

December 2001

**NGC system operator incentive
scheme from April 2002**

Initial proposals

Summary

This document sets out Ofgem's initial proposals for the National Grid Company plc's (NGC) System Operator (SO) incentives to take effect from April 2002.

The proposals set out in this document are intended to improve the incentives on NGC to carry out its role of operating the transmission system in an economic, efficient and co-ordinated manner. This should see a reduction in the costs of system operation over time to the benefit of customers, who ultimately pay these costs.

NGC's current SO incentive scheme, which was put in place as part of the introduction of the New Electricity Trading Arrangements (NETA), is due to expire on 31 March 2002. Under the current incentive scheme, NGC is given a specific incentive scheme target that represents a reasonable estimate of the balancing costs throughout the duration of the incentive scheme. If NGC manages to reduce balancing costs below the target, it keeps a proportion (the upside sharing factor) of the reduction in costs as an incentive payment. Conversely, if balancing costs are above the target, NGC is charged a proportion (the downside sharing factor) of the higher costs. NGC's overall gains and losses are limited through the use of a cap on payments and a collar on losses.

In framing its initial proposals, Ofgem has tried to set the parameters of the incentive scheme to provide NGC with a fair balance of risk and reward and to provide a good deal for customers, who ultimately pay for the cost of system operation. Ofgem is initially proposing that the existing SO incentive scheme, which has been in effect from 27 March 2001 when NETA was introduced, be rolled over, substantially in its present form, until 31 March 2003. Ofgem believes that the existing SO incentive scheme has worked well to date. The costs of NGC balancing the transmission system have substantially reduced since 27 March 2001. These reductions in costs will ultimately benefit customers.

Ofgem recognises that there are still uncertainties faced by NGC under the initial NETA SO incentive scheme, specifically in relation to the costs and operation of the transmission system over the period of peak demand this winter. The rollover of the existing scheme is therefore designed to continue to deliver benefits to consumers whilst acknowledging the risks and uncertainties about balancing costs ahead of the first winter of operation under NETA.

However, in substantially rolling over the existing scheme Ofgem is proposing a number of adjustments to sharpen and improve the incentives on NGC. Many of these adjustments were highlighted and consulted upon in setting the initial NETA SO incentives. Other adjustments are proposed in the light of experience of operating under NETA to date. The adjustments are:

- ◆ reviewing the cap, collar and sharing factors of the scheme;
- ◆ revising the Net Imbalance Reference Price (NIRP)¹;
- ◆ revising the Transmission Losses Reference Price (TLRP)²;
- ◆ re-setting the incentive scheme target in light of the operational experience of NETA; and
- ◆ revising the incentive scheme target to take account of modifications to the Balancing and Settlement Code and amendments to the Connection Use of System Code.

Ofgem's Initial Proposals

Ofgem's initial proposals for NGC's incentive scheme are set out below and compared with the current incentive scheme. Ofgem has set out two possible options (A and B) for NGC's incentive scheme parameters from April 2002. Under both options, Ofgem is proposing to remove the deadband and increase NGC's potential exposure (and therefore reduce the risks to customers) if costs exceed the target.

Under Option A, Ofgem is proposing a higher target level of costs (the lower end of the current deadband range) and higher potential profits if NGC beats this target through a significantly higher sharing factor and cap on profits. Consistent with this, Ofgem is proposing to sharpen significantly the incentives on NGC by increasing the downside sharing factor and cap on NGC's exposure if costs exceed the target. This option will see NGC taking on greater risk in return for greater potential reward.

¹ NIRP is the reference price attached to the Net Imbalance Volume to limit NGC's exposure to the Net Imbalance Volume. The Net Imbalance Volume is the sum of imbalance volumes over all energy accounts other than energy accounts held by the Transmission Company.

² TLRP is the reference price attached to the Transmission Losses volume to create a target cost against which NGC's incentives are set.

Under Option B, Ofgem is proposing a lower target, the same sharing factors as currently in place when NGC beats this target but greater exposure where costs exceed the target. The downside sharing factor and cap on NGC's losses is lower under this option than under Option A. Under this option, NGC takes on less risk than under Option A (but more than under the current scheme) and therefore has lower potential rewards.

	Option A	Option B	Current Scheme
Incentive scheme target	£481m	£460m	-
Deadband	-	-	£481m to £511m
Upside sharing factor	60%	40%	40%
Downside sharing factor	50%	25%	12%
Cap	£60m	£46m	£46m
Collar	£-30m	-£25m	-£15.3m

Ofgem is inviting comments on our proposals by 14 January 2001 and will publish its final proposals in February 2002. If NGC consents to the proposals, they will be implemented from 1 April 2002.

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1. Introduction

Purpose of this document

- 1.1 This document sets out Ofgem's initial proposals for the incentive arrangements for the National Grid Company plc's (NGC) System Operator (SO) function for the period from 1 April 2002. The proposals are intended to enhance the incentives on NGC to operate the England and Wales transmission system in an economic, efficient and co-ordinated manner. Customers will benefit as they ultimately pay the costs of system operation.

Background and rationale

- 1.2 Under the new electricity trading arrangements (NETA) market participants contract bilaterally to meet their needs and contractual commitments. Suppliers contract with customers to supply electricity. They forecast their own customers' demand and contract with generators to meet this demand. Suppliers face strong commercial incentives under the Balancing and Settlement Code (BSC) to balance their own portfolio through their contracts. Generators self-despatch to meet their contracted generation levels. They also face strong incentives under the BSC to balance their actual generation to their notified contractual position.
- 1.3 Generators and suppliers must notify their contract positions and their intended levels of generation before Gate Closure. Gate Closure is currently set for each half-hour settlement period at three and a half hours ahead of that period. After Gate Closure, no further bilateral trading for the relevant settlement period is possible. The commercial incentives on suppliers and generators are designed to ensure that they deliver their notified contractual volumes.
- 1.4 NGC in its role as SO is responsible for the residual purchasing and selling of energy to keep the transmission system in electricity balance in real time. The SO is also responsible for system balancing in order to ensure that the system

remains within safe operating limits³, and that the pattern of generation and demand is consistent with any system transmission constraints.

- 1.5 NGC has wide commercial freedom, within its incentive scheme and licence obligations, and has a range of tools and options available for system and electricity balancing. NGC can buy and sell electricity in forward markets and, post Gate Closure, in the Balancing Mechanism⁴ for electricity balancing purposes. NGC is also free to contract for balancing services⁵ from generators and customers. NGC can then exercise these contracts for system and electricity balancing purposes as and when they are required. In purchasing balancing services, NGC is obliged, under special condition AA4(1) of its Transmission Licence, to operate the electricity transmission system in an efficient, economical and co-ordinated manner.
- 1.6 NGC's SO costs can be divided into internal and external costs. NGC's internal costs include the costs of its control centre, systems and staff. External costs are those costs incurred in balancing the electricity system and include the costs of balancing service contracts and electricity purchases and sales for balancing purposes. Under existing arrangements, NGC's internal and external SO costs are included within the umbrella of a single incentive scheme. This seeks to ensure that NGC aims to reduce the total costs of system operation by focussing on both internal and external costs. Under the single scheme NGC is encouraged, for example, to increase expenditure on staff and systems where it believes that this will deliver a reduction in total costs through more than compensating reductions in external costs.
- 1.7 The December 2000 NGC SO Final Proposals document⁶ set the allowance for NGC's SO internal costs for the period 2001/02 to 2005/06. NGC's internal cost target is fixed until 2005/6 and the allowances are shown in Table 1.1.

³ As prescribed by The Electricity Supply Regulations, 1988 (amended 1998) and consistent with its statutory duties and licence conditions.

⁴ The Balancing Mechanism is a tool available to the SO when balancing energy and the system. The SO can accept offers to sell generation/reduce demand and accept bids to buy generation/increase demand.

⁵ The term "balancing services" is used to cover both services purchased in the Balancing Mechanism and services contracted outside the Balancing Mechanism.

⁶ 'NGC system operator price control and incentive schemes under NETA, Final Proposals', Ofgem, December 2000.

Table 1.1: Total SO internal cost recovery⁷

Category	2001/02	2002/03	2003/04	2004/05	2005/06
Total non-incentivised revenue	£25.8m	£20.7m	£19.7m	£18.9m	£18.0m
Total incentivised revenue	£54.0m	£52.0m	£52.7m	£51.5m	£53.2m
Total SO revenue	£79.8m	£72.7m	£72.4m	£70.4m	£71.2m

- 1.8 The five year cost stream outlined in Table 1.1 was agreed between Ofgem and NGC and as such any future consultation on SO internal costs over this timescale only relates to the form of the scheme, not the overall level of allowable costs.
- 1.9 The form of the current internal SO incentive scheme is set to be the same as that of the external SO incentive scheme. NGC faces a single set of sharing factors across all costs. NGC therefore keeps a proportion of any reduction in internal costs below target and is exposed to a proportion of any internal costs overrun against target. However, the internal SO incentive scheme has no cap or collar in relation to the incentive.
- 1.10 As the form of the internal scheme is based upon the form of the external SO incentive scheme, the remainder of this document focuses on the external cost element.
- 1.11 Under the current incentive scheme, NGC is given a specific incentive scheme target that represents a reasonable estimate of the balancing costs throughout the duration of the incentive scheme. If NGC's balancing costs are below the target, it keeps a proportion (the upside sharing factor) of the reduction in costs as an incentive payment. Conversely, if balancing costs are above the target, NGC is charged a proportion (the downside sharing factor) of the costs in excess of the target. NGC's overall gains and losses are limited by a cap on payments and a collar on losses.
- 1.12 In framing its initial proposals, Ofgem has tried to set the parameters of the incentive scheme to provide NGC with a fair balance of risk and reward and to provide a good deal for customers, who ultimately pay for the cost of system

⁷ The values are in 2000 prices.

operation. The parameters are set given reasonable expectations about the likely level of balancing costs and the probability that costs may be higher or lower than forecast.

- 1.13 Ofgem continues to believe that appropriate commercial incentives for the SO are in customers' best interests. Under the scheme, NGC manages the costs of system operation on customers' behalf. This benefits customers in two ways. Firstly, the costs of system operation are likely to be reduced year on year and secondly, some of the risk associated with higher balancing costs is transferred from customers to NGC.
- 1.14 These arrangements have delivered substantial benefits to customers to date. Between 1990 and 2000, NGC reduced its own internal costs of system operation by 30% in real terms. Between 1994 (when the first incentive scheme was introduced) and 2001, NGC reduced the external costs of system operation by more than £400m.

Ofgem's initial proposals

- 1.15 Ofgem is initially proposing that the existing SO incentive scheme, which has been in effect from 27 March 2001 (Go-Live), be rolled over until 31 March 2003. Ofgem believes that the existing SO incentive scheme has worked well as the costs of balancing the transmission system have substantially reduced since NETA was introduced at Go-Live. These reductions in costs will ultimately benefit customers.
- 1.16 Ofgem recognises that there are still uncertainties faced by NGC under the initial NETA SO incentive scheme, specifically in relation to the costs and operation of the transmission system over the period of peak demand in the winter. The rollover of the existing scheme is therefore designed to continue to deliver benefits to consumers whilst acknowledging the risks and uncertainties about balancing costs ahead of the first winter of operation under NETA.
- 1.17 The rollover concept was originally included in one of the options put forward for the initial SO incentives under NETA in December 2000. If this option had been selected, a two-year scheme, running from Go-Live until 31 March 2003,

would have been created. In considering rolling over the existing scheme, Ofgem has applied the same rollover concept to the current scheme.

1.18 However, in substantially rolling over the existing scheme Ofgem is proposing a number of adjustments to sharpen and improve the incentives on NGC. Many of these adjustments were highlighted and consulted upon in setting the initial NETA SO incentives. Other adjustments have been proposed in the light of experience of operating under NETA to date.

1.19 Ofgem is proposing to remove the deadband and replace it with a single target level of costs. The deadband was introduced for the initial incentive scheme in the light of the considerable uncertainty about balancing costs under NETA when the schemes were put in place pre Go-Live.

1.20 Ofgem is also proposing to increase NGC's potential profits under the scheme where it takes on significant additional risk through its potential exposure if costs exceed the target. This will sharpen NGC's incentives to create a more appropriate balance between the interests of customers and NGC. Ofgem clearly signalled its intention to move in this direction when setting the initial incentive scheme. Ofgem stated that the first SO incentive scheme, which was set with significantly less exposure to cost overruns relative to target, reflected the uncertainties associated with balancing costs under NETA pre Go-Live. Based on operational experience to date, Ofgem believes that it is now appropriate to make the incentive parameters more symmetric.

1.21 Ofgem's initial proposals consist of two options for the rolled-over SO incentive parameters. The two options are presented in Table 1.2 alongside the existing incentive scheme parameters.

Table 1.2: Ofgem's proposed incentive scheme parameters⁸

	Option A	Option B	Current Scheme
Incentive scheme target	£481m	£460m	-
Deadband	-	-	£481m to £511m
Upside sharing factor	60%	40%	40%
Downside sharing factor	50%	25%	12%
Cap	£60m	£46m	£46m
Collar	£-30m	-£25m	-£15.3m

⁸ The incentive scheme target, cap and collar under the Ofgem proposal are 2002/03 values.

- 1.22 Under Option A, the incentive scheme target is £481m. This value is the same as the lower deadband value of the current scheme. This more generous target has been set consistent with an increased downside sharing factor and collar. The upside sharing factor is also slightly higher than under the current scheme, to provide NGC with greater potential rewards in return for taking on greater risk on the downside.
- 1.23 Option B revises the incentive scheme target downwards to £460m from the lower deadband value of the current scheme of £481m. This represents a 4.3% reduction in NGC's target cost allowance. Reductions are being sought to remove any allowances included in the existing scheme intended to cover uncertainties during the early operation of NETA and allowances that have proven excessive given operational experience to date under NETA. Under Option B, NGC's downside risk is increased relative to the current scheme but is significantly less than under Option A. The upside sharing factor and cap are the same as under the current scheme. Ofgem believe that overall this represents a fair balance of risk and reward to NGC.

Related consultations

Transco's SO incentives

- 1.24 Interactions between the electricity and gas transmission networks are becoming more important. Gas-fired power stations now account for one third of the installed generation capacity and are responsible for about 40% of demand on Transco's National Transmission System (NTS). The wholesale gas and electricity markets are increasingly converging as companies arbitrage between the two markets. Companies re-sell gas in the wholesale market on the day when it is more profitable than generating electricity. Conversely, those gas-fired generators who have a degree of flexibility increasingly change their generation (and therefore their gas consumption) in response to movements in electricity prices within day.
- 1.25 These interactions can have a significant impact on both SOs. The need to take balancing actions and the costs associated with those actions are driven, in part,

by price movements in both markets. Decisions taken by one SO can also have a significant impact on the other. One obvious example is the interruption of gas-fired power stations by Transco to deal with constraints on the NTS. Interruptions of gas-fired generators can lead to corresponding NGC actions for energy balancing or for system balancing purposes (for example to deal with a constraint on its system as a result). Against this background it is increasingly important to have consistent incentives on Transmission Owners (TOs) and SOs in both markets.

- 1.26 In September 2001, Ofgem published initial proposals for Transco's SO incentives⁹ and final proposals for Transco's TO price control¹⁰. The TO price control covers Transco's Local Distribution Zone (LDZ) businesses and the TO role associated with the NTS.
- 1.27 Transco has now accepted Ofgem's final proposals for the TO price control. The TO price control is an RPI-X form of control and sets the allowed revenue for the NTS TO and the LDZs for the five year period from April 2002-7. Under the NTS TO control, 'baseline output' measures have been agreed consistent with the price control allowance. These output measures set out the minimum levels of entry and exit capacity that Transco will be required to offer for sale for the duration of the next control.
- 1.28 The proposals for Transco's SO incentive scheme cover four main areas: entry capacity, exit capacity, the costs of day-to-day system operation and Transco's internal costs for its SO function.
- 1.29 The day-to-day SO incentives and those relating to Transco's internal costs are directly analogous to NGC's SO incentives discussed in this document. Ofgem is proposing a similar form of incentives for Transco as for NGC, with cost targets being set and profit sharing through caps, collars and sharing factors. The day-to-day incentive schemes proposed for Transco relate to similar cost drivers to NGC: residual gas balancing, system balancing (including shrinkage (losses) and system reserve) and capacity buy-backs (constraints).

⁹ 'Transco's National Transmission System – System Operator incentives 2002-7, Initial proposals', Ofgem, September 2001.

¹⁰ 'Review of Transco's Price Control from 2002, Final proposals', Ofgem, September 2001.

- 1.30 The entry and exit capacity incentives are designed to improve Transco's incentive to invest to meet changing customer demand in a timely and efficient manner. They seek to build on the incentives provided under RPI-X regulation. At entry, they provide Transco with the opportunity to earn additional returns, over and above its regulated cost of capital, where it invests to deliver outputs over and above the baseline outputs in response to changing customer demand.
- 1.31 Ofgem is proposing to introduce firm, long term entry and exit capacity rights. These rights will be financially firm as Transco will have to buy-out rights at market prices in the event that the rights are physically unavailable. Companies will be free to trade these rights and will be able to purchase entry rights through a series of rolling auctions or in secondary markets. The price signals emerging from the trading of these rights will provide additional signals to Transco about future demand for capacity. This should provide Transco with better information of rising demand sufficiently far in advance to allow it to respond given typical investment lead times of two to three years.
- 1.32 At exit, the incentives are designed to encourage Transco to consider alternatives to pipeline investment (such as the use of interruptible contracts and local storage) where it is more efficient to do so and to provide more flexibility where there is customer demand.
- 1.33 In December 2001 Ofgem expects to publish final proposals for the incentive scheme on Transco in its role as SO. If Transco accepts the proposals, they will be implemented from 1 April 2002.

Transmission access and the treatment of losses under NETA

- 1.34 In May 2001 Ofgem published a consultation document¹¹ on the new transmission and losses arrangements under NETA. Ofgem expects to publish early in January 2001 a final document on the new transmission access and losses arrangements. This document will set out Ofgem's thinking on these issues in the light of respondents' views and further discussions with the industry and customer groups.

¹¹ 'Transmission Access and Losses under NETA – A Consultation Document', Ofgem, May 2001.

- 1.35 Following this consultation document, proposals on reforming the arrangements for transmission access and transmission losses will be taken forward through the CUSC amendment process. The industry will form an integral part of the consultation on the new arrangements via its participation in this process.
- 1.36 If new arrangements for transmission access are introduced the responsibilities of the SO will become “deeper” and cover a larger range than at present. The September 2001 Initial Proposals document in relation to Transco’s SO incentives deepens Transco’s role as SO. The proposed scheme places incentives on Transco over a wider range of its activities as SO than included under previous SO incentive schemes.
- 1.37 As highlighted above, the proposals for Transco’s SO incentive scheme cover incentives on Transco relating to entry and exit capacity. Therefore, the potential creation of a deeper SO role for NGC following the introduction of new arrangements for transmission access is consistent with the proposed deepening of Transco’s role as SO.
- 1.38 Ofgem will be able to consult on the scope and form of a longer term SO incentive scheme for NGC when new arrangements for the treatment of transmission losses and transmission access are in place.

British Electricity Trading and Transmission Arrangements (BETTA)

- 1.39 In December 1998, OFFER published a consultation document¹² outlining the need for reform of the trading arrangements in Scotland. OFFER argued that distortions in the electricity prices in Scotland are of particular concern. These distortions are caused by a number of factors, including administered wholesale trading arrangements, the lack of non-discriminatory arrangements for the cashing out of top-up and spill imbalances, the lack of transparent non-discriminatory arrangements for access to the transmission system and the lack of transparent interconnector access and pricing arrangements.

¹² ‘Scottish trading arrangements. Consultation paper’, OFFER, December 1998

- 1.40 In August 2000, Ofgem published a consultation document outlining interim proposals for the reform of electricity trading arrangements for Scotland¹³. Ofgem suggested that trading arrangements should be developed for the whole of Great Britain (GB) by the creation of a single GB wholesale electricity market. There was strong support for this proposal from respondents.
- 1.41 Ofgem has now published a further BETTA document this month that sets out Ofgem's current thinking and the proposed way forward. Ofgem's has restated its commitment to creating a single GB market by bringing the trading arrangements in Scotland into line with NETA and extending the proposed transmission access and losses arrangements in England and Wales to Scotland. A more competitive trading framework should lead to lower prices that will benefit customers in Scotland as well as England and Wales through the creation of a larger, more liquid traded market.
- 1.42 BETTA will change the role of the transmission companies in GB, as one of its principal elements is the creation of a GB SO.
- 1.43 Ofgem's BETTA proposals will require primary legislation to implement. Ofgem's current plan, contingent on legislation being passed, is to introduce the new arrangements from April 2004. Ofgem will consult, as part of the BETTA program, on the development of SO incentive arrangements for the GB SO from the BETTA implementation date.

Outline of this document

- 1.44 This document describes Ofgem's initial proposals for the NGC SO incentives in more detail. Chapter 2 outlines the regulatory and legal framework. Chapter 3 explains NGC's existing SO incentive scheme. Chapter 4 outlines Ofgem's initial proposal for rolling over and adjusting the existing SO incentive scheme. Chapter 5 invites participants' views on the issues raised in the document and sets out the way forward.

¹³ 'Interim proposals for the reform of Scottish Trading Arrangements: British Electricity Trading and Transmission Arrangements (BETTA)', Ofgem, August 2000

Views invited

- 1.45 Ofgem is seeking comments on the initial proposals outlined in this document. It would be helpful if responses could be received by 14 January 2001, addressed to:

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- 1.46 Electronic responses may be sent to: lorraine.ladbrook@ofgem.gov.uk
- 1.47 Respondents are free to mark their replies as confidential although we would prefer, as far as possible, to be able to place responses to this paper in the Ofgem library. Unless clearly marked 'confidential', responses will be published by placing them in the Ofgem library.
- 1.48 If you wish to discuss any aspect of this document, Sonia Brown (telephone: 020 7901 7412) or Simon Bradbury (telephone: 020 7901 7249) will be pleased to help.

Way forward

- 1.49 Following this consultation exercise and after taking into consideration respondents' views Ofgem intends to publish its final proposals in February 2002. If NGC consents to these proposals, the new SO incentive scheme will take effect from 1 April 2002.

2. The Regulatory and Legal Framework

Introduction

- 2.1 This chapter outlines the current legal and regulatory framework of the electricity industry after the majority of the remaining provisions of the Utilities Act 2000 came into force on 1 October 2001. It summarises the current legislative, licensing and regulatory regimes and describes the relationship between the Electricity Act 1989, the Utilities Act 2000, licences and industry agreements.

The Electricity Act 1989 (the “Electricity Act”)

- 2.2 The Electricity Act provides the framework for the functions of the Gas and Electricity Markets Authority (the Authority) and sets out the licensing regime in relation to the supply, generation and transmission of electricity.
- 2.3 Under section 9(2) of the Electricity Act, holders of Transmission Licences are obliged to develop and maintain an efficient, co-ordinated and economical system of electricity transmission and to facilitate competition in the supply and generation of electricity. NGC owns and operates the national grid, which transports electricity at high voltage from the generators to the local distribution networks and to customers connected directly to the transmission system.

The Utilities Act 2000 (the “Utilities Act”)

- 2.4 The Utilities Act received Royal Assent on 28 July 2000 after which the Authority was created on 20 December 2000. From this date, the functions of the Director General of Electricity Supply and the Director General of Gas Supply were transferred to, and are exercisable by, the Authority.
- 2.5 The Utilities Act introduced a new principal objective (primary duty) on the Authority as defined in Section 3A of the Electricity Act. Further sections of the Utilities Act were implemented on 1 October 2001 including:

- ◆ the introduction of standard licence conditions for each type of electricity licence granted under the Electricity Act and provisions for making modifications to standard licence conditions; and
- ◆ the separation of the licensing of electricity supply and distribution.

2.6 Subsequent changes yet to be enacted include:

- ◆ class modification powers; and
- ◆ the creation of an additional power to enable the Authority to impose financial penalties on companies found to be in breach of their relevant licence under the Electricity Act. The provisions relating to the use of financial penalties, however, require secondary legislation before Ofgem can impose financial penalties. This secondary legislation has yet to be made.

The Competition Act 1998 (the “Competition Act”)

2.7 The Authority has concurrent powers with the Director General of Fair Trading under the Competition Act (which came into effect on 1 March 2000). Chapter I of the Competition Act prohibits anti-competitive agreements and Chapter II prohibits the abuse of a dominant position. Under the Competition Act, the Authority has powers of investigation, powers to give directions and powers to impose financial penalties of up to 10% of turnover of the undertaking concerned on companies infringing the prohibitions of the Competition Act 1998, up to a maximum of three years for each year the infringement takes place.

Financial Services and Markets Act 2000 (the “FSMA”)

2.8 The FSMA replaced the Financial Service Act 1986 (and various other pieces of UK legislation) on the 1 December 2001. Under the FSMA the Financial Services Authority (FSA), the regulator of financial services and markets in the UK, has four regulatory objectives:

- ◆ maintaining confidence in the financial system;

- ◆ promoting public understanding of the financial system;
- ◆ securing the appropriate degree of protection for consumers; and
- ◆ reducing financial crime.

2.9 The FSMA has introduced a new regime for dealing with behaviour amounting to market abuse that may extend to traded energy markets. All persons, including individuals, partnerships and companies, are subject to the market abuse regime, regardless of whether they are authorised by the FSA. Behaviour will fall within the scope of the market abuse regime if it occurs in relation to certain prescribed investments which are traded on certain prescribed markets located, or electronically accessible, in the UK. The penalties for committing the offence of market abuse range from unlimited fines to public censure.

The Electricity Transmission Licence

- 2.10 The Secretary of State granted, under section 6(1) of the Electricity Act, an Electricity Transmission Licence to NGC. NGC is the sole possessor of an Electricity Transmission Licence in England and Wales.
- 2.11 In addition to its obligations under the Electricity Act, NGC has a duty to operate an efficient, co-ordinated and economical system of electricity transmission under special condition AA4 of its Transmission Licence.
- 2.12 NGC is responsible for the residual purchasing and selling of energy to keep the system in electricity balance. In addition, NGC is responsible for maintaining the system balance by contracting for other balancing services. NGC are permitted to contract ahead of Gate Closure for the provision of balancing services, such as frequency control and voltage support. It is intended that NGC procures any balancing service contracts competitively via transparent processes. Therefore, paragraph 5 of special condition AA4 of NGC's Transmission Licence requires NGC to have in place a statement setting out the principles and criteria by which it will determine, at different times and in different circumstances, which balancing services it will use to assist in the operation of the transmission system, and when it would resort to measures not involving the use of balancing services. To fulfil this requirement, NGC has produced Procurement Guidelines

and a Balancing Principles Statement. Both the Procurement Guidelines and a Balancing Principles Statement are reviewed and revised as appropriate on at least an annual basis.

- 2.13 The Procurement Guidelines set out the types of balancing services that NGC may be interested in purchasing, together with the mechanisms envisaged for purchasing such balancing services. To increase industry awareness and understanding, NGC have established an industry forum, the Procurement Guidelines Forum¹⁴, to inform and discuss the Procurement Guidelines and the provision of information regarding the procurement of balancing services. In addition, NGC has established a regular Operational Forum¹⁵ to provide information on how they use balancing services. The Operational Fora are held on a regular basis and focus on operational issues associated with the Balancing Mechanism and they provide an opportunity for reporting by NGC and consequent discussion.
- 2.14 The Balancing Principles Statement is produced to assist BSC participants in understanding NGC's actions in achieving the efficient, economic and co-ordinated operation of the transmission system. It defines the broad principles and criteria (the Balancing Principles) by which NGC will determine, at different times and in different circumstances, which balancing services will be used to assist in the efficient operation of the transmission system.
- 2.15 NGC has an additional obligation under paragraph 6 of special condition AA4 of its Transmission Licence, which requires NGC to have in place a Balancing Services Adjustment Data (BSAD)¹⁶ Methodology Statement¹⁷.
- 2.16 The BSAD Methodology statement sets out the information on relevant balancing services that will be taken into account under the BSC for the purposes of determining Imbalance Price(s)¹⁸. Specifically, the BSAD

¹⁴ The Procurement Guidelines Forum is organised by NGC and is open to all interested parties.

¹⁵ For details of the Operational Fora see NGC's website www.nationalgrid.com/uk.

¹⁶ BSAD is used in the calculation of Energy Imbalance Prices (System Buy Price (SBP) and System Sell Price (SSP)).

¹⁷ Details of the Procurement Guidelines, Balancing Principles and the BSAD Methodology Statement can be found at NGC's website www.nationalgrid.com/uk.

¹⁸ The imbalance prices are based on the average prices that NGC has to pay participants in the Balancing Mechanism and through contracts to maintain an overall system balance.

Methodology Statement attempts to target back costs of contracts relating to energy balancing through energy imbalance prices.

- 2.17 Special condition AA5A of the Transmission Licence granted to NGC sets restrictions on the revenues that NGC is allowed to earn. For this purpose, NGC's activities are split between its Transmission Network Services (TNS) and its Balancing Services Activity (BSA).
- 2.18 The TNS activities of NGC are defined as including all its authorised business in the planning, development, construction and maintenance of the transmission system excluding the BSA and excluded services. BSA means the activity as part of the Transmission Business, of procuring and using Balancing Services for the purpose of balancing the licensee's transmission system.
- 2.19 Part 1 of special condition AA5A outlines the revenue restriction in relation to TNS, while Part 2 outlines revenue restriction in relation to BSA.
- 2.20 Part 1 of special condition AA5A provides for a price control to be set by the Authority on all revenue obtained from NGC's TNS. The present price control on the TNS expires on 31 March 2006¹⁹.
- 2.21 Part 2 of special condition AA5A is broken down into two sections; BSA revenue restriction on external costs and BSA revenue restriction on internal costs each of which has a separate profit sharing scheme. The present scheme was implemented at Go-Live and is due to expire on 31 March 2002²⁰.

Industry Codes

The Balancing and Settlement Code (the "BSC")

- 2.22 The BSC's scope is defined in general terms in the Transmission, Generation and Supply licences. The BSC is a code that sets out the rules for the balancing mechanism and imbalance settlement process under NETA and it is maintained

¹⁹ 'The transmission price control review of the National Grid Company from 2001: transmission asset owner, Final proposals', Ofgem, September 2000.

²⁰ For details see 'NGC system operator price control and incentive schemes under NETA, Final proposals', Ofgem, December 2000.

by NGC under standard condition C3 of its Transmission Licence. The BSC sets down the arrangements in respect of:

- ◆ making, accepting and settling offers and bids to increase or decrease electricity delivered to, or taken off, the total system (NGC's transmission system and the distribution systems) to assist NGC in balancing the system; and
- ◆ determining and settling imbalances and certain other costs associated with operating and balancing the transmission system.

2.23 A BSC Panel has been charged with overseeing the management, modification and implementation of the BSC rules, as specified in Section B of the BSC. The Panel has twelve representatives made up from industry members, consumer representatives, independent members and NGC. The Authority appoints the Chairman of the Panel.

2.24 The Balancing and Settlement Code Company (ELEXON²¹) supports the BSC Panel. The primary purpose of ELEXON is to provide or procure a range of operational and administrative services, both directly and through contracts with service providers, to implement the provisions of the BSC and modifications to it.

2.25 The details of the modification procedures are contained in Section F of the BSC. The modification procedures are designed to ensure that the process is as efficient as possible whilst ensuring that as many parties as possible can propose modifications and have the opportunity to comment on modification proposals.

The Connection and Use of System Code (the "CUSC")

2.26 The CUSC, whose predecessor was the Master Connection and Use of System Agreement (MCUSA), provides a new contractual framework for connection to and use of NGC's transmission system. The CUSC codifies the MCUSA and will provide for a more effective change process overseen by the Authority. It was designated by the Secretary of State on 25 June 2001 and came into effect on 18 September 2001.

- 2.27 NGC were required to have designated the CUSC to comply with standard condition C7F, which requires NGC to establish arrangements for connection and use of system. The CUSC is a licence-based code, setting out the principal rights and obligations in relation to connection to and/or use of the Transmission System and relating to the provision of certain balancing services.
- 2.28 A CUSC Panel has been charged with overseeing the CUSC amendment process as specified in Section 8 of the CUSC. The Panel has representatives made up from industry members, consumer representatives, independent members and NGC. The Chairman of the Panel is appointed by NGC and must be a senior employee of NGC. NGC are responsible for implementing or supervising the implementation of Approved Amendments as outlined in paragraph 8.2.3.3 of the CUSC.

21 The Balancing and Settlement Code Company was named Elexon Limited on 7 June 2000.

3. NGC's existing SO incentive scheme

Introduction

3.1 This chapter provides a background to the initial proposals by outlining NGC's current incentive scheme. This scheme took effect from the start of NETA. It first describes the background to the existing scheme. Secondly, it goes on to discuss the details of the existing scheme. Finally, it presents NGC's operational performance under the existing scheme.

Background to the existing scheme

December 2000 final proposals

3.2 The December 2000 Final Proposals document outlined four possible options for the external SO incentive. The four options are outlined in Table 3.1.

Table 3.1: Ofgem's December 2000 final proposals for the existing scheme

	Ofgem Option 1	Ofgem Option 2	Ofgem Option 3	Ofgem Option 4
Incentive scheme target	£471m		£485m	-
Deadband²²	-	£471m to £517m	-	£471m to £500m
Upside sharing factor	50%	25%	40%	40%
Downside sharing factor	10%	20%	12%	12%
Cap	£60m	£30m	£45m	£45m
Collar	-£12m	-£25m	-£15m	-£15m
Duration²³	One year with option for rollover of target ²⁴ to second year	One year scheme	One year scheme	One year scheme
Expected return against NGC's distribution	£2.0m	£-3.7m	£1.4m	£0.6m
Expected return against Ofgem's distribution	£12.8m	£3.6m	£11.3m	£9.5m

3.3 If NGC selected Option 1 Ofgem would have given NGC the opportunity to rollover the proposed incentive scheme target for a second year. However, the

²² The deadband value refers to the Incentivised Balancing Cost (IBC).

²³ The one year schemes were set to run for 370 days from 27 March 2001 to 31 March 2002.

scheme in the second year would not be identical to the scheme during the initial year. The proposed rollover would be subject to adjustments for a lower volume of response and reserve holding during the second year of the scheme. Additionally, Ofgem stated that it would wish to reset the incentive scheme sharing factors and cap/collar values to restore symmetry to the scheme, therefore further strengthening NGC's incentives.

- 3.4 NGC selected Option 4 as its preferred choice for the form of the current incentive for the external costs. When making the selection, NGC believed that there was significant uncertainty in the level of external costs that it would incur under NETA. NGC acknowledged that Options 2 and 4 included a deadband zone which provided some comfort given the level of uncertainty. The presence of a deadband bridged the gap between Ofgem and NGC in terms of costs. Option 4 was selected over Option 2 because the former provided a greater expected return according to both NGC and Ofgem figures, as shown in Table 3.1.

Existing scheme

- 3.5 The current SO incentive scheme began at Go-Live and is due to expire on 31 March 2002. The incentive scheme parameters outlined within the December 2000 Final Proposals document were based on 2000/2001 prices. However, before the scheme was implemented the values were indexed at 2.2%²⁵ to reflect retail price inflation in order to convert the parameters into 2001/2002 prices²⁶. The original values and indexed values for 2001/2002 are shown below in Table 3.2.

²⁴ Subject to an adjustment reflecting lower volumes of responses and reserve holding.

²⁵ The actual value to be used for inflation is defined in NGC's Transmission Licence, and is based on outturn RPI statistics up to March 2002. The value of 2.2% used above is NGC's current forecast of that inflation parameter, but the final value will not be known until the outturn inflation parameter is known in March 2002.

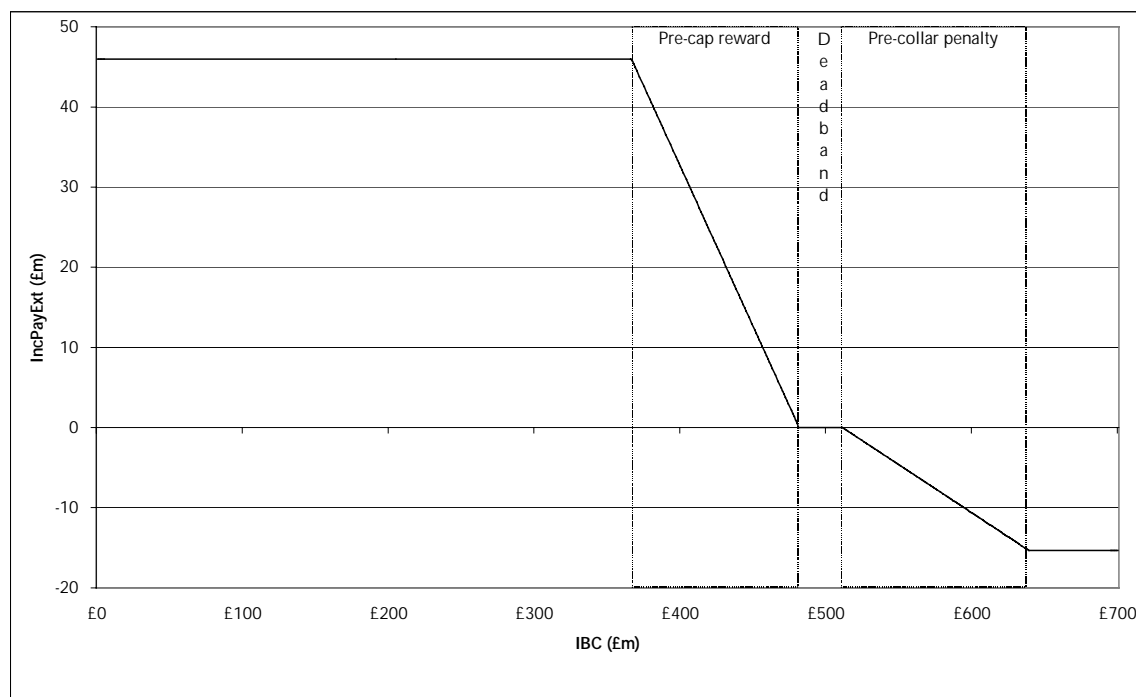
²⁶ It is the indexed values that are the relevant parameters when examining NGC's performance to date under the current incentive scheme.

Table 3.2: Effect of RPI indexation on NGC's SO incentive scheme

	Non-indexed Values	Indexed Values
Deadband	£471m to £500m	£481m to £511m
Upside sharing factor	40%	40%
Downside sharing factor	12%	12%
Cap	£45.0m	£46.0m
Collar	-£15.0m	-£15.3m
Duration	One year scheme	One year scheme

3.6 The structure of the incentive scheme is shown graphically in Figure 3.1. A more detailed definition of the current SO incentive scheme can be found in Appendix 1.

Figure 3.1: Incentive payment structure



3.7 The key element of the ultimate incentive payment reward/penalty to which NGC is exposed is the Incentivised Balancing Cost (IBC) value at the end of the incentive scheme period. The other parameters and the reward/penalty all depend on the IBC value. The calculation of this figure is the sum of a number of different costs. These are presented in full in Appendices 2 and 3 but they are summarised below:

- ◆ the cost of bids and offers in the Balancing Mechanism accepted by the licensee in the relevant period less the total non-delivery charge for that period. This is referred to as Daily System Operator Balancing Mechanism Cashflow (CSOBM).
- ◆ the costs of contracts for the availability or use of balancing services, excluding costs within CSOBM (but including charges made by the SO for the provision of balancing services to itself). This component is referred to as Balancing Services Contract Costs (BSCC).
- ◆ the volume of Transmission Losses (TL) multiplied by the Transmission Losses Reference Price (TLRP) for each Settlement Period, summed across all Settlement Periods.
- ◆ the Total Net Imbalance Volume²⁷ (TQEI) multiplied by the Net Imbalance Reference Price (NIRP) for each Settlement Period, summed across all Settlement Periods.

3.8 In addition, there are two adjustments made for special provisions within NGC's Transmission Licence for allowed income adjustments and revenue from the provision of balancing services to others.

NGC's performance against the current external SO incentive scheme

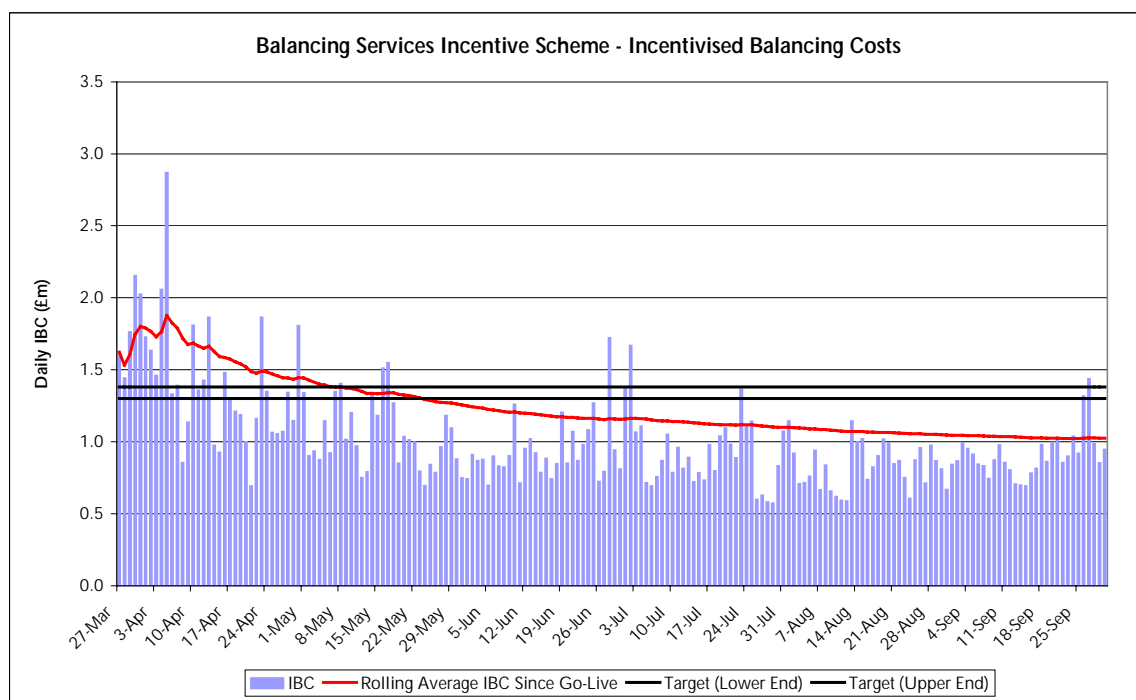
Incentivised Balancing Costs and incentive payments

3.9 The IBC value for the entire incentive period is the crucial determinant in the ultimate incentive payment received by NGC. While we cannot examine the IBC value for the incentive period as yet, we can examine daily IBC values. The IBC values from Go-Live up until 30 September 2001 are presented in Figure 3.2 below²⁸.

²⁷ The total net imbalance volume is the sum of all imbalance volumes over all energy accounts other than energy accounts held by the Transmission Company.

²⁸ The IBC data are based on the most recent settlement/reconciliation run.

Figure 3.2: Daily IBC

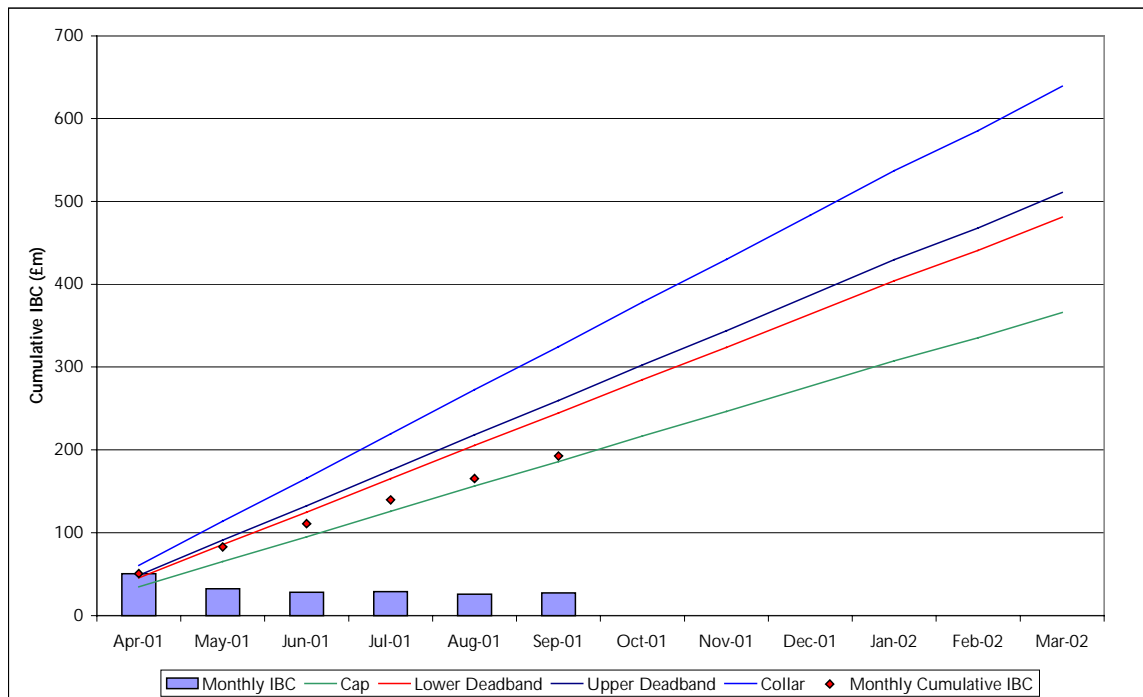


- 3.10 IBC values have shown an almost continual reduction in the period highlighted. Over the period, the maximum daily value of £2.87m occurred on 5 April 2001, which was one of only four excursions above £2m, all of which took place within the first fortnight after Go-Live. The lowest daily value over the period stands at £0.57m and occurred on 29 July 2001. The average daily IBC value is approximately £1m based on the first 188 days.
- 3.11 The rolling average series in Figure 3.2 highlights that the IBC value has generally been decreasing throughout the period. This could in part be due to NGC's increasing understanding of operating under NETA and improved performance in response to the incentives. Some of the trend may also reflect the impact of seasonality as the data relates to the summer period only. During the summer months demand is expected to be lower than during the winter months. In conjunction with lower demand over the summer, system constraints tend to be lower as does NGC's requirement for response and reserve holdings. Consequently NGC's balancing costs can be expected to be lower during the summer than over the winter. Therefore, due to the effect of seasonality IBC may be higher over the winter than seen during the initial 6 months of NETA.

3.12 Figure 3.2 additionally shows daily lower and upper target of £1.30m and £1.38m respectively. These daily target values are based on the annual lower and upper targets (£481m and £511m respectively) divided by the number of days covered by the scheme. These values are included in order to compare the daily IBC levels seen to IBC values which, if achieved on a consistent basis, would result in an annual IBC figure in the deadband zone. In the early weeks of NETA, IBC values were occasionally in or above the deadband zone. However, since mid-April 2001, IBC has been almost entirely below the lower target and the daily average IBC since this time has been approximately £0.35m below the daily lower target.

3.13 Cumulative IBC up until 30 September 2001 is £192.7m. Figure 3.3 shows how the cumulative IBC of £192.7m stands within a linear monthly pro-rata version of incentive scheme.

Figure 3.3: Cumulative IBC against the incentive scheme²⁹



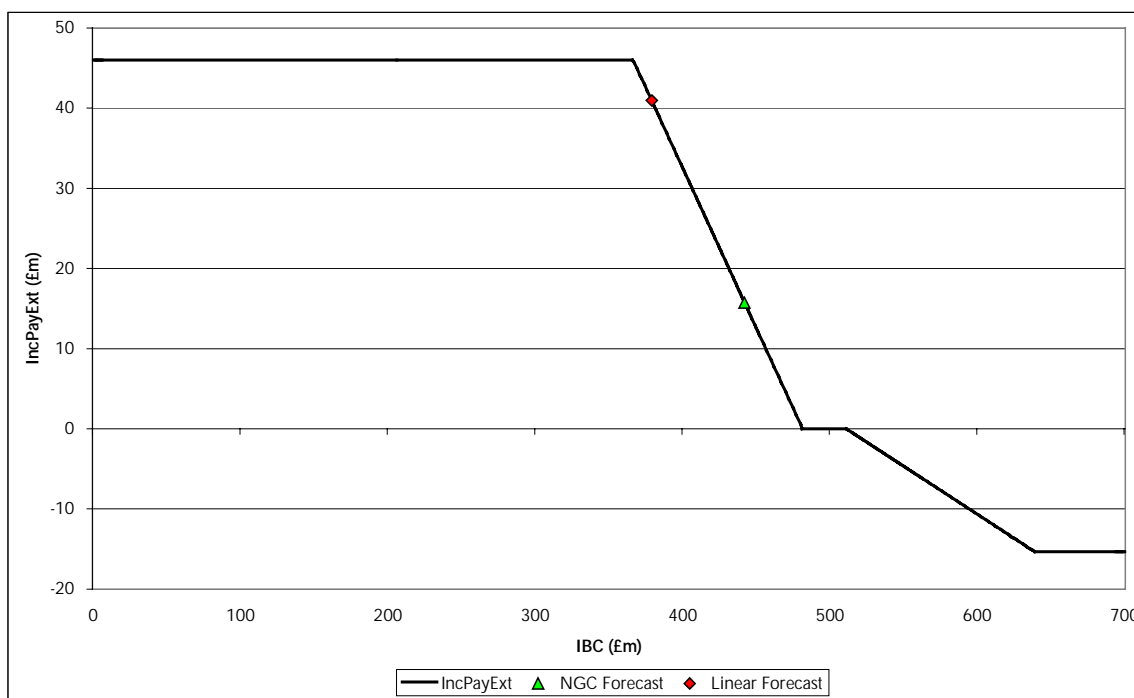
3.14 The monthly cap, collar and deadband values presented in Figure 3.3 are calculated based on the annual figures divided by the number of days per month, so no account is given to seasonal profiling. On this basis, it is apparent

²⁹ Data for March 2001 is added to data for April 2001 in this graph.

that the latest cumulative figure of £192.7m is £6.7m above the corresponding cumulative cap figure of £186.0m. This implies that NGC is currently at the upper end of the reward scale.

- 3.15 However, an increase in IBC might be expected over the winter period. Historically, balancing costs tend to increase over the period of peak demand in the winter when system constraints are greater as is NGC's requirement for response and reserve. If this pattern is repeated, then the forecast set out in the previous diagram may underestimate end of year IBC costs and overestimate NGC's performance under the current scheme.
- 3.16 However, if the experiences of the initial 6 months are repeated over the remainder until 31 March 2002 we could expect the annual IBC figure to stand at approximately £379m. If this situation does arise, NGC would be in line for an incentive payment of circa £40.9m.
- 3.17 NGC's mean forecast of the scheme costs for the entirety of the current incentive scheme stands at £442m. As the NGC forecast covers the entirety of the scheme, it factors in the impact that the winter months are anticipated to have. This forecast is £40m below the deadband lower range and £70m below the deadband upper range.
- 3.18 Figure 3.4 provides a comparison of NGC's forecast IBC and the linear forecast IBC outlined above and additionally shows how these two forecasts would convert into incentive payments.

Figure 3.4: Forecast costs of the incentive scheme



3.19 In terms of the overall IBC, the difference between the current NGC forecast and the linear forecast is approximately £63m. This difference in forecasts reflects a difference of £26m in the incentive payment that NGC would receive, with the linear forecast resulting in a payment of c£41m and the NGC forecast resulting in a payment of c£15m.

3.20 Appendix 2 examines the individual components of IBC in more detail.

Summary

3.21 The first 6 months of NETA have shown that NGC has made good progress in substantially reducing the overall level of SO costs since Go-Live. This is likely, at least in part, to reflect NGC's improved understanding of operating the system under NETA and improved performance in response to the incentives. This suggests that the incentives are having the intended effects as NGC is reducing the costs of operating the system under NETA, to the benefit of customers.

3.22 However, Ofgem acknowledges that balancing costs are seasonal. Consequently, we cannot fully assess NGC's performance until we have a full year's experience under the new arrangements including experience of SO costs

during peak winter periods. The evidence available to date does, however, suggest that even taking these factors into account, NGC will comfortably beat the incentive target over the year as a whole.

- 3.23 Ultimately, NGC purchases balancing services on behalf of all electricity consumers. Consequently, Ofgem strongly believes that is important that NGC continues to have strong commercial incentives to manage and reduce the costs of system operation.

4. Ofgem's initial proposal for NGC's SO incentive scheme

Introduction

- 4.1 This chapter outlines Ofgem's initial proposals for the scope, form and duration of the NGC SO incentive scheme. Ofgem is initially proposing that the existing SO incentive scheme is rolled over until 31 March 2003, albeit with a number of adjustments to the NGC SO incentive scheme for 2002/03.

Background

- 4.2 The existing scheme's combination of sharing factors, cap and collar were designed to mitigate the uncertainty faced by NGC under the initial SO incentive scheme under NETA. It was recognised at the time that these parameters should not set precedents for future arrangements. The scheme was designed as a reasonable balance of risk and reward for customers and NGC given the uncertainty surrounding the level of balancing costs ahead of NETA Go-Live.
- 4.3 The existing SO scheme has been in operation for the period since Go-Live. This means that there are still uncertainties associated with the costs of system operation, particularly over the period of peak demand during winter. Ofgem's initial proposals take these uncertainties into consideration whilst still attempting to deliver real benefits and a good deal for customers through strong commercial incentives on NGC to manage the risks and reduce the costs of system balancing.

Form, scope and duration of the rolled-over SO incentive scheme

Introduction

- 4.4 Ofgem is initially proposing that the current incentive scheme should be rolled-over, with a small number of adjustments that were highlighted when the current schemes were put in place. The scope, form and duration of the scheme are therefore similar to those presented for the current scheme in the December 2000 Final Proposals document.

Scope

- 4.5 Ofgem continues to believe that the scope of the incentive scheme should ensure that NGC's incentives cover all system and electricity balancing costs and be sensitive to the degree of control the SO has over the different elements of costs within the schemes. To this end, Ofgem continues to believe that NGC's exposure to the net imbalance volume should be reduced via a suitable price reference. The current price reference, NIRP, is based on electricity imbalance prices. Ofgem originally viewed the use of imbalance prices to set NIRP as an interim measure until a reliable index emerged. Since alternative price indices have now emerged, Ofgem believes that this reference price should be amended. The issue of a replacement definition for NIRP will be addressed later in this chapter.

Form

- 4.6 In terms of the form of the incentive scheme, Ofgem, in line with the current gas SO incentive scheme, continues to believe that the most appropriate form is a sliding scale form of incentive with appropriate target, cap, collar and sharing factors. Given the success of this structure in the gas market and its performance in the electricity market to date, Ofgem considers that the proposed scheme will continue to provide an effective incentive for NGC to ensure that costs are maintained at an efficient level and, where possible, further reductions are achieved to the benefit of customers.

Duration

- 4.7 Ofgem considers that the rolled-over scheme should run from 1 April 2002 until 31 March 2003. Ofgem previously expressed the view that in the longer term, the duration of a SO incentive scheme should become consistent with that of NGC's Transmission Price Control (this is currently a five year scheme which began on 1 April 2001 and is due to expire on 31 March 2006). A longer duration scheme would give NGC a clear incentive framework to operate under and would enable it to capture some of the benefits of medium/longer term investments that would reduce system operator costs over time, to the benefit of customers.

- 4.8 However, when the current SO incentive scheme was being consulted upon, Ofgem concluded that the initial scheme under NETA should be of a shorter duration given initial uncertainty in costs and the need for a comprehensive review of the scheme when new access and pricing arrangements are implemented.
- 4.9 Ofgem's aim to create a NGC SO incentive scheme of greater duration is consistent with its proposals in relation to Transco's SO incentive scheme. In the September 2001 Initial Proposals document concerning Transco's SO incentive, Ofgem outlined a SO incentive scheme to cover a 5 year period from 1 April 2002 to 31 March 2007. This would bring the timescale of the Transco SO incentive into line with the next Transco TO price control³⁰ which is due to come into operation on 1 April 2002 and last for 5 years.
- 4.10 Ofgem believes that it is appropriate to set 31 March 2003 as the rollover end-date. Ofgem continues to consider that uncertainties exist over forecasting costs for the forthcoming year based on the first 6 months of NETA, without the experience of operating under NETA during winter. Additionally, new access and pricing arrangements for NGC's transmission system and associated incentives have yet to be finalised. Therefore, Ofgem believes that the rolled-over incentive scheme should end on 31 March 2003. Finally, the introduction of BETTA will impact profoundly on the form and scope of SO incentive arrangements for the proposed GB SO. Whilst Ofgem continues to support the principle of increasing the duration of the scheme to provide, we do not believe it would be practical to implement such a scheme at this time for all of the reasons outlined above.
- 4.11 In adopting a rollover, the current incentive scheme would effectively be covering a longer timescale thus laying the foundations for incentive schemes with longer timescales in the future. Therefore, Ofgem is moving towards a situation where there are consistent incentives on TOs and SOs in both the gas and electricity markets.

³⁰ See 'Review of Transco's Price Control from 2002, Final Proposals', Ofgem, September 2001.

Areas of rolled-over SO incentive scheme for review

4.12 As discussed in this chapter, Ofgem is considering rolling over the existing SO incentive scheme whilst making a number of adjustments. These adjustments are being made to ensure that NGC continues to face effective incentives to manage costs on customers' behalf. There are also a number of adjustments that Ofgem considers necessary in light of the current operational experience of NETA. Adjustments are first discussed in principle and then in numerical detail later in the chapter.

Caps, collars and sharing factors

4.13 During previous consultations in relation to NGC's SO incentives, Ofgem expressed its preference for a symmetrical scheme in terms of the cap and collar used and the sharing factors. Ofgem continues to believe that, in the absence of clear evidence of asymmetric risks of costs overruns in system operator costs, symmetric sharing factors and caps and collar provide the best deal for customers and an appropriate balance of risk and reward for NGC.

4.14 Consequently, in the process of rolling over the existing scheme until 31 March 2003, Ofgem is aiming to develop an incentive scheme with more symmetry in order to create a more appropriate balance between the interests of customers and NGC.

4.15 To this end, Ofgem is seeking to amend the cap, collar and sharing factors to provide greater symmetry between the possible payments and losses to which NGC is exposed. To further enhance the symmetry, Ofgem is seeking to adopt a single incentive scheme target as opposed to a deadband zone.

RPI indexation

4.16 Ofgem does not believe that it is appropriate to apply RPI indexation to the parameters of the incentive scheme. It is not at all clear why, given the economic drivers of many of the cost streams that make up the incentive schemes, it would be appropriate to apply a general price index to costs. For example, the price of wholesale electricity, has fallen significantly over the last eighteen months whilst general inflation has risen slightly. This suggests that the

factors driving prices for many of the services provided reflect the demand and supply balance for those services. Falling prices may reflect innovation and improved technical efficiency.

- 4.17 Ofgem does not believe, therefore, that it would be appropriate to index last year's targets and caps and collars in seeking to rollover the schemes. The proposals outlined in this document are therefore set in terms of 2002/03 money.

Operational experience under NETA

- 4.18 There are a number of areas of the existing scheme that Ofgem believes would require adjustment as a consequence of the operational experience of NETA to date. Ofgem believes that balancing costs have fallen since Go-Live and therefore the target should be reduced in light of this. Additionally, certain allowances were included in the current scheme were only intended to provide additional protection to NGC to cover uncertainties in the period immediately after Go-Live. As such Ofgem is seeking to ensure that such allowances are not carried over into the rolled-over scheme. Equally, there have been market developments since Go-Live which potentially impact upon the allowance required under the rolled-over scheme. Each of the relevant areas is discussed below.

Reserve holding

- 4.19 Under the existing scheme NGC argued for a relatively high level of reserve given the uncertainty surrounding the initial operation of NETA. The level of reserve to be held was intended to decline over the course of the incentive period. Therefore, based on the original intention to reduce this allowance and given operational experience to date, Ofgem considers that a lower reserve volume (and hence costs) should be assumed for 2002/3.

Net Imbalance Reference Price (NIRP)

- 4.20 Under the existing scheme, NIRP is set equal to SBP when the system is short and SSP when the system is long (the applicable definitions of SBP and SSP are those within the BSC immediately prior to 1 April 2001).

- 4.21 Several BSC Modification Proposals have been proposed, and some have already been implemented, which have amended the calculation of imbalance prices (a summary of relevant Modifications are provided in Appendix 3). While any change to the calculation of imbalance prices does not alter the current definition of NIRP, the impact of these modifications must be considered in light of changes to the future definition of NIRP.
- 4.22 During discussions concerning the existing scheme, Ofgem made it clear that the use of imbalance prices to set NIRP was intended as an interim measure until a reliable spot price index emerged. As there are now several possible indices, Ofgem considers that the definition of NIRP should be changed in the rolled-over incentive scheme to reflect a suitable spot index or basket of spot indexes for this purpose.
- 4.23 When considering a suitable redefinition of NIRP, Ofgem favours the adoption of a dual price system where one price applies when the system is long and another applies when the system is short. In terms of selecting an appropriate index, Ofgem prefers the adoption of an index based on a defined combination of multiple market prices. Price adjustments would then be applied to the index to derive the relevant price, depending upon whether the system is long or short.
- 4.24 Ofgem believes that using an index based on multiple market prices has several benefits. It will not influence participants' decisions as to which market to trade in. If the index was based on the price from only one market, participants may choose to trade or not trade in this market based on the resultant effect. In addition, creating an index based on multiple sources better reflects prices across the whole market.
- 4.25 Based upon this, the NIRP values would be derived as follows:
- ◆ $\text{NIRP} = (\text{price index} + \text{fixed price adjustment 1})$ when system is short;
or
 - ◆ $\text{NIRP} = (\text{price index} - \text{fixed price adjustment 2})$ when system is long.

4.26 NGC has proposed a method for deriving the fixed price adjustment values based on Imbalance Prices and the UKPX³¹ half-hourly reference price. The fixed price adjustment values are based on the Net Imbalance Volume weighted averages of:

- ◆ (SBP-UKPX) when the system is short – this is fixed price adjustment 1;
or
- ◆ (UKPX-SSP) when the system is long – this is fixed price adjustment 2.

4.27 NGC has provided its assessment of the values for the two fixed price adjustments. Fixed price adjustment 1 should be £40.40/MWh and fixed price adjustment 2 should be £10.40/MWh.

4.28 We have included NGC's suggestion as we believe that this represents a valid starting point for the consultation surrounding the redefinition of NIRP.

4.29 In connection with the definition of NIRP, Ofgem noted in the April 2000 Consultation Document that the reference price should lie between SSP and SBP. This was deemed essential to sharpen NGC's incentives. For example, if the system was short and the reference price was higher than the SBP, NGC would have less of an incentive to reduce costs than if no adjustment had been made to reduce NGC's exposure to the Net Imbalance Volume. Therefore, in order to ensure that the effectiveness of NGC's incentives is not reduced, Ofgem continues to believe that NIRP should lie between SSP and SBP. One option would be to apply SSP as a collar and SBP as cap to the NIRP value, thus keeping NIRP within the range given by SSP and SBP.

Transmission Losses Reference Price (TLRP)

4.30 When the existing scheme was being developed, the TLRP definition contained a fixed value of £20/MWh. However, current forward wholesale prices suggest that the fixed component value is too high and should be revised downwards, based on a suitable forward forecast for baseload price for 2002/03.

³¹ The UKPX is the UK Power Exchange which offers half-hourly contract packages.

4.31 Ofgem is proposing a replacement value of circa £19/MWh. This figure is based on current forward baseload prices for 2002/03. This figure will be reviewed based on prevailing forward market prices at the time when the rolled-over scheme is introduced.

Impact of relevant modifications/amendments

4.32 Since Go-Live several modifications to the BSC and the CUSC have been proposed, and some have already been implemented, which have or will potentially have an impact upon the current SO incentive scheme. Some of the relevant modifications are outlined in Appendix 3. The potential impact of these and any other relevant modifications must be considered when setting the parameters for the SO incentive scheme rollover.

Ofgem's proposed parameters

4.33 In light of the areas highlighted above for review and amend the parameters proposed for the incentive scheme are presented in Table 4.1.

Table 4.1: Ofgem's proposed incentive scheme parameters³²

	Option A	Option B	Current Scheme
Incentive scheme target	£481m	£460m	-
Deadband	-	-	£481m to £511m
Upside sharing factor	60%	40%	40%
Downside sharing factor	50%	25%	12%
Cap	£60m	£46m	£46m
Collar	£-30m	-£25m	-£15.3m

4.34 Ofgem has formulated two proposals for consideration. Each has been developed to create the appropriate combination of incentive scheme target, sharing factors and cap/collar values based on Ofgem's rollover specifications outlined above.

Sharing factors, cap and collar

4.35 Both options aim to increase the symmetry of the scheme through amendments to the sharing factors and the cap and collar values. Given the relative lack of

³² The incentive scheme target, cap and collar under the Ofgem proposal are 2002/03 values.

experience of operating under the new arrangements, there is still great uncertainty as to what the overall efficient level of balancing costs should be³³. Therefore, Ofgem believes that wider and more symmetrical sharing factors will provide NGC with a greater incentive to discover this efficient level in a shorter space of time.

- 4.36 Both options would create an incentive scheme with enhanced symmetry, ensuring a more appropriate balance between the interests of customers and NGC. Under these proposals NGC is offered higher potential rewards and higher downside risk in order to further strengthen NGC's incentive to reduce balancing costs. This is deemed to be appropriate given that the operational uncertainty issues surrounding the initial operation of NETA, factored into the current scheme, will have reduced when the proposed scheme comes into force.
- 4.37 The combination of sharing factors and cap/collar values in both options are discussed below.

Option A

- 4.38 The change in the collar value from -£15.3m to -£30m and the increase in the downside sharing factor from 12% to 50% combine to represent an increase in the downside risk to which NGC is exposed. However, the increase in downside risk is to some extent offset by an increase in the potential reward to £60m, alongside an increase in the upside sharing factor to 50%, thereby increasing NGC's potential reward.

Option B

- 4.39 Option B changes the maximum potential risk from -£15.3m to -£25m and increases the downside sharing factor from 12% to 25%. Option B leaves the highest potential reward unchanged at £46m and also retains the upside sharing factor unaltered at 40%. As was the case for Option A, these amendments combine to represent an increase in both the upside and downside exposure. However, Option B incorporates smaller increases in both risk and reward than

³³ It should be noted that it took several two to three years before the Uplift costs under Pool trended to what might be considered an efficient level.

Option A. This is deemed to be appropriate given that Option B has a lower incentive scheme target.

Incentive scheme target

- 4.40 To further enhance the symmetry of the scheme, Ofgem is proposing that a single incentive scheme target value is adopted as opposed to a deadband range. This is the case in both Option A and Option B. The presence of the deadband in the current scheme was a further measure to address uncertainties faced by NGC under the initial operation of NETA, and as such Ofgem wishes to remove it from the forthcoming scheme.

Option A

- 4.41 Option A proposes an incentive scheme target of £481m for the rollover. This is the current deadband range lower value. Under this proposal, the incentive scheme target is a single figure rather than a deadband zone. The adoption of the current deadband range lower value reflects the element of continuing uncertainty regarding forecasting costs for the forthcoming year. Any forecast would be based on the first 6 months of operational experience under NETA, which does not include the period of peak winter demand. However, when considered in tandem with the sharing factors and cap/collar values proposed for Option A, the overall effect is to enhance the incentives on NGC to reduce costs.

Option B

- 4.42 While Option A did not seek to amend the incentive scheme target to reflect the significantly higher downside risk that NGC would face, Option B does revise the target in the light of experience to date and to reflect the lower overall risk to NGC given the lower downside sharing factor and collar. The proposed reduction in the incentive scheme target works in conjunction with the sharing factors and cap/collar values to offer less downside risk than Option A while still offering an attractive upside reward.
- 4.43 Taking the current deadband range lower value of £481m as the starting point, Ofgem is proposing an overall reduction of £21m in the incentive scheme target.

Therefore, the proposed target under Option B is £460m. This is the net effect after a combination of increases and reductions explained below.

Incentive scheme target increases

- 4.44 Ofgem recognises that the CUSC Amendment Proposal CAP001 will impose additional balancing costs upon NGC. The Amendment Proposal addresses frequency response imbalance payments, and improves accuracy of the payments received by frequency response service providers. As a result of the increased accuracy, NGC is forecasting an increase in frequency response imbalance payments of between £4m and £6m per year. Therefore, as CAP001 has been implemented, Ofgem accepts that there will be an increase in balancing costs, and a £4m increase to the incentive scheme target is proposed.

Incentive scheme target reductions

- 4.45 The additional reserve allowance factored into the current scheme was only intended to cover the initial period after NETA Go-Live. Ofgem made clear in setting the scheme our intention to reduce this allowance in any future scheme. In accordance with this intention, Ofgem is proposing a £12m reduction to the incentive scheme target.
- 4.46 The second area in which Ofgem is seeking to lower the target involves the reduction in the value of the fixed component within TLRP (currently fixed at £20/MWh) to a more suitable ex ante forecast based on current forward wholesale prices. The result is a lower TLRP value, which will necessitate a reduction in the incentive scheme target. The lower deadband target range value of £481m contained an allowance of £103.2m for the cost of Transmission Losses, which was based on a target volume of 5.05TWh times the then TLRP of £20.44/MWh. Accordingly, if a TLRP of £19.00/MWh is adopted, the target should be reduced by 5.05TWh times (20.44-19.00)£/MWh, which equates to a reduction of £7.27m.
- 4.47 Therefore, assuming a replacement value of £19/MWh, Ofgem is proposing a £7m reduction to the incentive scheme target to take account of the reduction in the value of the fixed component within TLRP. Finally, Ofgem additionally

proposes that a £6m reduction in the target value is required to reflect operational experience to date and that balancing costs to date have fallen.

Incentive scheme target summary

- 4.48 Therefore, Ofgem is seeking a £21m reduction to the overall incentive scheme target. This is based on a £4m increase in costs as CAP001 has been implemented, a £12m reduction to the reserve allowance, a £7m reduction to reflect a lower TLRP value and a £6m reduction based on falling balancing costs. Under Option B Ofgem is proposing an incentive scheme target of £460m for the rolled-over scheme.

Proposed parameters summary

- 4.49 Under Option A Ofgem is seeking to create an incentive scheme target of £481m which is the same as the lower deadband value of the current scheme. This relatively high target is combined with increased upside reward and downside exposure in order to enhance the incentives on NGC.
- 4.50 Option B proposes a reduction in the incentive scheme target to a value of £460m. Using the lower deadband value of the current scheme of £481m as a starting point, Option B reduces the target by £21m. However, in tandem with the reduction in the incentive scheme target, Option B offers reduced downside risk as well as an attractive upside reward.
- 4.51 Ofgem believes that both the proposed options provide an effective incentive on NGC to manage costs on customers' behalf.

5. The way forward

Summary of views invited

- 5.1 Ofgem invites views on any of the issues raised in this document. In particular, Ofgem invites views on:
- ◆ the proposal to rollover the existing scheme, with several amendments, until 31 March 2003;
 - ◆ the proposed amendments to the cap, collar and sharing factors in order to improve the symmetry of the scheme;
 - ◆ the proposed amendments to the incentive scheme target to reflect operational experience to date;
 - ◆ the replacement NIRP definitions; and
 - ◆ the reduced TLRP fixed component value.

Way forward

- 5.2 In this document Ofgem has set out its own proposals in relation to the intention to rollover the current SO incentive scheme until 31 March 2003.
- 5.3 Following this consultation period, Ofgem is intending to publish its final proposals in February 2002. If NGC accepts Ofgem's final proposals, they will take effect from 1 April 2002.

Licence changes

- 5.4 In order to implement the rolled-over version of the SO incentives, a number of changes will need to be made to NGC's Transmission Licence. Ofgem's final proposals document will provide for consultation of the initial drafting for the licence changes that will need to be made to implement the SO incentives.

Appendix 1 Definition of the current SO incentive scheme

- 1.1 Under the terms of special condition AA5A of NGC's Transmission Licence, it is allowed to recover its actual costs of balancing the system plus incentive payments relating to the costs of these actions. The incentive is calculated and paid on an annual basis. The cashflow under the incentive is paid on a daily basis within BSUoS (Balancing Services Use of System) charges.
- 1.2 Under the current incentive scheme, NGC is given a specific incentive scheme target range (deadband zone) representing a reasonable balance of risk and reward on the basis of the forecast distribution of the balancing costs throughout the duration of the incentive scheme. If NGC's balancing costs are below the target, it keeps a proportion (the upside sharing factor) of the reduction in costs as an incentive payment. Conversely, if balancing costs are above the target, NGC is charged a proportion (the downside sharing factor) of the higher costs. NGC's overall gains and losses are limited through the use of a cap on payments and a collar on losses.
- 1.3 The current SO incentive scheme began on 27 March 2001 and is due to expire on 31 March 2002. The structure of the current scheme was established after a consultation process that was concluded in December 2000. The final proposal outlined four possible options for the external SO incentive.
- 1.4 NGC selected Option 4 as its preferred choice for the form of the current incentive scheme for the external costs. When making the selection, NGC continued to believe that there was significant uncertainty in the level of external costs that it would incur under NETA. Option 4 included a deadband zone which bridged the gap between Ofgem and NGC in terms of costs and provided some comfort given the level of uncertainty. Option 2 also contained a deadband zone but Option 4 was selected because the latter provided a greater expected return.
- 1.5 The parameters relating to Option 4 are outlined in Table 1.1.

Table 1.1: Option 4 parameters

Deadband	£471.0m to £500.0m
Upside sharing factor	40%
Downside sharing factor	12%
Cap	£45.0m
Collar	-£15.0m
Duration	One year scheme

1.6 Table 1.2 shows how the design of Option 4 relates to the components of the payment calculation. The values shown in Table 1.2 are defined in NGC's Transmission Licence in the table in paragraph B1(a) of Part B of Schedule A.

Table 1.2: Incentive payment parameters

Band	Incentivised Balancing Cost (IBC_t) (£m)	Deadband (MT_t) (£m)	Sharing Factor (SF_t)	Cap/Collar (CB_t) (£m)
A	$IBC_t < 358.5$	0.0	0	45.0
B	$358.5 < = IBC_t < 471.0$	471.0	0.4	0.0
C	$471.0 < = IBC_t < 500.0$	0.0	0	0.0
D	$500.0 < = IBC_t < 625.0$	500.0	0.12	0.0
E	$IBC_t > 625.0$	0.0	0	-15.0

1.7 The incentive scheme parameters outlined within the December 2000 Final Proposals document were based on 2000/2001 prices. However, before the scheme was implemented the values were indexed at 2.2%³⁴ to reflect retail price inflation in order to convert the parameters into 2001/2002 prices. The indexed values for 2001/2002 are shown below in Table 1.3.

Table 1.3: Option 4 parameters post-indexation

	Non-indexed Values	Indexed Values
Deadband	£471.0m to £500.0m	£481.0m to £511.0m
Upside sharing factor	40%	40%
Downside sharing factor	12%	12%
Cap	£45.0m	£46.0m
Collar	-£15.0m	-£15.3m
Duration	One year scheme	One year scheme

³⁴ The actual value to be used for inflation is defined in NGC's Transmission Licence, and is based on outturn RPI statistics up to March 2002. The value of 2.2% used above is NGC's current forecast of that inflation parameter, but the final value will not be known until the outturn inflation parameter is known in March 2002.

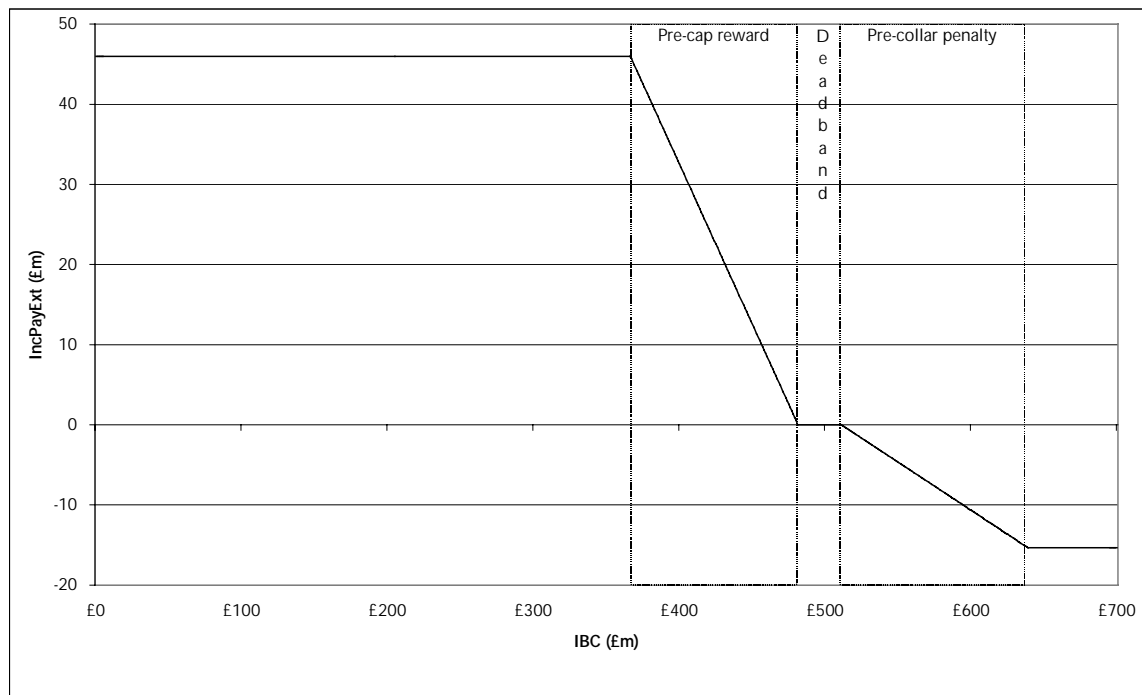
1.8 The indexation of the values consequently modified the components of the incentive scheme. The post-indexation parameters are presented in Table 1.4 below.

Table 1.4: Incentive payment parameters post-indexation

Band	Incentivised Balancing Cost (IBC _t) (£m)	Deadband (MT _t) (£m)	Sharing Factor (SF _t)	Cap/Collar (CB _t) (£m)
A	IBC _t < 366.0	0.0	0	46.0
B	366.0 <= IBC _t < 481.0	481.0	0.4	0.0
C	481.0 <= IBC _t < 511.0	0.0	0	0.0
D	511.0 <= IBC _t < 639.0	511.0	0.12	0.0
E	IBC _t > 639.0	0.0	0	-15.3

1.9 When examining NGC's performance to date under the current incentive scheme, the relevant parameters are the indexed figures as outlined in Table 1.4 above. The structure of the incentive scheme can be displayed graphically as shown in Figure 1.1.

Figure 1.1: Incentive payment structure



Components of Incentivised Balancing Costs (IBC)

1.10 The key component of the total incentive payment reward/penalty to which NGC is exposed is the IBC value at the end of the incentive scheme period. In short, IBC is made up of:

- ◆ costs incurred in the Balancing Mechanism (CSOBM);
- ◆ costs incurred in contracting and utilising balancing services outside of the Balancing Mechanism (BSCC);
- ◆ an adjustment for transmission losses;
- ◆ a total net imbalance adjustment (NIA); and
- ◆ adjustments for other allowed income (RT) and balancing services provided to others (OM).

1.11 Appendix 2 describes the main components of IBC.

Appendix 2 Incentivised Balancing Cost (IBC) component breakdown

2.1 The main components of IBC are discussed below in turn.

Balancing Mechanism Costs (CSOBM)

Licence definition

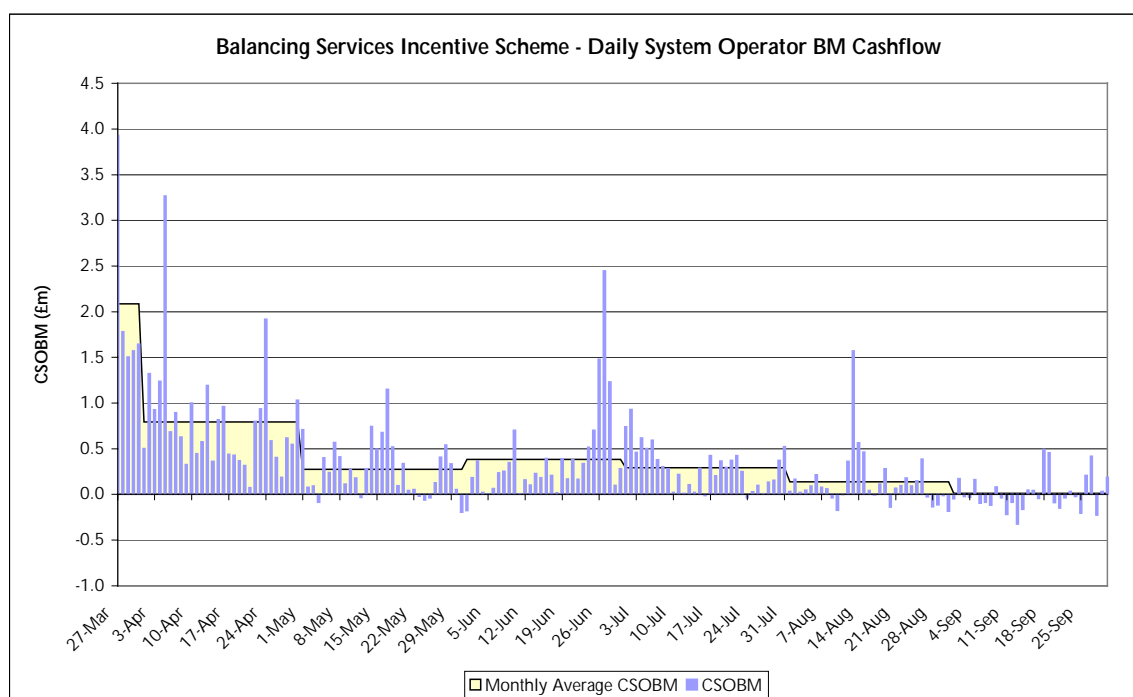
2.2 Under NGC's Transmission Licence CSOBM_t is defined as the cost to the licensee of bids and offers in the balancing mechanism accepted by the licensee in relevant period t less the total non-delivery charge for that period. CSOBM_t is the sum across the relevant period of the values of CSOBM_j (being the Daily System Operator Balancing Mechanism Cashflow as defined in Table X-2 of Section X of the BSC in force immediately prior to 1 April 2001).

2.3 CSOBM_t represents the cost faced by NGC associated with any accepted balancing mechanism excluding costs associated with the non-delivery of accepted bids and offers over the period 27 March 2000 to 31 March 2001.

Performance to date

2.4 As relevant data are only available for the period from Go-Live up until the end of September 2001, it is not possible to analyse CSOBM_t. However, daily, monthly and cumulative CSOBM within this period are examined in the following section. Figure 2.1 shows both daily CSOBM and monthly average CSOBM for the period up until 30 September 2001.

Figure 2.1: Daily CSOBM and monthly average CSOBM



2.5 As was the case with IBC, CSOBM has generally decreased throughout the period. However, upward spikes have occurred on several occasions against the general downward trend. Most notably, CSOBM surpassed £1m on three consecutive days beginning on 26 June coinciding with a drop in plant margin. CSOBM in September was the lowest to date by a considerable margin, continuing the downward trend demonstrated throughout the summer months. More detailed statistics concerning CSOBM are presented in Table 2.1.

Table 2.1: Monthly CSOBM statistics

Month	Sum (£m)	Average (£m)	Min (£m)	Max (£m)	Std Dev (£m)
Mar-01	10.43	2.09	1.50	3.93	1.04
Apr-01	23.82	0.79	0.07	3.27	0.61
May-01	8.51	0.27	-0.19	1.15	0.30
Jun-01	11.51	0.38	-0.18	2.45	0.52
Jul-01	9.09	0.29	-0.04	0.93	0.24
Aug-01	4.26	0.14	-0.19	1.57	0.32
Sep-01	0.32	0.01	-0.33	0.49	0.20

2.6 Monthly average CSOBM has decreased in every month, with the exception of June partly in response to events on the days surrounding the tightening of plant margin at the end of the month. There has been an increased incidence of negative CSOBM particularly in August. This can be linked to the length of the

system. The system is long in the majority of periods and as such NGC is generally not in a position where it has to accept offers to increase generation or decrease demand, for which it pays the offer price. Instead it is more likely to accept bids to reduce generation or increase demand, for which it receives the bid price. Consequently, the cost associated with CSOBM has fallen.

- 2.7 The monthly standard deviation of CSOBM has steadily decreased in the period examined, signifying that there has been less volatility as time has progressed.
- 2.8 The overall trend suggests that daily CSOBM values are falling, however, this situation may change during winter.

Balancing Services Contract Costs (BSCC)

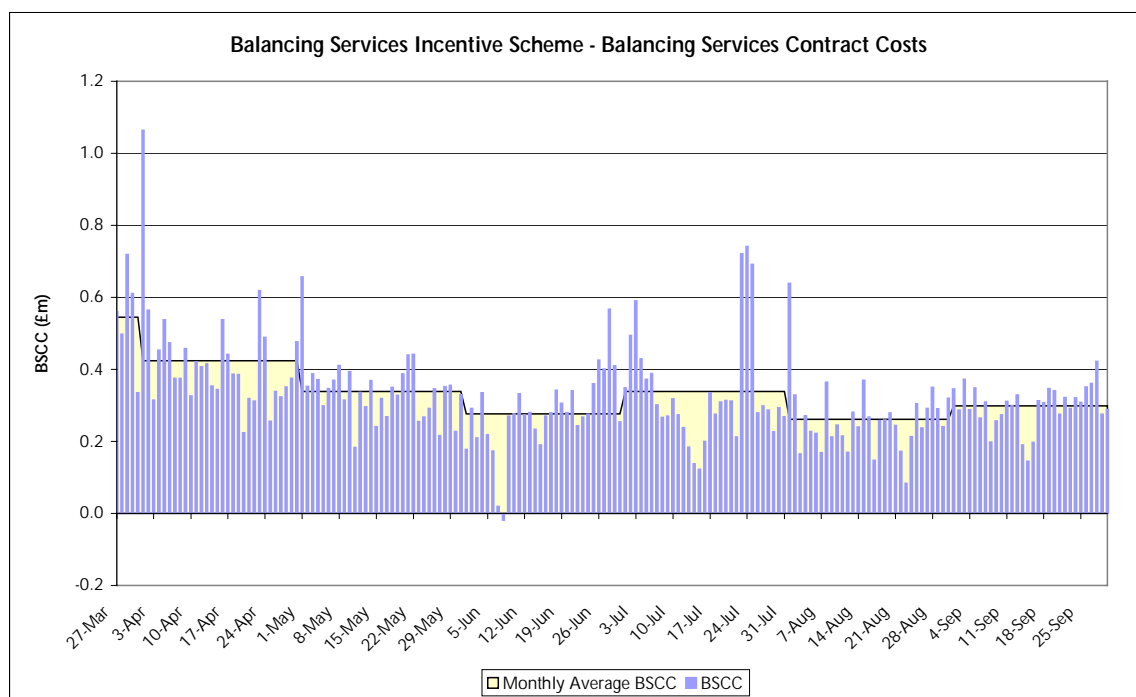
Licence definition

- 2.9 Under NGC's Transmission Licence, $BSCC_t$ is defined as the costs to the licensee of contracts for the availability or use of balancing services during the relevant period t , excluding costs within $CSOBM_t$ but including charges made by the licensee for the provision of balancing services to itself in the relevant period t .
- 2.10 $BSCC_t$ are the costs of the payments that NGC make to the providers under contract of balancing services excluding any costs paid through the Balancing Mechanism. This includes costs associated with the procurement of energy, reserve, frequency response, transmission constraints, black start, reactive power and transmission losses. All these costs are bundled together as BSCC for the purposes of IBC calculation. Currently, NGC does not provide any balancing services to itself and consequently this component does not make any contribution to BSCC.

Performance to date

- 2.11 Similar to $CSOBM_t$, $BSCC_t$ cannot be analysed because the entire period of the current scheme is not complete. Consequently, the following section examines BSCC figures up until the end of September 2001. Figure 2.2 shows both daily BSCC and monthly average BSCC for the period from Go-Live up until 30 September 2001.

Figure 2.2: Daily BSCC and monthly average BSCC



2.12 In the case of BSCC, although the average costs have fallen overall during the period to date, the decrease is by no means as clear-cut as was the case for CSOBM. Both July and September exhibit an increase in average costs when compared to the respective preceding month. Excluding March, the average BSCC for the period is £0.32m and the monthly average ranges from £0.26m to £0.42m as shown in Table 2.2.

Table 2.2: Monthly BSCC statistics

Month	Sum (£m)	Average (£m)	Min (£m)	Max (£m)	Std Dev (£m)
Mar-01	2.72	0.54	0.34	0.72	0.14
Apr-01	12.71	0.42	0.22	1.06	0.15
May-01	10.50	0.34	0.18	0.66	0.09
Jun-01	8.28	0.28	-0.02	0.57	0.11
Jul-01	10.49	0.34	0.12	0.74	0.16
Aug-01	8.07	0.26	0.08	0.64	0.10
Sep-01	8.93	0.30	0.14	0.42	0.06

2.13 The standard deviation in the months from Go-Live has been relatively low, and has marginally fallen as time has progressed, suggesting that the level of variability from day to day within month is low and is decreasing. July was the only month when this trend was not observed.

- 2.14 In the period until the end of September, BSCC has, similar to CSOBM, generally fallen. However, the downward movement was not as distinct in the case of BSCC. Over the latest four months, daily BSCC has been fluctuating around the £0.29m level. The trend exhibited throughout September has been upwards suggesting that there may be further increases during winter.

Transmission Losses (TL) and Transmission Losses Reference Price (TLRP)

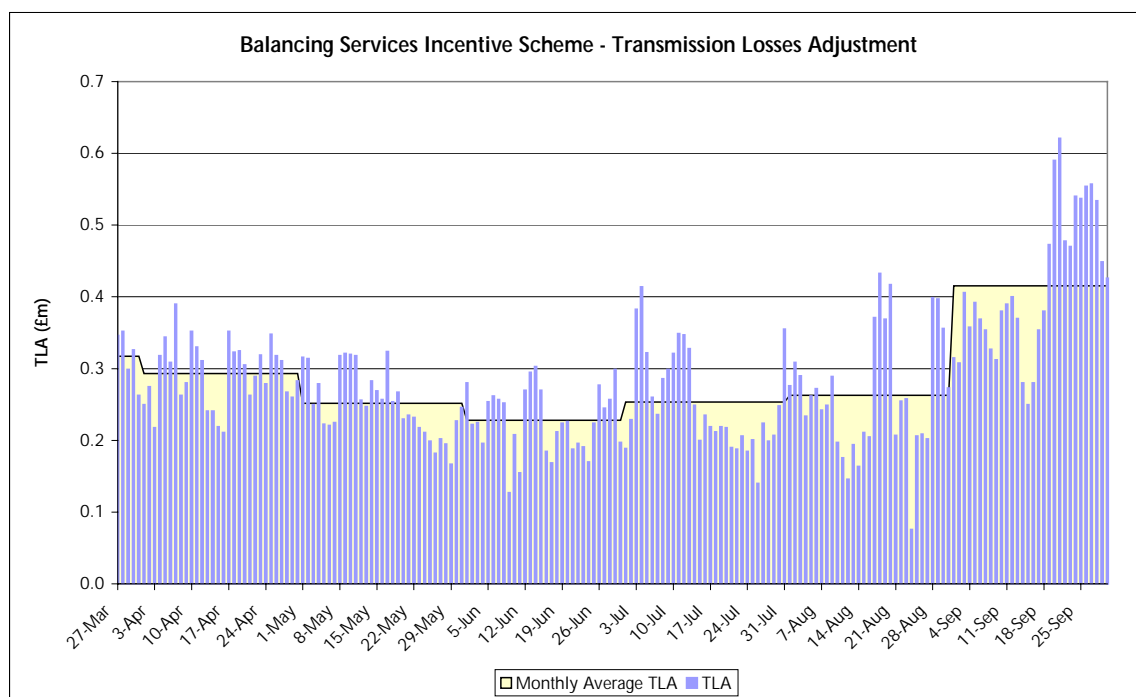
Licence definition

- 2.15 Under NGC's Transmission Licence, $\sum_j(TL_j[TLRP_j])$ is defined as the volume of Transmission Losses (TL_j) multiplied by the Transmission Losses Reference Price (TLRP) for each Settlement Period, summed across all Settlement Periods in the relevant period t .
- 2.16 NGC's Transmission Licence defines TL_j as the volume of Transmission Losses given by the sum of Balancing Mechanism Unit Metered Volumes (as from time to time defined in the BSC) during the Settlement Period j for all Balancing Mechanism Units (as from time to time defined in the BSC). This is the difference between the quantities of electricity delivered to the licensee's transmission system and the quantity taken from the licensee's transmission system during that Settlement Period, but excluding all generator transformer losses.
- 2.17 $TLRP_j$ is defined in NGC's Transmission Licence as the Transmission Losses Reference Price which has the value specified for each Settlement Period set out in paragraph B3 of Part B of Schedule A of NGC's Transmission Licence.

Performance to date

- 2.18 For analysis purposes, this section will look at the combined effect of TL and TLRP, which will be referred to as Transmission Losses Adjustment (TLA). The analysis presented below is based on TLA data from Go-Live until the end of September 2001.
- 2.19 Daily TLA and monthly average TLA values for the period up until 30 September are presented in Figure 2.3.

Figure 2.3: Daily TLA and monthly average TLA



2.20 TLA dropped during the first three full months of the period, as has been the case for CSOBM and BSCC. However, TLA has subsequently increased in the final three months shown. During September in particular, the daily TLA values have been amongst the highest throughout the entire period. During the final half of the month, TLA was consistently above £0.4m in comparison to an average of £0.26m from Go-Live up until the end of August.

2.21 In addition to the nominal increase in TLA, its relative contribution to IBC has increased. TLA accounted for 46% of the monthly IBC total during September in comparison to approximately 25% in previous months. If the general increase in TLA over the recent months continues, there will be additional upward pressure on IBC. However, this upward pressure may be overridden by downward pressure elsewhere. As with all of the IBC components, the impact of winter on the values remains to be seen.

Total Net Energy Imbalance Volume (TQEI) and the Net Imbalance Reference Price (NIRP)

Licence definition

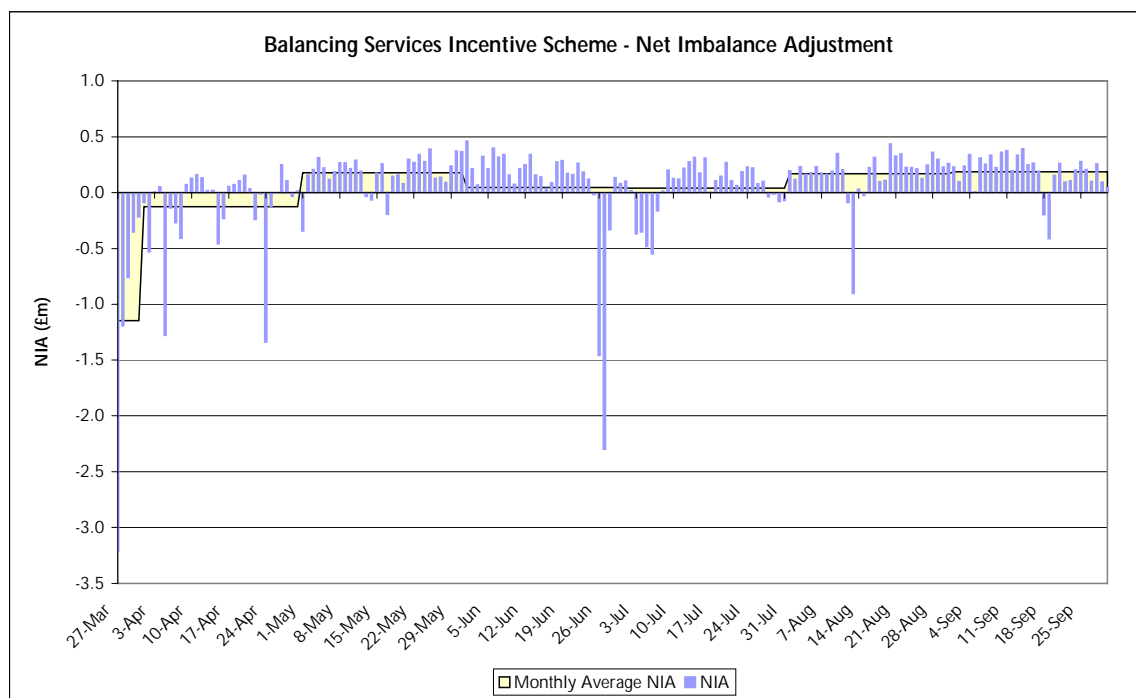
- 2.22 Under NGC's Transmission Licence, $\sum_j(\text{TQEI}_j[\text{NIRP}_j])$ is defined as the Total Net Imbalance Volume³⁵ (TQEI_j) as defined in the BSC in force immediately prior to 1 April 2001 multiplied by the Net Imbalance Reference Price (NIRP_j) for each Settlement Period, summed across all Settlement periods in the relevant period t.
- 2.23 NGC's Transmission Licence defines NIRP_j as the Net Imbalance Reference Price in settlement period j. The NIRP_j value is based on imbalance prices using the definitions of SBP and SSP as in the version of the BSC in force immediately prior to 1 April 2001. Whether SBP or SSP applies is dependent upon TQEI. NIRP is set to be equal to SBP when the system is short, SSP when the system is long and zero when the system is in balance.

Performance to date

- 2.24 For analysis purposes, this section will look at the combined effect of TQEI and NIRP, which will be referred to as the Net Imbalance Adjustment (NIA). The data covers the period from Go-Live up until the end of September 2001.
- 2.25 Daily NIA and monthly average NIA for the period up until 30 September 2001 is presented in Figure 2.4.

³⁵ The total net imbalance volume is the sum of all imbalance volumes over all energy accounts other than energy accounts held by the Transmission Company.

Figure 2.4: Daily NIA and monthly average NIA



2.26 Initially daily NIA, on the majority of days, and monthly average NIA were negative up until the end of April. From the beginning of May onwards, daily NIA has had a positive value on the majority of days. The tendency for NIA to be positive can be linked to the general tendency for the system to be long, which means that the TQEI component of NIA is also positive. This has become even more applicable as time has progressed under NETA, as NIA is positive in the majority of cases, the overriding influence of NIA is to increase IBC. NIA has been negative on relatively few occasions with the most obvious spikes seen during June when plant margin was low. At this time NIA reached its lowest value of -£2.3m.

2.27 If the system retains its tendency to go long TQEI will continue to be positive on the majority of occasions, and so whether the value of NIA will be positive or negative will depend the value of SSP as defined prior to 1 April 2001.

Other Allowed Income (RT) and Balancing Services provided to others (OM)

Licence definition

- 2.28 Under NGC's Transmission Licence, RT_t is defined as the amount of any allowed income adjustment, given by paragraph 12(b) of special condition AA5A, in respect of relevant period t .
- 2.29 NGC's Transmission Licence defines OM_t as the amount representing the revenue from the provision of balancing services to others during relevant period t , calculated in accordance with paragraph 7 of special condition AA5A.

Performance to date

- 2.30 Both these costs are zero year-to-date. NGC advises us that they expect OM to remain zero for the whole of this year. RT will only be non-zero if Ofgem agrees to a change to the incentive scheme target as a result of an Income Adjusting Event. An Income Adjusting Event could most probably occur as a consequence of modifications to the BSC and the CUSC. Examples of relevant modifications to the BSC and the CUSC are outlined in Appendix 3.

Summary

- 2.31 In addition to examining the overriding trends of the individual components of IBC, an examination of each component's relative contribution to IBC throughout the period is set out below. Table 2.5 presents the monthly values of each of the components of IBC, while Table 2.6 shows each component's percentage contribution to IBC.

Table 2.5: Monthly IBC component totals

Month	CSOBM (£m)	BSCC (£m)	NIA (£m)	TLA (£m)	IBC (£m)
Mar-01	10.43	2.72	-5.73	1.59	9.00
Apr-01	23.82	12.71	-3.78	8.79	41.55
May-01	8.51	10.50	5.53	7.81	32.34
Jun-01	11.51	8.28	1.39	6.84	28.01
Jul-01	9.09	10.49	1.28	7.86	28.71
Aug-01	4.26	8.07	5.25	8.14	25.73
Sep-01	0.32	8.93	5.60	12.45	27.32

Table 2.6: Monthly IBC components as proportion of IBC

Month	CSOBM	BSCC	NIA	TLA
Mar-01	116%	30%	-64%	18%
Apr-01	57%	31%	-9%	21%
May-01	26%	32%	17%	24%
Jun-01	41%	30%	5%	24%
Jul-01	32%	37%	4%	27%
Aug-01	17%	31%	20%	32%
Sep-01	1%	33%	21%	46%

2.32 The most obvious observation from Tables 2.5 and 2.6 is that the general reduction in IBC has been accompanied by a distinct decrease in CSOBM, and as a result CSOBM's contribution to IBC. CSOBM has fallen from being just under 60% of IBC in April to 1% in September. The fall in CSOBM means that NGC's overall costs associated with accepting Balancing Mechanism actions have decreased.

2.33 As explained above, the system has a tendency to be long, possibly due to participants avoiding exposure to the SBP by over contracting. The resultant length of the system means that NGC is accepting relatively fewer offers to increase generation (for which it pays the Offer price) and whilst accepting relatively more bids to decrease generation (for which it receives the Bid price). Consequently, CSOBM has fallen over the period.

2.34 The reduction in the significance of CSOBM has to some extent been countered by an increase in the proportion of IBC accounted for by NIA and TLA. NIA's contribution has shifted from -9% in April to a positive contribution of 21%. The contribution of NIA has increased because of the increasing tendency for the system to be long. When the system is long the TQEI value within NIA is positive and NIRP is based on SSP, which has a positive average value based on experience to date. As a result the persistent length of the system in more recent months has caused NIA to increase. Meanwhile TLA's contribution has increased from 21% in April to 46% in September.

2.35 The significance of BSCC in the calculation of IBC has remained relatively stable fluctuating around 32% throughout. However, in the context of reducing IBC, the relative contribution of BSCC is increasing.

Appendix 3 Modifications to the BSC and Amendments to the CUSC

Implemented modifications/amendments

BSC Modification P8

- 3.1 The Authority approved modification P8, "Introduction of A Price Adjuster to Reflect Option Fees for Balancing Services Contracts in Setting System Buy Price and System Sell Price" with an implementation date of 25 September 2001. P8 amended the SBP and SSP imbalance price calculations within the BSC by introducing price adjusters. This involved the development of a new Sell Price Adjustment (SPA) and Buy Price Adjustment (BPA). Consequently, the BSAD Methodology was revised to include the submission of SPA and BPA.

BSC Modification P10

- 3.2 The Authority as of 11 May 2001 approved option 2a of modification P10, "Eliminating Imbalance Price Spikes Caused By Truncating Effects". This modification also amends SSP and SBP calculations, with the aim of preventing spurious Bid/Offer Acceptances (BOAs) from causing price spikes. Option 2a removes from the system price calculation individual BOAs whose volume was less than 1 MWh (for an Offer), or greater than -1 MWh (for a Bid). BOAs that are below these thresholds are removed from all aspects of the price-setting calculation.

BSC Modification P18A

- 3.3 The Authority as of 25 September 2001 approved modification P18A, "Removing/Mitigating the effect of System Balancing Action in the Imbalance Price Calculations". This modification tags and removes from Energy Imbalance Prices BOAs that are less than 15 minutes in duration. In determining which bids or offers are excluded, Modification Proposal P18A considers the Continuous Acceptance Duration (CAD) of a single acceptance, or group of acceptances. The Continuous Acceptance Duration Limit (CADL) is the time against which each CAD is assessed. If a single acceptance, or group of

acceptances, which makes up a CAD is less than the CADL limit (currently 15 minutes), then the relevant bids or offers will not be included in calculating Energy Imbalance Prices.

CUSC Amendment Proposal CAP001

- 3.4 The Authority recently approved the first amendment proposal to the CUSC, "Frequency Response Imbalance Payments". The amendment proposal will ensure a more accurate approximation of assumed energy imbalance when calculating compensation payments by changing the imbalance compensation mechanism in relation to frequency response. As a result the frequency response volume will be calculated more accurately as will the compensation payments received by the service providers. NGC forecast that this could result in an increase in frequency response imbalance payments by between £4m and £6m per year.

Live modifications/amendments

BSC Modification P12

- 3.5 Modification P12 to the BSC, "Reduction Of Gate Closure From 3.5 Hours To 1 Hour", was proposed on 9 May 2001. The impact of modification P12 on NGC's balancing activities is potentially significant if following implementation it is established that material cost changes occur because of the reduction in Gate Closure. In this situation the provisions for Income Adjusting Events within NGC's Transmission Licence can be used.