Transmission Asset Analysis

REPORT PREPARED FOR THE MINISTER FOR COMMUNICATIONS, ENERGY AND NATURAL RESOURCES

January 2011
Transmission Asset Analysis

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Executive Summary

Frontier Economics were appointed in March 2010 to carry out an independent analysis of the options for compliance with the unbundling provisions of the Third Energy Package in the Republic of Ireland. These options include:

- Full Ownership Unbundling;
- ISO (Independent System Operator);
- ITO (Independent Transmission Operator); and
- Article 9(9).

In carrying out our assessment of the options, we have received a number of submissions from key stakeholders, we have engaged in extensive discussions with stakeholders, and we have consulted with a wide range of market participants and interested parties.

This report sets out the findings of our analysis, and provides an implementation road map for the different unbundling policy options from which the Government may choose.

Full Ownership Unbundling

Full ownership unbundling is the preferred choice of the European Commission and is current government policy.

In the course of our analysis we have received widely diverging views from stakeholders as to the benefits and costs of ownership unbundling. EirGrid have suggested that ownership unbundling can yield substantial benefits from reduced duplication, lower constraints costs, single accountability, outsourcing, offering greater certainty to developers and faster connection of renewable generation. In addition, they suggest there will be significant additional benefits which are harder to quantify, such as improved competition.

In contrast, ESB have suggested that there are very limited benefits to be had from ownership unbundling and that it has the potential to be very costly and disruptive, leading to delays in investment and jeopardising Ireland’s leading role in the development of Smart Networks.

Throughout this report, we have sought to fully assess the range of benefits and costs put forward to us by stakeholders and to identify whether there are any additional issues which need to be considered.

We have identified the financial structure of any potential asset transfer as being a key driver of benefits and costs. Our understanding is that no policy decision has been reached as to what the structure of the transaction will be, and we have not
received any direction in terms of the structure to consider in relation to the transaction.

Consequently, in our assessment below, we present findings in relation to two scenarios:

- A transaction at fair market value, with an outside equity injection into EirGrid; and
- A transaction at 50% of the Regulatory Asset Base (RAB) at time of vesting.

**Transaction at fair market value**

It is likely that it would take up to two years to transfer the assets from ESB to EirGrid. At that point the transmission assets are expected to have a RAB of between €1.7 billion and €1.8 billion. A fair market value would therefore require payment to ESB for the assets of between €1.7 and €2.16 billion, depending on whether a premium over RAB, if any, is to be paid. This is the scenario put to us by ESB.

[Text redacted]

Table 1 below provides our assessment of the key quantifiable benefits and costs of ownership unbundling under this scenario. Our central estimate is that ownership unbundling would be associated with positive net benefits with a net present value (NPV) of between €1 million and €16 million over the period to 2025. We have not included in this calculation the opportunity costs associated with the funds used to inject equity in EirGrid.

It should be noted that these benefits are substantially lower than those estimated by EirGrid, but substantially higher than the estimates provided by ESB and the ESB Employee Share Ownership Trust (ESOT).

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1. In the course of our review we have considered a range of other scenarios. However, we present here the findings from the two most relevant scenarios.

2. We note that the financial analysis of EirGrid suggests that it is unlikely to pay a dividend for a number of years.

**Executive Summary**
Table 1. Net present value of benefits and costs of asset transfer at fair market value

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<thead>
<tr>
<th></th>
<th>Core benefits</th>
<th>Potential additional benefits</th>
<th>Costs</th>
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<tbody>
<tr>
<td>Reduced duplication of effort</td>
<td>€26 million</td>
<td></td>
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<tr>
<td>Lower constraints costs</td>
<td>€48 million</td>
<td></td>
<td></td>
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<tr>
<td>1% Capex efficiencies</td>
<td>€29 million</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1% capex efficiencies</td>
<td>€29 million</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits from outsourcing</td>
<td>€7-12 million</td>
<td></td>
<td></td>
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<tr>
<td>Transaction costs</td>
<td></td>
<td>€5-7 million</td>
<td></td>
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<tr>
<td>Business restructuring costs</td>
<td></td>
<td>€9 million</td>
<td></td>
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<tr>
<td>IT costs</td>
<td></td>
<td>€21 million</td>
<td></td>
</tr>
<tr>
<td>Logistical and geographical presence costs</td>
<td></td>
<td>€34 million</td>
<td></td>
</tr>
<tr>
<td>Loss of scope and staff costs</td>
<td></td>
<td>€13-26 million</td>
<td></td>
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<tr>
<td>Transmission and distribution interface costs</td>
<td></td>
<td>€5 million</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>€103 million</td>
<td>€36 to €41 million</td>
<td>€87 to €102 million</td>
</tr>
</tbody>
</table>

In addition to the quantifiable benefits described above, we find that ownership unbundling in a fair market value scenario could be expected to have the following effects.

- **Competition:** It would appear unlikely that ownership unbundling will unlock any significant short to medium term competition benefits. In the longer term it may have positive benefits, given that it removes a further structural barrier to discrimination and may offset even the potential for perceptions of discrimination, which may deter future entry or investment. However, given the lack of evidence in relation to discrimination, it is unlikely that such an effect would be significant.
• **Customer service:** One of the key issues we discussed with market participants was the level of customer service currently being provided by EirGrid and ESB Networks, particularly in relation to connections. The message we received, almost universally, from stakeholders is one of frustration as a result of having a direct contractual arrangement with only one party, but needing information and input from both parties. Our view is that the move to ownership unbundling would remove many of the customer frustrations and improve customer service levels in terms of the information flow to customers.

• **Renewable connections:** Ownership unbundling may lead to faster connections of renewables. If this were to be the case, it would support Ireland’s 2020 targets, lead to faster emission reductions in Ireland and possibly reduce system costs depending on levels of interconnection and the evolution of fuel and carbon prices.

• **Interconnection:** With full ownership unbundling, EirGrid is likely to be in a stronger position to build further interconnection without the need for additional equity. In the absence of asset transfer, an equity injection of €150 million is likely to be necessary.

• **Regulation:** It would appear likely that if EirGrid were established as a well capitalized transmission owner and operator, it would be easier for the CER to incentivise EirGrid’s performance. In our assessment above, we have assumed that EirGrid would be able to achieve efficiencies in relation to constraints, capital expenditure (capex) and possibly outsourcing. A factor in our assessment was the increase in the regulator’s ability to incentivise EirGrid’s performance. However, depending on how the regulatory regime developed under an ownership unbundling scenario, it is possible that further benefits could be delivered.

• **Network development:** A key concern over unbundling is the potential for delay during the transition period, as management attention is focused on the transfer rather than on day-to-day development activities. This is a particular concern in this case given the significant increase in capex forecast for the next two years. On the other hand, ownership unbundling has been done in many other jurisdictions, and the steps involved are well understood. In consequence, assuming that appropriate resources were devoted to asset transfer by both ESB and EirGrid, and assuming the management and staff of both companies approach the transition period with co-operation and goodwill, then there is no reason to assume that there would be any negative impact on the significant network investment that will be carried out during the two years of the transition process.

**Executive Summary**
However, if asset transfer were to give rise to significant HR issues, or management and staff in either of the companies adopted an uncooperative approach, it is likely that the transition period could be associated with significant delays in terms of network development.

**Transaction at 50% of RAB**

The second scenario we consider in relation to ownership unbundling assumes that assets are transferred from ESB to EirGrid at 50% of their RAB value at the point of asset transfer. EirGrid would take on debt of 50%, requiring no equity injection, and ESB would receive 50% of the value of the assets. This is the scenario put to us by EirGrid.

The transmission assets are expected to have a RAB of between €1.7 billion and €1.8 billion at the time of transfer, so ESB would receive a payment from EirGrid of between €850 million and €900 million.

Our analysis of the relative positions has been based on the situation post the ESB’s purchase of Northern Ireland Electricity (NIE). It is also important to note that we have not had access to either ESB or EirGrid’s financial models.

[Text redacted]

The transaction is also likely to weaken ESB’s financial position somewhat. Moreover, ESB’s credit rating is also likely to be damaged as a result of investors’ perceptions of a sub-market transaction.

In consequence, it is plausible that neither entity would be able to secure an A grade credit rating, which has been assumed by CER in setting Price Review Three (PR3). Rather, we believe it is more likely that both entities would achieve credit ratings of BBB. This could result in a cost of debt increase of approximately 75 basis points (bps).

Given that ESB and EirGrid have substantial borrowing requirements over the next decade, this would be likely to result in a significant additional cost of asset transfer. ESB have estimated that the NPV of a 75 bps increase in the cost of debt for ESB and EirGrid would be in the order of €270 million. We do not have access to either ESB or EirGrid’s financial models. However, given that over the next five years alone we estimate ESB and EirGrid will have a combined funding requirement of over €4 billion, it is highly conservative to assume that the increased costs of funding will be at least €100 million.

**Executive Summary**
It is likely, particularly in the case of EirGrid if investment is not significantly re-profiled, that the regulator will find it difficult to adequately incentivise its performance. In consequence, it is likely that the efficiency savings assumed under the fair market value scenario in relation to capex and outsourcing may not materialise.

Finally, if EirGrid’s proposal were to be acted upon, whereby the assets would be vested at 50% of RAB, then it is likely that an additional payment would be required to the ESOP. Assuming a RAB value of €1.8 billion on transfer, then to protect the value of the ESOP, the minimum additional payment required would be €45 million. As an alternative to a cash payment, the ESOP’s shareholding in ESB could be increased.

The table below provides our assessment of the key quantifiable benefits and costs of ownership unbundling under this scenario. Our central estimate is that ownership unbundling would be associated with net costs with an NPV of between €110 and €130 million, again to 2025. We suggest that given the problems with regulation described above, it may be less likely that the potential benefits set out in the Table below would arise. Assuming all the benefits did materialise, and the costs were at their lowest, the net costs would be over €40 million.

It is worth noting that we have not quantified the costs of delays in either ESB’s or EirGrid’s capital investment programmes.

Executive Summary
Table 2. Net present value of benefits and costs of asset transfer at 50% of RAB

<table>
<thead>
<tr>
<th></th>
<th>Core benefits</th>
<th>Potential additional benefits</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced duplication of effort</td>
<td>€26 million</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower constraints costs</td>
<td>€48 million</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2% capex efficiencies</td>
<td></td>
<td>€58 million</td>
<td></td>
</tr>
<tr>
<td>Benefits from outsourcing</td>
<td></td>
<td>€7-12 million</td>
<td></td>
</tr>
<tr>
<td>Transaction costs</td>
<td></td>
<td>€5-7 million</td>
<td></td>
</tr>
<tr>
<td>Business restructuring costs</td>
<td></td>
<td>€9 million</td>
<td></td>
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<tr>
<td>IT costs</td>
<td></td>
<td>€21 million</td>
<td></td>
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<tr>
<td>Logistical and geographical</td>
<td></td>
<td></td>
<td>€34 million</td>
</tr>
<tr>
<td>presence costs</td>
<td></td>
<td></td>
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<tr>
<td>Loss of scope and staff costs</td>
<td></td>
<td>€13-26 million</td>
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<tr>
<td>Transmission and distribution</td>
<td></td>
<td></td>
<td>€5 million</td>
</tr>
<tr>
<td>interface costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finance costs</td>
<td></td>
<td></td>
<td>€100 million</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>€74 million</td>
<td>€65 to €70 million</td>
<td>€187 to €202 million</td>
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</table>

In addition to the quantifiable benefits described above, we find that ownership unbundling in a fair market value scenario could be expected to have the following effects.

- **Network development**: We believe that there could be significant risks to network investment over the next decade. As noted above, both ESB and EirGrid may have to re-profile network investment. In addition, between now and asset transfer, ESB would be required to invest €600 million in the transmission network, knowing it would receive only €300 million for its investment.

- **Competition**: As above.

**Executive Summary**
• **Customer service:** Customers may experience increased delays in connections as a result of network investment delays. However, the communication benefits described above would still hold.

• **Renewable connections:** Customers are likely to experience significant delays in connections as a result of network investment delays.

• **Interconnection:** EirGrid may be able to build a second interconnector by 2022 without breaching their existing EWIC covenants. However, in doing so, they would prolong the period of time for which their key financial metrics are close to their EWIC covenants, and they would remain substantially below the financial metrics required for an A grade credit rating out to 2025. For example, in 2023 a reduction in EBITDA of just €4.5 million (against a total EBITDA of €517 million) would result in EirGrid breaching its interest cover covenant.

• **Regulation:** Assuming EirGrid re-profiles its investment substantially, then the regulatory benefits described above would still be likely to occur. In the context of current Grid25 plans, it is unlikely that the regulator would be able to impose meaningful efficiency incentives on EirGrid.

### Independent System Operator (ISO)

We have addressed two issues in relation to the ISO model:

- Whether the current split of responsibilities between EirGrid and ESB meet the requirements of the ISO model; and

- The potential benefits and costs of an ISO model for Ireland.

With regard to the first issue, the key question is whether the ISO model envisaged in the Directive requires the transfer of all functions from ESB to EirGrid except for financing.

Clearly there are a range of options for the depth of an ISO. On one hand, there is a shallow model reminiscent of the Scottish arrangements where a significant proportion of responsibility for maintenance and construction can be delegated. At the other extreme, the ISO must be fully responsible in all areas of operation, maintenance and development and with the transmission asset owner (TAO) only having a very limited role, primarily in relation to financing.

We consider that the deeper the model, the more likely that the arrangements will comply with the requirements of the Third Package. A model somewhere in the middle of the sliding scale might possibly be compliant, however the risk that the European Commission refuses to approve the designation will be much higher than the risk of refusal for a deeper model.

### Executive Summary
That said, in terms of appropriateness we have considered only an ISO+ model in which EirGrid is responsible for all elements of transmission operation, maintenance and development other than financing. We have focussed on this model for two reasons:

- First, based on both the stance of the Commission during the discussions on the Directive and on background papers authored by Commission officials, this would appear to be the model the Commission has in mind, and is clearly compliant with the Directive – deviations from this option are likely to incur significant legal risk of non-compliance; and

- Second, lighter options, whereby the split of activities remain as they are today, are unlikely to generate any particular benefits or costs relative to the current arrangements (ESB have estimated the additional restructuring costs to be in the region of €1 million).

We find that the ISO+ model is likely to make the effective regulation of network investment more difficult than under the current arrangements, while resulting in many of the same costs as the full ownership unbundling option. Overall, we find that is likely to result in a net increase in costs of between €8 million and €20 million in NPV terms. This is before factoring in any inefficiency uplift as a result of the inability of the regulator to incentivise capex and maintenance spend.

**Independent Transmission Operator**

In order to implement the ITO option, the transmission assets would have to be transferred to EirGrid after it has been reintegrated into the ESB Group.

This arrangement is not supported by any of the stakeholders who have made submissions: it is seen as a retrograde step in terms of energy policy. As one stakeholder explained, moving from an ISO model (as currently in Ireland) to an ITO model by reintegrating a company into a VIU, which it had previously been removed from pursuant to the then EU energy policy on the basis of a more developed version of the same policy, would be considered regressive.

Moreover, none of the wider market participants, regulatory authorities or policymakers consider that an ITO would be an appropriate option for Ireland given the current ISO model in place.

**Article 9(9)**

Under article 9(9) of the Directive, Member States can derogate from the specific rules concerning ownership unbundling, ISOs and ITOs. To qualify for this derogation, on 3 September 2009, the transmission system must have belonged...
to a vertically integrated undertaking and at that date arrangements must have been in place which guarantee more effective independence of the TSO than the specific provisions concerning the ITO model.

Ultimately, Ireland can only make an Article 9(9) derogation if (i) the Commission certifies the TSO under Article 10 of the Electricity Directive; and, thereafter, (ii) the European Commission makes a decision in favour of certification under Article 3(6) of the Access Regulation.

At present, it is not possible to determine what the decisions of these bodies are likely to be. For this reason, there is an element of risk to pursing this option. However, we suggest that if the Commission takes a purposive approach to assessment, Ireland may be able to pursue a relatively strong case.

Executive Summary
1 Introduction

Directive 2009/72/EC of the EU Third Energy Package, requires Member States, by 3 March 2011, to ensure appropriate vertical separation of its electricity transmission network, by choosing from one of the following options:

- **Full Ownership Unbundling:** This option entails a full separation between the ownership of electricity transmission networks and supply/generation activities. Under this regime, owners of electricity grids cannot be affiliated with or be part of a group which is also active in supply or generation and the owner of the network will be required to operate and control the network.

- **ISO (Independent System Operator):** This option allows vertically integrated companies to retain the ownership of their network assets, but the network is managed and operated by an ISO. The ISO has to be an undertaking or entity which is completely separate from the vertically integrated company and must perform all the functions of a network operator.

- **ITO (Independent Transmission Operator):** This option constitutes the lowest threshold for network unbundling under the Directive. The ITO preserves integrated supply and transmission companies but obliges such companies to comply with additional rules to ensure that both the ownership and operation of the transmission system is the responsibility of a fully independent subsidiary.

- **Article 9(9):** Under this option Member States can derogate from the specific rules concerning ownership unbundling, ISOs and ITOs, where on 3 September 2009, the transmission system belonged to a vertically integrated undertaking and at that date arrangements were in place which guarantee more effective independence of the TSO than the specific provisions concerning the ITO model.

In Ireland, current government policy is to transfer the ownership of the transmission assets to EirGrid. However, in March 2008, while acknowledging that government policy is to transfer the assets to EirGrid, Minister Ryan announced that to progress the issue, he was going to set up a process to provide an independent analysis (including costs, benefits, regulatory impact assessment,

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3 If DCENR decides to implement FOU then it may apply a derogation under Article 9(4), which allows an additional one year to finalise the transfer of the assets between EirGrid and ESB. This means the deadline for asset transfer could be 3 March 2013 under the FOU option.
etc.) of the transmission issue in the context of EU developments and the very recent all island Single Electricity Market (SEM).

The Minister’s rationale for seeking independent analysis is that the transmission unbundling involves the resolution of complex technical, financial and operational issues at a time when both ESB and EirGrid are also faced with immediate significant national challenges across a range of industry and business issues.

Frontier Economics were appointed in March 2010 to carry out an independent analysis of the options for compliance with the Third Energy Package, including full ownership unbundling.

This report sets out the findings of our analysis, and provides an implementation road map for the different policy options from which the Government may choose.

The remainder of the report is structured as follows:

- Chapter 2 sets out our terms of reference and approach.
- Chapter 3 sets out the European and Irish policy context for the review.
- Chapter 4 sets out the views of the key stakeholders.
- Chapters 5 to 8 set out our assessment of each of the four options for compliance.
- Chapter 9 provides conclusions.

The accompanying report sets out implementation plans for ownership unbundling as well as the ISO and Article 9(9) options.

Introduction
2 Terms of Reference and Approach

2.1 Terms of Reference

The full Terms of reference are attached at Annexe 1. Here we re-produce the key elements setting out the requirements of our analysis.

2.1.1 The Task

There are two phases to the task.

*The Examination Phase*

The successful tenderer (‘the Consultant’) will be required to examine all the options available to ensure Ireland’s compliance with Directive 2009/72/EC of the EU Third Energy Package. In this examination the Consultant will compare each of the other three scenarios set out in Directive 2009/72/EC against the Government’s preferred option of Full Ownership Unbundling. The Consultant will also take into account regional and European grid developments and proposals and the all-island Single Electricity Market context.

The Examination Phase analysis should examine the impact of the Full Unbundling Option and each alternative option on:

- The energy sector generally;
- The structure and operation of the all-island electricity market;
- Energy users;
- Planned grid development;
- Legal and regulatory complexity; and
- The likelihood of transmission system operator certification under Directive 2009/72/EC and Regulation 2009/714/EC.

Focussing on the implications that arise for the electricity transmission network under each option, the Examination Phase should take account of, among other factors:

- The ability to attract investment in the transmission network;
- Ongoing transmission network construction and expansion;
- Ability to deliver international electricity interconnection;
- Transmission network maintenance costs and operational practices; and
Potential operational and other efficiency gains including from reductions in overheads, duplication of activities and transaction costs.

The analysis should also take account of the potential impact, including costs and benefits, of each option on:

- Investors in new power generation (including investment in renewable generation);
- The financial structure, value and capabilities of both ESB and EirGrid;
- Competitive electricity pricing objectives;
- Standards of service;
- Security of supply;
- Sustainability;
- Network access;
- Any likely change in transmission charges arising from the financial structuring of the option;
- Competition issues; and
- Transparency in market and consumer choice.

The analysis shall take account of submissions by the key stakeholders. Submissions may also be received from other parties. It is anticipated that some submissions may suggest courses of action that diverge from Government policy. Account should be taken of such submissions in the conduct of the analysis.

The analysis shall include consideration of the requirement to protect the value of the ESB ESOP (Employee Share Ownership Plan).

The Consultant, after examination, will identify the option or options, in addition to Full Ownership Unbundling, which in the Consultant’s assessment would also be appropriate in the Irish and all-island electricity market contexts.

**Implementation Phase**

In this Phase, the Consultant will be required to make recommendations and produce a roadmap for the timely implementation of both the Government’s preferred option (Full Ownership Unbundling) and the other option or options identified as appropriate in the Examination Phase.

Account shall be taken of all relevant issues and regulatory impacts, including:

- **Corporate issues**, including the effects on ESB and EirGrid of implementing the option.

**Terms of Reference and Approach**
Legal issues, including assessments of the legislative requirements of the option; necessary contract provisions and undertakings in connection with the structure; competition, regulatory, and EU aspects including the implications of Directive 2009/72/EC; corporate governance issues, including shareholder and minority shareholder issues and entitlements; and HR/TUPE (Transfer of Undertakings - Protection of Employees) aspects of the option.

Financial issues, including corporate finance issues, taxation issues, options for structures to effect the option, provision of a financial model describing the option, shareholder and minority shareholder issues and entitlements, transactional costs arising to identified bodies, financial and cost implications for other parties including electricity suppliers and users.

Technical issues in relation to the nature of transmission systems should form part of the analysis only insofar as they give an understanding of corporate, legal and financial aspects. Detailed identification of transmission assets will not be required as part of this analysis.

Based on the analysis, the Consultant should provide a detailed implementation plan setting out the necessary steps for the implementation of each option examined under this phase of the Task in a manner which ensures compliance with the Directive. This plan should also identify the necessary steps to optimise the positions of both the ESB and EirGrid, and to protect the value of the ESB ESOP.

2.1.2 Project Management

The Minister appointed Mr Fergus Cahill as Independent Chairman in June 2009 with responsibility for the oversight and facilitation of the analysis, in accordance with the Minister’s announcement on the issue in March 2008 – see Appendix B.

All communication from the Consultant in relation to the Task shall be done through the Independent Chairman or a person specifically nominated by the Chairman to undertake this role.

2.1.3 Reporting requirements

The Consultant will be required to produce and submit, through the Independent Chairman, to the Minister:

- A Report which fully completes the analysis of both the Examination and Implementation phases of the Task, within four calendar months of the date of commencement of the contract.
The Consultant will be expected to report regularly to the Independent Chairman on progress with the assignment.

The Consultant will be expected to give presentations on the Report as required by the Independent Chairman.

2.2 Approach and stakeholder engagement

In carrying out our assessment we have sought to:

- identify the quantifiable benefits and costs associated with each option;
- identify the wider, less quantifiable, but potentially no less important, benefits and costs associated with each option; and
- identify the extent to which the legal risks of the options differ in regard to their likelihood of certification by the Commission.

In carrying out our analysis we have received submissions from a number of stakeholders, including:

- EirGrid;
- ESB;
- EirGrid staff representatives;
- ESOP; and
- Irish Congress of Trade Unions (ICTU).

We also had substantial engagement with stakeholders over the course of the process. Finally, we sought the views of a wide range of interested parties and market participants, including both the Competition Authority and the commission for Energy Regulation.

Terms of Reference and Approach
3  Background to the review

This section sets out a brief review of the European and Irish policy context to our analysis.

3.1  Policy in Europe

The European Commission identified a number of issues with European energy markets in the conclusions of the energy sector inquiry (published in January 2007). These issues included:

- High levels of market concentration;
- Failure to integrate markets;
- Vertical foreclosure (in non-natural monopoly businesses);
- Discrimination by natural monopoly TSOs; and
- Inappropriate regulatory focus.

The Commission concluded that the existence of these problems suggests that further unbundling was required. The Third Package as introduced by the European Commission only included two options: FOU and ISO. The European Council introduced the ITO and Article 9(9) options later on in the legislative process.

Technically speaking, the ISO, ITO and Article 9(9) provisions are discretionary derogations from FOU, which remains the principal unbundling model under the Third Package. Indeed, the Electricity Directive makes clear in Article 9(11) that undertakings cannot be prevented from adopting FOU. Therefore, unlike in relation to the other options, the DCENR cannot refuse to designate a TSO that has undergone full ownership unbundling. Similarly, Recital 21 of the Electricity Directive refers to FOU as being a "right" of a Member State noting that "where a Member State has exercised that right, an undertaking does not have the right to set up an independent system operator or an independent transmission operator".

Annexe 1 to this paper provides a brief review of arrangements in Member States, and proposed approaches to compliance.

3.2  Policy in Ireland

This section briefly outlines the current arrangements in Ireland, before commenting on the current government policy context for this analysis.

4 Electricity Directive, Recital 21
3.2.1 The current arrangements

On 01 July 2006, EirGrid plc took over the operation of Ireland’s electricity transmission system. As Transmission System Operator (TSO) from that date, EirGrid is responsible for operating Ireland’s national electricity transmission system - otherwise known as the national grid. This includes planning and developing the system, scheduling and dispatching generation, operating the electricity market and ensuring system security. EirGrid also sets maintenance policy for the transmission assets.

EirGrid holds licences as independent electricity Transmission System Operator (TSO) and Market Operator (MO) in the wholesale trading system in Ireland, and is the owner of the System Operator Northern Ireland (SONI Ltd), the licenced TSO and market operator in Northern Ireland. The Single Electricity Market Operator (SEMO) is part of the EirGrid Group, and operates the Single Electricity Market on the island of Ireland.

ESB Networks Ltd., a ring fenced subsidiary within ESB Group, is the licensed operator of the electricity distribution system in the Republic of Ireland. ESB Networks Ltd. is responsible for building, operating, maintaining and developing the electricity network and serving all electricity customers in the Republic of Ireland. As Meter Operator, ESB Networks install, maintain and read all electricity meters.

ESB Networks manages the transmission assets which are owned by ESB and ensures that the transmission infrastructure is developed and maintained in accordance with the requirements set down by EirGrid.

3.2.2 Current policy context

In Ireland, current government policy is to unbundle the transmission assets. Specifically, the energy policy framework, published in 2007, addressed the issue of unbundling directly with a commitment to transfer the ownership of the transmission assets to EirGrid.

“Establish EirGrid as the National Transmission Grid Company by end 2008, transferring the ownership of the transmission assets. This will create efficiencies, reduce duplication and achieve full independence thus enhancing competition and transparency and reducing costs.”

The CER, Competition Authority and independent commentators such as the ESRI support the unbundling of the transmission assets.

In March 2008 Minister Ryan issued a statement setting out how the policy would be taken forward.

“Both the Energy White Paper and the Programme for Government state Government policy is that the Transmission Assets be transferred to EirGrid. Transmission unbundling involves the resolution of complex technical, financial and operational issues at a time when both ESB and

Background to the review
EirGrid are also faced with immediate very significant national challenges across a range of industry and business issues. For that reason, I propose progressing the matter as follows:

- ESB and EirGrid will prioritise the development and delivery of the wider sectoral challenges which I have outlined – the delivery of the power generation asset strategy, the establishment of an independent network subsidiary, the delivery of the East-West interconnector, the Transmission Development Strategy, and a new collective focus on sustainability are clear and urgent priorities;

- At the same time this will provide an opportunity to carry out an independent analysis (including costs, benefits, regulatory impact assessment, etc.) of the transmission issue in the context of EU developments and the very recent all island Single Electricity Market.

- Input to this study will be sought from the direct key stakeholders: ESB and EirGrid managements, ESB and EirGrid unions, ESB ESOP, CER and the Department of Finance. The Terms of Reference for this analysis will be drafted in such a way that guarantees that all views will be taken into account in a fully transparent way.

- I will shortly appoint a senior independent figure to chair this examination. The Chairperson will appoint independent consultants to carry out the technical and economic analysis.

- Acknowledging the Tripartite Agreement of 2000, I will be asking the Group of Unions to engage in the process outlined earlier and to address the outcome with ESB management using their partnership model. This model has been a successful vehicle for change and transformation of ESB and the evolution of competition in generation and supply markets are testament to its success.”

Mr Fergus Cahill was subsequently appointed as independent Chairman, and Frontier Economics were appointed earlier this year to carry out the independent analysis described above.
4 Views of the parties

This section of the paper sets out the views of the key stakeholders on the issues surrounding each of the four options for compliance under the Directive. We note that we have attempted to capture here the high level views put forward by the stakeholders. A number of stakeholders put forward detailed evidence and legal submissions in support of their views. We do not attempt to capture that information in this chapter, but rather, we consider it as part of our detailed assessment of each of the options.

Below we provide the views of:

- EirGrid;
- ESB;
- ESOT;
- EirGrid Staff Reps; and
- ICTU.

While the ESB Group of Unions are considered also to be a key stakeholder, they opted not to take part in the process. However, they have made clear in their correspondence to the Independent Chairman that they are in favour of retaining the status quo.

As noted in Chapter 2, we also spoke to a large number of market participants and interested parties. We have not set out their views here, as in many cases they were provided to us on a confidential basis. However, we have used the information provided to us by market participants and interested parties to inform our assessment of each of the options.

4.1 EirGrid’s views

4.1.1 EirGrid’s submissions in relation to FOU

This section summarises EirGrid’s submissions in relation to FOU. It is structured as follows:

- Proposed operating model;
- Structure of the transaction;
- Efficiency benefits;
- Competition and other policy benefits; and
- Costs of FOU.
**Proposed operating model**

EirGrid’s operating model is based around deeper outsourcing arrangements than exist under the current arrangements. In consequence, EirGrid is of the view that it will need a relatively small net increase in staff with few transferring from ESB Networks (ESBN).

In particular, EirGrid has suggested that:

- It will require a net increase in staff of 90 to 100 employees, and envisages no more than 30 staff switching from ESB Networks;
- It will seek to outsource significant elements of phase 2 capital expenditure works that ESB Networks currently carries out in-house, including project management, supply chain management and detailed design work;
- It will seek to outsource elements of maintenance works; and
- It may seek to retain ESB Networks for some tasks, but will seek to phase out such arrangements as soon as possible in favour of a fully competitive tender process (with the possible exception of services provided for shared transmission and distribution sites)\(^5\).

**Proposed transaction structure**

EirGrid have proposed that the assets would transfer from ESB to EirGrid under a statutory vesting arrangement underpinned by the enactment of primary legislation.

EirGrid have proposed that the assets would be vested at 50% of the RAB, which would be achieved by EirGrid raising debt and paying to ESB an amount equivalent to the current level of debt on the assets. EirGrid suggest that this should be consistent with the prevailing regulatory return formula – i.e. 50% of the RAB\(^6\).

**Proposed benefits of ownership unbundling**

EirGrid have submitted that ownership unbundling will allow them to realise significant efficiencies in relation to the ownership, maintenance and

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5 Under the FOU option there should only be a relationship between ESB and Eirgrid, which is at arms length. All contracts between ESB and Eirgrid under the FOU option must therefore comply with procurement law. We have noted Counsel’s opinion obtained by ESB, which concludes that under the FOU option “the continued involvement of the ESB in the maintenance of the national grid would give rise to a number of very serious public procurement law obstacles”. The opinion goes on to point out that a direct award of a contract to ESB would be a breach of the Utilities Directive.

6 We note that since EirGrid made their submission, the CER have published their PR3 proposals, which changed the assumed level of gearing to 55% from 50%.

**Views of the parties**
development of the transmission system. In particular, they suggest that ownership unbundling will lead to gross benefits of €80-90 million per year.

These benefits can be broken down into:

- Efficiencies associated with single ownership and accountability - €21 million;
- Outsourcing benefits - €15 million;
- Reduced duplication of effort - €6 million;
- Reduced project financing costs for developers - €7 million;
- Lower constraints costs - €4 million and €6 million; and
- Benefits from connecting renewable resources more quickly - €35 million.

Below we provide a brief summary of EirGrid’s views on the key drivers of each of the above benefits. Our assessment of the benefits put forward by EirGrid can be found in the following chapter.

**Efficiencies associated with single ownership and accountability**

EirGrid base their proposed savings on:

- Strategy and planning;
- Whole life cost justification; and
- Risk based maintenance.

They suggest that in the Irish context this means:

- Major capex decisions based on full and proper knowledge of construction and full lifetime costs, at present the Interface Agreement (IA) does not allow full lifetime costs to be taken into account;
- Appropriate deployment of capital and making discerning decisions to ensure the optimal use of capital will be possible;
- Procurement decisions can be made on the basis of long term future requirements and incorporate full lifetime cost considerations;
- Management of trade offs of outage durations and constraints costs against construction and maintenance costs will be possible;
- Full responsibility for project delivery offering transparency and accountability to customers and the regulators will be possible;
- Ability to package capital programme in innovative fashion;

**Views of the parties**
Removal of duplication of effort in programme co-ordination and project management;

Firm connection offers;

Improved customer service; and

Optimised maintenance and outages.

EirGrid estimate their proposed savings as:

- 5% for new build capex;
- 2.5% for refurbishment; and
- 20% for maintenance.

Outsourcing benefits

EirGrid have submitted that they can deliver outsourcing benefits of €15-20 million per annum. Their rationale for the savings is that they would seek to outsource a substantial element of the stage 2 capital expenditure works that are carried out directly by ESB Networks. EirGrid suggest that they would outsource all appropriate project services, which may include:

- Project management;
- Supply chain management; and
- Detailed design work.

EirGrid suggest that such an outsourcing policy would deliver savings of between 15% and 20% compared to the costs incurred by ESB Networks in carrying out those activities under the current model.

This estimate is based on:

- EirGrid’s review of the cost savings it has achieved since 2006 through outsourcing stage 1 activities;
- An Irish Wind Energy Association (IWEA) analysis of contestable project costs which indicated that average standard costs are 36% higher than the equivalent costs incurred by IWEA members.
- Evidence that significant numbers of developers are seeking to use contestability rather than contract with EirGrid to provide connections.

Reduced duplication of effort

EirGrid have argued that asset transfer will realise savings as a result of reduced duplication of effort:

Views of the parties
The client engineer function will no longer be required, which EirGrid estimate will save €4.5 million per year;

There will be cost savings associated with the administration of the Infrastructure Agreement – EirGrid estimate that these will be in the region of €1 million per year; and

There will be cost savings associated with the removal of duplicate programme management co-ordination between EirGrid and ESB Networks – EirGrid estimate this saving to be in the region of €0.2 million per year.

Reduced project financing costs for developers

EirGrid suggest that having a single transmission company will give greater confidence to developers, investors and financiers. They argue that the current access arrangements whereby developers cannot get certainty over connection dates is posing difficulties for developers wanting to connect to the transmission system. EirGrid further argue that this is largely a function of the current split accountability industry model whereby there is no body with end to end responsibility for delivery of connections or reinforcements.

EirGrid suggest that following the asset transfer, the appropriate arrangements will be put in place to provide the required certainty to developers around connection dates, firm access and constraint levels.

The arrangements would include a clear commitment from EirGrid to a connection date with appropriate charges payable to the developer for delays. EirGrid go on to say that, where the firm access date is later (we assume than the local connection works) (i.e. dependent on deep transmission re-enforcements) this date can be established as the firm access date, removing from the developer the risks associated with the delivery of the transmission re-enforcements.

EirGrid estimate that this increased certainty for developers would reduce project financing costs by between 20 and 25 basis points. This would realise savings of between €6.5 and €9.3 million per year.

Lower constraints costs

EirGrid have submitted that asset transfer will lead to significant constraints cost savings. They argue that having a single entity accountable for making all decisions relating to the optimisation of overall constraints costs against construction and/or maintenance works costs will lead to significant savings.

EirGrid estimate that total transmission related constraints costs are in the order of €21 million per year. They estimate that a saving of 20% to 30% can be achieved against that figure, leading to savings of between €4 and €6 million per year.

Views of the parties
Benefits from faster connections of renewables

EirGrid estimate that they can make significant time savings in relation to the connection of wind generation to the transmission system. Even taking into account the revised standard timelines, which introduced new processes to parallel activities between EirGrid and ESB Networks, EirGrid submit that they can reduce connection times by a further 6 months.

They submit that this reduction in connection times would:

- Reduce carbon emissions by just over 300,000 tonnes per year, saving €6.6 million per year; and
- Lower system production costs, which EirGrid suggest will lead to a saving of €28 million per year net of additional REFIT costs.

Proposed competition and other policy impacts

Competition

In their submissions, EirGrid suggest that asset transfer will lead to the creation of a ‘truly competitive market’. They submit that in Ireland ESB remains heavily dominant across all elements of the electricity value chain, and that this will be further exacerbated by ESB’s purchase of the transmission and distribution assets in Northern Ireland. EirGrid submit that ESB have over half of the generation market and of the supply market, and, taken with Viridian they have over 75% of each of these markets.

EirGrid suggest that transmission is the key enabler of competition in any electricity market, and that ESB’s ownership and control over transmission reinforces their dominance across the industry and places them at an advantage over their competitors.

EirGrid also submit that prices in Ireland remain the most expensive in Europe across almost all segments of the electricity sector further highlighting the fact that more competitive pressure is required. EirGrid argue that countries that have implemented Full Ownership Unbundling of transmission have been found to have lower prices and greater market entry.

Finally, EirGrid submit that “Asset Transfer remains the preferred model of every independent and authoritative commentator including the CER, Competition Authority, ESRI, OECD, and European Commission and is the clear direction that Europe has taken”.

Interconnection

EirGrid argues that the East West Interconnector project has shown that it can deliver major strategic infrastructure effectively and efficiently and raise the required associated funding. In order to continue to be in a position to deliver on key strategic policy objectives and goals, for example through further interconnection or offshore grids, EirGrid argue that they must be a strong
company with clear shareholder support. Reversing government policy and going against the clear direction of Europe and the widely accepted best practice model for ownership and operation of the transmission system would, they contend, seriously undermine industry confidence in EirGrid, and undoubtedly make future fundraising and delivery of major projects significantly more difficult, if not impossible.

**Costs of full ownership unbundling**

EirGrid have broken the costs of full ownership unbundling into one-off transaction costs and ongoing costs associated with duplication of effort. Below we summarise the costs under those headings:

**One off costs**

EirGrid suggest that the following one-off costs will be incurred:

- Transaction costs - €2 million;
- Business readiness costs (including project delivery and legal costs) - €10.5 million;
- Costs of developing new IT systems - €13 million.

They therefore estimate total one-off transaction costs in the region of €25 million.

**Ongoing costs**

EirGrid estimate the following ongoing costs:

- Service replacement costs (finance, stockholding etc) - €1 million;
- Costs of stockyards/spares/logistics - €1 million;
- Regional office costs - €0.5 million;
- Overheads - €1 million; and
- IT costs - €1 million.

**4.1.2 EirGrid’s views on the ISO option**

EirGrid submit that the ISO model is not the preferred unbundling solution of the European Commission and is inconsistent with stated government policy to transfer the transmission assets from ESB to EirGrid. In addition EirGrid submit that it would require much of the same steps as FOU, i.e. amending legislation and separation of all transmission functions and resources from ESB and the creation of a new agreement to govern interactions between the ISO and the Asset Owner.

EirGrid submits that the ISO model has two significant drawbacks:

**Views of the parties**
Lower levels of network investment and consequential security of supply issues; and

Significant regulatory burden.

With regard to the latter point on regulatory burden, EirGrid cite:

- The European Regulators’ Group for Electricity and Gas (ERGEG), which considers that “Compared with the ownership unbundling model, heavy, intrusive, burdensome and potentially costly regulation is required to manage the inherent potential conflict of interests between the monopolistic and competitive elements of vertically integrated companies in the ISO model, without any benefit to consumers”.

- The European Commission’s (EC) Sector Inquiry, which found that “The ISO approach would improve the status quo, but would require more detailed, prescriptive and costly regulation and would be less effective in addressing the disincentives to invest in networks.

EirGrid submit that under an ISO model in Ireland, the two major problems identified with the ISO above still exist. They submit that ownership of the transmission assets by ESB still gives it access to valuable information and insight on transmission matters that other supply and/or generation companies do not have and leaves its monopoly position to finance new transmission investments intact. EirGrid submit that the Competition Authority have repeatedly said that this has a ‘chilling effect’ on the market and is likely to deter new investment.

In summarising, EirGrid suggest that the ISO involves much of the same work required to achieve FOU yet does not achieve the same level of independence and accountability and still requires heavy regulatory oversight and complex agreements to be in place. They submit that it is clearly an inferior option and seen as such by the Commission.

EirGrid have also provided us with detailed arguments in relation to the appropriate interpretation of the ISO model, which we discuss in the relevant chapter below.

4.1.3 EirGrid’s views on the ITO option

EirGrid submit that the ITO is the least favoured option of the EU Commission. They suggest that out of the three unbundling options available, the ITO model constitutes the lowest threshold for network unbundling which will be permissible legally within the EU.

They argue that like the ISO model, the ITO model is also inconsistent with government policy on the unbundling of the transmission assets, and that the ITO model would result in the most costly and burdensome regulatory oversight to ensure compliance.

Views of the parties
EirGrid further submit that the ITO model is not intended to mean the re-integration of independent transmission system operators back under the vertically integrated umbrella. They further suggest that any move to re-integrate a transmission system operator back into a vertically integrated company would be regarded as a retrograde step and one that is unlikely to appeal to the EU Commission, Government, regulators or industry.

4.1.4 EirGrid’s views on Article 9.9

EirGrid submits that the current arrangements do not meet the requirements of Article 9.9. They suggest that it is not sufficient to argue that the existing arrangements work in practice, albeit sub-optimally, and therefore no change is required as per Article 9.9.

Rather, they suggest that the burden of proof is on the Member State to demonstrate to the EU Commission that the existing arrangements in place guarantee more effective independence to a TSO than the chapter V provisions which provide that the TSO owns the assets and has full control over the assets. EirGrid suggests that it neither owns the transmission assets nor has full control over the assets, and in some cases such as construction, has no control. EirGrid is therefore firmly of the opinion that the current arrangements do not guarantee more effective independence than the provisions in Chapter V.

4.2 ESB’s views

4.2.1 ESB’s views on full ownership unbundling

This section summarises ESB’s submissions in relation to FOU. It is structured as follows:

- Summary views on FOU;
- Proposed operating model;
- Structure of the transaction;
- Efficiency benefits;
- Competition and other policy impacts; and
- Costs of FOU.

Summary views on FOU

ESB suggest that for the following reasons, the transfer of transmission assets would be a mistake:

- Asset transfer would incur costs of up to €400 million on an NPV basis, with negligible benefits;
A transfer would be extraordinarily risky at a time when Ireland’s renewable targets require €4 billion investment in transmission over the next 15 years – ESB state that it has a proven track record in infrastructure financing and project delivery;

The areas of real difficulty in transmission delivery are in planning and way-leaving for which EirGrid is already fully responsible;

It is inherently uneconomic on a small island to have two entities engaged in procurement, asset management and construction of transmission and distribution systems;

London Economics surveys indicate that international utilities do not see ESB’s ownership of transmission assets as a barrier to investment in Ireland. Their research also shows no evidence of a link between ownership unbundling and more competitive electricity prices;

An integrated SMART network strategy is now successfully in place which has significant support from international electricity and ICT companies and which capitalizes on Ireland’s integrated Transmission and Distribution Networks;

It is unclear how EirGrid will obtain the €1.5 billion needed to purchase the assets from ESB and at what cost of funds.

**Structure of the transaction**

ESB have suggested that in the event of asset transfer taking place they would expect it to take place at market value. While they have not specified exactly what would constitute market value, they have argued that it would involve a premium on the RAB at date of transfer.

**Efficiency benefits**

ESB have argued that the transaction is unlikely to lead to significant efficiency benefits. In their submission, the only efficiency benefit they identify relates to the removal of the Interface Agreement. They submit that this would lead to the elimination of four FTEs (Full Time Equivalents) with an estimated saving in NPV terms of €2.4 million.

**Competition and other policy impacts**

In their submissions, ESB focused on two key policy issues:

- The impact of ownership unbundling on competition; and
- The impact of ownership unbundling on the development of SMART networks.

**Views of the parties**
Competition effects of unbundling

ESB argue that ownership unbundling is unlikely to lead to any substantial change in competition in the sector.

ESB suggest that since the White Paper was published in 2007, a number of significant changes have taken place in the industry, including:

- Agreement of the Third Energy Package;
- Development of the SEM; and
- The emergence of significant competition in the generation or supply markets.

ESB submit that they are no longer dominant in the generation or supply markets. They suggest that in the generation market, ESB has delivered the generation asset strategy as agreed with CER, several new entrants have come into the market and the SEM is functioning in an open and transparent manner as expected. They argue that there is now a surplus of generation capacity in the market. They argue that in the supply market the advent of new entrants has resulted in a thriving competitive market and CER are now on the point of formally deregulating ESB.

They point to a recent London Economics survey of international electricity utilities which indicated that none of the utilities surveyed viewed ESB’s ownership of the network as a barrier to investment in Ireland.

Smart grids

ESB submit that ESB Networks has developed an integrated Smart Networks strategy which is widely viewed and respected as a pioneering model for Smart Grid by the international electricity and ICT industry. The initiative has widespread support and the capability and leadership of ESB is of acknowledged importance.

EURELECTRIC caution that:

“The need for a collaborative and seamless approach on these issues should be taken into account when considering any policies in relation to a further separation of distribution from transmission. This is particularly relevant for smaller and more isolated systems where the benefits of an integrated transmission and distribution smart network are likely to far outweigh any perceived market or competitiveness benefits from asset separation”

Costs of FOU

ESB have identified a series of costs which they suggest would be incurred were FOU to be pursued. These costs can be broken into:

- Transaction costs;
- Loss of scope economies and staff transfer costs;
- Business restructuring costs;
- IT costs;
- Physical unbundling costs;
- Logistical and geographical presence costs;
- Transmission and distribution interface costs;
- Insurance costs;
- Finance costs; and
- Costs associated with EirGrid’s proposed operating model.

We provide a brief summary of ESB’s arguments in relation to each cost item below. We note that ESB have considered the costs out to 2020, compared to EirGrid which considered the impact of the transaction out to 2025.

Transaction costs

These costs cover legal fees and fees for investment banking advisory services. ESB suggests that typical fees would be in the range of 2-3% for a commercial transaction. However, they have assumed a lower cost of 0.3-0.5% of the transaction value. They assume therefore a one-off cost of €5-8 million.

Loss of scope economies and staff transfers

ESB assume four key types of costs are likely to materialise in this regard:

- **Compensation payments to staff who transfer** – ESB suggest that between 200 and 250 staff members will have the right of transfer to EirGrid under the transfer of undertakings protection of employment (TUPE) regulations. They suggest that, given the precedent established when EirGrid was formed, there would be a requirement to provide compensation payments to transferring staff. At the time EirGrid was formed, staff received a transfer incentive payment of €40,000;

- **Loss of scope economies with distribution** – ESB suggest that in 2009 over 1,000 network technician staff were involved across the country in delivering the 200 work years required on the transmission system. They suggest that if the work is to be delivered on a stand alone basis the synergies from the combined approach to delivering distribution and transmission will be lost. They suggest, therefore, that EirGrid will require an additional 75-110 (FTE) network technicians above that required by ESB to deliver PR3. This is estimated to cost an additional €45-65 million.

Views of the parties
ESB stranded resource – ESB suggest they would be left with a stranded network technician resource of over 100 FTE’s. ESB suggests that severance payments for the stranded resource would be in the order of €23-25 million.

Duplication of on-call operations – ESB argue that EirGrid will require an additional 20 staff to be on-call at any time, with an associated on-call allowance. ESB estimate that the costs of the on-call allowance will be approximately €1 million.

Business restructuring costs

ESB suggest that EirGrid will incur significant costs associated with the provision of services that are currently provided across the transmission and distribution businesses. These include costs in relation to contract management, legal, treasury and purchasing resources.

Additionally, ESB suggests that a number of its fixed overhead costs which are currently absorbed into the transmission business would instead be allocated to the distribution business. ESB suggest that it is likely that, in a regulated context, these costs would be allowable for a period of 3 years and would be borne by the end user.

ESB suggest that the combined cost of the above would be in the region of €16.5 million.

IT systems and support

ESB suggest that EirGrid will need to invest significantly in IT in order to support its functions as asset owner. ESB suggest EirGrid will need to acquire an asset register and maintenance system as well as other capital support systems such as GIS, project management, work management, scheduling and delivery systems together with logistical management as well as new staff to administer these systems.

ESB suggest that, based on the cost of designing and implementing IT systems to replicate those already in place supporting the ESB Networks business, the total cost of IT investment is likely to be in the order of €20-25 million.

They submit that the ongoing support costs are typically in the order of 20% per year of the initial capital investment costs. This suggests an annual IT charge of between €4 million and €5 million.

Physical unbundling

ESB suggest that EirGrid are already establishing the need for “absolute physical separation” of stations at the 110kV level with a view to future transmission ownership. ESB argue that this will result in the duplication of some assets – control room, control system, auxiliary supplies – increasing costs. Additionally,
ESB suggest that separation will lead to a larger site footprint. ESB argue that the additional costs will be in the order of €1 million for each new station.

_Logistical and geographical presence costs_

ESB suggest that EirGrid will need to invest to create a greater logistical presence throughout Ireland. They argue that EirGrid will need to develop:

- A central stock depot, at a cost of €5-6 million;
- Three new regional offices, at a cost of €4.5 million; and
- Fleet costs for additional FTEs, at a cost of €5-7 million.

_Transmission and distribution interface costs_

ESB suggest that a new operations agreement will be required to govern the interactions between the transmission and distribution networks, which will require 2 FTEs at a cost of €1.2 million.

_Insurance costs_

ESB suggest that EirGrid will need to acquire all-risk cover for transmission stations and will also need to acquire public liability and professional indemnity insurance. These are currently provided by ESB. ESB suggest that EirGrid is likely to pay an additional €0.4 million per year above the ESB premium.

_Finance costs_

In their initial submissions ESB commented on the impact that a transaction at full market value would have on their finance costs. In subsequent submissions, ESB have also commented on EirGrid’s proposal that the assets be vested to EirGrid at 50% of the RAB at time of vesting.

While ESB do not currently have a credit rating, they anticipate, based on their track record and current financial position, securing an A- credit rating.

With regard to a disposal at market value, ESB suggest that the transaction is likely to result in a downgrading of this rating by one notch to BBB+. They suggest that this is based on:

- An overall increase in the perceived business risk, as transmission assets and revenues are considered to be a utility’s most secure assets and revenue stream;
- An unfavourable regulatory intervention – they submit that the forced unbundling of the transmission assets, absent any regulatory requirement will be viewed unfavourably by the markets and rating agencies.

On the back of the assumed ratings downgrade, ESB anticipate that their cost of debt will increase by 25 bps. They suggest that, based on their funding

**Views of the parties**
requirement to 2020, the net cost of a 25 bps increase in the cost of debt would be approximately €50 million.

ESB suggest that EirGrid’s proposal of a disposal at below market value would have severe negative consequences on its ability to access debt and the costs at which it could do so. ESB, on the basis of advice received from Rothschilds suggest that such a transaction would:

- Likely lead to a rating downgrade to BBB or BBB-;
- Lead to cost of debt increases of between 150 and 300 bps;
- Severely restrict their access to the credit markets, and in particular the bond market;
- Lead to a significant reduction in their capital investment plans;
- Force them to operate with credit metrics that are considered financially imprudent; and
- Lead to an unacceptably high risk of default and cross default.

ESB have not provided an estimate of the likely total costs of such a scenario, as they believe the key risk, reduced access to the debt markets, is too difficult to quantify. However, they suggest that a covenant breach, or the risk of breach, such that debt had to be re-priced, would likely cost a minimum of €200 million.

**Costs associated with EirGrid’s operating model**

ESB have also commented on the potential costs associated with elements of EirGrid’s operating model.

With regard to EirGrid’s proposal to increase substantially the elements of work they will outsource and the type of outsourcing model they propose to use, ESB have suggested that their own experience with this type of model led to cost increases of 20% compared to a more traditional model. Based on the Grid25 capex programme, ESB have estimated that EirGrid’s approach to outsourcing could lead to additional costs of €200 million.

### 4.2.2 ESB’s views on ISO

In ESB’s view, EirGrid currently has the capabilities and functions required for it to be designated as an Independent System Operator (“ISO”) under Article 13 of Directive 2009/72/EC. EirGrid’s responsibilities for construction and commissioning are met by its pre-existing statutory and contractual rights under the Infrastructure Agreement (IA). This is supported by the Joint Opinion of Counsel provided by ESB.

ESB suggest that compliance with the ISO option would, however, involve significant structural change particularly to meet the requirements of Article 14 which requires the Transmission System Owner (“TAO”) to be independent in
legal form, organisation and decision making. This would require the establishment of an ESB subsidiary with its own Board to act as TAO (hereafter “TAO-CO Ltd”). The Transmission assets would be transferred from ESB to this subsidiary. Associated debt unbundling and/or future financing arrangements would have to be considered also.

TAO-CO Ltd would have a thin organisation to manage key ownership functions including:

- The Infrastructure Agreement with EirGrid;
- Regulatory price control for TAO;
- Collection of TAO income from EirGrid;
- Financing of new transmission capital investment; and
- Other ownership functions – insurance, risk management etc.

The arrangements for work delivery would need to be considered in the context of Article 13(4) which gives the ISO responsibility for planning, construction and commissioning of new infrastructure. ESB’s view is that the existing arrangements are deemed compliant with this model. They submit that EirGrid can exercise its responsibility for construction and commissioning infrastructure through the IA (perhaps with some modification), without having to take on the direct management of it in-house. ESB also submit that EirGrid currently set all maintenance policies, which ESB merely implements on EirGrid’s behalf.

In this scenario, TAO-Co Ltd would have a contract with ESB Networks Ltd for delivery of the construction and maintenance works on the Transmission assets, as delegated to the TAO-CO Ltd. under the IA. ESB Networks would procure materials and services and undertake construction of assets and then transfer assets to TAO-Co Ltd. when commissioned. This model retains the inherent benefits of economies of scale and efficiency that come from the integrated transmission and distribution delivery model, while giving additional transparency in terms of the ownership and decision making model.

ESB suggests that if, under ISO implementation, full construction, commissioning and maintenance duties were transferred to EirGrid, the same costs as incurred for full ownership unbundling would be incurred (see above).

4.2.3 ESB’s views on ITO

ESB suggest that this option is very similar to the ITSO option Ireland operated from 2000-06. ESB suggest that the experience with the ITSO option was ‘unpleasant’ and given that EirGrid has now been ownership unbundled, the ITO option would appear to be unattractive.

Views of the parties
ESB suggest that the ITO option would increase regulatory complexity substantially, and would lead to a costly and difficult re-integration of EirGrid within ESB.

4.2.4 ESB’s views on Article 9.9

ESB is strongly of the view both that the current Irish arrangements meet the Article 9.9 criteria and that the Article 9.9 option is the least costly and most appropriate for Ireland to pursue.

ESB argue that EirGrid is a stand alone mainstream utility established by statute, is not subject to any influence from ESB in fulfilling its duties and responsibilities and has the resources to carry out these duties in accordance with its own development objectives. ESB argues that EirGrid clearly therefore has more effective independence than would pertain under the ITO model.

4.3 ESOP’s views

4.3.1 ESOP’s views on FOU

The ESB ESOP commissioned LECG Ltd to prepare a report entitled “Implementing the Third Energy Directive in Ireland: Options for the Transmission Network”.

Below we provide the high level comments of the ESOP on the option of Full Ownership Unbundling, before summarising the key findings from the LECG analysis.

The ESOP suggests that a transfer of ownership would:

- Cause distortion in the SEM given two different ownership and management structures for the transmission system North and South;
- Require to be undone within a few years in order to implement the regional British/French/Irish market that is a part of EU policy;
- Result in significant one-off implementation costs;
- Take a considerable time and cause very significant disruption of the Department, ESB and the Irish electricity market;
- Result in significant short, medium and long-term increases in operating and maintenance costs due to duplication of personnel, processes, systems and security and the higher funding cost that EirGrid will have because it has smaller resources than ESB;
- Distract the Department and ESB from implementation of much more urgent objectives, not least the green agenda;

Views of the parties
Not deliver any measurable advantages to the structure or development of the Irish market;

Reduce the balance sheet of ESB resulting in increased costs of funds for its generation and distribution activities and impairing its development and ability to pursue the green agenda;

Require a protracted negotiation with stakeholders, not least the ESOP, which will require adequate compensation for the long-term diminution in shareholder value quite apart from issues of the underlying reimbursement of ESB for any assets transferred.

The LECG Report

In their report, LECG use four criteria to assess the ISO and FOU options. These are:

- Appropriate levels of investment in transmission, including to connect large amounts of new renewable generation;
- Avoiding discrimination and ensuring a level playing field for all market players;
- Fostering regional integration; and
- Avoiding excessive and unnecessary costs.

LECG suggest that these criteria are appropriate as they reflect the underlying concerns that motivated the relevant aspects of the Third Package, and are also closely linked to Irish government energy policy goals.

Competition and discrimination

LECG suggest that a fundamental aim of an ISO regime is to prevent discrimination by a vertically integrated transmission owner against generators and/or suppliers. Such discrimination could occur:

- In relation to investment and connections;
- Procurement and charging of ancillary services to favour the incumbent;
- Discriminatory charges for transmission;
- Operating the system in a way that restricts competition from cross-border imports by ‘pushing congestion to the boundaries of the Grid’.

LECG argue that under the Irish model at present the transmission owner has no ability to influence any of the decisions described above. They are made by EirGrid and subject to strong regulatory oversight.

Views of the parties
LECG further submit that international experience confirms that the ISO model is effective in addressing risks to competition from discrimination by the asset owner in favour of its vertically integrated generation and supply businesses.

LECG further submit that the evidence from the current arrangements in Ireland suggests that market participants are not unhappy with current arrangements. They suggest that there have not been any complaints to the CER or to the Competition Authority about discrimination in relation to transmission. They also note that EirGrid in its Grid25 plan does not suggest a change in ownership of the transmission assets is required for delivery of its proposals.

Finally, LECG argue that competition is developing rapidly in the Irish and all-island electricity markets. At the generation level, the divestment of ESB generation assets consistent with the CER-ESB Asset Strategy means that ESB now has a market share in the all-island market of around 45% in 2008, estimated to be falling to 42% in 2009, and faces competition from a number of significant players, including Endesa, Bord Gáis, Viridian and Airtricity. LECG also argue that competition is rapidly emerging in retail supply markets.

**Regional integration**

LECG argue that while regional integration to create an Irish/UK/French market is possible under FOU, an ISO model is likely to allow the development of more rapid regional integration. LECG argue that this is largely because an ISO model avoids the political sensitivities that may arise if there is a perception that government may be either relinquishing or pooling its ownership of transmission assets.

LECG points to the US to provide evidence that the ISO model has been effective in facilitating the development of regional markets.

**Cost issues**

LECG submit that the move to ownership unbundling will require the transfer of over 200 staff from ESB to EirGrid. They submit that there will be significant one-off and ongoing costs associated with the transfer, such as compensation payments to staff and legal and transaction costs.

They argue that there will be a loss of economies of scope between ESB Networks’ distribution network and transmission. Based on a preliminary analysis of the costs by ESB, LECG estimate the NPV of quantifiable costs to be in the region of €100 million to €150 million. However, they note that within the timeframe of their study they have not been able to complete a full assessment of the likely cost impacts.

**Views of the parties**
4.3.2 ESOP’s views on ISO
ESOP’s views on the ISO option are broadly similar to those of ESB. They suggest that were the ISO option to be implemented, it would be possible to do so in a way which allowed ESB to carry out the same functions as it does today.

4.3.3 ESOP’s views on ITO
ESOP did not express a view on the ITO option.

4.3.4 ESOP’s views on Article 9.9
The Article 9.9 exemption is ESOP’s preferred option, and they believe that the arrangements in Ireland are fully compliant with that option.

4.4 EirGrid Staff Representatives’ views
[Text redacted]

4.5 ICTU views
[Text redacted]
5 **Full Ownership Unbundling**

Full ownership unbundling is the preferred option of the European Commission. In the Sector Inquiry Report into the European gas and electricity sectors, the European Commission stated that:

"Economic evidence shows that full ownership unbundling is the most effective means to ensure choice for energy users and encourage investment. This is because separate network companies are not influenced by overlapping supply/generation interests as regards investment decisions. It also avoids overly detailed and complex regulation and disproportionate administrative burdens."\(^7\)

The FOU option is set out in Article 9 of the Directive. Article 9(1)(a) requires that the TAO acts as TSO. Article 12 sets out the responsibilities of the TSO and these are summarised at Annexe D of the Implementation Plan annexed to this Report. In practice, any entity designated as TSO will need to have the resources and competence to meet these responsibilities.

In addition, Article 9(1)(b) prohibits the company acting as TSO from directly or indirectly exercising any "control"\(^8\) or "right"\(^9\) over a company having the functions of generation or supply of electricity and vice versa. Under Article 9(1)(c) a person is prohibited from appointing members to a supervisory or administrative board of a TSO whilst directly or indirectly exercising any "control" or "right" over a company having the functions of generation or supply of electricity. Finally, a person is not entitled to be both a member of the supervisory or administrative board of a TSO and a company having the functions of generation or supply of electricity.

As ESB and EirGrid are both State-owned companies, the issue of control will also have to be considered in relation to the FOU option. This issue is also relevant to the ISO option. As both companies are under the remit of DCENR, it could be argued that the same person (DCENR) is entitled to directly or indirectly exercise control over both transmission activities (EirGrid) and supply/generation activities (ESB). This would mean that the requirements of Article 9(1)(b) (applicable to FOU and ISO options) might, on the face of it, not be met. However Article 9(6) provides that where the person referred to in Article 9(1) is a Member State, two separate public bodies exercising control over

\(^7\) DG Competition report on energy sector inquiry (SEC(2006)1724, 10 January 2007)

\(^8\) "Control" means "rights, contracts or any other means which, either separately or in combination and having regard to the considerations of fact or law involved, confer the possibility of exercising decisive influence on an undertaking" (Council Regulations (EC) No 139/2004)

\(^9\) "Rights" include power to exercise voting rights; power to appoint members of the supervisory, administrative board or body legally representing the undertaking; holding a majority share (Article 9(2) Directive 2009/72/EC).
a transmission system on one hand and supply/generation on the other, would be deemed to be different persons. Therefore, either EirGrid or ESB should be moved to the remit of another Minister or public body in order to fall within Article 9(6) (and therefore be compliant with Article 9(1)(b)). This conclusion is also supported by the legal submissions of ESB and EirGrid.

In effect, Article 9 requires that the entity that is the TSO must own the transmission assets and be independent in ownership from any generator or supplier. Therefore, in order to implement the FOU Option, the ownership of the transmission assets in Ireland would have to be transferred from ESB to EirGrid.

The key potential benefits associated with FOU include:

- **Efficiencies from removing duplication and having a single entity accountable for delivery.**

- **Competition benefits** – these could manifest themselves in a number of ways, either by directly preventing discrimination on the part of a VIU, removing a barrier to entry or investment, or by increasing competition in the provision of network services.

- **Regulatory benefits** – FOU is considered to allow easier regulation than an ISO or ITO model. The ISO model in particular is considered to have two key weaknesses. First, because the ISO is thinly capitalised it is more difficult to apply incentive regulation to it. Second, because two parties are responsible for many activities, it can be difficult to apply joint incentives that appropriately apportion incentives in proportion to the influence parties have over outcomes.

- **Cost of capital** – it has been argued that a well capitalised transmission business should be able to achieve a lower cost of capital than a potentially riskier VIU. In consequence, from a social standpoint, ownership unbundling allows key strategic infrastructure, which is financed ultimately by customers, to be built at a lower cost.\(^\text{10}\)

Against the above benefits, we need to consider the potential costs of ownership unbundling:

- One-off transaction and implementation costs.

\(^{10}\) In theory cost of capital should be assessed in relation to the activity being funded rather than the company being funded. However, where debt is raised at the corporate level, the portfolio of the companies will become relevant. We note also that other factors such as regulatory regime, company track record etc will be taken into account when credit ratings are issued. Hence, the ownership of the assets can have a material impact on the associated cost of capital.
• The extent to which inefficiencies are created from the loss of synergy, in particular, between transmission and distribution, and/or the degree of duplication created across two network businesses – many of which will be influenced by the proposed business model of the TSO.

• The impact of the transaction on the financial health of the two entities.

• The impact of transition and diversion of management time etc. on investment.

The ex ante view is that there is potential for FOU to deliver benefits that outweigh any of the costs described above. This is the view of the EC and many of the other bodies who have expressed a view on the relative merits of the options under consideration.

Our job has been to examine the generic benefits and costs outlined above in relation to the specific circumstances of the Irish energy market, taking into account the impact of the proposed structuring of the asset transfer and the operating model put forward by the potential acquirer.

In developing our assessment of the FOU option, we have:

- Reviewed and assessed the extensive supporting evidence put to us by all stakeholders in relation to the benefits and costs of unbundling;
- Examined the wider impacts of the policy in terms of effects on customer service, competition, network investment and interconnection; and
- Examined the impact of ownership unbundling on the complexity of regulation for the sector.

In forming our assessment we have come to a view on the quantifiable benefits and costs associated with ownership unbundling. We have also identified the other benefits that may arise, but are more difficult to quantify. Finally, we have assessed the key risks associated with asset transfer.

5.1 The quantifiable benefits of ownership unbundling

This section provides our assessment of the quantifiable benefits of ownership unbundling. Our approach is to provide an assessment of each of the proposed benefits put forward to us by the stakeholders. In keeping with the analysis provided to us by EirGrid, we are considering the benefits over the 15 year period to 2025.

Full Ownership Unbundling
To calculate a net present value associated with the benefits, we have used a standard 3.5% discount rate.

Below we address each of the proposed benefits set out by EirGrid in their submissions. We note that ESB suggested that there would be no benefits from the transaction other than a net reduction of two FTE’s as a result of a less complex IA. We cover that issue in relation to the assessment of duplication savings below.

5.1.1 Savings from reduced duplication

EirGrid have submitted that ownership unbundling will lead to reduced duplication of activities. They suggest it will deliver a saving of €5.7 million per year. The net present value of that saving is €54.8 million. ESB agree that there will be some reduced duplication of effort, but suggest that the savings are considerably smaller. ESB have considered savings out to 2020, and suggest that the saving from reduced duplication of effort is more likely to be in the region of €2.4 million in NPV terms.

We accept that FOU will lead to reduced duplication. The three categories of reduced duplication put forward by EirGrid are:

- elimination of client engineering costs;
- elimination of costs relating to administration of the IA; and
- elimination of duplicate programme management co-ordination.

EirGrid estimate that elimination of the client engineer cost will save €4.5 million per year. However, we understand that this level of saving was based on EirGrid’s proposal as part of PR3 to increase its client engineering staff from 9 to 20. In considering EirGrid’s proposal, CER’s consultants, SKM, found that:

"There would appear to be opportunities to reduce the level of client engineering activity and costs for the sake of efficiency and utilisation of scarce resources… The client engineering role could be made more efficient by carrying out more work on a generic and audit basis, if required, and reducing the amount of on-site inspections and works visits. TSO should be involved only at critical stages of work as follows:

- Outline specification stage which is provided by EirGrid under stage 1 capex costs
- Procurement and letting of contracts which are mainly on a framework basis to international specifications and to agreed TSO/TAO requirements and can be generically assessed and require little individual assessment.

11 SKM “Review of Transmission Asset Owner Operating costs 2006 to 2015.” June 2010
There may be no extra value added by site and works visits and it could be argued that these cloud responsibilities.

At the commissioning stage the TSO could examine test results rather than witness tests. TSO would attend pre commissioning and commissioning meetings to ensure satisfactory handover for operation but this is probably a separate operations function already in place.”

SKM further suggest that “ESB and EirGrid should review the arrangements between TSO and TAO in the UK to identify any learning points for improving efficiency.”

On the basis of the above, we suggest it would be reasonable to assume that asset transfer would lead to the elimination of the current level of client engineer expenditure which is €1.5 million.

While EirGrid have not provided detailed supporting evidence for their estimates of the cost of IA administration, we accept that there are likely to be savings in this area, and accept EirGrid’s estimated cost saving.

We also accept EirGrid’s estimates in relation to the savings associated with reduced duplication of programme management and co-ordination.

We therefore estimate that asset transfer is likely to lead to savings of €2.7 million per year. In net present value terms, this amounts to almost €26 million out to 2025.

5.1.2 Savings from lower constraints costs

EirGrid have submitted that asset transfer will lead to significant constraints cost savings. Essentially, EirGrid’s argument is that, because they do not have visibility of the costs of network maintenance resources they cannot fully optimise the costs of resources against the costs of constraints.

Further, they argue that ESB’s incentives are to minimise maintenance costs, as they have no incentive in relation to minimising constraints costs.

EirGrid estimate that total transmission related constraints costs are in the order of €21 million per year. They estimate that a saving of 20-30% can be achieved against that figure, leading to savings of between €4 million and €6 million per year.

ESB have disputed the claimed benefits in relation to constraints. They argue that:

EirGrid does not presently bear the costs of constraints arising from outages: they are rolled into the Imperfections Charge levied by the Single Marker Operator on each MWh traded though the pool. EirGrid have not made any proposal to internalise any portion of the Imperfections Charge nor are they presently prevented from doing so.” In consequence, unless the incentive regime was changed, as asset owner, ESB argue that EirGrid would face the same incentives as ESB.
ESB further argue that:

"An ownership change is not necessary to construct incentives of this nature. As a matter of general principle, when there are two parties involved, as in this instance, the parties can negotiate an incentive arrangement (for example on a shared savings basis). There is nothing preventing EirGrid and ESB negotiating baselines, agreeing relative effort negotiating cost/benefit sharing formulae etc. EirGrid have never proposed such an arrangement, nor do they share information with ESB in relation to the costs of constraints occasioned by outages."

Finally, ESB argue that:

"As a practical matter, the overriding issue with outages is the constrained nature of the transmission system. Procedurally, EirGrid determine annually the Transmission Outage Programme following consultation with ESB Networks and Generators. However, the planned programme is in continual need of revision, and rightly so due to unforeseen events on the power system. This invariably means that outages are postponed, re-scheduled, cancelled, curtailed etc and often with little notice. What this means in practical terms is that whenever an outage is granted, ESB Networks are generally under pressure to execute the maintenance task in the shortest timeframe possible. If EirGrid outsource maintenance they will have to have considerable flexibility in the contractual arrangements."

We recognize the ESB’s argument that incentives would have to change and we agree that it should be possible to provide some joint incentives in relation to constraints. However, even allowing for this, given the dynamic nature of the system and the need for a fast and flexible response, we do not believe that two separate companies could achieve the same level of constraints optimization as a single entity acting alone. The difficulties in optimizing constraints when system operation and asset ownership are separate has been recognized in other markets, including the GB market in relation to the Scottish transmission assets.

EirGrid’s estimate of the potential for savings of 20-30% is based on their experience of operating the system rather than simulation modeling. While it might be possible to deliver some of that saving through a joint incentivisation regime with ESB Networks, we believe it is reasonable to assume that there would still be significant additional savings to be realized under a single ownership model. We have therefore included an estimated cost saving of €5 million per year, which is the mid-point of EirGrid’s €4-6 million saving.

In NPV terms, the total constraints saving amounts to just over €48 million out to 2025.

5.1.3 Savings from Single Accountability – capital expenditure

EirGrid have argued that “a combined transmission system operator and owner will facilitate and enable a holistic asset management regime.” EirGrid argue that they cannot currently undertake whole-life cost analysis due to incomplete control of asset and cost information. They further argue that disconnects between strategic

Full Ownership Unbundling
planning, decision-making and asset creation can also lead to sub-optimal decisions on the timing and selection of projects.

EirGrid argue that under FOU, it would be possible to deliver savings of 5% of capital expenditure. In support of their position, in their initial submission, they state that analysis of asset intensive businesses shows that savings in capex of between 5% and 15% are available through better use of asset and cost information. EirGrid submit that this is supported by illustrative examples from other industries:

- The Orange County Sanitation District in the US reported in 2007 that the adoption of asset management lifecycle processes had reduced their capital maintenance projects by 15% over a 5 year period;
- The Office of Public-Private Partnership (PPP) Arbiter published a report on the funding determination for Tube Lines, who hold the PPP contract for the upgrade, renewal and maintenance of one third of the London Underground system. It determined that Tube Lines funding would be reduced by 2% of total revenue as a result of them not developing their asset management capabilities to an appropriate level of maturity.

In further submissions, we asked EirGrid to clarify both why the benefits of better asset management could not be realized today, and to provide us with a better understanding of what, in practice, would be different in relation to the transmission assets in Ireland, and the basis on which they had assumed those changes would lead to a 5% saving.

EirGrid’s submission argued that the benefits for asset management stewardship will manifest themselves as follows:

1. Major capital expenditure decisions will be made with full and proper knowledge of construction and full lifetime costs, whereas at present, capital costs are questionable and the IA model does not allow full lifetime costs to be taken into account.
2. Appropriate deployment of capital and making discerning decisions to ensure the optimal use of capital will be possible.
3. Procurement decisions can be made on the basis of long-term future requirements and incorporate full lifetime cost considerations.
4. Management of trade-offs of outage durations and constraint costs against construction and maintenance costs will be possible.
5. Full responsibility for project delivery offering transparency and accountability to customers and the regulator will be possible.
6. The ability to package capital programme work in innovative fashion (such as design and build, turnkey, partnering arrangements) where
appropriate to do so will enable EirGrid to drive lower overall project costs as a result of competitive market pressures and enable a seamless delivery of projects from preliminary design through to commissioning.

7. Removal of duplication of effort in project management and programme coordination and eliminating the requirement to handover responsibility mid-way through projects, resulting in reduced bureaucracy and the elimination of excessive red tape and routine.

8. Contestable build experience – Independent Power Producers (IPPs) which have chosen to build their connections non-contestably have been able to deliver them faster and at lower cost, as supported by the case study evidence provided and as per the IWEA response to the standard timelines and charges decision paper. It would be erroneous to suggest that these differences are due to IPPs adopting different approaches to that which EirGrid or ESB Networks would in respect of landowner access payments. However the ESB standard timelines assume no difficult landowner issues, so the saving in time achieved by IPPs are generally on a like-for-like basis, relating primarily to construction activities. EirGrid would deliver the construction elements of customer connections more efficiently from a cost and time perspective than a typical IPP could do.

9. The selection of most IPPs, including ESB subsidiaries to contestably build their connection is a strong indicator that the current arrangements are not effective and do not offer customers the level of efficiency, certainty, and value for money that they should. Only the single accountability model can offer this to customers.

10. The ability to control and track the full asset cost over its complete lifecycle, together with operational cost considerations such as constraint savings and outage management is only achievable under a single accountability model.

11. Strategic Asset Management, Tactical Asset Management, Programme Management and Supply Chain Management are key aspects of good practice Asset Management which will become possible for EirGrid to optimise driving cost savings and value for money in transmission asset development following Full Ownership Unbundling.

12. Efficient allocation of resources and fully informed programme management throughout project delivery will enable cost savings (including the elimination of duplication) not achievable under the current split accountability model.

13. The introduction, under a single accountability model, of early contractor involvement in projects such as experienced by EirGrid in the EWIC project will drive further savings, as supported by the Balfour Beatty presentation showing an 18% savings potential.

**Full Ownership Unbundling**
14. The introduction of competitive tendering in all aspects of project delivery including detailed design, project management and supply chain management will enable the benefits of competitive pressures in the market to drive down costs and deliver cost savings.

15. International experience and common understanding regarding competitive procurement / turnkey project / partnering / alliances / etc. all points to the potential for cost savings achievable under Full Ownership Unbundling.

16. The EWIC case study shows how benefits can be derived from early contractor involvement, and by putting in place a design and build contractual model together with the owners engineer contractual arrangements when projects are developed fully under a single accountability model.

17. The faster more transparent delivery of connections and reinforcements will drive savings due to increased generation capacity with customer connections and reduced constraints costs with earlier availability of system reinforcements.

In assessing the information above, we have considered three questions:

- Are the benefits duplicating other savings identified by EirGrid?
- Is ownership unbundling required in order to deliver the savings?
- Is there strong evidence supporting the level of benefits proposed by EirGrid?

**Are the benefits duplicated?**

Of the 17 points raised above, a number would appear to relate to other benefits that EirGrid suggest will arise as a result of ownership unbundling. For example:

- 4 above relates to reduced constraint costs;
- 5 above relates to offering certainty to developers;
- 6, 13, 14, 15 and 16 relate to the benefits of greater outsourcing;
- 7 and 12 relate to reduced duplication; and
- 8, 9 and 17 relate primarily to faster connection times.

We cover each of these additional benefits elsewhere in our report, and do not consider it appropriate to consider the benefits both in relation to capex savings and separately as individual savings.
Is ownership unbundling required in order to deliver the savings?

Of the remaining points put forward by EirGrid, the majority relate to lack of information:

- “Major capital expenditure decisions will be made with **full and proper knowledge of construction and full lifetime costs**, whereas at present, capital costs are questionable and the IA model does not allow full lifetime costs to be taken into account”;

- “Appropriate deployment of capital and making discerning decisions to ensure the optimal use of capital will be possible”

- “Procurement decisions can be made on the basis of long-term future requirements and **incorporate full lifetime cost considerations**”

- “The ability to control and track the full asset cost over its **complete lifecycle**, together with operational cost considerations such as constraint savings and outage management is only achievable under a single accountability model”.

The other benefits appear to be in relation to EirGrid’s organizational structure:

- Strategic Asset Management, Tactical Asset Management, Programme Management and Supply Chain Management are key aspects of good practice Asset Management which will become possible for EirGrid to optimise driving cost savings and value for money in transmission asset development following Full Ownership Unbundling.

We are not convinced that a structural solution is required in order to deliver the benefits EirGrid suggest are achievable. In contrast to the difficulties in relation to the trade-off between constraint costs and outages, capital investment decisions typically relate to discrete projects where analysis of the optimal approach is undertaken well in advance of any decision being required or being taken.

Essentially, EirGrid’s proposition is that it does not have the information it requires in order to make optimal capital expenditure decisions, and it is unable to make decisions regarding capital expenditure on the basis of full lifetime costs.

Our understanding is that, under the infrastructure agreement, EirGrid is responsible for determining network planning, for making all network capital investment decisions, and for specifying what is to be built.

Under the IA, EirGrid also has contractual rights to the information it requires to carry out its functions, both in relation to capital investment decisions and maintenance decisions (see below).

EirGrid have made a number of submissions setting out concerns they have about access to information. They suggest that, despite the provisions of the IA,
they are simply not receiving the information from ESB which they require in order to deliver the type of savings described above.

While there have been issues over the sharing of information between ESB and EirGrid, it is not clear to us that all avenues have been explored in resolving these concerns. Moreover, the period under consideration coincided with the roll-out of a major new IT system within ESB Networks, which sought to bring together information from a wide range of sources. ESB submit that the majority of information issues with EirGrid relate to the bedding in of the new IT systems, and they assert that they are committed to further improving and developing the information sharing arrangements with EirGrid.

While EirGrid’s report to the CER in 2008 highlighted concerns it had regarding the information it was receiving, our understanding is that EirGrid has had no further follow up with the regulator, and that a recommendation in EirGrid’s original report, to prepare a report on progress against the recommended actions, for CER review, within 6 months has not been acted upon by EirGrid. Further, when we raised the issue of information sharing with the CER, they suggested that they were not aware that it was considered to be a major issue.

If EirGrid were to present evidence to the CER that, as a result of ESB failing to provide information to which EirGrid is contractually entitled, EirGrid is likely to make sub-optimal investment decisions which will cost electricity consumers approximately €225 million over the next 15 years, it is highly likely that CER would take an active role in ensuring ESB met its contractual obligations under the IA.

We therefore believe that asset transfer is not required in order for EirGrid to be able to access the information it requires to carry out its capital investment functions effectively.

However, even with complete information sharing, the split accountability model may still result in some rigidities in the system which prevent capital expenditure being as efficient as it might be under a single accountability model.

For example, it is likely that:

- While information sharing difficulties can be addressed under the current regime, information flows will not be as free as would be the case where all relevant parties are within a single organization;

- Opportunities for informal information sharing may be more limited, particularly between individuals responsible for planning and specifying network investment and those responsible for procurement and construction; and

- Rigidities under the IA may prevent project programming from being as flexible and responsive as it would be under a single ownership arrangement.

**Full Ownership Unbundling**
Is there strong evidence to support the level of benefits claimed by EirGrid?

The evidence put forward by EirGrid in their initial submission in support of the level of savings they estimate is relatively limited. They submitted that “analysis of asset intensive businesses show savings in capital expenditure of between 5% and 15%”. However, the illustrative examples put forward by EirGrid were not particularly detailed and did not relate to examples of other transmission networks, or even to the electricity industry more generally.

In subsequent submissions, EirGrid referenced only one example from the electricity sector:

“An example of the benefits of a well-integrated Whole-Life Cost Justification function is the whole-life analysis of Supergrid Sub-Station designs undertaken by National Grid in late 2009. Using a structured analysis, taking into account all relevant costs associated with the Sub-Stations over their lifetimes, it was possible to correctly determine the most appropriate design to implement for future network expansion. The analysis showed that installation of the cheapest option in terms of initial capital expenditure resulted in not only higher costs over the lifetime of the asset, but also prevented future expansion, reducing the ability of the Grid to cope with new connection.”

The example above did not contain any estimate of cost saving, nor did EirGrid provide any comparative analysis of the current arrangements or practice in relation to the transmission assets in Ireland.

Moreover, the capital expenditure programme for transmission is reviewed in-depth by the CER in advance of being incurred (at the beginning of each price review), and is reviewed again at the subsequent price review to ensure that the expenditure has been efficiently incurred. Moreover, in the PR3 consultation document12, CER commit to

“do all in our power to ensure that PR3 capex will be incurred as efficiently as possible. This will be done through use of an annual Capex monitoring program and a cost benefit analysis (CBA) template for all transmission projects over a certain level of expenditure.”

We find it unlikely in the context of the extensive work that went into PR3 that the CER has allowed over €70 million of unnecessary capital expenditure to be included in the transmission development programme because of inadequacies in the information supplied to EirGrid by ESB.

Finally, we find that many of the benefits EirGrid associated with single accountability are duplicates of benefits they have claimed under other aspects of their submission. We therefore find that there is relatively limited evidence to support a 5% capital expenditure saving.

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12 CER, “Consultation on TSO and TAO transmission revenue for 2011 to 2015”. CER/10/102

**Full Ownership Unbundling**
However, as noted above, we also consider that even with complete information sharing, the split accountability model may still result in some rigidities in the system which prevent capital expenditure being as efficient as it might be under a single accountability model. To ensure that this benefit is taken into consideration, we have considered a saving on capital expenditure of 1-2%. In net present value terms, this amounts to between €29 and €58 million to 2025. We consider that a saving of 1% would be likely to occur, with another 1% being possible.

5.1.4 Savings from Single Accountability – maintenance

EirGrid in their initial submission suggest that they would reduce operational expenditure by 20% through optimized maintenance. They argue that:

“good practice Asset Management enables organizations to establish risk-based maintenance regimes that optimize maintenance periodicities with respect to cost. These regimes use failure data loss and consequence analysis outputs and maintenance costs to formulate the optimum maintenance interval that balances risk and failure with the cost of undertaking mitigating activities. Industry-accepted methodologies exist for applying these techniques to a wide variety of maintenance activities including inspection, routine maintenance, failure-finding maintenance, functional testing etc. Candidates for the development of risk-based maintenance regimes would likely include transmission towers, switchgear and transformers by way of some specific examples.”

In support of the 20% saving, EirGrid cite:

“a recent analysis of over 75 maintenance optimization studies across different sectors showed that the typical benefits from adopting a risk based approach to maintenance and inspection were a reduction of between 20% and 30% in operational expenditure for no increase in risk”.

In further submissions, we asked EirGrid to clarify both why the benefits of better asset management could not be realized under the current arrangements, and to provide us with a better understanding of what, in practice, would be different in relation to the transmission assets in Ireland, and the basis on which they had assumed those changes would lead to a 20% saving.

In response, EirGrid suggested that:

“Again, it must be stated that EirGrid currently is not capable of carrying out whole-life cost analysis due to incomplete control of asset and cost information. EirGrid currently has to use cyclic maintenance in its approach to maintaining the transmission assets rather than well informed risk-based maintenance. In terms of the Opex savings, good practice asset management enables organisations to establish risk-based maintenance regimes that optimise maintenance periodicities with respect to cost. These regimes use failure data, loss and consequence analysis outputs and maintenance costs to formulate the optimum maintenance interval that balances risk of failure with the cost of undertaking mitigating activities. Risk-based maintenance could be put in place for transmission towers, switchgear and transformers by way of some specific examples. The chart below provides details of the outcome of a study carried out over a number...
of years which outlines the likely percentage savings that can be realised within operational activities through the application of good practice asset management techniques. The study shows that the most likely level of savings that can be realised within operational expenditure is typically between 20% and 30%. Using a deliberately conservative approach EirGrid selected 20% in the cost benefit analysis.”

Figure 1. EirGrid submission on opex savings

In assessing the benefits put forward by EirGrid in relation to maintenance, we have considered a number of issues:

- Whether asset transfer necessary to deliver the benefits claimed by EirGrid;
- Current track record in relation to maintenance; and
- Whether there may be other aspects of asset transfer that lead to increases in maintenance costs?

Is asset transfer necessary to deliver the benefits?

As can be seen above, EirGrid’s position is that it does not have the information it requires in order to implement the changes in maintenance policy that would deliver the savings it estimates are available.

We note firstly that:

- EirGrid has sole responsibility for setting maintenance policy, and so if it wished, and had the information available to it, there are no structural

Full Ownership Unbundling
barriers under the current arrangements to prevent the move to risk based maintenance;

- EirGrid has a contractual right under the IA to the information it needs in order to deliver its functions. So, in theory, there is no barrier to EirGrid accessing the information it requires to move towards a risk based approach to maintenance.

Essentially, therefore, EirGrid’s argument is that it is not being provided the information to which it is contractually entitled, and which could reduce operating expenditure costs by 20%. Moreover, it is suggesting that this situation can only be remedied by a structural change whereby it would become the asset owner.

We discussed the issue with CER, and they were of the view that the issue of access to information had not been raised with them as a major concern, nor were they aware that opex was potentially 20% higher than necessary as a result of ESB’s failure to provide appropriate information to EirGrid.

We were particularly surprised that the issue of information sharing in respect of maintenance was not an ongoing and serious topic of discussion with the CER, given a number of serious claims made by EirGrid relating to the potential safe operation of the network:

- “For example, the lack of information on lead-ins/droppers means that we do not know the technical limit of the circuit. There is thus the risk of us overloading the circuit with consequential safety and operational risks.”

- “The technical information is in many cases incomplete – for example critical data on the technical operating limits such as nominal current and overload capability may not be provided. Only 42% of the live cable sections listed (162/393) have a current rating listed. About 50% (198/393) have a one hour overload rating and of these at least nine have suspect data. This is basic and critical data yet it is clearly not available.”

- “Due to the concerns regarding the accuracy of ratings provided for circuit breakers, EirGrid now requests circuit breaker ratings to be explicitly confirmed by e-mail, however this has not been forthcoming (often an opinion is offered rather than actual verification). In an effort to resolve this EirGrid escalated the issue with ESB. Eventually ESB initiated an internal project to verify circuit breaker ratings. However this has yet to provide satisfactory and reliable results - for example the kA rating provided to EirGrid seems to vary widely for the same types of circuit breakers with several examples of errors being found when these are further queried by EirGrid. The lack of accurate short circuit information is a very serious matter. The short circuit rating of a circuit breaker is a key characteristic. Should a breaker be subjected to a short circuit in excess of its rating it is likely that it would fail to operate or potentially explode. Thus EirGrid constantly monitor the expected short

Full Ownership Unbundling
circuit levels throughout the network and compare them with the breaker capabilities. Breakers are replaced when the local short circuit level approaches their capacity. Under-stating the capacity of a breaker is thus extremely concerning and has potentially serious safety consequences. This matter has been raised at a senior level with ESB.”

“If maintenance is not carried out because the condition assessment was not available or inaccurate this can lead to outages, increased constraints costs or just general difficulty in operating the system.”

Given the seriousness of the concerns raised by EirGrid – which relate not just to potential savings, but to EirGrid’s core ability to carry out its functions as System Operator – we put the concerns raised to ESB.

Their response was as follows.

“Managing large volumes of dynamic asset data of different types is a huge challenge for all utilities. In the past ESB maintained several databases to manage assets of different types (HV Stations, Overhead lines, Cables, Unit substations etc.).

In 2005 ESBN embarked on a project, which was both complex and ambitious, to develop a single Asset Register and Maintenance Management (ARM) system covering the full range of Transmission and Distribution assets: Stations, Lines & Cables from 400kV down to low voltage. This was deployed in late 2006. On deployment of ARM ESBN now has only two systems for all assets:

- ARM – which holds the asset data and is used for maintenance management.
- A Graphic Information System which holds the geo-spatial data for mapping.

EirGrid have direct access to the Asset Register (ARM) for transmission assets. The access arrangements are set out below:

<table>
<thead>
<tr>
<th>EirGrid Require</th>
<th>ESBN Provide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmission Asset information</td>
<td>Direct access to all Transmission asset register information on ARM.</td>
</tr>
<tr>
<td>Maintenance Plans based on EirGrid’s maintenance policy</td>
<td>Direct access to all Transmission maintenance ‘calls’ (maintenance due) on ARM.</td>
</tr>
<tr>
<td>Maintenance Programme status</td>
<td>Bespoke business warehouse report providing real-time information on work order status.</td>
</tr>
</tbody>
</table>

ARM was initially populated with the best available data from legacy systems. In the case of Transmission assets, it is data which ESB National Grid had managed for many years which was ported to ARM. Therefore any inaccuracies or gaps in the legacy system were replicated in ARM.
Since the introduction of ARM a number of data cleanse strategies have been commenced by ESBN. These involve on-site verification/correction of asset data. As well as updating ARM, ESBN have advised EirGrid of any data discrepancies discovered during these site visits.

Data accuracy is a solvable problem and one which ESBN is committed to. There has been no incident of mal-operation/explosion of a transmission asset as a result of inaccurate data in ARM.”

Finally, ESB asserted that “EirGrid have a statutory and contractual right to information (SI455 and the LA respectively) and they have never escalated a complaint through the ESB management hierarchy, taken a complaint to CER or exercised any legal remedy. CER have not responded to either of the LA reports nor have EirGrid followed up with the 6-month report (to our knowledge). The two companies met to discuss the reports and we have provided Frontier with the EirGrid CEO’s letter setting out EirGrid’s issues: lack of information is not one of them. We stress that ESB is not wilfully withholding information from EirGrid and indeed the quantum, quality and timeliness of information flow has improved, and is continuing to improve: it is continuous improvement.”

None of the detailed issues raised above were included in EirGrid’s review of the implementation of the Infrastructure Agreement. Nor did that report set out EirGrid concerns regarding the safe operation of the system. Moreover, as noted above, EirGrid have not followed up on their recommendation to provide a subsequent progress report.

Our view is that it would appear extreme to require a structural solution in order for EirGrid to be able to access information to which it has a contractual entitlement.

Current track record in relation to maintenance

Given the serious concerns raised by EirGrid that “this lack of access to information is having a direct impact in the design, operation and reliability of the Transmission System”, we have examined EirGrid’s transmission system performance reports for the last three years.

We note that measuring transmission system performance and reliability is difficult, and that changes in system performance and effectiveness may lag maintenance problems by a considerable time period. Equally, we note that the current performance may not be fully reflective of optimal performance. However, it is at least informative to consider the current evidence on operation and reliability. EirGrid’s reports suggest that:

• On all key metrics the transmission system is performing well. The following are key points taken from the 2009 system performance report:
  □ “During the year, the system was operated at all times within acceptable international standards for safety, security and reliability of customer supplies”;

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“The international benchmark for system performance and reliability is the system minute. The total system minutes lost due to transmission faults in 2009 was 0.006 system minutes, by international standards 0.006 system minutes is very low”.

Significant volumes of maintenance activity have been carried out. The following are taken from the system performance reports over the last number of years:

- “Extensive maintenance of the transmission system was carried out throughout the year, including 8,684 km of overhead line patrols” (2009);
- “Extensive maintenance of the transmission system was carried out throughout the year, including 7,888 km of overhead line patrols” (2008);

EirGrid and ESBN carried out a joint project to review maintenance practices, as a result of which a number of maintenance policies were changed leading to savings. The system Performance report suggests that:

- “The maintenance policy is kept under review to ensure that it continues to meet the requirements of the system and best international practice”;
- “In the case of station maintenance, the requirements for Operational Tests are considerably less than for the previous year. In 2008, following a detailed review, the Maintenance Policy was changed; annual operational tests on non motorised sectionalising disconnects have been discontinued, this contributed to the reduction in requirements for Operational Tests. In addition, Operational Tests for single busbar 110 kV stations were rationalised and whereas previously there were separate Operational Tests for busbar disconnects in these stations these have now been incorporated into the Operational Test for the relevant bay. The close out rate of approximately 75% is being investigated.”

Finally, SKM commented on maintenance policy in their review of the TSO and TAO for CER. The SKM report noted that: 13

“In 2008 a review of maintenance intervals was undertaken by a joint committee of TAO and EirGrid. An international expert was brought in to advise the committee. The recommendations were finalized during 2009 and are now being applied to the maintenance programme. However the changes made were very conservative and did not go as far as the consultant recommended resulting in maintenance intervals still being out of line with international best practice.”

On the basis of the evidence available, it is not clear that the information issues outlined by EirGrid are having a significant impact on the operation of the

13 SKM “Review of Transmission Asset Owner Operating costs 2006 to 2015.” June 2010
system, or are impeding the ability of EirGrid and ESB Networks to make changes to maintenance arrangements where savings can be delivered.

*Are there other aspects of asset transfer that could increase maintenance costs?*

We have reviewed EirGrid’s proposed operating model and we have concerns that there are a number of elements of the operating model in relation to maintenance that could result in an increase in operating costs under FOU.

In terms of planned maintenance, EirGrid suggest that long term contracts will be established for routine maintenance (3-5 years for basic maintenance and local operations). Other maintenance will be purchased through competitive bidding of a panel of approved contractors. Short term contracts for special once-off maintenance tasks will be utilised. Over time it is also expected that the trend in increasing levels of OEM (original equipment manufacturer) provided maintenance for specialised transmission assets on the network will continue.

EirGrid have not set out how they propose to provide switching services for the routine maintenance. Our understanding is that currently only ESB Networks staff have the capability to switch the HV network. This means that if another operator were to be awarded contracts for routine maintenance, at least for a period of time, ESB Networks staff would also be required to attend to provide switching services before and after EirGrid’s contractors had carried out the planned maintenance. It is difficult to see how this approach to the procurement of planned maintenance services will reduce costs, as under the proposed approach two sets of contractors will be required to be on-site, rather than one.

More generally, in the longer term, we would have concerns to see neither state network business in a position to carry out HV switching on the network. This is out of line with practice in other jurisdictions, even those with deep outsourcing models.

EirGrid also submit that:

“The arrangements for emergency response, including field switching, would be detailed as part of the transition plan. From review of companies in place in Ireland and major firms who would establish operations here as part of the delivery of the outsourced transmission services described above, it is apparent that this capability can be provided on an outsourced basis. Obviously this service is currently provided by ESB and a transitional arrangement (e.g., SLA) would be required. Given that a significant number of the transmission stations are shared sites with distribution, it may be appropriate for more enduring arrangements to be put in place for specific stations. Ultimately the approach adopted should be the one that ensures safety and system integrity and minimises overall costs to the consumer.”

“It is likely that there will be a collaborative and enduring agreement between the TSO and DSO particularly on shared sites, and potentially for some specific transmission sites, where a service would be provided by ESB for aspects of works such as:

Full Ownership Unbundling
Site maintenance, access and security
Maintaining ancillaries and/or primary plant
Attending to alarms
As required for emergency or field switching

Alternatively specific transmission service providers would be contracted to provide guaranteed emergency response on regional basis. Crews would be available on long-term contracts, fully trained and familiar with files, keys, alarm codes, site specific nuances, etc. This would be provided by the same providers delivering maintenance and capital project delivery services and could include: switching out, ensuring site is safe and escalating according to predetermined procedures. From a transitional arrangements perspective, other services could be provided by ESB for a specific period of time such as maintenance of lines/stations.”

We find it unlikely savings can be generated under arrangements in which an operator other than ESB Networks provide emergency response services. They will require a duplicate 24/7 operation to provide the field force and fault maintenance services they envisage. There is no contractor currently operating in Ireland who could provide those services, nor is it clear that it would be economic for a contractor to do so. Again, if the operator does not have the capability to switch on the HV network, then ESB crews would also need to attend.

In relation to planned maintenance, EirGrid suggest that it will pursue a deeper outsourcing model than ESB Networks currently does (see outsourcing below), and that this will result in contractors establishing a base of operations in Ireland. However, we note that ESB Networks already outsource the bulk of stage 2 construction works (between 70% and 80%), and of the remaining the area most susceptible to outsourcing is the detailed design work, which accounts for less than 10% of total project costs. The maintenance programme is a further €14 million per year. Given that contractors have failed to establish operational bases in Ireland to deliver the vast bulk of network construction activities, it is not clear that the increment of a relatively small maintenance budget and detailed design work will tip the balance.

In which case, EirGrid will be tendering services where there is potentially only one serious candidate to provide the work. While tendering can deliver benefits if there is competition for the work, in the absence of such competition tendering can lead to higher costs, particularly given that under the current arrangements such costs are regulated.

Conclusions

On the basis of our assessment set out above, we are not including any saving on maintenance activities as part of the benefits of ownership unbundling. We find that:

Full Ownership Unbundling
Ownership unbundling is not required to deliver the savings EirGrid suggest can be made as a result of changes to maintenance policies;

If operating costs can be reduced by 20% as a result of better information being provided to EirGrid, we would anticipate that CER have the ability to ensure ESB Networks provide the relevant information;

The operating model set out by EirGrid has the potential to lead to increased operating costs, depending on the options adopted by EirGrid during the transition phase.

5.1.5 Lower finance costs for developers

EirGrid have submitted that FOU will reduce developers’ costs when financing projects. They suggest that having a full programme overview through to commissioning for projects will lower the costs of projects by between 20 and 25 basis points. This is estimated to generate a saving of €6.5 to €9.3 million per year.

In subsequent submissions EirGrid suggested that:

“The current access arrangements whereby developers cannot get certainty over connection dates is posing difficulties for developers wanting to connect to the transmission system. This is largely a function of the current split accountability industry model whereby there is no body with end to end responsibility for delivery of connections or reinforcements. Following the transfer of the transmission assets to EirGrid this situation would change, putting in place a single accountability model with EirGrid in a position to ensure delivery.

Following the asset transfer, the appropriate arrangements will be put in place to provide the required certainty to developers around connection dates, firm access and constraint levels. The arrangements would include a clear commitment from EirGrid to a connection date with appropriate charges payable to the developer for delays. In addition where the firm access date is later (i.e. dependent on deep transmission reinforcements) this date can be established as the firm access date, removing from the developer the risks associated with the delivery of the transmission reinforcements.

This is only feasible under a model where the System Operator has end to end responsibility for delivery, can be held accountable, and has the resources and capabilities to deliver with full visibility over the full set of costs and system needs (incl. constraints, connection charges, system security and associated reinforcement requirements, etc.).”

In assessing the benefits proposed by EirGrid, we have considered the following issues:

Whether it is likely and/or appropriate that EirGrid would offer firm access post asset transfer; and
Whether asset transfer is required in order to deliver the benefits proposed by EirGrid.

*Is it likely or appropriate that EirGrid will offer firm access to developers?*

Project financing costs for developers are only likely to be lowered if they receive a commitment from EirGrid to a financially firm connection date – i.e. a guaranteed date at which they will start to generate revenues. Moreover, unless the date is “relatively tight” the benefit to developers evaporates.

In our view, it would be financially inadvisable for EirGrid to consider offering financially firm access prior to the grant of planning permission and successful completion of land access. To do so would open EirGrid to the prospect of potentially huge late delivery penalties or constraints payments. These penalties would have the potential to dwarf the savings developers would make, and would ultimately need to be borne by the electricity consumer in order to secure EirGrid’s financial viability. Moreover, if landowners were aware that EirGrid was exposed to potentially significant penalties in the event of delayed access to land, it is possible that the costs of land access would increase substantially, again potentially dwarfing any savings that developers could make on their financing costs.

We also do not understand why EirGrid would offer such access voluntarily, as it would receive no financial benefit from doing so, and would expose itself to the risk of incurring significant costs. We are not aware of any transmission operator who has voluntarily committed to offering firm connections with financial penalties.

If EirGrid were minded to offer such access, it is likely that the regulator would need to consider carefully the potential risks for customers before allowing them to do so.

*Is ownership unbundling required?*

Were the regulator minded to require that developers are offered some form of financially firm access with the risks to customers effectively managed, it is not clear to us that such an arrangement could not be accommodated under the current industry structure.

As noted above, it is highly unlikely that firm access would be contemplated prior to the granting of planning permission and land access. However, from that point onward, ESB Networks is responsible for the delivery of the connection/deep network reinforcements. It is not clear therefore why the CER would not be in a position to require ESB Networks to provide firm access to developers. Moreover, even if firm access were to be required before planning / land consents, connections are discrete lumpy events, and therefore responsibility

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for delay could be determined either bilaterally by EirGrid/ESB or determined by CER on a case by case basis.

**Summary**

On the basis of our assessment set out above, we are not including any saving associated with lowering developers financing costs as part of the benefits of ownership unbundling.

In our view, firm access is an issue for all transmission systems, and can largely be considered as unrelated to structural considerations. For example, the same issues have arisen in the UK, with both Ofgem and DECC carrying out reviews of the transmission access regime.

Specifically in relation to the Irish context, we find that:

- Only an offer of financially firm access is likely to reduce developers costs;
- It would be imprudent for EirGrid to offer firm access prior to planning and land access being granted – and doing so could expose EirGrid (and ultimately the customer) to significant penalties; and
- Absent regulatory direction, EirGrid would have no incentive to offer firm access to developers, as it exposes it to potential penalties with no financial upside.

**5.1.6 Benefits from a greater degree of outsourcing**

EirGrid have submitted that they will introduce competitive tendering for aspects of project delivery such as detailed design and project management for construction works which is currently carried out by ESB on a mainly in-house basis.

EirGrid submit that this outsourcing will lead to savings of approximately €16- €21 million per year. The saving is based on the assumption that, for the 30% of stage 2 work ESB currently carries out in-house, EirGrid will deliver a saving of between 15 and 20% as a result of outsourcing.

We asked EirGrid to provide greater details of the evidence supporting their estimate of the benefits from outsourcing. Over the course of a number of submissions, EirGrid put forward a range of additional evidence to support its estimate:

- Evidence of cost savings on those services EirGrid has outsourced since vesting;
- Evidence from a potential future supplier in respect of savings made under National Grid’s alliance model;
Evidence that developers are choosing to build connections contestably; and

Evidence that post-vesting, ESBI was significantly more expensive than other market providers.

With regard to evidence of cost savings, EirGrid submit that:

“To support the above estimates, a review of pre-EirGrid vesting (2006) and post-EirGrid competitively tendered framework agreement (2008) contracts was carried out. The sample of 19 projects selected pre-EirGrid vesting represented appropriately similar projects to a sample of 30 projects that EirGrid has awarded using the competitively tendered framework agreement.

Based on a rolling average equivalent man day rate analysis, a [Text redacted] direct savings potential can be observed. Further to this, since the framework agreement was contracted in 2008, EirGrid has achieved a further [Text redacted] savings from all suppliers of services.”

We asked for some further detail on how the calculations had been arrived at. EirGrid provided the following.

“The [Text redacted] savings generated on Stage 1 project works indicated in our earlier communications is based on blended contractor day rates which were derived from an analysis of projects pre and post EirGrid vesting in July 2006. It should be noted that companies working under the pressure of competitive forces will identify all potential savings opportunities and offer more efficient methods for delivering projects as part of their tender efforts.

Pre 2006 EirGrid vesting

[Text redacted]

Past 2008 EirGrid Framework Agreement

[Text redacted]

The further [Text redacted] saving provides an example of the power of competition in the area of outsourcing specifically. This was not achieved as part of the wider public sector fee reductions but rather was part of EirGrid’s drive for cost savings. EirGrid did leverage the opportunity that was presented by the public sector fee reductions as a supporting justification for these reductions.”

We understand that the 16.79% uplift is based on the Society of Chartered Surveyors construction index.

In relation to contestable build experience EirGrid submit that:

“IPPs which have chosen to build their connections non-contestably have been able to deliver them faster and at lower cost, as supported by the Dromada and Boggeragh case studies and as per the IWEA response to the standard timelines and charges decision paper. It would be erroneous to suggest that these differences are due to IPPs adopting different approaches to that which EirGrid or ESB Networks would in respect of landowner access payments. However the ESB standard timelines assume no difficult landowner issues, so the saving in time achieved by

Full Ownership Unbundling
IPPs are generally on a like-for-like basis, relating primarily to construction activities. EirGrid would deliver the construction elements of customer connections more efficiently from a cost and time perspective than a typical IPP could do.

“The selection of most IPPs, including ESB subsidiaries to contestably build their connection is a strong indicator that the current arrangements are not effective and do not offer customers the level of efficiency, certainty, and value for money that they should do. Only the single accountability model can offer this to customers.”

With regard to ESB’s alleged higher costs, EirGrid submit that “EirGrid has provided clear and compelling evidence of where ESB had higher costs than the other tenderers once competition was introduced. Over the initial period (2006 to 2008) in advance of the Framework Agreement there were six substantive projects put to tender by EirGrid. The outcome of the tender processes are listed below.

- **Castlebar-Tonroe**: 53km of 220kV overhead line with relevant station connections – the ESB tender amount was [Text redacted] of that provided by the company awarded the contract.
- **Kingscourt-Woodland**: 58km of 400kV overhead line with relevant station connections – the ESB tender amount was [Text redacted] of that provided by the company awarded the contract.
- **Nenagh South**: Station construction – the ESB tender amount was [Text redacted] of that provided by the company awarded the contract.
- **Aghada-Raffeen – Phase 1 works**: – the ESB tender amount was [Text redacted] of that provided by the company awarded the contract.
- **Aghada-Raffeen – Phase 2 works**: – the ESB tender amount was [Text redacted] of that provided by the company awarded the contract.
- **Moneypoint-Tarbert – Phase 1 works**: – the ESB tender amount was [Text redacted] of that provided by the company awarded the contract.

As can be seen above, ESB were severely uncompetitive in the provision of what were to that point ‘tied’ services not subjected to competitive pressures/forces. This improved over time as market forces drove down the costs.”

To assess the benefits put forward by EirGrid in relation to outsourcing, we have considered the following issues:

- The likely proportion of services EirGrid will outsource;
- The evidence on which EirGrid’s estimate of savings is based; and
- The extent to which ownership unbundling is required in order to deliver the benefits.
The likely proportion of services EirGrid will outsource

The first key issue we consider is EirGrid’s assertion that it will outsource all of the stage 2 work currently conducted in-house by ESB. Broadly, this breaks down to:

- Detailed design work (currently carried out for ESB Networks by ESBI);
- Project management for construction work; and
- Supply chain management.

We agree that it would be both feasible and likely that EirGrid will outsource the detailed design work. However, we believe it is less likely that either the project management work or the supply chain management work are appropriate to outsource.

Based on SKM’s review of TSO operating costs, we understand that in 2009, EirGrid had 32 capex staff and ESB is estimated to have had 174. Moreover, EirGrid capex staffing is expected to increase by 75% to 56 in order to accommodate the ramp up in the capex programme. Assuming that ESB Network’s staff will also need to increase substantially, it is likely that at the time of asset transfer ESB Networks will have well over 200 staff engaged in the management of contractors, projects and supply chain. EirGrid are suggesting that they can manage the same capex programme with around 70 staff.

Essentially, this means that EirGrid would have 56 staff engaged in delivering stage 1 of capex projects, which account for around 7% of annual capex spend, while just 70 staff would be responsible for managing the other 93% of the capex programme.

The assertion that it will outsource a significant element of the work ESB Networks currently carries out in-house in relation to project management and supply chain management would appear to suggest that ESB Networks current provision of these services is either inefficient or out of line with industry practice. However, this appears to be odds with the evidence we have reviewed.

For example, SKM in its review of Distribution operating costs noted that ESB Networks as DSO (it is appropriate to consider findings in relation to the DSO, as ESB Networks operates an integrated project management function across transmission and distribution):

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14 We note that the assumption of even 70 staff managing the capex programme, while consistent with the operating model set out by EirGrid, is inconsistent with their calculation of outsourcing benefits, which assumed that they would outsource 100% of the activities currently conducted in-house by ESB.

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“Achieved PAS 55 accreditation for its Distribution asset management practices in 2009. This followed extensive discussions with the assessors and GB based DNOs. The DSO was particularly credited for its contracting and procurement practices.”

The following extract from Lloyds Register’s report (page 3 of 42) on ESB Network’s Stage 2 Assessment for PAS 55 Accreditation, provides further evidence to suggest that ESB’s approach to project management is appropriate:

“It is evident that ESB Networks have a committed workforce who are aware of the company’s objectives. This was particularly noticeable in the development and delivery of programmes such as Siemens 38kV Stations and Lines Replacement, 20kV Conversion and LV Refurbishment. The processes undertaken from the initial identification, optioneering, prioritisation etc within Asset Management through to the delivery of the programmes by Networks Projects, including contractor management, are seen by LR as being industry best practice. In addition the delivery of new connections, operation of the system and management of faults is very well managed as is the Networks Training Facility.

ESB Networks were able to demonstrate that individual operations within their business on a functional level are effective and there is a will and desire for continual improvement. There was recognition of areas of improvement for the business as a whole and it is apparent that a considerable resource is being expended to provide continual improvement.”

ESB have also asserted that developing significant in-house competencies in project and contractor management is also critical from a safety perspective. They suggest that the following chart demonstrates the improvements in safety record they have delivered as a result of the development of their in-house capabilities.
Finally, ESB have submitted that they have experience of outsourcing greater elements of work to contractors, and have found it to be expensive. They submitted evidence that the costs of using turnkey contractors – where all elements of a project were outsourced – were approximately 20% higher than their current model.

In summary, therefore, EirGrid’s estimate of savings associated with outsourcing assumes that they will outsource all of the elements of work currently carried out in-house by ESB networks. In practice, this appears at odds with their operating model, which assumes the take on of 100 extra staff to assume the duties of the asset owner. More generally, it appears that there are good operational reasons to keep supply chain management and project management services in-house and to assume that, if they were outsourced, while savings might be delivered, it is also possible that significant additional costs would be incurred.

We therefore consider that only the detailed design work currently undertaken by ESBI for ESB Networks would be suitable for outsourcing, and therefore has potential to deliver efficiency savings.

Assessing the evidence on which EirGrid’s estimate of cost savings is based

The savings EirGrid estimates are based on two pieces of evidence:

- A comparison of pre- and post-vesting contracts; and

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Evidence of ESBI being significantly higher than winning bids for the first number of contracts awarded by EirGrid.

With regard to the comparison of pre- and post-vesting savings, the key driver of one’s view of savings is the factor used to inflate the 2006 prices. Backing out from EirGrid’s analysis, we see that in 2006 prices, the average daily rate was [Text redacted] compared to current day rates of [Text redacted].

EirGrid have assumed it is appropriate to uplift the figures by the Society of Chartered Surveyors Construction Cost Index, which suggests construction costs have increased by 16% since 2006. However, it is not clear to us that this is the most appropriate index, given that the services contracted by EirGrid were principally specialist professional services rather than construction services. Equally, if one were to seek to use a construction type index, one might consider it equally appropriate to use the construction tender price index, which records actual construction tender prices (which presumably would be what EirGrid would be receiving). That index shows that tender prices have fallen substantially since 2006.

Our preferred approach is to use the CSO’s consumer price index, in keeping with the inflation index used by SKM in relation to its review of the TSO and TAO for PR3. This shows that between 2006 and 2010 consumer prices have increased by 8.5%. Using this inflation factor, we find that an analysis of pre- and post-vesting average day rates suggests a reduction of [Text redacted].

We note also that one must be cautious in attributing all of the cost reduction to the benefits of competitive tendering, given that 2006 marked the height of the Celtic Tiger, whereas since 2008 we have been experiencing considerably more negative economic conditions. In this regard, ESB Networks have submitted that they have also achieved savings on their procurement since 2006.

Regarding the second element of EirGrid’s evidence, we sought the views of ESB Networks on the efficiency of ESBI, and also met with ESBI staff responsible for the work they carry out for EirGrid and for ESB Networks. They have submitted that:

- ESBI have won approximately 50% of EirGrid projects – in 2010 they tendered for 17 projects and won 10;
- ESB Networks commissioned BearingPoint to carry out an independent benchmarking of ESBI, which “suggests that ESBI is delivering a competitively priced service to ESB. We would suggest that a new entrant to the market would find it difficult to offer the same level of service at a lower price.”
- CER have conducted a number of reviews, and have never identified ESBI as having high costs. For example CER considered ESBI costs explicitly in relation to the Muingnaminnane dispute, and found that
“The conclusion of this review was that the use of ESBI and costs charged by ESBI to ESB Networks for this job, which are €393,196 and equate to about 6% of the total job costs, are in line with industry norms and are comparable with that which would be charged by independent consultants for this type of work.”

With regard to the specific examples cited of ESBI having excessive costs ESB Networks and ESBI have submitted that:

- [Text redacted];
- ESBI also submitted that in relation to at least two of the first three projects EirGrid has been the subject of substantial post-tender claims by the winning contractor, and that it is therefore not appropriate to compare ESBI’s price to the winning bid, but rather to the final price paid by EirGrid;
- With respect to Aghada-Raffeen 1, ESBI suggest that while this project was originally awarded to Mott McDonald, it was re-assigned to ESBI in mid-2007 to complete;
- Aghada-Raffeen Phase 2 is the responsibility of ESBN and is not subject to tender; and
- [Text redacted].

The examples provided by EirGrid in relation to ESBI’s costs suggested that ESBI’s costs were on average more than [Text redacted] more expensive than the winning bidder. This seems excessively high to be down to inefficiencies only. This is even more so given that ESBI has subsequently won between 40% and 50% of the work EirGrid has tendered. We therefore suggest it is likely that there are a multitude of factors which explain the gap between ESBI’s initial prices and those of the winning bidders in each individual project.

Equally, it is quite possible that the introduction of competitive tendering has put downward pressure on ESBI’s prices, and that the introduction of competitive tendering for detailed design work may lead to further downward pressure on its prices. [Text redacted]

We also note that in its review of DSO operating expenditure, SKM found that there appeared be scope for ESB Networks to reduce the costs of services received from ESBI:

‘ESBI’s own benchmarking indicates reasonable day rates but longer times to deliver services. In any event commercial day rates do not appear to be appropriate for enduring contracts for services that could equally be provided in-house with no added margin.’

With regard to the arguments in relation to contestable build, there are multiple reasons why IPP’s may choose a contestable route. Views put to us in this regard
include that they are less constrained by the precedent that they may set in terms of gaining land access and that they have more control over the process.

**Is ownership unbundling necessary to deliver the benefits?**

The final issue we consider is whether ownership unbundling is necessary to deliver the savings EirGrid has indicated are possible. We note that the benefits associated with outsourcing are as a result of EirGrid seeking to deliver services using a different model than that used by ESB Networks today. As such, there is nothing preventing ESB Networks from adopting the model suggested by EirGrid.

Moreover, there is nothing preventing the regulator from reducing ESB Networks allowed revenues to force ESB Networks to either significantly increase the extent to which it outsources, or to realise equivalent efficiencies internally. Given that there is nothing structural preventing EirGrid’s assumed level of savings being achieved under the current model, it would imply that the regulator will otherwise allow between €240 million and €300 million of costs to be incurred inefficiently over the next 15 years.

We believe it is unlikely that, under the current regulatory arrangements it is possible for that level of inefficiency to escape detection.

**Summary**

On the basis of the analysis set out above, we find that:

- It is reasonable to assume that EirGrid will outsource the detailed design work currently carried out by ESBI – which amounts to between 6% and 10% of total capex;

- It is unlikely that EirGrid will fully outsource the current project management and supply chain management activities carried out by ESB Networks. Moreover, we suggest if such services were to be outsourced, it is plausible that it would lead to a significant increase in costs;

- It is possible that EirGrid would deliver savings through competitive tendering – on the basis of the evidence we have reviewed this is likely to be in the order of [Text redacted];

- It is not clear that ownership unbundling is necessary to deliver the above savings – if the regulator deems that ESB Networks could deliver capex more efficiently it can reduce ESB Network’s allowed capex; and

- In consequence, we are not including savings from outsourcing in the core savings. We do however, allow that such savings might arise, and

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**Full Ownership Unbundling**
we have included a potential saving in NPV terms of between €7 million and €12 million.

5.1.7 Benefits from faster connections

In their submissions, EirGrid have submitted that under FOU, they would bring forward wind connections by approximately six months. EirGrid suggest that this would deliver the following benefits:

- A saving of 300,000 tonnes of carbon per year, which EirGrid suggest equates to a cost saving of €6.6 million per year; and
- A net reduction in electricity costs of €27 million per year (taking into account the higher associated re-fit payments).

In assessing the benefits EirGrid estimate, we have considered three issues:

- Whether the proposed time saving is achievable;
- Whether ownership unbundling is required to deliver it; and
- Whether the estimated level of benefits are reasonable.

Is the proposed time saving achievable?

EirGrid have argued that “the inherent flawed nature of the underlying split accountability industry model has meant that, even if projects could be delivered against a ‘best case’ IA timelines, delivery would still exceed that achievable under a single accountability model.

As part of EirGrid’s on-going efforts to get the best out of the current (flawed) model there was an improved process for project delivery agreed with ESB. This incorporated the learnings and experiences of four years of both parties working under the IA and represented the best case timeline that could be achieved, under the current model, for projects. This process forms the basis for the timelines in the CER decision paper on Standard Transmission Charges & Timelines (CER0977) to be achieved.

“As can be readily seen [from the Role Activity Diagrams (RADs)] there are multiple handovers, cross-overs, dependencies and potentially endless loops for review and approval at various stages of the process with large volumes of documentation that must be agreed between the parties to complete a project. Under this model it is clearly evident that delays and overruns will be inevitable with nobody responsible for either and the customer suffering with higher costs and delayed delivery.”

EirGrid have submitted that two months could be saved by streamlining the process of pre-Project Agreement by eliminating the following:

- Issue & acceptance of initial and final CPP;
- Issue & acceptance of initial and final PIP and programme;
- Review\clarification\dispute of specifications;

Full Ownership Unbundling
ESB Networks obtaining capital approval (as this would be done as part of the initial CA); and

Issue and execution of Project Agreement between ESB and EirGrid.

They submit that a further four months could be saved by streamlining the process post-Project Agreement by:

- Detailed design for non-contested works would be completed earlier while awaiting grant of planning permission. This cannot happen at present as ESB Networks cannot carry out detailed design until it has received internal Capital Approval for the construction project. Capital approval alone takes several weeks. Under the single accountability model this would be possible as part of the seamless delivery of design consultancy services outsourced to a single provider for the duration of the project delivery (this will deliver a further number of months savings);

- Issue of detailed design for comment to be completed in advance of planning grant;

- Construction would be seamless and EirGrid would have full control of deliverables and programme;

- Elimination of ESB duplication of due diligence;

- Elimination of ESB duplication of supervision and witnessing of pre-commissioning;

- Elimination of ESB duplication of lists of snags;

- Elimination of ESB duplication of walk-through on site and consensus of completion of snags;

- Scheduling and advising EirGrid of commissioners prior to informing the customer (this would be the responsibility of EirGrid and would become a far more transparent activity as EirGrid would be aware of the Customer’s requirements and would schedule commissioners accordingly).

EirGrid have provided a range of detailed submissions setting out the basis on which a 6 month additional saving in connection times would be possible. This includes:

- Detailed RADs identifying where savings could be made against the current arrangements;

- Case studies of contested connections showing where savings have been made against the standard timelines;
A case study of the EWIC, demonstrating significant time savings;

A letter from Mott McDonald in which they have reviewed EirGrid’s proposed time savings and find them reasonable based on their experience of similar projects in England and Ireland.

The bulk of the savings generated under EirGrid’s proposed approach arise as a result of the commencement of detailed design and procurement prior to receipt of planning permission.

ESB have provided the following response to the proposals set out by EirGrid:

“These proposals contravene all established standard project planning processes and rather than achieving reductions in connection times could result in additional costs and longer connection times associated with re-working of designs due to inadequate scoping at an early stage and pre-empting planning permission decisions.

It is not possible to reduce connection times by 6 months without compromising the process. Given that the average Transmission project involves expenditure of several million euro it is essential that rigorous project management processes are employed to deliver it.”

Commencing detailed design work before planning permission

“The only way that civil works could start one month post award of Planning Permission is for detailed design to commence prior to grant of planning. This is possible; however, it introduces the risk of stranded effort in relation to changes introduced by denial of planning permission or conditions attached to Planning decisions.

The reference to a reduction of 4 months must, we assume, be based on eliminating the outline (scoping) stage of the process (as this takes 4 months under the IA). It contradicts all basic good project management models to consider such an approach. Effectively it would involve detailed design being undertaken based on the CPP, which by definition is a high-level description of the project. The purpose of the scoping stage is to ensure that significant issues are identified for the project at an early stage and that a high-level programme and costs are identified. Detailed design without these prerequisites can result in significant re-work, scope creepage and inefficient programming given there are multiple projects to be managed at any time.”

Better co-ordination of commissioning

“It is not at all clear how there could be better co-ordination of commissioning and outages if EirGrid were dealing with a third party contractor rather than ESB. The current model whereby ESB is responsible for both Distribution and Transmission work provides the ability to provide flexibility across both programmes. This has resulted on many occasions ESB providing commissioning resources at short notice for IPP projects that were available due to distribution projects being ongoing. A third party contractor would have no such ability.

ESBN believe that the current process between ESB and EirGrid could perhaps be improved somewhat in relation to this issue by better communication between EirGrid with the IPP so that all parties are aware of required timings.”

Full Ownership Unbundling
Eliminate final CPP and PIP and reviews/clarifications on specifications

“As with all of these proposals this proposal could be implemented immediately (without asset transfer). However, again it would be contrary to proper project management processes. Eliminating the final CPP/PIP would result in there being no clarity as to final requirements for the detailed design to be based on. Eliminating review/clarifications on specifications would simply result in delays further downstream in the process when issues would eventually arise. Again it represents a very short sighted approach to the overall process.”

Eliminate the need for ESB capital approval

“It is correct to say that there would obviously be no need for an ESB capital approval under this process. However, irrespective would who the provider is a capital approval will be required as part of the process. Therefore, under these proposals the third party contractor will require an equivalent internal approval for the significant spend involved on these projects as part of standard good financial practice.”

Eliminate the need for Project Agreements

“A Project Agreement is a one page document based on a standard template. It takes less than an hour to prepare and then a couple of days for EirGrid to sign and return. It can be eliminated from the process if required, however it will not impact on the connection time.”

Summary

“In summary our concern with this proposal is that it represents a high risk, unclear scopes, design as you go approach to major project delivery, which can only result in increased costs and increased time lines. Given that Grid 25 represents €4b in capital expenditure then ESBN would have serious concerns with the proposed approach.”

In response to one of the key issues raised by ESB, that early commencement of detailed design and procurement could lead to unnecessary costs being incurred, EirGrid provided the following response.

“In the context of advancing critical path items in parallel with Planning Permission the main elements are detailed design, planning resources, advancing initial stages of procurement and/or the ordering of standard or reusable materials. It is less usual for it to be necessary to purchase bespoke materials at this time but where it is appropriate it would be done on the basis of an appropriate risk assessment and with mitigation strategies in place (an example is in the case of EWIC manufacturing slots which were pre-booked for cable manufacture as this is in limited supply – but the cable manufacturing did not commence until all main consents were in place. This significantly de-risked the overall project costs and timeline). There is a minimal risk of costs relating to the reworking of some detailed design if modifications to planning are required, furthermore there are no records of projects being abandoned due to unsuccessful initial planning application. Projects generally go forward largely based on the format of that which was originally applied for. Where customer connections are concerned, costs relating to the advancement of detailed design and procurement work may be indemnified by the developer which further helps to mitigate against risk.
Even a preliminary review of potential control and mitigation strategies available to deal with risks associated with project delivery, particularly where works are carried out in advance of receipt of planning consent, clearly shows that such risks are entirely manageable as part of normal project management processes. The table below (provided by Mott MacDonald) provides an example of the types of control measures that could be utilised to eliminate or minimise such risks. In summary the risk of stranding, once properly managed and with full control and visibility of all of the issues and mitigations, is largely eliminated as a risk factor.”

**Figure 3. Approach to risk management**

<table>
<thead>
<tr>
<th>Risk Description</th>
<th>Initial Cost Impact</th>
<th>Control Measures</th>
<th>Residual Cost Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site purchased but planning not granted for construction of asset</td>
<td>High</td>
<td>Ensure that land is purchased subject to planning consent being obtained</td>
<td>Low</td>
</tr>
<tr>
<td>Plant procured but not required where planning permission is not granted.</td>
<td>High</td>
<td>1. Specify and purchase standard equipment that can be used elsewhere on the network</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Order only long lead items necessary to meet the accelerated programme</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Enter into term contracts with manufacturers to shorten lead times</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Place equipment orders following positive feedback from local authorities (or after oral hearing stage for SIB projects during planning application review phase)</td>
<td></td>
</tr>
<tr>
<td>Abortive Design and Management Fees due to changes following planning decision</td>
<td>Medium</td>
<td>1. Set up flexible design contracts with agreed unit rates.</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Only commence the design work necessary for critical path items</td>
<td></td>
</tr>
</tbody>
</table>

Essentially, there appears to be no disagreement between EirGrid and ESB Networks as to the technical feasibility of the proposals. Rather, the disagreement appears to relate to the level of risk involved in EirGrid’s proposed approach, and the extent to which it will lead to wasted costs and resources that will ultimately be borne by the electricity consumer.

The key issue for our analysis is whether, ultimately, under an ownership unbundling regime, it is likely that connections will be delivered faster. In this regard, in addition to the above arguments put forward by ESB and EirGrid, we have considered the following factors.

- **Track record in delivering renewable energy connections** – the CER’s August 2010 newsletter provides an update on the progress of renewable connections. It states that “the amount of renewable generation has increased
dramatically in recent years, from approximately 600 MW in 2004 to about 1,700 MW by mid 2010. This increased connection of renewable generators means that about 15% of Ireland’s electricity consumption now comes from renewable sources. This is ahead of EU targets for Ireland and means that, for a small network, Ireland is now becoming a world leader in wind power”. It also states that “CER is pleased to report that the Gate 3 offers are issuing to schedule and the Gate 3 project is on track”.

- **The key causes of delay historically** – As set out in the CER’s PR3 document, the key drivers of delay in the delivery of transmission infrastructure investment have been in relation to planning and land access. “Opposition from landowners to new construction, particularly of overhead lines, has led to lengthy delays or even the inability to build transmission projects. This has meant projects identified as part of PR2 and accounted for through allowed PR2 capex were simply not completed or were severely delayed.” This finding is in keeping with experience in other jurisdictions where planning and land access are the key drivers of delayed transmission investment.

- **The views of market participants** – we discussed the connections process with a wide range of market participants. There is considerable frustration at the current arrangements, and in particular, a sense that at times it can be difficult to get full co-operation from ESB and EirGrid. However, most participants agreed that the key barriers to transmission capex were to be found in relation to planning and land access.

- **(High level) comparisons with outcomes in the UK** – in the UK there have been reviews by both Ofgem and DECC to try to speed up the network connections process. While National Grid does not publish detailed indicative timelines, in a number of documents they suggest that a new connection can take between 2.5 and 3.5 years.

- **Incentives** – currently, EirGrid would have little incentive to incur the additional risk and costs associated with the changes it proposes. In consequence, if the CER were to find that the potential increased costs and risks were offset by the potential benefits of faster connections then it would need to offer incentives to EirGrid to incur such risks and/or penalties in the event that EirGrid were to fail to meet its targets.

Overall, it seems clear that the benefits proposed by EirGrid are technically feasible. The key issue relates to the extent to which the proposals are likely to incur higher risks of stranded costs which ultimately will be borne by the customer. Ultimately, this would be a judgment for CER to make, as it would need to both authorize the changes and put in place appropriate incentive arrangements.
More generally, we note that Ireland has a strong record of delivery, has met its interim targets and is on course to meet its 2020 targets. The key challenge to delivering those targets, and the key risk factors are likely to remain planning and land access. As has been seen in recent months, these issues have the potential to cause delays in major infrastructure projects that dwarf the potential time savings associated with changes to the connections process.

Is ownership unbundling necessary to deliver the benefits?

The second key issue we consider is whether ownership unbundling is necessary to deliver the proposed changes EirGrid has outlined. There is obviously some duplication that would be avoided under FOU. However, our understanding is that there is nothing to prevent the adoption of those elements of EirGrid’s proposal that deliver the bulk of savings – the commencement of procurement and detailed design prior to receipt of planning permission.

Moreover, we note that in relation to procurement, under the current arrangements ESB Networks have a standing agreement with CER to allow them to procure in advance standard materials for projects that are progressing through the various stages of planning. These materials are capable of being redeployed to any project should delays or refusals happen. Such materials would include for example transformers, circuit breakers, pylons etc.

In relation to strategically important one-off projects, for example Cork Harbour, ESB Networks has also procured materials in advance. In that case, the materials concerned were non-standard, namely HV sub-marine cable and associated specialist installation services (e.g. a ship to lay the cable, specialist sub-marine jointing etc). In this example, a specific approach was made to CER to place the order in advance of permitting being completed.

However, ESB have signaled significant opposition to EirGrid’s proposals – on the grounds that, in ESB’s views they are likely to impose significant additional costs, and circumvent appropriate project management practices:

"None of the proposed changes outlined above are in any way contingent on Transmission Asset ownership. They are entirely dependent however upon the agreed regulatory process and therefore if such changes were to be made they could be made now without any change in asset ownership but would require CER approval to cover the risks introduced to the process.

All of these changes could be made now and do not require a change in the asset ownership. They would however, represent retrograde changes in the process without guaranteeing the promised reductions in connection times.”

The exception is in relation to Capital Approvals, whereby ESB suggest that: “At present EirGrid get capital approval for their Stage one costs prior to issuing the Connection Agreement. ESBN cannot see why the process cannot be changed now to gain capital approval.
post issuing the Connection Agreement. ESBN would favour such a change as it would reduce the connection process time somewhat.”

Our assessment, therefore, is that the bulk of the changes suggested above could be delivered under the current arrangements. However, it is highly unlikely that they would be delivered in the absence of regulatory intervention by the CER. In this regard, we asked EirGrid whether it had made the above proposals to the CER as part of the CER’s review of standard timelines. Our understanding is that EirGrid did not make such proposals.

**What level of benefits could reasonably be associated with faster connections?**

In this section we consider the benefits EirGrid estimate would be associated with faster connections.

Before considering the two benefits in detail, it is worth noting a couple of points regarding EirGrid’s calculation. EirGrid’s calculation is based on the assumption that 360 MW of wind per year will need to be connected in order to meet Ireland’s 40% renewable target. They also assume that ownership unbundling will lead to the full 360 MW of connections being brought forward by 6 months in each year. It is important to note that:

- The contestability regime may allow developers to avail of faster connections, if increases are possible and if the local works are on the critical path;
- A significant proportion of wind capacity will connect on to the distribution network for example, considering current connected and contracted wind farms, we see that 53.7% are connected to the distribution network;
- While deep re-enforcements may be needed for the above, as discussed above, it is likely that the key drivers of timing for the deep re-enforcements are likely to be planning and land access.

Overall, therefore, we are of the view that, leaving aside the assessment above, EirGrid’s calculations over-estimate the likely volume of capacity that could be brought forward.

The key benefit they estimate relates to an annual reduction in production costs of €27 million net of subsidy payments. ESB have disputed strongly that one can predict the savings that will come from higher wind penetration, and argue that given reductions in fuel costs it may well be the case that higher wind penetration leads to higher costs:

“It is anticipated that a high penetration of renewable intermittent generation within the wholesale power pool (SEM) will exert downward pressure on wholesale market price; partly due to the carbon proportion of the clearing price (SMP) reducing. The impact of this under the...
design of the current market arrangements will likely see a significant reduction in conventional generators pool revenue streams. However, a high level of conventional generation will still be required to provide back-up to this intermittent generation and to provide other key services in support of system stability and security of supply. These conventional generators will require to be fairly and adequately remunerated for the services that they provide to the market and for the investments that they have undertaken over time in response to overall power system requirements. As such, analysis of the operation of the SEM together with the effectiveness of the wider set of remuneration mechanisms outside SEM, (energy, capacity and ancillary service payments) will be required to ensure that overall conventional generation remuneration can be realigned with the services that will be provided in an evolving wholesale market of high levels of intermittent generation.

Both the All-Ireland Grid Study (Jan 2008) and a multi-client Pyory study on the Implications of Intermittent Generation in Ireland (May 2009) illustrate the complexities of assessing the effect of renewable generation on electricity prices, but it is clear that fossil fuel prices (namely gas) has a determining effect. Given existing near-medium term outlook for gas and carbon prices, it is reasonable to assume that with the benign (carbon and gas) prices forecast, increasing the penetration rate of RES-E above existing planned rates would be costlier for Irish electricity consumers. Indeed it could be argued that in so doing, a subsidy is being handed to other CO₂ emitters within the EU ETS (reducing demand for EUAs and therefore lowering the price), at a time when the price of carbon is relatively cheap.”

To assess this estimate of benefits, we have considered the ESRI’s most recent independent analysis of the impact of connecting high levels.15 They find that the benefits of higher levels of wind penetration depend critically on:

- The level of interconnection with the UK market;
- The evolution of oil and gas prices;
- The level of carbon prices; and
- The evolution of plant portfolio in the UK.

They conclude that more wind up to 6,000 MW is good for consumers and for the economy with medium or high fuel prices. Similar results hold where carbon prices are high. However, they also note that more wind will only reduce system costs if combined with 1,900 MW of interconnection. They also note that high penetrations of wind can act as a useful hedge against the risk of high fuel costs in the future. Finally, they note that there are concerns that revenues to fossil-fuelled plants might not be adequate to sustain investment in a deregulated market.

15 ESRI Working Paper No 334 “The likely economic impact of increasing investment in wind on the island of Ireland”.

**Full Ownership Unbundling**
Our conclusions from this study are that there are a number of significant variables – beyond the control of EirGrid – and difficult to predict \textit{ex ante} that will determine whether or not the faster connection of wind on the system results in lower production costs.

We note that this is not meant in anyway to cast doubt on the merits of Ireland’s renewables targets, which are critical to delivering Ireland’s long term climate change commitments and to facilitating Ireland’s security of supply objectives.

EirGrid also estimate that, if connection times were reduced by 6 months, there would be a reduction in carbon emissions of 300,000 tonnes, which can generate quantifiable savings of €6.6 million per year.

First, faster connections of wind, while reducing Irish emissions will not lead to any net reduction in emissions. This is because the electricity industry forms part of the traded sector that is covered by the EU ETS. Under the EU ETS total EU emissions are set by the cap which has been fixed out to 2020. In consequence, while Irish emissions may reduce, they will be offset by higher emissions in other member states.

Second, as a signatory to the Kyoto Protocol from 2008-2012 the Irish Government has an obligation in respect of all emissions released in Ireland. However, Ireland cannot meet its Kyoto obligation more easily (or at lower cost) by exceeding emission reduction targets in the traded sector and transferring the benefit attained to the non-traded sector; by the avoidance of more expensive abatement and/or purchase of carbon offsets to meet the obligations of the non-traded sector (agriculture, transport, residential). This is because the traded sector emission levels that are recorded in the Irish greenhouse gas registry are the number of EUAs issued as specified in the Irish National Allocation Plan (pre 2012), and not the actual emissions.

Finally, it is possible that Irish electricity producers may hold EUAs that they no longer require, and they will be able to sell these allowances in the market. It is not clear that the proceeds from the sale of permits would be passed on to consumers, rather it is likely that they would be retained as windfall profits. While it could be argued that some of the windfall profit will return to the state, as it is the largest single shareholder in the electricity sector, one would also need to net off any losses those producers suffered as a result of their plant running less frequently (i.e. the source of their surplus permits).

\textbf{Summary}

This section has assessed the potential for ownership unbundling to lead to faster connection times, and the subsequent associated benefits. We find that:

\begin{itemize}
  \item Relative to experience in other countries, Ireland has a strong track record in delivering renewable capacity, we have met the interim targets
\end{itemize}
of 15% and the CER reports that we are on course to meet the 2020 targets;

- To date the key issues in terms of delay to transmission investment have been around planning and land access, as is common in other jurisdictions – it is difficult to see that such delays would be addressed by structural changes;

- EirGrid’s proposals for faster connections appear technically feasible – the key debate is in relation to the level of additional risk of stranded costs it imposes, where there is a profound difference of opinion between EirGrid and ESB Networks;

- There is no barrier to the changes being made under the current arrangements, however, the implementation of such changes would require a regulatory decision given ESB Network’s profound objections. In this regard, we are somewhat surprised that proposals for the early commencement of detailed design and procurement were not put to the CER as part of its review of the standard costs and timelines;

- EirGrid appear to have over-estimated the volume of capacity it can connect more quickly, given that more than 50% of connected and contracted capacity is connected on at distribution, and that IPPs have the potential to build contestably;

- The potential reductions in system costs depend crucially on the evolution of electricity demand, fuel prices, carbon prices, interconnection and UK generation investment – while achieving higher levels of wind connection may deliver benefits, and can act as hedge against high fuel and carbon prices, one cannot say with certainty that such benefits will materialise. Moreover, the ESRI findings that wind would reduce costs were predicated on significantly higher levels of interconnection being in place; and

- While faster connections of renewables would reduce Ireland’s emissions, they will not reduce EU level emissions, as these are set for the traded sectors with reference to the overall EU ETS cap. Similarly it is not clear that reduced carbon emissions in Ireland can be translated into a direct financial benefit.

On the basis of our assessment set out above, we are not including any saving associated with faster connection times.

### Summary of findings in relation to quantifiable benefits

The previous sections have set out our assessment of the potential quantifiable benefits of ownership unbundling. These are summarised in the table below.
Table 3. Summary of quantifiable benefits associated with ownership unbundling (NPV)

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Level of saving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced duplication of effort</td>
<td>€26 million</td>
</tr>
<tr>
<td>Lower constraints costs</td>
<td>€48 million</td>
</tr>
<tr>
<td>Capex efficiencies</td>
<td>€29-58 million</td>
</tr>
<tr>
<td>Potential benefits from outsourcing</td>
<td>€7-12 million</td>
</tr>
<tr>
<td>Total</td>
<td>€110-€144 million</td>
</tr>
</tbody>
</table>

Of the benefits set out above, we believe that the most certain relate to reduced duplication of effort and lower constraint costs. However, we believe it is also very likely that ownership unbundling will lead to capex efficiencies of 1%. We believe it is possible that capex efficiencies of a further 1% could arise. We believe that the benefits from outsourcing are more speculative, and that there are no obvious barriers to the CER reducing ESB Network’s allowed revenues accordingly if it were to find that such benefits exist.

Additionally, ownership unbundling may provide additional benefits associated with faster connections. However, we believe that there are so many exogenous factors that will determine whether such benefits will arise that we consider it inappropriate to include them here. Obviously, if faster connections were realised this would result in less carbon being emitted in Ireland, and EirGrid have reasonably costed the social benefit of this as being approximately €7 million per year. However, due to the workings of the ETS, net European emissions will not be reduced, rather they will merely be displaced from Ireland to another jurisdiction.

In consequence, our central estimate is that ownership unbundling would deliver benefits with a net present value of **€103 million**, with possible additional benefits of €41 million.

Finally, it should be noted that we have assumed that the full benefits of ownership unbundling will be delivered from the point of asset transfer, and unlike EirGrid, we have not assumed any learning curve effects, such that the levels of benefits are reduced in initial years.

Full Ownership Unbundling
5.2 The quantifiable costs of ownership unbundling

This section of our report sets out our assessment of the costs that are likely to be incurred as a result of ownership unbundling. In particular, we cover:

- Transaction costs;
- Business restructuring costs;
- IT costs;
- Logistical and geographical presence costs;
- Loss of scope and staff costs;
- Transmission and distribution interface costs;
- Physical unbundling costs;
- Costs associated with EirGrid’s proposed operating model;
- Insurance costs;
- Finance costs; and
- ESOP compensation.

5.2.1 Transaction costs

While ESB and EirGrid differ on the make up of the transaction costs, they agree that the costs are likely to be in the region of €5-€8 million. Assuming an asset value of €1.8 billion at transfer, this equates to transaction fees of between 0.25% and 0.4%, which would appear reasonable.

In NPV terms, we assume that the transaction costs associated with ownership unbundling are between €5 million and €7 million.

5.2.2 Business restructuring/readiness costs

ESB have estimated that business restructuring costs for EirGrid, covering areas such as legal, treasury, purchasing etc. would amount to €13.5 million.

ESB have also estimated that there are overhead based charges which are currently absorbed into the transmission business which will instead have to be allocated to the distribution business. ESB submit that precedent suggests that such costs will be allowed for a period of three years. The cost of these charges is estimated at €1.1 million per year.

EirGrid have assumed business readiness costs of €7 million. Within these costs they have assumed:

- Consultancy services procurement;

Full Ownership Unbundling
Business change programme management;
- Business processes;
- Enhancement of EirGrid’s asset related risk and review framework;
- Asset management capability and improvement planning;
- Capability development, organisation and people;
- HR and Tupe.

With the exception of HR and Tupe costs, we suggest that the areas EirGrid have allowed for appear reasonable.

While we have not been provided with any detailed cost breakdowns by ESB or EirGrid, we have included the following in our assessment:

- ESB’s overhead costs of €1.1 million per year for three years.
- ESB’s assumed business readiness costs of €7 million; and
- ESB’s overhead costs of €1.1 million per year for three years.

In NPV terms, this amounts to just over €9 million.

5.2.3 IT costs

Both ESB and EirGrid assume that EirGrid will need to invest significantly in IT, and will incur increased ongoing costs. However, there is considerable disagreement over the quantum of IT costs.

ESB, based on their recent experience of developing new IT systems for the transmission and distribution business suggest that the capital costs are likely to be in the order of €20-€25 million, and when support costs are factored in, the total NPV of IT costs are in the order of €50-€65 million.

EirGrid have assumed capital costs of €13 million, including a 20% contingency, and ongoing costs of €1 million per year. In NPV terms, EirGrid’s IT costs amount to €21.4 million.

We have no basis of expertise to judge the appropriateness of the costs put forward by ESB or EirGrid.

For the purposes of this analysis, we are assuming IT costs can be delivered in line with EirGrid’s cost estimates. However, we note that this looks low relative to ESB’s experience. We are assuming an NPV cost of over €21 million.

5.2.4 Logistical and geographical presence costs

EirGrid have assumed annual costs of €3.5 million to cover:

- Reduced synergies due to resources no longer covering both transmission and distribution work in the areas of finance, stockholding etc.;
Costs of spares, stockyards and logistics;
3 regional offices; and
Training of field staff, vehicles for crews, tools and comms systems.

ESB’s estimates of costs for these services are broadly similar.

In NPV terms, therefore, we have assumed costs of €34 million associated with asset transfer.

5.2.5 Loss of scope and staff costs

EirGrid have assumed no costs against this category. They have assumed that:

- There will be a limited number of staff transfers from ESB Networks, and that there will be no transfer compensation payments;
- There will be no net increase in industry staff – i.e. there will be no loss of scope economies in relation to core opex and capex activities; and
- There will be no redundancy costs in ESB Networks – ESB will be able to costlessly re-allocate staff currently working predominantly on transmission activities.

ESB have assumed that:

- There will be significant staff transfers to EirGrid from ESB in the region of 200-245, and that precedent from EirGrid’s formation was a transfer incentive payment of €40,000;
- EirGrid will require an extra 75-110 FTEs to deliver its PR3 programmes, reflecting the loss of synergies between transmission and distribution; and
- ESB will be faced with a stranded resource of 100 staff.

ESB have estimated the costs of the above to be between €70 million and €90 million.

Our understanding is that there are currently the equivalent of 240 FTEs engaged in transmission work in ESB Networks. By the time of asset transfer, given the ramp up in capex under PR3 this is likely to be over 300 staff. Moreover, in terms of the totality of staff engaged in transmission work, ESB have estimated that in 2009 over 1,000 network technicians delivered over 200 work years.

Given that EirGrid have not outlined a detailed operating model, and given that there have been no discussions with staff it is difficult to estimate likely levels of HR costs and loss of scope economies associated with the transfer of assets. At one level, it would be possible for EirGrid to acquire the assets but arrange...
contracts such that ESB Networks continues to deliver the same breadth of activities.

However, this is clearly not going to be EirGrid’s approach. They have signalled that they will increase their staff by around 90 to 100 and outsource more of the work currently undertaken by ESB. We have signalled elsewhere in this document that we believe that that level of staff increase is likely to be an underestimate. However, if we assume it is accurate, it is also likely that we can conservatively assume that, given the type of resources and experience EirGrid will be seeking, at least half of those 100 staff will transfer from ESB Networks – i.e. 50 staff transfer. Given the precedent that was set with the original establishment of EirGrid is difficult to see how staff transfers would not be associated with some form of payment.

Whether a payment is made, or if so how much, will be a matter for negotiation. Whereas precedent from the previous staff transfers was a payment of €40,000, a number of factors are now different. First, at the time of the original transfers, EirGrid was a new entity, whereas it is now an established system operator. Second, the general economic conditions were considerably more favourable in 2006 than they are today. For the purposes of estimating potential cost, we have assumed that the payment level would be the same as for the original transfers.

The second issue is whether ESB can costlessly re-allocate the remaining 250 staff to other parts of the business. In this regard EirGrid have pointed to ESB’s strategic investment plan, and the likely employment growth it will create to suggest that such costless re-allocation is possible. ESB suggest that the majority of those jobs created will be contract rather than permanent positions, and that there will be differences in skill mix. Our view is that while many of the staff may be re-allocated relatively costlessly, the skill mix and geographic spread of affected staff mean that it would be prudent to assume some severance costs. Assuming 20% to 30% of the remaining 250 staff cannot be reallocated, and accepting the severance costs put forward by ESB, gives rise to estimated NPV costs of €12 million to €19 million.

With regard to synergy losses, again this largely depends on the operating model chosen by EirGrid. If EirGrid chooses not to acquire HV switching capabilities from ESB Networks as part of the asset transfer, and chooses to outsource planned maintenance and elements of fault maintenance and field operations, we suggest that it would be prudent to assume that such an operating model is likely to increase costs over and above the current arrangements. We find it difficult to see how the outsourcing of maintenance activities to a third party contractor can do anything but add to the costs when compared to the provision of the same

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16 The severance costs put forward are lower than those identified by SKM in its review of the DSO’s operating costs. SKM suggested that ESB had incurred severance costs of €135 million which contributed to net staff reductions of 287.

Full Ownership Unbundling
services by an existing Network operator with an established 26 county presence. To be conservative, we assume that the potential loss of synergy could range from 0 to 5% of current maintenance costs, depending on the precise operating model chosen by EirGrid. In NPV terms, this amounts to a cost of between 0 and €6.7 million.

We believe it would be imprudent to assume that there will be no HR costs associated with such a substantial industry restructuring. While we believe that the costs of such a restructuring can be kept significantly lower than those estimated by ESB, we have included NPV costs of between €13 million and €26 million.

5.2.6 Transmission and distribution interface costs

We consider it appropriate to include a cost to cover the costs associated with managing the ongoing interface between transmission and distribution. In our view, in the event of asset transfer, there is likely to be significant ongoing interaction between EirGrid and ESB Networks. For example, these are likely to include:

- Ongoing interaction in relation to maintenance and development of shared sites and assets;
- Close interactions to ensure the effective development of SMART networks;
- SLAs between EirGrid and ESB Networks for the sharing of data.

However, we consider that this interface is likely to require less resource to administer than the current IA. Given that EirGrid estimate that the current IA results in annual administration costs of €1 million, we have assumed a cost of €0.5 million per year to administer the newly created transmission and distribution interface.

In NPV terms, this amounts to just under €5 million.

5.2.7 Physical unbundling costs

ESB Networks have submitted that EirGrid are seeking the physical unbundling of new stations at the 110kV level with a view to future ownership of the transmission assets. They submit that the costs of physical unbundling are likely to be in the region of €1 million per station.

We put ESB’s submission to EirGrid, who have suggested that in the event that physical separation is expensive, they will not seek to implement it.

We consider that physical unbundling is not a cost that must necessarily be incurred as part of ownership unbundling. While we accept ESB Network’s view that if it were to be required it would be expensive, we do not believe such costs

Full Ownership Unbundling
need to be incurred, nor do we believe that the CER would allow them to be incurred.

In consequence we are assuming that there would be no additional costs associated with physical unbundling as part of ownership unbundling.

ESB Networks also submit that EirGrid will need to receive an additional 15,000 asset condition signals that are not currently provided to the NCC. They suggest that the cost associated with commissioning and testing the alarms will range between €1 million and €5 million, depending on whether EirGrid seeks to utilise DSO RTUs or install additional TSO RTUs. While EirGrid accept that additional EMS data which might be defined as part of the asset transfer process would require testing and commissioning to be carried out between the two control centres, they suggest that this is not expected to be difficult or resource intensive. EirGrid subsequently provided a letter from Areva suggesting that the additional data points could be incorporated as part of normal business.

On the basis of the above, we are assuming that there would be no additional costs associated with the provision of additional signals to the National Control Centre.

5.2.8 Costs associated with EirGrid’s outsourcing model

ESB have submitted that EirGrid’s proposed deep outsourcing model, and in particular their proposal to outsource project management and supply chain management services have the potential to lead to increased capex costs of up to €200 million.

We have addressed extensively above the potential for EirGrid’s model to deliver benefits. While we accept that ESB Network’s experience of turnkey contracting was that costs were higher by 20%, we do not believe that this provides sufficient evidence to include costs of that level as a cost of ownership unbundling.

5.2.9 Insurance costs

ESB have submitted that for EirGrid to obtain like for like cover they would face an additional €0.4 million per year above the ESB premium.

We note that ESB have provided no detailed breakdown of insurance costs, nor have they provided any evidence in support of this proposed cost. We cannot see any reason why EirGrid should face a higher cost than ESB Networks.

We have therefore assumed that there will be no additional insurance costs as a result of ownership unbundling.
5.2.10 Finance costs

One of the key issues to consider in respect of the proposed transaction is the potential impact on the finance costs of ESB and EirGrid, and more generally on the financial strength of the two entities.

The assessment of financial impacts depends largely on the structure of any transaction. Our understanding is that no policy decision has been reached as to what the structure of the transaction will be, and we have not received any direction in terms of the structure to consider in relation to the transaction.

Consequently, in assessing financing costs, we consider two scenarios:

- A transaction at fair market value, with an outside equity injection into EirGrid; and
- A transaction at 50% of RAB at time of vesting.

A fair market value transaction

Assuming that planned capex spending goes ahead to schedule, and an asset transfer date of January 1 2013, the RAB at time of transfer will be between €1.7 million and €1.8 billion.

Fair market value is likely to require a premium on the RAB of up to 20%. Therefore, the purchase price of the assets, at time of transfer would be between €1.7 million and €2.1 billion.

Below we consider the impact of such a transaction on both EirGrid and ESB. We assess the impact against four criteria:

- Impact on existing financial covenants;
- Impact on ability to achieve an A credit rating;
- Impact on ability to operate at financially prudent levels; and
- Ability of the regulator to apply appropriate incentives.

Impact on EirGrid

In addressing the four criteria set out above, the key issue under consideration is the level of debt EirGrid could take on relative to the equity injection it would require to fund its investment programme, while still maintaining its financial covenants, and ability to achieve an A rating.

Full Ownership Unbundling
Given EirGrid’s proposed structure of 50% of RAB, our starting point is to consider the implications for EirGrid of it financing 50% of RAB through debt and seeking an equity injection for the remainder. Assuming a RAB of €1.8 billion at transfer, under this scenario EirGrid would then require an outside equity injection of between €900 million and €1.3 billion. As noted above, we have not been instructed as to the likely form of the transaction, or whether such an equity injection would be forthcoming.

EirGrid have provided us with a number of financial analyses, based on different assumptions. Below we reproduce the most relevant of the scenarios provided to us by EirGrid\(^\text{17}\). This is based on the following assumptions:

- a WACC of 5%, consistent with PR3 proposals;
- an interest rate of 5.2%, being real rate of 3.2% and a 2% assumed inflation;
- assumed capex of €1.45 billion in the period, with full profile consistent with Grid25;

\[\text{[Text redacted]}\]

EirGrid have indicated that they would initially seek to fund the transaction with recourse to bank finance, and would be unlikely to seek a credit rating and bond financing for 2-4 years after asset transfer.

\[\text{[Text redacted]}\]

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\(^\text{17}\) Note, in the table below, the assumed RAB is €1.8 billion
In addition to the consideration of financial metrics, it is important to consider that EirGrid is a relatively new company, which has not yet had the opportunity to establish a reputation and track record in the markets. To date, it has had low borrowings – with the exception of EWIC – and a relatively light balance sheet. Moreover, it does not yet have a track record in relation to the successful completion of large scale network infrastructure projects.

Against this background it will seek to borrow – in addition to the initial €900 million – a further €1.8 billion over the next 10 years, to carry out an investment programme on an unprecedented scale.

Finally, we note that, if EirGrid do not intend to securitize the assets, then the use of bank finance only is likely to mean the term of the loan will be short. This has the potential to result in an asset and liability term mismatch. It is prudent (and assumed in regulatory price reviews) that long term funding is used to finance such long term assets. Moreover, we note that ratings agencies also look for staggered debt repayment profiles over a relatively long term and single repayments exhibit unnecessary refinancing/liquidity risk.

Given the assessment above we believe it would be difficult to assume that EirGrid would achieve an A grade rating if it were to take on debt of 50% of the RAB value.

While we cannot say with certainty what rating EirGrid would achieve, we consider it plausible that it is more likely to be in the region of BBB. This, of course, would have implications for the cost of debt facing EirGrid, [Text redacted].

Analysis by Europe Economics for Ofwat suggests that while the difference in terms of cost of debt between an A grade and a BBB grade varies a lot over the cycle, a gap of 75bps is not unreasonable.

It is likely that a cost of debt of 75 bps above an assumed A grade cost of debt would add significantly to the cost of funding Grid25. In the absence of the price control being re-opened and EirGrid’s allowed WACC being adjusted upward, it would also mean that EirGrid would have to postpone network investment in order to avoid breaching its covenants.

We next consider what a financially prudent level of gearing and indebtedness would be for EirGrid. In this regard, we would suggest that it would be prudent for EirGrid to allow some headroom against the CER’s A grade financial ratios, or at the very least to aim to target those ratios. [Text redacted] For example, 

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18 Europe Economics “Cost of Capital and Financeability at PR09 Updated Report by Europe Economics”
ESB’s financial covenants require it to maintain interest cover of 3.5, and a debt to RAB ratio of not more than 67.5%.

We do not have access to EirGrid’s financial model, and therefore we cannot establish exactly the level of debt that EirGrid could take on to be consistent with the A grade metrics set out above.

[Text redacted]

Finally, from a regulatory perspective, EirGrid’s taking on debt of 50% would be unhelpful. One of the potential advantages of ownership unbundling is that it allows the regulator to put stronger performance incentives on the TSO. [Text redacted] That sustained period of time coincides with the most significant investment period of Grid25 and means that over €2.5 billion of capex would be invested with the regulator having less ability to put in place performance incentives than exist today.

[Text redacted] This suggests that a transaction at fair market value will require an equity injection of between €1.1 billion and €1.6 billion, with the equity requirement more likely to be closer to €1.6 billion.

**Impact on ESB**

In terms of ESB, a transaction at fair market value would not impinge on any of its current covenants.

In terms of credit rating impact, ESB have submitted that the sale of the transmission assets at fair market value would result in a one notch downgrading in their credit rating. They argue that this would be based on:

- Increased business risk – they would lose a proportion of ‘safe assets’; and
- The market’s perception of an unfavourable regulatory intervention.

They assume that a one notch downgrade would increase their cost of debt by 25 bps.

In our view, we suggest it is unlikely that in the event of a disposal at fair market value, ESB’s credit rating would diminish. In terms of ESB’s financial position, it is likely to be strengthened overall by the transaction, as it should assist in reducing ESB’s indebtedness, which will have increased as a result of the recently announced purchase of NIE.

In terms of market sentiment, asset transfer has been government policy for some considerable time, and is in keeping with EC regulatory requirements. A transaction at fair market value is unlikely therefore to be met with an adverse market reaction.
We note that the assessment above is predicated on the cash ESB receives for the transaction not being taken out of the business by way of special dividend. In this regard we have been provided with a submission from Rothschilds by ESB:

“Any special dividend or equity withdrawal that… …is simply construed as a 'free' equity transfer from ESB to the purchaser of the transmission assets will not be in line with the expectations of investors based on precedent transactions. It is also highly likely to be viewed with substantial scepticism by the markets and rating agencies and result in consequences for ESB’s rating, and hence cost and availability of debt, in line with the consequences of a disposal at less than market value”

We concur with the above assessment.

**A transaction at 50% of RAB**

**Impact on EirGrid**

We have already discussed in detail the impact on EirGrid of taking on debt equivalent to 50% of RAB. We find that:

- [Text redacted]
- EirGrid would operate below A Grade financial metrics for a sustained period of time;
- [Text redacted]
- The ability of the CER to effectively incentivise capital investment of over €2.5 billion would be severely restricted.

Moreover, EirGrid’s financial assumptions are based on ESB carrying out investment of approximately €600 million between now and the date of asset transfer. Given that the decision will be pre-announced, this assumes that ESB will invest €600 million, knowing that it will receive only €300 million in return for the assets.

If not all of that investment were to take place EirGrid’s post transaction credit metrics would be further tightened, making it significantly more likely that they would breach the debt covenants in place in relation to EWIC. We note that we have not had access to EirGrid’s financial model, and cannot therefore estimate the impact precisely. However, given how close they are to the interest cover covenant, it is likely that this would be breached.

In terms of the impact of the above, we suggest that it is highly likely that network investment would have to be delayed, as it would be imprudent for EirGrid to borrow to the extent set out in Figure 4 above. Moreover, for the reasons set out above, we believe it prudent to assume that EirGrid will achieve not more than a BBB credit rating.

**Full Ownership Unbundling**
Finally, as discussed above, it is highly unlikely that the regulator would be able to impose meaningful efficiency incentives on EirGrid.

**Impact on ESB**

As set out above, we consider the impact on ESB in relation to four key criteria:

- Impact on existing financial covenants;
- Impact on ability to achieve an A credit rating;
- Impact on ability to operate at financially prudent levels; and
- Ability of the regulator to apply appropriate incentives.

**Financial covenants**

ESB have a number of existing financial covenants which could potentially be affected by the transaction. These include covenants on net debt to RAB, interest cover and disposal of assets.

We are satisfied that a transaction at 50% of RAB would not result in either the net debt to RAB or the disposal of assets covenants being breached. However, ESB have indicated that their interest cover would be reduced significantly in the event that there borrowing costs were to rise substantially, and that they would be close to breaching their interest cover covenant in both 2013 and 2014. We have not had access to ESB’s financial model, and so cannot verify this impact.

In such a scenario, ESB’s revised interest cover could require it to either re-phase capital expenditure, or re-finance/re-negotiate the private placements which include the relevant interest cover covenants (approximately €1.2 billion) as it would not be prudent for ESB to run the risk of defaulting on its covenants. Re-negotiation or pre-payment of the private placements could cost up to €200 million.

**Credit rating**

ESB have indicated that a transaction at 50% of RAB would have a profoundly negative impact on both their credit rating and their ability to fund their future investment requirements. They have submitted that they believe that there is a strong possibility that funding is curtailed resulting in their capex plans being unviable. They have provided the following analysis from Rothschild’s in support of their position:

“We would consider a sale of the transmission assets at a substantial discount to value to be an extremely high risk strategy for ESB and its stakeholders.”

- **A transaction that expropriates and undermines ESB's asset values:** ESB raises substantial private capital in the debt markets as a stand-alone commercial entity - €2.2bn of funds from 20 banks and c.100 investors. These investors look to underlying asset values of the regulated businesses as a key
underpinning of their lending and investment rationale. A transaction that crystallises a substantial discount to that asset value can be expected to completely undermine this rationale. Furthermore, investors may well then question the valuation of other regulated assets. The debt markets will certainly find it inexplicable that ESB as a commercial entity continues to incur substantial capital expenditure on an asset that is destined by definition to crystallise a loss in 2012.

A transaction that goes against any market precedents and market's reasonable expectations: A transaction at an undervalue would be completely without precedent in the utility sector. As we have discussed in our previous notes, transmission asset disposals have typically been undertaken at full market value (E.On, Vattenfall and EDP) and the debt markets are familiar with such processes. A sale at a discount to market value would be surprising and, in our view, disconcerting for stakeholders.

Credit rating agencies will take a highly conservative approach: ESB is currently seeking a credit rating to help position itself to raise over €3bn of funding over the next regulatory period (2011 - 2015). In our experience rating agencies are being highly cautious in today's environment. As per our previous note we estimate that the rating agencies could downgrade ESB by at least two notches upon the sale of transmission assets - one notch for the deterioration in its business risk profile and at least another notch for the perceived negative government intervention as a result of a forced transaction at an undervalue. Therefore assuming that ESB is strong investment grade prior to the disposal of transmission assets, say BBB+, it would be downgraded to BBB- upon the announcement of the transaction. It is possible, however, that rating agencies perceive the transaction as amounting to expropriation of value from the company and therefore take a more negative approach and penalise the rating even further.

Availability and cost of debt: It is very difficult to quantify the impact on the availability of debt to ESB upon the announcement of such an unprecedented transaction. In our view, there is a serious possibility that longer term debt investors (the bond markets) would simply avoid ESB given the perceived expropriation risk, and this could be a permanent rather than a temporary phenomenon. On the other hand, the bank market which lends for shorter tenor may be available but at significantly higher pricing, lower quantum and reduced tenor. We consider that ESB currently has bank capacity of c.€1.2 - 1.5bn in the 3 - 5 year tenor, and we would expect this to reduce to c.€500m with tenors of 1-2 years. We think the cost of bank debt margin could rise to c.250bps from c.75bps today to reflect a ratings downgrade of 2 notches to BBB-. The reduction in tenor reflects banks' concerns regarding uncertain asset values and the statutory environment, and the pricing also reflects the limited prospect of ancillary bond market business. Clearly, this could make ESB's business plan with a €4bn borrowing requirement over the next 5 years extremely challenging.”
In our view, it is reasonable to assume that a transaction at 50% of value would have a significant negative impact on ESB’s credit rating. It has been put to us that the transaction could be presented as the Government as shareholder simply restructuring its assets between state entities. However, it is not clear to us that this presentation would reduce investors’ fears about the potential further expropriation of value. Investors view their investments in EirGrid and ESB as investments in separate commercial businesses. This is how the companies have presented themselves to the market. A change in this would be damaging. Debt investors in ESB look at the risks in ESB. Even if they also invest in EirGrid, they do so through separate products, separate rates, terms and conditions etc. Moving assets between the two may, from the perspective of the equity holder, seem acceptable. However, this will not be how it is perceived by the individual debt holders in each entity.

Because bond-holders are likely to view the market in this light, it is difficult to see how the transaction could be positioned such that it would be viewed favourably by the market.

Given also the negative impact on ESB’s credit metrics described above, it would appear to us that a two notch downgrade of ESB’s credit rating would not appear unreasonable. As to the impact on ESB’s cost of debt, we would assume that a two notch downgrading from A to BBB would result in at least a 75bps increase in the cost of debt. We note that ESB assert that the impact on their cost of debt would be considerably higher, reflecting the market’s negative perception of the transaction.

Given that ESB would remain a strong, well managed and relatively well capitalised business, with substantial regulated revenues, we would be surprised if its ability to access finance were significantly reduced.

**Impact on effective regulation**

It is likely that if ESB’s cost of debt rose substantially, due to factors outside its control, that the regulator would be required to re-examine ESB’s allowed cost of capital.

**Summary of impacts**

From our assessment above, we conclude that a transaction at 50% of RAB would have a significant negative impact on both ESB and EirGrid’s borrowing costs.

In aggregate terms it is likely that neither entity would be able to secure an A grade credit rating, which has been assumed by CER in setting PR3. Rather, it is plausible that both entities would achieve credit ratings of BBB. This would be likely to result in a cost of debt increase of approximately 75 bps.

Given that ESB and EirGrid have substantial borrowing requirements over the next decade, this is likely to result in a significant additional cost of asset transfer.

**Full Ownership Unbundling**
ESB have estimated that the NPV of a 75 bps increase in the cost of debt for ESB and EirGrid would be in the order of €270 million. We do not have access to either ESB or EirGrid’s financial models. However, given that over the next five years alone we estimate ESB and EirGrid will have a combined funding requirement of over €5 billion, it is not unreasonable to assume that over the lifetime of Grid25, the increased costs of funding will exceed €100 million.

In addition, we believe it is likely that both ESB and EirGrid will need to re-profile capital expenditure, to ensure that they stay within their respective financial covenants.

Finally, it is likely, particularly in the case of EirGrid, that the regulator will find it difficult to apply significant financial incentives. In consequence, it is likely that the efficiency savings assumed above in relation to capex and outsourcing may not materialise.

### 5.2.11 ESOP compensation

One of the issues set out in the terms of reference is consideration of the requirement to protect the value of the ESB ESOP.

ESOP currently hold a 5% shareholding in ESB. In terms of the need to consider the protection of the value of ESOP, we suggest that that may depend on the structure of the proposed transaction. In the event that the transmission assets were sold at fair market value, it is not clear to us that there would be any issue in relation to the protection of the value of the ESOP. As with the generation asset sales or the recent decision to purchase NIE, the asset transfer at fair market value could be seen as a standard commercial transaction, whereby the value of the ESOP is unaffected.

However, if the transaction is structured such that the ESB were to receive less than fair market value for the assets, then it is likely that additional measures would be required to ensure that the value of the ESOP is protected.

In particular, if EirGrid’s proposal were to be acted upon, whereby the assets would be vested at 50% of RAB, then it is likely that an additional payment would be required to the ESOP. Assuming a RAB value of €1.8 billion on transfer, then to protect the value of the ESOP, the minimum additional payment required would be €45 million. As an alternative to a cash payment, the ESOP’s shareholding in ESB could be increased.

We note that this is likely to be the minimum payment necessary to protect the value of the ESOP. It is likely that the ESOP will seek in addition:

- A premium on RAB to reflect fair market value; and
- Compensation for the negative impact of a 50% transaction on ESB’s ability to finance its investment plans.

### Full Ownership Unbundling
We note that this is a different sort of cost category to others, as it is a purchase of an asset rather than a real cost.

5.2.12 Summary

The previous sections have set out our assessment of the potential quantifiable costs of ownership unbundling. These are summarised in the Table below. As can be seen, there is a substantial variance in the costs shown, which reflects primarily the uncertainty regarding the financial structure of the transaction. If EirGrid receives an appropriate equity injection, then the costs of ownership unbundling are likely to fall in the range of €86 million to €100 million in NPV terms.

Our assessment of EirGrid’s proposed 50% of RAB transaction is that it is likely to impact negatively on both ESB and EirGrid, leading to a significant increase in the finance costs of both entities relative to today. We have not had access to the detailed financial models of either parties, and so have included, a highly conservative, estimate of the impact of that borrowing cost of €100 million. Moreover, we have attempted to estimate the associated costs of delayed network investment which we also consider likely to accompany a 50% of RAB transaction, nor the costs associated with weakening the ability of the CER to effectively incentivise over €2.5 billion of transmission network investment.
Table 4. Summary of quantifiable costs associated with ownership unbundling (NPV)

<table>
<thead>
<tr>
<th>Cost</th>
<th>Level of cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transaction costs</td>
<td>€5 to €7 million</td>
</tr>
<tr>
<td>Business restructuring costs</td>
<td>€9 million</td>
</tr>
<tr>
<td>IT costs</td>
<td>€21 million</td>
</tr>
<tr>
<td>Logistical and geographical presence costs</td>
<td>€34 million</td>
</tr>
<tr>
<td>Loss of scope and staff costs</td>
<td>€13 to €26 million</td>
</tr>
<tr>
<td>Transmission and distribution interface costs</td>
<td>€5 million</td>
</tr>
<tr>
<td>Finance costs</td>
<td>€0 to €100 million</td>
</tr>
<tr>
<td>Total</td>
<td>€87 to €202 million</td>
</tr>
</tbody>
</table>

5.3 The wider impacts of ownership unbundling

In this section we assess some of the wider impacts of ownership unbundling which are potentially highly important but more difficult to quantify. We consider the impact of unbundling on:

- Customer service;
- Competition;
- Network development;
- Interconnection; and
- Smart networks.

5.3.1 Customer service

One of the key issues we discussed with market participants was their views of the customer services currently being provided by EirGrid and ESB Networks, particularly in relation to connections. The message we received, almost universally, from stakeholders is that customers have frustrations with the current levels of customer service being provided. This is largely a product of the fact that they have a direct contractual arrangement with only one party, but need to have information and input from both parties.
Our view is that the move to ownership unbundling would remove many of the customer frustrations and improve customer service levels in terms of the information flow to customers.

5.3.2 Competition

Improved competitive outcomes are regularly cited as a key benefit associated with ownership unbundling. EirGrid in their submissions, pointed to a significant number of independent assessments which suggested that ownership unbundling could lead to improvements in competition:

- **ESRI (2009):** “While new entry has provided competition in the generation market, much of the ESB’s business in building and maintaining the transmission and distribution systems has only been subjected to limited competitive pressures. This shows up in the fact that labour costs in the electricity, gas, and water sectors in Ireland are much higher relative to manufacturing than is the case for other comparable EU countries.”

  “… to facilitate the continued development of competition, the ownership of the transmission system in the Republic should be transferred to EirGrid, the government-owned operator of the electricity system”.

- **OECD (2009):** “Electricity prices in Ireland are very high in pre-tax terms by European standards. Although there is legal separation between network and generation activities, these remain integrated on an ownership basis in the hands of the Electricity Supply Board (ESB). In addition, on the basis of Grid Development plans put forward by the transmission company (EirGrid), the ESB remains responsible for maintenance and capital investment in the transmission network. This proximity may discourage new entrants to the generation market through their need to connect to the grid, and there is no clear advantage in maintaining integration of the generation and network functions.”

- **Competition Authority (2007):** “The best means of complying with the independence principles of the Directive, however, is total, complete, unencumbered separation of the ESB and EirGrid, that is, going beyond the decision-making independence specified by the Directive, to full legal separation. Any other solution will be sub-optimal, not only because it will act as a disincentive to investment, due to concerns about discrimination and uncertainty in future, but also because it will require the imposition of an expensive, cumbersome and complex regulatory framework to enforce compliance, especially on the part of the ESB. Full separation of each party is a more efficient, streamlined solution which will incentivise investment, decrease the regulatory burden, and allow each party to concentrate wholeheartedly on its core competencies.”

  “So long as the current unsatisfactory arrangements persist, such that transmission asset ownership, operation and management are concentrated within a dominant incumbent with monopoly powers in key market sectors, the incentive for market entry is inhibited.”

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**Full Ownership Unbundling**
“Additionally, the ability of EirGrid to discharge its functions in an independent manner, so that non-discriminatory third-party access to the grid is ensured, is called into question.”

The key issues in terms of negative competition effects are as follows.

- **Abuse of a dominant position** – vertically integrated network owners may discriminate in favour of their own competitive businesses. Such discrimination may cover a range of activities – for example:
  - ensuring that affiliated generation plant are dispatched ahead of other, more competitive plant;
  - offering favourable terms to affiliate generation plant for the provision of ancillary services;
  - offering favourable connection terms or timings of connections for affiliated generation projects;
  - offering favourable terms for access to the grid, or for allocation of congested capacity (either within the national network or at borders); and
  - favouring affiliated generation projects by providing information either in relation to competitor generation, or in relation to plans for transmission maintenance (which may in turn affect wholesale prices).

- **Barrier to Entry or investment**: Ownership of the network by a vertically integrated utility may act as a barrier to entry due to concerns about discrimination.

- **Competition in the provision of network services**: ESRI argue that a range of services currently carried out in-house by ESB – i.e. maintenance, detailed design and construction, could be subjected to competition.

We agree in principle with the views set out above by the ESRI, OECD and Competition Authority. In the course of our assessment of ownership unbundling, we have therefore sought to examine the evidence in relation to each of the above, to identify the extent of benefits which we would expect to flow from ownership unbundling.

**Abuse of a dominant position**

As noted above, in principle, ownership of the network can give a vertically integrated utility the ability to discriminate in favour of their competitive businesses.

In practice, under the existing arrangements EirGrid control all relevant decision-making. EirGrid has proved itself to be a strong and independent system operator, and its establishment has significantly limited the ability of ESB to discriminate in favour of its businesses, were it minded to do so.

**Full Ownership Unbundling**
We sought the views of both the CER and the Competition Authority as to the extent to which there may be discrimination in the Irish market. Neither the Competition Authority nor the CER have received any formal or informal complaints of discrimination with regard to ESB.

In this regard, we note the findings from the CER in their consultation on a Roadmap for Deregulation:

“The Commission notes the significant market churn away from the incumbent supplier would not be sustainable, in the absence of regulated prices, if the appropriate structures are not in place; low barriers to switching, non-discriminatory network access, and the availability of wholesale energy. The Commission considers that all of these elements are in place in the Irish retail market.”

“Since liberalisation of the electricity market the Commission has endeavoured to provide consumers with choice by ensuring that market participants have non-discriminatory access to the transmission and distribution networks, the availability of upstream product through the development of the SEM, and that the appropriate price controls were in place to constrain the market power of the incumbent supplier. This process has been successful in developing an environment for sustainable competition as is apparent through:

• a significant reduction in ESB PES (Public Electricity Supplier) market shares;
• significant levels of customer switching and
• the number of new entrants that have entered the Irish retail electricity markets.”

In consequence we agree that ownership unbundling would provide a structural barrier to discrimination, and could be important in removing the perception that discrimination is possible. However, in practice there does not appear to be any evidence of discriminatory behaviour or market abuse.

**Barrier to Entry or investment**

The second issue, in part related to the first, is whether ownership of the network by ESB results in a barrier to entry or investment. As noted in the quote above from the OECD, the ESB’s ongoing responsibility for implementing EirGrid’s maintenance and capital programmes, may discourage new entrants to the generation market through their need to connect to the grid.

In order to examine the potential entry barrier ESB’s ongoing ownership of the transmission assets might present, we have considered developments in both the upstream generation markets and the downstream customer supply markets.

It would appear that there have been considerable changes in competitive conditions in both markets since 2007.

**The generation market**

With respect to the generation, we note the findings of the recently published SEM Committee Annual Report for 2009. They suggest that:

**Full Ownership Unbundling**
“The Single Electricity Market (SEM) was one of the first of its kind in the European Union and is a flagship development in the European drive and vision for regional electricity markets. Its objectives are to deliver consumer benefits by creating a competitive, efficient, reliable wholesale electricity trading arrangement on the island. We, the SEM Committee, believe the SEM promotes the interests of consumers by enabling greater competition through cost reflective prices, while also securing a diverse, viable and environmentally sustainable long term energy supply.

The SEM Committee is encouraged with the success of the market in its second year of operation. A key objective of the SEM was to attract new and efficient generators to the island of Ireland. Because prices have been set transparently, the SEM creates a sound basis for new entry and investment, and the SEM Committee were delighted to see two major utility companies buy into the all-island market (Scottish & Southern, and Endesa) in the past few years.

Significant progress has been made on the East-West interconnector and this is consistent with European policy towards the development of regional and more integrated electricity markets. These developments put us at the frontier of EU best practice in energy regulation. The entry of new, more efficient generating units should ultimately decrease prices in the wholesale market. Additionally, the SEM Committee is encouraged that the market is continually attracting significant interest in the development of new generation plants.

At the end of the second year of the market, there were 50 participants registered in the SEM, 18 of which joined since market commencement. The total number of registered participants had a registered market capacity of 9,899MW. The Single Electricity Market Operator (SEMO) processes energy payments of approximately €3 billion annually, with a further €640m being paid in capacity payments in 2009 and €551m in 2010.”

ESB still remains the largest player in the market, with an estimated share of over 40% in 2009. However, it now faces competition from a number of significant utilities including Viridian, Endesa, SSE and Bord Gáis, as well as a large number of smaller players.

In terms of scope for further entry in the short to medium term, we note that EirGrid’s 2010-2016 Generation Adequacy Report suggests that:

“A surplus of at least 700 MW is observed for all scenarios studied for each of the seven years. This is due to new generation commissioning, increased interconnection, improved generator availability, as well as a reduction in demand.”

The GAR also notes that:

“There remains very significant interest in the construction of additional windfarms. Beyond committed projects, there are approximately 3.9 GW of wind applicants awaiting a connection offer as part of the Gate 3 offer process. A further 11 GW of applications have been received outside of this process. While it would be impossible to accommodate this amount of wind generation capacity by 2020, it nevertheless gives an indication of the impetus to develop further wind generation.”

Full Ownership Unbundling
The assessment above appears to suggest that there have been considerable developments in the generation market over the last few years, with significant entry of both conventional and renewable generation.

Obviously, we cannot observe the counterfactual – what would have happened had ESB not owned the transmission network – and so we cannot say with certainty whether the current ownership structure has acted as a barrier to entry. For example, if ESB were not the transmission network owner, entry might have been faster and more significant. However, given the size of the system, and the amount of entry, it does not appear to be the case that the current market arrangements have significantly retarded entry to the market.

Looking to the future, given the current economic conditions, the level of surplus capacity and the queue of renewable generation waiting to get on the system, it is unlikely that ownership unbundling will lead to significant additional entry or investment in the short to medium term. Beyond that point, we obviously cannot predict what will occur, and it may be the case that ownership unbundling would lead to greater entry in the future.

**Customer supply**

There have also been significant developments in the customer supply market. So much so, that the CER in its RoadMap document, has signaled its intention to deregulate the market in the near future.

The CER’s most recent newsletter comments in detail on the state of competition and entry in relation to the supply market. It suggests that:

“The Irish electricity market has seen strong levels of competition in recent times, particularly with the entry of Bord Gáis Energy and Airtricity into the domestic electricity market in early 2009.

Over 680,000 Irish customers switched electricity supplier from January 2009 through to mid 2010, facilitated by the simple, free and effective supplier switching systems approved by the CER. In other words, over this 18 month period, approximately 30% of all electricity customers switched supplier, one of the highest supplier switching rates ever seen in Europe.

Given the strong competition which has developed in the electricity market, the CER published a “Roadmap” decision paper in April 2010 on the de-regulation of ESB Customer Supply’s electricity prices. The CER believes that, in this competitive environment, de-regulation of electricity prices will bring further competition benefits to customers.

The CER decided that price de-regulation of business markets will take place in October 2010 as ESB hold a combined market share of 50% or less in each of the three relevant business markets. Price deregulation in the domestic market will be allowed once ESB Customer Supply meets a number of criteria including having a market share of 60% or less which, given the current rate of customer switching, is expected to happen in early 2011. The Roadmap decision also requires a commitment from ESB which will address, to the satisfaction of the CER, the rebranding of the ESB supply businesses prior to deregulation taking place.”

**Full Ownership Unbundling**
Competition in the provision of network services

The final issue to consider is in relation to competition in the supply of network construction and maintenance services, where the ESRI notes that “much of the ESB’s business in building and maintaining the transmission and distribution systems has only been subjected to limited competitive pressures.”

We have discussed issues in relation to this topic extensively above in relation to EirGrid’s outsourcing model. The key findings from our assessment are that:

- A significant proportion of network construction is currently outsourced by ESB – between 70% and 80% of stage 2 work is currently outsourced;

- Detailed design work, which is currently carried out by ESB International (ESBI) for ESB would be likely to be the subject of increased competition under ownership unbundling – detailed design work accounts for between 6% and 10% of capital expenditure; and

- While planned maintenance could be outsourced, there are the potential for inefficiencies arising from the loss of scope economies with transmission that may offset any potential competition savings. We note in this regard that our findings are relevant to the case where only transmission is being considered for unbundling – the inefficiencies described above might well not be present were one considering the outsourcing of maintenance for the distribution and transmission networks in combination.

Summary

This section has assessed the potential competition effects arising from ownership unbundling.

Our key findings are that:

- The market reforms and establishment of EirGrid as a strong independent system operator appear to have significantly diminished the potential for discrimination – and to date neither the Competition Authority nor the CER have received a complaint regarding discrimination;

- There has been significant entry into both the generation and supply markets, and competition appears to be developing in both;

- There is currently forecast to be significant excess generation capacity in each of the next 7 years, and there is a significant connection queue for renewables;

Full Ownership Unbundling
ESB currently outsources 70%-80% of transmission network investment;

It is likely that ownership unbundling would result in increased competition for detailed design work currently provided to ESB by ESBI – this accounts for around 6%-10% of network investment costs.

On the basis of the above, it would appear unlikely that ownership unbundling will unlock any significant short to medium term competition benefits. However, in the longer term it may have positive benefits, given that it provides a further structural barrier to discrimination and may offset even the potential for perceptions of discrimination, which may deter future entry or investment. However, given the lack of evidence in relation to discrimination, it is unlikely that such an effect would be significant.

5.3.3 Network development

As has been discussed extensively elsewhere in this document, there are very significant plans for the development of the transmission network over the next 15 years.

In light of this, a key consideration for our assessment is the potential impact of ownership unbundling on network development. In considering this issue, we believe it is important to consider two different scenarios, depending on the financial structure of the transaction:

- A transaction at fair market value, where EirGrid received a significant equity injection; and
- A transaction at 50% of RAB.

A transaction at fair market value

The key issue in this scenario is the potential risks associated with the transition period. Ownership unbundling has been done in many other jurisdictions, and the steps involved are well understood. In consequence, assuming that appropriate resources were devoted to asset transfer by both ESB and EirGrid, and assuming the management and staff of both companies approach the transition period with co-operation and goodwill, then there is no reason to assume that there would be any negative impact on the significant network investment that will be carried out during the two years of the transition process.

However, if asset transfer were to give rise to significant HR issues, or management and staff in either of the companies adopted an uncooperative approach, then it is likely that the transition period could be associated with significant delays in terms of network development.
A transaction at 50% of RAB

If a transaction at 50% of RAB were to go ahead, we believe that there is significant risk to network investment over the next decade:

- ESB would be required to invest €600 million in the transmission network, knowing it would receive only €300 million for its investment;
- In the absence of that €600 million of investment, EirGrid will be unlikely to be in a position to finance planned network investment (it requires the €300 million equity transfer from ESB that it would receive as a result of the investment);
- Assuming the €600 million of investment took place, we believe that if EirGrid were to take on debt of 50% of RAB, while it might stay within its financial covenants, it would be running so close to them that the only prudent course of action would be to delay an element of network investment;
- ESB is also likely to have to delay investment as a result of the impact of such a transaction on its financial metrics;
- The cost of borrowing of both companies is likely to increase compared to today by at least 75 bps; and
- The regulation of over €2.5 billion of network capital investment is likely to be more difficult.

5.3.4 Interconnection

As has been discussed above, building further interconnectors with the UK and elsewhere is likely to be a strategic objective for Ireland over the next 10-15 years. As has been noted by the ESRI and other commentators, a lot of wind generation capacity with little interconnection does not make sense. As they note in their most recent paper, at least 2,000 MW of wind connection will be necessary by 2020, if high wind penetration is to lower industry prices.

High interconnection is also likely to be important for the development of further customer supply competition, as it is likely to open the Irish market to competition from UK customer supply businesses.

Against that background, it is important to consider what impact ownership unbundling might have on the ability of EirGrid to deliver further interconnection projects.

EirGrid have provided a submission, which sets out the following view.

“With asset transfer, the Group would have the option to construct an interconnector on a stand alone basis in 2020-22, with further interconnection possible in 2025. The build could be completed earlier (2018-2020), on a stand alone basis, if a grant of €60m were obtained.

Full Ownership Unbundling
In our assessment of the impact on interconnection, we have considered three scenarios:

- No asset transfer;
- Transaction at 50% of RAB; and
- Transaction at fair market value.

**Interconnection with no asset transfer**

We have considered EirGrid’s submission in relation to its ability to develop further interconnection assuming no asset transfer. We agree that EirGrid would require an equity injection in order to stay within its covenants (see Figure below). The minimum equity injection EirGrid would require to build an interconnector in 2018 would be approximately €68 million (compared to the €60 million EirGrid suggest would be required assuming asset transfer were to go ahead).

However, we would note that if EirGrid can demonstrate a successful track record in building and running EWIC it is likely to be in a stronger position than it was when embarking on the EWIC project.
Interconnection with asset transfer at fair market value

We have not had access to EirGrid’s financial model, and cannot therefore fully assess the impact on its financial health of building further interconnection. We noted in our assessment of the financial costs of ownership unbundling that if EirGrid took on debt of no more than 30% of RAB it would be in a sound financial position and likely to be able to achieve an A grade rating.

In such a scenario EirGrid could clearly build further interconnection by 2020 without coming close to breaching any of its EWIC covenants. However, it is possible that building further interconnection would mean it might come close to breaching the financial metrics associated with maintaining an A grade rating. In which case one could:

- Seek to inject some additional equity – it is likely to be less than the €150 million that would be required assuming no asset transfer;
- Seek to delay the investment for 1-2 years; or
- Take a view that given EirGrid’s size, and track record it could cope with metrics dipping below the A grade hurdles without any material impact on its rating or cost of debt.

In any event, EirGrid is likely to be in a stronger position to build further interconnection without the need for additional equity in this scenario than in either of the other scenarios described above.

5.3.5 Smart Networks

ESB have argued that:

"they have developed an integrated Smart networks strategy which is widely viewed and respected as a pioneering model for Smart Grid by the international electricity and ICT industry". They suggest that the initiative has “widespread support and the capability and leadership of ESB is of acknowledged importance”.

They suggest that unbundling the ownership of the transmission assets from the distribution assets would have the potential to jeopardise the evolution of smart metering, adding cost, complication and delay to the delivery of critical Smart network investment.

They further note that “EURELECTRIC caution that “The need for a collaborative and seamless approach on these issues should be taken into account when considering any policies in relation to a further separation of distribution from transmission. This is particularly relevant for smaller and more isolated systems where the benefits of an integrated transmission and distribution smart network are likely to far outweigh any perceived market or competitiveness benefits from asset separation””

We agree with ESB that it is critical that the future development of the transmission and distribution networks takes place in a co-ordinated and

Full Ownership Unbundling
integrated way. This is a point that has been made recently by the European Commission’s JRC. A key recommendation from the JRC’s review of existing methods for transmission planning and for grid connection of wind power plants is that “TSOs should prioritise the emerging challenge of integrating the future transmission system (hosting large sized generation, both conventional and renewable) with Smart distribution networks (embedding dispersed small sized energy sources and storage).”

In this regard, FOU could potentially be considered to increase the risk to the effective development of a Smart network. However, given the existing split in terms of responsibility for the planning and development of the transmission and distribution networks, we cannot see that separating ownership is likely to greatly increase the risks in terms of co-ordination and integration. Two state owned businesses operating collaboratively with appropriate flows of information should be able to deliver the co-operation necessary to ensure the development of an integrated Smart network.

### 5.4 The impact of ownership unbundling on complexity of regulation

The final issue we consider is the impact of ownership unbundling on the effectiveness with which the CER can regulate ESB and EirGrid going forward. In assessing the impact of ownership unbundling, we again consider it to be important to distinguish between two scenarios:

- A transaction at fair market value; and
- A transaction at 50% of RAB.

**Transaction at fair market value**

There are two potential issues with the current regulatory arrangements:

- EirGrid has a very limited RAB; and
- There may be difficulties in applying joint incentives to ESB and EirGrid.

EirGrid has a critical role to play in ensuring the timely and efficient role out of transmission investment. However, under the current arrangements it is difficult to subject EirGrid to substantial financial incentives and penalties, because it has a very limited RAB. For example, in its public PR3 submission, EirGrid suggests that “The current performance incentives provide for a maximum gain or loss of 2% of EirGrid's internal operating costs.” EirGrid’s forecast internal operating costs are around €40 million. This would suggest that the maximum loss EirGrid could withstand would by €800,000.
While it is still possible to apply incentives to EirGrid under the current arrangements, it would appear likely that if EirGrid were established as a well capitalized transmission owner and operator, it would be easier for the CER to incentivise EirGrid’s performance.

While one might have considered that EWIC would significantly increase EirGrid’s RAB, this appears not to be the case. We understand that EWIC will not be added to the RAB of EirGrid, and the debt holders are not being paid from a WACC return earned by EirGrid. It is only the €31 million funding from EirGrid’s own funds that will earn an equity based return.

Second, there are potentially activities that the regulator would like to incentivise that are currently carried out jointly by ESB and EirGrid. While it is possible for the regulator to apply joint or split incentives, it is likely to be more complex to design and administer, than a scenario in which the CER is incentivizing a single entity.

In our assessment above, we have assumed that EirGrid would be able to achieve efficiencies in relation to constraints, capex and possibly outsourcing. A factor in our assessment was the increase in the regulator’s ability to incentivise EirGrid’s performance. Depending on how the regulatory regime develops under an ownership unbundling scenario, it is possible that efficiency benefits beyond those quantified in this report could be delivered over time.

**Transaction at 50% of RAB**

In the case of a transaction at 50% of RAB, it is highly unlikely that the regulator would be able to impose meaningful efficiency incentives on EirGrid, as EirGrid’s failure to meet such targets would be likely to result in it breaching its debt covenants. In consequence, €2.5 billion of network investment would be incurred by a company which could not be effectively regulated. While we have not included a cost estimate against this impact, we suggest it is highly unlikely that the capex efficiencies and outsourcing efficiencies discussed above would be achieved.

### 5.5 Conclusions

The cost benefit analysis of this option depends significantly on the structure of the transaction. Our assessment suggests that in order for neither ESB nor EirGrid to be weakened financially by the transaction, ESB would need to receive fair market value for the assets, and EirGrid would require an equity injection of between €1.2 billion and €1.6 billion. In this case, our central estimate is that ownership unbundling is associated with positive net benefits between €1 million and €16 million to 2025. The most optimistic scenario suggests benefits could be as high as €57 million. In addition, ownership unbundling could be associated with other benefits, the most notable of which is

**Full Ownership Unbundling**
an improvement in the capacity of the CER to apply incentive regulation to EirGrid.

We have also considered the structure put forward by EirGrid in which ESB would receive payment of 50% of the value of the assets and EirGrid would take on debt for the full amount. Our assessment suggests that this structure would worsen the financial position of both entities and has the potential to significantly increase the cost of debt. Our central estimate is that this structure is associated with a net cost of between €110 million and €130 million to 2025. In addition, it is likely that both ESB and EirGrid will have to re-profile their capital investment programmes, leading to a risk to the delivery of Ireland’s renewable targets. There is also a risk that the wider regulatory benefits will not emerge as these depend critically on EirGrid being a well capitalised entity.
6 Independent system Operator

The ISO was present in the initial draft of the Third Package, though the Commission was keen to highlight the deficiencies of this option compared to FOU, notably in relation to coordination problems between the TSO and TAO and the lack of incentives for network investment (an issue which the European Commission has termed "the Achilles heel" of the ISO model).

The ISO option allows Member States to leave the transmission assets under the ownership of the VIU by designating an ISO in accordance with Article 13 of the Electricity Directive. For convenience, Annex 2 of the implementation plan accompanying this Report sets out a checklist in relation to the various requirements of Article 13.

In essence, the ISO option requires compliance with the same independence provisions as the FOU option (Article 9(1)(b) – (d)). This prevents any company having the functions of generation and supply from either directly or indirectly exercising any control over the TSO.

Leaving aside the issue relating to departmental control, it is generally accepted by stakeholders that EirGrid is currently compliant with the relevant provisions of Article 9(1) given that there already exists full corporate independence from ESB.

When drafting the original provisions for the ISO option, the European Commission recognised that ISOs were already in existence in some countries (e.g. Scotland’s arrangements between National Grid and the Scottish VIUs). The European Commission distinguished between this pre-existing form of ISO and the "ISO+" model introduced in the Third Package, commenting that "contrary to 3rd package proposals, the asset owners, i.e. the vertically integrated companies, have considerable influence on investment decisions and maintenance of the network."

An ISO must take responsibility for all of the functions of a TSO under Article 12. In practice this requires the ISO to have full responsibility for a list of tasks in relation to, among other things, the operation, maintenance and development of the transmission system. For convenience, Annex 1 of the Implementation Plan accompanying this Report sets out a checklist in relation to the various requirements of Article 12.

The Third Package also specifies a list of tasks for the TAO. These tasks are set out in Article 13(5) as follows:

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19 Commission Staff Working Document accompanying the legislative package on the internal market for electricity and gas, impact assessment SEC(2007) 1179, para. 4.1.1.2
20 Commission Staff Working Document, para. 5.1.9
provision of cooperation and support to the ISO;

the financing of investments\(^{21}\);

coverage of liability in relation to the transmission assets; and

provision of guarantees to facilitate financing of network expansion.

Reviewing the current position, EirGrid has several exclusive functions under Regulation 8 of SI 445 of 2000 (as amended by Regulation 6 of SI 60 of 2005). These essentially mirror the requirements of the second Electricity Directive (Directive 2003/54/EC). We do not attempt to reproduce these in full here, however note that EirGrid's role covers the following activities: to operate and to ensure the maintenance of the transmission system; ancillary services; planning; transmission capacity and reliability issues; dispatch; to govern the use of interconnectors; information provision; charges for connection and use of system; and offer of connection.

From submissions received, ESB and EirGrid currently have shared competences in relation to maintenance and construction as follows:

**Table 5. Division of responsibilities between EirGrid and ESB**

<table>
<thead>
<tr>
<th>Task</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development plan</td>
<td>EirGrid</td>
</tr>
<tr>
<td>Planned maintenance schedules</td>
<td>EirGrid</td>
</tr>
<tr>
<td>Maintenance policies and standards</td>
<td>EirGrid (but with input from ESB)</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Shared</td>
</tr>
<tr>
<td>- EirGrid is ultimately responsible (under Reg 8(1)(a) of SI 445 of 2000) to ensure that maintenance is carried out.</td>
<td></td>
</tr>
<tr>
<td>- However, the infrastructure agreement (pursuant to a requirement under Reg 18(3) of SI 445 of 2000) requires ESB, as asset owner, to maintain the transmission system in accordance with the</td>
<td></td>
</tr>
</tbody>
</table>

\(^{21}\) The TAO can alternatively agree to third party financing. The Interpretative Note confirms that the TAO will not own parts of the network it has not financed itself. This could allow several TAOs to exist and, in theory, the TAO function could therefore be a contestable activity.

**Independent system Operator**
development plan.

- ESB has control in relation to outsourcing maintenance activities, but EirGrid does have a competence to input into the approved contractors list.

<table>
<thead>
<tr>
<th>Construction</th>
<th>Shared</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EirGrid is ultimately responsible (under Reg 8(1)(a) of SI 445 of 2000) to develop the network.</td>
</tr>
<tr>
<td></td>
<td>However, the infrastructure agreement (pursuant to a requirement under Reg 18(3) of SI 445 of 2000) requires ESB, as asset owner, to carry out construction in accordance with the development plan. As a result aspects such as design, cost and timescales of the construction will be within the control of ESB.</td>
</tr>
<tr>
<td></td>
<td>ESB has control in relation to outsourcing construction activities, but EirGrid does have a competence to input into the approved contractors list.</td>
</tr>
<tr>
<td></td>
<td>EirGrid does however have a role to play in relation to construction. EirGrid is responsible for obtaining planning permission and dealing with land access. Furthermore, EirGrid has the role of &quot;client engineer&quot;.</td>
</tr>
</tbody>
</table>

We have received legal submissions from stakeholders in relation to this issue. We have considered these in full and summarise the key submissions in the following table.
Table 6. Submissions received

<table>
<thead>
<tr>
<th>Submission</th>
<th>Commentary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unbundling of ESB</td>
<td>Article 14 requires that the transmission system owner has undergone legal unbundling. Currently, ESB has only ring-fenced the transmission owner function from its other businesses. In order to be compliant with the requirements of the ISO option, ESB must create a subsidiary company capable of making independent decisions. We understand ESB accepts that it must implement legal unbundling to comply with the ISO option.</td>
</tr>
<tr>
<td>Tasks of a TSO</td>
<td>It is clearly a matter for interpretation as to how far the TAO might be able to become actively involved in matters such as development and maintenance. On one hand, it is clearly envisaged that the TAO will provide &quot;co-operation and support to the independent system operator for the fulfilment of its tasks&quot; (Article 13(5)(a)), while on the other maintaining and developing the network are clearly tasks for which the TSO itself must remain responsible.</td>
</tr>
<tr>
<td>State Ownership</td>
<td>This issue will have to be taken account of during implementation.</td>
</tr>
</tbody>
</table>

Independent system Operator
In making our assessment of the ISO model, we have therefore considered two issues:

- To what extent much the division of responsibilities between EirGrid and ESB alter in order to be legally compliant with the ISO model; and
- An evaluation of the likely benefits and costs of a legally compliant ISO model.

6.1 Division of responsibilities

We start by considering EirGrid and ESB’s submissions in relation to this issue.

**EirGrid**

EirGrid has produced a detailed legal submission in relation to ISO compliance. In EirGrid’s view an ISO must have full responsibility for all the relevant Article 12 tasks. The submission states: "*the Third Package emphasises the absolute nature of the responsibility entrusted to the TSO*".

The submission notes the role of ESB in relation to construction, development and maintenance. Referring to the infrastructure agreement, the submission lists the various matters in which ESB retains a role (e.g. setting cost projections and indicative lead times, right to request variations to a development project, procurement, commissioning, overall project review).

EirGrid also flags several practical concerns with the current arrangements, for instance its perceived impaired ability to perform its client engineer role, lack of clarity of technical specification and lack of control and visibility over procurement process.

EirGrid concludes that "*the IA [Infrastructure Agreement] contains many provisions that would not be included in an arms length commercial agreement and that these provisions give ESB prerogatives that significantly undermine the absolute responsibility of EirGrid.*"

As well as arguing that it has inadequate responsibility in relation to procurement, commissioning and development, EirGrid’s legal submission also notes: "*[our] reduced ability to interact professionally with parties connecting to the transmission system, due to inadequate information being provided by ESB on construction programmes and progress…continues to present a major difficulty to EirGrid and to third parties seeking to connect to the transmission system.*".

**ESB**

ESB’s view is that the current arrangements are already compliant with the Third Package ISO model. We have received their legal submission in support of this view.
The submission acknowledges that ESB does have a role in relation to maintenance and development, however concludes that "EirGrid as TSO enjoys the exclusive function of dictating the measures required for the maintenance and development of the transmission system."

This conclusion is reached with reference to paragraph 7.3.1 of the Infrastructure Agreement, which provides "in planning the development of the Transmission System, the TSO may examine and consider any development options as it sees fit and the TSO shall have the sole and exclusive right to determine and identity which Development Projects will be undertaken and the timing requirement for the development of such Development Projects".

Furthermore, in relation to the implementation of development projects, the submission notes the following in relation to the TSO's role:

"ESB is required to give the TSO information in draft form about the measures it (ESB) intends to take and the programme it will follow to implement the project, including a project resource plan, which will itself include outsourcing proposals (paragraph 7.7.3). These proposals are subject to TSO approval and the TSO may reject them (paragraph 7.7.4). The TSO is also responsible for stipulating procedures for pre-commissioning, commissioning and energisation (paragraph 7.13.1)"

In relation to maintenance, the legal submission notes the TSO's role as follows:

"In relation to maintenance, the TSO is responsible for setting Maintenance Policies and Standards (paragraph 8.2.1). These will include maintenance prioritisation criteria (paragraph 8.2.3). The TSO is obliged to prepare and provide to ESB an annual basis, by 30 September, a preliminary comprehensive list of maintenance tasks for the following year (paragraph 8.5.1). ESB is obliged to carry out the maintenance and manage the maintenance programme each year as specified by the TSO (paragraph 8.7.1)"

ESB also consider the extent of "responsibility". ESB considers that the TSO retains responsibility in the relevant areas and that ESB simply undertakes the "execution of EirGrid decisions that is effectively delegated to ESB."

ESB accordingly is of the view that the TSO already has the required competences under the current arrangements in order to satisfy the criteria for the Third Package ISO model.

6.1.2 Assessment

The ISO model introduced by the European Commission was described in their working document accompanying the initial legislative package as follows:

"Separate system operators without ownership unbundling: in this case, integrated companies can keep network assets, but the network is managed by ISOs in which they can have no (significant) stake. ISOs need to be "strong" (ISO+), with decisional power over operation, maintenance and investment. This solution would require separation of system operation from ownership of the assets...The system operator would be solely responsible for operation and
dispatch, being the primary interface with network users, and would exercise control over network maintenance and development decisions.”

The Commission made clear in its Interpretative Note that the ISO is responsible for operating, maintaining and developing the transmission system, though the list of tasks is not exhaustive. Furthermore, in relation to investment planning, the ISO is responsible for the construction and commissioning of new infrastructure and that "the transmission system owner has not responsibility and no prerogatives as regards investment planning." As the term investment planning is explicitly used to cover construction and commissioning in this context, it is clear that the European Commission interprets the requirements in a way that limits the TAO's role in relation to construction under the ISO+ model. In practice, the TAO's primary role in this regard should be in relation to financing in accordance with its duties under Article 13(5).

We have reviewed legal commentary on Article 9(9) by Emmanuel Cabou, a policy office in DG TREN at the European Commission and the European Commission’s General Coordinator for the Third Internal Energy Market Legislative Package. Cabou comments as follows in relation to the tasks of the ISO:

"The Directives expressly states that when developing the transmission system, the ISO is responsible for planning, including getting authorisation procedure, and for the construction and commissioning of new infrastructure. The ISO is also generally responsible for maintaining the transmission system. Clearly these tasks cannot be subcontracted to the vertically integrated undertaking owning the network."

We have noted ESB’s submission that the current arrangements, in terms of division of responsibility are already compliant with the ISO option. Given the shared competences highlighted above, there is some doubt whether EirGrid has full responsibility for maintenance and planning as is required under the ISO+ model. However, ultimately, it would be for the CER and the European Commission to consider whether the current arrangements are compliant with the Third Package ISO model, if the current arrangements were proposed for certification.

The depth of the ISO model is ultimately a matter for interpretation. Clearly there is a sliding scale: on one hand, a shallow model reminiscent of the Scottish arrangements where responsibility for maintenance and construction can be delegated, while on the other hand a very deep model where the ISO must be

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22 Commission staff working document, para. 4.1.1.2

23 Interpretative Note on the Unbundling Regime, para. 2.3.2


25 As above, para. 4.180
fully responsible in all areas of operation, maintenance and development and with the TAO only having a very limited role, primarily in relation to financing. We consider that the deeper the model, the more likely that the arrangements will comply with the requirements of the Third Package. A model somewhere in the middle of the sliding scale might possibly be compliant, however the risk that the European Commission refuses to approve the designation will be much higher than the risk of refusal for a deeper model.

The European Commission has confirmed in its interpretative note that the burden of proof as to whether the arrangements are compliant with the Third Package requirements will rest with the candidate TSO or the TAO and not with the regulatory authority. Therefore it will be for ESB and EirGrid to prepare evidence in support of the designation of the ISO model.

6.2 Evaluation of the ISO option

This section sets out our evaluation of the ISO option. We consider here only an ISO+ model in which EirGrid is responsible for all elements of transmission operation, maintenance and development other than financing. We have focussed on this model for two reasons:

- First, this would appear to be the model the Commission has in mind, and is clearly compliant with the Directive – deviations from this option are likely to incur significant legal risk of non-compliance; and
- Second, lighter options, whereby the split of activities remain as they are today, are unlikely to generate any particular benefits or costs relative to the current arrangements. ESB estimate the cost of their internal restructuring at less than €1 million.

The ISO+ model is functionally equivalent to ownership unbundling, in that EirGrid would have the same powers and responsibilities under the ISO+ model as it would have under the ownership unbundling model. The only key difference between the two models is that ownership of the assets would be retained by ESB Networks, and ESB Networks would continue to have responsibility for financing investment in the assets.

However, we suggest that the additional regulatory issues associated with this option undermine the appropriateness of a full ISO+ model for Ireland.

Compared to the current regulatory arrangements and issues, which were discussed in the previous chapter, regulation of EirGrid under an ISO+ model becomes more difficult.

Under the current arrangements, ESB Networks is responsible for the delivery of EirGrid’s maintenance policies, and is also responsible for Stage 2 works in relation to the delivery of EirGrid’s capital investment plans. Stage 2 capital

Independent system Operator
works account for around 93% of total network capital investment costs. Given that ESB Networks is a well capitalised utility with a significant regulatory asset base, this means that it is possible for CER to incentivise ESB Networks to deliver capital investment and maintenance works efficiently.

Under the ISO+ model, EirGrid will take on responsibility for those activities, but it will remain a thin company with little or no regulatory asset base. This will make it very difficult for the regulator to appropriately incentivise EirGrid to deliver the capital investment programme or operational expenditure efficiently. For example, in its public PR3 submission, EirGrid suggests that “The current performance incentives provide for a maximum gain or loss of 2% of EirGrid’s internal operating costs.” EirGrid’s forecast internal operating costs are around €40 million. This would suggest that the maximum loss EirGrid could withstand would be €0.8 million. This compares to an annual capex programme of €300 million and maintenance costs of €14 million.

In consequence, EirGrid would have very little incentive to maximise productivity, and it is not credible for the CER to penalise them substantially for exceeding operating cost targets. The example in the Figure below provides an illustrative example from GB. It shows that, in GB, if the ISO+ model had been in place and led to lower cost reductions (e.g. 2.5% p.a.), the impact would have been significant – c. £2.4bn in additional costs since liberalisation.

Figure 4. Example of the impact of reduced regulatory incentive

Source: Ofgem

Independent system Operator
Turning to the potential benefits and costs of the ISO+ model, we find that, given that ISO+ requires the same functional separation as ownership unbundling, it is likely to give rise to many of the same costs and benefits.

The key differences will be:

- **Benefits:** it is unlikely that the ISO+ model would provide any incentives to deliver more efficient outcomes than exist today – it is likely that efficiency incentives are likely to be blunted considerably relative to today. We therefore suggest that the potential benefits relating to cap ex efficiency and outsourcing would not materialise. To be conservative, we have not included any inefficiency factor in our analysis, and have assumed that the same duplication and constraints benefits could be achieved.

- **Costs:** it is unlikely that there would be any implications in terms of financing costs associated with this model, and there would be no issues relating to protection of the value of the ESOP. It is also likely that the transaction costs would be substantially lower – to be conservative, we have assumed no initial transaction costs. It is also likely that the transmission and distribution interface costs would increase, although we have not included any uplift for this. The remaining costs are likely to be incurred under either the ownership unbundling or ISO+ models.
Table 7. Benefits and costs of ISO+

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Level of saving</th>
<th>Cost</th>
<th>Level of cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced duplication of effort</td>
<td>€26 million</td>
<td>Business restructuring costs</td>
<td>€9 million</td>
</tr>
<tr>
<td>Lower constraints costs</td>
<td>€48 million</td>
<td>IT costs</td>
<td>€21 million</td>
</tr>
<tr>
<td>Logistical and geographical presence costs</td>
<td></td>
<td></td>
<td>€34 million</td>
</tr>
<tr>
<td>Loss of scope and staff costs</td>
<td></td>
<td></td>
<td>€13 to €26 million</td>
</tr>
<tr>
<td>Transmission and distribution interface costs</td>
<td></td>
<td></td>
<td>€5 million</td>
</tr>
<tr>
<td>Total</td>
<td>€74 million</td>
<td></td>
<td>€82 to €95 million</td>
</tr>
</tbody>
</table>

As can be seen from the Table above the ISO+ model is likely to result in a net increase in costs of between €8 million and €20 million in NPV terms. This is before factoring in any inefficiency uplift as a result of the inability of the regulator to incentivise capex and maintenance spend.
7 Independent Transmission Operator

Although the European Commission's interpretative note states that the options under the Directive are "on equal footing", the ITO Option is generally acknowledged as being a compromise option that is inferior to the FOU and ISO forms of unbundling. This has earned it the title "third-option". The Commission itself noted in the Impact Assessment accompanying the Third Package that:

"The proposal for "regulated unbundling" does not solve the inherent conflict of interest which is impossible to solve without excessively detailed and intrusive regulatory intervention."26

Under Article 9(8)(b) Member States can opt to implement the ITO Option rather than pursue FOU but only where the transmission assets were owned by a VIU at the date the Directive came into force (3 September 2009). Under the ITO Option, the transmission assets would be owned by a TSO that would form part of the VIU however would be legally and functionally independent from the generation or supply activities of the VIU (an ITO). In practice, implementing this Option would involve the reintegration of EirGrid back into ESB and the transfer of the transmission assets from ESB to EirGrid.

As ownership and operation of the transmission assets would sit within the VIU, the ITO is required to be autonomous in order to safeguard competition. Chapter V of the Directive sets out numerous rules designed to ensure the autonomy of the ITO, the general rule being that the ITO must be:

"equipped with all human, technical, physical and financial resources necessary for fulfilling their obligations under this Directive and carrying out the activity of electricity transmission."27

There are also specific rules in relation to ownership of assets; employment of staff; sharing of equipment or premises; corporate identity and branding; the auditing of accounts etc that are designed to ringfence the ITO from the generation/supply activities of the VIU.

Chapter V also requires that the ITO is independent from the VIU in terms of decision-making. The ITO is given the power to raise money on the capital markets and is under an obligation to ensure that it has the resources required to carry out the activities of transmission efficiently and develop and maintain an efficient transmission system.

In addition to the ITO being autonomous, the ITO requires significant levels of regulatory oversight to ensure effective unbundling. For example, the ITO is required to establish and implement a compliance programme, to be approved by

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26 Commission Staff Working Document accompanying the legislative package on the internal market for electricity and gas, impact assessment SEC(2007) 1179, para. 5.1

27 Article 17(1) Electricity Directive
the regulatory authority, in order to prevent "discriminatory conduct"; a compliance office monitors compliance with the programme; a supervisory body\(^{28}\) can take decisions which have a significant impact on the value of the transmission assets; the regulatory authority must approve all commercial and financial agreements between the ITO and VIU; and the regulatory authority can issue the ITO with penalties for discriminatory behaviour. It is acknowledged by all of the stakeholders that in general the ITO Option is extremely onerous in terms of regulatory supervision.

We have considered the submissions of the stakeholders in full and summarise the key submissions in the following table.

Table 8. Submissions from key stakeholders

<table>
<thead>
<tr>
<th>Submission</th>
<th>Commentary</th>
</tr>
</thead>
<tbody>
<tr>
<td>SONI Licence</td>
<td>We have received a submission that the reintegration of EirGrid into ESB is in direct conflict with conditions in the SONI licence. The licence prohibits SONI or an affiliate of SONI from undertaking generation or supply activities. These conditions are currently suspended in relation to EirGrid and have no effect so long as the state owned constitutional status of EirGrid plc remains unchanged and EirGrid plc are the legal and beneficial owners of the entire issued share capital of SONI. As ESB would become the beneficial owner of SONI under the ITO Option, implementing this Option would mean SONI would be in breach of their licence.</td>
</tr>
<tr>
<td>TSO &quot;remain&quot; part of VIU</td>
<td>We have received a submission that the ITO Option is only to be used to allow the TSO &quot;to remain part of integrated undertakings&quot; and is not intended to be used where the TSO already sits outside a VIU. The stakeholder submits that the ITO Option is therefore inappropriate for use by Ireland. Whilst the ITO Option can only be implemented where the transmission assets are owned by the VIU at 3 September 2009, there is no express requirement under the Directive for the TSO to be part of the VIU at 3 September 2009. However, we agree that, in practice, this would appear to be contrary to the spirit of the Directive.</td>
</tr>
</tbody>
</table>

\(^{28}\) A body composed of members representing the VIU, third party shareholders and, where the Member State legislation provides, interested parties like the employees or TSO.
7.1 Our assessment

As discussed, the transmission assets would have to be transferred to EirGrid after it has been reintegrated into the ESB Group in order to implement the ITO Option.

This arrangement is not supported by any of the stakeholders who have made submissions: it is seen as a retrograde step in terms of energy policy. As one stakeholder explained, moving from an ISO model (as currently in Ireland) to an ITO model by reintegrating a company into a VIU, which it had previously been removed from pursuant to the then EU energy policy, on the basis of a more developed version of the same policy, would be considered regressive.

Moreover, none of the wider market participants, regulatory authorities or policymakers consider that an ITO would be an appropriate option for Ireland given the current ISO model in place.
8 Article 9.9

Article 9(9) provides Member States with the possibility of a tailored unbundling approach where the arrangements in place guarantee more effective independence than the ITO model.

Article 9(9) requires as follows:

"Where, on 3 September 2009, the transmission system belongs to a vertically integrated undertaking and there are arrangements in place which guarantee more effective independence of the transmission system operator than the provisions of Chapter V, a Member State may decide not to apply paragraph 1"

We can identify two main requirements for compliance with Article 9(9)

(i) on 3 September 2009, the transmission system belongs to a vertically integrated undertaking; and

(ii) at that date, there are arrangements in place which guarantee more effective independence of the transmission system operator than the provisions of Chapter V.

Article 9(9) was inserted into a late draft of the Electricity Directive at the same time as the ITO option, however there is little in the way of explanation accompanying this insertion. It is known that this provision was included at the request of the UK government, with a view to ensuring a potential derogation for the Scottish arrangements.

The applicability of Article 9(9) is a point of contention between EirGrid and ESB. EirGrid maintain that this option is not available to Ireland, while it is ESB's stated preferred option. We have received legal submissions from both stakeholders in relation to this issue. We have also been provided by both with analysis comparing the current arrangements with the requirements of the ITO option under the Directive, thus taking a "line by line" approach.

EirGrid

EirGrid's legal submission concludes that Article 9(9) is "not available to Ireland". EirGrid's legal submission advances two alternative explanations for their conclusion.

Firstly, it argues that:

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29 The drafting of Article 9(9) itself is not clear whether the relevant arrangements themselves had to be in place at 3 September 2009. The European Commission's interpretative note added the words "at that date", clarifying that, in the European Commission's view, it is appropriate to consider the arrangements in place as at 3 September 2009 and not at a later date.
"Article 9(9) is best viewed as a procedural mechanism for establishing that a transmission system structure, where the ownership and operation reside with a vertically integrated undertaking, complies with ITO requirements...On this view, there is nothing to open the provision to use by TSOs other than those that are structured as ITOs."30

This interpretation attempts to exclude the Irish arrangements on the basis that EirGrid is not part of a VIU. Their view is not supported by any provision in the Third Package.

Secondly, the advice sets out an alternative argument that, in any event, the arrangements in place at 3 September 2009 do not guarantee more effective independence of the TSO than the ITO option. The legal advice concludes that the current arrangements fail to comply with the requirements of the second of the criteria we have identified above.

The legal advice identifies two main reasons why the arrangements in place on 3 September 2009 do not guarantee more effective independence that the ITO option. The following extracts from the legal submission explain:

"in our view the TSO must be responsible for the maintenance and development of the network in each of the three permitted models, and by extension under Article 9(9) as well. Article 9(9) is an exception to the requirement of Full Ownership Unbundling and must be interpreted very restrictively; and secondly (i) "In each of the three models contemplated by the New Directive ownership of the transmission system must reside in a legal entity that is separate from the vertically integrated undertakings generation and/or supply business. [As the current arrangements do not provide for this] they could not be considered as guaranteeing greater independence [than the ITO option] and it cannot have been the intention that Article 9(9) would allow such an outcome".

We have also been provided with a detailed analysis comparing the current arrangements against the requirements of Article 14 (which sets out ITO option). This was done on a line–by–line approach, assessing each provision of Chapter V individually.

In relation to how independence should be judged, EirGrid highlight that the analysis:

"is not a comparison between equivalent structures [but rather, it is a comparison] of: Scenario A the (hypothetical) independence of an ITO (transmission operation and ownership) from the remainder of the Vertically Integrated Undertaking with Scenario B the (actual) independence of EirGrid as Transmission System Operator on 3rd September 2009, given that the transmission assets were owned by ESB on that date."

The advice concluded that there are a number of areas where the arrangements in place on 3 September 2009 fell short of the criteria. The key aspects were noted to be procurement, construction, maintenance, development and investment.

30 See paragraph 5.5.4 to 5.5.6 of EirGrid's legal advice dated 12 February 2010.
A key reason given in support of this view was the relative power to make decisions of EirGrid (under the current arrangements) versus a hypothetical ITO. The submission comments that:

"the power to make decisions, without consultation or agreement with a Vertically Integrated Undertaking with respect to all of these items, is intrinsic to the test to be applied as at 3rd September 2009. In many cases, with respect to an ITO, it is either expressed or implied that the System Operator is to be able to discharge, independently of the Vertically Integrated Undertaking, functions that would presuppose it has full control over procurement, investment and development decisions. That is not the case under the current model in Ireland."

Finally, EirGrid make clear that, though they have approached the issue through a line-by-line approach, that they consider the test under Article 9(9) would not be met under a purposive test either.

**ESB**

By contrast, ESB supports a derogation under Article 9(9), concluding that the arrangements in place on 3 September 2009 clearly guarantee more effective independence of the TSO than the ITO option. The main argument in support of this is that the operation of the network is carried out by EirGrid, which is fully separate from ESB and, on that basis, enables more effective independence than could be achieved under the ITO option (which would retain both ownership and operation functions within a vertically integrated company).

ESB have also produced a legal submission consisting of a detailed "line-by-line" analysis and Counsel's opinion. The legal submission makes several points in favour of Article 9(9) applying.

Firstly, Article 9(9) does not need to comply with the Chapter V (ITO) requirements but rather "the rules in force be superior to in the sense of being more effective than those contained in Chapter V in relation to guaranteeing the independence of the TSO" and "it necessarily follows that that the domestic rules must differ in certain respects".

Secondly, the requirements of Article 17 are "predicated on the assumption that the TSO is part of the VIU." Furthermore, EirGrid has greater independence that under the ITO option because it is not part of the VIU and provisions are in place in Regulation 9(1) of S.I 445 of 2000, which ensure that "the TSO is effectively immune from influence by the owner of the transmission assets."

Thirdly, in relation to maintenance and investment planning, the current arrangements set out in SI 445 of 2000 (Regulation 8(1)) make clear that these functions ultimately rest with the TSO. ESB is acknowledged to have a role in this regard, which is explicitly set out under SI 445 of 2000 and the infrastructure agreement but concludes: "the TSO enjoys the exclusive function of dictating the measures required for the maintenance and development of the transmission system… ESB, in effect, implements EirGrid’s decisions in this regard. However, it does appear that ESB has no power to dictate terms to EirGrid."
Finally, in relation to planning and development, it is noted that EirGrid has sole responsibility for drawing up the development plan, which is subject to regulatory approval only.

8.2 Our assessment

Article 9(9) is not given much attention in the European Commission's interpretative note other than to confirm as follows:

"Member States can derogate from the specific rules concerning ownership unbundling, ISOs and ITOs, where on 3 September 2009, the transmission system belonged to a vertically integrated undertaking and at that date arrangements were in place which guarantee more effective independence of the TSO than the specific provisions concerning the ITO model."

It is clear that Article 9(9) need not comply with any of the specific rules applicable to the other three options. Rather, Article 9(9) permits Member States to retain their arrangements as already in place as at 3 September 2009 if it can be demonstrated that those arrangements are more effective at guaranteeing independence for the TSO than the ITO option. Article 9(9) was therefore intended to accommodate arrangements that do not comfortably fit the criteria of any of the options but that offer more effective independence of the TSO than the ITO option.

We agree with EirGrid's legal submission in relation to how the independence should be judged. That is, that a comparison between the independence of a hypothetical ITO and the current arrangements should be undertaken. We have seen nothing from ESB that contradicts this approach. Going further, we consider that the appropriate test for independence when considered in relation to Article 9 as a whole, should be in relation to the independence a TSO enjoys from supply and generation activities. FOU (considered by the European Commission to offer the best independence) achieves this by fully separating the functions of transmission from that of generation and/or supply. In our view, this same principle should apply in relation to Article 9(9). Accordingly, it is appropriate to consider how independent the TSO is from supply and generation under the ITO option and to carry out this same task for current arrangements. Thereafter the following question should be considered – which offers the more effective independence?

Commentary from Cabou on Article 9(9) concludes that

"the only TSOs in the EU that could possibly benefit from [Article 9(9)] can probably be found in Scotland, Ireland and Denmark; this is provided the Member States concerned can demonstrate that they comply with the conditions of Article 9(9)."  

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31 EU Energy Law, para. 4.56

**Article 9.9**
However Cabou's commentary is not the official position of the European Commission and at this stage there is insufficient evidence to conclude that this will be the approach taken by the European Commission in practice.

In relation to the practical task of demonstrating that the arrangements guarantee more effective independence for the TSO than the ITO option, we have considered two different approaches to this.

The first approach would be to carry out a purposive consideration of the ITO requirements by the effectiveness of the current arrangements against the ITO arrangements as a whole. This would involve taking a purposive approach to the comparison, allowing there to be a recognition that, though there may be weaknesses in some areas, when considered overall the current arrangements are capable of guaranteeing a more independent TSO.

The second approach would be to carry out a detailed "line-by-line" comparison. This would mean looking at each ITO requirement individually and judging that, for each one, the current arrangements are more effective than the ITO provisions. Clearly this would be a much more difficult test to satisfy and would be a much more complex task due to the difficulty of accurately comparing every individual aspect of such widely differing models.

In the absence of any guidance from the European Commission, it is not clear which approach it would take to assess the arrangements against the ITO model in practice for the purposes of certification.

If a purposive approach is taken, Ireland may have a reasonable case to make in demonstrating that the current arrangements offer more effective independence than the ITO model. Leaving aside the issue of ministerial control, the fact that EirGrid is separate from supply and generation activities might prove to be a persuasive factor as, on the face of it, this may tend to imply better independence from supply and generation than a TSO which remains part of a VIU (and therefore still has a link with supply and/or generation businesses). In respect of the key decisions whereby a VIU could discriminate against potential competitors, EirGrid also has a significant decision making role (for example, system operation, third party access, network planning, and maintenance policy.

Moreover, Ireland would be able to point to the fact that not a single complaint has been made to the regulator or the competition authority suggesting that ESB has engaged in discriminatory behaviour. We have also found no evidence to suggest that the current arrangements have acted as a significant barrier to entry – in this respect Ireland can point to the significant entry that has taken in place in respect of the generation market.

Finally, we note that Ofgem, in their recently published consultation on the Certification of Transmission System Operators under the Third Package (ref:97/10) are proposing to adopt the following approach to assessment

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**Article 9.9**
“Assuming DECC do make the Article 9(9) derogation available, the Authority will need to reach a view on whether the arrangements SHETL and SPTL, had in place on 3 September 2009 meet the test for the Article 9(9) derogation; that is, whether they guarantee more effective independence of the TSO than the ITO provisions. In considering this matter, we do not set out a line by line analysis of the Scottish electricity transmission companies’ compliance against these ITO provisions as we are not assessing the compliance of the Scottish electricity transmission companies with the ITO model itself. Rather, we summarise the main provisions of the ITO model. We then set out in summary the arrangements with respect to the separation of tasks between SHETL and SPTL and the independent SO, NGET, and the licence requirements on SHETL and SPTL to have certain ring-fencing arrangements in place.”

We also consider it informative to compare the arrangements in Ireland to the other jurisdictions which could seek an Article 9(9) derogation – Scotland and Northern Ireland.

**Scotland**

In Scotland, the transmission system is owned by SSE and ScottishPower but operated by National Grid.

In Scotland, the Transmission Owner-System Operator Code (STC) governs the relationship between the TAO and TSO. The STC performs a similar function to the Infrastructure Agreement between EirGrid and ESB in Ireland. In Scotland, National Grid is responsible for operation of the transmission system, including third party access. However, SSE/SP have an important role in relation to planning, development and maintenance. SSE/SP are required under its licence to offer transmission services to National Grid, including in relation to the construction of new infrastructure to support connection offers made by National Grid to Users. Due to the active role taken by SSE/SP in the Scottish ISO model, it is generally described as a "shallow" or "thin" model. This model seems unlikely to be compliant with the Third Package ISO model, which requires the TSO to have responsibility in matters that, under the Scottish model, are currently under the remit of SSE/SP.

The European Commission, when considering the ISO option in the working document accompanying their draft legislative proposals32, commented on the Scottish arrangements, which it noted was the best-known example of an existing ISO.

The European Commission noted that the arrangements in Scotland were "contrary to the 3rd package proposals"33, however acknowledged that the Scottish ISO

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33 para. 5.1.9

**Article 9.9**
model "functions reasonably well"\textsuperscript{34} due to the "peculiarities" of the situation in Scotland. These peculiarities were noted to be as follows:

\begin{itemize}
\item 
  \begin{itemize}
  \item \((i)\) the Scottish electricity market is relatively small and largely isolated from the rest of the UK. The grid is therefore relatively easy to manage;
  \item \((ii)\) National Grid is an experienced, ownership unbundled TSO in the neighbouring area guaranteeing its independence and preventing "cross-border" problems; and
  \item \((iii)\) Ofgem is a strong regulator closely monitoring the relationship between the ISO and the asset owners"
  \end{itemize}
\end{itemize}

As noted above, the Scottish arrangements appear to allow SSE/SP to exercise more influence on TSO functions than the arrangements in Ireland.

Article 9(9) was introduced into the Electricity Directive following pressure from the UK Government and has accordingly been termed by some commentators as "the Scottish option". However, this label is misleading, as derogations under Article 9(9) are available in principle to any member state that can demonstrate that its transmission arrangements meet the criteria.

**Northern Ireland**

In Northern Ireland, the transmission system is owned by NIE, but operated by SONI. The arrangements in Northern Ireland follow those in Scotland most closely, with the TAOs having an important role in relation to planning, development and maintenance.

**Summary**

The table below highlights the differences between the current arrangements in place in Scotland, N Ireland and the Republic of Ireland. As can be seen from the Table the arrangements in Scotland and N Ireland appear to allow the asset owners to exercise more influence on TSO functions than the arrangements in Ireland.

On this basis, while it may prove to be the case that none of the three jurisdictions will either apply or receive an Article 9(9) derogation, it is hard to identify an obvious rationale as to why Ireland would be refused a derogation were one to be granted either to Scotland or to N Ireland.

\textsuperscript{34} as above

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**Article 9.9**
Table 9. Comparison of Irish, Scottish and N Irish arrangements

<table>
<thead>
<tr>
<th>Activity</th>
<th>Ireland</th>
<th>Scotland</th>
<th>N Ireland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asset ownership and financing</td>
<td>TAO</td>
<td>TAO</td>
<td>TAO</td>
</tr>
<tr>
<td>System operations</td>
<td>TSO</td>
<td>TSO</td>
<td>TSO</td>
</tr>
<tr>
<td>System planning</td>
<td>TSO</td>
<td>TAO/TSO</td>
<td>TAO/TSO</td>
</tr>
<tr>
<td>Connection agreements</td>
<td>TSO</td>
<td>TSO</td>
<td>TSO</td>
</tr>
<tr>
<td>Wayleaves/planning</td>
<td>TSO</td>
<td>TAO</td>
<td>TAO</td>
</tr>
<tr>
<td>Maintenance policy</td>
<td>TSO</td>
<td>TAO</td>
<td>TAO</td>
</tr>
<tr>
<td>Construction and maintenance work</td>
<td>TAO</td>
<td>TAO</td>
<td>TAO</td>
</tr>
<tr>
<td>Connection of IPPs</td>
<td>TAO/TSO</td>
<td>TAO</td>
<td>TAO</td>
</tr>
</tbody>
</table>

8.2.2 Conclusion

Ultimately, Ireland can only make an Article 9(9) derogation if (i) the Commission certifies the TSO under Article 10 of the Electricity Directive; and, thereafter, (ii) the European Commission makes a decision in favour of certification under Article 3(6) of the Access Regulation.

At present, it is not possible to determine what the decisions of these bodies are likely to be. For this reason, there is an element of risk to pursuing this option. However, we suggest that

- If the Commission takes a purposive approach to assessment, Ireland is likely to be able to pursue a stronger case; and
- the arrangements in Scotland and N Ireland appear to allow the asset owners to exercise more influence on TSO functions than the arrangements in Ireland.

Article 9.9
9 Conclusions

This report has examined in detail the options available to Ireland under the Directive.

The key findings from our assessment can be summarised as follows.

- **Ownership Unbundling**: The cost benefit analysis of this option depends significantly on the structure of the transaction. Below we set out our findings in relation to the scenarios put forward by ESB and EirGrid respectively.

  **Transaction at fair market value**: In this scenario ESB would receive fair market value for the transmission assets. Our central estimate is that this scenario is associated with net benefits with a NPV of between €1 million and €16 million to 2025. In addition, ownership unbundling could be associated with other benefits, including improvement in the capacity of the CER to apply incentive regulation to EirGrid, faster renewable connections, a stronger position as regards interconnection, and some scope as regards competition and customer service. However, our assessment suggests that EirGrid would, in this case, require a substantial equity investment, [Text redacted].

  **Transaction at 50% of RAB**: We have also considered a scenario in which ESB would receive a payment of 50% of RAB and EirGrid would take on debt of 50% of RAB. Our assessment suggests that this structure would worsen the financial position of both companies, and has the potential to significantly increase the cost of debt, due to a lowering of credit ratings. Our central estimate is that this structure is associated with a net cost in NPV terms of between €110 and €130 million to 2025. In addition EirGrid and possibly also ESB may have to reprofile their capital investment programmes, leading to a risk to the delivery of Ireland’s renewable targets. While the additional benefits identified in the first scenario would also apply in this case, there is a risk that the wider regulatory benefits will not emerge, as these depend critically on EirGrid being a well capitalised entity. Finally it is likely that an additional payment could be required to the ESOP. As an alternative to a cash mayment, the ESOP’s shareholding in ESB could be increased.

- **ISO**: We have considered arguments as to the appropriate interpretation of the ISO model. While it is ultimately a matter of interpretation, and will depend on the view of the Commission, it is likely that the shallower the model the greater the degree of legal risk in relation to compliance. We carried out a cost benefit analysis of the ISO model in which all functions bar financing are carried out by EirGrid. Our assessment suggests that this
model, if applied in Ireland, would be associated with net costs of between €8 million and €20 million. It is also likely to result in a significant worsening of the CER’s ability to incentivise capital investment.

- **ITO:** We carried out a relatively brief assessment of the ITO, as the option is not favoured by any party, and is largely considered to be retrograde in the context of the Irish electricity market. We concur with that assessment.

- **Article 9(9):** It appears clear that Ireland is one of a small number of jurisdictions that could apply for an Article 9(9) exemption. Ultimately, Ireland can only make an Article 9(9) derogation if (i) the CER certifies the TSO under Article 10 of the Electricity Directive; and, thereafter, (ii) the European Commission makes a decision in favour of certification under Article 3(6) of the Access Regulation. At present, it is not possible to determine what the decisions of these bodies are likely to be. For this reason, there is an element of risk to pursing this option. However, we suggest that if both the CER and European Commission take a purposive approach to assessment, Ireland is likely to be able to pursue a relatively strong case.

Conclusions
Annexe 1: Full Terms of Reference

Section 1: Invitation

The Department of Communications, Energy & Natural Resources (hereinafter referred to as ‘the Department’) invites tenders from suitably qualified parties to carry out an analysis (‘the Task’) regarding the structure of ownership of Ireland’s state-owned electricity transmission assets.

Section 2: Background

Ireland’s electricity market is undergoing significant change. The impetus for change results from the desire of the Government to structure the market in a manner that optimises its contribution to Ireland’s economic competitiveness, from EU regulation, and from an increasing focus on environmental obligations and objectives, including the development of renewable energy sources.

The Energy Policy Framework 2007-2020 (published on 12 March 2007) and the Programme for Government (13 June 2007) endorse the case for a process of structural change in the electricity sector. The actions agreed by the Government aim to create the conditions that will deliver more competition, more consumer choice and support greater innovation in the electricity market and aim to ensure the strategic development of the state-owned distribution and transmission networks. In relation to the structure of ownership of the electricity transmission network, the Energy Policy Framework set out the following as a key action:

“Establish EirGrid as the National Transmission Grid Company by end 2008, transferring the ownership of the transmission assets. This will create efficiencies, reduce duplication and achieve full independence thus enhancing competition and transparency and reducing costs.”

A change in the structure of ownership of the transmission network is a complex process involving a range of legislative, commercial, technical, legal and financial dimensions. In line with successive Partnership Agreements, it has been recognised that there should be a full process of engagement with the management and unions of both ESB and EirGrid and the ESB’s Employee Share Ownership Trust (ESOT) on analysis of the issue. Furthermore, Government policy is clear in its intention that this issue be approached in a way that ensures the strategic future of both ESB and EirGrid as strong viable semi-state entities, as well as protecting the position of the State and the members of the Employee Share Ownership Plan (ESOP) as shareholders.

These underlying objectives were confirmed in the statement made by the Minister for Communications, Energy and Natural Resources on the future of Ireland’s electricity sector on 13 March 2008 (see Appendix B). This, inter alia,
proposed an independent analysis of the transmission assets issue in the context of the all-island Single Electricity Market, and in the context of EU developments since 2007.

Under Directive 2009/72/EC of the EU Third Energy Package, which became law this year, Member States will be required, by 3 March 2011, to legislate for a new unbundling regime for electricity transmission networks under one of three options. A provision is also provided for Member States who wish to make a case to the European Commission that the status quo guarantees more effective independence of the transmission system operator than the third option (ITO).

The three options under the Directive are:

- **The Full Ownership Unbundling option** entails a full separation between the ownership of electricity transmission networks and supply/generation activities. Under this regime, owners of electricity grids cannot be affiliated with or be part of a group which is also active in supply or generation and the owner of the network will be required to operate and control the network.

- **The ISO (Independent System Operator) option** allows vertically integrated companies to retain the ownership of their network assets, but the network is managed and operated by an ISO. The ISO has to be an undertaking or entity which is completely separate from the vertically integrated company and must perform all the functions of a network operator.

- **The ITO (Independent Transmission Operator) option** constitutes the lowest threshold for network unbundling under the Directive. The ITO preserves integrated supply and transmission companies but obliges such companies to comply with additional rules to ensure that both the ownership and operation of the transmission system is the responsibility of a fully independent subsidiary.

The Directive also contains a provision which allows for the possibility that, where a Member State considers that there are current arrangements in place which guarantee a more effective independence of the transmission system operator than the ITO regime, the Member State may make this case to the European Commission.

**Annexe 1: Full Terms of Reference**
Section 3: The Task

There are two phases to the task.

1. The Examination Phase

The successful tenderer (‘the Consultant’) will be required to examine all the options available to ensure Ireland’s compliance with Directive 2009/72/EC of the EU Third Energy Package. In this examination the Consultant will compare each of the other three scenarios set out in Directive 2009/72/EC against the Government’s preferred option of Full Ownership Unbundling. The Consultant will also take into account regional and European grid developments and proposals and the all-island Single Electricity Market context.

The Examination Phase analysis should examine the impact of the Full Unbundling Option and each alternative option on;

- the energy sector generally,
- the structure and operation of the all-island electricity market,
- energy users,
- planned grid development,
- legal and regulatory complexity and
- the likelihood of transmission system operator certification under Directive 2009/72/EC and Regulation 2009/714/EC.

Focussing on the implications that arise for the electricity transmission network under each option, the Examination Phase should take account of, among other factors:

- the ability to attract investment in the transmission network,
- ongoing transmission network construction and expansion,
- ability to deliver international electricity interconnection,
- transmission network maintenance costs and operational practices and
- potential operational and other efficiency gains including from reductions in overheads, duplication of activities and transaction costs.

The analysis should also take account of the potential impact, including costs and benefits, of each option on:

- investors in new power generation (including investment in renewable generation),
- the financial structure, value and capabilities of both ESB and EirGrid,

Annexe 1: Full Terms of Reference
- competitive electricity pricing objectives,
- standards of service,
- security of supply,
- sustainability,
- network access,
- any likely change in transmission charges arising from the financial structuring of the option,
- competition issues and
- transparency in market and consumer choice.

The analysis shall take account of submissions by the key stakeholders. Submissions may also be received from other parties. It is anticipated that some submissions may suggest courses of action that diverge from Government policy. Account should be taken of such submissions in the conduct of the analysis.

The analysis shall include consideration of the requirement to protect the value of the ESB ESOP.

The Consultant, after examination, will identify the option or options, in addition to Full Ownership Unbundling, which in the Consultant’s assessment would also be appropriate in the Irish and all-island electricity market contexts.

2. Implementation Phase

In this Phase, the Consultant will be required to make recommendations and produce a roadmap for the timely implementation of both the Government’s preferred option (Full Ownership Unbundling) and the other option or options identified as appropriate in the Examination Phase.

Account shall be taken of all relevant issues and regulatory impacts, including:

- **Corporate issues**, including the effects on ESB and EirGrid of implementing the option.
- **Legal issues**, including assessments of the legislative requirements of the option; necessary contract provisions and undertakings in connection with the structure; competition, regulatory, and EU aspects including the implications of Directive 2009/72/EC; corporate governance issues, including shareholder and minority shareholder issues and entitlements; and HR/TUPE (Transfer of Undertakings - Protection of Employees) aspects of the option.
- **Financial issues**, including corporate finance issues, taxation issues, options for structures to effect the option, provision of a financial

**Annexe 1: Full Terms of Reference**
model describing the option, shareholder and minority shareholder issues and entitlements, transactional costs arising to identified bodies, financial and cost implications for other parties including electricity suppliers and users.

- Technical issues in relation to the nature of transmission systems should form part of the analysis only insofar as they give an understanding of corporate, legal and financial aspects. Detailed identification of transmission assets will not be required as part of this analysis.

Based on the analysis, the Consultant should provide a detailed implementation plan setting out the necessary steps for the implementation of each option examined under this phase of the Task in a manner which ensures compliance with the Directive. This plan should also identify the necessary steps to optimise the positions of both the ESB and EirGrid, and to protect the value of the ESB ESOP.

Reporting Requirements for the Task are set out in Section 5.

Section 4: Project Management

The Minister appointed Mr Fergus Cahill as Independent Chairman in June 2009 with responsibility for the oversight and facilitation of the analysis, in accordance with the Minister’s announcement on the issue in March 2008 – see Appendix B.

All communication from the Consultant in relation to the Task shall be done through the Independent Chairman or a person specifically nominated by the Chairman to undertake this role.

Section 5: Reporting requirements

The Consultant will be required to produce and submit, through the Independent Chairman, to the Minister:

- A Report which fully completes the analysis of both the Examination and Implementation phases of the Task, within four calendar months of the date of commencement of the contract.

The Consultant will be expected to report regularly to the Independent Chairman on progress with the assignment.

The Consultant will be expected to give presentations on the Report as required by the Independent Chairman.

Annexe 1: Full Terms of Reference
Annexe 2: Approach to unbundling in other member states

The Third Energy Package requires the member countries to adopt the FOU, ISO or ITO model. The existing arrangements form the starting point and thus play an important role in influencing the selection of the option in order to become compliant with the TEP.

The existing market structures of the electricity transmission systems differ significantly between member countries. For example, in some countries such as Spain, system operator and owner reside within the same organisation, while in others, such as Greece this is not the case. Further, the level of unbundling ranges from low (in vertically integrated organisations) to high (in ownership unbundled organisations). As a result, the model expected to be adopted by the countries also differs significantly.

The Figure below describes the existing arrangements for a number of member countries. Further details of existing arrangements and developments in response to the TEP are given below for 12 member countries.
**Figure 5. European experience**

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Country</th>
<th>Owner</th>
<th>Grid Ownership details</th>
<th>Operator</th>
<th>Part of VIU?</th>
<th>Expected measures for TEP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Finland</td>
<td>Fingrid</td>
<td>Finnish state (12%), Fortum (25%), Pohjolan Voima (25%)</td>
<td>Fingrid</td>
<td>No</td>
<td>FOU (State plans to execute the change of ownership via voluntary deals with Fortum and Pohjolan Voima)</td>
</tr>
<tr>
<td>2</td>
<td>Lithuania</td>
<td>Lietuvos Energija AB</td>
<td>Visagino Atominė Elektrinė UAB (96.4%)</td>
<td>LITGRID</td>
<td>No</td>
<td>FOU (plans for ownership restructuring are underway)</td>
</tr>
<tr>
<td>3</td>
<td>Italy</td>
<td>Terna</td>
<td>Cassa Depositi e Prestiti (29.94%), Enel (5.1%), Pictet Funds Europe S.A. (4.9%), Blackrock Inc. (2%), Assicurazioni Generali Casselli (2.1%)</td>
<td>Terna</td>
<td>No</td>
<td>FOU (Current arrangements - ownership unbundled)</td>
</tr>
<tr>
<td>4</td>
<td>Spain</td>
<td>REE</td>
<td>Free float (80%), SEPI (20%)</td>
<td>REE</td>
<td>No</td>
<td>FOU (Current arrangements - ownership unbundled)</td>
</tr>
<tr>
<td>5</td>
<td>Poland</td>
<td>PSE Operator</td>
<td>State (100%)</td>
<td>PSE Operator</td>
<td>No?</td>
<td>FOU (Current arrangement - Legal Unbundling)</td>
</tr>
</tbody>
</table>

Source: Frontier Economics

**Figure 6 (contd.) European experience**

**Annexe 2: Approach to unbundling in other member states**
<table>
<thead>
<tr>
<th>Sr No</th>
<th>Country</th>
<th>Owner</th>
<th>Grid Ownership details</th>
<th>Operator</th>
<th>Part of VIU?</th>
<th>Expected measures for TEP</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Norway</td>
<td>Statnett</td>
<td>State (100%)</td>
<td>Statnett SF</td>
<td>No</td>
<td>FOU (Current arrangements - ownership unbundled)</td>
</tr>
<tr>
<td>7</td>
<td>Portugal</td>
<td>REN</td>
<td>Capitalpor (46%)</td>
<td>REN</td>
<td>No</td>
<td>FOU (Current arrangements - ownership unbundled)</td>
</tr>
<tr>
<td>8</td>
<td>Belgium</td>
<td>Elia</td>
<td>Free float (52.10%),</td>
<td>Elia</td>
<td>Yes</td>
<td>FOU (Current arrangements - ownership unbundled)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Publi-T (45.37%),</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Publipart (2.53%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>United Kingdom</td>
<td>National Grid</td>
<td>Free float (100%)</td>
<td>National Grid</td>
<td>No</td>
<td>FOU</td>
</tr>
<tr>
<td></td>
<td>E&amp;W</td>
<td>NIE</td>
<td>Viridian</td>
<td>SONI</td>
<td>No</td>
<td>9(9)</td>
</tr>
<tr>
<td></td>
<td>Northern Ireland</td>
<td>Scottish Power</td>
<td>Iberdola (100%)</td>
<td>National Grid</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scotland</td>
<td>SSE</td>
<td>Free float (100%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Netherlands</td>
<td>Tenet</td>
<td>TenneT Holding B.V.</td>
<td>TenneT</td>
<td>No</td>
<td>Current arrangements - FOU (complaint)</td>
</tr>
</tbody>
</table>

Source: Frontier

Annexe 2: Approach to unbundling in other member states
9.1.1 Austria

The national grid is divided into three control areas. The transmission networks are owned by the three legally unbundled TSOs: APG (100% subsidiary of Verbund), TIWAG Netz AG (100% subsidiary of TIWAG) and VKW.

Current Austrian legislation provides for legal unbundling (LU) of electricity transmission system owners. The requirements of each of the approaches proposed under TEP exceed that under LU. Therefore, changes might be needed in order to be compliant with the new EU legislation.

Austria is one of the eight Member States that opted for the “third way approach” to avoid implementation of FOU and ISO-model. It is thus very unlikely that FOU will be implemented in the near future.

Some transmission system owners in Austrian electricity may be close to being an ITO. For example, VERBUND Austrian Power Grid AG do own the respective transmission networks and are equipped with sufficient human, physical and financial resources (eg). However, some other transmission system owners share personnel and services with the relevant VIU. Most of the transmission system owners carry a corporate name derived from the VIU.

All three Austrian electricity transmission system owners are organised as a stock corporation. As the owners of stock corporations are not entitled to give instructions to the management (unlike limited liability companies) stock corporations are meant to ensure independence of the management from the company’s owners.

However, the choice of the legal form alone will not suffice to meet the requirements of the ISO or the ITO model.

9.1.2 Belgium

The Belgian TSO is composed of two legal entities, the system operator Elia System Operator NV, and Elia Asset NV who owns the transmission grid and is a subsidiary of Elia System Operator NV. Both companies form one economic entity with identically composed executive boards.

Belgium prescribes legal unbundling for the TSO. The Belgian Electricity Act contains several unbundling conditions and obligations for the grid operator, regarding either its board of directors or its interests in other companies:

- The operator cannot be active in the production or supply of electricity; he can have no membership rights in such companies and cannot undertake activities in the production or sale of electricity, other than necessary for the ancillary services (eg, reserve capacity, black-start).

Annexe 2: Approach to unbundling in other member states
• The Belgian Electricity Act also imposes restrictions on the administrative board’s powers (no executive powers in the grid operator) and its members. They may not have any position in a producer or supplier etc.

• In addition, three committees within the administrative board need to be established, dedicated to remuneration, corporate governance and audit. However, the Electricity Act imposes few provisions on third parties (shareholders) in order to assure the operator’s independence.

• Only half of the administrative board’s members are required to be “independent”. Since some board members can belong to producers/suppliers, Belgium is not compliant with the new Electricity and Gas Directives.

• The Act is silent on the operator’s shareholder structure. The former monopolist Electrabel holds 35% of the grid operator’s shares. The New Electricity and Gas Directives allow producers to have only a minority interest in the grid operator.

The ownership unbundling regime can be complied with if certain adaptations regarding the shareholder structure of the TSO are inserted in the Electricity Act.

9.1.3 Denmark

Energinet.dk owns the 400 kV electricity transmission grid and the 132 kV and 150 kV electricity grids. Energinet.dk’s wholly owned subsidiary – Eltransmission.dk A/S operates and maintains the electricity transmission grids.

The Act on Energinet.dk already imposes the separation of operation of electricity networks from generation and supply of electricity. The Act stipulates that the overall electricity infrastructure, for which Energinet.dk is responsible, must remain public property.

Energinet.dk is thus an independent public undertaking owned by the State of Denmark.

The Danish state owns both DONG Energy A/S (an energy company which is engaged in production and supply of energy) and Energinet.dk. Since the State ownership of DONG Energy is represented by the Danish Ministry of Finance and the ownership of Energinet.dk is represented by the Danish Ministry of Climate and Energy, ownership is divided among two separate legal persons. Thus, a sufficient unbundling regime is already in place.

A part of the Danish electricity transmission network is still owned by both publicly and privately owned vertically integrated electricity companies in accordance with the Danish Electricity Supply Act. The Danish Ministry of Climate and Energy, is considering introducing an unbundling regime in line with

Annexe 2: Approach to unbundling in other member states
the ISO option where the grid ownership will be retained by the relevant companies, but operation of the grids will be undertaken by separate companies.

9.1.4 Finland

The Finnish TSO, Fingrid, is a privately held company owned by Fortum Power and Heat Oy (25%), Pohjolan Voima (25%), the Finnish Government (12%) and institutional investors (38%). Some of these owners also own generation and supply.

As a result of the unbundling requirements set under the TEP, two of the current shareholders, Fortum and Pohjolan Voima, have announced that they will sell their shareholding in Fingrid. The Finnish Government and also Ilmarinen (a mutual pension insurance company), has also announced its interest to increase its ownership in Fingrid.

9.1.5 France

In France, the transmission grid is owned and operated by the Réseau de Transport d'Electricité (RTE). RTE is a wholly-owned subsidiary of Electricité de France (EDF) which owns generation and supply in France.

France was one of several Member States to express strong opposition to the options initially envisaged by the Commission – FOU & ISO. The Commission eventually revised the options to include the ITO (‘independent transmission operator’) model.

CRE stated in May 2009 that “ITO model, which is closest to the present situation, will be adopted by the French TSOs”. In the short or medium term, very little institutional change for such TSOs is therefore expected. Nevertheless, to be compliant with the ITO model as laid out in the Directive, the TSOs will be subject to increased regulatory oversight and will operate under a more stringent regulatory framework.

9.1.6 Germany

The four incumbent German energy players, ie, E.ON, RWE, Vattenfall and EnBW, were fiercely opposed to ownership unbundling. However, in 2008 E.ON agreed commitments with the European Commission to sell its transmission grid (and some of its capacity). Soon after, Vattenfall also declared plans to sell its transmission grid. Both these sales were completed in 2009. E.ON sold its transmission grid to the Dutch transmission grid operator TenneT, and Vattenfall to Elia and to Industry Funds Management Proprietary Limited.

The two remaining incumbent energy suppliers, RWE and EnBW, have expressed their intention to not sell their transmission grid and remain vertically integrated.

Annexe 2: Approach to unbundling in other member states
Germany was one of the countries that proposed the “third way” option (ITO) and is thus unlikely to adopt FOU.

9.1.7 Greece

The ex-incumbent, PPC, owns the transmission and distribution network and holds a high market share in the generation and supply market. Greece thus lags behind in the implementation of the Second Electricity and Gas Directives.

Hellenic Transmission System Operator (“HTSO”) is the transmission system operator. It is currently owned by the Greek State (51%) and by the Public Power Corporation (49%).

Under the “ISO” model, PPC would not have to sell its system assets to HTSO. The latter would, however, have to undergo several structural changes in order to meet the requirements of the New Electricity Directive essentially related to PPC’s shareholding and rights.

Lastly, the third option (“ITO”) would be the least burdensome for the Hellenic energy market given that it preserves the integrated supply and transmission systems and thus would not entail the sale of assets or changes in HTSO’s shareholding.

The current developments in the market, coupled with the fact that Greece campaigned in favour of the adoption of the ITO model which preserves the current status quo, implies that Greece will most probably opt for the ITO model.

9.1.8 Italy

The Italian national electricity transmission grid is 98% held and managed by Terna Rete Elettrica Nazionale S.p.A. (“Terna”). Terna is an independent transmission system operator and does not exercise any direct or indirect control, or any other right, over any entity carrying out generation or supply of electricity. Terna by-laws limit the maximum stake which can be held in Terna by electricity sector players to 5% of the share capital of Terna. Terna has also been listed in the Italian stock exchange (Borsa Italiana) since 2004 and its shareholding is composed as follows (figures as of 19 December 2008 published on Terna’s website):

- Cassa Depositi e Prestiti S.p.A. holds 29.9% of the share capital of Terna;
- institutional and retail investors hold an overall quota of 29.9% of the share capital of Terna, including Enel’s quota equal to 5.1% and Pictet Asset Management SA’s quota equal to 5.1%; and
- other companies (such as Rete Ferroviaria Italiana S.p.A.) hold an aggregate quota equal to approximately 2% of Terna’s share capital.

Annexe 2: Approach to unbundling in other member states
The ownership and management of the Italian electricity transmission grid is already subject to unbundling rules. The Italian Authority for Electricity and Gas is also under discussions to re-shape its monitoring role in line with domestic unbundling regulation and in light of certain rulings of the Italian administrative courts that have set out specific limits to such a role.

9.1.9 Netherlands

The Minister for Economic Affairs introduced the “Amendment to the Electricity Act 1998 and the Gas Act in connection with further rules concerning Independent Network Management” (“Unbundling Act”), which required full ownership unbundling of the vertically integrated energy companies. Under this act (brought into force in 2007):

- companies carrying out network activities in the Netherlands are not allowed to be part of the same group (as defined in the Dutch Civil Code) as companies carrying out production, trading and/or supply activities.

- Furthermore, network companies are not allowed to hold any shares, directly or indirectly, in a production, trading and/or supply company and vice versa.

- Energy companies are given two and a half years (ie, until 1 January 2011) to complete the ownership unbundling process.

The Unbundling Act provides that public shareholders of energy companies are in principle not allowed to sell or transfer their shares in the network activities.

Netherlands has thus taken more far-reaching measures in respect of the unbundling of energy companies than the unbundling regime prescribed in the New Electricity and New Gas Directives.

9.1.10 Portugal

Since 2006, the Ministry of Economy, Innovation and Development has restructured the organisation and operation of the three main energy sectors: electricity, gas and oil. The restructuring resulted in some profound changes to the structure and operation of companies operating in the energy sector. With regards to the transmission of electricity, unbundling has already taken place and the Redes Energéticas Nacionais/National Energy Network (“REN”), is the independent operator with responsibility for transporting gas and electricity.

Therefore, Portugal has already implemented what is perhaps the key piece of legislation in the TEP, following on from the process of separating assets of energy companies in 2006.

Annexe 2: Approach to unbundling in other member states
9.1.11 Spain

Red Electrica España is, the Spanish TSO - responsible for the transmission of electricity and the operation of the electricity grid.

Out of the three models proposed under the Third Energy Package, Spain has opted for the ownership unbundling model. This decision is reflective of the developments in the last two decades in the legal and regulatory framework in the country:

- The Spanish Electricity Sector Act 54/1997 unbundled tasks and ownership of the electric energy sector. Several changes have already been made to the shareholding (either by means of the sale and purchase of assets or regulatory amendments) of Red Electrica de España (The Spanish TSO) to guarantee the liberalisation of the energy sector.

- Spanish Act 17/2007 designated Red Eléctrica de España as the sole electricity transmission operator, leading to the TSO model which has been considered by the European Union as the prime model for each country.

9.1.12 United Kingdom

The electricity generation and supply was separated from transmission in England and Wales at privatisation with the separate flotation of generation companies, public electricity supply companies and the National Grid. However, the Scottish market retained two vertically integrated generation, transmission, distribution and supply entities, covering the north and south of Scotland, respectively.

Although ownership of those networks remains with the vertically integrated Scottish entities, the operation of those networks is managed by National Grid in accordance with a System Operator- Transmission Owner Code. It is considered likely that an Article 9(9) derogation will be sought for Scotland.

Similar arrangements to those in Scotland also exist in N Ireland. DETI held a consultation on options in December 2009, but has yet to decide which option it will seek to implement.

Annexe 2: Approach to unbundling in other member states
Annexe 3: Stakeholder comments

This annexe contains the comments provided by stakeholders on the draft conclusions.
EirGrid Comments

Mr Fergus Coshill
C/o Department of Energy, Communications and Natural Resources
Adelaide Road
Dublin 2

23 December 2010

Re: Frontier paper on Transmission Asset Analysis

Dear Fergus,

Thank you for sending through the draft Frontier paper on 14 December 2010 and I attach here our comments as requested. Unfortunately the paper contains no details, analysis or rationale for any of the statements or assertions it makes and, at just over one page, is disappointingly short of any substance on which proper analysis or commentary can be provided. Further the contents of the paper contradict the evidence and analysis we have made available to Frontier and, crucially, the contents contradict the conclusions that Frontier themselves stated that they had reached in a meeting of 04 August 2010. Therefore I must reiterate our request that the full report be made available to EirGrid immediately.

The paper is clear in one respect – the only option that has the potential to deliver benefits is Ownership Unbundling. The Article 9(d) derogation maintains the status quo and delivers exactly zero benefits. The monetised level of the benefits associated with Ownership Unbundling in Frontier’s analysis is grossly understated and, as the paper itself states, does not include monetised values for those accepted benefits such as improved regulation; faster connections; better interconnection position for Ireland; improved competition and improved customer service. In not putting a monetary value on these very significant benefits, the report is in direct contradiction of the Department of Finance guidelines for conducting a Cost Benefit Analysis. Including these factors gives an overall net benefit of approximately €600m.

The analysis of the transaction structure where the assets are transferred at 50% of RAS is deeply flawed. EirGrid have comprehensive financial advice from both international banks and independent corporate finance specialists clearly demonstrating that this transaction structure is inappropriate, will not damage ESB or EirGrid and will promote the delivery of Grid 25 and the further integration of renewables. This is further supported by an analysis of the credit rating that EirGrid would expect to get and maintain under this transaction structure, where two independent banks indicated that EirGrid should expect a strong, investment grade, credit rating.

The paper would appear to suggest that an Article 9(d) derogation could be achievable (though it is notable that the paper does have a lot of caveats in the actual articulation of this view). This would mean forgoing the benefits of Ownership Unbundling and would be in direct contradiction with specific legal advice EirGrid has received on this issue which categorically states that the test for the derogation – guaranteeing independence for the 150 – is not met. Further, EirGrid’s experience of the current structure and arrangements is that they do not provide for sufficient or adequate levels of independence.

Director, Berdie Gray Chairperson
Sinead Byrne Chief Executive, Emer Daly, William Egeness, Cormac MacDonagh, David Mackey, Martina Maloney
Dr. Joan Smyth, Richard Sperling, John Williams
Registered Office: The Oval, 160 St. Stephen’s Road, Ballsbridge, Dublin 4, Ireland. Registered in Ireland No. 338532 VAT No. IE 63585221T

Annexe 3: Stakeholder comments
Ensuring a competitive electricity industry is critically important for Ireland. The paper correctly recognises that Ownership Unbundling is the only option under the EU 3rd Energy Package which will deliver this for Ireland. It is a structural reform of a critical sector which will deliver real benefits to customers.

There are many possible transaction structures to deliver the Ownership Unbundling option. The commentary provided in the Frontier paper, which referred to just two of these structures, is fundamentally flawed and incomplete. There needs to be expert corporate finance advisors engaged to appropriately structure the transaction so that it delivers the significant benefits identified for customers while ensuring the financial strength of both ESB and EirGrid.

We look forward to engaging with the Department on how the process will be brought forward and in particular on engaging with experts on corporate finance who can help structure the transaction so that the benefits of Ownership Unbundling which have been identified even by the Frontier report can be achieved.

Regards,

Dermot Byrne
Chief Executive
EirGrid plc
Transmission Asset Transfer
EirGrid response to Frontier Economics Paper

Executive Summary

Ownership Unbundling is the only option available under the EU’s 3rd Energy Package that can deliver benefits for Irish consumers; this is the key finding of the Frontier analysis. Unfortunately the Frontier paper contains no details, analysis or rationale for any of the statements or assertions it makes and, at just over one page, is disappointingly short of any substance on which proper analysis or commentary can be provided. The contents of the paper contradict the evidence and analysis EirGrid have made available to Frontier and, crucially, the contents contradict the conclusions that Frontier themselves stated that they had reached in a meeting of 04 August 2010.

The monetised level of the benefits associated with Ownership Unbundling in Frontier’s analysis is grossly understated and, as the paper itself states, does not include monetised values for those accepted benefits such as improved regulation; faster connections; better interconnection position for Ireland; improved competition and improved customer service. In not putting a monetary value on these very significant benefits, the report is in direct contradiction of the Department of Finance guidelines for conducting a Cost Benefit Analysis. Including these factors gives an overall net benefit of approximately €600m.

The Frontier paper would appear to suggest that an Article 9(9) derogation could be achievable (though it is notable that the paper does have a lot of caveats in the actual articulation of this view). This would mean forgoing the benefits of Ownership Unbundling and would be in direct contradiction with specific legal advice EirGrid has received on this issue which categorically states that the test for the derogation – guaranteeing independence for the TSO - is not met. Further, EirGrid’s experience of the current structure and arrangements is that they do not provide for sufficient or adequate levels of independence.

The analysis of the transaction structure where the assets are transferred at 50% of RAB is deeply flawed. EirGrid have comprehensive financial advice from both international banks and independent corporate finance specialists clearly demonstrating that this transaction structure is appropriate, will not damage ESB or EirGrid and will promote the delivery of Grid25 and the further integration of renewables. This is further supported by an analysis of the credit rating that EirGrid would expect to get and maintain under this transaction structure, where two independent banks indicated that EirGrid should expect a strong, investment grade, credit rating.

There are many possible transaction structures to deliver the Ownership Unbundling option. The commentary provided in the Frontier paper, which referred to just two of these structures, is fundamentally flawed and incomplete. There needs to be expert corporate finance advisors engaged to appropriately structure the transaction so that it delivers the benefits for customers while ensuring the financial strength of both ESB and EirGrid.

Ensuring a competitive electricity industry is critically important for Ireland. The paper correctly recognises that Ownership Unbundling is the only option under the EU 3rd Energy Package which will deliver this for Ireland. It is a structural reform of a critical sector which will deliver real benefits to customers.

We look forward to engaging with the Department on how the process will be brought forward and in particular on engaging with experts on corporate finance who can help structure the transaction so that the benefits of Ownership Unbundling which have been identified even by the Frontier report can be achieved.
Introduction

EirGrid received the draft Frontier paper on 14 December. It raises some very serious issues, both in terms of the process itself and the content of the paper. At just over 1 page, with no analysis, back-up or rationale to support any of the assertions contained in it, it is difficult to understand how the assertions in the paper were arrived at.

Nevertheless, the sections below attempt to address some of these fundamental issues, including:

- The Cost Benefit findings
- The financing of the Ownership Unbundling transaction and its effects
- The applicability of an Article 9(9) derogation

This paper concludes that the net benefits of Ownership Unbundling are significantly understated, the transaction is financeable and that Article 9(9) cannot, and does not, apply.

The only option that delivers benefits to customers is Ownership Unbundling. The next step therefore is to engage expert independent corporate finance advisors to structure the transaction so that it delivers the significant benefits identified for customers and ensures the financial strength of both ESB and EirGrid.

The process

EirGrid has provided a huge amount of information to Frontier and engaged in the process in an open and transparent manner. This has not been replicated. Specifically, at the conclusion of their analysis Frontier arranged a meeting with EirGrid so they could inform them of the conclusion of their work. At this meeting Frontier:

- accepted a level of benefits from Ownership Unbundling of €180-320m
- stated they were satisfied with EirGrid financing model and ability to finance Grid25
- indicated that an Article 9.9 derogation application was legally risky

The Frontier paper circulated does not reflect these clear conclusions and as such draws into question the integrity of the process.

By Frontiers admission they did not conduct their own independent analysis of the costs and benefits but instead engaged in a 'he-said-she-said' exchange with stakeholders, bringing no technical back-up or subject matter expertise to bear on any issue. This lack of independent analysis leaves many of the findings without credibility or basis in rationality.

A core example of this is the presentation of ownership unbundling and the potential transaction structures. There are a myriad of ways that the transaction could be structured. These are all state assets. Yet there was no attempt by Frontier to look at options or seek to find a way to best deliver Ownership Unbundling. This does a huge disservice to the Irish state, the Irish people and the electricity customer. Considering even the benefits that Frontier themselves identify it is incumbent on everyone to ascertain how they can be realised. Better infrastructure delivery, improved competition, faster renewable connection times, these all matter; they are important, they drive sustainability and competitiveness across the economy.

The next step on this specific issue is clear – there must be an examination of the financial structuring options to ascertain how the benefits of ownership unbundling should be delivered without damaging the financial strength of ESB or EirGrid. This must be conducted by a firm with knowledge and experience of corporate finance structuring.
Cost Benefit Analysis

The Frontier paper clearly states that Ownership Unbundling will result in net benefits. It is unclear why the quoted "central estimate" net benefit number does not include those other additional benefits which Frontier state will arise, associated with:

- faster renewable connections;
- stronger position as regards interconnection;
- improvements in competition;
- improvement in the capacity of the CER to apply incentive regulation;
- better customer service.

These are all central to delivery of a sustainable competitive industry and economy. They go directly to the heart of why and how structural reform can deliver benefits for customers. Excluding them implies that neither competitive energy supplies, nor Ireland’s renewables targets, nor increased/extended interconnection are important.

At this time in particular in its history it is imperative that Ireland have competitive energy supplies – to enable the economy to recover and grow. Even a small change in competitiveness yields significant benefits – for example, even a 1% reduction in wholesale costs delivers €30m per annum benefits.

The Department of Finance guidelines on conducting cost benefit analysis states the following: "In cost-benefit analysis, all of the relevant costs and benefits, including indirect costs and benefits, are taken into account. Cash values, based on market prices (or shadow prices, where no appropriate market price exists) are placed on all costs and benefits and the time at which these costs/benefits occur is identified." Frontier’s analysis has clearly not taken into account what it referred to as additional benefits, this is clearly a flawed approach and massively understates the benefits of Full Ownership unbundling. As an example, taking one of the additional benefits Frontier identified, detailed modelling of the effects of faster transmission connections show that this benefit alone would deliver €35 million per annum over the 15 years of Grid25.

As referred to earlier, Frontier themselves communicated directly to EirGrid at a meeting set up specifically to discuss their findings that the benefits from Ownership Unbundling according to their findings were in the range of €180-320m NPV over 15 years. Their revised findings of lower benefits is in stark contrast to this, and impossible to reconcile.

EirGrid’s own detailed cost benefit analysis demonstrated that the net benefits of Ownership Unbundling were, on a conservative basis, approximately €900m. To exclude significant effects, such as an improvement in competition, from a cost benefit analysis in the electricity sector in Ireland is wrong, misleading and potentially damaging to Ireland and all electricity consumers. In addition it is in direct conflict with the Department ofFinance guidelines for conducting cost benefit analysis.

Nevertheless, while the Frontier paper under-states the quantum of the benefits, it does clearly and categorically assert that they exist and can only be realised through Ownership Unbundling. It is therefore imperative that the appropriate transaction structure is put in place to realise ownership unbundling and capture these benefits for the electricity customer.
Ownership Unbundling and financial structures

The Frontier paper examines only two possible structures:

- transaction at fair market value: No implementation issues identified, albeit a view that EirGrid would require an equity injection in order to complete the transaction at that value
- transaction at 50% of RAB, view expressed that it would worsen the financial position of both ESB and EirGrid with a resultant increase in debt costs.

The analysis of the transaction at 50% is fundamentally flawed. EirGrid have engaged with international banks and corporate finance specialists to ensure that the model of a transaction at 50% RAB was robust with the required scope to deliver the capex program associated with Grid25.

Recently EirGrid asked two international banks (who lend extensively in the Irish energy sector) to provide specific advice of the credit rating that EirGrid should expect to receive following the asset transfer at 50% RAB. Both concluded that EirGrid would receive a strong, investment grade, credit rating. This included the requirement to deliver Grid25. This concurs with other analysis carried out by Deloitte and KPMG which clearly showed that under all scenarios the projected financial position remained strong and within the limits of all three major credit rating agencies for an investment grade rating.

EirGrid provided the detailed financial models to Frontier along with the advice and analysis received from Deloitte, KPMG, CEPA and others in this regard. On several occasions EirGrid offered to arrange meetings between Frontier and the international banks, however this was continually declined. We include here letters from Barclays Capital and BNP Paribas indicating their view on the credit worthiness of EirGrid post-transaction.

There is no basis in fact or analysis for an assertion or contention that a transaction at 50% RAB would worsen the financial position of EirGrid. It does not hold up to even a basic financial analysis and is disputed by clear evidence from international banks and corporate finance specialists. Further, if it did in fact weaken EirGrid’s financial position, the company would not put it forward as a potential transaction structure.

Finally, it must be recalled that, at the meeting in August, where Frontier presented their conclusions to EirGrid, they confirmed that there were no outstanding issues with respect to the ability to fund Grid25 or EirGrid’s financial strength post asset transfer. This obviously conflicts with the position articulated in the recent paper circulated and, as outlined previously, this clearly draws into question the credibility and integrity of the process.

Other financial structures
In the Frontier paper there are only two transaction structures presented. All of the companies and assets are owned by the state and it is misleading to imply that there are only two potential structures.

Based on the Frontier paper it is obvious that Ireland should proceed with Ownership Unbundling. As outlined above EirGrid believe the most efficient structure is vesting at 50% of RAB. Nevertheless should this be deemed not appropriate then there are other structures which are available.

For example, if the transaction were to occur at fair value this would give rise to a significant surplus over book value for ESB. This surplus could be paid to the Exchequer as a special dividend and be reinvested in EirGrid as equity.

Annexe 3: Stakeholder comments
Other options could include the NPRF investing in EirGrid, who would then raise an appropriate level of debt and pay ESB for the assets. Some, or all, of the cash proceeds of which could be available in ESB to be passed to the Shareholder (Exchequer) as a special dividend. The ultimate effect of this would be to capture the benefits of Ownership Unbundling for customers, deliver structural reform of a critical sector and potentially provide a net cash injection to the state.

In order to progress this issue it is evident that additional work, by experts in corporate finance and transactions of this nature, is required to develop a structure that works for Ireland, delivers the benefits for customers while ensuring the financial strength of both ESB and EirGrid.

The Legality of Article 9.9

Frontier’s assessment of the applicability of the Article 9(9) derogation in the Irish case is incorrect and risks wasting the time and money of the Irish state.

The possibility of an exemption to Article 9(9) of the Directive is neither appropriate nor available in Ireland. Article 9(9) states that where, on 3 September 2009, the transmission system belongs to a vertically integrated undertaking and there are arrangements in place which guarantee more effective independence of the transmission system operator than the provisions of Chapter V (covering the ITO model), a Member State may decide not to apply paragraph 9(1) (Full Ownership Unbundling). This is not the case in Ireland.

It is not sufficient to argue that the existing arrangements work in practice, albeit sub-optimally, and therefore no change is required. The burden of proof is firmly on the Member State to demonstrate to (including to the EU Commission) that the existing arrangements in place guarantee more effective independence. EirGrid currently neither owns the transmission assets nor has full control over these assets, and in some areas such as construction has no control. EirGrid’s independent legal opinion states definitively that the current arrangements fall far short of the independence requirements of the Directive and as such cannot apply to Ireland.

If a Member State decides to pursue an Article 9(9) derogation it will have to make its case to the EU Commission and get approval. The EU Commission has already stated its clear preference for Ownership Unbundling based on the findings of the Sector Inquiry and is likely to view any such application in a very limited way and place a significant burden of proof on the Member State. Further the Irish Government has a stated policy of Ownership Unbundling, and supported it as the primary option in the third package.

The European Commission will, in making any assessment or decision relating to an Article 9.9 derogation, consult with the Transmission System Operator. EirGrid has repeatedly made clear its view that at a practical, in addition to at a legal, level the arrangements in Ireland do not provide for sufficient independence and are grossly deficient in a number of key areas.

The Frontier paper suggests that a “purposive” analysis by the European Commission may mean that Ireland could receive a Article 9(9) derogation. This analysis is incorrect. EirGrid’s legal advisers conducted both a line by line analysis and a purposive analysis and the findings of both are consistent, an Article 9(9) derogation would not apply in Ireland. Applying for the derogation carries significant risk (as acknowledged in the Frontier paper – if the CER and EU Commission adopt a purposive approach, Ireland is likely to be able to pursue a relatively strong case – a lot of qualifiers) and would ultimately likely fail leaving Ireland little time to implement Ownership Unbundling at that point.
Consequences of the Status Quo

Ownership Unbundling offers significant benefits including the additional ones identified by Frontier, those being; improved regulation, faster connections; better interconnection position for Ireland; improved competition and improved customer service. EirGrid’s cost benefit analysis identified €600 million in benefits over the 15 years of GRID25 as a result of adopting Ownership Unbundling. Costing even one of the additional benefits noted by frontier above displays the opportunity costs associated with the choice of model, faster renewables connections for example will according to EirGrid’s detailed modelling deliver €35 million per annum in benefits to the industry alone. It is incumbent on the state to seek to gain these benefits for consumers, anything else is wasteful.

Already most of Europe, including Britain, Italy, Norway, Sweden, Spain, Portugal, and Finland, have opted for Ownership Unbundling. Ireland can ill afford to be at odds with the rest of Europe at this point in time. Ireland has already published as part of the White paper its intention to implement Full Ownership Unbundling.

Ownership Unbundling is the best structural solution to enable the successful implementation of Grid25 which will facilitate delivery of Ireland’s target of 40% renewable energy by 2020. Without Full Ownership Unbundling the current bureaucratic split accountability model will persist and will put the 40% target in serious jeopardy.

Stakeholder Views

The Ownership Unbundling model has been supported by every independent national and international commentator, including the Competition Authority, the IEA, the OECD, Forfás and the Deloitte report, who agree it is a necessary and essential step to deliver real competition. There is no doubt that the asset transfer continues to be the preferred policy of all independent industry stakeholders. The fact that ESB are in the process of finalising the purchase of NIE their dominance will continue to stifle the market as a whole. A case in point is the news reports of Endesa leaving the Irish market. A failure to address these serious structural issues puts in jeopardy the future development of the Irish electricity sector.

Implementation

There is precedent in Ireland and elsewhere for such business separation and how to achieve it; the issues are identifiable and manageable. EirGrid has the necessary skills and resources to ensure the transfer is affected without undermining network development or operation. This process is about optimising the use of state assets in the public interest. This transaction can be implemented without any burden on the state finances and will deliver significant benefits to consumers.

The Next Steps

At this stage EirGrid see no reason to delay, Ireland is required to proceed with implementing the 3rd Package and must have it transposed into national legislation by March 2011. Now is the right time to implement this key structural reform of a critical sector, putting in place the bases for a truly competitive electricity industry delivering lower prices and on-time on-budget national infrastructure essential to national recovery and long term sustainability.
The next steps should be to engage with an independent finance house (investment bank, corporate finance advisors/specialists) to find a transaction structure that can deliver the benefits while ensuring the financial strength of both ESB and EirGrid. In addition work should commence on the legislation required to implement the asset transfer.

We look forward to engaging with the department on how the process will be brought forward and in particular on engaging with experts on corporate finance who can help structure the transaction so that the benefits of Ownership Unbundling which have been identified even by the Frontier report can be achieved.
ESB Comments

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ESB Response to Transmission Asset Analysis

Introduction

ESB welcomes the publication of the draft conclusions to the Transmission Asset Analysis. The analysis, upon which the draft conclusions are based, was very detailed and comprehensive. We have been concerned at the time taken to bring the matter to a conclusion. However, we acknowledge that the iterative nature of the process required the consultants to work with the stakeholder in a complex sequence of interactions in order to finalise their conclusions. Whilst this was time consuming it served to ensure a rigorous process where all parties get adequate opportunity to make their case.

ESB notes the draft conclusions of the Transmission Asset Analysis. In summary, we note the analysis finds that:

- No case has been established for ownership unbundling. In fact the analysis clearly indicates that full ownership unbundling would give rise to significant financial costs and risks for Ireland and for ESB and EirGrid respectively.
- The ESO option is complex and unattractive from a cost/benefit perspective and is not amenable to regulatory oversight.
- ITO is considered a retrograde step in the context of the Irish market.
- There is a strong case for Ireland to pursue Article 9(9) as a route to compliance.

ESB’s Response

ESB broadly agrees with the draft conclusions. We would like to reiterate again a number of points we made during the review which are not captured in the synopsis provided by Frontier Economics.

a. Ownership Unbundling

- For the “Transaction at fair market value” scenario, ESB notes and supports the conclusions. However, we believe the actual costs of ownership unbundling would be even greater than that set out. We would strongly re-iterate again the impact of the transaction on ESB cost of debt as well as costs associated with significant restructuring, duplication, loss of synergies between Transmission & Distribution, loss of economics of scale etc. A transfer of transmission assets from ESB, even for fair market value, would impact on ESB’s credit rating and the availability and cost of borrowings. It would be perceived by financial markets and rating agencies as a negative intervention by the shareholder/policy-
maker as well as impacting adversely on ESB’s overall risk profile. The current financial position in which Ireland finds itself makes it imperative to avoid unnecessary interventions or structural changes that will impair the ability to fund key infrastructure. ESB agrees with the conclusion that a substantial equity investment would be required to ensure EirGrid was adequately capitalised in this scenario. The current challenges for Ireland and Irish companies in raising significant debt means that the scale of equity required would be even greater than previously considered.

- The “Transaction at 50% of RAB” scenario is clearly found to have a significant net cost. However, ESB believes the costs and the negative consequences of this scenario are potentially significantly higher. Such a scenario, in the context of the current very challenging funding position for Ireland, would have a severe detrimental impact on ESB’s credit rating, and ability to raise funds. It must be assumed that ESB would not be able to access debt capital markets at all in this scenario and this would clearly impact on delivery of ESB’s capital investment including the recent Price Control capex programme.

- The conclusions do not capture the very real disruption and delay that would be caused to work programmes under this option. The huge financial, legal, technical and HR (including pensions) issues to be addressed would mean very significant management distraction over the next two years for both organizations at a time when all of our efforts should be devoted to the delivery of vital infrastructure and minimizing costs.

b. ISO

- ESB agrees broadly with the conclusions on the pure ISO option. We agree that it would be complex and unattractive from a cost/benefit perspective and is not amenable to regulatory oversight.

c. ITO

- We note the comments about ITO. Given that Article 9(9) provides a greater degree of independence to EirGrid than the ITO then Article 9(9) should be considered ahead of it.

d. Compliance with Third Electricity Directive under Article 9(9)

Article 9(9) recognises the fact that existing models that do not match the very specifically defined characteristics of Ownership Unbundling are compliant, provided they are demonstrably better than ITO.

We support the conclusions drawn under Article 9(9). It makes sense, therefore, for Ireland to comply under this option because it
maker as well as impacting adversely on ESB’s overall risk profile. The current financial position in which Ireland finds itself makes it imperative to avoid unnecessary interventions or structural changes that will impair the ability to fund key infrastructure. ESB agrees with the conclusion that a substantial equity investment would be required to ensure EirGrid was adequately capitalised in this scenario. The current challenges for Ireland and Irish companies in raising significant debt means that the scale of equity required would be even greater than previously considered.

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- The conclusions do not capture the very real disruption and delay that would be caused to work programmes under this option. The huge financial, legal, technical and HR (including pensions) issues to be addressed would mean very significant management distraction over the next two years for both organisations at a time when all of our efforts should be devoted to the delivery of vital infrastructure and minimising costs.

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- ESB agrees broadly with the conclusions on the pure ISO option. We agree that it would be complex and unattractive from a cost/benefit perspective and is not amenable to regulatory oversight.

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We support the conclusions drawn under Article 9(9). It makes sense, therefore, for Ireland to comply under this option because it.
ESOP comments

Mr Fergus Cahill
Chairman
Electricity Transmission Assets Analysis
c/o Mr Carmel Fields
Department of Communications, Energy and
Natural Resources
29-31, Adelaide Road
Dublin 2

23 December 2010

Dear Chairman

Electricity Transmission Assets Analysis (the “Review”)

I refer to your correspondence dated 15 December 2010 and the accompanying Draft
Conclusions of the Frontier Economics report on the above.

The ESB ESOP was heartened by the fact that, despite many of the glaring procedural
failings of the overall Review process that have been pointed out to you and to the
Minister on a number of occasions, the Department’s external economic advisors have
confirmed what appears to be an objective review of the prevailing economic and
institutional realities in Ireland which provide the backdrop to that analysis.

We would, however, make the point that, despite repeated requests, the delay of some
three months in making the draft conclusions available contrasts dramatically with the
imposition of a wholly unsatisfactory timeframe in which to comment. Secondly, the
very short extract released makes it very difficult for any party to draw meaningful
conclusions and make substantive comments on the draft. These are yet further
examples of the unsatisfactory nature and conduct of the Review.

Notwithstanding our very real concerns, ESB ESOP has participated fully and openly
in the review process and, continuing in this manner, insofar as we can have any
visibility of the background or reasons for many of the draft conclusions, would
make the following comments:

We concur with Frontier Economics’ conclusion that there is a strong case to seek
certification of existing transmission arrangements. It seems clear that there is no
compelling reason why any of the other options should be considered or pursued
further.

Annexe 3: Stakeholder comments
The draft conclusions on ownership unbundling would appear to support our own view that this is not a viable way forward for Ireland – either at fair market value or at 50% of RAB. As a shareholder, we are extremely disappointed that a transaction at 50% RAB would even be considered and the Draft Conclusions comments as to a “likely” additional payment to the ESOP significantly understate the situation. The limited information provided means that we are unable to comment on the cost-benefit projections - their realism, basis or substance - save that on an annual basis they could be as small as €100,000 per annum. This inability to make meaningful comment because of lack of information renders your reference to us of the draft conclusions virtually meaningless. However we would make the point that the costs of unbundling will undoubtedly be high and, in light of current economic conditions, the possibility of any economic recoupment must be strongly doubted.

On ISO, the information provided gives us little opportunity to comment other than to query the reference to “shallower” models when the existing arrangements clearly go significantly beyond a shallow model. As we have pointed out, the present Irish arrangements are very much deeper in nature than most.

In summary, we would agree with the draft conclusions from Frontier Economics’ report that any possible benefits from ownership unbundling would be very small, the costs high, the side effects harmful and that Ireland should move forward immediately seeking an Article 9(9) exemption.

Some 18 months have now passed since the initial meeting of stakeholders and a great deal of time and expense, certainly on the part of the ESOP, has been incurred in participating in this process.

We would therefore strongly urge that the Review be finalised as a matter of urgency and the full report made available to us and other stakeholders with the utmost dispatch.

Yours faithfully

David Beattie
Chairman

Annexe 3: Stakeholder comments
EirGrid Staff Representatives comments

With the limited time allocated for comments on the draft conclusion it is necessary for us to do so by email. Our comments are also mainly in bullet format by way of getting to the point.

1. It is very difficult to comment comprehensively given the minimum amount of information contained within the conclusion.

2. It would appear that the consultants assessment has found that there are only two viable alternatives a. Full Ownership Unbundling b. Article 9(9), can this be confirmed please?

3. We would like to point out that Article 9(9) is totally at odds with government policy which isn’t acknowledged within the conclusion.

4. The draft conclusion does not address how Article 9(9) will guarantee more effective independence than an ITO. Maybe this is because it can’t?

5. Based on the consultants own conclusion, full ownership unbundling could be associated with other benefits (which has not been quantified) faster renewable connections, stronger position regarding interconnection and scope for improvement in competition and customer service all in the context of an NPV benefit. The consultant’s report does not indicate any such benefits with 9(9). Therefore what are the benefits of Article 9(9)?

6. The benefits highlighted in point 6 are the biggest enablers for development of the transmission system and our ability to meet our renewable targets (which will have untold financial benefits), it is baffling to think that Ireland would pursue a sub optimum model such as Article 9(9) given our strategic intent.

Finally, we would like to state that anything which prevents an optimum solution (ownership unbundling) will only have a negative effect on job creation and growth within the country. We need real leadership and tough decision making, we hope that this does not become a fudge and that the bravery needed in such a critical aspect of national importance is made. I hope this message is conveyed to the minister.

On behalf on the staff of EirGrid as stakeholders and citizens of this country, we plead with you to make the right decision no matter how difficult.

Annexe 3: Stakeholder comments
ICTU comments

16th December 2010

Mr. Fergus Cahill
Chairman
Electricity Transmission Assets Agency
Department of Communications, Energy and Natural Resources
23-33 Adelaide Road
Dublin 2.

Dear Fergus,

Thank you for your letter of the 16th December 2010 and the attached draft conclusions of the Frontier Economics report.

As you may be aware in our submission to Frontier Economics we argued for the retention of the current arrangement. We note that the draft conclusions cite the possibility of Ireland being granted an exemption under Article 59(2) of the Directive and the view of the consultants that a strong case can be made for the granting of such an exemption. In light of this we would suggest that the process of seeking an exemption be commenced as soon as possible.

Yours sincerely

Annexe 3: Stakeholder comments
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