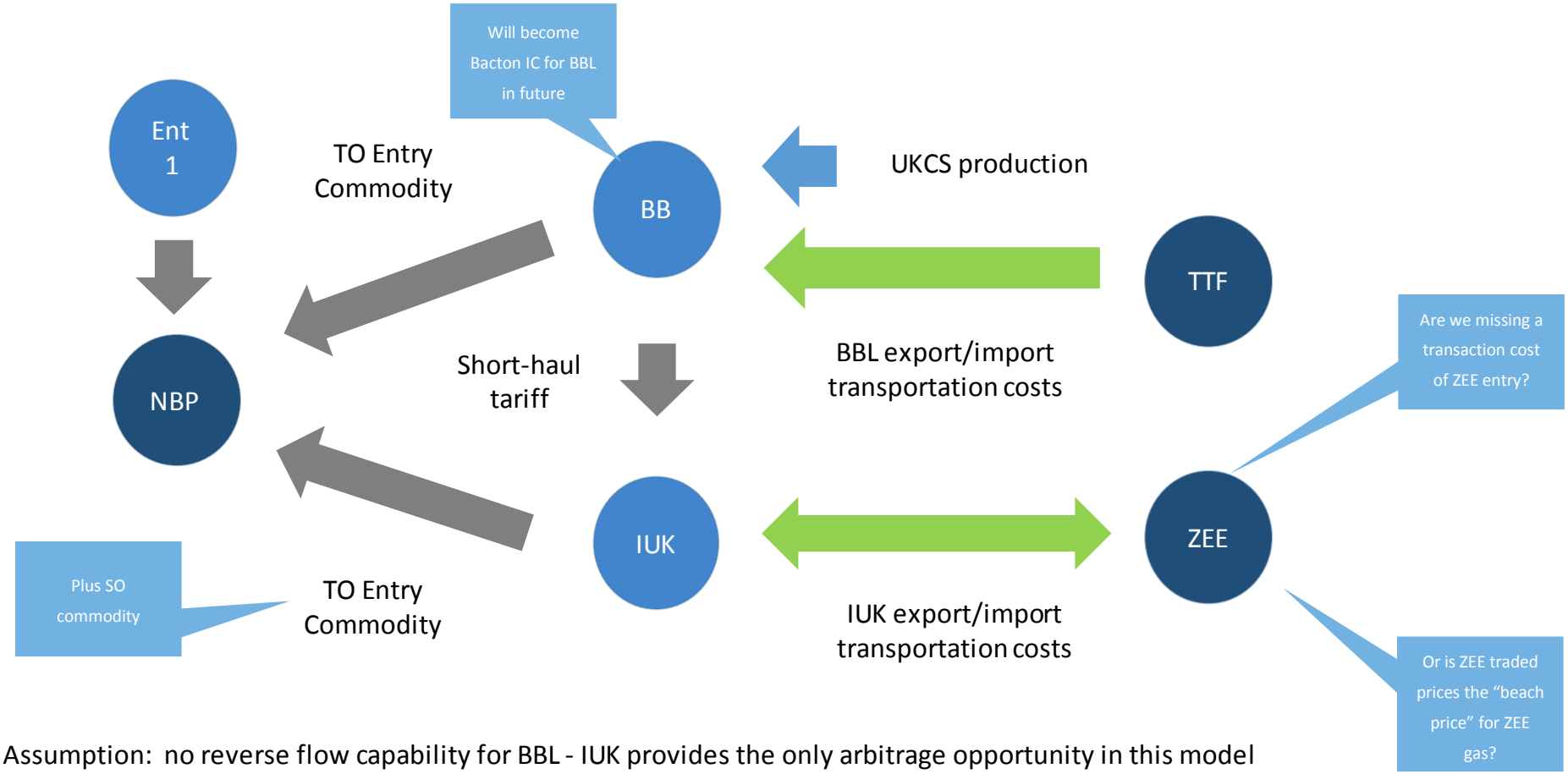
- **Wholesale prices are an input to the modelling**
- **We will be using historical information of traded prices (for given demand) to determine the traded value of gas for each gas day**
- **The model then evaluates how transaction costs – different NTS charging structures – effect the flow decisions (arbitrage) for sources of gas that have flow optionality:**
  - **Storage (although arbitrage may not be affected by NTS charges)**
  - **Interconnectors**
  - **UKCS gas that lands at Bacton**
  - **LNG?**

Assumption – all trading is spot

… we are not modelling traded prices but rather the arbitrage decisions of gas with flow optionality and the impact transaction costs have on arbitrage profitability

Market modelling

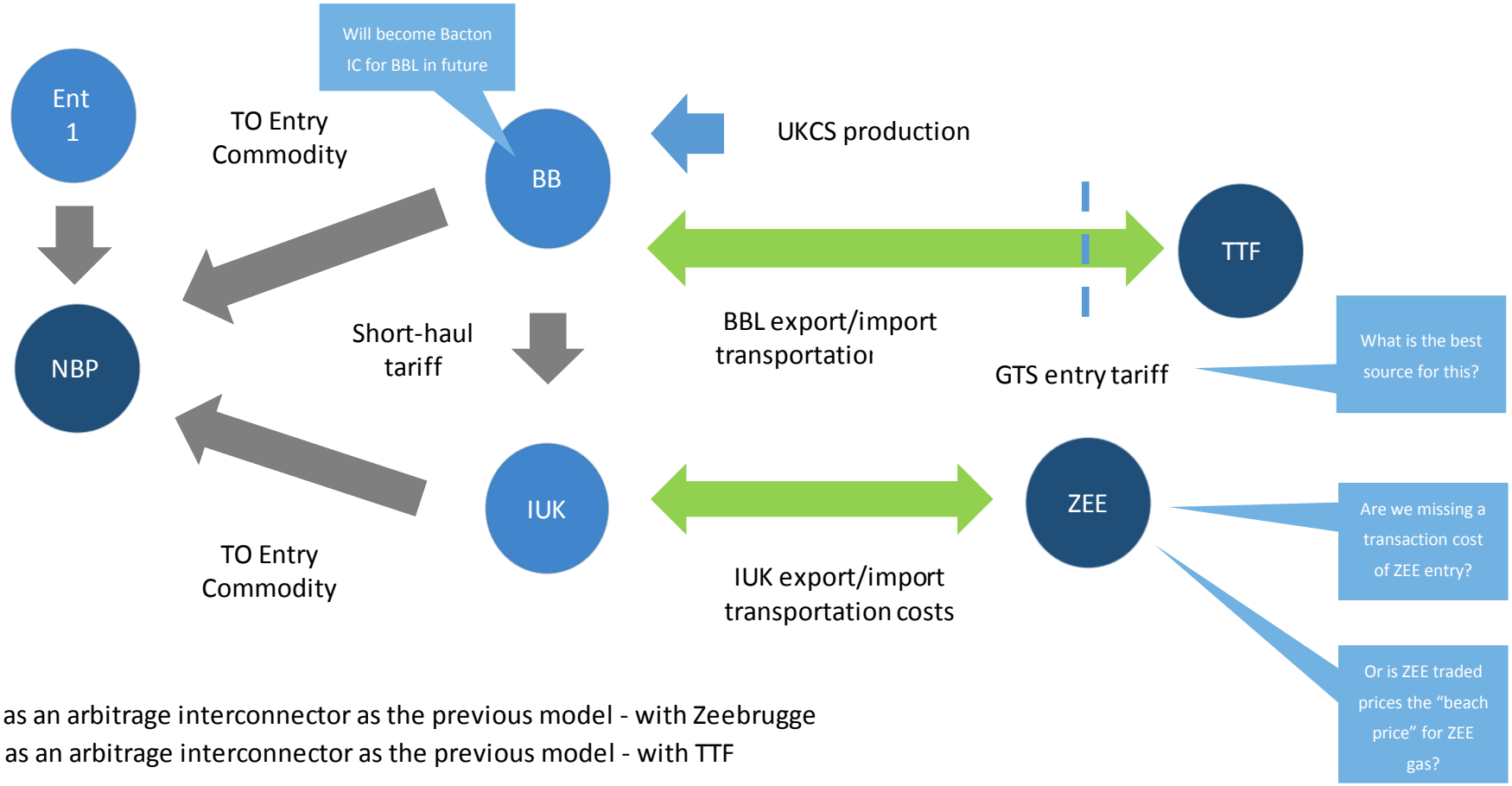
For example, the current interconnector arbitrage decision is as follows:



Assumption: no reverse flow capability for BBL - IUK provides the only arbitrage opportunity in this model

Market modelling

If BBL is an arbitrage interconnector, then the arbitrage decision is as follows:



IUK acts as an arbitrage interconnector as the previous model - with Zeebrugge
BBL acts as an arbitrage interconnector as the previous model - with TTF

There is an additional impact on trading decision in this model - arbitrage between markets must take account of GTS entry charges

Market modelling

What is the impact of the planned ZIGMA zone?

- **ZIGMA is a proposed cross-border Entry-Exit zone bringing together the Interconnector Pipeline, Zeebrugge ara and Zeebrugge Beach trading point**
- **ZIGMA consists of the following entry and/or exit points:**
  - **IBT – an entry and exit IP connecting ZIGMA with the NBP hub**
  - **OKS, an entry and exit IP connecting ZIGMA with the TTF hub**
  - **ZZ2, an exit point connecting ZIGMA with the ZEBRA market area**
  - **SILK, an entry point connection ZIGMA with gas production from the SEAL pipeline**
  - **ZPT, an entry point connecting ZIGMA with gas production from Norway**
  - **ZLNG, any entry point connecting ZIGMA with the Zeebrugge LNG terminal**

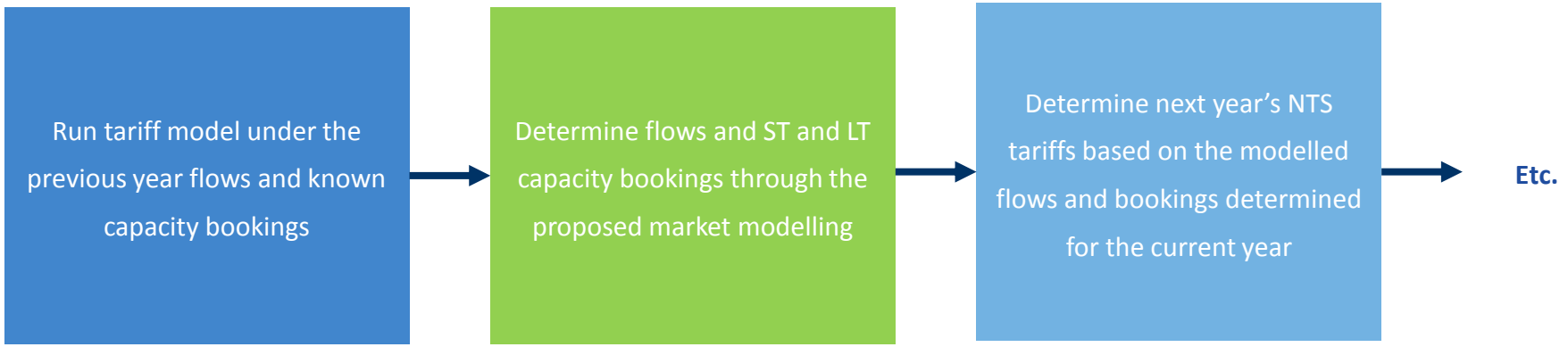
Well it only matters if it affects arbitrage potential or transaction costs between the traded wholesale markets …

We propose not to focus on this for now.

Market modelling

Addressing the circularity of tariffs and market modelling …

- **The NTS tariffs are inputs to the market modelling – you need fixed tariffs to determine the arbitrage decisions for sources of gas with flow optionality**
- **But tariffs are dependent on assumptions of capacity, forecast flows etc.**
- **We propose to address this as follows:**



- **The tariff model effectively operates with a one year lag – not an unreasonable assumption given in reality National Grid has to fix tariffs ahead of the gas year**

Contact us

CAMBRIDGE ECONOMIC POLICY ASSOCIATES

Queens House, 55-56 Lincoln's Inn Fields
London WC2A 3LJ

Tel: 020 7269 0210
Fax: 020 7405 4699
info@cepa.co.uk
www.cepa.co.uk