

# Electricity System Operator Incentives 2011-13: Income Adjusting Events Determination

## Final decision

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### Overview:

This document sets out the Authority's determination on the income adjusting event notices submitted to Ofgem by National Grid Electricity Transmission (NGET) on 28 June 2013. The Authority has determined that the overall income adjustment will be £7.3 million after application of the 25 per cent scheme sharing factor.

Following this income adjustment NGET's final scheme position will change from -£50 million to -£48.7 million. This will increase balancing services use of system (BSUoS) charges by 0.12 pence/MWh. NGET will reflect these changes to BSUoS charges through its scheme final reconciliation run.

## Context

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In its role as system operator (SO), National Grid Electricity Transmission (NGET) is responsible for balancing the GB electricity system on a continuous basis. Ofgem incentivises the SO to carry out these activities efficiently and economically through incentive schemes.

The previous incentive scheme lasted from 1 April 2011 to 31 March 2013. Through this scheme, we incentivised the SO to maximise efficiency by setting a target for the costs of managing the system. NGET then shares a proportion of any under or over-spends (the sharing factor) against this target up to a maximum cap on returns and a maximum floor on losses.

At the time of scheme expiry, NGET had incurred costs of £1732.3 million. This represented an over-spend of £229.1 million against the target. After application of the scheme sharing factor NGET exceeded the scheme target by £56 million.

NGET's transmission licence conditions contain provisions for it to raise notices where it considers an income adjusting event to have occurred within the scheme period. This document sets out the Authority's determination on four income adjusting event notices that NGET submitted to us on 27 June 2013.

## Associated documents

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Open Letter: Proposed income adjusting events submitted by National Grid Electricity Transmission in relation to the 2011-13 Electricity System Operator Scheme. 5 July 2013. <https://www.ofgem.gov.uk/publications-and-updates/open-letter-proposed-income-adjusting-events-submitted-national-grid-electricity-transmission-relation-2011-13-electricity-system-operator-scheme>

Notice of Proposed income adjusting event – Alcan 2011/13. 28 June 2013: <https://www.ofgem.gov.uk/ofgem-publications/75223/notice-iaealcan-closureofgem-280613redacted-v2.pdf>

Notice of Proposed income adjusting event – Moyle Interconnector Fault. 28 June 2013: <https://www.ofgem.gov.uk/ofgem-publications/75224/notice-iaemoyle-outageofgem-280613redacted.pdf>

Notice of Proposed income adjusting event – Smeaton and Strathaven FMJL works. 28 June 2013: <https://www.ofgem.gov.uk/ofgem-publications/75225/notice-iaesmeaton-and-strathaven-fmjl-worksofgem-280613redacted.pdf>

Notice of Proposed income adjusting event – Transmission Losses 2011-13. 28 June 2013: <https://www.ofgem.gov.uk/ofgem-publications/75226/notice-iaetransmissionlossesofgem-280613redacted.pdf>

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## Executive Summary

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### The income adjusting event licence provisions

The previous Balancing Services Incentive Scheme (BSIS) came into effect on 1 April 2011 and expired on 31 March 2013. At the time of scheme expiry NGET ended the scheme £56 million over the target after application of the sharing factor. As the scheme contains a symmetric cap and floor of  $\pm$ £50 million, this represented a £50 million loss to NGET.

NGET's special licence conditions contain provisions for it to raise notices up to three months after the end of an incentive scheme where it considers that an 'income adjusting event' (IAE) has occurred within the scheme period. In the licences, IAEs are defined as:

- An event or circumstance constituting force majeure under the balancing and settlement code (BSC)<sup>1</sup>;
- An event or circumstance constituting force majeure under the connection and use of system code (CUSC)<sup>2</sup>;
- A security period<sup>3</sup>; or
- An event or circumstance, other than those listed above which is, in the opinion of the Authority, an income adjusting event.

### National Grid's income adjusting event notices

On 28 June 2013, NGET submitted four notices to us. The total cost for which NGET applied amounts to £204.3 million. Once the 25% sharing factor is applied to this amount, the revenue value to NGET is £51.1 million. Given NGET's starting position at £6 million below the incentive floor, the maximum that NGET could recover based on these four applications was £45.1 million. Table 1 summarises NGET's description of the IAEs and the relevant costs. The revenue impact highlights the change this would have on NGET's position after application of the sharing factor:

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<sup>1</sup> See BSC: <http://www.elexon.co.uk/bsc-related-documents/balancing-settlement-code/bsc-sections/>

<sup>2</sup> See CUSC: <http://www.nationalgrid.com/uk/Electricity/Codes/systemcode/>

<sup>3</sup> A security period refers to any direction issued by the Secretary of State. No security periods occurred in the 2011-13 incentive scheme period.

Event	NGET's description	Cost impact	Revenue impact
Transmission Losses	Increased north-south energy transfers due to swing from gas to coal plant, increased wind generation and delays to commissioning plant	£107.9m	£27.0m
FMJL Replacement	Unforeseen and subsequently extended outages to replace assets with safety exclusion zones	£28.9m	£7.2m
Closure of Alcan	Large service provider closed during scheme resulting in more expensive actions being taken	£38.3m	£9.6m
Moyle Outage	Fault of Moyle interconnector resulting in higher constraint costs by effectively lowering Scottish demand	£29.2m	£7.3m

**Table 1: Summary of the IAE notices submitted by NGET**

## The Authority's determination

The Authority's determination is summarised in table 2. The Authority has determined the appropriate income adjustment to be £7.3 million after applying the sharing factor. NGET's final position under the scheme is a loss of £48.7 million. NGET will recover the £1.3 million change in position through its final reconciliation of BSUoS charges. This will increase BSUoS charges by 0.12 pence per MWh.

Event	The Authority's determination	Income adjustment (post sharing factor)
Transmission Losses	The event does not meet the criteria for an IAE under the licence provisions. The risks surrounding transmission losses out-turn could have been foreseen at scheme agreement.	<b>NA</b>
FMJL Replacement	Elements of the event were outside of NGET's ability to forecast and control and thus constitute an IAE under the licence provisions. However NGET had some ability to forecast and control the costs associated with the original outages.	<b>£2.2 million</b>  This is related to the extension of the original Smeaton outage and the removal of emergency return to service provisions. The income adjustment has been identified using the agreed model methodology.
Closure of Alcan	The event does not meet the criteria for an IAE under the licence provisions. The risk of closure could have been foreseen and mitigated.	<b>NA</b>
Moyle Outage	The unprecedented scale of outage constitutes an IAE under the licence provisions. However, there was a recent precedent which highlighted the risk of a circa two month outage shortly before scheme agreement.	<b>£5.1 million</b>  The first two months of cost have been discounted. The income adjustment has been identified using the agreed model methodology.

**Table 2: The Authority's determination**

# 1. Background

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## Chapter Summary

In this chapter we provide a summary of the income adjusting event provisions and NGET's notices which it submitted under these provisions. We also set out the process that we have followed to reach the Authority's determination. Finally, we summarise the structure of this document.

## The income adjusting event provisions

1.1. The previous Balancing Services Incentive Scheme (BSIS) came into effect on 1 April 2011 and expired on 31 March 2013. At the time of scheme expiry, NGET had incurred costs of £1732.3 million. This represented an over-spend of £229.1 million against the target. Once the scheme dead-band ( $\pm$ £5 million) and sharing factor (25%) is applied to this overspend, NGET ended the scheme £56 million over the target. As the scheme contains a symmetric cap and floor of  $\pm$ £50 million, this represented a £50 million loss to NGET<sup>4</sup>.

1.2. Special Condition AA5A of NGET's electricity transmission licence conditions<sup>5</sup> contain provisions for it to raise notices up to three months after the end of an incentive scheme where it considers an 'income adjusting event' (IAE) to have occurred within the scheme period. In the licences, IAEs are defined as:

- An event or circumstance constituting force majeure under the balancing and settlement code (BSC)<sup>6</sup>;
- An event or circumstance constituting force majeure under the connection and use of system code (CUSC)<sup>7</sup>;
- A security period<sup>8</sup>; or
- An event or circumstance, other than those listed above which is, in the opinion of the Authority, an income adjusting event.

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<sup>4</sup> End position = (overspend - dead-band) X sharing factor = (£229.1m - £5m) X 0.25 = £56m. As this is greater than the £50m floor, the floor is applied.

<sup>5</sup> This refers to the version dated 6 September 2011. These conditions have since been amended. The relevant version can be found at the following link:  
<https://epr.ofgem.gov.uk//Content/Documents/National%20Grid%20Electricity%20Transmission%20Plc%20Special%20Conditions%20Consolidated%20as%20at%2006.09.2011.pdf>

<sup>6</sup> See BSC: <http://www.elexon.co.uk/bsc-related-documents/balancing-settlement-code/bsc-sections/>

<sup>7</sup> See CUSC: <http://www.nationalgrid.com/uk/Electricity/Codes/systemcode/>

<sup>8</sup> A security period refers to any direction issued by the Secretary of State. No security periods occurred in the 2011-13 incentive scheme period.

## NGET's income adjusting event notices

1.3. On 28 June 2013, NGET submitted four notices to us. Table 3 summarises NGET's description of the IAEs for which it has applied:

Event	NGET's description	Cost impact	Revenue impact
Transmission Losses	Increased north-south energy transfers due to swing from gas to coal plant, increased wind generation and delays to commissioning plant	£107.9m	£27.0m
FMJL Replacement	Unforeseen and subsequently extended outages to replace assets with safety exclusion zones	£28.9m	£7.2m
Closure of Alcan	Large service provider closed during scheme resulting in more expensive actions being taken	£38.3m	£9.6m
Moyle Outage	Fault of Moyle interconnector resulting in higher constraint costs by effectively lowering Scottish demand	£29.2m	£7.3m

**Table 3: Summary of the IAE notices submitted by NGET**

1.4. The total cost for which NGET has applied amounts to £204.3 million. We note that this scale of application was unprecedented with income adjusting event applications not being made since the 2005-6 scheme. In this case, the total income adjustment applied for by NGET was £35.77 million.

1.5. Once the 25% sharing factor is applied to this amount, the revenue value to NGET is £51.1 million. Given NGET's starting position at £6 million below the incentive floor, the maximum that NGET could recover would be £45.1 million. Where any income adjustment is approved by the Authority, NGET will recover the relevant amount through BSUoS charges.

## Our assessment process

1.6. We have followed a two stage process to assess the notices submitted by NGET:

1. Consideration of whether the event or circumstance constitutes an IAE. That is:
  - a. Does the event meet the definitions of force majeure under the BSC or the CUSC?
  - b. Are there any other reasons why the Authority should consider the event as an IAE?
2. Consideration of the appropriate level of income adjustment should the event or circumstance be approved as an IAE by the Authority.

## **Consideration of whether the event or circumstance constitutes an IAE**

*Does the event meet the force majeure definitions?*

1.7. We have considered whether the event meets the definition of force majeure in the BSC or the CUSC. Where this had been considered to be the case the Authority would have determined the event to constitute an IAE.

*Are there any other reasons why the Authority should consider the event as an IAE?*

1.8. The IAE provisions do not set out any qualifying criteria for what else the Authority should take into consideration when determining whether an event constitutes an IAE for any other reason.

1.9. Our final proposals for a 2011-13 scheme provided context for our consideration of IAEs. In these final proposals we said that:

*'We would normally only expect NGET to raise an IAE in the case that there are unexpected and fundamental changes in wholesale energy markets'.*

1.10. In addition to our consideration of whether the events represent unexpected and fundamental changes in wholesale energy markets, we have also adhered to the IAE principles by considering the balance of risk and whether NGET was better placed to manage the associated risks than consumers. To determine NGET's ability to manage this risk we have considered the extent to which it should have been in a position to forecast the events or circumstances and the level of control that it had to mitigate the impacts. We have considered NGET's ability to control the level of risk both once the event had occurred but also in the lead up to the event. This included the potential for managing the risk through scheme design and agreement.

1.11. In assessing the IAE notices, we considered the design and agreement of the scheme to be important. The scheme included a number of risk mitigation mechanisms such as the scheme sharing factor and the scheme floor. In addition, the target setting methodology allowed for the impact of variables to be removed<sup>9</sup> where a strong case was presented to suggest that they were outside of NGET's control and where the impact on incentives was considered to be limited.

1.12. For the 2011-13 scheme, as for the current scheme, the onus was on NGET to demonstrate evidence and information in support of its proposed scheme design when a scheme was being developed. This should have included an identification of potential risks so that the level of risk on NGET, and the design of ex ante risk mitigation mechanisms (eg scheme floors, sharing factors, targeted income adjustment mechanisms), was considered at the outset rather than relying on ex

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<sup>9</sup> This was achieved by allowing the variables to be updated in the models to reflect actual out-turn events, ie ex post.



post mechanisms to reflect differences between the target and outturn costs. In signing up to an incentive scheme, NGET accepted a certain level of risk in combination with an identified potential for a return<sup>10</sup>. Only where unexpected and fundamental changes in the market occurred within the scheme which could not have been built into this assessment of risk and reward should be considered under the IAE provisions.

1.13. NGET formally agreed to the scheme which included the provisions set out above and the expectation that the Authority would only consider an IAE where it represented an unexpected and fundamental change to the market on 8 July 2011. In its response to our final proposals NGET stated that it considered the scheme ‘...to represent a fair balance of risk and reward’.

### **Consideration of the appropriate level of income adjustment**

1.14. In addition to considering whether the events constitute an IAE we also considered the appropriate level of income adjustment. This included a consideration of the appropriateness of NGET’s methodology to ensure that the level of income adjustment represents the costs that NGET would have economically and efficiently incurred in managing the event or circumstances. We also considered the extent to which elements of the events were within a well functioning SO’s ability to forecast and control even where other elements were not.

### **Key steps of our assessment**

1.15. After receiving and reviewing the initial IAE notices submitted by NGET we also conducted the following exercises as part of the assessment process:

- We published an open letter requesting stakeholder views on the notices submitted by NGET on 5 July 2013. We received seven responses to this consultation on 2 August 2013<sup>11</sup>. We refer to stakeholders’ responses throughout this document.
- We provided relevant parties<sup>12</sup> with a request for further information in which we asked for responses and supporting evidence on a number of questions. As part of this process we met with stakeholders including NGET and Scottish Power to discuss the IAE notices in more detail. We provided a number of

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<sup>10</sup> Alongside a letter consenting to our final proposals, NGET submitted its response to our final proposals: <https://www.ofgem.gov.uk/ofgem-publications/39971/ngetofgembsisconsultationresponsefinal8july2011.pdf>

<sup>11</sup> This open letter and responses can be found at the following link: <https://www.ofgem.gov.uk/publications-and-updates/open-letter-proposed-income-adjusting-events-submitted-national-grid-electricity-transmission-relation-2011-13-electricity-system-operator-scheme>

<sup>12</sup> As part of this we have received further information and evidence from NGET, Scottish Power, Mutual Energy (Moyle interconnector owners), the Northern Ireland SO and Rio Tinto (the owners of the Alcan aluminium smelting plant before closure)

opportunities (beyond the original IAE notices) to all of these parties to submit relevant information. Our analysis of NGET's IAE notices has been based on the information provided.

- We appointed Poyry as consultants to perform an independent review of the Moyle Interconnector and FMJL Transformer IAE notices and provide us with a report setting out its recommendations<sup>13</sup>. Poyry also conducted a peer review of our analysis of the Transmission Losses and Alcan IAE notices.
- In accordance with the provisions of special condition AA5A and having considered our analysis, the Authority made its determination on 20 September 2013. This determination is set out in this document.

## Structure of this document

1.16. In each of the following sections we present our analysis of the IAE notices submitted to us by NGET. We set out some background on NGET's application and our understanding of events based on the information which has been provided to us, both in NGET's original submission and in follow-up information provided by relevant stakeholders in response to our queries. We also provide a summary of stakeholder views on the relevant IAE application and, in the case of the FMJL replacement works and Moyle interconnector, the views of Poyry. Finally we set out our analysis and rationale for the Authority's determination of whether the event or circumstance constitutes an IAE and, if so, what the allowed level of income adjustment has been determined as. We set this out as follows:

- Chapter 2: Transmission Losses
- Chapter 3: FMJL Replacement Works
- Chapter 4: Alcan Service Provider Closure
- Chapter 5: Moyle interconnector outage

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<sup>13</sup> Poyry's report is published alongside this document.

## 2. Transmission Losses

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### Chapter Summary

This chapter summarises the Authority's determination in relation to the Transmission Losses notice submitted by NGET.

### Summary of determination

2.1. The Authority has determined that the notice submitted by NGET in relation to transmission losses does not constitute an IAE. The Authority does not consider the relevant events or circumstances to constitute force majeure under the BSC or the CUSC. Neither does the Authority consider that there are other reasons why these events or circumstances should be considered as an IAE. The Authority does not believe that the difference between the outturn and target levels of transmission losses represent an unexpected and fundamental change to the wholesale energy markets. The Authority considers NGET to have been better placed to manage the relevant risks than consumers.

### Background

2.2. We have historically included a financial incentive on the volume of transmission losses<sup>14</sup> as part of the balancing services incentive scheme (BSIS). In the 2011–2013 scheme period, we continued to incentivise NGET to reduce transmission losses through an ex-ante target volume. We applied a dead-band around the target and we set a price for transmission losses based on average wholesale prices for the same period. We set the transmission losses volume target for the 2011–2013 scheme at 8.9TWh. We included a  $\pm 0.6$ TWh dead-band for a two year period. NGET formally agreed to these parameters for the transmission losses incentive as part of the overall BSIS.

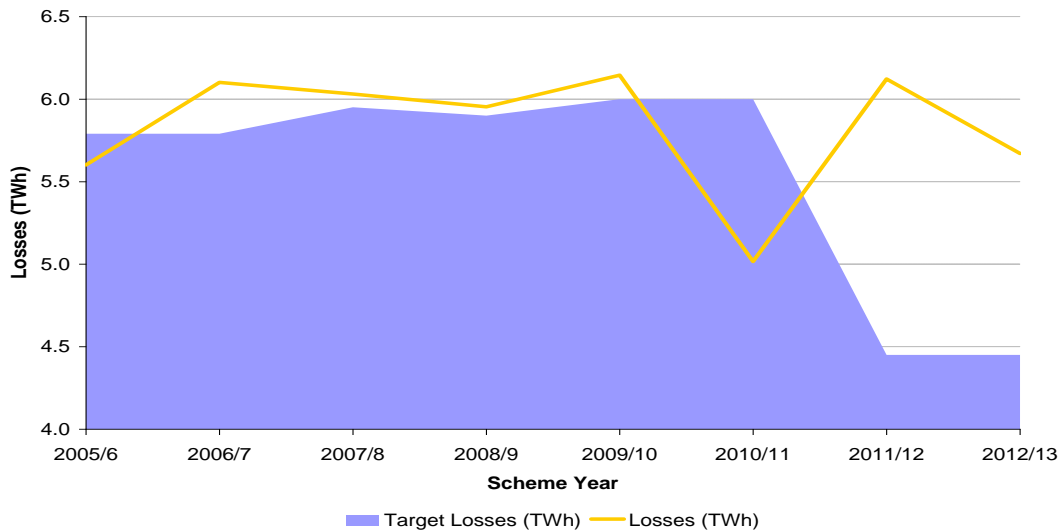
2.3. As a result of the higher outturn volume of losses (11.8 TWh) compared to the scheme target of 8.9TWh, NGET incurred £107.9 million of cost against the transmission losses volume target. In its IAE notice, NGET applied for the full amount of costs that it incurred as a result of the difference between the target and outturn volume of transmission losses.

2.4. The transmission losses target volume was set on the basis of the transmission losses outturn in 2010-11 which was significantly lower than the target for the period and lower than the outturn witnessed in preceding scheme years. Figure 1 demonstrates the typical outturn for transmission losses since the 2005-6 scheme period. This shows that transmission losses on average have been around

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<sup>14</sup> Transmission Losses refer to the electricity lost on the GB transmission system through the physical process of transporting electricity across the network.

6TWh each year. A lower transmission losses outturn in the 2010–2011 period (around 5 TWh) led to a positive cost impact of £30.5m and positive revenue impact of £4.5m<sup>15</sup> in NGET’s favour.



**Figure 1: Transmission Losses Volume and Target since 2005/6 (Source: NGET, Notice of Proposed Income Adjusting Event – Transmission Losses 2011-13).**

2.5. When NGET and Ofgem agreed the transmission losses volume target for the 2011–2013 scheme period, we noted two developments which we expected at the time would further reduce the level of transmission losses compared to 2010-11. These were:

- Expected increases in CCGT generation in the south which could offset the growth of wind connection in Scotland and deliver a high load factor over the scheme period.
- An expectation that renewable generation connection in Scotland would be slower than that which had been witnessed during 2010-11. NGET revised down its original target to account for this but still had differing views as to the scale of impact of wind generation. NGET stated that it accepted the target given the balance of risk and reward as part of the overall scheme.

2.6. In practice, neither of these two scenarios materialised during the last scheme period for the following reasons:

- Relative coal to gas prices led to a competitive advantage for coal power plants. Therefore, coal plants dominated the market in the last two years. This increased

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<sup>15</sup> This revenue impact is a result of the sharing factor which was set at 15% for the 2010-11 scheme.

transmission losses as the majority of the coal power plants are located in the north creating a north to south power flow.

- Higher wind connection levels in Scotland than were factored into the target have exacerbated transmission losses by contributing to a north to south flow.
- There were delays in the commissioning of some gas power plant in the south. NGET noted two gas fired plants, Pembroke and West Burton B, which were expected to connect to the GB electricity network but had a delay in commissioning of approximately six months and one year respectively.

2.7. In its IAE notice, NGET argued that all of these events were outside of its control. NGET also suggested that it would be uneconomic for the SO to take actions to reduce losses.

2.8. NGET noted that as part of the 2013-15 scheme we removed the financial incentive on transmission losses and replaced it with a reputational incentive. It suggested that this indicated that a difference between the target and outturn transmission losses should be discounted from its 2011-13 scheme performance.

## Stakeholder responses

2.9. We received seven responses to our open letter concerning IAEs, five of which directly referred to the notice concerning Transmission Losses. All five of these responses did not consider the event to constitute an IAE.

2.10. Stakeholders considered that NGET agreed to the scheme knowing that transmission losses were largely out of its control. Furthermore, stakeholders are of the view that events that are identified by NGET to underpin its IAE proposal for transmission losses are the natural result of commercial risk which was part of the scheme that NGET agreed to. Stakeholders highlighted other aspects of the scheme design which limit the level of risk placed on NGET such as the sharing factor, dead-band and scheme floor.

2.11. In addition, stakeholders believed that the events which led to high transmission losses could have been anticipated before the incentive scheme was agreed. Stakeholders did not consider these events to be exceptional but believed that they represent regular market trends. Therefore, they were of the view that consumers should not absorb the costs resulting from a divergence between the outturn and the agreed up front scheme target and wider scheme design.

## Determination on whether Transmission Losses constitutes an IAE

2.12. The Authority has determined that the events referred to in the notice relating to transmission losses do not constitute an IAE for the following reasons:

- The events do not meet the definition of force majeure in the BSC or the CUSC.
- The Authority does not consider the relevant events to constitute an IAE for any other reason. The Authority does not consider the events to represent unexpected and fundamental market changes and believes that NGET were better placed to forecast and control the impact of these events than were consumers.

### **The Authority's consideration of force majeure**

2.13. The Authority does not consider an increase in the level of transmission losses compared to the target to constitute force majeure under the BSC or the CUSC. The level of transmission losses was not caused by any one-off event or circumstance which falls within the relevant definition of force majeure under the BSC or the CUSC. The reasons proposed by NGET are more related to market trends, namely changing spark spreads and connection of generation.

### **The Authority's consideration of whether the event constitutes an IAE for any other reason**

#### *Consideration of risk*

2.14. The Authority has considered the extent to which NGET accepted a level of risk, in line with a potential for return when it signed up to a BSIS which included a clear and transparent target within a transmission losses incentive.

2.15. In the information it has provided to us, NGET indicated that it agreed to the transmission losses scheme target in which it identified a level of risk as it considered the scheme as an overall package. This suggests that NGET identified a level of potential return within the overall scheme which was sufficient to accept this risk. Therefore, we do not consider that the scheme should be amended on an ex post, retrospective basis because an identified risk has materialised. Neither was the scheme amended when NGET gained from the difference between the target and outturn under the 2010-11 scheme.

2.16. We have been mindful of the fact that NGET accepted this risk where evidence already existed which demonstrated the potential for significant divergence between the scheme target and outturn. In the 2010-11 scheme, a difference of approximately £30 million between the outturn and the target resulted in £4.5m positive revenue in NGET's favour contributing to NGET hitting the cap. This should have alerted NGET to the possibility for factors outside of its control to impact on its performance against the target significantly and should have been factored into NGET's consideration of risk and potential for return under a scheme.

*NGET's ability to forecast coal/gas plant economics*

2.17. There were two main drivers that led to the dominance of coal plants in the merit order in the 2011-13 period. Firstly, the UK had access to cheap coal supply from the USA as a result of increasing shale gas production reducing the USA's domestic demand for coal. Second, the closure of Fukushima nuclear power plant after the Japanese tsunami in March 2011 increased Japanese demand for gas thus pushing up global gas prices. The increase in global gas prices impacted on the economics of gas fired plant operation. As a result, gas plants lost their competitive position relative to coal plants which became more profitable to run.

2.18. In addition, due to the favourable market conditions for coal power plants, those plants which fall under the Large Combustion Plant Directive<sup>16</sup> (LCPD) may have been considering their limitations on running hours within their operating decisions. The drivers for coal plant to run may have exacerbated the already dominant position of coal plant in the market.

2.19. The gas and coal plant economics were predicted at an early stage by NGET itself. This was highlighted in NGET's Summer Outlook<sup>17</sup> report published in April 2011. In this report, NGET said: *"Due to global events, energy prices have increased. Forward price for oil and coal are relatively flat whilst those for gas and base load power show some seasonality. For power generation, current fuel prices favour coal burn over gas"*.

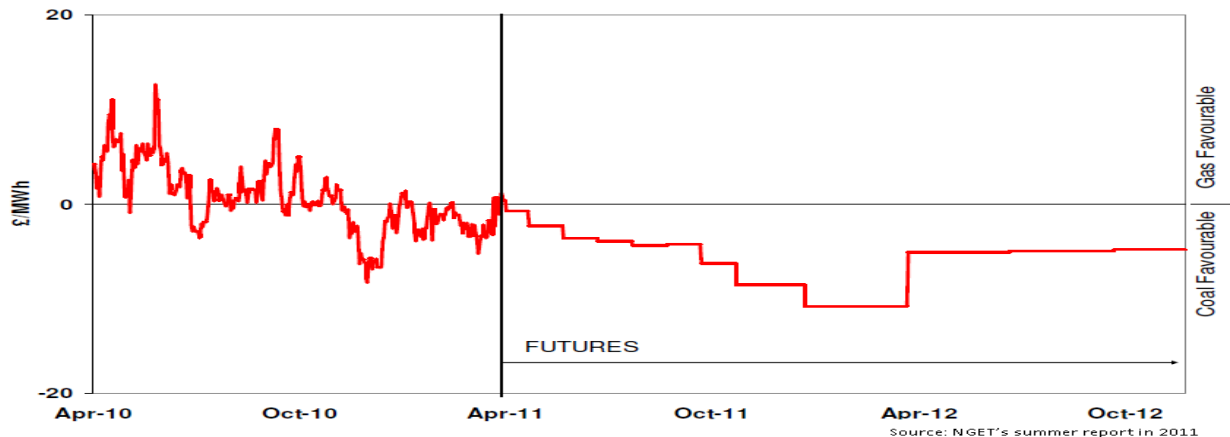
2.20. In the same report, NGET published the relative power generation economics in which it forecasted that coal would be a preferred source of UK power generation up to at least the third quarter of 2012. NGET's forecast from this report is provided in figure 2.

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<sup>16</sup> The LCPD is a European directive aimed at controlling emissions of sulphur dioxide, nitrogen oxides and dust from large combustion plants. The directive imposes emissions limits on new plants (those licensed after 1st July 1987).

<sup>17</sup> The full summer outlook report can be found here:  
<http://www.nationalgrid.com/uk/Electricity/SYS/sumOutlook/>

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**Figure 2: Coal-gas plant economics. (Source: National Grid Summer Outlook, April 2011)**

2.21. The report was published in April 2011, nearly three months before NGET formally agreed to a scheme which included the transmission losses target. This suggests that NGET had an awareness of the relative plant economics and the associated risk of the design of the transmission losses incentive before it signed up to a scheme design.

2.22. In addition to NGET's Summer Outlook report, we have identified further examples in which industry participants forecasted the gas to coal switch. For example, financial reports published by Centrica<sup>18</sup> and RWE<sup>19</sup> in February 2011 both signalled that coal generators would run over gas generators in the 2011-12 period.

### *NGET's ability to forecast wind generation levels in Scotland*

2.23. NGET should have been well placed to forecast the level of wind connection given its position as system operator at the centre of the market. In its IAE application, NGET mentions discussions it had with Ofgem in which it suggested that wind connection levels would be higher than that being used under the forecast. However, subsequent to NGET publishing its initial proposal, NGET revised down its proposed transmission losses for 2011-13 to 11.0 TWh. Following further discussions with Ofgem the target was amended to 8.9TWh. In our final proposals on the scheme which NGET formally agreed to, we set out that this change in position was due to

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<sup>18</sup> The report can be found at the following link:  
[http://www.centrica.com/files/results/2011\\_prelim\\_slides.pdf](http://www.centrica.com/files/results/2011_prelim_slides.pdf)

<sup>19</sup> The report can be found at the following link:  
<http://www.rwe.com/web/cms/mediablob/de/571824/data/1283240/3/rwe/investor-relations/events/finanzkalender/termine-2011/Chartpraesentation.pdf>



NGET's recognition of the relatively stronger than expected impact of new southern generation and slower than expected renewable connection in Scotland<sup>20</sup>.

2.24. These discussions demonstrate that NGET was well placed at the time of scheme agreement to forecast the level of wind generation and the impact that this could have on transmission losses. NGET should therefore have been able to identify the risk of outturn losses volumes differing from the target as a result of different circumstances arising and should have factored this into its consideration of risk under a scheme.

*NGET's ability to forecast the impact of delays to commissioning plant*

2.25. NGET referred to delays of commissioning of Pembroke and West Burton B which it considered to have impacted on transmission losses under the scheme. While NGET may not be well placed to forecast delays to the commissioning of any one plant, delays to plant commissioning are not particularly uncommon. It is also worth noting that it is unlikely that two gas generators would have had much of an impact on transmission losses as favourable market conditions promoted coal burn over gas generation for the majority of the scheme period. Therefore, even if these two gas plants had been commissioned on time and were generating, it is unlikely that they would have displaced northern generation for large durations. It is more likely that they would have displaced other generators in similar locations thus not impacting on the level of transmission losses significantly.

2.26. Given the low materiality of the impact of these plant commissioning delays and the fact that delays to commissioning are not uncommon, they would appear to be 'business as usual' risks. As such, we believe NGET was best placed to identify and consider the potential for these events to impact on its performance under a scheme should and should consider the level of associated risk accordingly.

*NGET's ability to control or mitigate the impacts*

2.27. NGET may not have significant control over the events which led to outturn transmission losses differing from the scheme target. However, the Authority considers that there are a number of ways in which NGET could have mitigated the risk and impact of a windfall gain or loss resulting from transmission losses outturn as part of the development of scheme design.

2.28. Firstly, NGET could have presented strong evidence and analysis to influence the scheme target. We have identified that NGET had forecasts of both the level of wind generation and the coal and gas plant economics. Thus, it should have been well placed to present compelling information and evidence relating to both of these drivers in order to ensure that the scheme target was appropriate. NGET's response

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<sup>20</sup> <https://www.ofgem.gov.uk/ofgem-publications/39979/national-grid-electricity-transmission-so-incentives-1-april-2011-final.pdf>

to our final proposals consultation and the further information received demonstrates that NGET considered the overall package of risk and reward to be fair suggesting that it believed the final target was appropriate.

2.29. Alternatively, NGET could have set out an argument for a change to the design of the incentive, for example by presenting an argument for the inclusion of a cap and floor or sharing factor on the transmission losses incentive in order to manage the risk. NGET could have argued for removal of the financial incentive on transmission losses at the time of scheme development. Given that a £30 million under-spend against the transmission losses target in 2010-11 contributed to NGET hitting the BSIS scheme incentive cap we would have expected it to be considering the risks of factors outside of its control impacting on its performance against the target and presenting options for mitigating this risk.

2.30. Notwithstanding the available evidence in relation to plant economics and the levels of wind generation, NGET formally agreed to a scheme based on the target that was set. No explicit uncertainty mechanism was included to account for the risk of a different outturn. In doing this, we consider that NGET accepted the risk of the outturn being different to the target as a result of market trends.

## 3. FMJL Replacement Works

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### Chapter Summary

This chapter summarises the Authority's determination in relation to the FMJL replacement works notice submitted by NGET.

### Summary of determination

3.1. The Authority has determined that the FMJL replacement works notice submitted by NGET constitutes an IAE as aspects of the work were outside of the reasonable ability of NGET to forecast or control. The Authority has determined the following income adjustments in relation to these aspects of the IAE notices:

- Extension of the outage from planned completion on 8 October 2012 to actual completion on 18 December 2012: Income adjustment of £7.6 million;
- Removal of Emergency Return to Service provisions which required NGET to incur additional cost to ensure system security was retained: Income adjustment of £1.2 million.

3.2. In addition, the Authority believes that the most appropriate methodology to identify the relevant income adjustment is to maintain consistency with scheme design by applying the modelled cost methodology. Thus, the total income adjustment determined by the Authority in relation to the FMJL replacement works IAE notices is £8.8 million.

### Background

3.3. In July 2012 Scottish Power (SP) formally requested permission from NGET to change the year ahead transmission outage plan for the replacement of 'FMJL' transformers at Smeaton and Strathaven substations. Following NGET's permission, these works subsequently took place over the periods 2 August 2012 – 19 December 2012 and 7 January 2013 – 8 February 2013 for Smeaton and Strathaven respectively.

3.4. The cost of these works was not accounted for in the 2011-13 BSIS target because the transmission system outage plan was set and fixed at the beginning of the scheme with the model used to derive a target. Therefore the target generated by the model did not reflect the FMJL replacement works, and hence NGET had to take constraint actions that were not reflected in the constraints target set by the model.

3.5. NGET applied for an IAE in relation to the constraint costs it incurred as a result of these replacements within the 2011-13 BSIS period. NGET's proposed income adjustment is based on all of the actions that were "control room flagged"<sup>21</sup> as attributable to the FMJL replacement works. Under this methodology, NGET has applied for an income adjustment of £28.9m. We included a sharing factor of 25% within the 2011-13 BSIS. Once we apply this sharing factor, the adjustment to NGET's scheme target would be £7.23m if the Authority was to approve the income adjustment in full.

3.6. We commissioned Poyry to carry out independent analysis of the evidence submitted. Poyry provided a report setting out their findings and views on the status of the FMJL replacement IAE notice. We have also engaged with SP Networks and asked them for further information given they were responsible for carrying out the replacement works.

## Stakeholder responses

3.7. We received seven responses to our open letter concerning IAEs, six of which directly mentioned the notice concerning the FMJL works. Four of the respondents did not consider this event to constitute an IAE while two did.

3.8. The stakeholders who did not consider the FMJL replacement works to constitute an IAE argued that the FMJL transformer issue was known to NGET before scheme agreement. Hence, they argued that NGET should have considered replacement ahead of time. In addition, these stakeholders did not consider the events unusual for a System Operator to face within its normal operations. One respondent argued that NGET did not manage the outage scheduling proactively, and another stated that NGET accepted the risk of such an occurrence at scheme agreement.

3.9. The stakeholders who agreed that the FMJL replacement works constituted an IAE argued that the requirement to replace the transformers sooner than originally envisaged was outside of NGET's control. They suggested that NGET was faced with limited options to manage the outage because of the safety considerations involved.

## Poyry's view

3.10. To help assist the Authority in considering the FMJL replacement IAE notice, we commissioned Poyry to develop a report for us setting out its view on the information which has been submitted. The consultants carried out independent analysis of the same information and evidence that we received from the stakeholders involved in order to produce this report.

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<sup>21</sup> "Control room flagging" is when an action is taken in real time, and the engineers in NGET control room flag it as a constraint action, categorising it by reason for action, eg Smeaton FMJL outage.

3.11. Poyry recommended that the initial outage at both Smeaton and Strathaven could not be considered as an IAE. This recommendation was made on the basis that the industry had been aware of FMJL replacement requirements for a number of years and the requirement for the works to be scheduled became evident following an incident in July 2011.

3.12. Poyry recommended that only the extension of the outage and the removal of emergency return to service (ERTS) provisions at the Smeaton substation should be considered as an IAE. Poyry consider there to be an interaction between the ERTS costs and the costs of the extension of around £0.6m. In addition, Poyry recommended that the model methodology was used to identify an appropriate income adjustment to ensure consistency with the methodology for setting an efficient and economic target for NGET under the wider scheme (including for planned and unplanned outages). On the basis of their analysis, Poyry recommend that the income adjustment for FMJL replacement works should be no more than £8.2m in total.

3.13. Poyry did not consider any of the costs resulting from the works at Strathaven to constitute an IAE. Their recommendation was based on the fact that there were no events which were completely outside of NGET's ability to forecast and control in relation to the Strathaven works.

### **Determination on whether the FMJL replacement works constitute an IAE**

3.14. The Authority has considered the information and analysis and determined that aspects of the events referred to in the notice relating to FMJL replacement works constitute an IAE for the following reasons:

- The Authority considers that the removal of emergency return to service (ERTS)<sup>22</sup> provisions and the extension of the outage were outside of the ability of NGET to forecast and control. The Authority believes that this had an unexpected and fundamental impact on NGET's ability to manage the outage. The Authority therefore considers that NGET was not significantly better placed to manage these risks than consumers.

#### **The Authority's consideration of force majeure**

3.15. The Authority does not consider the FMJL replacement works to meet the definition of force majeure as set out in either the BSC or the CUSC. While FMJL transformers have been the subject of catastrophic failures in the past, the replacement works at both Smeaton and Strathaven were the result of planned and agreed outages. There were no events which fall within the definition of force

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<sup>22</sup> ERTS is a provision where by the SO can request the TO's site to be returned to full availability in the shortest possible timescale, for system security issues.

majeure as set out in the BSC or the CUSC which led to additional costs being incurred by NGET.

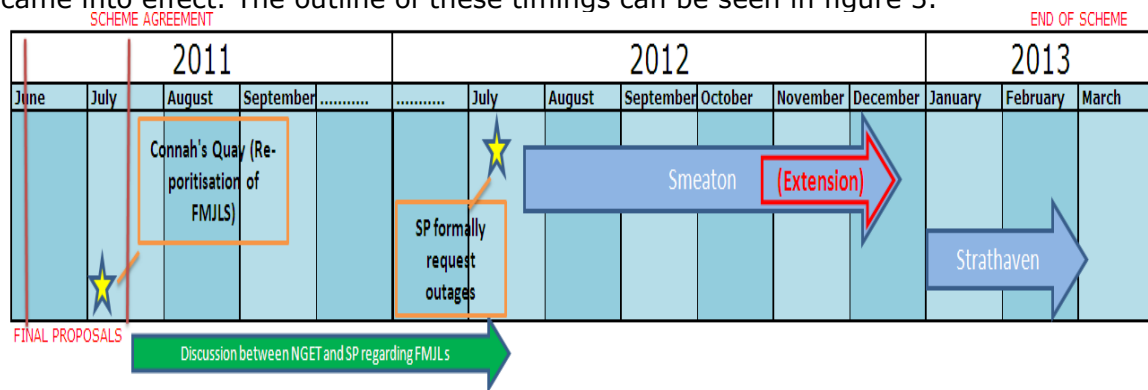
**The Authority’s consideration of whether the event constitutes an IAE for any other reason**

*NGET’s ability to forecast the risk of outages at Smeaton and Strathaven*

3.16. In considering NGET’s ability to forecast the requirement for FMJL works within scheme, we have reviewed the information available to NGET at the time of scheme agreement.

3.17. SP Networks provided some historical information surrounding the Industry’s views of FMJL failures. There have been disruptive failures of FMJL units on the GB system since 1992. Following a catastrophic failure of a transformer in 1998 on the NGET network, it became network practice to fit pressure gauges and carry out oil testing on all FMJL units to monitor their conditions. Following a dangerous failure of a unit in Cardiff East in 2009 all units were re-tested<sup>23</sup> in order to prioritise the replacement of units on a condition basis. Within this re-testing and prioritisation, Smeaton and Strathaven were considered low risk and were not due to be replaced within the 2011-13 BSIS scheme period.

3.18. In July 2011, there was a further catastrophic failure of an FMJL unit at Connah’s Quay. This unit had previously been considered as low-risk as categorised by condition tests. Following this failure, units were prioritised on a safety and strategic system location basis. At this time, Smeaton and Strathaven were prioritised over other sites. This event occurred the day before the 2011-13 scheme came into effect. The outline of these timings can be seen in figure 3.



**Figure 3: Timeline of events**

<sup>23</sup> DGA oil & moisture tests were carried out on all FMJL transformer units

3.19. NGET were aware of the requirement to replace the FMJL units at Smeaton and Strathaven, with SP planning on replacing them since at least 2009. Figure 3 shows the Connah's Quay incident (that resulted in the prioritisation of Smeaton and Strathaven) which occurred in 2011, around the time of scheme agreement.

3.20. The SO-TO code (STC)<sup>24</sup> is a code that defines the high level relationship between the Great Britain SO (NGET) and the TO's (in this case, SP). The code sets out a number of requirements for the SO and TOs to communicate and coordinate transmission outage planning with the ultimate responsibility for developing outage plans resting with the SO.

3.21. The Smeaton and Strathaven substations are of high strategic importance to the system operator in relation to system constraints. Once the industry requirement to re-prioritise the order of the replacement works was identified we would expect a prudent and economic SO to be in regular communication with SP between the Connah's Quay incident and the date at which SP formally requested the outages. We would expect NGET to lead on this regular contact to ensure that it understood the implications of replacement works being carried out on the GB system. The STC highlights the roles and responsibilities of the SO in coordinating these outages. As we would expect under the STC, there were discussions between NGET and SP as to when the Smeaton and Strathaven works could be taken in the 12 months leading up to SP requesting the works in July 2012.

*NGET's ability to control or mitigate the impacts*

3.22. NGET had a number of ways in which it could have controlled or mitigated the impacts of the planned outages. This included at scheme agreement and in the lead up to the outage.

3.23. As presented previously, NGET should have been aware of the need for re-prioritisation of the FMJL transformer replacement works approximately 12 months before the work was formally requested. This should have allowed NGET to communicate with SP and perform analysis to ensure that whole system costs were minimised.

3.24. The STC outlines that the outage plan on the GB Transmission system is "locked in" at the start of a financial year, and after that point NGET has ownership of the transmission outage plan. From then on, any additional works the TOs wish to carry out have to be requested to be included in the plan by the relevant TO.

3.25. Under the STC we would expect the system operator to be in constant communication with SP to coordinate the replacement works and ensure that they

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<sup>24</sup> The STC in full can be found at the following link:  
[http://www.nationalgrid.com/NR/rdonlyres/6ADFE0AF-6085-4B74-A299-B180664172F2/61177/COMPLETE\\_STC.pdf](http://www.nationalgrid.com/NR/rdonlyres/6ADFE0AF-6085-4B74-A299-B180664172F2/61177/COMPLETE_STC.pdf)

could be managed as efficiently as possible. By taking these actions, the SO should have been able to understand and mitigate the costs which it incurred in managing the outages of two such important substations.

3.26. It is also important to consider the design of the incentive scheme. NGET formally agreed to a scheme which included outage plan inputs defined at the commencement of the scheme. Changes against this outage plan were not factored into scheme design save for outages which could be considered to result from 'unexpected and fundamental changes to wholesale energy markets'. In signing up to a scheme with this design NGET accepted the risk that changes against this plan would impact on its costs.

3.27. Indeed, we note that (both in this particular instance and in general over the scheme) some changes to outage plans would have reduced the costs incurred by NGET. SP presented us with information demonstrating that a number of outages were moved to accommodate the Smeaton and Strathaven works. It is possible that some of these outages would still have been taken within the scheme period. However, given the timing of the outage very close to the end of the outage plan it is likely that a number of these outages were carried forward into future scheme periods. This would have the effect of reducing NGET's costs relative to the target for the 2011-13 scheme.

3.28. We do however consider that the extension of works at the substation at Smeaton was outside of NGET's control. The original outage planned period was 2 August – 8 October 2012. After this, the works period was effectively doubled to 19 December 2012. This was a result of complications with the non-compatibility of the new transformers with existing equipment, and civil engineering issues with the weight of the new transformers. We consider both of these complications to have been outside of the SO's ability to control.

#### *Consideration of the change to work plans*

3.29. There were two important changes to the original outage plan agreed between NGET and SP in the FMJL works at Smeaton substation. The first of these was the removal of ERTS provisions after SP had agreed to keep these in place for the entire work period. The second change was the extension of the works from planned completion in October, to actual completion on 19 December 2012.

#### *ERTS provisions*

3.30. ERTS provisions were initially offered by SP to NGET for the full period of the outage at Smeaton. On 11 September 2012, SP informed NGET that the ERTS provision was no longer available. Because of this, the site couldn't be returned to full operational levels until the full completion of works. The Authority considers this event to be outside of NGET's ability to control and forecast, and hence considers the resulting cost relating to the removal of ERTS provisions to constitute an IAE.



3.31. The costs associated with ERTS are not directly attributable to the management of real-time constraints. Instead they are the cost of post-fault cost mitigation measures<sup>25</sup>. These costs were required to replace the service that ERTS would have otherwise provided to ensure sufficient system security in case of a fault elsewhere on the system.

#### *Outage extension*

3.32. We have also considered the extension of works at the Smeaton substation. The works were originally planned until 8 October 2012, but subsequently extended until 19 December 2012.

3.33. The Authority considers this significant extension to have been outside of NGET's ability to forecast or control. As this extension significantly impacted on the timescales that NGET originally agreed to when SP requested the original works, the Authority considers this extension to constitute an IAE.

### **Determination on the appropriate income adjustment for FMJL replacement works**

3.34. NGET's submission was based upon all constraint actions taken that were flagged for FMJL works at each site. Therefore, assuming that the actions are flagged appropriately, this cost accounts for both constraining plant off the system and for the associated replacement energy caused by the FMJL works. This methodology outturns a total cost for the FMJL replacement works of £28.9m, with a breakdown of £25.14m and £3.75m for Smeaton and Strathaven respectively.

#### *Outage extension*

3.35. To identify a level of income adjustment, the Authority has considered the most appropriate methodology to ensure that any income adjustment represents the economic and efficient costs that should have been incurred in managing the relevant event.

3.36. In developing a BSIS for 2011-13 we agreed a methodology with NGET for identifying a target for the scheme which would represent the economic and efficient costs which it should be 'benchmarked' against. As this methodology was used to set an overall scheme target, the Authority has determined it to be the most appropriate basis for identifying an income adjustment. This approach ensures consistency with how constraint costs are treated and hence how NGET are incentivised to minimise the associated costs under an incentive scheme (including for costs associated with planned and unplanned outages). Without continuing to consider the level of income

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<sup>25</sup> Measures taken to ensure that the system is secure in the event that a part of the system fails

adjustment against this target we note that the incentive for NGET to minimise costs would be diluted in the case of an income adjusting event occurring.

3.37. This model methodology includes the application of a 'discount factor'. The discount factor accounts for the fact that the model output only includes actions which NGET takes in the BM. It corrects for this so that 'business as usual' actions such as contracting and intertrip use are also included. In the case of actions taken to manage the Smeaton outage, NGET submitted information which demonstrates that it was utilising contracts and intertrips to manage the outage and that intertrips were utilised all the way up to the end of the outage. In addition, the shifting of other outages would have allowed NGET to use, and where possible extend the contracts it had in place to manage the outages through alternatives to the BM.

3.38. In order to identify the appropriate level of economic and efficient costs which would have been derived from the models as a target had the relevant works been included, we requested that NGET carry out a Plexos constraint cost target model run with the Smeaton works included. This analysis out-turned a cost of £17.6m difference for the full work period, with £7.6m of the costs attributable to the extension period of November and December.

3.39. We note that the difference between the modelled and actual costs relating to the extension of the outage was small. This suggests that the modelled costs provide a realistic target for the economic costs which NGET should have incurred.

Application	Modelled costs	Actual costs
Total	£7.6m	£7.9m
Post sharing factor total	£1.9m	£2.0m

**Table 4: Modelled and actual costs for the outage extension and ERTS costs**

3.40. Based on the modelled methodology, the Authority has determined the appropriate value attributable to the outage extension at Smeaton to be £7.6m.

#### *ERTS provisions*

3.41. We requested that NGET provide us with evidence to demonstrate the proportion of costs from the works that could be attributed to the removal of the ERTS provisions which occurred on 11 September 2012. NGET estimated that the resulting costs from the loss of ERTS were £2.8m, as set out in table 5:

Actions	Cost (£m)
Contracts	1.6
Trade with Peterhead	1.05
BM Actions	0.15
<b>Total Spend</b>	<b>2.8</b>

Table 5: NGET's estimate of the cost of removal of ERTS provisions

3.42. Upon reviewing the evidence provided to support the cost breakdown, the Authority has determined that the contract costs (in red) should not be incorporated into the income adjustment. The appropriate level of income adjustment in relation to the ERTS provisions should be based on the costs which NGET incurred to manage the removal of these provisions only. However, the evidence that NGET submitted shows that the contract costs captured in this estimation were completely consistent with the contracts in place from the 27 August before NGET became aware that the ERTS provisions would be removed. This suggests that no additional contract costs were incurred as a result of the ERTS provisions being removed but that these contracts would have been in place in any case.

3.43. The Authority has determined that the appropriate value of income adjustment attributable to the removal of the ERTS provisions is £1.2m.<sup>26</sup>

*Total income adjustment*

3.44. Contrary to Poyry's recommendation, the Authority does not consider there to be an interaction between the costs relating to the removal of the ERTS provisions and to the extension of the outage given the differing nature of these cost items. The costs relating to the extension of the outage have been determined by considering the modelled output of constraint costs. The costs relating to removal of ERTS provisions were not included in these modelled constraint costs. Instead, these costs were related to the procurement of additional services to ensure system security. Thus we consider that the level of interaction between the two would have been limited and do not consider that the ERTS costs have already been allowed for within the modelled methodology cost identification.

3.45. Therefore, the Authority has determined a total income adjustment of £8.8 million in relation to the FMJL replacement IAE notice.

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<sup>26</sup> Total ERTS estimated spend (£2.8m) – Estimated ERTS contract costs (£1.6m) = £1.2m

## 4. Alcan Service Provider

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### Chapter Summary

This chapter summarises the Authority's determination in relation to the closure of Alcan aluminium service provider notice submitted by NGET.

### Summary of determination

4.1. The Authority has determined that the notice submitted by NGET in relation to the closure of Alcan aluminium smelter does not constitute an IAE. The Authority does not consider the relevant events or circumstances to constitute force majeure under the BSC or the CUSC. Neither does the Authority consider that the events constitute unexpected and fundamental changes in the wholesale energy market. The Authority believes that NGET was better placed to manage the relevant risks than consumers.

### Background

4.2. NGET applied for an IAE following the closure of Alcan Aluminium's Lynemouth smelter which ceased to offer services in December 2011. The adjustment NGET applied for was its estimated additional energy costs - over and above that which it would have otherwise incurred - for replacing the services provided by the Lynemouth smelter for the remainder of the incentive scheme following the closure of the provider. NGET submitted a proposed income adjustment of £38.3m.

4.3. Rio Tinto, the parent company of Alcan Aluminium, publically confirmed the planned closure of the Lynemouth aluminium smelter in November 2011<sup>27</sup> citing emerging legislation (including energy legislation such as the carbon floor price) as the main reason. The smelter had historically provided frequency response services to NGET. In the absence of the smelter, NGET claims that roughly 400MW of substitute balancing mechanism (BM) generation was required to provide the same level of Response and Fast Reserve services previously provided by the Lynemouth smelter for the remainder of the scheme (December 2011–April 2013).

4.4. The procurement of this additional 400MW (and more specifically the additional cost incurred versus that if Alcan had remained open) was not accounted for in the scheme target because the quantity of frequency response was implicitly set and fixed within the models used to derive a cost target at the beginning of the scheme (as part of the historic statistical inputs into the models). Therefore, the

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<sup>27</sup> See press release:

[http://www.riotintoalcan.com/ENG/media/media\\_releases\\_2196.asp](http://www.riotintoalcan.com/ENG/media/media_releases_2196.asp)

target generated by the model did not reflect the closure of the smelter, and hence the availability of frequency response services was lower in reality when compared to the modelling assumptions.

4.5. NGET used a cost sensitivity and a back-casting model approach to estimate the increased costs incurred in replacing the service provided by the Lynemouth smelter<sup>28</sup>. Following this methodology, NGET applied for an income adjustment of £38.3m<sup>29</sup>. We included a sharing factor of 25% within the 2011-13 Balancing Services Incentive Scheme (BSIS). After applying this sharing factor, the adjustment to NGET's scheme target would have been £9.6m if the Authority approved the full income adjustment.

## Stakeholder responses

4.6. Of the seven responses we received to our open letter, four directly referred to the notice concerning closure of the Lynemouth smelter. All four of these responses did not consider the event to constitute an IAE.

4.7. Stakeholders considered the closure of the smelter to be a regular market occurrence, and did not feel that it should be out of the ordinary for a system operator to deal with such an event within a scheme. One stakeholder suggested that the closure of the smelter was a drawn out process which NGET should have had sight of.

4.8. One stakeholder questioned the methodology used by NGET to come to the value which is applied for under the IAE notice, claiming that the smelter was used as a tripping service for when the frequency dropped to a set trigger, and the modelled replacement cost has been applied for all frequency management actions.

## Determination on whether the closure of Alcan service provider constitutes an IAE

4.9. The Authority has determined that the events referred to in the notice relating to closure of Alcan do not constitute an IAE for the following reasons:

- The events do not meet the definition of force majeure in the BSC or the CUSC.
- The Authority does not consider the relevant events to constitute an IAE for any other reason. The Authority does not believe that the events represent an unexpected and fundamental change in the energy markets and considers

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<sup>28</sup> More detail can be found in section 4

<sup>29</sup> Through discussion, it later became apparent that NGET had not deducted the costs of the contracts which had been saved by no longer having the smelter available. If there was to be any income adjustment, this would have to be factored in at a minimum.

that NGET were better placed to forecast and control the impact of these events than were consumers.

### **The Authority's consideration of force majeure**

4.10. The Authority does not consider the closure of a service provider to constitute force majeure under the BSC or the CUSC. It considers closure of a service provider to be an example of a 'business as usual' market development which naturally occurs within the energy market.

### **The Authority's consideration of whether the event constitutes an IAE for any other reason**

#### *NGET's ability to forecast the risk of closure of the Alcan aluminium smelter*

4.11. In the IAE notice that NGET submitted, it cited what it considered to be a precedent for the treatment of aluminium smelter closure with the example of the Anglesey aluminium smelter which closed in 2009<sup>30</sup>. In that case, NGET informed us of the possibility of closure at scheme outset and a targeted within scheme adjustment mechanism was agreed between Ofgem and NGET as part of the upfront scheme design.

4.12. The Authority also considers the closure of Anglesey aluminium to be an important consideration. However, the Authority has different views to NGET on the precedent this sets for how the Alcan aluminium closure is treated. Importantly, the adjustment mechanism used in the case of Anglesey aluminium closure was very different in nature from the IAE provisions. The Anglesey aluminium mechanism provides an example of NGET considering risks ahead of scheme agreement and identifying a targeted ex ante adjustment mechanism that was transparent in nature to all stakeholders. This is quite different from a broad, ex post IAE mechanism which stakeholders have had reservations about due to its ex post nature and lack of transparency about the potential impact of any income adjustment.

4.13. In addition, the Anglesey aluminium closure raises the point that two years before the scheme was agreed, Rio Tinto (the parent company of Alcan and Anglesey) had already begun to close aluminium smelters that were offering services to NGET, because of rising energy costs<sup>31</sup>. One of the main reasons cited by Rio Tinto in its public announcement to close the Alcan smelter was energy legislation and associated costs: "It is clear the smelter is no longer a sustainable business because its energy costs are increasing significantly, due largely to emerging legislation." The emerging legislation referred to by Rio Tinto was the carbon price floor, which was

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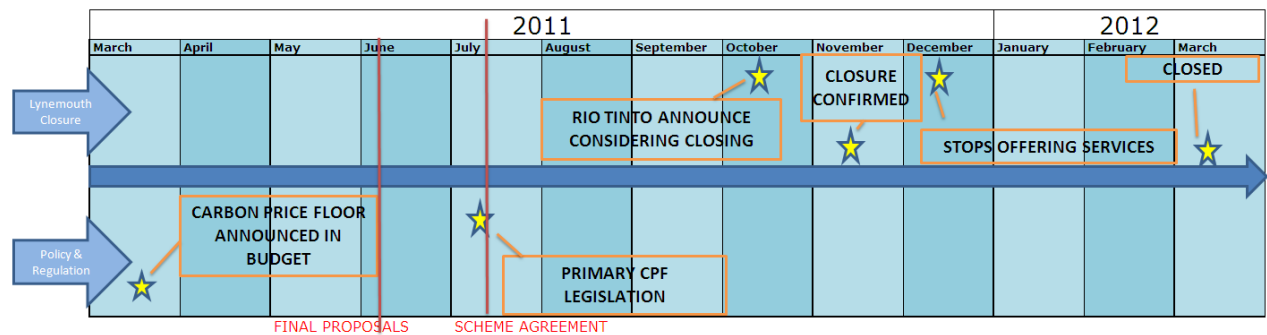
<sup>30</sup> See Press release: [http://www.riotinto.com/media/media-releases-237\\_6631.aspx](http://www.riotinto.com/media/media-releases-237_6631.aspx)

<sup>31</sup> Anglesey Aluminium closed due to a relatively cheap power contract with a power station expiring

planned by government in the March 2011 budget<sup>32</sup>, before final proposals of the 2011-13 scheme were published for consultation.

4.14. Rio Tinto announced publically in October 2011<sup>33</sup> (less than three months after scheme agreement) that they were considering closure of the Lynemouth smelter. We would expect NGET, in its role as SO, to have account managers in place who are in close communication with service providers with such a potential cost implication as this one. We would expect these account managers to have been well placed to identify the risk of closure ahead of public announcement allowing the risk of closure to be mitigated.

4.15. The evidence that we have collected does not suggest that the closure was *expected* at the time of scheme agreement. However, the precedent of Anglesey aluminium closure, the timing of closure announcement, and the energy related drivers of Alcan aluminium closure suggest that NGET should have been sufficiently aware that there was a *risk* of closure. Therefore, it should have been taking actions to mitigate this risk either through scheme design or through the contractual agreements it had in place.



**Figure 4: Timeline of Lynemouth smelter's closure and timing of policy and regulation**

*NGET's ability to control and mitigate the risk of closure*

4.16. We consider that NGET's actions in relation to the closure of the Alcan aluminium smelter fall short of what an efficient and economic reaction to the specific and credible risks by a prudent SO should have been. There are a number of actions that NGET could have taken to mitigate this risk and the information provided to us has led us to believe that NGET exposed itself to the risk of closure more than we would expect it to.

<sup>32</sup> See: HM Treasury Budget 2011:  
[http://webarchive.nationalarchives.gov.uk/20130129110402/http://cdn.hm-treasury.gov.uk/2011budget\\_complete.pdf](http://webarchive.nationalarchives.gov.uk/20130129110402/http://cdn.hm-treasury.gov.uk/2011budget_complete.pdf)

<sup>33</sup> See press release:  
[http://www.riotintoalcan.com/ENG/media/media\\_releases\\_2131.asp](http://www.riotintoalcan.com/ENG/media/media_releases_2131.asp)

4.17. Firstly, NGET could have mitigated against the possible closure of a key service provider through its approach towards service procurement. Rio Tinto Alcan informed us that the Lynemouth smelter had no obligation to provide notice for not providing a service, and all of its services were based upon day-ahead nominations. By only having such a contract in place, NGET must accept the consequential risk that it faces that a service may not continue to be provided.

4.18. If NGET had considered that the closure of one service provider could affect its costs against the target by £38.3m within a scheme period, we would expect it to employ risk and cost mitigation measures against this event. NGET could have reviewed the terms at which Alcan Aluminium could give notice to stop providing a certain level of availability at the smelter within any contract or service agreement that it had in place. Alternatively, NGET could have diversified its balancing services profile through contracting with other plant ahead of time, which could be considered appropriate given the cost impact of the risk of the smelter's closure materialising.

4.19. Secondly, given the specific history with Rio Tinto, the owners of Lynemouth and previously Anglesey aluminium, NGET could have militated against the risk of closure through the design of the scheme that was put into place.

4.20. If NGET had identified a risk of closure at the time of scheme agreement, and could present a strong case for the need and ability to factor in any risk without significantly weakening incentives, then it could have presented a strong case for a targeted adjustment mechanism. The adjustment mechanism used for the closure of Anglesey Aluminium smelter provides an example of how the risk of closure could have been built into the design of a scheme up front. This would have mitigated the risk of Alcan smelter's closure without the need for ex post, retrospective and non-transparent amendments.

4.21. We have also considered that factors outside of NGET's control can decrease as well as increase costs relative to the target as well (and this would be considered in the consideration of any adjustment mechanisms as part of scheme design). This may have resulted from new service providers becoming available to provide certain services within the scheme. New or current providers may have provided a service at a lower cost than forecast by the models.

4.22. An example of this is the increase in the levels of competition within the Short Term Operating Reserve (STOR) market. While NGET are also able to have some impact on STOR competition through tender design, one of the main drivers of this has been an increase in relatively flexible gas fired plant running on a less regular basis. As a result, this plant has been available to provide additional ancillary services. This resulted in an average weighted price of STOR over three times lower in reality compared to the cost target setting models<sup>34</sup>. NGET did not raise an IAE in relation to this reduction in STOR costs.

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<sup>34</sup> Lowering the volume weighted average price of STOR from £641/MWH to £163/MWH



4.23. Finally we note that under NGET's methodology used to identify the level of income adjustment, it had not removed the costs that it avoided having to pay for the provision of the Alcan service as a result of closure<sup>35</sup>. In addition to the potential for NGET's service costs to decrease as well as increase as explained above, it is likely that the impact of any changes to service provision over the scheme would have been significantly less than the value for which NGET applied.

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<sup>35</sup> This only became apparent after questioning NGET upon the methodology used to determine the costs.

## 5. Moyle interconnector outage

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### Chapter Summary

This chapter summarises the Authority's determination in relation to the Moyle interconnector outage submitted by NGET.

### Summary of determination

5.1. The Authority has determined that the notice submitted by NGET in relation to the Moyle interconnector outage constitutes an IAE as aspects of the event were outside of the reasonable ability of NGET to forecast or control.

5.2. The Authority has determined that the appropriate methodology to identify the relevant income adjustment is to maintain consistency with scheme design by applying the modelled cost methodology. In addition, the Authority has determined that the modelled costs relating to the first two months of the outage should be discounted. This is to reflect the risk that was identifiable given a recent precedent for an outage of the same interconnector which lasted 69 days and which occurred in the lead up to scheme agreement. Thus, the total income adjustment determined by the Authority in relation to the FMJL replacement works IAE notices is £20.4 million.

### Background

5.3. NGET applied for an IAE in relation to the additional constraint costs that it incurred because of a long term outage of the Moyle interconnector. NGET claims that it incurred an additional £29.2m cost due to this outage. The unplanned outage commenced on 26 June 2011 and reduced the Moyle interconnector capacity to half and subsequently to zero on 24 August 2011. The outage continued until 19 February 2012, lasting eight months in total.

5.4. The Moyle interconnector directly connects Scotland to Northern Ireland and had regularly exported up to 450 MW of power due to lower prices Great Britain compared to Northern Ireland. When a fault on the Moyle interconnector reduced its capacity, it also exacerbated the constraints from Scotland to England over the Cheviot boundary. This is because the power normally exported to Northern Ireland could only be transferred to England via the Cheviot boundary which lacks sufficient capacity to export all the available generation from Scotland to England. As a result of unavailability of the Moyle interconnector, the SO took additional constraint actions in order to manage system security, which led to higher than expected constraint costs in Scotland.

5.5. We used a constraint model to estimate a constraint cost target for the 2011-13 incentive scheme. Within this model, the methodology to which NGET agreed at

scheme outset included interconnectors flows as an ex ante input into the model. With the ex-ante inputs of interconnector flow, the constraint model assumed interconnectors to always be available within the model settings. When there was an outage of the Moyle interconnector, the constraint model assumed that it was still available and exporting at full capacity from Scotland to Northern Ireland in determining a target for constraint costs. As a result, the additional constraint costs incurred by NGET due to the Moyle Interconnector outage were not reflected in the incentive scheme target.

5.6. As there were no provisions introduced within the BSIS to deal with such a long duration of unplanned outage on an interconnector, NGET raised a number of model modifications to the way in which the incentive scheme target was calculated for constraint costs in summer 2012. As part of the model modification request, NGET asked us to amend the treatment of interconnector flows from ex-ante to ex-post. The Authority approved the ex-post treatment of interconnector flows on a forward looking basis but suggested that the appropriate mechanism to consider retrospective treatment of the Moyle Interconnector outage was through the IAE provisions under special condition AA5A. It is important to note that our decision did not suggest any precedent for an IAE to be *approved* for the Moyle Interconnector outage, only that this was the appropriate mechanism to *consider* these costs.

5.7. When estimating the impact of the Moyle interconnector outage to determine the cost adjustment in its application, NGET considered the balancing mechanism (BM) actions which had been taken for constraint management across the Cheviot boundary. It also included additional trading actions taken due to the Moyle interconnector outage. The total cost adjustment for the Moyle fault was estimated at £29.2m. After applying the agreed sharing factor of 25%, the adjustment to NGET's scheme target would be £7.3m if the Authority approved the full income adjustment.

## Stakeholder responses

5.8. Of the seven responses we received to our open letter concerning IAEs, five directly referred to the notice concerning the Moyle Interconnector outage. Four of these responses did not consider the event to constitute an IAE and one respondent was unsure.

5.9. One stakeholder considered that NGET's modelling should be sufficiently robust to consider the impact of such uncertainties and that under any incentive scheme there is a level of risk exposure to NGET that is considered appropriate. Furthermore, stakeholders believed that faults similar to that of the Moyle interconnector are common events and that NGET should have been mindful of this type of event before they agreed to a scheme. Therefore, these respondents were of the view that there is no justification for any special treatment of cost incurred by NGET, especially where risk factors were known in advance of the scheme.

5.10. Nevertheless, one stakeholder believed that it was not straightforward to conclude that the unplanned Moyle interconnector outage was not an IAE. However,

this stakeholder also argued that this outage should not have been wholly unexpected given the recent failure rates of the Moyle interconnector.

### **Poyry's view**

5.11. Poyry's report recommends that the Moyle interconnector outage should be treated as an IAE. Poyry believed that the event could be argued to constitute force majeure under the BSC or the CUSC and was largely outside of NGET's ability to forecast or control.

5.12. Poyry provided further analysis to support its recommendation. It concluded that an 8 month long unplanned outage of the Moyle interconnector was not a foreseeable event. Furthermore, Poyry considered that NGET had no control to influence the management of the Moyle fault once it occurred.

5.13. Poyry did highlight that the risk of a shorter duration outage could have been foreseen, largely because of the recent precedent of the 69 day Moyle outage in 2010. Therefore, Poyry considered that it is appropriate to remove the costs incurred during the reduction in capacity of the interconnector in the first two months. Hence, Poyry considered that adjustment should be made in relation to the remaining six months of the full outage period.

5.14. Poyry also believed the modelled methodology approach to be the most suitable in order to identify the appropriate level of income adjustment. Poyry considered this to be consistent with the scheme design which uses this approach to set a target for the economic and efficient costs which NGET should incur.

5.15. Poyry recommended that NGET should be granted an income adjustment of no more than £16.8m for the Moyle interconnector outage. This would lead to a £4.2m adjustment to NGET after the application of a 25% sharing factor.

5.16. We have considered Poyry's assessment of the information available and agree with the rationale behind the principles of Poyry's recommendation. We have taken additional considerations into account in determining how this principle is applied to identify the appropriate level of income adjustment.

### **Determination on whether the Moyle interconnector outage constitutes an IAE**

5.17. The Authority has determined that the events referred to in the notice relating to the Moyle interconnector outage constitute an IAE for the following reasons:

- The events could arguably be deemed to meet the definition of force majeure in the BSC or the CUSC. It is possible that the unplanned Moyle interconnector outage could fall under the definition of 'explosion, fault or

- failure of plant or machinery which (in each case) could not have been prevented by Good Industry Practice’;
- The Authority considers that NGET were no better placed to forecast and control the impact of these events than were consumers. The Authority considers the unprecedented length of the outage to constitute an unexpected and fundamental change in the wholesale energy market.

### **The Authority’s consideration of force majeure**

5.18. The Authority considers that the Moyle interconnector outage could possibly fall under the definition of force majeure under the BSC or the CUSC. We note however that NGET responded to our questions by stating that they are not applying for the event under the force majeure clause of the IAE provisions.

### **The Authority’s consideration of whether the event constitutes an IAE for any other reason**

#### *NGET’s ability to forecast the risk of an outage*

5.19. In its IAE notice, NGET suggested that because the Moyle interconnector is relatively new (10 years old) and because it considered the long term outage of any electricity interconnector to be unusual it did not predict an interconnector outage occurring.

5.20. However, the history of the Moyle interconnector (table 6) shows that there were several outages in recent years, most notably a fault that occurred in September 2010 (less than a year before scheme agreement), which reduced Moyle capacity by 200 MW<sup>36</sup> for a 69 day period. Given this information, we believe that the risk of an outage of a similar duration to that seen in the lead up to scheme agreement should have been within the ability for NGET to consider ahead of scheme agreement.

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<sup>36</sup> The Moyle interconnector is composed of two cables which both have a technical limit of 250 MW. However, in winter (when most of the outage occurred), onshore capacity restricts offered Moyle capacity to 450 MW. Therefore, when one of the cables is out, the effective reduction in offered capacity is 250 MW.

Period	Number of Outages	Max duration (days)	Min duration (days)
2008 - 2009	12	1.5	0.1
2009 - 2010	18	11.5	0.8
2010 - 2011	6	69.5	0.1

**Table 6: Historic outages on the Moyle interconnector**

*NGET's ability to control or mitigate the impact of an outage*

5.21. NGET suggested that the Moyle interconnector outage was completely unplanned and there were very limited options for NGET to influence the repair time. We also consider that NGET had no control over the interconnector outage, unlike for example transmission outages, where the SO-TO code sets out provisions and requirements for NGET to coordinate outage plans on the transmission network.

5.22. Although NGET had no power to influence the Moyle interconnector outage, it was still obliged to cooperate closely with the Moyle interconnector in order to understand the seriousness of the fault and the time it may take to be resolved. Under Condition 3 of the Electricity Interconnector licence Standard Condition<sup>37</sup> (compliance with codes) of the Electricity Interconnector licence<sup>38</sup> the Moyle interconnector owner should have informed NGET about the outage problems to allow NGET to take mitigating actions.

5.23. The information we have received from NGET, Mutual Energy and the Northern Irish system operator (SONI) has shown that NGET had a close relationship with SONI during the outage period and we believe that the requirements under the codes were complied with. In addition, NGET assessed the seriousness of the fault; and hence had a reasonable expectation in relation to outage length. In order to demonstrate its communications with SONI and Mutual Energy during the outage period, NGET submitted a timeline to Ofgem. We have summarised the key communication dates in the chart below.

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<sup>37</sup> The licences in full can be found at the following link:

[https://epr.ofgem.gov.uk/Content/Documents/Electricity\\_Interconnector\\_Standard%20Licence%20Conditions%20Consolidated%20-%20Current%20Version.pdf](https://epr.ofgem.gov.uk/Content/Documents/Electricity_Interconnector_Standard%20Licence%20Conditions%20Consolidated%20-%20Current%20Version.pdf)

<sup>38</sup> Licensee become a party to the BSC and CUSC and comply with the provisions of the same "so far as applicable to it." The interconnector licence requires that the licensee comply with the requirements of the Grid Code, Scottish grid code and the Distribution Code in so far as applicable to it

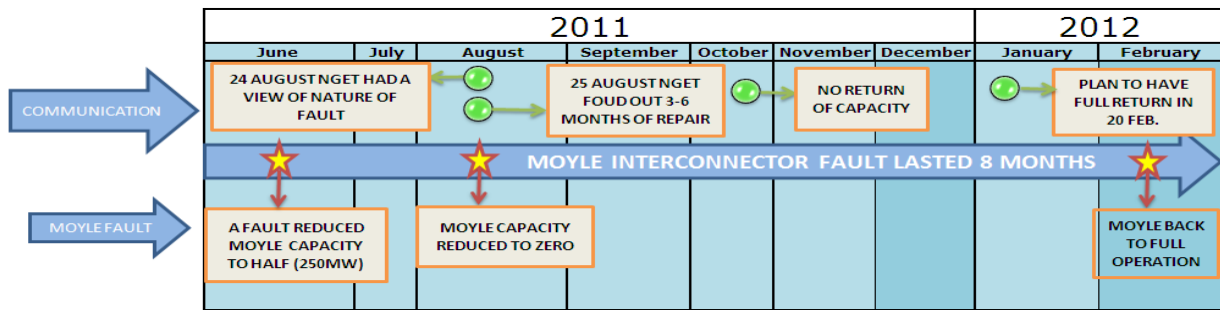


Figure 5: Timeline of communication between NGET and SONI

5.24. NGET was not able to influence the Moyle interconnector outage and repair time. NGET’s regular communication with SONI and Mutual Energy provided a clear view to NGET in relation to the duration of the fault from relatively early dates.

5.25. Nevertheless, we have considered the extent to which NGET had control over the risk of interconnector availability when it agreed to the design of the BSIS scheme. NGET should have been aware at this time that it had no control over planned and unplanned interconnector outages and no power to affect repair time. In addition, the previous outage of Moyle should have provided an indicator that factors such as this could impact on NGET’s performance against the target due to factors outside of its control.

5.26. If NGET had identified this risk, then a mechanism existed for it to mitigate this risk through the input methodology. This methodology was designed to ensure that factors outside of NGET’s control were treated as ex post inputs and so would not affect its performance under the scheme. By agreeing to a scheme with interconnector availability as an ex ante input less than a year after an interconnector outage of 69 days had been witnessed, NGET accepted the level of risk of Moyle interconnector outage that had been witnessed by the market so recently.

### Determination on the appropriate income adjustment for Moyle interconnector outage

5.27. Prior to submitting an IAE notice relating to the Moyle interconnector outage, NGET had previously submitted some estimates of the impact which a correction to the models to account for the Moyle outage would have on the scheme target.

5.28. NGET submitted an initial proposal to Ofgem in July 2012 as part of the model methodology amendments. In this initial proposal, NGET suggested that retrospective correction of the models to account for the outage would result in a change to the BSIS scheme target of £16m. NGET presented a figure of circa £10 million to the industry at its operational forum in April 2013.

5.29. NGET claimed that the modelled cost of £16m was estimated as part of the proposal to amend the models. In this assessment, a change to the model methodology to reflect the impact of the Moyle interconnector outage on the scheme target was proposed alongside a number of other proposed model changes. NGET's suggestion of why the income adjustment it has applied for is not consistent with the previous numbers provided is that these result from the impact of the Moyle outage being assessed in isolation.

5.30. In its IAE notice submission, NGET estimated the total constraints volume attributed to the Moyle interconnector outage as 0.47TWh (equal to 29% of the total volume of constraints actions taken in Scotland). In order to manage the additional constraints volume, NGET took additional balancing mechanism (BM) actions to address the power flows across the Cheviot boundary. To assess the actual cost of the BM actions attributed to the Moyle interconnector outages, NGET arranged these actions in descending price order to form a price stack of actions. It then matched actions to the Moyle volume that it needed to manage in the Cheviot boundary taking the most marginal volume of actions for each day. As a result, NGET estimated an actual cost of £29.2 million via BM and trading actions for managing the Moyle interconnector outage.

5.31. In carrying out this methodology, NGET assumed that there was a one to one ratio of actions taken on the Cheviot boundary flow compared to actions taken to manage the Moyle fault for the 8 month outage period. This assumption was based on the assumption that there were no generation reductions in Scotland to compensate for the reduced impact of the Moyle fault.

5.32. NGET highlighted that it had already run a tender process before the Moyle interconnector outage occurred in order to manage the constraint cost in the affected area and produce services to cap generation. In addition, NGET also ran two tender processes to manage the constraints in the Cheviot boundary while the Moyle interconnector was on outage. However, it stated that none of these tenders were taken solely to manage the Moyle outage and has not included these costs in its income adjustment application.

5.33. The Authority has determined that the cost that NGET is allowed to recover under its IAE submission for the Moyle interconnector outage should be based on the agreed modelled methodology approach that was used to define a scheme target. This model methodology represents the agreed approach to determining the efficient and economic target for the costs which the SO should incur to manage system constraints. This ensures consistency with the approach used for the full scheme to ensure that NGET are only able to recover the costs which the agreed methodology identifies as being economically and efficiently incurred.

5.34. We note that this methodology includes a 'discount factor' to account for the fact that the model output is based on only the options available to NGET through the BM. The discount factor is a mechanism agreed between us and NGET for an incentive scheme. It accounts for the fact that NGET has a number of options outside of the BM which it should utilise as an efficient and economic SO under business as usual.



5.35. We note that the Moyle outage lasted for eight months and that Mutual Energy contacted NGET in June 2011 identifying an indicative repair time of three to six months before confirming this length of repair in August 2011. Given this, we would expect the SO to be able to sign contracts and take other actions outside of the BM such as exercising intertrips within the period of the outage. In addition, in its IAE notice, NGET cited a number of contracts and intertrips that it utilised to manage Cheviot constraints over the period. The management of Cheviot constraints implicitly included actions taken to manage the impacts of the Moyle outage and thus reduced the costs relative to the 'BM only solution'.

5.36. In order to identify a modelled estimate of the economic and efficient costs, we asked NGET to run several sensitivity analyses. These sensitivity analyses were aimed at corroborating previous figures provided by NGET to identify an appropriate level of income adjustment based on the agreed model methodology approach.

5.37. The results of this sensitivity analysis identified a value of £27.3m of additional cost relative to the BSIS scheme target for the full duration of the Moyle outage (i.e. 8 months). The modelled costs are not significantly lower than the costs for which NGET has applied. This suggests that NGET were relatively efficient in handling the constraints relating to the outage and supports the accuracy of the modelled approach to determine a suitable income adjustment.

5.38. However, notwithstanding the above, the Authority considers that NGET should have been well placed to identify and consider the precedent for an outage of the Moyle interconnector which reduced the capacity by 200 MW for 69 days shortly before scheme agreement. As a result, we consider that the first two months of outage in July 2011 in which the Moyle interconnector was again reduced by 200 MW (before subsequently being reduced to zero capacity) should be discounted. This is because NGET implicitly accepted an equivalent risk when it signed up to a scheme after the time at which it should have identified this precedent.

5.39. In order to discount the first two months of income adjustment, we have considered the outputs of the model sensitivity that NGET carried out. The costs for each month that were identified under the sensitivity are set out in table 7:

Month	Cost
Jul-11	-£562,118.69
Aug-11	£10,919,874.45
Sep-11	£2,601,883.49
Oct-11	£2,361,397.20
Nov-11	£3,864,898.73
Dec-11	£3,601,636.76
Jan-12	£2,388,128.10
Feb-12	£2,026,709.96
Total	£27,202,409.99

**Table 7: Monthly costs attributed to Moyle interconnector outage**

5.40. To identify the level of cost that should be discounted from the overall income adjustment, Poyry deducted the first two months of modelled cost (those highlighted in the table totalling £10.4 million) from the total. This resulted in Poyry's recommendation to allow a maximum income adjustment of £16.8 million.

5.41. To identify the most appropriate level of discount, we have considered it important to account for the nature of the models and, in particular, the high cost result that we identify in August 2011. The models were designed to identify a target over the two year scheme length and so estimates are more accurate over a wider sample period as fluctuations in output are smoothed over time. While the high August result would have resulted from the underlying conditions within the models such as capacity restrictions due to outages or generation profiles, it is also likely that these trends may have been compounded by the inherent nature of the models over short periods.

5.42. We therefore consider it appropriate to smooth the output data to account for the significant difference in the August 2011 output. However, we also note the likelihood that the significant costs identified by the model in August 2011 reflect the underlying conditions within the model at the time. Hence, we believe that this result should be reflected in the level of income adjustment to some degree.

5.43. The Authority has therefore determined that an aggregate cost per month is the most suitable approach for discounting the first two months of cost. This option is considered to strike the appropriate balance between accounting for the model nature while still reflecting the trends identified from modelled outputs. This results in a discount of £6.8 million.

5.44. After applying this methodology, the income adjustment approved by the Authority for the Moyle interconnector is £20.4 million<sup>39</sup>.

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<sup>39</sup> Found by subtracting an average of the monthly modelled output between July and August 2011. Total income adjustment = (Total modelled output/Number of months)\* Number of income adjusted months = (27.2/8)\*6 = 20.4

## Appendices

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## Appendix 1 – Summary of consultation responses

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1.1. We published an open letter inviting views from stakeholders regarding the IAE notices submitted by NGET which we published on 5 July 2013. In this open letter we did not set out an Ofgem view on the notices. Instead we summarised the notices that had been submitted and set out some context regarding NGET's exposure to risk and a specific question relating to whether the FMJL replacement IAE notice in fact constituted two separate events. We finished by asking stakeholders the following questions:

- Do you consider that an IAE has occurred? What is the basis of your conclusion?
- Do you consider the proposed IAE to constitute force majeure as defined in the BSC or in the CUSC?
- Do you believe there to be any other reason why the Authority should take the opinion that the proposed IAE constitutes an IAE?
- Do you believe that the FMJL transformer replacement IAE notice should constitute two different proposed IAEs, one for Smeaton and one for Strathaven?
- Do you consider that any or all of the costs included within NGET's notice result from the relevant IAE? Are there any interactions between costs incurred under the different IAEs which may not have been taken into account?
- Has each proposed IAE increased the costs and/or expenses incurred by NGET in balancing the system by more than the threshold amount of £2 million?
- Are there any additional factors or evidence which you think we should take into account to inform the Authority's decision on whether the proposed IAE constitutes an IAE and what the level of income adjustment should be in the case that the Authority determines that an IAE has occurred?

1.2. The following table provides a summary of the responses to our consultation. Responses can be found in full on our website.<sup>40</sup>

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<sup>40</sup> Responses in full can be found at the following link:  
<https://www.ofgem.gov.uk/publications-and-updates/open-letter-proposed-income-adjusting-events-submitted-national-grid-electricity-transmission-relation-2011-13-electricity-system-operator-scheme>

## Electricity System Operator Incentives 2011-13: Income Adjusting Events Determination

Questions	British Gas	Drax	Eon	Haven Power	Npower	Scottish Power Transmission	SSE
<b>FMJL Replacement works</b>							
Should it be considered as an IAE?	X	-	X	X	X	✓	✓
Why?	Transformers will fail and need replacing	-	Other FMJL units failed before scheme, so replacement was predictable	None of these events seem that unusual	NGET accepted risk of scheme	Mid-scheme failure was catastrophic	Outside the control of NGET and constitutes a force majeure
Do you believe that the FMJL transformer replacement is a single IAE?	-	-	No	-	Yes	Yes	Yes
Any Additional comments	FMJL transformer issues were known prior to scheme	-	NGET did not manage outage scheduling proactively	-	-	NGET limited by risk to public safety	-
<b>Alcan Closure</b>							
Should it be considered as an IAE?	X	-	X	X	-	-	X
Why?	Simply a market occurrence	-	Unavailability of one plant does not constitute an IAE	None of these events seem that unusual	-	-	Alcan closure was gradual; NGET well-placed to make other plans
Any Additional comments	Market conditions could not be expected to remain unaltered	-	Alcan issue was not raised at scheme halfway stage	-	-	-	NGET have attributed more cost to the closure of Alcan than is justified
<b>Transmission losses</b>							
Should it be considered as an IAE?	X	-	X	X	X	-	X
Why?	NGET accepted scheme knowing transmission losses were largely out of their control.	-	Doesn't constitute force majeure; NGET agreed to the scheme	None of these events seem that unusual	The cause - increased northern generation - was foreseeable	-	NGET accepted scheme knowing transmission losses were largely out of their control.
Any Additional comments	Changes in spark spreads are 'business as usual'	-	Changes in spark spreads are not rare events	-	Increased southern coal generation should have mitigated TL	-	-

## Appendix 2 - Glossary

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### A

#### Ancillary Services

Mandatory, necessary or commercial services used by the electricity System Operator to manage the system and to meet their licence obligations.

#### The Authority/Ofgem/GEMA

Ofgem is the Office of Gas and Electricity Markets, which supports the Gas and Electricity Markets Authority (GEMA), the body established by Section 1 of the Utilities Act 2000 to regulate the gas and electricity markets in Great Britain.

### B

#### Balancing and Settlement Code (BSC)

Sets out the rules for governing the operation of the Balancing Mechanism and the Imbalance Settlement process and also sets out the relationships and responsibilities of all electricity market participants.

#### Balancing charges

Charges that NTS users pay for differences between their inputs and offtakes from the NTS and for differences between its nominated and delivered quantities.

#### Balancing Mechanism (BM)

The mechanism by which the electricity System Operator procures commercial services (Balancing Services) from generators and suppliers post gate closure, in accordance with the relevant provisions of the Balancing and Settlement Code (BSC) and the Grid Code.

#### Balancing Services

The services that the electricity System Operator needs to procure in order to balance the transmission system. Balancing services include ancillary services.

#### Balancing Services Incentive Scheme (BSIS)

A scheme that has been applied to the SO to incentivise efficient balancing of the transmission network.

#### Balancing Services Use of System charges (BSUoS)

The half-hourly charge, levied by the electricity System Operator on users of the transmission system, in order to recover the costs of operating the transmission system and procuring and utilising Balancing Services.

### Black Start

If the electricity system experiences a full or partial shut down, isolated power stations that have black start capability (an auxiliary generating plant located on-site) are started individually and gradually connected to each other to form an interconnected system again.

## C

### Cap

The maximum incentive payment the SO is permitted to receive as part of an incentive scheme (this may also be subject to a 'sharing factor').

### Carbon footprint

Total amount of greenhouse gas emission caused directly and indirectly by a business or activity.

### Consumer

In considering consumers in the regulatory framework we consider users of network services (for example, generators, shippers) as well as domestic and business end consumers, and their representatives.

### Constraints (also known as congestion)

A constraint occurs when the capacity of transmission assets is exceeded so that not all of the required generation can be transmitted to other parts of the network, or an area of demand cannot be supplied with all of the required generation.

### Connection and Use of System Code (CUSC)

Constitutes the contractual framework for connection to, and use of, National Grid's high voltage electricity transmission system.

## D

### Demand side response (DSR)

The reduction of customer energy usage at times of peak demand in order to help system reliability, to reflect market conditions and pricing, or to support infrastructure optimisation or deferral of additional infrastructure.

## E

### Ex ante / Ex post Inputs

Ex ante inputs to National Grid's models are those whose values are set prior to the start of the scheme and are not updated as the scheme progresses (except under specific agreed circumstances). Ex post inputs are collected on a monthly basis using

outturn data. Ex ante and ex post data are combined with the agreed models to determine the level of costs against which National Grid should be incentivised.

### Energy Imbalance

Energy imbalance costs are those incurred by National Grid to correct for differences between the generation supplied by the market and the demand on the system (see also Market Length).

## F

### Floor

The maximum loss the SO can make as part of an incentive scheme (this may also be subject to a 'sharing factor').

### Frequency Response

The electricity SO has a statutory obligation to maintain system frequency between +/- 1% of 50 hertz. The immediate second-by-second balancing to meet this requirement is provided by continuously modulating output through the procurement and utilization of mandatory and commercial frequency response.

## G

### Gate closure

Gate Closure is the point in time when market participants notify the SO of their intended final physical position. It is set at one hour ahead of real time.

## I

### Income adjusting event (IAE)

An unforeseen event has resulted in unexpected costs or savings of greater than a set limit, known as the materiality threshold.

### Interconnector

Equipment used to link electricity or gas systems, in particular between two Member States.

## L

### Licence conditions (obligations)

Obligations placed on the network companies to meet certain standards of performance. The Authority (GEMA) has the power to take appropriate enforcement action in the case of a failure to meet these obligations.



## **M**

### Margin (in electricity)

Margin is the need for NGET to ensure that the units synchronised at any given time have sufficient spare capacity to ensure that the Short Term Operating Reserve Requirement (STORR) is met. The STORR is set such that there is a risk that total demand will not be able to be met on only 1 in 365 days.

### Market Length

Market Length refers to the volume of excess demand (or supply) that exists at the point of gate closure. If generators generate more energy than they have contracted for and/or suppliers' customers consume less energy than their supplier has bought on their behalf, then the net effect is that there is a surplus of generation on the system. This is often described as a 'long' market. Conversely, if generators generate less energy than they have contracted for and suppliers' customers consume more energy than their supplier has bought on their behalf, then the net effect is that there is a shortfall of generation on the system. This is often described as a 'short' market.

## **N**

### National Grid Electricity Transmission (NGET)

NGET is the Transmission System Operator for Great Britain. As part of this role it is responsible for procuring balancing services to balance demand and supply and to ensure the security and quality of electricity supply across the Great Britain Transmission System.

### National Electricity Transmission System Security and Quality of Supply Standard (NETS SQSS)

As referred to in the electricity Transmission Licence Standard Conditions C17 and D3, this is the standard in accordance with which the electricity transmission licensees shall plan, develop and operate the transmission system.

### Network charges

These are charges set for the use of network services.

## **O**

### Operating Margin (OM) (in electricity)

A requirement to ensure that the system security can be properly managed across power exchange and Balancing Mechanism timescales, i.e. 'up to' and 'at real time'.

### Outputs

What the SO is expected to deliver.

## **P**

### [Plexos](#)

A modelling tool for power market analysis.

### [Price control](#)

The control developed by the regulator to set targets and allowed revenues for network companies. The characteristics and mechanisms of this price control are developed by the regulator in the price control review period depending on network company performance over the last control period and predicted expenditure in the next.

## **R**

### [Reactive Power](#)

Power generation creates background energy which absorbs or generates reactive energy as a result of the creation of magnetic and electric fields. Reactive power needs to be provided to assist in balancing the system and retaining its integrity.

### [Reopeners](#)

A process undertaken by Ofgem to reset the revenue allowances (or the parameters that give rise to revenue allowances) under a price control or incentive scheme before the scheduled next formal review date.

### [RIIO-T1](#)

RIIO-T1 is the first transmission price control review under the new regulatory framework known as RIIO (Revenue = Incentives + Innovation + Outputs). The RIIO model builds on the previous RPI-X regime, but is designed to better meet the investment and innovation challenge by placing much more emphasis on incentives to drive the innovation needed to deliver a sustainable energy network at value for money to existing and future consumers.

## **S**

### [Sharing factors](#)

For cost incentives, these describe the percentage of profit or loss which the SO will have to bear if the relevant incentive performance measure falls below or exceeds the relevant incentive target. For output incentives, these describe the percentage of profit or loss which the SO will have to bear if the relevant incentive performance measure exceeds or falls below the relevant incentive target.

### [Short Term Operating Reserve \(STOR\)](#)

A service that provides additional active power from generation and/or demand reduction.

### SO External costs

The costs National Grid incurs in relation to the operation of the gas and electricity system. These costs include contracts for balancing activities in electricity, purchasing energy to transport gas and entering into trades on the commodity market (gas) and the Balancing Mechanism (electricity).

### SO Internal costs

Internal costs relate to the SO's own costs associated with its SO activities, such as building, staff and IT costs.

### Stakeholder

Stakeholders are those parties that are affected by, or represent those affected by, decisions made by network companies and Ofgem. As well as consumers and companies involved in the energy sector, this would for example include Government and environmental groups.

### Sustainable energy sector

A sustainable energy sector is one which promotes security of supply over time; delivers a low carbon economy and associated environmental targets; and delivers related social objectives (e.g. fuel poverty targets).

### System Operator (SO)

The entity charged with operating either the GB electricity or gas transmission system. NGET is the SO of the high voltage electricity transmission system for GB.

## T

### Third Package (Third Internal Energy Market Legislative Package)

The third package is a key step in implementation of the internal EU energy market. It recognises the need for better coordination between European network operators and continuing coordination between regulators at that level.

### Transmission losses

Electricity lost on the GB transmission system through the physical process of transporting electricity across the network. The treatment of transmission losses is set out in the BSC.

### Transmission Owner (TO)

There are three separate high voltage electricity Transmission Owners in GB. National Grid Electricity Transmission (NGET) owns and maintains the high voltage electricity transmission system in England and Wales. Scottish Hydro-Electric Transmission Limited (SHETL) is the electricity transmission licensee in Northern Scotland and Scottish Power Transmission Limited (SPT) is the electricity transmission licensee in Southern Scotland.

## Appendix 3 - Feedback Questionnaire

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1.1. Ofgem considers that consultation is at the heart of good policy development. We are keen to consider any comments or complaints about the manner in which this consultation has been conducted. In any case we would be keen to get your answers to the following questions:

1. Do you have any comments about the overall process, which was adopted for this consultation?
2. Do you have any comments about the overall tone and content of the report?
3. Was the report easy to read and understand, could it have been better written?
4. To what extent did the report's conclusions provide a balanced view?
5. To what extent did the report make reasoned recommendations for improvement?
6. Please add any further comments?

1.2. Please send your comments to:

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