Power Trading in the Coupled European Markets

Challenges for policy-makers

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1 Power Trading in the Coupled European Markets

1.1 Introduction

Historically, the main evidence provided by continental generators to prove that they have exported power in GB has been evidence of booking and/or nomination of sufficient interconnector capacity linking the continent to GB. However, European spot power markets are currently shifting toward implicit trading as part of the process of market coupling. In implicit trading regimes, clearing price and cross-border capacity allocations are calculated by an algorithm. Therefore, market participants do not book interconnector capacity themselves, and therefore, they cannot provide evidence of booking / nominations of capacity at the interconnector.

In this context, Ofgem commissioned Europe Economics’ consultant Benjamin Tannenbaum to produce a report on different options for recognising implicit flows of renewable power under market coupling as part of the consultation on market coupling and Levy Exemption Certificates in November 2015. Ofgem has published the report produced by Benjamin and Ofgem’s team as part of the materials supporting its final decision.\(^1\)

In this note, we discuss some of the key issues facing the sector.

1.2 Coupled markets will continue to be important

There is currently no real-time trading of power in Europe. When delivery takes place in less than two day-ahead the contract is sometimes referred to as a “spot” contract. In spot markets, there are three types of bids depending on whether settlement takes place within the day of trading (intraday), the following day (day-ahead), or two-days ahead. When delivery is scheduled more than two-days ahead, the trade is sometimes referred to as “forward”. Market participants value both the forward timeframe and the spot markets. Forward trades provide them with more certainty on their expected costs (for e.g. suppliers) and revenues (for e.g. generators). The value of this can be measured as the avoided costs of hedging the variation in spot markets prices for a supplier instance. But wind generation, power plant and interconnector outage and to some extent demand for power are not perfectly predictable more than a day or an hour ahead. Therefore market participants also value spot markets as a cost-effective way to balance their portfolio when more information is available.

When market participants in different zones trade power in the forward timeframe, they are responsible for booking enough interconnection capacity for the power to flow from one place to the other. Closer to delivery, the parties who hold capacity rights and who want to use the interconnector need to schedule the volumes they wish to import or export by “nominating” capacity via the explicit auction platform. Capacity unused in the forward timeframe is rolled over to become available to timeframes closer to delivery (e.g. day-ahead and intraday).

In most parts of Europe market participants who wish to access cross-border trades in the day-ahead market currently do not need to book interconnection capacity themselves. Instead they must trade through an

**implicit day-ahead auction**, operated by power exchanges, whereby an algorithm matches orders taking into account available interconnector capacity and determines simultaneously the clearing price and allocation of capacity.

The relevant EU legislation (the Regulation on Capacity Allocation and Congestion Management (CACM)) requires cross-border capacity in the day-ahead market to be implicitly allocated through auctions, and through continuous trading in the intraday market. Full implicit allocation of capacity on the day-ahead markets has been in place in the North West European (NWE) area since 2014 and is expected to be in the intraday market by summer 2018.²

### 1.3 Coupled markets will pose problems to European regulators and market participants

In coupled markets, an algorithm allocates capacity at the interconnector. Market participants do not book interconnector capacity themselves. Therefore, they cannot provide evidence of booking / nominations of capacity at the interconnector.

In addition, the data on implicit trades is anonymous. This is a requirement of the CACM. It is therefore not possible to match a trade to capacity at the interconnector in either day ahead or intraday markets.

European regulators who seek to investigate a proof of power import from a foreign country (or a generator who seeks to demonstrate it) are therefore facing the same challenges as Ofgem. Such proof of import are often important in the context of renewable subsidies. For instance, in the UK, such proofs have been necessary in the Fuel Mix Disclosure (FMD), the Feed-in Tariff (FIT), the Green Tariff conditions, and the Contracts for Difference (CFD) schemes.

### 1.4 What might be done going forwards?

#### 1.4.1 Assuming all implicit trades cause implicit flows

A first option is to accept all proof of trades on day-ahead and intraday markets (“implicit trades”) as evidence of implicit flows. The evidence required would be evidence of matching sale / buy trades. It could also include specific “certificates” of power trades, such as a corresponding amount of Guarantees of Origin (GoOs).

The main issue around this option is that it is likely to over-estimate the amount of power imported into a country, since it ignores interconnection constraints. It also ignores the fact that counting all the flows that have potentially entered a country without subtracting the flows that may have exited the country risks over-estimating the net flows actually entering it.

The materiality of this risk is however limited by some economic and regulatory constraints. In particular participants may or may not seek to trade power implicitly because of the existence of barriers to entry. As an example, assuming a power market price of around £45/MWh, a participant buying 100MW in the UK every hour of the year would need to provide £39 million over the year as collateral. In addition, given the level of traders’ competence and that trading occurs 24/7, one can expect staff costs (per unit of power traded) not to be insignificant.

There may also be some regulatory constraints to the number of market participants who will seek to trade implicitly. For instance some overseas renewable power may be subject to support schemes that have local consumption requirements.

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² Comprising as of 2015: Belgium, Denmark, Estonia, Finland, France, Germany, Austria, Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Sweden, Italy, Slovenia, Spain and Portugal.
1.4.2 Ignoring all implicit trades

Another option is the opposite extreme: not recognise any evidence of implicit flows. It means accepting evidence of explicit flows (flows in the forward timeframe) to demonstrate the export of foreign electricity only.

This option has a number of drawbacks. The following are a sub-set of the ones we have analysed:

- **Arbitrarily excludes some trades.** This issue might become more problematic in the future if interconnectors and grid operators start to allocate capacity implicitly for forward trades as well or if the forward market moves to Financial Transmission Rights (FTR) only.

- **Distorts market incentives.** Assuming that forward trades will continue to require explicit bookings of capacity and day ahead/intraday will remain implicit, one could argue that ignoring all implicit flows distorts incentives in favour of forward trade. We have highlighted to Ofgem the importance of that issue. It is likely that both forward and day-ahead / intraday trades contribute to the efficiency of the market and that some combination of the two is the cheapest way to serve demand overall. If this proportion is at its equilibrium ratio in a given time, a regulatory intervention, which ends up giving more value to forward trades relative to day-ahead/intraday, may end up increasing the overall costs of providing customers with power.

- **Barrier to the integration of European markets.** Ignoring some implicit flows is at odds with the concept of single EU Energy Market as one would not recognise some trades from EU countries (all the implicit ones).

1.4.3 Hybrid options

We have analysed for Ofgem a set of options, which recognise only a share of the implicit flows. The main challenge around these options is their administration and implementation as they require numerical estimation of a “cap” on the amount of trades recognised. We have analysed simple numerical examples on how to determine the cap. Another issue around some of these hybrid options is the difficulty in predicting the level of the cap in advance, and the associated implications in terms of risk exposure for market participants.

1.5 Conclusion

Coupled markets will continue to be an important element of the wholesale power market and this may pose challenges to regulators in terms of identifying the source of flows in Europe. In order to meet these challenges, the regulators will need to understand the implications of the different possible approaches. A key point is that increasing technical correctness brings some additional costs. A more precise solution requires heavier administrative processes and other requirements. These need to be balanced against other economic impacts of the approach, all of which we have analysed in detail for Ofgem. This is the only way to opt for a solution, which ultimately best serves customers’ interests.