ESB PARTIAL INTEGRATION PROPOSAL
A REPORT FOR THE REGULATORY AUTHORITIES

7 November 2011

Submitted by:

Cambridge Economic Policy Associates Ltd

CONTENTS

EXECUTIVE SUMMARY

ESB has submitted a proposal to the RAs which asks for full horizontal integration, and partial vertical integration, as a first step on a roadmap to full integration. It splits ESB's generation into two groups: regulated generation capacity and integrated generation capacity. Contracts would be sold for the output of the former group, although from an operational point of view, all generation would be controlled by ESB.

This updated report gives CEPA's view on the proposal, and – if it were accepted by the RAs in principle – some high level views on how it might work in practice. In particular, we look at the contracts that ESB would offer under this proposal, how they might be regulated and what a reasonable volume might be. Of course, the proposal from ESB was quite high-level, and there are questions to be answered before the proposal could be accepted. These include a more detailed analysis of the true potential for cost savings from vertical integration, and the question of which generation capacity might be regulated and how, and which might be integrated.

We said in our previous report[1] that we saw little reason to continue with horizontal separation, so this report focuses on the vertical integration proposal, although we note the need for ESB to confirm how it would pass on any cost savings and benefits from horizontal integration to end-consumers. Our existing model, which was used for the previous report, suggests that the Residual Supply Index (RSI) metrics under ESB's initial proposal would not be significantly different to what they would be in a scenario where ESB was fully horizontally integrated (but not vertically) under the current Directed Contracts rules. Therefore, ESB's new proposal does not raise new concerns based on narrow competition metrics. In some ways, it is similar to ESB's previous liquidity proposals, although it does offer a larger volume of contracts and an opportunity to heavily regulate those contracts with a view to improving contract market liquidity.

We also recognise that there are costs to maintaining vertical separation, although those costs need to be better understood and quantified. The choice facing the RAs is in some ways how to balance those costs against more qualitative concerns. In particular, we have some concerns about the increased reliance on regulatory measures and intervention to mitigate market power, rather than structural ones, if ESB's proposal were accepted. While we believe regulatory measures such as the BCoP and DCs are working well, we note and share the concerns from the Competition Authority[2] about removing structural market power remedies (such as separation) and relying on regulatory ones whilst ESB remains a major player. We also note that there will be changes to the SEM over the next few years, as part of the effort to increase trading with the GB market. These changes could require changes to the BCoP or DCs, which might weaken them as tools to deal with market power or a lack of liquidity.

We would also point out that accepting the proposal would change the basis of regulation, in that the RAs and the SEM Committee would need to become much more involved in discussions with ESB about the form of contracts offered and the precise make up of the regulated power generation group, the percentage of generation that should be subject to regulation and the year-to-year (or even more frequent) rationale for changing this – in ESB's

[1] CEPA, *Market Power and Liquidity in the SEM*, 2010

[2] *Submission by the Competition Authority to the Consultation on Market Power and Liquidity in the SEM*, S-11-003, 2011

words, the RAs would 'have their hand on the throttle'. ESB is likely to have significant informational advantages relative to the RAs in this regard.

Our other question is why now is the right time to take steps towards full vertical integration, given the uncertainty about how trading will develop with GB and the rest of Europe. Even with the imminent opening of the East-West Interconnector (EWIC) and assuming trading over it works well, the SEM will still be relatively isolated from other electricity markets. Unless there is significant entry to the SEM by new market participants, or some reduction in the size of ESB, ESB will continue to be a significant player in its markets for several years to come. We do not agree that ESB's relevant market will be a combined SEM/ BETTA market in the near term.

If the proposal were accepted, we consider that it should at least maintain an equivalent level of contracts to the DCs and NDCs currently sold, and not reduce the RSI metric significantly, compared to other acceptable options such as horizontal integration. On this basis, the 50% figure proposed by ESB does not look unreasonable.

We would though recommend more detailed market modelling to assess whether the level of contracts would be similar to today's level in all circumstances. The choice of which generation is regulated is also important, as say including generation with relatively high load factors will increase the volume of contracts sold.

1. INTRODUCTION

This report looks at the proposal[3] from ESB for partial re-integration – it is an updated report following comments from the RAs on CEPA's September 2011 draft report. We consider the possible impacts of such re-integration (particularly vertical re-integration) and what the options might be for the RAs to avoid negative impacts. We also discuss a roadmap towards full integration.

In this report, we have followed a similar approach to our previous work for the RAs, where we have analysed the impact on key market power metrics such as RSI. We have also set out our more qualitative analysis of the possible costs, benefits and impacts.

Following this introduction, the report briefly sets out the key points from ESB's proposal, and the questions that the RAs have asked be considered. It then summarises the analysis that we undertook, and sets out our conclusions based on this.

In producing this report, we have done it on the basis that it will be used by the SEM Committee for internal purposes only and the report is therefore confidential at this stage.

[3] ESB, *Proposed Road Map for Progressive Removal of ESB Vertical Ring-fencing, Proposal for the Single Electricity Market Committee,* 2011

2. BACKGROUND

ESB submitted their further proposal on integration to the RAs on 27 June 2011. The proposal asked for two things: removal of the requirement for horizontal separation of ESB's generation businesses, and partial vertical re-integration. Our previous report said that we thought that the former should be considered, as the horizontal separation had little value in promoting competition. This is subject to two caveats: the continued need for the BCoP and for DCs, and the need for ESB to confirm how any reduction in costs, including fixed costs, such as trading functions, would benefit end consumers. This piece of work therefore focuses on the vertical integration proposal, which we describe in more detail below. We start though by recapping on some of the broader context for the SEM and for market power measures.

2.1. Broader developments in the SEM

Any changes to ESB's structure must be assessed against the market that it will be operating in over the next few years, not simply the current market. Arguably the most important market development is the proposed tighter coupling of the SEM with BETTA, the GB market. This coupling has two parts:

- Firstly, there will be a new *physical* link between the markets, in the form of the East-West Interconnector (EWIC). This is due to become operational in 2012, and will allow a flow of up to 500MW between GB and the island of Ireland.
- Secondly, work is underway to facilitate *trading* of electricity between the two islands. This is likely to involve changes to the SEM in particular.

This coupling gives rise to two issues: the extent to which the SEM & BETTA should be treated as (or more like) a single market, and the extent to which changes in the SEM structure may require changes to the market power mitigation measures.

Our approach to the former issue is as in our previous report to treat the EWIC as an additional source of power which operates much like a gas-fired power station (since this is a reasonable approximation for electricity generation in GB as a whole). While the EWIC will be a noticeable proportion of the overall supply capacity in the SEM, it is still well under 10%[4] of peak SEM demand. It is therefore unlikely to lead to a fully integrated SEM/ BETTA market, even if trading over the EWIC works well.

The second issue is more of an unknown. The drive at a European level is for much stronger market coupling, particularly at the day ahead stage[5]. The SEM of course has no firm day-ahead price, so changes are likely to be needed. A process is underway[6] to identify what changes are required, but the range of possible options is still wide, and there is no clarity on the GB market either. This makes it difficult to propose the correct solution for ESB given the unknown future design of the SEM, and suggests that a focus on *robust* solutions (that will work in most if not all

[4] 500MW as a proportion of peak SEM demand which could be close to 8 GW in 2015.

[5] ERGEG in place of ACER, *Draft Framework Guidelines on Capacity Allocation and Congestion Management for Electricity (Ref: E10-ENM-20-03)*, 8 September 2010

[6] SEM-11-043, Day Ahead Market Coupling Options for the SEM

likely scenarios) would be more appropriate. We discuss the European context in more detail in the next section.

2.2. European market integration

The EU vision is for a single European energy market, with connected, low-carbon electricity networks delivering secure and cost-effective supplies to consumers. To help deliver that, the EU has taken steps to improve the functioning of European energy markets, including the competitiveness and degree of interconnection of those markets. This was set out in the Directive[7] implementing the electricity aspects of the so-called "3rd package". As well as provisions on the need for unbundling of different aspects of the electricity supply chain (e.g. transmission and generation), the package aimed to increase cross-border access for electricity suppliers and producers. This of course already occurs in the SEM.

The overall timeline for closer integration is by 2014, although we understand that there is a proposal to extend this to 2016 for small island systems with pool markets (such as the SEM).

There are significant differences between the target European model and the SEM. The European model is for a "net pool" with voluntary dispatch, whereas the SEM is a gross pool with central dispatch. These and other differences will need to be resolved and this may well, over time, necessitate changes to the SEM.

2.3. Contracts already offered

ESB's proposal sets out a level of contracts that ESB would be required to offer to other market participants. Before discussing them, we briefly discuss here the types of contracts already offered. There are two main types: Directed Contracts (DCs) and Non-Directed Contracts (NDCs). We set out the differences below. We also touch briefly below on previous views expressed by market participants on the contracts offered.

2.3.1. Directed Contracts

The Directed Contracts are instruments provided as a product of the Market Power Mitigation Strategy. They have the following properties:

- The *type and quantity* of contracts offered are determined by the RAs, with reference to the HHI index for the forthcoming period.
- The *Price* of the Directed contracts is determined by the RAs, based on the costs of the products given current fuel and CO2 values.
- The *eligibility* for suppliers to take up the Directed Contracts is based on the supplier's consumer portfolio.

2.3.2. Non-Directed Contracts

Non-Directed Contracts are market instruments offered by parties in the SEM on a voluntary basis. Non-Directed Contracts have the following properties:

[7] OJ EU, *Directive 2009/72/EC, concerning common rules for the internal market in electricity*

- The *type and quantity* of Non-Directed Contracts offered are determined by the offering parties.
- The *Price* of the Non-Directed Contracts is determined through auctions, subject to reservation prices set by the offering party.
- The *eligibility* is not restricted and any interested party can bid for contracts.

NDCs for the tariff year are priced slightly higher than DCs, and those within-year attract a further premium. It is unclear why this is the case, although one possible explanation is that it reflects an under-supply of contracts, relative to demand. We are aware that CER is requesting further clarification on this from ESB.

2.3.3. Views from market participants on contracts offered

In our previous analysis, we looked at consultation responses, and in particular at comments on contracts. We said that *"...there are concerns...about the effectiveness of directed contracts even where market participants consider that regulation and direction of contracts is appropriate. These concerns are focused on the timing, shape and pricing of directed contracts, although there is an acceptance that the role of the regulator will always be second best i.e. the ideal would be to have an active competitive market for forward contracts....most market participants other than ESB argued that some form of regulated mechanism to ensure that liquidity is maintained in the contract market is required. There was a concern that without such a mechanism ESB would have little incentive to contract with third parties, and would instead rely on internal hedging*"[8].

2.4. Details of ESB's vertical integration proposal

ESB is proposing a form of partial vertical re-integration. Under the proposal, ESB would have operational control of all its generation. However, the generation would be split into two groups: "Integrated" and "Regulated". Contracts for the "Regulated" capacity would be sold through a ring-fenced body. In effect, ESB would be able to decide how to operate its capacity, within the market rules, but would have only partial control over how its output would be sold.

ESB advanced several justifications for this re-integration. It started by claiming that the electricity market has changed significantly since the decision was made to separate ESB, with a significant fall in ESB's share of the retail market. It also claimed that allowing reintegration would actually help stimulate competition, be beneficial for consumers because of efficiency savings, and would allow ESB to operate "*as a single business...in a manner indistinguishable from our competitors who already operate in such a fashion*". Finally, it noted that the SEM and the GB market will be more closely linked in future, including through the East-West Interconnector. ESB appears to be arguing here that it will no longer be the significant player in the SEM, but will be a small player in the combined GB-SEM market, compared to the existing large vertically integrated GB players, such as RWE or Scottish Power.

ESB has analysed the expected impact of its proposals on liquidity. We discuss these in the next section. We recommend that the CER's Market Modelling Unit carries out its own analysis of liquidity impacts.

[8] CEPA, *Market Power and Liquidity in the SEM*, 2010, page 34

2.4.1. ESB's view on liquidity impacts

ESB has submitted two documents[9] setting out its view on the likely impact on the volume of contracts that ESB would sell under three different partial integration proposals: 37% of capacity in the Regulated Capacity division, 50% in that division and 70% in it. The results are shown in the table below. It also shows the figures for the current ESB PG portfolio for comparison purposes.

Table 2.1: ESB estimates of contract volumes under three partial integration scenarios (figures in TWh)

	PG portfolio as is	**Regulated generation capacity 50%**		**Regulated generation capacity 37%**		**Regulated generation capacity 70%**	
		HHI 1150	HHI 1400	HHI 1150	HHI 1400	HHI 1150	HHI 1400
DCs	1.7	2.7	2.2	2.7	2.2	2.7	2.2
NDCs (current)	5.0	3.3	3.8	1.5	2.0	4	4.5
NDCs (additional, from regulated capacity)		1.0	1.0	0.5	0.5		
TOTAL	6.7	7.0	7.0	4.7	4.7	6.7	6.7

These figures were produced by ESB, and we have had only very limited information on how they were derived. However, if we accept them for the sake of argument, they appear to show that contract volumes would rise slightly under the "50% regulated generation" option, but fall under the "37% regulated generation" option. This is relative to ESB's planned contract volumes under the current arrangements, of which 5TWh is from (voluntary) NDCs.

2.4.2. ESB's 2010 liquidity proposals

ESB has previously given the SEM Committee an alternative proposal for guaranteeing a level of liquidity. Subject to the removal of the separation between ESB PG and ESB CS (i.e. vertical integration) ESB would commit to offering to sell contracts equivalent to 25% of ESB PG's forecast output. This would include any DCs required under existing rules. This 25% figure would reduce or fall to zero if certain trigger conditions occurred[10]. In our previous report, we concluded that on balance, continuation of the separation between ESB PG and ESB CS was preferable[11]. We note that in some ways, the new proposal is similar to the previous liquidity proposal, except that ESB would have to sell more contracts and the RAs might be more heavily involved in regulating those contracts.

[9] Letters to Andrew Ebrill, *Level of sales from Proposed Regulated Generation Capacity,* 15 July 2011, and *Level of sales from alternative regulated generation capacity portfolios,* 22 July 2011

[10] This was summarised in Annex 5 of our previous report.

[11] Section 6.6 of CEPA, 2010, op. cit.

3. ANALYSIS OF IMPACTS

Our previous analysis for the RAs has focused on the impact of various types of integration on certain indicators of market concentration or market power, such as the Residual Supply Index (RSI). Our approach has been to use the model we built for the RAs to assess whether those indicators stayed above minimum threshold values both on average and at peak times. We have used the same approach for the analysis in this report.

3.1. Modelling the ESB proposal

The ESB proposal is that contracts will be sold for the output of a specified set of ESB generation capacity, which would make up about 50% of ESB's total capacity. This would we assume subsume any existing requirement for Directed Contracts (DCs), the level of which we assume would continue to be set by reference to a target level of HHI[12].

In our analysis, we have assumed that the partially integrated ESB will have a market impact equal to that for a fully integrated ESB that is forced to sell contracts for the generation from the specified 50% of its plant. Some of those contracts will be (as noted) DCs; the question of what the others are is, under ESB's proposal, up to the RAs. For our modelling, we have made the simplifying assumption that all contracts sold by the regulated part of ESB will work like DCs for the purpose of reducing market power. This is not intended to express any view about what form the contracts should take. We discuss options for this in section 4.

3.1.1. Modelling results

We calculated RSI values for a fully integrated ESB group (with existing levels of DCs) in our previous analysis. We have rerun our analysis with the volume of contracts equal to the level of output from plant in the Regulated Generation Capacity. To allow a comparison with previous results, we show in Table 3.1 below a progression from the current situation of ESB PG. The next column shows the impact of horizontal integration, again under the current rules for DCs. The third column then shows the impact of ESB's proposal on a fully integrated ESB.

[12] We note that ESB has put forward a separate proposal for increasing this target level. The question of whether an increase would be appropriate is outside the scope of this report.

Table 3.1: Average Half Hourly RSI under existing level of DCs and ESB's new proposal, in 2015

Scenario	Today (ESB PG, net of DCs)	Horizontally integrated ESB, net of DCs	ESB Group, 50% regulated generation
High Coal price, Low Load, High GB price	1.47	1.35	1.43
High Coal price, Low Load, Medium GB price	1.73	1.58	1.68
High Coal price, Low Load, Low GB price	1.82	1.67	1.77
Low Coal price, Low Load, High GB price	1.47	1.35	1.43
Low Coal price, Low Load, Medium GB price	1.70	1.56	1.65
Low Coal price, Low Load, Low GB price	1.82	1.67	1.77

As expected, this level of contract sale leads to better RSI scores than under full vertical integration alone, even taking Directed Contracts into account. It is though worse than ESB PG alone, but the average RSI scores would not be of great concern. When we look at the percentage of hours that the RSI would be below the threshold used in our previous report, 1.2, we see that ESB's proposal gives the best RSI scores of the three options. Annex B shows impact on average HHI; our results suggest that this is on average lower under ESB's proposal than under current market arrangements.

Table 3.2: Percentage of half hours that RSI is below 1.2, under existing level of DCs and ESB's new proposal

Scenario	Today (ESB PG, net of DCs)	Horizontally integrated ESB, net of DCs	ESB Group, 50% regulated generation
High Coal price, Low Load, High GB price	15%	28%	9%
High Coal price, Low Load, Medium GB price	2%	3%	0%
High Coal price, Low Load, Low GB price	2%	3%	0%
Low Coal price, Low Load, High GB price	15%	28%	10%
Low Coal price, Low Load, Medium GB price	2%	4%	1%
Low Coal price, Low Load, Low GB price	2%	3%	0%

3.1.2. Conclusions

Solely on the basis of this quantitative analysis, we cannot see any major market power concerns with the overall proposed approach. However, we do have concerns from our qualitative assessment, which we discuss later.

We would, however, caution that the question of which specific plant is regulated and which is integrated should be carefully considered by the RAs.

We have also analysed this for a 37% integrated and a 70% integrated ESB, using the split of generation between regulated and integrated suggested by ESB[13]. The results are shown in the table below, with the figures for the 50% regulated case for comparison purposes.

Table 3.3: Average Half Hourly RSI under different levels of regulated capacity

Scenario	37% regulated	50% regulated	70% regulated
High Coal price, Low Load, High GB price	1.38	1.43	1.43
High Coal price, Low Load, Medium GB price	1.63	1.68	1.69
High Coal price, Low Load, Low GB price	1.71	1.77	1.77
Low Coal price, Low Load, High GB price	1.39	1.43	1.44
Low Coal price, Low Load, Medium GB price	1.60	1.65	1.66
Low Coal price, Low Load, Low GB price	1.71	1.77	1.77

As expected, the RSI figures improve as the size of the Regulated Generation Capacity increases, although the improvement is not large. This appears to be because the average load factor for plant in the 37% regulated portfolio is relatively high compared to the ESB average, and so selling contracts for all the output in this portfolio means selling more contracts than for 37% of ESB's output.

The picture is similar when we consider the percentage of the time that the RSI is below the threshold level (shown in the table below), although there is a slightly more significant drop between the 37% and 50% regulated cases.

[13] Letter from Ronan McCoy (ESB) to Andrew Ebrill (CER), *Level of sales from Alternative Regulated Generation Capacity Portfolios*, 22 July 2011

Table 3.4: Percentage of half hours that RSI is below 1.2, under different levels of regulated capacity

Scenario	37% regulated	50% regulated	70% regulated
High Coal price, Low Load, High GB price	22%	9%	7%
High Coal price, Low Load, Medium GB price	2%	0%	0%
High Coal price, Low Load, Low GB price	2%	0%	0%
Low Coal price, Low Load, High GB price	22%	10%	7%
Low Coal price, Low Load, Medium GB price	3%	1%	0%
Low Coal price, Low Load, Low GB price	2%	0%	0%

3.1.3. Issues

We have assumed in our analysis that the DCs currently required will be included in the contracts required under ESB's proposal. But the intention is that, over time, the volume of regulated capacity will decrease, and so the level of contracts from it. It is not clear what happens when that level falls below the level of DCs required based on the HHI measure. One possible answer is that it would not be allowed to fall below that level, and if this looked likely to occur, to halt progress towards full VI. Alternatively, the DCs required by the HHI metric could be found from the regulated capacity first, and if that was not sufficient, DCs could be sold for some of the integrated capacity (but in this case, the capacity is arguably not fully integrated). While this issue does not arise immediately, we recommend that it is addressed before the proposal is accepted.

3.2. Qualitative analysis

The analysis so far has focused on the numeric market power measures that we considered previously. These only tell part of the story, and a qualitative analysis of the proposal is also essential. We now turn to this.

The first thing to note is the ultimate aim of ESB's proposal. While the headline figure is 50%, the document explicitly discusses a "roadmap" to full vertical integration. The conditions for this are left to the RAs' discretion, but we understand that there is an intention on the part of ESB that full vertical (and horizontal) integration should be the eventual outcome. There is also, we understand, a desire within ESB to see the RAs provide some indication of when they would allow full integration.

There could be some benefits to the RAs (and to ESB) of setting out such a roadmap, at least to allow debate and discussion through a full public consultation. The roadmap could not be a rigid timetable, and a balance will need to be struck between restricting the RAs' future discretion and providing a roadmap that is sufficiently prescriptive that it gives some certainty and clarity to

ESB and the rest of the industry. However, there are clear precedents[14] for the use of roadmaps by the RAs, including with quite specific criteria (such as the number of suppliers).

All this assumes that there are circumstances in which the RAs would be content with full integration. This is probably true in the extreme case where BETTA and the SEM became a fully integrated single market with substantial retail market entry in the SEM. However, such integration will not happen for many years. In particular, it would require significantly more new interconnection. Interconnection is time-consuming[15] to build; nothing that is not already in planning is likely to appear much before 2020. Therefore in the medium-term, the SEM will continue to be a largely isolated market. This raises the question of why the RAs would move from the status quo now, changing the basis of an arguably successful approach to regulation of market power, and take steps towards full vertical integration.

3.2.1. Benefits of integration

One answer to the question that concluded the previous section is that there are benefits to full vertical integration. In addition to cost reductions/ efficiencies, ESB claims that VI will allow it to operate in the same way as its current competitors in the SEM, and future competitors in a combined SEM/ BETTA market. We consider both of these below.

As far as the first one is concerned, it is certainly true that there are costs associated with the separation of ESB, and these should be carefully considered by the RAs in deciding whether to accept ESB's proposal. In order for the RAs to do this, more detail is needed from ESB on the size of such costs. We would also note that some of the savings are likely to come about through *horizontal* integration, rather than *vertical*, and it will be important to attribute costs correctly.

Delivering the benefits of integration to consumers

The ultimate aim of reducing costs, particularly given the current high energy prices, is to provide savings to consumers. We therefore need to consider how savings from VI could lead to reductions in consumers' bills.

Given the structure of the SEM, the cost savings would not be passed on through changes in SRMC bids, and possibly not through capacity payments either, given the way that those are set through a Best New Entrant approach. Since the savings would reduce ESB's overall costs, it would though presumably allow ESB to reduce the price it charges consumers, which would put downward pressure on other suppliers' prices. However, it does raise a question about the impact on suppliers that are not vertically integrated, which we discuss in the next section.

The position of supply-only businesses

The question is now what vertical integration of ESB would do to supply-only businesses. If there are significant cost efficiencies that can be achieved through vertical integration (in addition to risk management), this suggests that vertically integrated businesses are significantly more cost-effective than dis-aggregated ones. This would suggest that it would be difficult for a

[14] Such as the April 2010 roadmap on de-regulating retail tariffs

[15] For example, the feasibility study for the EWIC was completed in 2001, 11 years before it is due to open (source: National Grid).

supply-only or generation-only business to compete, or to enter the market. It is beyond the scope of this report to consider whether electricity markets naturally tend to favour vertically integrated firms, but the question of what VI might do for the prospects for market entry/ exit, and so for competition in the medium to long term, should be considered.

Other considerations

As well as the question about the impact on consumers, and on supply-only businesses, cost efficiencies also need to be considered against the possible reduced incentives to procure power efficiently from a range of generators, especially if there are any residual concerns about retail market competition e.g. for 'sticky' consumers or in regional markets.

This brings us to the second claimed benefit, which is that it would deal with what ESB describes as the "precarious" position of its supply business. However, at ESB Group level, any losses in the supply business due to wholesale electricity being more expensive than expected might be expected to be balanced by profits in the generation businesses. If ESB's supply business is precarious, is that because all supply-only businesses are precarious (see above)? If they are not, why is ESB's supply business more precarious than others? We considered the risks faced by stand-alone suppliers in our previous report for the RAs, where we concluded that "*[in the SEM] retail suppliers do have a degree of ability to offer at least monthly fixed price contracts...it would however still remain a challenge for the retail supplier to offer longer term fixed price contracts if there were no electricity hedging contract available*".

In summary, there are undoubtedly some benefits to VI. However, we would argue that they need to be better quantified and to be clearly distinguished from those that would be achieved through horizontal integration.

3.2.2. Competition and direction of travel in the SEM

Having considered the benefits of VI, we now turn to considering costs and risks. In particular, we consider how vertical integration of ESB would fit with other developments in the SEM, and the RAs' aims.

As far as overall direction is concerned, we understand that there is an underlying assumption in the SEM that the RAs wish, over time, to move to a more competitive market, with fewer regulatory restrictions. There is also a move towards a more integrated SEM/ BETTA market, although as noted this will not be fully achieved for some time. We therefore need to consider whether this proposal is consistent with that assumption.

On the face of it, the ultimate aim of the proposal is to remove barriers within the ESB Group, imposed by the RAs, and so it can be argued to be consistent with the move to reduce regulation. That said, while the proposal would remove some existing restrictions on ESB, it would require significantly more regulatory oversight, and on a more frequent basis, of the company than at present, since (by design) the volume of contracts sold *as a result of regulation* will increase, and ESB is offering to have more regulation of its Non-Directed Contracts (NDCs). This is a move away from regulating the market as a whole to a solution that is quite targeted at ESB. On the other hand, concerns have already been expressed about the possibility of market

power being exercised in the current contracts market; additional regulation of the market could therefore have benefits.

In addition, competition in the contracts market might potentially be diminished by a fully VI ESB, since there will be fewer market participants than with separation into ESB PG, ESBI and ESB CS. In this market, integration of ESB could see the large majority of contracts being supplied by the regulated arm of ESB, rather than from more than one firm as now. There may also be concerns about the complexity of regulating these contracts, and the scope for ESB, with its informational advantages over the regulator, to challenge regulatory decisions more effectively.

3.2.3. Reliance on market power measures rather than structural ones

As well as general impacts on the approach to regulation, we also need to consider what ESB's proposal would mean for how market power is mitigated in the SEM. At the moment, the *structural* separation of ESB, together with the market power mitigation measures, has been a successful remedy for limiting the impact of market power in the SEM. Moving to a partial or (in the long-run) fully VI ESB would involve swapping the current structural remedies for those that rely on measures such as DCs and the Bidding Code of Practice (BCoP).

This increased reliance on DCs and the BCoP may be acceptable as long as the current DCs and BCoP are in place. However, they are not fixed, and indeed we understand that proposals have been made to modify them (for example, to allow certain generators to bid below cost). Changes may also be proposed or required as part of the move to a more integrated market. If the SEM Committee did make changes, these might have consequences for market power which would be difficult to predict.

We also note the comments of the Competition Authority in its response[16] to the Market Power & Liquidity Consultation:

"*The Competition Authority reiterates its support for a structural, rather than a regulatory, approach to addressing market power issues. A regulatory approach...necessarily imposes a second-best solution...Structural remedies...provide long term solutions in circumstances where market concentration and the potential for exploitation of market power, is of primary concern.*"

It goes on to note that "*structural remedies such as splitting up the ESB's generation assets come at a financial cost in the short term. However, this should be balanced against the considerable, albeit less easily quantifiable, benefits of increased competitive rivalry and entry which we have seen since the SEM was established.*"

3.3. A roadmap for full integration

In the long term, where ESB is operating in a true Regional Electricity Market (REM), vertical integration may well be beneficial. The question is where, along the path to this REM, it would be reasonable to allow full VI.

[16] *Submission by the Competition Authority to the Consultation on Market Power and Liquidity in the SEM*, S-11-003, 2011, http://www.tca.ie/images/uploaded/documents/S-11-003%20Market%20Power%20in%20SEM.pdf

Our basic principle for what needs to happen for full integration is that ESB needs to have a smaller market share. This can come about in, essentially, three ways:

1. A change in the market (presumably through some form of coupling with BETTA);
2. A change in other market participants (for example, new entry, or increased market share of other operators); or
3. A change in ESB (such as a divestment).

As discussed above, while (1) will be important in the longer term, it is unlikely to make very much difference in the next few years. On (2), it is true that ESB's market share has reduced over the past few years, and this may continue, leading to a situation where ESB's market share looks likely to fall to relatively unconcerning levels. We note though that to achieve an HHI of under 1150, ESB's generation market share would have to fall substantially[17] compared to what it is today. This leads us to (3), where we note that divestments of part of ESB are recommended in the McCarthy report[18]. Such a divestment would reduce concerns about market power and about any possible negative consequences of VI.

3.3.1. The initial level of VI

We are of course not considering full VI in the immediate future, but partial VI. Leaving aside the concerns expressed earlier about direction of travel and removing structural remedies, does the level of VI in ESB's proposal cause us specific concerns? The answer, on the basis of the narrow RSI metrics discussed above, is no. We see no reason to suppose that 50% would lead to an outcome noticeably different to horizontal integration with existing levels of DCs.

That said, there are other things to consider beside RSI - for example, the question of which plant should be in the regulated portfolio, and which in the integrated. This will however require more detailed market modelling and analysis than in this report.

3.3.2. Triggers for full integration

At the start of this section, we discussed in general terms what would need to happen to make full VI an attractive option. We now try to make this more specific, and ask what precise triggers or conditions could be put in place.

There are many approaches that could be considered. The most obvious one is to continue to drive market power mitigation measures off some form of market power index, such as HHI. For example, it might be decided that ESB would be allowed to fully integrate once the HHI (ignoring interconnection), fell below some threshold value.

One option for this threshold value would be the current level of 1150, but this would set an extremely high bar, either requiring interconnection to increase to over 2.5GW (by comparison, even after the EWIC is built, there will be around 1GW of interconnection), or for ESB's market

[17] An example of a market with an HHI of just under 1150 would be: ESB with a generation market share of 25%, interconnection to GB of around 2.5 GW and four other companies in the market, each with a 10% share of generation including interconnection.

[18] Recommendation 23 of: McCarthy et al., *Report of the Review Group on State Assets and Liabilities,* April 2011, available at http://www.irishtimes.com/focus/2011/mccarthy/index.pdf

share in the existing SEM to fall below 25% (see above). This would be very different from today's market. It is of course possible to choose a different threshold, and we note that ESB has submitted a paper arguing for this. The question of what would be a correct or appropriate level is a wider question, beyond the scope of this report.

3.3.3. Other concerns

The preceding discussion has concluded that while there are scenarios in which full vertical integration of ESB would cause few concerns, they are some years away. We have concerns about moving from the current situation (of full separation of ESB's retail and generation arms) to one of partial separation, where the principle of some integration has been accepted and a major step towards it has been taken. It is arguable that once that occurs, it will be easier for ESB, with its informational advantages, to argue for additional, gradual, integration over time, than to argue for the jump from full separation to full integration in one go. Discussions about whether 50% or 55% integration is appropriate are likely to be much more finely balanced, and difficult to form a clear view on, than the question of whether 0% or 100% is the right level.

4. REGULATION OF CONTRACTS

Under the proposals, we understand that DCs will still be offered by ESB[19], and as a minimum contracts will be offered through an arms-length body for the full capacity of its Regulated Generation arm.

We assume that these will in the main continue to be DCs, i.e. the price and volume 'directed' by the Regulatory Authorities. Our impression from the consultation process is that the DC market is functioning reasonably well, although there are demands for more short term and a greater range of products.

4.1. Options for form and regulation of additional contracts

There is a lack of clarity about what sort of contracts any residual contracts (to make up 100% of the capacity of the Regulated Generation arm) might be. ESB's expectation could be that they would be some form of NDCs, although we would argue that this should be for the RAs to propose, and to consult on. Options for regulation could include those in Table 4.1 below, although this is unlikely to be an exhaustive list.

Table 4.1: Possible options for regulating contracts from Regulated Generation

Option	Pros	Cons
Regulate as DCs	Very high degree of control for the RAs, and minimal scope for ESB to exercise any market power.	Degree of control may be excessive, reducing scope for market to set prices
Treat as NDCs	Avoids additional regulation of contracts market. Minimal additional administration burden on RAs.	Scope for ESB to exercise market power
Oversee contracts, through setting minimum volume and/ or reserve prices	Imposes restrictions on ability to exercise market power, while still giving scope to the market to set prices/ volumes	Still requires RAs to calculate "reasonable" volumes and reserve prices. More administration than NDCs.

This seems unlikely to persist though, as we assume ESB will argue for a reduction of the percentage of total generation that is in the Regulated Generation arm as soon as this situation arises.

Even given this uncertainty, it is interesting to consider the form of NDCs and their regulation. We understand that at present these contracts are not directed in price or volume by the RAs, but they are 'encouraged' and discussed to a certain degree. There is some limited evidence of a premium for NDCs over DCs, which might give cause for concern, and the RAs would no doubt not wish to see unjustified premia in a potentially supply constrained contract market. We note that the RAs are seeking further evidence from ESB on this premia issue.

The RAs might naturally then consider pricing arrangements for NDCs. In its proposal, ESB offers to discuss how contracts might be priced and it would certainly seem prudent to consult widely on this issue, especially given divergent views from industry stakeholders on contract

[19] Alongside any PSO obligations

pricing. As a minimum, there is a case for ESB to set reserve prices, to avoid a situation where it is 'forced' to sell at uneconomic values. But it is less clear that prices should be capped or set say in relation to a premium to a specific index.

4.2. Experience in other countries

We note that Ofgem is continuing to consult on liquidity proposals, and is looking to progress its proposals, including on Mandatory Auctions, but the pricing arrangements are at a very early stage[20]. For example, while there will be reserve prices, there are at present no details on how these would be set. Even the volume of power to be sold is still not finalised (between 10-20%). It does not appear as though there is great consensus as to an interventionist 'solution' to contract liquidity, but all acknowledge the importance of market-led developments. There is also a cautionary note in Ofgem's proposals, which note that "*[mandatory auctions were] considered detrimental to the development of forward market arrangements in New Zealand [where the incumbent was required] to auction hedges equal to a portion of its dry year generation output. However, [this] was considered to have introduced complexities that prevented trading on secondary markets*"[21].

We have also briefly investigated the use of mandatory contract auctions in other countries. These auctions take place in a number of European and South American countries, including France, Spain and Colombia. The key points to note are that, in all the countries we have considered, the volumes are relatively low compared to total generation capacity (10% or under, with the possible exception of Ofgem's proposals). The types of contract (e.g. shape and vintage) are also relatively limited. Mandatory contract sales on the scale set out in ESB's proposal would therefore be quite different from the approach in other countries. Based on our analysis, it appears that SEM is the market with in depth experience of mandatory contracts; lessons from other markets may therefore be limited.

[20] Ofgem letter update 22 June 2011

[21] Ofgem, *Liquidity in the GB Wholesale Energy Markets – discussion paper*, June 2009

5. CONCLUSIONS

The analysis above considered the possible impacts of ESB's proposal, and the measures that the RAs might take to mitigate those impacts where necessary. In this section, we bring this analysis together to present our overall conclusions.

5.1. Overall view on the proposal

In summary, we consider that, this proposal could be a reasonable first step to full vertical integration, and on narrow quantitative competition metrics alone, a 50% integrated ESB would not be of great concern relative to the current ESB structure. There are benefits to vertical integration, and these could include lower prices for consumers. However, the benefits have not been properly set out or quantified. We recommend exploring further with ESB the actual potential for cost savings from *vertical* as opposed to *horizontal* integration.

There are also issues to be resolved before the proposal could be accepted, such as which generation should be regulated and which integrated. Before moving from a regulatory system that works well, the benefits of doing so should be fully understood.

We also have concerns about the possible impact on market power. At present, market power in the SEM is mitigated by both separation of ESB into supply and generation arms, and the market power mitigation measures such as the BCoP and DCs. While the latter could, we expect, mitigate market power even with a fully integrated ESB, this would place much greater reliance on them as the sole method of market power mitigation and thus on intervention from the RAs. If those measures changed, including as a result of SEM/ BETTA coupling, there could be negative consequences for market power. We note that the Competition Authority expressed similar concerns.

All that said, over time the SEM and BETTA may well become more closely integrated. At some point, it may be reasonable to conclude that they should be treated sufficiently like a single market for concerns about ESB's market power to be less important or even disappear. But, given the time needed to plan and build interconnection, there will be several years notice of this.

Our overall view, therefore, is similar to that in our previous report. We see no great benefit in allowing re-integration now, but future major changes in the SEM could make the case for re-integration.

5.2. Moving to full integration

If the partial integration proposal is accepted, there are two subsequent questions: what should the initial level of vertical integration be, and what should be the criteria for moving to 100%. The answer, on the basis of our quantitative analysis, and ESB's (unverified) figures on contracts provided, is that we see no reason to think that 50% is an unreasonable starting point for consultation.

5.3. Roadmap to full vertical integration

There are clearly many possible criteria for assessing when full VI would be appropriate. However, given that the RAs already use HHI to assess market power, it would seem reasonable

to use the same index to determine when market power is no longer an issue. The exact level of the HHI would need to be consistent with the RAs' wider decisions.

ANNEX A: MARKET POWER METRICS – DEFINITIONS

In this annex we set out the formal definitions of the two market power metrics that we use in our analysis.

Residual Supply Index (RSI)

The RSI is different for each generator. The RSI for generator X is calculated as the total system capacity, less the uncommitted capacity of generation X, all divided by the demand. In effect, it considers the extent to which demand can be met without supply from X.

Herfindahl-Hirschman-Index HHI

This is defined for a market, rather than an individual market participant. It is calculated as the sum of the squared market shares of all market participants in a market. It gives a number between 0 (perfect competition) and 10,000 (monopoly).

ANNEX B: HHI METRICS

We set out in the table below the average HHI (excluding DCs) for ESB's proposal, alongside other integration options, for comparison purposes.

Table B.0.1: Average HHI (by output, rather than capacity) for several integration options

Scenario	Today	Horizontally integrated ESB	ESB Group, 50% regulated generation
High Coal price, Low Load, High GB price	1073	1572	1059
High Coal price, Low Load, Medium GB price	1112	1612	1115
High Coal price, Low Load, Low GB price	1193	1682	1195
Low Coal price, Low Load, High GB price	1300	1981	1226
Low Coal price, Low Load, Medium GB price	1486	2118	1348
Low Coal price, Low Load, Low GB price	1614	2031	1363

As can be seen, the 50% regulated generation proposal generally has the lowest HHI of all options.