

► **Mitigating market power in the SEM**

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1 Introduction

This paper evaluates whether the imposition of a vertical ring-fence on ESB is a disproportionate measure to mitigate market power in the context of the wider regulatory framework in the Single Electricity Market (SEM). We assess this against the four reasons the Regulatory Authorities (RAs) gave for not allowing ESB vertical integration in 2012. We conclude this does appear to be disproportionate.

Our evaluation focuses on the current arrangements in the SEM. This paper does not attempt to assess the appropriateness of extending the current SEM market power mitigations to I-SEM.

2 SEM market power mitigations

The SEM was designed at the outset with a Market Power Mitigation Strategy to reduce the ability of the incumbent vertically integrated players (ESB and Viridian) to exploit their positions to the detriment of competition and consumers. Since the SEM's launch in 2007, the concentration of generation assets these players' own has reduced, but measures to control market power remain in place. These measures take a number of forms.

The mitigations are a mix of ex-ante and ex-post measures. Some apply to specific timeframes, while others are market wide and apply across all timeframes. Similarly, some mitigations apply to all participants while others target specific participants, such as ESB. Further, some measures are specific to the SEM while others are driven from European law. Table 1 provides a breakdown of these mitigations.

Table 1 shows that the SEM is a highly regulated and administered market. In the forward timeframe liquidity is mandated through the requirement to offer Directed Contracts (DCs) and Public Service Obligation (PSO) related Contracts for Difference (CfD). The physical market is a gross mandatory pool where participants must bid their short run marginal cost and where prices are determined ex-post. Ancillary services are paid regulated tariffs and are required to run. Capacity is separately remunerated through an administered price paid uniformly to all providers.

Table 1 SEM market power mitigations

SEM market	Timeframe specific	SEM wide	Targeted and SEM wide	Pan-European
Forward	Directed Contracts Public Service Obligations	Market Monitoring Unit	Vertical ring-fence	REMIT, MIFID II, EMIR, Transparency Regulation Competition law ¹
Pool	Bidding Code of Practice Two windows to alter DA offers Ex-post price determination Price cap or RMR			
Balancing	Grid Code prohibits capacity withholding Ex-post price determination			
Ancillary services	Ex-post price determination Annually approved regulated tariffs for reserve, reactive power and black start services Grid Code mandates requirements on generators for other services			
CRM	Capacity payments are determined administratively and paid to all capacity providers			

Vertical ring-fence arrangements

ESB is subject to vertical ring-fence arrangements between its generation and trading activities and its supply business. The ring-fence aims to ensure that each business unit acts independently of each other, and must transact in the open market by preventing internal trading. The requirements include separate management, separate accounts and prohibitions on anti-competitive behaviour, cross-subsidies (to or from their affiliate businesses) and contracts with affiliate businesses that are not on an arm's length basis on normal commercial terms.²

Directed Contracts

SEM generators whose market concentration is above a certain level as assessed using competition metrics are required to offer DCs to suppliers. ESB is subject to this requirement. These are CfDs with a fixed strike price that cover the base load, mid-merit and peak segments of the load curve. DCs provide a hedge against exposure to the SEM System Marginal Price (SMP). Since mid-2012 DCs

¹ Competition law is set out in Articles 101 and 102 of the Treaty on the Functioning of the European Union and is implemented in Irish law via the Competition Acts 2002 – 2014 and in UK law through the Competition Act 1998.

² AIP/SEM/31/06 – AIP/SEM/74/05 – AIP/SEM/07/16 – AIP/SEM/304/07

have been offered to suppliers through quarterly subscription windows where they are allocated on a rolling basis up to five quarters ahead as set out in Table 2.

The RAs use a PLEXOS model to determine the market concentration of each participant in each segment, and then require those generators to offer sufficient capacity through DCs to reduce market concentration to a target level of 1150 on the Herfindahl-Hirschman Index (HHI).³ In electricity markets HHIs are typically calculated using generation capacity or generation output.⁴ The RAs determine the volume of DCs on a quarterly basis. Each subscription window allocates 25% of the outturn volume of the DCs for the relevant quarter.

The contracts' strike prices are set in advance by the RAs based on a regression formula and the forward fuel and carbon prices. These prices are recalculated by the RAs every second quarter. The contracts are allocated to suppliers according to market share, suppliers may choose to accept all, part or none of their allocation in each segment of the load curve. Any unsubscribed volumes are then offered to all suppliers in that quarter's supplemental window.

Table 2 DC rolling quarterly subscription windows

	2012 Q2	2012 Q3	2012 Q4	2013 Q1	2013 Q2	2013 Q3	2013 Q4	2014 Q1	2014 Q2
			1	2	3	4	5	6	7
		1	1	2	3	4	5	6	
		1	1	1	2	3	4	5	
		1	1	1	1	2	3	4	
DC auction	1	2	3	4	5	6	7		

³ The Herfindahl-Hirschman Index (HHI) measures the concentration of the relevant market at a given point in time by calculating as the sum of the squared market shares of all market participants in that market.

⁴ Capacity based calculations may use available installed capacity or available capacity. Output based calculations may employ total generation or in merit / economic capacity.

3 Is the imposition of the vertical ring-fence on ESB disproportionate?

In this section we evaluate whether the imposition of the vertical ring-fence on ESB is disproportionate in the context of the wider regulatory framework that it currently operates in. We begin by touching on relevant analysis of the costs and benefits of vertical integration. We then assess each of the four reasons the RAs gave for rejecting ESB's application to remove the vertical ring-fence in 2012.

Vertical integration is a common organisational structure in electricity markets. This is the case in GB and Europe and under I-SEM ESB will soon be competing against a number of vertically integrated within the Internal Energy Market. A number of these firms, Centrica and SSE, already operate within the SEM. Vertical integration provides efficiency benefits but may reduce transparency which is an area of concern for regulators. In its recent Energy Market Investigation the Competition and Markets Authority (CMA) in GB explored the costs and benefits of vertical integration and found little evidence of harm suggesting there was no case for business or legal separation of the vertically integrated companies, despite calls in some quarters for such remedies. It is clear that the CMA was not even close to considering business separation. Although market concentration is different in the SEM context, it raises the question whether an equivalent investigation would have required a vertical ring-fence.

One of the key principles adopted by Governments and competition authorities is that any intervention must be reasonable and proportionate, that is, it achieves its aim, but:

- ▶ is no more onerous than is needed to achieve its aim; and
- ▶ does not produce disadvantages that are disproportionate to the aim.

The RA's 2012 decision permitted ESB operational horizontal integration allowing it to share information and jointly trade in the market. The RAs did not allow ESB vertical integration for four reasons⁵. That decision was made on the back of recommendations by Cambridge Economic Policy Associates (CEPA).

- ▶ The SEM spot market (gross mandatory pool) showed a high level of market concentration when measured with the HHI
- ▶ Forward market power would be more significant than the status quo, which could be disruptive to other suppliers and have a negative impact on competition in wholesale and retail markets
- ▶ There could be information advantages that would benefit Electric Ireland and have a negative impact on competition in both the wholesale and retail markets
- ▶ CEPA was of the view that full vertical integration was unfavourable as it could damage competition and the replacement of a structural remedy with a likely less efficient and or effective regulatory remedy.

⁵ SEM-12-002 p. 4

We address each of these concerns in turn.

High market concentration in the SEM gross mandatory pool

In their decision the RAs calculated that ESB accounted for 46% of the SEM generation output, which was equivalent to a HHI of 2116 indicating a high level of market concentration⁶.

The SEM spot market is a gross mandatory pool and is the exclusive physical market. All generators must submit offers for day-ahead output, consisting of commercial and technical data.⁷ The Market Scheduling and Pricing (MSP) software takes this information together with forecast demand and produces the SMP and the Market Schedule Quantity (MSQ) for each trading period. Physical dispatch is controlled centrally by the TSOs. System constraints and reserve requirements mean actual dispatch is likely to deviate from the MSQ. All generators will receive the same SMP for their scheduled output.

The Bidding Code of Practice (BCoP), the Grid Code, Regulation on Wholesale Energy Market Integrity and Transparency (REMIT)⁸ and the Market Monitoring Unit (MMU) all serve to prevent and/or identify any exercise of market power in the spot market which can then be investigated and enforced if necessary.

- ▶ The BCoP requires generators to bid their short run marginal cost into the gross mandatory pool.
- ▶ The Grid Code prevents participants from withholding capacity.
- ▶ REMIT prohibits market abuse and manipulation and provides Agency for the Cooperation of Energy Regulators (ACER) and National Regulatory Authorities (NRAs) the power to monitor, investigate and enforce any breach.
- ▶ The MMU monitors the outcomes of the SEM and the behaviour of its participants, including adherence to the BCoP.

With the highly regulated design of the SEM gross mandatory pool and the above mitigations there is little opportunity for any participant to exercise market power. In the presence of these mitigations the imposition of the vertical ring-fence does not serve an additional purpose in the context of limiting market power in the prompt markets.

Potential for greater disruption to the SEM forward market

The second reason is based on CEPA's conclusion surrounding concerns about forward market liquidity in the SEM. Specifically, CEPA noted that ESB may not have the incentive to offer forward products or to offer them at high prices to all suppliers or to offer low prices to Electric Ireland and

⁶ The RAs calculated generation output using the Market Schedule Quantity data from Jan-Aug 2011.

⁷ Commercial data includes incremental price-quantity pairs, start-up costs and no-load costs. Technical offer data relates to the capabilities of the generator unit and includes availability profiles and constraints such as ramping rates and minimum up / down times.

⁸ The Commission Regulation (EU) 1227-2011 Regulation on Wholesale Energy Market Integrity and Transparency

high prices to other suppliers. Any of these outcomes would have an adverse impact on retail market competition and ultimately on the end consumer.

The requirement to offer DCs serves a dual purpose, which the RAs acknowledge.⁹ First, it seeks to remove the above mentioned incentive for ESB to exercise market power through contract pricing. DCs have the secondary benefit of providing some forward market liquidity, helping suppliers to manage their exposures to the SMP and reducing barriers to entry to the retail market.

The SEM forward market is a pure financial market where participants have a wide range of choices how to manage their exposures to the SMP. Broadly speaking there are three different forms of hedging.

- ▶ **Clean hedging.** Clean hedging involves trading in the commodity where the underlying exposure exists.
- ▶ **Asset backed hedging.** Asset backed hedging involves using assets to convert exposure in one commodity into another.
- ▶ **Proxy hedging.** Proxy hedging involves using a hedging instrument in one market which is closely correlated to an exposure in another market.

DCs provide a clean hedge to the SMP. A combination of a GB power forward contract and a Physical Transmission Right (PTR) also provides a clean hedge. The high degree of correlation between the SMP and the GB power price and between the SMP and the GB gas price and EUA carbon price provide credible opportunities for proxy hedging.¹⁰ This suggests that the SEM forward market is wider than just the generation capacity on which the HHs and DC volumes are determined.

The high penetration of wind in the SEM routinely makes ESB, and the market more widely, structurally short. This means that ESB is unable to supply the demand of its retail business (Electric Ireland) exclusively through the use of its own generation assets that are in merit. The requirement to offer DCs and PSO-related CfDs further exacerbates this challenge. As a result ESB has had to look for alternative ways to manage its exposure as it cannot rely on asset backed hedging alone. The vertical ring-fence makes it more difficult for ESB to manage this exposure. It is an example of asymmetric regulation since not all SEM vertically integrated players are subject to these restrictions and many are not required to offer DCs or PSO related CfDs.

The continued requirement to offer DCs and PSO related CfDs is one of CEPA's alternate mitigations to the vertical ring-fence to address concerns about potential disruption in the forward market. As ESB must comply with both requirements there appears to be duplication, which disadvantages ESB relative to other participants. Further, the existence of MMU, competition law and REMIT provide further complementary tools for regulators to investigate and enforce any abuse. It is not clear what additional purpose the vertical ring-fence serves when considered alongside these requirements.

⁹ SEM-10-57 p. 15

¹⁰ The correlation of monthly average prices between the current SEM and the GB electricity market (from 2008-2014) is 0.91. Likewise, the SMP is highly correlated with GB gas price and EUA carbon price (monthly average price correlation of 0.92 from 2008-2014).

Vertical integration affords Electric Ireland informational advantages

The third reason relates to concerns that vertical integration provides Electric Ireland with an information advantage relative to other suppliers that operate in the SEM. CEPA noted a concern that Electric Ireland could have an advantage over other suppliers from knowing information about ESB generation portfolio or other supplier's contracted positions and if it were to act on that information it would have a negative impact on competition and consumers.

Market integrity and transparency is of paramount importance for well-functioning energy markets and for promoting the confidence of market participants and consumers. CEPA's noted concerns were part of the rationale underpinning the development of REMIT. REMIT is a sector-specific legal framework for the monitoring of wholesale energy markets and applies to all energy market participants, including those that are vertically integrated and those that are not. The objective is to detect and to deter market manipulation. REMIT consists of three pillars:

1. Prohibition of market abuse and manipulation and trading on inside information
2. A transaction and data reporting framework to allow for European Union wide market monitoring by the ACER and NRAs, and outlines prohibition on certain market behaviours
3. Provision to ensure any potential incidents are investigated and action is taken.

In addition to REMIT, the Transparency Regulation¹¹ makes European electricity market information more precise and comparable. It is mandatory for each TSO to submit fundamental information related to generation, load, transmission and electricity balancing to the European Network of Transmission System Operators for Electricity (ENTSO-E) which is then published on a central platform.¹²

The introduction of REMIT and the Transparency Regulation were adopted by Member States and entered into force after CEPA's report and are therefore relatively new in the context of the SEM market power mitigations. The vertical ring-fence can therefore be thought of as having served a purpose in mitigating CEPA's concerns up until REMIT and the Transparency Regulation came into effect.

Vertical reintegration was a less efficient and or effective regulatory remedy

The final reason recognises the benefits of a simple regulatory regime. CEPA claimed the removal of the vertical ring-fence would require 'significantly more regulatory oversight and on a more frequent basis'. Whilst this may have been the case at the time of the RAs' decision in 2012, we have shown above that there is clear duplication between the vertical ring-fence and other mitigations, including those which have been introduced in the interim through European law, suggesting that the former's continued imposition is disproportionate. A robust and well-resourced Market Monitoring Unit is

¹¹ The Commission Regulation (EU) 543-2013 Transparency Regulation

¹² <https://transparency.entsoe.eu/>

required in order to implement REMIT effectively independent of the business structure of market participants.

Removing the vertical ring-fence would have little negative impact on the regulatory protection for consumers, and yet would allow ESB to compete more effectively with other vertically integrated players, some of which are already operating in the SEM. It would also be consistent with a maturing of competition in the All Island market, and an acknowledgement of the importance of new European energy market regulations.

4 Conclusions

As we have shown above, the imposition of the vertical ring-fence on ESB does not appear necessary when assessed against the reasons for the RAs' 2012 decision not to allow vertical integration. In fact, its imposition on ESB is disproportionate as it duplicates these other measures and serves little purpose in terms of consumer protection and hampers ESB's ability to compete effectively with other vertically integrated players, some of which are already operating in the SEM.