RECOMMENDATIONS: NGET 2011-13 SYSTEM OPERATOR INCENTIVE INCOME ADJUSTING EVENTS

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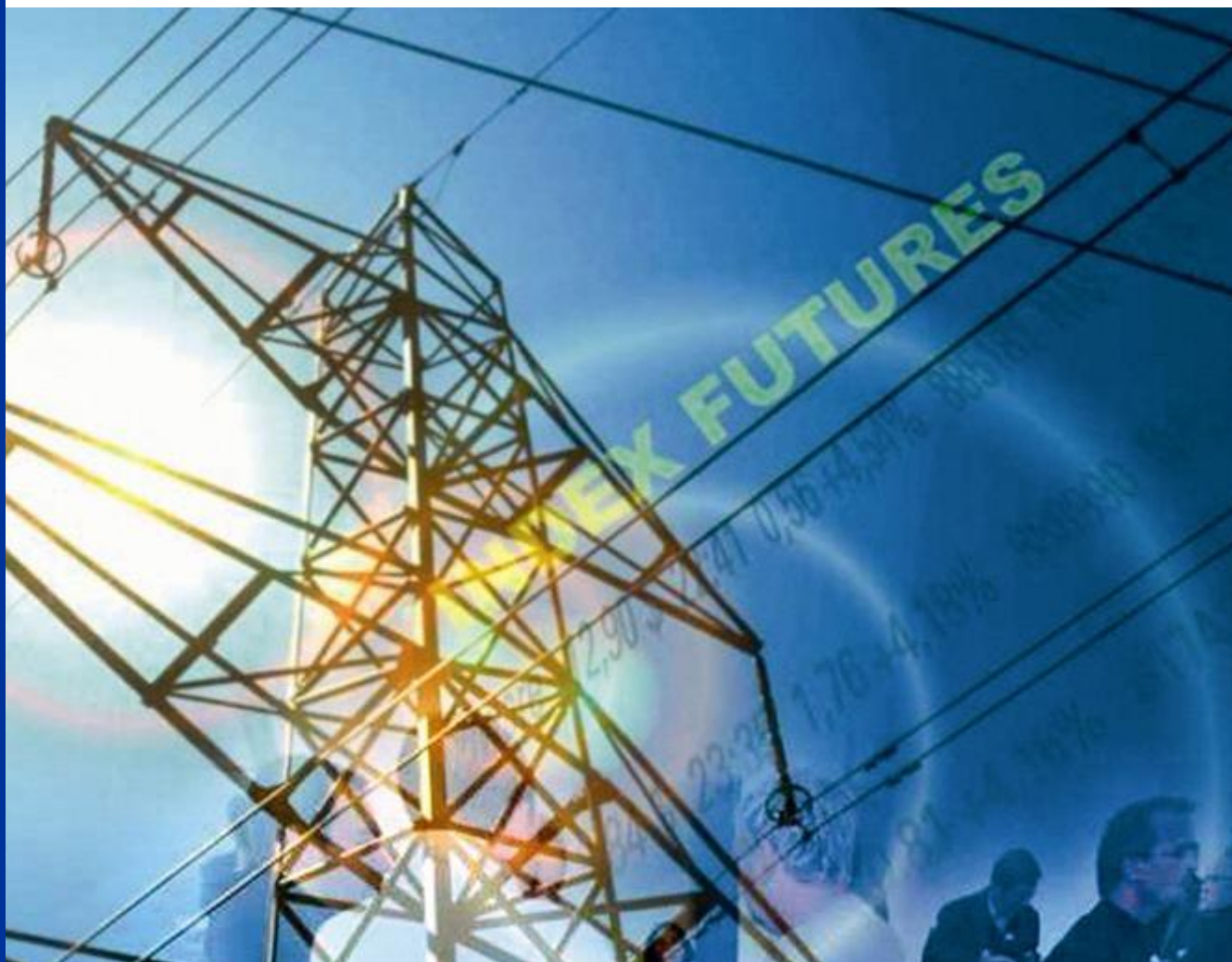
A report to Ofgem

August 2013



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EXECUTIVE SUMMARY

Context

On 28 June 2013, National Grid Electricity Transmission (NGET) submitted four notices to Ofgem, for what they believe are valid Income Adjusting Events (IAEs) during the GB System Operator (GBSO) Balancing Services Incentive Scheme (BSIS) for the period 2011-13. This followed an overspend of approximately £224 million during the scheme period, which, after applying the 25% sharing factor allocation to NGET, initially results in a £56 million loss for NGET. However, this loss is capped at £50 million under the profit/loss exposure caps agreed for the 2011-13 scheme. The costs included within these IAE proposals total £204.3 million, and once the 25% sharing factor is applied to these costs, the maximum impact that they could have on NGET's incentivised balancing costs is £51 million. If approved in full, this would reduce NGET's loss under the 2011-13 BSIS to £5 million.

From the four IAE notices raised by NGET, Ofgem commissioned Pöyry Management Consulting (hereafter referred to as "Pöyry") to provide expert assistance in relation to two. These are:

- **Moyle outage:**
  - **Issue**: higher Scottish constraint costs due to the extended, 8 month long partial or full outage of Moyle interconnector in 2011-12 which effectively lowered demand in Scotland and thus power flows within and out of Scotland;
  - **NGET proposed cost adjustment**: £29.2m; and
  - **Impact on NGET exposure**: £7.3m.
- **FMJL replacement:**
  - **Issue**: constraint costs resulting from outages to replace the FMJL current transformer (CT) assets at Smeaton over a four/five month period and Strathaven over a two month period;
  - **NGET proposed cost adjustment**: £28.3m; and
  - **Impact on NGET exposure**: £7.1m.

NGET included both the Smeaton and Strathaven FMJL replacement outages within one IAE notice, effectively treating them as a single event on the basis that FMJL replacement is the driver for both outages. While FMJL replacement is a common feature of both outages, we consider each separately on the basis that they are distinct incidents.

This report focuses upon two issues, which are:

- does the event meet the IAE criteria[1] defined in Special Condition AA5A of the Transmission Licence that was in place up to 31 March 2013; and
- what cost, if any, can justifiably be attributed to the proposed event, assuming a prudent economic and efficient approach to system management by the GBSO?

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[1] The criteria are:
- an event or circumstance constituting force majeure under the BSC;
- an event or circumstance constituting force majeure under the CUSC;
- a security period as defined in Special Condition AA5; and
- an event which is, in the opinion of the Authority, an IAE.

Based on our assessment, we set out our recommendations to Ofgem below.

Moyle interconnector fault recommendation

Our recommendation to the Authority is that outage on the Moyle interconnector should be treated as an IAE in part. An outage of approximately two months could reasonably have been foreseen based on actual recent unplanned outages on both Moyle and IFA interconnectors. However, the incremental six months of overall outage duration was not a foreseeable event. In addition, given the low probability attached to such an event, we do not believe that it would be economic and efficient for NGET to contract ahead of time to cover the possibility of an 8 month outage.

We believe this event could constitute a force majeure under BSC or CUSC. However, as this event was unforeseeable and uncontrollable (i.e. a high impact low probability event), it could also constitute an event classed as an IAE by the Authority.

If the Authority considers this event to be an IAE, we recommend that it should grant an adjustment of no more than £16.8 million to incentivised balancing costs. This value is based on costs linked to the latter six months of this outage only on the basis that the initial two month outage period was reasonably foreseeable based on recent experience. Based on the application of a 25% sharing factor, this would lead to a £4.2 million reduction to NGET's exposure under the 2011-13 BSIS.

Smeaton FMJL works recommendation

Our recommendation to the Authority is that the FMJL replacement related outages at Smeaton should be treated as an IAE in part. Based on our assessment we believe this constitutes an event classed as an IAE by the Authority in respect of the extension to the original outage and the removal of the Emergency Return to Service (ERTS) provisions which could not have been reasonably foreseen or controlled by NGET.

We recommend that if the Authority considers this event to be an IAE it should grant an adjustment of no more than £8.2 million. This value is derived based on assessment of the costs linked to the delay in the FMJL CT asset replacement schedule and the removal of the ERTS arrangements. Based on the application of a 25% sharing factor, would lead to a £2.05 million reduction to NGET's exposure under the 2011-13 BSIS.

Strathaven FMJL works recommendation

Our recommendation to the Authority is that the FMJL replacement related outages at Strathaven should not be treated as an IAE. Based on our assessment we believe this NGET was involved in the planning of this event once the need for replacement became apparent and so had notice. Furthermore, the rescheduling of other planned transmission outages enabled it to accommodate the Strathaven works. As such, this event does not meet the necessary criteria to be classed as an IAE, in our opinion.

If the Authority does not agree with our recommendation it should award an adjustment of £3.75 million based on NGET's analysis. This would result in an adjustment of £0.9 million based on the 25% sharing factor.

Our recommendations across these events are summarised in Table 1.

Table 1 – Summary of recommendations

Event	Treat as IAE	Recommended cost adjustment	Impact on NGET exposure
Moyle interconnector fault	Yes	<£16.8m	<£4.2m
Smeaton FMJL works	Yes	<£8.2m	<£2.05m
Strathaven FMJL works	No	None	None

General observations

In addition to our recommendations above we have also highlighted a number of general observations identified during our assessment of these notices.

[redacted]

[redacted]

Large differences between the outturn and modelling methodology determined costs. Given the differences between outturn and modelled costs, NGET was required to undertake a number of sensitivities using the models used to set the scheme target. The IAE mechanism is an attempt to adjust costs from a set of modelled results determined based on a methodology agreed prior to the start of the 2011-13 scheme. The modelling methodology used to define a scheme target was agreed by NGET and Ofgem up front on the basis they would set an economic and efficient target for the costs which NGET should incur. Thus, it is most appropriate to use these models to identify what costs should have been in response to the event based on economic and efficient system operation consistent with the agreed methodology. To the extent NGET believe the models do not accurately estimate system operation costs then it should seek to (1) modify these on the basis of compelling evidence – as happened in September 2012, (2) agree adjustments within the scheme to allow for any systematic modelling mis-estimation of costs or (3) not agree the scheme structure and costs which is based on the models.

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1. INTRODUCTION

1.1 Overview

National Grid Electricity Transmission's (NGET) 2011-13 GBSO Balancing Services Incentive Scheme (BSIS) expired on 31 March 2013. At the end of this scheme NGET had over spent relative to the target by approximately £224 million based on the agreed scheme. NGET is liable for 25% of this overspend, while the remainder is recovered through balancing services use of system (BSUoS) charges. In addition, the scheme has a symmetrical cap and floor of ±£50 million meaning that the maximum return or loss to NGET is £50 million. Hence, at the time of the expiry of the scheme, NGET was hitting the incentive floor of -£50 million.

In relation to BSIS, the Transmission Licence includes provisions for it (or any other party) to submit a notice to Ofgem where it believes that an Income Adjusting Event (IAE) has taken place which should be applied to adjust costs under BSIS. Where such an IAE is approved by Ofgem, a defined adjustment is made to costs against which the scheme target is compared. On 28 June, NGET submitted four notices to Ofgem, for what they believe are valid IAEs during the 2011-13 scheme period. The costs included within these notices total £204.3 million. Once the sharing factor is applied to these costs, the maximum impact that they could have on NGET's incentivised balancing costs is £51 million. If approved in full, this would reduce NGET's loss under the 2011-13 BSIS to £5 million.

Table 2 provides a summary breakdown of the four IAE notices submitted by NGET.

Table 2 – Summary of NGET's proposed IAEs

Event	NGET's description	Cost impact	Proposed Income Adjustment
Transmission Losses	Costs associated with higher volumes of transmission losses than the target level resulting from increased north-south energy transfers due to swing from gas to coal, increased wind generation and delays to commissioning plant	£107.9m	£27m
FMJL Replacement	Constraint costs resulting from unforeseen and subsequently extended outages to replace transformer assets with safety exclusion zones	£28.3m (revised)	£7.1m
Alcan Closure	Unforeseen large reserve/response provider closure resulting in more expensive actions being taken	£38.3m	£9.6m
Moyle Outage	Fault of Moyle interconnector in 2011-12 resulting in higher Scottish constraint costs by effectively lowering demand in Scotland	£29.2m	£7.3m
Total		£204.3m	£51.1m

1.2 Pöyry's involvement

From the four IAEs raised by NGET, Ofgem requested expert assistance in relation to two. These are:

- **FMJL replacement** – i.e. the constraint costs resulting from outages to replace the FMJL transformer assets at Smeaton and Strathaven; and
- **Moyle outage** – i.e. higher Scottish constraint costs due to the extended fault of Moyle interconnector in 2011-12 which effectively lowered demand in Scotland and thus power flows within and out of Scotland.

As a result Pöyry Management Consulting (hereafter referred to as "Pöyry") was asked to assist Ofgem in developing its view as to whether these events constitute IAEs and if so what cost (if any) should be attributed.

In addition, Pöyry provided a peer review of the other two IAE submissions from NGET (Transmission Losses and the Alcan plant closure) being assessed by Ofgem. This involved a review of the documented assessment and findings being put forward by Ofgem in its information papers for the Authority.

1.3 Scope of our assessment

Our assessment of the events covered within this report focuses upon two issues:

- what cost, if any, can justifiably be attributed to the proposed event, assuming a prudent economic and efficient approach to system management by the GBSO?
  - this takes into account consideration of actual costs incurred versus modelled costs based on the BSIS modelling methodology agreed by Ofgem and NGET at scheme commencement; and
- does the event meet the IAE criteria defined in Special Condition AA5A of the Transmission Licence (as outlined in Annex A)?

The approach taken assessing these two issues is outlined in the Section 2 below.

1.4 Structure of the report

The report is laid out in the following way:

- Section 2 – provides our assessment framework;
- Section 3 – presents our assessment of the Moyle interconnector fault;
- Section 4 – overview of the Smeaton and Strathaven FMJL works;
- Section 5 – assessment of the Smeaton FMJL event;
- Section 6 – assessment of the Strathaven FMJL event; and
- Annex A – presents the legal definitions for IAEs.

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2. ASSESSMENT FRAMEWORK

2.1 Introduction

Our assessment is split into two phases:

1. An expert opinion on NGET's justification for the notice of an IAE.
2. An expert assessment of what is a reasonable level of costs (if any) incurred by NGET as a result of the incident, compared to what would have been incurred had the event not taken place.

More details on how we have undertaken this assessment is presented in the Sections below.

2.2 Process followed

In this section we set out the process we have followed in order to assess whether FMJL replacement and/or the 2011-12 Moyle outage should be classed as IAEs.

2.2.1 Initial review

In this phase of the work we reviewed the notices submitted by NGET as part of its evidence for the IAEs. As part of this review we sought to:

- assess the quality of the IAE notices and supporting information provided by NGET;
- identify any key information/data gaps and/or deficiencies; and
- identify any immediate/emergent key issues.

2.2.2 Additional questions and sensitivities

Following the initial review we submitted a number of additional questions and model sensitivities to NGET. The purpose of these questions and model sensitivities was to:

- obtain critical supplementary data and information from NGET which we identified as relevant to our review; and
- to challenge (if and where required) existing data, information and commentary from NGET.

2.2.3 IAE meeting with National Grid

The purpose of this meeting was to enable NGET to present, explain and demonstrate as relevant:

- the basis of their proposed IAE status for the FJML replacement and the 2011-12 Moyle outage;
- their determination of the impact on balancing costs of the two proposed IAE events; including explanation and justification of NGET's:
  - cost assessment methodology; and
  - value and sourcing of assumptions.

This meeting also gave NGET their first opportunity to provide evidence in response to the additional questions we had previously submitted.

2.2.4 IAE meeting with Scottish Power Networks

Following our initial assessment of the FMJL replacements, it became clear that we would need to speak with Scottish Power Networks (SPN). This is because the FMJL replacement occurred on their transmission system. The purpose of this meeting was to:

- understand the relationship and communications between NGET and SPN, following the failure of the FMJL CT at Cardiff East and the subsequent failure at Connahs Quay; and
- understand the timelines for the replacement of the FMJL CTs.

2.2.5 Mutual Energy and SONI

Following our initial assessment of the Moyle outage, it became clear that we would need to engage with both Mutual Energy and SONI. This is because SONI / EirGrid is the system operator in Northern Ireland and Mutual Energy is the owner of the Moyle Interconnector. Engagement by email and provision of information helped to:

- understand the relationship and communications between the relevant parties; and
- understand the timelines for the outage on the Moyle interconnector.

2.2.6 Review consultation responses

A further consideration was whether the consultation responses from industry participants provided additional information or evidence of relevance to our assessment.

2.3 Assessment of Income Adjusting Event criteria fulfilment

Our approach for considering whether an event meets the IAE criteria follows a multi-step process. Each step is outlined below:

- **Foreseeable:** was the event foreseeable prior to the scheme agreement?

  The initial focus is upon whether or not the event in question could reasonably have been anticipated prior to reaching agreement on the relevant incentive scheme.
- **Includable:** did NGET have the ability to include the potential for the event within the scheme?

  Building on the above, the next step focuses upon whether NGET could control the treatment of the potential event through its influence upon the design of the relevant incentive scheme.
- **Controllable:** could NGET influence/control the occurrence and/or management of the event?

  The next stage considers whether NGET, in its role as GBSO, could have taken actions to avert the event or to manage the implications of it upon system balancing costs.
- **Manageable:** would it have been economic and efficient for NGET to take actions to manage the impact of the event?

  If NGET was in a position to manage the consequences of the event, this step considers whether it would be economic and efficient to undertake alternative or additional actions over and above the actions it actually took to manage the event.

- **Legal:** does the event meet the legal criteria for an IAE?

  This step considers whether the event meets one (or more) of the four IAE definitions set out in Special Condition AA5A of the Transmission Licence. These are:
  - an event or circumstance constituting force majeure under the BSC;
  - an event or circumstance constituting force majeure under the CUSC;
  - a security period as defined in Special Condition AA5; and
  - an event which is, in the opinion of the Authority, an IAE.

The legal definitions for the four categories are outlined in Annex A.

- **Materiality:** do the costs of the event exceed the defined £2m threshold?

  Here we consider whether the costs associated with the event contributed £2m or more under the 2011-13 incentive scheme to the costs of balancing services on which NGET is incentivised, in line with the IAE materiality threshold defined in the Transmission Licence[2]. This relates to actual costs incurred as a result of the incident rather than modelled costs.

Taking this framework, Table 3 outlines how different answers to the questions will inform our assessment of whether or not the event can be classified as an IAE.

Table 3 – Mapping question answers to assessment of IAE classification

	Answer	
Assessment category	**Yes**	**No**
Foreseeable, includable, controllable, manageable	Does not support classification as IAE	Supports classification as IAE
Legal, materiality	Supports classification as IAE	Does not support classification as IAE

There may be scope for answers between the binary 'yes' or 'no' options shown if, for example, the evidence is not clear-cut. Our overall assessment acknowledges this and takes a balanced view across the assessment categories.

Our assessment is not made with the benefit of hindsight. We aim to focus upon what was known or could have reasonably been expected in advance of or at the time of the event in question.

2.4 Assessment of the value linked to the event

Our approach for considering the value of the proposed IAEs raised by NGET required us to assess a range of information, in order to test the accuracy and materiality. The aims of this assessment are to understand the accuracy of the modelled costs provided by NGET as part of their IAE submission and also how the modelled costs compared to the actual costs incurred by NGET as a result of the events.

[2] This is a requirement under paragraph 12 of Special Condition AA5A of the Transmission Licence.

This comparison of modelled costs vs. actual costs was necessary given that the methodology used to determine the modelled costs is used as a basis for determining an efficient target against which NGET's costs are compared and a financial incentive applied BSIS. This ensured that we were maintaining consistency by following the same approach. In addition we also requested a number of sensitivities to the modelled costs in order to understand the materiality of the data provided by NGET.

The aim of this assessment was to understand:

- the level of costs which were incurred by NGET as a result of the incident compared to what would have been incurred had the event not taken place;
- the modelled costs derived based on the methodology agreed prior to the scheme for determining the scheme target;
- the methodology used by NGET to determine the costs set out under its IAE notices;
- the system balancing actions and associated costs to the SO which could be reasonably attributed to the event; and
- the materiality of the modelled costs through a series of sensitivities.

3. MOYLE INTERCONNECTOR FAULT

3.1 Context and our understanding of the event

3.1.1 IAE notice

In their submission notice for this IAE, NGET stated that on 26 June 2011 a fault on the Moyle Interconnector reduced its capacity to half and subsequently to zero on 24 August 2011. This fault continued until 19 February 2012, lasting for 8 months in total. In response to this failure, NGET's IAE notice indicated that the level of exports from Scotland to England over the Cheviot boundary increased, with NGET managing the impact though constraint resolution actions to maintain power flows within acceptable parameters.

As a result of the increase in flows across this boundary, NGET estimated that the additional costs incurred via the Balancing Mechanism and through trading actions as a result of the Moyle breakdown were £29.2m. This would lead to an adjustment of £7.3m to NGET's exposure following application of the BSIS scheme 25% sharing factor.

3.1.2 Understanding the events

As set out above, this failure on the Moyle Interconnector led to a reduction in the transfer capability to Northern Ireland first to 250MW, then 0MW. The outage lasted for a total of eight months, for 6 months of which the capacity on the interconnector was 0MW. The loss of export capacity on the interconnector led to an increase in the export capacity from Scotland to England over the Cheviot boundary.

Even with the Moyle interconnection in operation, the current export limits on the Cheviot boundary are insufficient to export all of the available generation from Scotland to England, resulting in the need to constrain generation in Scotland. The impact of the reduced capacity on the Moyle interconnector led to an increase in exports across the Cheviot boundary and an increased requirement to constrain generation.

The increase in constraints led to an increase in constraint costs incurred by NGET. In July 2012 following the incident, NGET proposed changes to the BSIS modelling methodology for the treatment of interconnector availability. The change proposed treating interconnector capacity as ex-post rather than ex-ante in an attempt to remove the risks associated with unplanned outages. The change was approved by Ofgem in September 2012. However, as part of this decision Ofgem stated that no retrospective changes would be applied. This decision still left NGET exposed to the constraint costs it incurred during the Moyle outage.

Following this decision NGET decided in June 2013 to submit an IAE in order to recover the costs incurred.

Prior to the Moyle outage in question here, in 2010 a fault on one of the two 250MW cables that comprise the Moyle interconnector halved its available capacity for 69 days. This outage was not the subject of an IAE. NGET has also provided additional information in regard to a similar length outage on the IFA interconnector (between March and May 2011), highlighting recent experience of an interconnector outage of up to two months.

3.1.2.1 Timeline

In Table 4 we have set out the key incidents and dates in relation to this IAE.

Table 4 – Timeline of key events

Date	Event
26 June 2011	Mutual Energy informed NGET of a fault on one of the two 250MW cables, reducing the capacity to 250MW
24 August 2011	A fault on remaining cable of the Moyle Interconnector reduced the transfer capacity to zero
26 August 2011	The faults were confirmed as being on the offshore network and Mutual Energy announced the outage may last approximately 6 months
07 October 2011	Mutual Energy confirm the start of the repair works
16 – 18 January 2012	Final repairs to the first cable are made and it is returned to service, this increased the transfer capacity to 225MW (limit imposed by Moyle)
19 February 2012	Second cable returned to service, and with it the full 450MW of interconnector capacity
July 2012	NGET proposed a change in the methodology to treat interconnector availability as an ex-post input from the scheme outset
14 September 2012	Ofgem approved revisions to the methodology on the treatment of interconnectors for prospective application
28 June 2013	NGET raised an IAE to recover the costs associated with the Moyle interconnector failure and the higher than expected constraint costs incurred

In the remainder of this Section we assess whether the event described above can be treated as an IAE and, if so, the appropriate value and finally provide our recommendations to Ofgem.

3.2 Is this an Income Adjusting Event?

In this Section we present our view on whether the proposed event should be treated as an IAE, following the approach set out in Section 2.3.

3.2.1 Was the event foreseeable prior to the scheme agreement?

An unplanned outage of an interconnector is not an unforeseeable event in itself. Like any piece of kit linked to or forming part of the electricity system, it has the potential to experience an unanticipated fault. Indeed, in 2010 a fault on one of the two 250MW cables that comprise the Moyle interconnector halved its available capacity for 69 days.

During the 12 months leading up to this incentive scheme the interconnector had only been available 85% of the time.

However, outside planned outage periods, forced outages linked to faults on Moyle are generally of short duration, typically under one day (further information on outages can be found on the Mutual Energy website[3]). In Table 5 below we present a summary of the outages on the Moyle interconnector in the three years period leading up to the 2011-2013 incentive scheme.

Table 5 – Historic outages on the Moyle interconnector

Period	Number of outages	Max duration	Min duration	Average duration
Apr 2008 – Apr 2009	12	1.5 days	0.1 days	0.4 days
Apr 2009 – Apr 2010	18	11.5 days	0.1 days	0.8 days
Apr 2010 – Apr 2011	6	69.5 days	0.1 days	19.5 days

The Moyle outage being considered in this case curtailed flows to half capacity for two months and then to zero for six months. It is, therefore, an outage of greater scale and duration than the 2010 Moyle outage and a significant deviation from historic availability. An 8 month outage of this nature represents a very low probability event which was not expected to occur during the scheme. However, the 2010 Moyle outage provides a recent precedent for a partial outage lasting approximately 2 months, which, importantly, was not the subject of an IAE notice. There is, therefore, an argument that based on recent history; a partial outage of up to 2 months in duration could be foreseen. Furthermore, as 2010 outage was not the subject of an IAE, this suggests that such an event could be considered to be incorporated as a manageable risk within BSIS. NGET has also provided additional information in regard to a similar length outage on the IFA interconnector (between March and May 2011), which again identifies that an outage of up to two months is not an exceptional event.

In our view, a short-duration unplanned interruption to Moyle was foreseeable based on events in 2010 and so arguably should have been factored into scheme design and NGET's contingency planning. However, the sustained 8 month long nature of the Moyle outage could not reasonably be foreseen before scheme commencement and constitutes a very low probability event that is difficult to forecast.

The 8 month long unplanned outage of the Moyle interconnector, curtailing flows to half capacity for two months and to zero for six months, is not a foreseeable event, although a shorter duration outage of up to two months could reasonably have been foreseen.

3 www.mutual-energy.com/Download/Outage%20plan%20and%20record.xls

3.2.2 Did NGET have the ability to include the potential for the event within the scheme?

The constraint modelling process incorporated into the incentive scheme design at its commencement did not include provision for interconnectors to be unavailable. This is despite the experience of the 2010 Moyle outage, which was known during the development of the 2011-13 scheme. The treatment of interconnectors was revised following the return to service of Moyle in order to switch interconnector availability to being an ex-post input into the constraint cost target modelling process, rather than being an ex-ante input. This change allows actual interconnector availability to be reflected within the constraint modelling process.

This change to the BSIS modelling methodology was progressed, alongside several other modifications, part-way through the scheme. While the sustained nature of the Moyle outage served as a driver for the methodology change, short-term interconnector outages (planned or unplanned) are foreseeable, as outlined above, with the 2010 Moyle outage providing tangible and timely experience of such an incident. Given its role in defining the BSIS modelling methodology and its understanding of the drivers which affect interconnector availability, NGET may reasonably have suggested that interconnector availability should be treated as an ex-post input from the scheme outset. Alternatively, rather than accepting the risk associated with interconnector availability and its implications for constraints, NGET could have elected not to enter into the scheme. That NGET chose to accept the scheme indicates that the overall balance of risk and reward was acceptable, despite this risk.

However we accept that these arguments are put forward on the basis of a perfect foresight and as such should not be a trigger to disregard this event as an IAE. In principle, we consider that it is important that as many costs as possible remain as an ex ante input in order to ensure NGET face incentives to manage costs. However, NGET should be proactive rather than reactive in identifying and flagging risks which it considers to be unacceptable on this basis.

The IAE provisions were included to provide protection against high impact low probability events where these could not be reasonably foreseen and mitigated. Beyond the initial 2 month period, the incremental 6 months of outage duration could not have reasonably been foreseen and reflected within the scheme at the outset. As such, it could be considered as an IAE.

It is our view that it would be unreasonable to judge NGET on the basis of perfect foresight against events which are of a high impact low probability nature and thus outside of NGET's ability to reasonably include within the scheme in advance.

3.2.3 Could NGET influence/control the occurrence and/or management of the event?

While NGET will be involved in the timing of planned interconnector outages, the occurrence of the fault (unplanned outage) on the Moyle interconnector was outside NGET control, as was the process to repair the link and return it to service. The link is maintained and operated by Mutual Energy and NGET does not have a role in either of these regards.

NGET did keep in regular correspondence with Mutual Energy during the outage. This implies that NGET did have a reasonable expectation as to when the interconnector was due back on line. Both NGET and Mutual Energy have provided a comprehensive list of communications between each other. This communication was initiated immediately after

the fault and lasted until the interconnector was reinstated. Based on this communication there is no indication that NGET could influence / control this event.

NGET was not in a position to influence the occurrence or management of the Moyle outage. However NGET was aware of the potential scale of the outage from an early stage.

3.2.4 Would it have been economic and efficient for NGET to take actions to manage the impact of the event?

Post-fault, the management of constraints across the Cheviot boundary was in the control of NGET. We understand that NGET was in regular communication with SONI to obtain information concerning the evolution of the fault resolution process and likely return to service timescales in order to inform its management options. Initial communications between NGET and SONI highlighted an expectation that the interconnector would be out for between 3 and 6 months.

The notice provided by NGET highlights that it had 'run tenders for constraint management services within the affected area and procured services to cap generation and agree hours of intertrip arming' prior to the Moyle outage. This highlights that NGET was already managing the implications of Cheviot constraints, to which the Moyle outage contributed after the fault. It had also initiated a further tender prior to the Moyle outage to manage constraints in Scotland, which was initially intended to manage pre-existing constraint issues rather than anything caused by the Moyle outage.

Indeed in its submission for the Moyle IAE, NGET stated that (paragraph 36)

"In addition National Grid had run tenders for constraint management services within the affected area and procured services to cap generation and agree hours of intertrip arming. These contracts were either in place before the fault occurred or, in the case of those agreed after the fault, would have been signed regardless of the status of the Moyle interconnector."

This highlights that NGET was aware of the constraint risk within the region and had taken action to mitigate it.

In addition, the fact that constraints costs increased significantly with the Moyle outage also raises the question of the effectiveness of the tender rounds. In both tender rounds only a limited number of tenders were accepted, implying a large amount of contingency was available in the market but rejected by NGET. Based on this information it is unclear what if anything NGET did that was specially related to the Moyle Interconnector outage.

Having presented the critique above, we believe the Moyle outage can be considered as a low probability, high impact incident. As we discuss above holding reserve capacity would be uneconomic given the likelihood of an eight month outage event occurring. However we still hold the view that a two month delay could be reasonably anticipated given the experience of past outages on both Moyle and IFA.

Given the low probability attached to such an event, we do not believe that it would be economic and efficient for NGET to contract ahead of time to cover an 8 month outage.

3.2.5 Does the event meet the legal criteria?

We believe that, based on the available evidence, the fault on the Moyle interconnector can be classed as either an Event classed as IAE by the Authority, or a Force Majeure

event under either the BSC or the CUSC. It can be considered as the following qualifying event:

- high impact low probability event which could not have been reasonable mitigated by NGET and thus there being a rational for the Authority to approve it as an IAE; or
- [an] explosion, fault or failure of plant or machinery which (in each case) could not have been prevented by Good Industry Practice.

While the outage fits the latter criterion, we consider that it is the extended duration of the Moyle outage which makes it stand out, rather than the fault itself, which, as discussed above can be considered as being foreseeable.

An 8 month outage of this nature represents a very low probability event which was not expected to occur during the scheme. However, the 2010 Moyle outage provides a recent precedent for a partial outage lasting approximately 2 months, which, importantly, was not the subject of an IAE notice. Therefore, we believe the 2010 Moyle outage provides a recent and relevant precedent for NGET to reasonably expect/plan for a partial outage lasting for approximately 2 months. As such only the final 6 months of the outage should be deemed as an IAE.

In Table 6 below we have set out a summary of our assessment of the legal criteria for classing an event as an IAE.

Table 6 – Fulfilment of IAE legal criteria: Moyle outage

IAE category	NG view	Pöyry view	Rationale
Force majeure under BSC or CUSC	No	Yes, in part given the extended duration but not for the initial phase	The outage meets the force majeure criteria covering 'a fault or failure of plant or machinery which (in each case) could not have been prevented by Good Industry Practice'
Security period	No	No	A security period was not in force
Event classed as IAE by Authority	Yes	Yes, in part given the extended duration but not for the initial phase	High impact low probability event which could not have been reasonable mitigated by NGET

3.2.6 Does the event pass the materiality threshold?

Based on the modelled cost estimates provided by NGET, this IAE does meet the £2 million threshold set by the Authority.

3.2.7 Summary

Our assessment is that the Moyle interconnector outage does constitute an IAE in part given the sustained duration of the event. Short-term outages (of around two months in duration) were reasonably foreseeable at the time of scheme agreement, particularly in light of the 2010 Moyle outage, and so should be factored into the scheme design and NGET's system management processes. But an outage of such extended duration is a

very low probability event and so it would not be economic and efficient for NGET to contract ahead of time to cover such an eventuality. Our overall assessment of whether the Moyle outage constitutes an IAE is outlined in Table 7.

Table 7 – Summary of IAE assessment: Moyle outage

Assessment category	Assessment	Comment
Foreseeable	In part	Short-term forced interconnector outages have occurred previously, but the sustained nature of this outage could not be foreseen
Includable	Yes (but only with perfect foresight)	NGET could have proposed ex-post treatment of interconnector availability from the outset (or not accepted the scheme). However, we consider that these actions fall outside of what could be reasonably expected of the SO at time of scheme agreement.
Controllable	No	NGET could not control the occurrence or management of the Moyle outage
Manageable	In part	NGET was already taking actions to manage constraints in the region and took further actions during the fault, but it would not be economic and efficient to pre-contract to cover the consequences of such a low probability sustained outage
Legal criteria	Yes	Force majeure under BSC/CUSC applies as the event is linked to a fault or failure of plant or machinery. It could also be considered a high impact low probability event, and as such could constitute an Event classed as IAE by the Authority
Materiality	Yes	NGET has provided evidence that the threshold has been met. These results are presented in Table 8.

3.3 Assessment of value proposed by NGET

In this Section we present our view on the value associated with the IAE raised by NGET in their initial submission.

3.3.1 Actual outturn

In their initial IAE submission NGET stated that the additional costs incurred as a result of the Moyle interconnector fault was £29.2 million. This value is based on an assessment of the tagged actions taken by NGET during the 8 month outage period. While this outturn cost is vital element in our evaluation we do not consider it to be an appropriate level to set an IAE adjustment based on the following reasons:

- We consider that any adjustment should be made on the basis of the modelled cost submitted by NGET. The IAE mechanism is an attempt to adjust costs from a set of modelled results determined based on a methodology agreed prior to the start of the

scheme. The methodology for how the models would be used to define a scheme target was agreed by NGET and Ofgem up front. These models are used to set an economic and efficient target for the costs which NGET should incur. Thus, it is most appropriate to use these models to identify what costs should have been in response to the event based on economic and efficient system operation consistent with the agreed methodology. It is, therefore, our belief that to calculate the correct adjustment, the revised target should be based on the model results with methodology changes to reflect an efficient and economic response to the event.

- As we set out in Section 3.2.1, we believe it would be reasonable to assume a two month outage on one of the cables, given the previous 2010 outage at Moyle. As a result the appropriate actual outturn value should be equal to only the full cable outage, excluding the two month single cable outage.

3.3.2 Modelled results

In previous communication, NGET stated that the modelled costs for the Moyle interconnector were £17 million based on initial sensitivity analysis carried out by NGET to estimate the impact of the event. The BSIS target cost for constraints is generated in Plexos from an underlying plant dispatch solution applied to the transmission boundary limits that were agreed at the commencement of the 2011-2013 scheme and based on an assumption of transmission availability for the period.

This target would have assumed that the Moyle Interconnector capacity was 450MW from GB to Northern Ireland and the plant dispatch utilised this export capacity. However as a result of the fault NGET would have seen approximately 250MW of lost demand in the first two months and then 450MW less demand (as Moyle no longer able to export) and provide a new plant dispatch solution. The impact of this 'actual' loss on the Plexos modelling is tested in the sensitivities below.

This £17 million was substantially less than the actual outturn value (as set out above in Section 3.3.1) incurred by NGET.

As we mention above, the scheme target costs and performance assessment are derived using a Plexos model. This model is configured with assumptions agreed between NGET and Ofgem during the scheme negotiations, hence prior to NGET signing up to the incentive scheme. This '**Original Model**' was used to set the scheme in 2011 and did not include any of the revisions proposed by NGET as a result of the prolonged outage on the Moyle interconnector. As a result the interconnector availability within the 'Original model was treated ex-ante. Following the fault on the Moyle interconnector NGET raised modifications for the treatment of interconnector availability. The changes were approved by Ofgem in September 2012 (although not applied retrospectively) and the '**Revised Model**' was put in place. In the revised model interconnector availability was switched to being an ex-post input into the constraint cost target modelling process, rather than being an ex-ante input.

Therefore it was important to assess the robustness of this of the £17million figure in light of the differences between the two models. As a result we requested a number of sensitivities to be modelled by NGET. These sensitivities were designed to understand:

- the value of the additional constraint costs assuming the Moyle fault had been known in advance (e.g. perfect foresight); and

- the impact of applying the revised interconnector methodology (to treat costs ex-post) at an earlier date[4].

As a result the sensitivities we requested were:

- **Sensitivity 1:** apply the original pre-methodology changes over the full incentive year 2011 – 2012 without any new methodology changes (e.g. the ex-post treatment of interconnectors) being made. ["Original Model"];
- **Sensitivity 2:** apply the Moyle methodology changes to the full scheme period with remaining methodology changes only being applied from the date at which these changes were actually made in the models. ["Moyle Only"];
- **Sensitivity 3:** apply all methodology changes for the full scheme duration (i.e. as if they were all applied retrospectively and prospectively. ["All Retrospective"]; and
- **Sensitivity 4:** apply methodology changes retrospectively wherever this was the case, so only exception was the changes to the interconnector ["All retro, excl. other IC"].

The results of these sensitivities are presented in Table 8, alongside the values associated with the actual scheme agreed with Ofgem as part of the incentive scheme discussions.

Table 8 – Moyle sensitivity results

	Original model	Moyle only	All retrospective	All retro, excl. other IC	Ofgem Scheme	Ofgem scheme vs. All retro, excl. other IC
	Sensitivity 1	Sensitivity 2	Sensitivity 3	Sensitivity 4		
2011-12	£138.5m	£155.0m	£183.3m	£186.3m	£163.5m	£16.5m
July-Feb outage window	~£96.5m	~£114.1m	~£112.3m	~£123.3m	~£96m	~£27.3m
Sept-Feb outage window	~£75.6m	~£93.4m	~£63.4m	~£75.0m	~£58.2m	~£16.8m

Source National Grid Modelling and 2011-13 SO incentive scheme

4 This methodology change was raised by NGET in Summer 2012, but Ofgem took the decision to not to apply the methodology retrospectively, because they believe the IAE process would be a better mechanism under which to decide if the costs incurred by NGET were exceptional.

The results in Table 8 provide a range of potential values based on the assumptions used in the sensitivities across the different timescales. We believe the 2010 Moyle outage provides a recent precedent for a partial outage lasting approximately 2 months. As such, we have decided that the appropriate timescale for this adjustment should be 6 months. This takes account of the known reliability on the interconnector resulting from previous outages.

Based on this analysis it is our opinion that the starting point for the results should be based on the difference between the scheme NGET signed up to, and the 'All retro, excl. other IC' sensitivity. This gives an initial adjustment of £27.3 million for the 8 month period, and £16.8 million for the 6 month period. We believe the 6 month outage adjustment is appropriate for this IAE.

3.4 Recommendation to Ofgem

Our recommendation to the Authority is that the extended outage on the Moyle interconnector should be treated as an IAE. Based on our assessment we believe this event could constitute a force majeure under BSC or CUSC. However because this event was unforeseeable and uncontrollable (i.e. a high impact low probability event), it could also constitute an Event classed as IAE by Authority. In support of our recommendation, we conclude that an 8 month long unplanned outage of the Moyle interconnector, curtailing flows to half capacity for two months and zero for six months, is not a foreseeable event. In addition given the low probability attached to such an event, we do not believe that it would be economic and efficient for NGET to contract ahead of time to cover an 8 month outage. Further NGET was not in a position to influence the occurrence or management of the Moyle outage, although NGET was aware of the potential scale of the outage from an early stage.

Following our assessment we came to the conclusion that a shorter duration outage could reasonably have been foreseen, this is a result of similar unplanned outage on both the Moyle interconnector and the IFA interconnector. Indeed we believe the 2010 Moyle outage provides a recent and relevant precedent for NGET to reasonably expect a partial outage lasting for approximately 2 months. As such we have decided that any adjustment should relate specifically to the remaining 6 months of the full outage period. Therefore, we believe it is appropriate to remove the costs incurred during the partial outage in the first 2 months from any adjustment.

Therefore, we recommend that if the Authority also considers this event an IAE it should grant an adjustment of no more than £16.8 million to NGET, which, based on the application of a 25% sharing factor, would lead to £4.2 million reduction to NGET's exposure under the 2011-13 BSIS.

4. SMEATON AND STRATHAVEN FMJL WORKS

4.1 Context and our understanding of the event

4.1.1 IAE notice

In its submission notice for this IAE, NGET stated that Scottish Power Networks (SPN) formally requested in July 2012 the Smeaton and Strathaven outages for FMJL CT replacement works. FMJL CTs had been identified to pose a significant safety hazard hence it was essential for this work to be carried out. NGET outlined that this threat had been identified following the failure of a FMJL CT at the Cardiff East substation in June 2009. Following this failure, NGET issued a Dangerous Incident Notification (DIN) to the industry, including SPN. Subsequently, NGET also issued further Operation, Engineering and Safety Bulletins (OESBs) which provided further details on the event and the associated risks.

NGET stated that no provision was made for the cost of these outages within the 2011-13 BSIS because they had not been submitted by SPN in the transmission outage plan prior to the start of the scheme. As a result, the actions undertaken by NGET to mitigate these replacement works resulted in a calculated cost of £25.14m for Smeaton and £3.75m for Strathaven giving a total of £28.3m (subsequently revised down by NGET from an original calculation of £28.9m). This would result, if approved, in an adjustment of £7.2m to NGET's cost exposure following application of the BSIS scheme 25% sharing factor.

4.1.2 Understanding the events

FMJL CT failures were first recorded in 1992 and subsequently in1998 following a failure of a unit on the NGET network. As a result, a Suspension of Operational Practice (SOP 191 /OR47) was applied[5], which led to a modification on the FMJL CTs to fit pressure gauges in order to monitor oil moisture. While a number of failures occurred between 2005 and 2011, it was not until the Cardiff East FMJL failure in June 2009 that the safety and system security implications of failures at other sites using FMJL CTs were reconsidered. NGET has confirmed that following this incident it has replaced 636 FMJL CTs from a total of 761 on its network.

Following assessment of the oil moisture levels in light of the incident at Cardiff, SPN also began replacing the assets based on the associated risks. At the time, based on the prevailing understanding of the issue affecting FMJL CTs, it was deemed that the assets at Smeaton and Strathaven were low risk and as a result they were not part of any replacement plans for the 2011-13 period.

However, a further FMJL CT failure at Connahs Quay on 18 July 2011 challenged the previous understanding of the management of the assets and triggered a review of the associated risk. This culminated in the circulation of SOP 376 in January 2012, which revised the risk procedures linked to FMJL CTs pending their replacement. This led to a re-prioritisation of replacement works by TOs, including SPN, on the basis of safety and strategic position on the network. As part of this re-prioritisation, SPN made the replacement of the FMJL CTs at Smeaton and Strathaven high priority.

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5 This is based on evidence provided by SPN in response to Responses to specific questions on the Smeaton/Strathaven outages raised by Ofgem / Pöyry.

It is our understanding that the Connahs Quay related event triggered detailed discussions between NGET and SPN in regard to scheduling appropriate dates for the replacement of the FMJL CTs. However, SPN have also stated that they had begun informal discussions from the beginning of 2011.

We understand that an agreement was reached to replace the Smeaton assets in July 2012 followed by the Strathaven assets in January 2013. Smeaton was subsequently delayed until the beginning of August.

One of the key issues for the Smeaton FMJL replacement was the Emergency Return to Service (ERTS)[6] requested by NGET due to the strategic position of the Smeaton substation on the network. However, in September 2012, [redacted] SPN announced a delay in the replacement of the Smeaton FMJL CT assets by up to two months and the necessity to remove the ERTS arrangements. This forced NGET to use alternative measures for controlling Scotland to England flows.

The replacement at Strathaven was commenced and completed in line with expectations (January 2013-February 2013).

The deactivation of these substations led to a reduction in the ability of NGET to secure flows over the Cheviot boundary between Scotland and England. This reduced capacity led to an increase in actions taken by NGET within Scotland to balance the flows. These actions increased the level of constraints and subsequently the constraint costs incurred by NGET.

4.1.3 Timeline

In Table 4 we have set out the key incidents and dates in relation to this IAE.

6 The provision of ERTS arrangements is way of mitigating post-fault risk to the system, providing a means of restoring network capability by returning outage circuits to service to compensate for those that have faulted. Such actions would be at no cost to the SO. If ERTS in not available then post-fault actions are restricted to those available in the market (i.e. BM, trades, contracts) which incur constraint expenditure.

Table 9 – Timeline of key events

Date	Event
1998	Suspension of Operational Practice (SOP 191 /OR47) was applied following a failure of a FMJL CT.
June 2009	Cardiff East FMJL failure led to increased safety and system security implications of failures at other sites using FMJL CTs
July 2011	A failure at Connahs Quay challenged the previous understanding of the management of the assets and triggered a review of the associated risk
2012 - onwards	Discussions begin between NGET and SPN to identify an appropriate time for the replacement of the FMJL CTs at Smeaton and Strathaven.
May 2012	July and January start dates were initial agreed for the Smeaton and Strathaven replacement works respectively.
June 2012	Agreement between SPN and NGET to delay the Smeaton works until August 2012
August 2012	Replacement work at Smeaton begins
September 2012	SPN inform NGET that the incorrect CTs have been purchased and the replacement will be delayed. This also led to removal of the ERTS arrangements.
December 2012	The replacement works at Smeaton are completed
January 2013	Replacement works at Strathaven begins
February 2013	The replacement works at Strathaven are completed

4.2 Single Income Adjusting Event?

NGET included both the Smeaton and Strathaven outages within one IAE notice, effectively treating them as a single event on the basis that FMJL replacement is the driver for both outages. While FMJL replacement is a common feature of both outages, we believe that they should be considered separately because they:

- have separate and distinct timelines;
- affect different parts of the network;
- have different implications for system management options and costs; and
- NGET only identified these two FMJL replacement related outages as IAEs even though a large numbers of FMJL CT replacements had to be advanced into this incentive period.

Therefore, we have made the decision to consider these events separately, noting that FMJL replacement is at the heart of both outages.

Our assessment of the implications of outages at Smeaton and Strathaven are outlined in Section 5 and in Section 6 respectively.

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5. SMEATON FMJL WORKS

In the Sections below, we assess whether the Smeaton outage can be treated as an IAE and, if so, the appropriate value and finally provide our recommendations to Ofgem.

5.1 Is this an Income Adjusting Event?

In this section we present our view on whether the FMJL related outages at Smeaton should be treated as an IAE, following the approach set out in Section 2.3.

5.1.1 Was the event foreseeable prior to the scheme agreement?

As highlighted in Section 4.1, FMJL CT faults were experienced in the 1990s and more recently in June 2009 at Cardiff East. The potential for FMJL CT faults was, therefore, known ahead of the 2011-13 BSIS and the 2009 incident in Cardiff highlighted the serious safety implications of a potential failure of these assets, prompting initiation of work programmes to replace the assets with prioritisation of work schedules determined by assessment of risks related to the FMJL CTs. While SPN's assessment following the Cardiff incident identified the assets at Smeaton as low risk, meaning that they were not part of any replacement plans for the 2011-13 period, the prospect of FMJL CT replacements was known, even if the precise timing was not.

The July 2011 incident at Connahs Quay (highlighted in Section 4.1) enhanced understanding of the issue affecting FMJL CTs, altered the risk assessment linked to the Smeaton assets and accelerated the need for asset replacement at the site. In response, SPN made the replacement of the FMJL CTs at Smeaton high priority, reflecting both safety issues and their critical position within the network, and advanced replacement works. Whist the final outage request was submitted by SPN in July 2012, we understand that the development of these revised outage plans was the subject of detailed communication between NGET and SPN during the first half of 2012. Further, in response to the questions, SPN stated that conversations had begun with NGET to discuss the possible impact of advancing the Smeaton replacement outage from as early as Q3 2011.

The outage at Smeaton was not originally planned within the 2011-13 scheme at the year ahead planning stage of GB network outage planning but was advanced into it due to the changing safety and security risks linked to FMJL assets. We note we believe that NGET identified the incorrect trigger for this event as the 2009 Cardiff East failure – given it was the 2011 FMJL failure at Connahs Quay which directly led to the change in SPN view of FMJL replacement priorities and timing.

However, NGET was aware of the need for replacing these FMJL assets since 2009 (and before), and as GBSO would be aware of the strategic location of Smeaton. There was also prolonged dialogue between SPN and NGET in 2012 prior to setting the Smeaton outage. Thus, we regard the replacement as a planned outage within the GBSO/TO outage planning process and thus cannot be considered an unforeseeable and unexpected event.

5.1.2 Did NGET have the ability to include the potential for the events within the scheme?

As we set out in Section 5.1.1, FMJL CT failures were known to NGET prior to the 2011-13 incentive period. While modifications had been made to the FMJL CTs following SOP 191 /OR47 in order to monitor oil moisture, the risks still existed. But it was not until the Cardiff East FMJL failure in June 2009 that the need for replacements was clearly

communicated. This failure heightened the safety and system security implications of failures at other sites using FMJL CTs.

Given the timing of the original event and a cross network response to undergo replacement works, an outage at each of the affected sites could be anticipated at some stage, potentially within the 2011-13 scheme. While the replacement works were accelerated as a result of the Connahs Quay event in July 2011, NGET were aware of the need for a scheme of replacement works, and a level of uncertainty associated with these works ahead of scheme agreement. Given this, NGET could have flagged FMJL CT replacement related outages as a potential risk to system operation within the 2011-13 scheme design. That specific outage plans were not submitted until 2012 does not alter this.

As FMJL related outages were being progressed following the 2009 event, the potential impacts of further replacement works could reasonably have been reflected in the scheme design.

5.1.3 Could NGET influence/control the occurrence and/or management of the events?

NGET does not have direct control over the asset replacement schedule of either Scottish Transmission Operator. However as the system operator for the whole GB market it has a duty to develop and maintain an efficient, co-ordinated and economic system of electricity transmission. As part of this role it must ensure system security through the quality of supply and the safe operation of the GB electricity transmission system insofar as it relates to interactions between transmission licensees, in accordance with the SO-TO Code. Given the safety and system security implications of potential FMJL CT failures, it is arguable that NGET should have taken a more active role in pursuing replacement plans from other TOs from the time of the Cardiff failure in 2009, rather than adopting a responsive stance. NGET as SO should have been more active in the planning of the FMJL replacement schedule, particularly if they understood the strategic importance of Smeaton and the requirement for it to be completely de-energised during the replacements. It is our view that NGET should have been seeking the optimal FMJL CT replacement timescales from the start of discussions with SPN.

NGET would have also been involved in discussions regarding earlier plans and as such had the opportunity to advise SPN on their replacement plan post the Cardiff East FMJL CT failure. As an efficient system operator, we could have expected NGET to encourage SPN to replace those FMJL assets which are critical to system operation alongside those considered to be high risk given their suspected condition relative to what was considered at the time to be the failure mode of the CTs.

Further, while discussions were ongoing following the Connahs Quay failure, an agreement on the start date for the Smeaton replacement still took 12 months to reach following this event. This would appear to be ample time for NGET to put in place appropriate arrangements in order to manage the subsequent constraints, or arrange the outage at a different time in order to minimise the resulting costs.

5.1.3.1 ERTS provisions

In providing evidence of its actions, NGET stated that it had anticipated the Emergency Return to Service (ERTS) arrangements to be in place for the duration of the Smeaton outage (based on agreements with SPN). However, these arrangements were withdrawn by SPN on 11 September 2012, early in the outage period. It is NGET's view that if the ERTS arrangements had continued to be available the constraint costs would have been

significantly less. NGET stated that if it had known the ERTS would be withdrawn it would not have released the circuit for outage, given its strategic importance.

Based on the evidence we have received, [redacted] Thus, we consider this to be an event that was outside of the control of NGET.

5.1.3.2 Delays in replacing the FMJL assets

[redacted] Based on the evidence received from both NGET and SPN, the replacement of the assets at Smeaton was initially scheduled for two and a half months, however the actual outage out turned at close to five months. It is therefore our view that the additional two months outage was outside of the control of NGET. It is our view that the costs incurred by NGET during November and December 2012 period (over and above the original scheme baseline) were beyond those that could have reasonably been anticipated at the beginning of the incentive period. As such there is an argument that these additional costs could form part of an IAE.

We are also aware that there were several delays prior to the start of the scheme, which delayed its original commencement from July 2012 to August 2012. But as we have discussed above NGET was fully involved in the negotiations in relation to the start of the scheme. As such we do not feel an income adjustment would be valid for these initial delays.

Once the need to conduct replacement works at Smeaton became apparent, NGET was directly involved in the development of the outage plans. However, the delays in the replacement schedule (as a result of the incorrect CT purchase by SPN) and the removal of the ERTS arrangements were beyond the control / influence of NGET. It is on this basis that we believe an IAE could be approved in part.

5.1.4 Would it have been economic and efficient for NGET to take actions to manage the impact of the events?

NGET did not take specific actions to mitigate the implications of the Smeaton outage upon constraint costs. This suggests that provisions already in place to manage the planned outages that provided NGET with adequate tools to manage the system. SPN[7] also stated that other scheduled works that were included in advanced plans were delayed, which had the effect of making the transmission network less constrained. NGET did suggest that these delayed outages would have taken place at other times within the scheme. However, NGET has not provided any justification for this making this assumption or evidence to demonstrate that this is the case. In the absence of this it seems doubtful that all replanned outages were rescheduled for the three months after the outage occurred and before the scheme ended without knock on impacts beyond the scheme period.

NGET was already taking constraint management actions to manage flows across the Cheviot boundary which it used to manage the implications of the Smeaton outage, given consequential delays in other planned transmission outages.

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7 This information is summarised from SPN's responses to Ofgem / Pöyry questions and was received on 15 August 2013.

5.1.5 Do the events meet the legal criteria?

We believe that as a result of the removal of the ERTS and also possibly the outage extension (where the position may be less clear), this can, in part, be classed as an 'Event classed as an IAE by the Authority'.

This position is summarised in Table 10 and the legal criteria are set out in Annex A.

Table 10 – Fulfilment of IAE legal criteria: Smeaton outage

IAE category	NG view	Pöyry view	Rationale
Force majeure under BSC or CUSC		No	The force majeure criteria are not met
Security period		No	A security period was not in force
Event classed as IAE by Authority	Yes	Yes	NGET was involved in the development of the outage plans. However delays in the replacement schedule [redacted]) and the removal of the ERTS arrangements were out of NGET control

5.1.6 Do the events pass the materiality threshold?

Based on the actual costs provided by NGET this IAE does meet the £2 million threshold defined in the Transmission Licence. Costs incurred by NGET as a result of the delays in the FMJL CT asset replacement schedule and the removal of the ERTS arrangements are £7.6 million and £1.2 million respectively, giving a combined figure of £8.8 million

5.1.7 Summary

Our overall assessment of whether Smeaton FMJL failure constitutes an IAE is outlined in Table 11. Following our assessment we believe that this outage was in effect a planned outage based on the discussions between NGET and SPN prior to the replacements. As a result we believe NGET had sufficient time to appropriately plan the outage, allowing it to make alternative arrangements in order to manage the subsequent constraints. We also believe that the delays incurred in the replacement schedule [redacted] and the removal of the ERTS arrangements led to this event being an IAE. It is our opinion that these two events were outside of NGET's control.

Table 11 – Summary of IAE assessment: Smeaton outage

Assessment category	Assessment	Comment
Foreseeable	Largely	Overall programme of outages was largely as anticipated, with the Smeaton works accommodated through the displacement of other scheduled works
Includable	Largely	The potential for FMJL replacements could have been flagged as a risk for the scheme given the original incident in 2009. Loss of ERTS and (arguably) outage extensions were less foreseeable and controllable
Controllable	Mixed	NGET was involved in the development of the outage plans and has provisions for coordinating these constraints in the SO-TO code. However delays in the replacement schedule [redacted]) and the removal of the ERTS arrangements were out of NGET control.
Manageable	Mixed	
Legal criteria	Yes, in part	There was no fault or failure at Smeaton, a security period was not in force and the rescheduling of outages in response to changing circumstances is 'business as usual'. However NGET had signed an agreement with SPN for the ERTS arrangements which were subsequently cancelled after the commencement of the outage.
Materiality	Yes	Outturn results provided by NGET indicate this event meets the materiality threshold.

5.2 Assessment of value proposed by NGET

In this Section we have presented our view on the value associated with the Smeaton outage raised by NGET in their initial submission.

We have attempted to understand and assess the costs for the purpose of making a judgement on an appropriate IAE value. However we consider that any adjustment should be made on the basis of the modelled cost submitted by NGET. The IAE mechanism is an attempt to adjust costs from a set of modelled results determined based on a methodology agreed prior to the start of the scheme. The methodology for how the models would be used to define a scheme target was agreed by NGET and Ofgem up front. These models are used to set an economic and efficient target for the costs which NGET should incur. Thus, it is most appropriate to use these models to identify what the target would have been had the relevant event been built into these models up front. It is, therefore, our belief that to calculate the correct adjustment, the revised target should be based on the model results with methodology changes to assume perfect foresight over the event.

5.2.1 Actual outturn

In its initial IAE submission, NGET presented a calculated cost of £25.14m for Smeaton. NGET maintains and tags records of all actions taken to manage constraints, taking account of all information. Therefore, they have been able to isolate all the costs for the actions taken for the FMJL works have been calculated by comparing the Balancing Mechanism, intertrip usage, Contracts and Trading actions taken exclusively to manage constraint boundaries around these substations with the volume of exports that would normally be expected with an intact transmission network.

Modelled Smeaton sensitivity analysis

In order to test the robustness of this £25.14 million costs incurred at Smeaton we requested that NGET model three sensitivities. These sensitivities were designed to try and understand the financial impact of the timing of the replacement, by retrospectively building the outage in to the original NGET model. The sensitivities requested are set out below:

- **Sensitivity 1**: Smeaton outage built into the model as a planned outage at the time at which the outage occurred (i.e. 2 August to 19 December 2012).
- **Sensitivity 2**: Same length of outage built into the model but commencing on 1 June 2011.
- **Sensitivity 3**: Same length of outage built into the model but commencing on 1 October 2012.

In response to this request NGET stated that the timescale would be too tight to undertake this analysis, indicating that:

"At the time of setting limits which were applied to the BSIS constraint model for (two year ahead) 2012/13 a panel of experts worked for six weeks to determine a realistic set of limits. To recreate this output with the addition of the Smeaton outage and have any degree of confidence in the output would take a long period of time".

However, given the importance of the analysis we indicated that this analysis was still important and that we would investigate alternative ways to deduce this sensitivity in the absence of NGET data. Following this NGET felt it was possible to provide some basic analysis for the first sensitivity.

In this analysis, NGET estimated that the additional modelled cost reflecting the Smeaton outage August to December 2012 is £17.57 million. This result is shown in Table 12. This is approximately £7.5 million lower than the initial £25.14 million estimate provided by NGET in its original submission.

Table 12 – Sensitivity 1 results

	Baseline 2011-2013	2011-13 including Smeaton Aug-Dec 2012 (Other Outages Removed)
Modelled Costs including Sterilised Headroom	£372,939,125	£390,517,303

In relation to Sensitivities 2 and 3, NGET did not feel it was appropriate to provide cost on the basis that arranging the outage on either of these dates would not have been credible. In support of this position NGET has provided the following arguments

- **Sensitivity 2**: NGET stated that although they do have influence on constraint planning, it does not control the decisions made by SPN, [redacted] Even if SPN had indicated to take the outage at another date, the consequential problems found which lengthened the outage would still be an issue.
- **Sensitivity 3**: [redacted], and as such it is not credible to cost the outage as though that were an option. Further planning the Smeaton outage to start on 1 October is not a possibility that would be entertained by NGET. The outage would extend beyond clock change, and as natural flows on the transmission system are much higher during the GMT period a significant restriction on the SCOTEX circuits (caused by the Smeaton outage) would be problematic.

We continue to believe that these sensitivities would have helped our understanding of the costs incurred by NGET. However after discussion with SPN we believe that NGET did not have much ability to request the outage to be moved.

In the absence of information from additional sensitivities, we believe that the £17.6 million figure derived from Sensitivity 1 should be used as an upper bound for what the efficient costs would have been. Furthermore, of this £17.6 million, only those costs incurred as a result of the delay (as discussed in 5.1.3.2) during the replacement should be considered for an income adjustment. Based on our analysis of the Smeaton work plan we consider the costs incurred during November and December 2012 (over and above the original scheme baseline) should be included as an IAE. This gives a potential adjustment of £7.6million, based on costs of £3.76 million in November and £3.86 million in December.

A further impact on the cost is the ERTS arrangements. NGET had expected the ERTS arrangements to be in place for the duration of the Smeaton outage. However, this was not the case, with the arrangement being withdrawn by SPN, on 11 September 2012. NGET's view was that if the ERTS had continued to be available the constraint costs would have been less significant.

In order to test the 'significance' of these costs we requested additional information from NGET to identify the impact of the ERTS arrangements on the £17.57 million constraint cost. The additional information requested from NGET identified that the costs associated with the ERTS arrangements were much less significant than NGET had previously stated.

According to the analysis by NGET, the change in ERTS had no impact upon the pre-fault constraint costs resulting from the Smeaton 275kV FMJL outages the change to the ERTS arrangements altered the available post fault actions[8] and therefore altered NGET's strategy for managing the outages. NGET stated that the post-fault requirement which had to be managed as the ERTS arrangements were withdrawn was the Scottish import constraint which involved using [redacted] The resulting costs for these actions beyond 11 September 2012 are £1.2m. These costs are broken down in Table 13.

[8] Although the lack of ERTS did not directly affect increase constraint actions for real time issues.

Table 13 – Costs associated with the ERTS arrangements

	Cost £m
Trades with [redacted]	1.05
BM Actions	0.15
Total spend	1.2

5.2.1.1 Overview

NGET incurred additional costs of £7.6 million and £1.2 million respectively. This gives a combined impact of £8.8million. However it is likely there would have been some overlap between these costs, since they were occurring at the same time. In the absence of further information we must assume the ERTS was equally distributed so half occurred in the period before the extension and half after. Thus we have assumed the cap on these costs to be £8.2 million.

5.3 Recommendation to Ofgem

5.3.1 Observations

We have set out our observations for the Smeaton FMJL event below:

- NGET identified the incorrect trigger for these IAE. In our opinion the trigger for the IAE was the failure of the Connahs Quay substation. It was this failure that challenged the previous understanding of the issues linked to the FMJL CT assets and triggered a review of the associated risk. As a result the impact on FMJL assets became clearer and increased the necessity to replace the assets. However this does not take away from the fact that NGET had foresight of the issue and need for replacement well ahead of the scheme.
- NGET failed to address why only these two FMJL CT replacements became the subject of an IAE. It is clear from our conversations with NGET and SPN that following the Connahs Quay failure in July 2011, the industry view was that all remaining FMJL CT replacements would need to be brought forward. However these additional replacements had not been identified by NGET, implying that NGET did not see the general replacement of FMJL CTs as an event under the IAE provision. There does not seem to be any additional rationale for the Smeaton works being raised as an IAE, save for the high estimated costs. In addition this replacement is similar to other replacement works which were planned and not resulting from a fault type event.
- Given the safety and system security (as well as the economic) implications of potential FMJL CT failures, it is arguable that NGET should have taken a more active role in pursuing replacement plans from other TOs from the time of the original failure in 2009, rather than adopting a responsive stance. NGET as SO should have been more active in the planning of the FMJL replacement schedule, particularly if they understood the strategic importance of Smeaton and the requirement for it to be completely de-energised during the replacements. It is our view that NGET should have been seeking the optimal FMJL CT replacement timescales from the start of discussions with SPN.

5.3.2 Recommendation

Our recommendation to the Authority is that the FMJL replacement related outages at Smeaton should be treated as an IAE in part in respect of [redacted] the delays in the asset replacement schedule and the removal of the ERTS arrangements. These factors had a significant impact on the costs incurred by NGET and were beyond the control / influence of NGET. Therefore, based on our assessment we believe this event constitutes an event classed as an IAE by the Authority in respect of the extension to the outage and the removal of ERTS provisions; which could not have been reasonably foreseen or controlled by NGET.

Our analysis identified that as a result of the delays in the FMJL CT asset replacement schedule and the removal of the ERTS arrangements, NGET incurred additional costs of £7.6 million and £1.2 million respectively. This gives a combined impact of £8.8 million. However, it is likely there would have been some overlap between these costs, since they were occurring at the same time. In the absence of further information we must assume the ERTS was equally distributed so half occurred in the period before the extension and half after. Thus we have assumed the cap on these costs to be £8.2 million.

Therefore, we recommend that if the Authority also considers this event to be an IAE it should grant an adjustment of no more than £8.2 million. Based on the application of a 25% sharing factor, this would lead to £2.05 million reduction to NGET's exposure under the 2011-13 BSIS.

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6. STRATHAVEN FMJL WORKS

In the Sections below, we assess whether the Strathaven outage can be treated as an IAE and, if so, the appropriate value and finally provide our recommendations to Ofgem. Given commonality between the background issues, some aspects of the assessment are the same as for the Smeaton outage. Where this is the case, the assessment is repeated here to provide a standalone evaluation for the Strathaven works.

6.1 Is this an Income Adjusting Event?

In this section we present our view on whether the FMJL related outages at Strathaven should be treated as an IAE, following the approach set out in Section 2.3.

6.1.1 Was the event foreseeable prior to the scheme agreement?

As highlighted in Section 4.1, FMJL CT faults were experienced in the 1990s and more recently in June 2009 at Cardiff East. The potential for FMJL CT faults was, therefore, known ahead of the 2011-13 BSIS and the 2009 incident in Cardiff highlighted the serious safety implications of a potential failure of these assets, prompting initiation of work programmes to replace the assets with prioritisation of work schedules determined by assessment of risks related to the FMJL CTs. While SPN's assessment following the Cardiff incident identified the assets at Smeaton as low risk, meaning that they were not part of any replacement plans for the 2011-13 period, the prospect of FMJL CT replacements was known, even if the precise timing was not.

The July 2011 incident at Connahs Quay (highlighted in Section 4.1) enhanced understanding of the issue affecting FMJL CTs, altered the risk assessment linked to the Smeaton assets and accelerated the need for asset replacement at the site. In response, SPN made the replacement of the FMJL CTs at Strathaven high priority, reflecting both safety issues and their critical position within the network, and advanced replacement works. Whist the final outage request was submitted by SPN in July 2012, we understand that the development of these revised outage plans was the subject of detailed communication between NGET and SPN during the first half of 2012. Further, in response to the questions, SPN stated that conversations had begun with NGET to discuss the possible impact of advancing the Strathaven replacement outage from as early as Q3 2011.

The outage at Strathaven was not originally planned within the 2011-13 scheme at the year ahead planning stage of GB network outage planning but was advanced into it due to the changing safety and security risks linked to FMJL assets. We note we believe that NGET identified the incorrect trigger for this event as the 2009 Cardiff East failure – given it was the 2011 FMJL failure at Connahs Quay which directly led to the change in SPN view of FMJL replacement priorities and timing.

However, NGET was aware of the need for replacing these FMJL assets since 2009 (and before), and as GBSO would be aware of the strategic location of Strathaven. There was also prolonged dialogue between SPN and NGET in 2012 prior to setting the Strathaven outage. Thus, we regard the replacement as a planned outage within the GBSO/TO outage planning process and thus cannot be considered an unforeseeable and unexpected event.

6.1.2 Did NGET have the ability to include the potential for the events within the scheme?

As we set out in Section 6.1.1, FMJL CT failures were known to NGET prior to the 2011-13 Incentive period. While modifications had been made to the FMJL CTs following SOP 191 /OR47 in order to monitor oil moisture, the risks still existed. But it was not until the Cardiff East FMJL failure in June 2009 that the need for replacements was clearly communicated. This failure heightened the safety and system security implications of failures at other sites using FMJL CTs.

Given the timing of the original event and a cross network response to undergo replacement works, an outage at each of the affected sites could be anticipated at some stage, potentially within the 2011-13 scheme. While the replacement works were accelerated as a result of the Connahs Quay event in July 2011, NGET were aware of the need for a scheme of replacement works, and a level of uncertainty associated with these works ahead of scheme agreement. Given this, NGET could have flagged FMJL CT replacement related outages as a potential risk to system operation within the 2011-13 scheme design. That specific outage plans were not submitted until 2012 does not alter this.

As FMJL related outages were being progressed following the 2009 event, the potential impacts of further replacement works could reasonably have been reflected in the scheme design.

6.1.3 Could NGET influence/control the occurrence and/or management of the events?

NGET does not have direct control over the asset replacement schedule of either Scottish Transmission Operator. However as the system operator for the whole GB market it has a duty to develop and maintain an efficient, co-ordinated and economic system of electricity transmission. As part of this role it must ensure system security through the quality of supply and the safe operation of the GB electricity transmission system insofar as it relates to interactions between transmission licensees, in accordance with the SO-TO Code. Given the safety and system security implications of potential FMJL CT failures, it is arguable that NGET should have taken a more active role in pursuing replacement plans from other TOs from the time of the original failure in 2009, rather than adopting a responsive stance. NGET as SO should have been more active in the planning of the FMJL replacement schedule, particularly if they understood the strategic importance and the requirement for it to be completely de-energised during the replacements. It is our view that NGET should have been seeking the optimal FMJL CT replacement timescales from the start of discussions with SPN.

NGET would have also been involved in discussions regarding earlier plans and as such had the opportunity to advise SPN on their replacement plan post the Cardiff East FMJL CT failure. As an efficient system operator, we could have expected NGET to encourage SPN to replace those FMJL assets which are critical to system operation alongside those considered to be high risk given their suspected condition relative to what was considered at the time to be the failure mode of the CTs.

Further, while discussions were ongoing following the Connahs Quay failure, an agreement on the start of the Strathaven replacements still took over 12 months to reach following this event. This would appear to be ample time for NGET to put in place appropriate arrangements in order to manage the subsequent constraints, or arrange the outage at a different time in order to minimise the resulting costs.

Once the need to conduct replacement works at Strathaven became apparent, NGET was directly involved in the development of the outage plans. Again we believe this event is a planned outage and should not be treated as an IAE.

6.1.4 Would it have been economic and efficient for NGET to take actions to manage the impact of the events?

NGET did not take specific actions to mitigate the implications of the Strathaven outage upon constraint costs. This suggests that provisions already in place to manage the planned outages. SPN[9] also stated that other scheduled works that were included in advanced plans were delayed, which had the effect of making the transmission network less constrained. NGET did suggest that these would have taken place at other times within the scheme period should be included. However, NGET has not provided any justification for this assumption or evidence to demonstrate that this is the case. In the absence of this it seems doubtful that all replanned outages were rescheduled for the three months after the outage occurred and before the scheme ended without knock on impacts beyond the scheme period.

NGET was already taking constraint management actions to manage flows across the Cheviot boundary which it used to manage the implications of the Strathaven outage, given consequential delays in other planned transmission outages.

6.1.5 Do the events meet the legal criteria?

In the case of Strathaven we do not believe that the incident fulfils any of the criteria for classification as an IAE, this is set out in Table 14:

- the BSC/CUSC force majeure criteria are not fulfilled – there was no actual failure or fault at either of the sites in question and the Connahs Quay fault was the real driver;
- a security period was not in operation; and
- the outage was foreseeable and could have been influenced by NGET as so does not justify treatment as an IAE for any other reason.

These criteria are set out in Annex A.

9 This information is summarised from SPN's responses to Ofgem / Pöyry questions and was received on 15 August 2013.

Table 14 – Fulfilment of IAE legal criteria: Strathaven outages

IAE category	NG view	Pöyry view	Rationale
Force majeure under BSC or CUSC		No	The force majeure criteria are not met
Security period		No	A security period was not in force
Event classed as IAE by Authority	Yes	No	FMJL replacement programmes were accommodated by displacing planned outages. Such rescheduling in response to changing events is business as usual. In addition NGET was aware of the need for this work for a long time.

6.1.6 Do the events pass the materiality threshold?

Based on the actual costs provided by NGET this IAE does meet the £2 million threshold defined in the Transmission Licence. The costs incurred by NGET in relation to the Strathaven replacement are estimated by NGET to have cost £3.75 million.

6.1.7 Summary

Our overall assessment of whether Strathaven FMJL failure constitutes an IAE is outlined in Table 7. Our assessment is that the Strathaven failure does not constitute an IAE in part because it was in effect a planned outage based on the discussions between NGET and SPN prior to the replacements. As a result we believe NGET had sufficient time to appropriately plan the outage, allowing it to make alternative arrangements in order to manage the subsequent constraints. We also feel that the removal of conflicting planned outages during this period meant that the net effect on the overall programme of outages affecting flows across the Cheviot boundary was broadly as originally envisaged.

Table 15 – Summary of IAE assessment: Strathaven outage

Assessment category	Assessment	Comment
Foreseeable	Yes	Overall programme of outages was largely as anticipated, with the Strathaven works accommodated through the displacement of other scheduled works
Includable	Yes	The potential for FMJL replacements could have been flagged as a risk for the scheme given the original incident in 2009
Controllable	Yes	NGET was involved in the development of the outage plans.
Manageable	Yes	As these outages displaced others, NGET's original constraint management plans sufficed for the revised plans
Legal criteria	No	There was no fault or failure at Strathaven, a security period was not in force and the rescheduling of outages in response to changing circumstances is 'business as usual'
Materiality	Yes (marginally)	Outturn results provided by NGET suggest this event meets the materiality threshold. Had NGET submitted sensitivities on modelled costs and the impact of re-scheduled outages been accounted for this may have been more marginal?

6.2 Assessment of value proposed by NGET

In this Section we have presented our view on the value associated with the Strathaven outage raised by NGET in their initial submission.

We have attempted to understand and assess the costs for the purpose of making a judgement on an appropriate IAE value. However we consider that any adjustment should be made on the basis of the modelled cost submitted by NGET. The IAE mechanism is an attempt to adjust costs from a set of modelled results determined based on a methodology agreed prior to the start of the scheme. The methodology for how the models would be used to define a scheme target was agreed by NGET and Ofgem up front. These models are used to set an economic and efficient target for the costs which NGET should incur. Thus, it is most appropriate to use these models to identify what the target would have been had the relevant event been built into these models up front. It is, therefore, our belief that to calculate the correct adjustment, the revised target should be based on the model results with methodology changes to assume perfect foresight over the event.

6.2.1 Actual value

In its initial IAE submission NGET presented a calculated cost of £3.75m for Strathaven FMJL. NGET maintains and tags records of all actions taken to manage constraints, taking account of all information. Therefore, they have been able to isolate all the costs

for the actions taken for the FMJL works have been calculated by comparing the Balancing Mechanism, intertrip usage, Contracts and Trading actions taken exclusively to manage constraint boundaries around these substations with the volume of exports that would normally be expected with an intact transmission network.

6.3 Recommendation to Ofgem

6.3.1 Observations

We have set out our recommendations for each of the FMJL events separately. There are also a number of issues common to both events addressed here:

- NGET had identified the incorrect trigger for these IAE. In our opinion the trigger for the IAE was the failure of the Connahs Quay substation. It was this failure that challenged the previous understanding of the issues linked to the FMJL CT assets and triggered a review of the associated risk. As a result the impact on FMJL assets became unclear and increased the necessity to replace the assets. However this does not take away from the fact that NGET had foresight of the issue and need for replacement well ahead of the scheme.
- NGET failed to address why only these two FMJL CT replacements became the subject of an IAE. It is clear from our conversations with NGET and SPN that following the Connahs Quay failure, all remaining FMJL CT replacements would need to be brought forward. However these additional replacements had not been identified by NGET, implying that NGET did not see the general replacement of FMJL CTs as an event under the IAE provision. There does not seem to be any additional rationale for the Strathaven works being raised as an IAE, save for the high estimated costs. Similar to other replacement works these were planned and communicated between the parties involved rather than resulting from a fault type event.
- Given the safety and system security (as well as the economic) implications of potential FMJL CT failures, it is arguable that NGET should have taken a more active role in pursuing replacement plans from other TOs from the time of the original failure in 2009, rather than adopting a responsive stance. NGET as SO should have been more active in the planning of the FMJL replacement schedule, particularly if they understood the strategic importance and the requirement for it to be completely de-energised during the replacements. It is our view that NGET should have been seeking the optimal FMJL CT replacement timescales from the start of discussions with SPN.

6.3.2 Recommendation

Our recommendation to the Authority is that the FMJL failure at Strathaven should not be treated as an IAE. Based on our assessment we believe this event was planned in advance by NGET and as such does not meet the necessary criteria.

If the Authority does not agree with our recommendation it should award an adjustment of £3.75 million based on NGET's analysis. This would result in an adjustment of £0.9 million reduction to NGET's exposure under the 2011-13 BSIS based on the 25% sharing factor.

ANNEX A – IAE LEGAL DEFINITONS

A.1 An event or circumstance constituting force majeure under the BSC

Under the BSC a party will not be liable to any other Party for delay or failure in performing its obligations under the code, where the failure results from the following circumstances:

- *act of public enemy, war declared or undeclared, threat of war, terrorist act, blockade, revolution, riot, insurrection, civil commotion, public demonstration, sabotage or act of vandalism;*
- *strikes, lockouts or other industrial disturbances;*
- *lightning, storm, accumulation of snow or ice, earthquake, fire, flood or act of God;*
- *explosion, fault or failure of plant or machinery which (in each case) could not have been prevented by Good Industry Practice; governmental restraint, Act of Parliament, other legislation, by-law and Directive (not being any order, regulation or direction under Section 32, 33, 34 or 35 of the Act);*
- *a failure by the SVAA to provide Daily Profile Coefficients to a Data Collector for which the Supplier is responsible or to distribute Market Domain Data in accordance with the relevant BSC Procedures;*
- *the provision to the Supplier or any Supplier Agent for which it is responsible by the SVAA of Daily Profile Coefficients or Market Domain Data which is incorrect in any material respect; and*
- *a failure in the communication network or method used by the Supplier's Supplier Agent in accordance with Party Service Line 100 and the relevant BSC Procedures provided the Supplier has first used reasonable endeavours to ensure that its Supplier Agent has used any reasonable alternative method of communication available.*

A.2 An event or circumstance constituting force majeure under the CUSC

If any CUSC Party (the "Non-Performing Party") shall be unable to carry out any of its obligations under the CUSC, the relevant Bilateral Agreement and/or Mandatory Services Agreement due to a circumstance of Force Majeure the CUSC and the relevant Bilateral Agreements or Mandatory Services Agreements shall remain in effect but

- *the Non-Performing Party's relevant obligations;*
- *the obligations of each of the other CUSC Parties owed to the Non-Performing Party under the CUSC and/or the relevant Bilateral Agreements or Mandatory Services Agreements as the case may be; and*
- *any other obligations of such other CUSC Parties under the CUSC owed between themselves which the relevant CUSC Party is unable to carry out directly as a result of the suspension of the Non-Performing Party's obligations.*

shall be suspended for a period equal to the circumstance of Force Majeure provided that

- *the suspension of performance is of no greater scope and of no longer duration than is required by the Force Majeure;*

- *no obligations of any CUSC Party that arose before the Force Majeure causing the suspension of performance are excused as a result of the Force Majeure;*
- *the Non-Performing Party gives the other CUSC Parties prompt notice describing the circumstance of Force Majeure, including the nature of the occurrence and its expected duration, and continues to furnish regular reports with respect thereto during the period of Force Majeure;*
- *the Non-Performing Party uses all reasonable efforts to remedy its inability to perform; and*
- *as soon as practicable after the event which constitutes Force Majeure the CUSC Parties shall discuss how best to continue their operations so far as possible in accordance with the CUSC, any Bilateral Agreements or Mandatory Services Agreements and the Grid Code.*

Force Majeure definition

In relation to any CUSC Party any event or circumstance which is beyond the reasonable control of such CUSC Party and which results in or causes the failure of that CUSC Party to perform any of its obligations under the CUSC including:

- *act of God, strike, lockout or other industrial disturbance, act of the public enemy, war declared or undeclared, threat of war, terrorist act, blockade, revolution, riot, insurrection, civil commotion, public demonstration, sabotage, act of vandalism, lightning, fire, storm, flood, earthquake, accumulation of snow or ice, lack of water arising from weather or environmental problems, explosion, fault or failure of Plant and Apparatus (which could not have been prevented by Good Industry Practice), governmental restraint, Act of Parliament, other legislation, bye law and Directive (not being any order, regulation or direction under section 32, 33, 34 and 35 of the Act) provided that lack of funds shall not be interpreted as a cause beyond the reasonable control of that CUSC Party and provided, for the avoidance of doubt, that weather conditions which are reasonably to be expected at the location of the event or circumstance are also excluded as not being beyond the reasonable control of that CUSC Party*

A.3 A security period as defined in Special Condition AA5

Under the Transmission Licence Special condition AA5 a security period is defined as:

"a period commencing on the date on which any direction issued by the Secretary of State under section 34(4) of the Act enters effect and terminating on the date (being not earlier than the date such direction, as varied, is revoked or expires) as the Authority, after consultation with such persons (including, without limitation, licence holders liable to be principally affected) as it shall consider appropriate, may with the consent of the Secretary of State by notice to all licence holders determine after having regard to the views of such persons".

A.4 An event which is, in the opinion of the Authority, an IAE

In the table below we have summarised the previous IAEs raised by NGET. Each of these IAE's was accepted on the basis of Special Licence condition AA5A.10 (a) (iv) Opinion of the Authority.

Summary of previous IAEs

IAE title	Year	Value proposed	Accepted	Value received	Type of event	Reasons
Scottish Constraints	2005/06	£30.16m	Yes, but reduced value	£25.85	AA5A.10 (a) (iv) Opinion of the Authority	On the internal Scottish boundary Ofgem considered that the active risk management strategy put in place to manage the constraints was insufficient. If NGET had contracted ahead (given that constraints had been expected) the costs incurred during the incentive period would have been lower. Ofgem also recommended managing the NLOANSEE constraint through a longer term contract. In relation to the Cheviot boundary, Ofgem again believed that there was the potential for cost savings however, there was increased uncertainty in regard to these costs and as a result the full income adjustment was deemed reasonable.
CAP047	2005/06	£5.59	Yes, but reduced value	£3.65	AA5A.10 (a) (iv) Opinion of the Authority	While Ofgem accepted an IAE for the event, they believed that NGET had not provided sufficient evidence that it had explored all possible ways in which the higher frequency response costs could have been reduced. They also questioned NGET's costing methodology (NGET had assumed holding payments would fall in the absence of CAP047). So as a result of the uncertainty in the costing methodology Ofgem assumed a reduction in the IAE. Ofgem also believed that NGET should have raised rule modification following the increase in holding payments which if implemented would have reduced costs.

Procurement of short-term reserve	2003/04	£5.54m	Yes	£5.54m	AA5A.10 (a) (iv) Opinion of the Authority	Ofgem believed that no allowance for the incremental SSRT costs had been included in the 2003/04 SO incentive scheme and as a result these costs were, therefore, not intended to be included within the scope of IBC.
Drax contract	2002/03	£5.34m	Yes	£5.34	AA5A.10 (a) (iv) Opinion of the Authority	Ofgem considered that NGET decision to sign a contract with Drax to cover short-term system security was correct and in line with its statutory duties and obligations in relation to system operation. Ofgem also considered these type of contracts had not been envisaged at the time of the incentive scheme and so no allowance was included within the scheme

QUALITY AND DOCUMENT CONTROL

Quality control		Report's unique identifier: **2013/491**
Role	Name	Date
Author(s):	Mike Wilks, Simon Bradbury, David Cox	August 2013
Approved by:	Mike Wilks	August 2013
QC review by:	Beverly King	August 2013

Document control

Version no.	Unique id.	Principal changes	Date
v1_0	2013/491	Client version	August 2013

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