

**NATS Price Control Review
2006-2010**

Initial Consultation Document

March 2004

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EXECUTIVE SUMMARY

Introduction

The current controls on prices charged by NATS (En Route) plc (referred to as NERL) are due to expire in the next two years. The main price control – covering charges levied by NERL's Eurocontrol business¹ – ceases on 31 December 2005. The control on charges levied by NERL's Oceanic business² expires on 31 March 2006. The Civil Aviation Authority (CAA) – which is responsible for setting price controls on these businesses – is therefore embarking on a review of the price controls that should apply to NERL from 2006 onwards. This consultation document represents the first stage in that process.

In this document, the CAA sets out its proposed approach to the review, and identifies the main issues that it proposes to address. The document also includes some initial analysis of the main issues.

The CAA welcomes comments on both its approach and the issues raised by the review. Any such comments should be sent, if possible, by e-mail to susie.talbot@caaerg.org.uk by Friday, 4 June 2004. Alternatively, they may be posted to:

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Economic Regulation Group
4th Floor
CAA House
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London WC2B 6TE

The CAA will also be holding a seminar at which this paper will be discussed with interested parties. The date of this seminar will be posted on the CAA's website (www.caa.co.uk).

Approach to the review

The CAA takes as its starting point for the review the objectives in the Transport Act 2000. Subject to an overarching duty to maintain a high standard of safety, these can be summarised as follows:

- to further the interests of users;
- to promote efficiency and economy by NERL;
- to secure that NERL will not find it unduly difficult to finance its activities;
- to take account of the UK's international obligations;
- to take account of the Government's environmental objectives where these are notified to the CAA.

¹ This business is described in the background section of the Executive Summary.

² This business is described in the background section of the Executive Summary.

The CAA must also impose the minimum of restrictions consistent with the exercise of its regulatory functions.

Building on these statutory duties, the CAA has developed principles that will guide it in the conduct of this review. These principles are based on the five principles of better regulation published by the Better Regulation Task Force³:

- to ensure that regulation is proportionate by ensuring that the proposals take proper account of the particular circumstances of NERL and its users;
- to ensure that the CAA is accountable for its decisions by exposing the reasons underlying decisions to public scrutiny;
- to ensure that – as far as possible – decisions reached are consistent with commitments made by the CAA at the time of the Composite Solution (as described below), or else to explain why not. Also, decisions will be made in recognition of possible future developments in the air traffic control services industry, particularly in Europe;
- to ensure that regulation is transparent, i.e. clearly understood by NATS and its users. In terms of its own processes, the CAA also intends to adopt an open and effective decision-making process for this review, whilst avoiding overly burdensome consultation; and
- to ensure that regulation is well targeted through the application of direct price control regulation only where it is properly justified. In terms of its own processes, the CAA intends to focus on the main issues for review, rather than adopting an approach whereby all issues are left open until the very end of the process.

The CAA welcomes views on whether these are the right principles for the review, or whether we should adopt others. If they are the right principles, we would be interested in views on the weight that should be attached to each.

Background

As noted above, the CAA currently applies two separate price controls to NERL's Eurocontrol and Oceanic businesses. NERL's Eurocontrol business provides air traffic control services to aircraft using controlled UK airspace. In 2003, the Eurocontrol business served around 2 million flights, which corresponded to 8.7 million Chargeable Service Units (or CSUs).⁴ It charged the equivalent of £45.55 per CSU, and recovered a revenue of £390.6m.

³ The Better Regulation Task Force leaflet setting out the five principles of better regulation may be found at www.brtf.gov.uk/taskforce/reports/PrinciplesLeaflet.pdf.

⁴ Eurocontrol services are sold by the 'Chargeable Service Unit' or CSU. This measure is designed to represent the amount of air traffic service that is 'consumed'. How many CSUs a flight 'consumes' is determined by a combination of the distance flown and the aircraft weight. For example, a 50 tonne aircraft travelling 100km in controlled airspace would be charged 1 CSU. On average, flights using UK controlled airspace are charged 4 CSUs per flight.

The Oceanic business is much smaller than the Eurocontrol business. It provides air traffic control services for the North Eastern quadrant of the Atlantic. In 2002/03, the Oceanic business served 331,000 flights. It charged aircraft £55.27 per flight, and recovered £19 million in revenue.

NERL also provides access to its infrastructure to the Ministry of Defence (MoD), air traffic control services to North Sea Helicopter operators, air traffic control services covering Terminal Approach, and derives a small amount of revenue from related activities. But none of these services fall within the scope of the current price controls.

The current price controls were initially set by then Department for Environment, Transport and the Regions, and took effect from 1 January 2001. However, soon after 11 September 2001 there was a significant and unanticipated reduction in traffic (particularly transatlantic) volumes. NATS subsequently applied for a number of amendments to the original price controls, including a relaxation of the caps on maximum allowed revenue, and revised caps took effect from 1 January 2003. The overall package came to be known as the Composite Solution.

Context for the review

In reviewing the price controls that currently apply to NERL, it will be important for the CAA to have regard to the particular characteristics of NERL. Two characteristics seem to be particularly relevant:

- NERL's ownership structure; and
- NERL's financial structure.

Each is considered below.

The CAA invites views on whether these particular characteristics of NERL are the most relevant to bear in mind in carrying out this review. If not, to what other characteristics should CAA have regard?

Effect of NATS Ownership Structure

NATS Holdings Ltd – the ultimate parent company of NERL – is 42% owned by a consortium of seven airlines known as the Airline Group (AG).⁵ This means that NATS' licensed air traffic control businesses are part-owned by their customers. This might allow the CAA to consider the adoption of alternative, and less intrusive, forms of regulation because users' interests are represented on the board of NATS Holdings Ltd. For example, instead of controls on NERL's charges, it might be possible to rely on a requirement that the terms offered to non-AG users are tied to those offered to AG airlines. However, the results of the CAA's preliminary analysis are mixed, suggesting that the AG stake in NATS does not – in itself and currently – provide a sufficient basis for relaxing price controls. On this basis, the CAA expects to have a continuing need to regulate the prices of NERL.

⁵ The structure of NATS is shown in Appendix 3 which describes NATS and its place in the aviation industry.

The CAA welcomes views on the commercial and regulatory implications of AG's control of NATS. What should be the role of incentive regulation given the degree of NATS' vertical integration in the airline industry value chain? The CAA also welcomes views on the extent to which AG's control of NATS raises discrimination concerns that should be addressed in the regulation of NATS, what these concerns might be and how they might reasonably be dealt with..

Effect of NERL's Financial Structure

NERL is unusually highly geared, i.e. it has a high level of debt, and relatively little equity. At the time of the Composite Solution in March 2003, NERL had a gearing of 86%.

NERL's limited equity has implications for the risk it can bear. This, in turn, may have implications for incentive-based regulation. The CAA will therefore need to ensure that the risks borne by NERL in any revised price caps are consistent with its capital structure.

The CAA welcomes views on the extent to which NERL's high gearing should affect the CAA's implementation of incentives.

Main issues for the review

NATS was part-privatised in July 2001 and has only recently undergone a review of its price control, the conclusions of which were published in March 2003. Against this background, and consistent with the principle of carrying out a well-targeted review, the CAA proposes to focus on a specific number of issues.

In practice, this means that the CAA intends to spend less time and resource on issues where the benefits of change are likely to be limited. These issues are:

- the form of control – where the CAA would expect to retain an approach based on the RPI-X price control regulation model;
- the duration of the control – where the CAA would expect to reset a price control for a further 5 year period;
- CAA's policy on operating efficiency – where operating cost savings are retained by NERL for a period regardless of when in the regulatory price control cycle they are made; and
- setting the control based on an established regulatory asset base.

On the other hand, the CAA proposes to concentrate on the following issues:

- the scope of the price control;
- setting the structure of control for NERL's Eurocontrol business;
- striking the right balance between price and service;

- setting the allowance for operating expenditure;
- setting the allowance for the cost of capital;
- setting appropriate short term service quality incentives for NERL; and
- setting appropriate long term investment incentives for NERL.

Each of these issues is considered below.

The CAA welcomes views on the CAA’s focused approach to this review. Do respondents agree that the CAA has selected the right issues? Or are there other issues that the CAA should consider or – arguably as importantly – should drop?

Scope of the price control

NERL undertakes a number of distinct functions. Some of these functions - such as the Eurocontrol and Oceanic businesses - are clearly monopolies, and therefore warrant price regulation. In other cases, the situation is less clear-cut. For example, whilst NERL enjoys a degree of market power in the provision of services to MoD, the MoD - as sole purchaser - also enjoys significant countervailing buyer power, and the flexibility to negotiate a contract for services without interference from direct price regulation.

The CAA proposes that price and service regulation should continue to apply to both the Eurocontrol and the Oceanic businesses. The CAA is also actively considering whether price control regulation should be extended to cover monopoly ‘Terminal Approach’ services. On the other hand, the CAA’s current intention is that services to the MoD, to North Sea Helicopters and various other services should continue to fall outside the scope of direct price regulation.

The CAA invites views on whether the boundaries of the NERL business are appropriately drawn for regulatory purposes as they currently stand (i.e. with Eurocontrol and Oceanic subject to a price control and the rest not price-controlled). If not, how should they be redrawn? For example, should they incorporate NERL’s Terminal Approach businesses?

Setting the structure of the price control for NERL’s Eurocontrol business

Ideally, the CAA would wish to see NERL’s Eurocontrol business adopt a pricing structure based on its cost structure. However, NERL is required by the European Organisation for the Safety of Air Navigation (EUROCONTROL) to set prices to individual airlines based on the number of CSUs that airline has been supplied. Nothing in this review will alter that, and therefore there will be no change to the incidence of NERL’s ‘en route’ charges across different airlines.

Nevertheless, it is open to the CAA – as part of this review – to revisit the basis on which NERL’s maximum allowed revenue is calculated. In particular, should the determinants of allowed revenues be altered so that they better reflect NERL’s cost structure, and thereby improve the chances that aggregate allowed revenues will match aggregate costs in a wider range of scenarios?

At present, allowed revenues under the Eurocontrol price cap mechanism are broadly 50% fixed, and 50% based on CSUs supplied in a given year. The question for the CAA – and interested parties – is whether these are the right drivers of allowed revenues. Specifically, should the 50:50 balance between the fixed allowance and the volume related allowance change? And are CSUs an appropriate driver of revenues, particularly if NERL's costs do not vary significantly with variations in the number of CSUs supplied?

The CAA would welcome views on the structure of the control to be applied to NERL's Eurocontrol business. Should the drivers, or determinants, of allowed revenue reflect NERL's cost structure? If so, are the current drivers sufficiently cost reflective? If not, what changes should the CAA consider?

Striking the right balance between price and service

One of the most important issues in this review will be establishing the level of service that NERL is responsible for providing. This will involve understanding, even if only broadly, how users see the trade-off between price and service, and to take this into account in setting the revised price controls.

NERL has itself begun a process of consultation and policy development, known as its ATM strategy review, in which it is considering how it can clarify its responsibilities. At one level, it could be argued that NERL's role is confined to providing airspace capacity. At another level, airlines might argue that NATS should be financially accountable for delays 'caused' by air traffic control services.

The CAA welcomes views on the appropriate level of service to be provided by NATS and how this should be defined. In particular, what scope do users see for making their valuations of the services that NATS provides more important in shaping NATS' outputs? What new forms of contracting between users and NATS could assist in delivering these changes?

Setting the allowance for operating expenditure

Operating expenditure accounts for around 70% of the costs of NERL's Eurocontrol business. In 2002/03, out of approximately £300m operating expenditure (excluding depreciation), about two thirds was staff related, and about a third non-staff related. In 2002/03, out of 3882 staff, 1425 were air traffic controllers, 810 were Air Traffic Service Assistants, 1141 were engineers and 506 other staff.

At the recent interim review of NERL's price control, the CAA introduced a policy that allows NATS to benefit from operating cost savings for a full five year period, regardless of when in the regulatory cycle the savings were made. Before this, there was little incentive to make operating efficiencies in the run up to a price control, as they would be claimed by the regulator and passed on to users. It would seem to be premature to revisit such a policy after only one year of operation. The CAA therefore proposes to retain this policy for the period of the next price control.

The key issue, therefore, is not the treatment of achieved operating efficiencies, but the setting of the allowance in the price control. In this regard, NERL says that it is on track to reduce operating costs in line with the commitments made at the time of the

Composite Solution. However, the CAA has yet to understand fully the extent of such progress, and how far it can be sustained and intensified. The CAA therefore intends, as part of this review, to investigate NERL's operating expenditure projections. As part of doing so, the CAA would expect to consider all available evidence including:

- NERL's business plan;
- other relevant information from NERL;
- results of benchmarking carried out by the Performance Review Commission of Eurocontrol; and
- other expert advice and opinion.

In practice, the CAA would expect NATS' business plan to reflect the costs of an efficiently managed business. The CAA understands that NERL expects to publish its business plan in April 2004, and the CAA would expect this to form the starting point for the review.

The CAA welcomes views on how best the assessment of the allowance for operating expenditure should be conducted and how – more specifically – users might be able to assist in this review. Also, in the view of respondents, which might be the areas of NERL's business where savings are most likely to be achieved?

Setting the allowance for the cost of capital

At the time the current price control was originally set, the CAA advised that the cost of capital that NERL should be permitted to recover on both its Eurocontrol and Oceanic businesses was 7.75% (pre-tax, real). In a typical year, this equates to around £50m or just over 10% of NERL's Eurocontrol business's revenues.

In terms of the approach towards setting a revised cost of capital, the CAA is currently minded to retain the use of the Capital Asset Pricing Model (CAPM). This approach has recently been reviewed by UK economic regulators and, despite some acknowledged shortcomings, is widely recognised as the best available approach.

In adopting this approach, the CAA will have to reach assumptions on a number of factors including some generic to all business operating in the UK (notably the risk free rate and the equity risk premium) and some specific to NERL (the 'beta', debt premium, financial gearing and the treatment of tax).

The CAA would welcome views on the approach the CAA should use in setting the allowance for the cost of capital and, in particular, whether it should use the framework implied by the Capital Asset Pricing Model. Views would also be welcome on the considerations that the CAA should take into account in assessing the level of the inputs to the CAPM.

Setting appropriate short term service quality incentives for NERL

Under the current price control on NERL's Eurocontrol business, a very small amount of revenue is linked to the performance of NERL in reducing delays. This 'short term incentive' allows NERL to earn up to around £2.5m additional revenue a year from reducing the average delay per flight attributable to air traffic management (as measured by Eurocontrol's Central Flow Management Unit (CFMU)) compared to a par value (1.2 minutes per flight in 2002). It also penalises NERL by up to £10m a year if average delays per flight exceed the par value.

The issue for this review is whether this incentive should be strengthened, or weakened. In addition, the CAA will wish to consider whether other incentives should be introduced to encourage improved performance on other aspects of the service received by users. In this document, the CAA sets out draft criteria against which potential new short term incentives may be assessed. These include ensuring that incentives match those aspects of service that users value, and will be acted upon by NERL. Importantly, they also require incentives to be based on clear and reliable measures.

Against this background, the CAA will consider whether there is a case for increasing the rewards and penalties associated with the delay term to bring the incentive mechanism more into line with users' requirements. Other possibilities include linking service quality to measures of capacity, for example, the availability of staff serving airspace sectors.

The CAA welcomes views on the criteria for assessing the current and potential incentives for service quality. We would also welcome views on what changes should be made to the current incentives on service quality.

Setting appropriate long term investment incentives for NATS

Capital expenditure – recovered through a depreciation allowance in the price control - amounts to around 20% of NERL's price cap on its Eurocontrol business. Thus, in terms of revenue, it is significantly less important than operating expenditure. On the other hand, how well NERL's capital budget is spent is of key importance to the long term development of the business and, in particular, whether investment to boost capacity matches the long term requirements of the market.

At present, broadly all capital expenditure is 'passed through' to users. This gives NERL a strong incentive to invest. However, it also means that, in principle, NERL faces weak incentives to invest efficiently to produce outputs that match users' requirements. In practice, the financial responsibilities of a highly geared business, the oversight of the AG, the short term incentives of the price control and consultation requirements mean that NERL operates within certain constraints. However, the CAA would like to consider whether any improvement can be made to the current long term incentive regime.

In assessing what improvements could be made, the CAA would expect to have regard to criteria similar to those used in relation to the short term incentives. In particular, the CAA will wish to ensure that any new incentives will be effective in practice. One way to achieve this might be through tying NERL's price caps to pre-specified milestones in NERL's investment programme. However, even such milestones – e.g. in relation to the implementation of new software – may be difficult to define.

The CAA invites views on what incentive framework it should put in place to remunerate capital expenditure up to 2011. How should the balance be struck between maintaining investment incentives, and encouraging NATS to deliver outputs that users want in a timely and efficient manner? What scope is there for users' valuations of future output and incremental cost analysis to contribute to defining the incentives, either now or in the longer term?

Next Steps

The CAA intends to publish a brief report on the key issues raised in response to this consultation, and their implications for the direction of the review, in July 2004. In the light of these responses – and further analysis by the CAA – the CAA currently expects to publish its indicative proposals in November 2004. Firm proposals are expected to follow in March 2005.

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1. Introduction

- 1.1 The existing caps on prices charged by NATS (En Route) plc (referred to as NERL) – the monopoly air traffic control provider in the UK – are due to expire on 31 December 2005 (for its Eurocontrol business) and 31 March 2006 (for its Oceanic business). The Civil Aviation Authority (CAA) – which has responsibility for setting price caps - is therefore initiating a review to determine the scope, level and nature of the price caps that should replace them from 2006.
- 1.2 This consultation document sets out the CAA's proposed approach to this review, and identifies the issues that the CAA intends to consider in it. Interested parties are invited to comment on the proposed approach we have set out, as well as the issues identified.

Timetable

- 1.3 The CAA intends to adhere to the following review timetable:

March 2004	Publication of an initial consultation paper seeking views on the major issues for the review.
July 2004	Publication of a report on the points made in response to the March 2004 consultation.
November 2004	Publication of a consultation paper setting out the CAA's initial conclusions on the policy issues together with indicative price control proposals.
March 2005	Publication of a consultation paper setting out the CAA's firm proposals including a specification of the price control conditions.
July 2005	Publication of a formal proposal, under section 11 of the Transport Act 2000, to modify licence conditions.
October 2005	Publication of the CAA's final decision.
January 2006	New Eurocontrol price cap takes effect.
April 2006	New Oceanic price cap takes effect.

- 1.4 This timetable assumes that the CAA's formal proposal is accepted by NERL. If it is not, the CAA would expect to refer the matter to the Competition Commission. In that event, NERL has agreed that it would implement the CAA's proposals on 1 January 2006 on a provisional basis pending the outcome of the investigation by the Competition Commission.
- 1.5 The CAA welcomes user views before confirming the interim charging arrangements that would apply for 2006 if it had to make a reference to the Competition Commission. (Further details are given in Appendix 2).

Views requested

- 1.6 The CAA would welcome comments on this document. These should be sent by Friday, 4 June 2004 to:

Susie Talbot
Economic Regulation Group
Civil Aviation Authority
CAA House
45-59 Kingsway
London
WC2B 6TE
Email: susie.talbot@caaerg.org.uk
Fax: 020 7453 6244

All responses will be treated as public information and the CAA will place copies on its website soon after the end of the consultation period. Respondents are asked to respond by e-mail wherever possible.

- 1.7 The CAA will be holding a seminar for industry representatives. The date of this seminar will be posted on the CAA's website (www.caa.co.uk). Its purpose is to explain the content of this paper and to answer questions about it. CAA staff are also ready to meet individual organisations or representative bodies if they wish to discuss particular issues emerging from this paper. This should be arranged through Susie Talbot (tel. 020 7453 6213, or email susie.talbot@caaerg.org.uk).

2. Background

- 2.1 NATS emerged from 18 months of disruptive uncertainty in the spring of 2003, following its application in February 2002 to reopen the price control set by then Department for Transport, Environment and the Regions.⁶ This application became an interim price determination, leading to a revised CAA price control, but went further than a traditional price control in involving stakeholders in assembling a comprehensive package intended to put NATS on a more stable footing for the future (the so-called Composite Solution).
- 2.2 The Composite Solution only emerged after intense discussions between all parties and itself quickly followed the part-privatisation of NATS in July 2001. Against this background, the CAA is concerned that, so far as possible, NATS management stays focused on the efficient development of its business, which is critical to users. The CAA therefore proposes to approach this review with a view to minimising the burden on all parties by pursuing those issues of most significance for users.
- 2.3 This chapter describes the role of the Regulatory Policy Statement (RPS) issued at the time of the Composite Solution. It also describes the NERL licence, the charges that users face for NATS services and the implications of the Composite Solution.

The Statement on Regulatory Policy (RPS)

- 2.4 The CAA proposes to promote regulatory stability in line with the RPS. The RPS does not exhaustively cover all issues that the price control may raise. Indeed, in some areas it specifically identifies issues for future consideration without making any commitment to a particular policy direction. However, the RPS does contain a significant amount of detail about the CAA's approach to many of the regulatory issues that face NATS. It can be presumed that unless stated otherwise in CAA documentation on NATS, an approach identified in the RPS is the CAA's official policy.
- 2.5 While its commitment to policy set out in the RPS can never be absolute or irrevocable, the CAA nevertheless confirms that it seeks to work within the RPS, and therefore to build on the foundations of the Composite Solution, as a basis for the regulation of NATS going forward. To ensure the integrity of the RPS, and to develop confidence in it, the CAA will only propose amendments to it where it believes that such changes are necessary, robust and durable.

The NERL Licence

- 2.6 Suppliers of air traffic services in the UK require a licence or an exemption. The Secretary of State for Transport has issued a general exemption covering any supplier of services other than where the service is provided from an area control centre. In practice this means that the only provider operating under a licence is NATS (En route) plc (NERL), the monopoly supplier of en route air traffic services in the UK. All those providing air traffic services at aerodromes, including NATS Services Ltd (NSL) are exempt from licensing.
- 2.7 The NERL licence was issued by the Secretary of State and came into force in July 2001 on completion of the Public - Private Partnership (PPP). The licence includes both terms (which cannot be modified by the CAA) and conditions (which can be

⁶ The Department for Transport, Environment and the Regions set the first price control because until the NERL licence was issued in March 2001, the CAA had no statutory duties in respect of NATS, although it did act for the government in an advisory capacity.

modified). The terms of the licence give NERL exclusive rights to provide Core Services⁷ for a period of ten years from 2001 and the licence itself has a minimum life of 30 years. The licence may, however, be revoked by the Secretary of State within this period in a number of circumstances defined by the licence.

User Charges

2.8 The following table sets out a breakdown of NATS' unit prices for the two price-controlled businesses. The table shows the proportion of revenues that may be attributed to operating expenditure, the repayment of capital expenditure (regulatory depreciation) and the return on the regulatory asset base (RAB).

	Projected 2003/4 unit price (£, outturn prices)	% of total charge/CSU
<u>Eurocontrol</u> (calendar year)		
Operating expenditure	31.60	69.4%
Regulatory depreciation	8.52	18.7%
Regulatory return on average RAB	5.44	11.9%
Total	45.55 per chargeable service unit (CSU)⁸	100%
<u>Oceanic</u> (financial year)		
Operating expenditure	49.80	90.1%
Regulatory depreciation	2.63	4.7%
Regulatory return on average RAB	2.84	5.1%
Total	55.27 per flight	100%

Source: CAA analysis

Notes: (a) Projected charges (as set by the CAA), excluding delay term and volume risk adjustments

These prices are based on forecasts of the key inputs such as traffic volume. In the case of operating expenditure, the expenditure allowed for by the CAA in its August 2000 advice to government on the price caps provides the input

2.9 The high proportion of unit prices accounted for by operating expenditure indicates the relatively labour-intensive nature of NATS' business, which we comment on further elsewhere in this document. In the case of the Oceanic business, the particularly small proportion of charges accounted for by depreciation and the

⁷ Core services are the UK En route air traffic control (ATC) service, the Oceanic ATC service, the Advisory Control Service and the London Terminal Approach Service.

⁸ Eurocontrol services are sold by the 'Chargeable Service Unit' or CSU. In other words, this measure is designed to represent the amount of air traffic service that is 'consumed'. How many CSUs a flight 'consumes' is determined by a combination of the distance flown and the aircraft weight. For example, a 50 tonne aircraft travelling 100km in controlled airspace would be charged 1 CSU. On average, flights using UK controlled airspace are charged 4 CSUs per flight

regulatory return on the RAB reflects the fact that a lot of NATS' Oceanic assets are fully depreciated.

Implications of The Composite Solution

- 2.10 In order for users to help the CAA determine the future regulatory agenda for NATS after the Composite Solution, it is worth recapping some of its key points. To address financial concerns raised by NATS' banks in the aftermath of 11 September 2001, a fundamental restructuring of NATS' finances took place. This was associated with a remoulding of the NATS' business model and a consequent reallocation of some of the risk and rewards of operating air traffic control in the UK. In particular, a significant element of NATS' exposure to its key external business risk, traffic volume, was transferred to users.
- 2.11 The price cap now includes a volume term so that, above a floor,⁹ users each face 50% of both upside and downside volume risk, with NERL bearing the remaining 50%, instead of 100% as before. If traffic falls below the floor, the volume risk faced by NERL would be further reduced from 50% to 20%. Conversely, users are exposed to 80% of the volume risk if traffic falls below the floor. The result is that users are now collectively bearing significant air traffic control business risk, particularly on the downside. This is described in chapter 6.
- 2.12 The price cap was adjusted from RPI-4% in 2003 and RPI-5% in 2004 and 2005 to RPI-2% for 2003, 2004 and 2005. In addition to bearing, through user charges, risk of traffic volatility, users are also now paying higher charges for the remainder of the current price control period (known as CP1).
- 2.13 The third element of the exceptional user contribution was also agreement to uplift the RAB by 12% from the beginning of the next control period (CP2). This was intended to put users on a long-term higher price path, although to the extent that NERL's actual cash flows exceed an agreed benchmark, the RAB in 2011 will be reduced by a proportion of the out-performance. This gives users some benefit in CP3 in the event there is good cash flow performance by NATS from 2003 to 2011 (over the period to the end of CP2).
- 2.14 In short, NERL's implicit role as a risk manager, cushioning users from the business impact associated with the volatility of charges, is significantly diminished compared to the business model put in place at the time of the PPP.¹⁰
- 2.15 It follows from the new risk allocation¹¹ that users should, more than ever, have the opportunity to shape the priorities of the regulatory regime for NATS, since not only do users ultimately pay NATS' costs, they must also manage greater variability in NATS' charges as a function of traffic demand. The CAA itself will of course take this into account in executing its duty to further the interests of users.

⁹ The floor in 2004 is 8.09 million CSUs.

¹⁰ The previous approach to volume risk meant that the ATC charges that users pay were shielded from the impact of volume risk by placing that risk on NERL. The extent to which NERL is able itself to manage volume risk, either in absolute terms or relative to the ability of users to manage the risk is a separate question.

¹¹ While the risk allocation was only recently revised, modifications to it may be made through this review, notably in the treatment of volume risk. But the CAA will have regard to the RPS in considering this matter.

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3. Approach

3.1 This chapter sets out:

- the CAA's statutory duties under the Transport Act 2000;
- a brief analysis of those statutory duties;
- a list of proposed principles for the review;
- a description of the context within which the review is being undertaken; and
- a description of the main issues raised by the review, and how the CAA proposes to address them.

3.2 The CAA welcomes views on its analysis of its statutory duties, the principles it proposes to adopt, and the list of issues arising from the review. As in the rest of the document, the particular questions on which the CAA would welcome responses are highlighted in bold text.

Statutory duties

3.3 The CAA takes as its starting point for the review its statutory duties set out in Section 2 of the Transport Act 2000. First and foremost, the CAA has a duty to maintain safety. As the CAA's primary duty, this is taken extremely seriously.

3.4 Subject to this overarching duty to maintain a high standard of safety, the remaining duties may be summarised as follows:

- to further the interests of users;
- to promote efficiency and economy by NERL;
- to secure that NERL will not find it unduly difficult to finance its activities;
- to take account of the UK's international obligations;
- to take account of the Government's environmental objectives where these are notified to the CAA.

3.5 The CAA must also impose the minimum of restrictions that are consistent with the exercise of its regulatory functions.

Analysis of duties

3.6 The CAA recognises that its duties under the Transport Act 2000 may, to some extent, conflict with each other. For example, furthering the interests of users may not be consistent with securing that NERL will not find it unduly difficult to finance its activities. In these circumstances, the CAA will seek to apply the provisions in a reasonable manner having regard to them as a whole.

3.7 In interpreting the precise meaning of the duties, the CAA regards the second duty – to promote efficiency and economy – partly as a means of achieving the first. Ensuring that NERL does not find it unduly difficult to finance its activities – on the other hand – is a necessary condition of, or constraint on, the way in which the CAA approaches this price control review.

- 3.8 The fourth duty is designed to ensure that the CAA takes proper account of all relevant international obligations. In the context of this review, the principal obligation amounts to setting charges in accordance with the broad principles laid down by Eurocontrol (as described in Appendices 4 and 5). As regards the fifth duty, the Government has given guidance to the CAA's Directorate of Airspace Policy on environmental objectives.¹²
- 3.9 Against this background, and in summary, the CAA proposes to further the interests of users, where appropriate through promoting efficiency and economy of NATS, subject to securing that NERL does not find it unduly difficult to finance its activities.

The CAA would welcome views on its interpretation of its duties under Section 2 of the Transport Act 2000.

Principles

- 3.10 The CAA is proposing to establish a set of principles by which it will conduct the review. These principles are based on the five principles of better regulation issued by the Better Regulation Task Force.¹³

Principle 1 – To ensure that regulation is proportionate. This means ensuring that proposals take proper account of the particular circumstances of NERL, e.g. the fact that its parent company - NATS Holdings Ltd - is part-owned by a group of its own customers. It also means considering the alternative approaches towards regulation, e.g. prescriptive versus incentive-based regulation¹⁴, and selecting the form of regulation best suited to the circumstances. As a general rule, the CAA would expect to prefer incentive-based to prescriptive regulation.

Principle 2 – To ensure that in taking decisions, and throughout the review, the CAA is accountable to NATS, users, and other interested parties. The CAA is clearly accountable to NATS inasmuch that if NATS ultimately disagrees with the CAA's price control proposals, the matter will be referred to the Competition Commission for investigation. However, the CAA acknowledges that it has a wider accountability to others with an interest in the services offered and prices charged by NATS. It therefore proposes to expose its decisions, and the reasons for its decisions to public scrutiny throughout the review.

Principle 3 – To ensure that - as far as possible - regulation is consistent with previous decisions. In the context of this review, this means ensuring that decisions made are consistent with commitments made by the CAA at the time of the Composite Solution, or else explaining why not. This applies, for example, to the CAA's approach towards the regulation of NERL as set out in the Regulatory Policy Statement published in March 2003. It also means that CAA will strive to make decisions in recognition of the potential future changes to the circumstances in which air traffic services are provided, such as the implications of the European Commission's Single European Sky initiative (see Appendix 5)

¹² 'Guidance to the Civil Aviation Authority on Environmental Objectives relating to the exercise of its Air Navigation Functions' DETR, January 2002.

¹³ The Better Regulation Task Force leaflet setting out the five principles of better regulation may be found at www.brtf.gov.uk/taskforce/reports/PrinciplesLeaflet.pdf.

¹⁴ In this context, prescriptive regulation involves the regulator specifying particular outcomes. Incentive regulation, on the other hand, involves setting a regulatory framework, allowing the regulated company to decide how it behaves within that framework

Principle 4 – To ensure that regulation is transparent, i.e. clearly understood by NATS and its users. In terms of process, it is important to ensure that all those with an interest in this review have an opportunity to influence the outcome. Equally, we recognise the burden that an overly consultative process can impose. We therefore propose to limit the number of consultation documents issued, and to ensure that each document is accompanied by a short and accessible summary. Each of the consultations will be supplemented by a public seminar at which the key proposals will be presented by CAA staff, and an opportunity provided for questions and discussion. In addition, interested parties are welcome to contact the CAA to request a meeting to discuss the review, and to put their points across.

Principle 5 – To ensure that regulation is well targeted through the application of direct price control regulation only where it is properly justified. Moreover, in carrying out a review such as this, there is a natural temptation to open up as many issues for review as possible, and to keep them open for as long as possible. The danger with such an approach, however, is that because all issues are nominally open for consideration, not all issues are, in practice, considered effectively. As far as possible, therefore, the CAA proposes to focus attention on a limited number of issues.

The CAA welcomes views on whether these are the right principles for the review, or whether we should adopt others. If they are the right principles, we would be interested in views on the weight that should be attached to each.

Context of the review

3.11 In reviewing the price controls that currently apply to NERL, it will be important for the CAA to have regard to the particular characteristics of NATS. Two seem particularly relevant:

- NATS' ownership structure; and
- NATS' financial structure.

Each is described below.

Effect of NATS' Ownership Structure

3.12 NATS Holdings Ltd – the parent company of NERL – is 42% owned by a consortium of seven airlines known as the Airline Group (AG). This means that the NERL licensed air traffic control businesses are part-owned by their customers. The significance of this is that it might allow the CAA to adopt alternative, and less intrusive, forms of regulation because users' interests are represented on the board of NATS Holdings Ltd. This issue is considered in chapter 4.

Effect of NATS' Financial Structure

3.13 NERL is unusually highly geared, i.e. it has a high level of debt, and relatively little equity. At the time of the Composite Solution, NERL had a gearing of 86%. NERL's limited equity has implications for the risk it can bear. This, in turn, may have implications for incentive-based regulation. The CAA will therefore need to ensure that the risks borne by NERL in any revised price caps are consistent with its capital structure. This issue is also considered in chapter 4.

The CAA invites views on whether these particular characteristics of NERL are the most relevant to bear in mind in carrying out this review. If not, to what other characteristics should CAA have regard?

Main issues for the review

3.14 NATS was part-privatised in July 2001 and has only recently undergone an interim review of its price control, the conclusions of which were published in March 2003. Against this background, and consistent with the principle of carrying out a well-targeted review, the CAA proposes to focus on a specific number of issues. In practice, this means that the CAA intends to spend less time and resource on issues where the benefits of change are likely to be limited. These issues are:

- the form of control – where the CAA would expect to retain an approach based on the RPI-X price control regulation model;
- the duration of the control – where the CAA would expect to reset a price control for a further 5 year period;
- CAA’s policy on operating efficiency – where operating cost savings are retained by NERL for a period regardless of when in the regulatory price control cycle they are made; and
- setting the control based on an established regulatory asset base.

3.15 On the other hand, the CAA proposes to concentrate on the following issues: selected in view of their significance for users. These are:

- the scope of the price control;
- setting the structure of the control for NERL’s Eurocontrol business;
- striking the right balance between price and service;
- setting the allowance for operating expenditure;
- setting the allowance for the cost of capital;
- setting appropriate short term service quality incentives; and
- setting appropriate long-term investment incentives.

Each of these issues is considered below.

Scope of the price control

3.16 NERL undertakes a number of distinct functions. Some of these functions – such as the Eurocontrol and Oceanic businesses – are clearly monopolies, and therefore warrant price regulation. In other cases, the situation is less clear-cut. For example, whilst NERL enjoys a degree of market power in the provision of services to MoD, the MoD – as sole purchaser- also enjoys significant countervailing buyer power, and the flexibility to negotiate a contract for services without interference from direct price regulation. Which of NERL’s functions should be price controlled, and which not, is considered in this document.

Setting the structure of the price control for NERL's Eurocontrol business

- 3.17 Although changes to NERL's Eurocontrol business's pricing structure are outside the remit of this review, it is open to the CAA – as part of this review – to revisit the basis on which NERL's Eurocontrol business's maximum allowed revenue is calculated. In particular, should the determinants of allowed revenues be altered so that they better reflect NERL's cost structure? This issue is considered in chapter 6.

Striking the right balance between price and service

- 3.18 One of the most important issues in this review will be establishing the level of service that NERL should be responsible for providing. This will involve understanding, even if only broadly, how users see the trade-off between price and service, and to take this into account in setting the revised price controls. Chapter 7 considers the nature and level of service to be provided by NERL.

Setting the allowance for operating expenditure

- 3.19 Operating expenditure accounts for around 70% of the costs of NERL's Eurocontrol business. Setting the level of the allowance for operating expenditure for the next price control is therefore a key issue for this review. How the CAA proposes to approach setting this allowance is considered in chapter 8.

Setting the allowance for the cost of capital

- 3.20 At the time the current price control was set, the CAA advised that the cost of capital that NERL should be permitted to recover on both its Eurocontrol and Oceanic businesses was 7.75% (pre-tax, real). This equates to just over 10% of NERL's regulated revenues. In chapter 10, the CAA considers whether the approach taken to setting the cost of capital allowance should continue to be based on the Capital Pricing Asset Model (CAPM) and, if so, the factors that CAA should take into account in developing the inputs to that model.

Setting appropriate short-term service quality incentives

- 3.21 At present, NERL's Eurocontrol business faces a small financial incentive to minimise the average level of delays per flight that are attributable to air traffic control services. The issue for this review is whether this incentive should be strengthened, weakened, or better targeted. In addition, the CAA wishes to consider whether other incentives on service quality should be introduced. This issue is considered in chapter 7.

Setting appropriate long-term investment incentives

- 3.22 At present, broadly all capital expenditure is passed through to users. This gives NERL a strong incentive to invest. However, it also means that, in principle, NERL faces weak incentives to invest efficiently to produce outputs that match users' requirements. In practice, the financial responsibilities of a highly geared business, the oversight of the AG, the short-term incentives of the charge control and consultation requirements mean that NERL operates within certain constraints. However, the CAA would like to consider whether any improvement can be made to the current long-term incentive regime. These issues are explored in chapter 9.

The CAA welcomes views as to whether the CAA is correct to adopt a focused approach to this review. Do respondents agree that the CAA has selected the right issues? Or are there other issues that the CAA should consider or – arguably as importantly – should drop?

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4. Strategic Context

- 4.1 Like other regulators, the CAA starts from a presumption that, in spite of some acknowledged limitations, RPI-X incentive regulation has much to commend it. Within this framework, the detailed remuneration of operating expenditure and capital expenditure, together with the treatment of service quality, all send out a set of incentive signals. To be effective, the CAA's approach to incentivising NERL must be rooted in an understanding of the financial and operational condition of the business and in an appreciation of the motivations of all stakeholders whose behaviour impacts business performance. Besides the NATS managers who run the business, these stakeholders include shareholders (including government), debt holders, employees and, of course, users.
- 4.2 The particular situation of NATS raises two immediate issues that must be taken into account in devising appropriate incentives:
- to what extent does the overlap between shareholders and users (through the AG) mitigate the concerns that the CAA might have about a monopoly potentially not delivering the service that users want at the best price; and
 - how far should the high gearing of NATS and its recent emergence from a period of financial distress condition the regulator's determination of the type and scale of incentives that is appropriate to place on NATS?

We discuss these themes further in this section.

Implications of Airline Group Ownership Stake

- 4.3 Since the last price control was set, the PPP has been executed and users have been brought into the governance structure in the shape of the Airline Group (AG) (42%) and BAA (4%). As a result, the air traffic control industry is now to a significant degree vertically integrated in the air transport value chain.
- 4.4 The Strategic Partnership Agreement between all the shareholders ensures that the government, AG and – to a lesser extent – BAA all have rights of veto over certain major decisions, including material changes to the nature or scope of the business. AG and BAA are required to use reasonable endeavours to ensure that Directors appointed by them constitute a majority of the Directors on the NATS Board at all times. As such, while AG has a minority shareholding (42%) in NATS Holdings Limited, it has strategic responsibility for management of NATS. In turn, NATS Holdings Limited wholly owns NATS Limited and NERL, the business licensed and regulated by CAA.
- 4.5 The stated objective of AG was that the purchase of NATS shares was on a “not for commercial return” basis. However, this principle was not embedded in any of the legal or contractual documentation connected to the share purchase. So, in itself, this is no basis for treating NATS differently from any other regulated company. And while NATS' financing arrangements mean that it is unlikely to pay out dividends directly to shareholders before 2013, the incentive to generate shareholder value in the long term remains.
- 4.6 Nonetheless, it is reasonable to suppose that the identity of the controlling shareholder will affect the way a business is conducted. NATS clearly has a strategic value to AG members beyond any narrow consideration of the dividends or other shareholder value that may accrue to them over time from their NATS shares. While air traffic control charges are not a large proportion of airline costs (on

average about 5%, although this varies by type of airline, aircraft and distances flown), the performance of NATS in respect of safety, service quality, capacity enhancement and cost effectiveness is likely to have significant knock-on effects for airlines' service to their passengers and ultimately, therefore, for their profitability.

- 4.7 So the question arises as to how far AG can be relied upon as a proxy for the interests of users as a whole. Where it can be, the greater the case for the regulator relying on the inherent incentive properties flowing from ownership and control in preference to regulatory incentives.
- 4.8 As a general observation, the constituent members of AG appear reasonably representative of the airline industry that NATS serves (or at least the UK element of it). The seven members constitute three full service carriers, one no-frills carrier and three charter airlines. This should mean that different cost/quality trade-offs, or other considerations, which may apply to different parts of the airline industry should be effectively represented by AG members. The mixed composition of the AG group would therefore give some initial confidence that NATS' priorities should reflect the interests of the airline industry in the widest sense.
- 4.9 AG members currently account for almost 30% of NATS en-route Eurocontrol revenues (see table in Appendix 1, 29.8% in 2002-03). With one exception, the shareholding of AG members outweighs their share of NATS user demand (and therefore the extent to which they contribute to NATS revenues through their Eurocontrol charges). This reflects NATS' extremely diversified customer base.
- 4.10 For a given percentage increase in NERL Eurocontrol charges, an AG member will pay a share of the implied increase in revenue that corresponds to its share of user demand, but – assuming this increase translates into incremental NATS earnings and is fully passed through to shareholders – it will recoup a share (corresponding to its shareholding in NATS) of the increased revenue through dividends on a pre-tax basis. For some members this could in principle outweigh what they had themselves paid.
- 4.11 However, such narrow financial calculations capture only one dimension of how AG members' interests interact with their role as NATS shareholders. They do not take into account many non-price, service quality and other strategic benefits that AG members may reasonably expect from their stake in NATS. On balance, the impact of NATS on the businesses of the AG companies is probably much more important to AG members than the financial performance of NATS per se.¹⁵
- 4.12 A particularly important dimension is how the service quality that NATS produces is affected by the interests of AG members, as user airlines on the one hand and as NATS shareholders on the other. Although NATS is required by its licence to meet all reasonable demand, in the short term NATS' own performance drives the service quality (e.g. the extent of delays) associated with meeting that demand. Longer-term, NATS' success in making available new capacity drives future service quality.
- 4.13 Where NATS, strategically managed by AG, positions itself on the trade-offs associated with incurring more cost to provide better service is an important question. Since the marginal costs of delay to airlines are not fully reflected in NATS' revenues, delays are an external cost passed on by NATS to airlines. If NATS were purely profit-maximising, there may be grounds therefore for expecting

¹⁵ For example, the cost of NATS attributable delays to airlines (excluding effects on passengers) is estimated at £111 million for the year 2003 (a good year in comparison with other recent years). See the report done for Eurocontrol by the Transport Studies Group of the University of Westminster, February 2004.

NATS to under-deliver on service quality relative to the quality for which users would be prepared to pay.

- 4.14 A regulatory solution to this problem might be fully to align NATS' and user interests though NERL's incentives to minimise delays. This however could lead to difficulties since it could disproportionately change the business risk to which NATS is exposed. But AG's involvement in NATS may, other things being equal, mean that there is a degree of effective internalisation of these costs, which should affect the way in which NATS behaves. On this reasoning, the AG shareholding could be an effective surrogate for internalising delay costs across the airline industry as long as the weighted average delay cost of AG members is similar to the airline industry average (although such comparisons could disguise differences in marginal delay costs driven by different business models or sectoral focus).
- 4.15 So, relative to the possible alternative of a controlling shareholder with no clear user orientation, AG's management responsibilities control should give grounds for thinking that NATS will be better incentivised to explore cost/quality trade-offs in a way that reflects users' concerns. However, such considerations need to be balanced against more practical issues. For example, other shareholders, BAA, the government and employees may also exercise a crucial influence on NATS' strategies and behaviour, perhaps in longer-term decisions taken by the Board, rather than day-to-day, or through more informal channels of influence. It may also be premature to assume that AG always acts as a coherent, integrated grouping within NATS. As with any joint venture arrangement, there may be commercial tensions between the constituent partners that affect the coherence of the joint venture and, therefore indirectly its ability to shape decisions taken by NATS' management.
- 4.16 Against this background, CAA's initial view is that while AG's management responsibilities is a factor that, independently of regulation, has positive implications for the potential performance of NATS, there are also reasons to think that these could continue to be buttressed by appropriate regulatory incentives, the design and nature of which would nevertheless need to take account of NATS' unique circumstances. Regulation needs also to ensure that non-AG users interests are – and are seen to be – effectively represented.

Taking Account of non-Airline Group Users

- 4.17 Over 70% of NATS' Eurocontrol revenues are derived from airline users not directly represented in the NATS ownership structure. They are entitled to ask how their interests are protected if a group of competing airlines effectively control a natural monopoly service essential to their business. These concerns are recognised in the design of the Strategic Partnership Agreement between the Crown and AG, which built on and extended non-discrimination requirements already placed on the NATS regulated business through the NERL licence. Both NERL and AG are bound not:

“to unduly prefer or discriminate against any person or class of persons in respect of the operations of the Licensee's systems, after taking into account the need to maintain the most expeditious flow of air traffic as a whole without unreasonably delaying or delaying individual aircraft....”¹⁶

- 4.18 Furthermore, both NERL and AG are bound not:

¹⁶ Condition 2.7 of NERL's licence. A very similar condition applies directly to AG and BAA through the Strategic Partnership Agreement signed with the Crown.

“ to unduly discriminate against or give preferential treatment to any person or class of persons in respect of the terms on which services are provided, to the extent that such terms have or are intended to have, or are likely to have, the effect of preventing, restricting or distorting competition in the market;”¹⁷

- 4.19 These are part of a raft of regulatory provisions designed to oblige NATS and AG to give equal treatment to all users through non-discrimination; confidentiality restrictions designed to limit AG member companies commercially benefiting from the insider perspective of NATS; and user consultation, implicitly recognising that non-AG users will inevitably be at an information disadvantage if NATS and AG are not open, transparent and consultative on NATS business plans.
- 4.20 It is unclear to what extent there is significant scope for NATS to discriminate between users of its regulated businesses, even if it was inclined to do so. The charging structure, for example, is heavily constrained by Eurocontrol principles, so limiting NATS’ freedom of action. At an operational level, there is arguably a degree of transparency – indeed visibility – in the nature of the service that NATS provides that would make any systematic discrimination difficult to sustain.
- 4.21 There may be more potential for discrimination at the strategic level, for instance in determining investment planning and priorities (and the scale of investment commitments) and in longer-term policy development where NATS could promote the interests of some types of users rather than others, in a way that could be perceived as owing to AG’s privileged access.
- 4.22 However, even at this level, AG is likely to be constrained. As discussed in paragraph 4.5, the other shareholders, notably the government, can influence Board decisions (and in some cases have veto rights), while non-AG user interests are indirectly represented through an IATA seat on the Board. Furthermore, that AG is itself a coalition of airlines with disparate interests (some allied to the interests of non-AG users) that happens to be representative of the key market segments of full service, low cost and charter helps with concerns that this form of vertical integration will operate to the disadvantage of non-AG airlines.
- 4.23 Nevertheless, as regulator the CAA continues to be mindful of these issues, particularly as these arrangements bed down after the initial turbulence of the early PPP years. For this reason, the CAA is fully supportive of transparency to – and dialogue with – users on capital expenditure plans (as discussed in the later chapter).

The CAA welcomes views on the commercial and regulatory implications of AG’s strategic management responsibilities for NATS. What should be the role of incentive regulation given the degree of NATS’ vertical integration in the airline industry value chain? The CAA also welcomes views on the extent to which AG’s position raises discrimination concerns that should be addressed in the regulation of NATS, what these concerns might be and how they might reasonably be dealt with.

¹⁷ Condition 2.8 of NERL’s licence, which is again echoed in the obligations placed on AG and BAA in the Strategic Partnership Agreement. In addition, the possibility that non-AG users may suffer from being outside the NATS structure is recognised in a further clause in the Strategic Partnership Agreement: “ Information in respect of the en-route business of the Regulated Affiliate (being information the disclosure of which may confer a competitive advantage) will be disclosed to the Shareholders of the Strategic Partner solely for the purpose of the normal business management of the Strategic Partner and in any event subject to each such shareholder undertaking (a) to use such information only for such purpose and (b) not to use such information in a manner which may obtain for it or members of its Wider Group a competitive advantage”.

Implications of Gearing

- 4.24 The Composite Solution improved the gearing position of NERL through the infusion of £130 million of new investment, including £65 million of new equity. NERL's resulting gearing (as measured by the net debt to regulatory asset base ratio) was 86%. According to Standard & Poor's, its gearing is expected to decline over time.¹⁸ But NERL is still highly geared by most normal company standards.¹⁹
- 4.25 NERL is responsible for ensuring its financial robustness, and therefore for managing the implications of its gearing. The regulatory reporting requirements in Condition 5 of NERL's licence acknowledge this through the reasonable endeavours requirement to maintain an investment grade rating. The reporting requirements also provide for reporting to CAA in the event of defined trigger events. More fundamentally, the basis of the Composite Solution was a clear understanding that the refinancing and the exceptional user contribution, allied to some "de-risking" of the business through the reallocation of volume risk, provided for a financial solution that was robust enough for NATS to withstand a range of adverse business shocks.²⁰
- 4.26 Some of the most important users of NERL's services are also its controlling shareholders. While most AG members have an interest in low NATS charges (for a given level of service), they will – in considering the level of gearing – have an interest in the financial stability of NATS.
- 4.27 The CAA acknowledges that high gearing has implications for the regulatory incentives it places on NERL. At the same time, the company's future gearing decisions will be influenced by the regulator's decisions, including any decisions on incentives. So there is a potentially complex interaction between gearing and incentives, which places a responsibility on the CAA carefully to design the incentive structures it proposes.
- 4.28 In practice this means that proposed changes to incentives should be assessed in terms of how any risk reallocation affects NERL's cost of capital, in the context of placing the risk concerned where it can be most effectively managed. In general, a regulatory settlement that attaches greater weight to incentives in determining NERL's overall performance may be associated with a higher regulatory cost of capital. This, in turn, would lead to higher prices than would otherwise apply. To give an idea of scale, a +/-1% change in NERL's regulatory cost of capital for the UKATS business might broadly be expected to result in a +/- 1.5% change in Eurocontrol prices each year of CP2. However, each incentive must be assessed on its own merits in order to determine if the implied risk reallocation is appropriate. Some incentives may actually reduce NERL's regulatory cost of capital, while others may be justified by a more than offsetting reduction in risk to users.
- 4.29 How this plays out in practice is complex. Success in delivering a good settlement will depend on the CAA developing a good understanding of NATS' own incentives, since in dealing with a highly geared business the range of likely management responses to regulatory incentives is possibly wider than in the case of a more typically levered business. Moreover, the nature of the management response is itself a complex function of the input from other stakeholders, notably the board,

¹⁸ S&P Report on NERL, July 2003.

¹⁹ CAA notes that a full understanding of NERL's financial position must include an assessment of NERL's position in the corporate structure of NATS. NERL is 100% owned by National Air Traffic Services Limited (which carries additional debt of £105 million), which in turn is owned 100% by NATS Holdings Limited.

²⁰ NATS, the Crown and AG each provided written statements confirming that they considered that the Composite Solution provided for financial robustness sufficient to justify the exceptional user contribution.

which largely represents shareholders, and bondholders, who are the predominant source of finance underpinning the business.

- 4.30 There may be other concerns arising from a highly geared NATS that are of relevance to users. For example, some argue that such companies have less ability efficiently to deliver investment programmes and that the conservative influence of bondholders gives management less interest in responding to efficiency incentives. Again, AG may mitigate some of these concerns in this case. The CAA does not propose to explore these issues further here. But users may want to consider these issues as part of taking an overall view on how they would like NATS to develop to best serve their interests.

The CAA welcomes views on the extent to which NERL's high gearing should affect the CAA's implementation of incentives. Does the high gearing suggest that the regulator should focus on any particular concerns?

5. Scope of the price control

- 5.1 This chapter considers the scope of the control, i.e. which functions of NATS should be subject to direct price regulation. The CAA has initially considered this question for each business by reference to the degree of competition for different NATS' services.
- 5.2 It goes on to consider whether the price control – however defined – should be set using:
- a single till approach, where the costs of the whole business (both price and non-price controlled) are projected, less a projection of the revenues of the non-price controlled business; or
 - an approach based on an assessment of the costs directly attributable to the price controlled business together with an allocation of joint costs.

Scope of the Control

- 5.3 NATS is composed of a number of different businesses, built around two core operational units, the licensed business (NERL) and the unregulated business (NSL). Based on financial year 2002/3, it has price-regulated revenue of £407 million, earned within the constraints set by two separate price caps covering two separate tills, for Eurocontrol (£389 million) and Oceanic (£19 million). It also has non-price regulated revenue of £152 million, divided between £66 million of NERL earnings (Terminal Approach, North Sea Helicopters, MoD and Other business)²¹ and £86 million of NSL earnings.²²
- 5.4 A fuller description of the regulatory characteristics of the different business segments is set out in the table overleaf:

Description of NATS' Businesses

NATS Entity	Business	Turnover 2002/3 (£m)	CP1 Regulatory Status
NERL	Eurocontrol	389	Licensed Core Service, exclusivity to NERL. Subject to price control.
NERL	Oceanic	19	Licensed Core Service, exclusivity to NERL. Subject to a separate price control.
NERL	Terminal Approach	8	Licensed Core Service, exclusivity to NERL. Not price-controlled. Prices nominally subject to demonstration of consultation with users (NERL Licence Condition 23), but are exempt where specified in or ascertainable from pre-existing contracts.
NERL	North Sea Helicopters	5	Licensed Specified Service, no exclusivity. Not price-controlled. Subject only to consultation requirement (licence condition 23).
NERL	Ministry Of Defence	44	Permitted by licence, NERL has no exclusivity. Price is subject to a contract between MOD and NATS. Contract renewal discussions are in process.
NERL	Other Services	9	Other service income is unlicensed. (Services include Incidental services and by-products of the main Eurocontrol service e.g. site sharing, onward routed radar data).
NSL	Airports	86	Exemption, together with other 3 rd parties, from Transport Act requirement for all air traffic services to be licensed. Exempt for at least 10 years.

²¹ North Sea Helicopters and Terminal Approach set prices subject to a consultation requirement with users (Licence Condition 23), but are not price-regulated as such.

²² NERL turnover numbers are based on NERL Regulatory Accounts for 2002/3. NSL turnover is based on the NSL statutory accounts.

- 5.5 Both NERL's Eurocontrol and Oceanic businesses are subject to a price control and are not contestable. The Eurocontrol business is not contestable until 2011, as set out in the licence. It is conceivable to envisage several alternative service providers for the Oceanic business, such as the Irish air traffic service provider, but for the present the International Civil Aviation Organisation (ICAO) delegates the services to NATS.
- 5.6 Of the remaining businesses, Terminal Approach is neither price-regulated nor open to competition. In fact, the terms on which NERL provides Terminal Approach to airline users are constrained by the terms of contract between NATS and BAA. However, this contract comes to an end in 2008. There would appear, therefore, to be a case either for a separate price cap for Terminal Approach, or for bringing it within the scope of the price cap that applies to NERL's Eurocontrol business. This could occur either from 1 January 2006 or from the date in 2008 on which the current contract between NATS and BAA expires.
- 5.7 The MoD and North Sea Helicopters arrangements are legally contestable and are not currently price controlled. The oil companies which are customers for the North Sea Helicopters business could manage their air traffic services through self-provision, or through services from adjacent airports or perhaps the Ministry of Defence (in a role of air traffic control services provider, as opposed to receiver). As such they have alternatives to NATS. The MoD also claims to have alternatives to NATS for the services it receives. The customers concerned in these two cases do not seek regulatory protection and this is obviously a major consideration in considering their regulatory status.

The CAA invites views on whether the boundaries of the NERL business are appropriately drawn for regulatory purposes as they currently stand (i.e. with Eurocontrol and Oceanic subject to a price control and the rest not price-controlled). If not, how should they be redrawn? For example, should they incorporate NERL's Terminal Approach business?

Approach to Setting the Price Control

- 5.8 Besides the question of the scope of the price control, there is the issue of how the price control should be set in circumstances where a proportion of NERL's business warrants direct price control, but the remainder does not. As noted above, there are two broad approaches that can be adopted: a single till approach or a cost-based approach.

Single Till Approach

- 5.9 In CP1 the approach taken by the CAA, with the exception of Oceanic (which has its own price control), was to put all remaining NERL costs into one till for the purposes of determining the revenue requirement (and therefore the price cap) for the Eurocontrol business. This means that in setting the price control in CP1, revenues earned by NERL from other (non-Eurocontrol) sources were subtracted to arrive at the amount that NATS needed to earn in total to recover its costs as well as a return on capital from running its Eurocontrol business.
- 5.10 The single till approach masks an implicit transfer of risk. Users of NERL's Eurocontrol service ultimately finance, through the price cap, whatever the projected revenue requirement is, taking into account the projected profit/loss on other UK air traffic control services activities. This means users are exposed in the long term to the success or failure of NATS at managing their business in other areas of UKATS

that have nothing directly to do with meeting their requirements. This may be material, particularly in relation to the MoD services.

- 5.11 It should be noted that the effects of the implicit risk transfer are mitigated by the ability to reset the price cap every five years, so that projected positions can be reconciled with outturns. However, the largest element of NATS' non-Eurocontrol UKATS business (its Ministry of Defence contract) is typically based on long-term contracts. If NATS entered into a long-term contract which over time were to lose money, it would have less incentive to try to restructure the contract than one would expect since, through the single till, the contract loss would be added to the UKATS revenue requirement, leading to a higher Eurocontrol price cap for users.

Cost-based Approach

- 5.12 The alternative to a single till is separation of cost and revenues. In other words, under this approach the regulator bases allowed revenue on an allocation of costs to the price controlled business.
- 5.13 Where a price control is set as the basis of a cost allocation, this risk transfer does not take place. Moreover, to the extent that costs may be directly attributed to the price-controlled and non-price controlled businesses of NERL, this exercise is straightforward.
- 5.14 However, to the extent that price controlled and non-price controlled businesses share the same cost base, the exercise becomes more complex and relies on the adoption of a convention or rule to apportion joint costs appropriately, e.g. in proportion to directly attributed costs.²³
- 5.15 Assuming such a cost allocation can be completed satisfactorily, there would still be a regulatory challenge to develop and maintain the robustness of the separation and install adequate ring-fencing around the price controlled business ensuring, for example, that costs were properly allocated to the MoD services and were not transferred into the price controlled business. Against this background, the boundary between the price controlled and non-price controlled businesses only functions effectively if there is a robust cost allocation and if the boundary can be effectively enforced.
- 5.16 Whatever the regulatory approach adopted, the CAA recognises the significant benefits that flow to users from the fact that NATS has another important client for many of the radar investments that it makes. Providing NATS is at least receiving from the MoD its avoidable costs of serving them, the contract saves users' money.

On the basis that the price control will continue to apply only to a proportion of NERL's UK air traffic control business, the CAA would welcome views on the approach taken to setting the price control. Should the CAA continue to adopt a "single till" approach, where projected non-regulated revenues are deducted from the whole, or should the CAA set allowed revenues based on an allocation of costs to the price controlled business?

²³ The CAA recognises that a cost allocation is performed as a basis for the negotiations of the MoD contract. The CAA has already begun work to examine the cost allocations between NERL's businesses that will further inform these discussions.

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6. Design of the Price Control

- 6.1 Any price control imposed on a monopoly will provide the business with financial incentives that encourage or discourage the right level of growth, investment, cost reduction and service quality. Charged with furthering the interests of users, the regulator should seek to ensure that – through proportionate regulation – those incentives are balanced so as to work in the best interests of users over time.
- 6.2 This chapter considers the future design of the NERL price controls, and the incentives they create. After describing the characteristics of the current controls, it considers:
- the form of the control - whether it is incentive based or cost-pass through;
 - the duration of the control - how long it lasts before the CAA resets it; and
 - the structure of control - what determines the level of maximum allowed revenue in any given period.
- 6.3 It is important to make clear that the structure of the control is quite distinct from the structure of NATS charges. The former dictates how the maximum allowed revenues that apply to NERL's price controlled businesses are determined. The latter dictates the basis of the charges (e.g. per flight or per CSU) that individual users pay.
- 6.4 The particular structure of NERL's Eurocontrol charges is constrained by EUROCONTROL, which requires NATS to charge airlines wholly on the basis of CSUs. However, subject to an overarching non-discrimination condition, NATS has freedom to choose how it charges airlines for Oceanic services.

Current controls

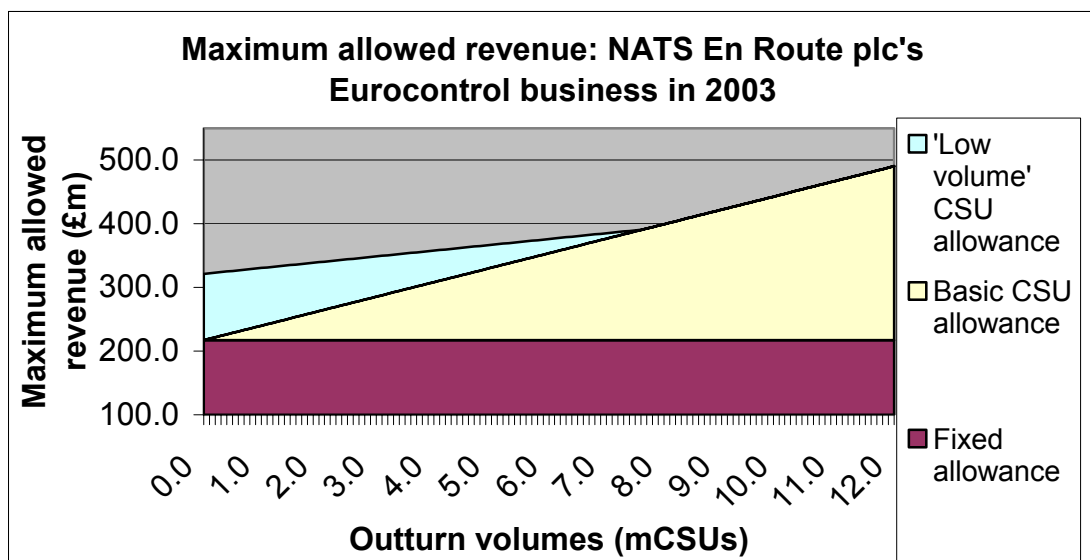
- 6.5 Both the Eurocontrol and Oceanic price controls take the form of a cap on the maximum allowed revenue that may be recovered. The caps are defined in terms of annual limits on the maximum allowed revenue, although – strictly speaking – they are not annual limits as any shortfall (or 'under recovery') in outturn revenues compared with maximum allowed revenues may be added to the following year's allowed revenue, and any 'over recovery' is deducted from future revenues.²⁴ The annual caps are progressively tightened according to an RPI-X formula. This means that the determinants of maximum allowed revenues are increased by the annual change in the Retail Price Index less an X factor. In the case of NERL's Eurocontrol business, X equals 2%. Thus, the determinants of allowed revenue are permitted to increase by RPI-2%. The price control – including the determinants of maximum allowed revenue – are reviewed every five years.
- 6.6 The maximum allowed revenues in any given year are driven by reference to specific determinants. In the case of Eurocontrol, maximum allowed revenues are calculated by reference to:
- a fixed amount of revenue (in 2003, this was £217.2m);

²⁴ Where NERL under-recovers, allowed revenues are increased in the following year by the shortfall plus interest. However, the allowed rate of interest is set at a relatively low level to discourage NERL from under-recovering against its price control. Equally, where NERL over-recovers, allowed revenues are reduced in the following year by the amount of the over-recovery plus interest. In this case the interest added is relatively high, again to give NERL an incentive not to over-recover. The combined effect of these interest rates is intended to encourage NERL, through accurate forecasting, to set charges at the cap, and thus reduce the likelihood of price fluctuations from one year to the next.

- an allowance per CSU supplied (in 2003, this was £22.77 per CSU);
- a supplementary 'low volume' revenue allowance. This takes effect if outturn CSUs are less than a predetermined threshold which is set at 80% of forecast CSUs at the time of the review. (In 2003, the allowance was £13.66 for every CSU below 7.629mCSU); and
- a small amount (which could be positive or negative) related to the performance of NERL as measured by CFMU delay data.

6.7 In 2003, NERL's Eurocontrol business maximum allowed revenue was £417m. This comprised the fixed revenue allowance of £217m (or 52% of allowed revenues) plus a CSU-related allowance of £199m (i.e. £22.77 x 8.732m CSU, or 48% of allowed revenues). As outturn volumes (8.732m CSU) exceeded the threshold at which the low volume supplement would have taken effect (7.629m CSU), NERL did not qualify for any supplementary low volume allowance. The service quality factor represented just over £1m (8.732m CSUs x out-performance of 0.45 minutes x £0.27).

6.8 The following diagram shows how NATS maximum allowed revenues in 2003 would have varied depending on outturn volumes.



Source: CAA analysis

6.9 In the case of Oceanic, the charge control is based on a simple limit to the charge per flight subject to a cap on annual increases of RPI-2%. The charges and the formula apply to NATS' financial year (i.e. year ending March 31). Both the maximum permissible and actual charge for 2003/2004 is £55.27.

Form of control

6.10 There are traditionally two approaches to setting a price control: a price cap; or a cost pass through. In summary:

- a price cap sets the maximum charge without reference to the actual costs or volumes for an extended period. In its pure form the price cap is not set with reference to the company's own costs but on industry yardsticks.

- a cost pass through, on the other hand, sets charges based on the regulated firm's actual costs. In its most extreme form the revenues are adjusted ex post so that the revenues exactly equal costs. (This is the approach currently used by all the other states in Eurocontrol other than the UK.)
- 6.11 Most forms of price control are a hybrid of these two. In the case of NERL, the basic structure is a price control that increases by RPI-X during the five year period for which it is set. When the cap is reset, however, it is done with reference to NERL's own costs. Moreover, the capital expenditure is passed through to users at least in present value terms.
- 6.12 In view of the RPS - and on the basis of the assumption that the AG incentives do not remove the need for a price control - the CAA proposes to retain an RPI-X approach.
- 6.13 One aspect of the form of control is whether the present arrangements for dealing with an over - or under-recovery against allowed revenues - as described in paragraph 6.5 - operates in users' best interests. In November 2002, NATS significantly over-estimated 2003 CSU volumes. As a result, it set prices around 5% lower than was necessary to recover its maximum allowed revenue. Under the price control mechanism, NATS is entitled to recover this shortfall in 2004, and set prices accordingly. As a result, users have seen a 10% increase in charges from 2004.
- 6.14 Two possible ways of reducing the volatility of pricing associated with the current correction mechanism are:
- to limit the extent to which NERL can recover a shortfall in any one year; and
 - to set the price control so that maximum allowed revenues are calculated using historical CSU volumes (e.g. the previous year's CSU volumes), although this might require a one-off adjustment to compensate either NERL or users for the effect of switching from the current approach to a new one.
- 6.15 Alternatively, or in addition, there may be scope for enhancing the financial incentive on NATS to improve its forecasting. One way of achieving this might be to reduce further the interest NERL is permitted to add in recovering shortfalls against maximum allowed revenues, and increase the interest NERL effectively pays to users on any over-recovery. CAA, however, recognises that the benefit of doing so would depend on a judgement as to likelihood of NERL being able to respond to such an incentive, e.g. through the use of improved volume forecasting techniques.

The CAA would welcome confirmation from interested parties that it should continue to regulate NERL through an RPI-X approach. It would also welcome comments on whether the correction factor operates in users' best interests, including whether the CAA should give thought to amending the mechanism to avoid sharp variations in the Eurocontrol charge.

Duration of control

- 6.16 The longer the duration of a price control the stronger the efficiency incentives implied by the price cap. However, the downside of a longer duration is the greater lag before users benefit from efficiency gains. In addition, the quality of information and projections on which price controls are typically based tends to deteriorate the further out it is. The ideal duration therefore depends on a trade-off between these

various effects. Most UK economic regulators set price caps for a duration of about four to five years.

6.17 Particular circumstances associated with the NATS Eurocontrol business suggest retaining the five year duration in this review:

- CAA only last year announced that operating expenditure savings could be retained for five years. It could be premature to change this before there is a chance to observe how well it works;
- limited experience with NATS post-PPP is likely to accentuate difficulties in taking a forward view that extends beyond five years; and
- in the case of NERL's Eurocontrol business there is a constraint to setting a price cap for longer than five years as that is the maximum period permitted by the Eurocontrol 'charging principles'.²⁵

6.18 One option might be to synchronise the Eurocontrol and Oceanic conditions. However, in practice the CAA can see no appreciable benefit to shifting the Oceanic charge while NATS Holdings Ltd continues to adopt a financial reporting year ending 31 March. This may however change if NATS Holdings Ltd were ever to bring its financial year in line with the calendar year charging year required by Eurocontrol.

6.19 In summary the CAA proposes to retain five year controls for both the Eurocontrol and Oceanic businesses. This maximises the incentive effects, within the constraints imposed by Eurocontrol.

The CAA welcomes views on the retention of a five-year price control period for both the Eurocontrol and the Oceanic price controls.

Structure of Control

6.20 Ideally, the CAA would wish to see NERL adopt a pricing structure that reflects its forward-looking efficient costs. This would mean individual users of NATS paying charges that reflect the costs they impose on NATS. However, for so long as the restrictions placed on NERL's charging structure by Eurocontrol continue, such cost-reflective charges will remain an ideal. And nothing in this review will alter that.

6.21 Nevertheless, it is open to the CAA – as part of this review – to review and reset the basis on which NATS' maximum allowed revenue is calculated. In doing so, it is open to the CAA to set the determinants of maximum allowed revenue in a way that better reflects the costs incurred. In this way, movements in future revenues can be expected to track movements in future costs more closely. This should remove the – largely unnecessary – risk created by capping revenues in advance at levels that may, in the event, turn out to be significantly higher or lower than costs. As noted above, this issue is not about the structure of charges, but about setting the determinants of allowed revenue over the period of the control.

Some principles

6.22 In deciding how allowed revenue should be determined, the key principle is that allowed revenues should – as far as possible – move with changes in costs over the relevant period. In other words, as far as practicable, the structure of allowed

²⁵ Principles for Establishing the Cost-Base for Route Facility Charges and the Calculation of the Unit Rates – Doc No 99.60.01/1 paragraph 1.10 (i)

revenues should map on to the structure of costs. This is partly to ensure that – under a wide range of circumstances – allowed revenues match costs. It is also partly to ensure that the incremental benefit from increasing output (however defined) exceeds the incremental costs.

- 6.23 In practice, of course, there are practical constraints on the CAA’s ability to determine structure. In particular, the CAA will need to take into account the reliability of the cost data. Equally, it will be important to ensure that any determinant of allowed revenue can be forecast, and measured, with reasonable accuracy, and the reported amount cannot be unduly influenced, or ‘gamed’, by the company.

Potential determinants of allowed revenue

- 6.24 The structure of costs is highly complex, and – at the limit – impossible to determine objectively. Indeed, even if it were possible to determine with confidence the precise cost structure of NERL, in all probability it would be impractical to seek to replicate all of the variations and nuances in determining allowed revenues. However, it may be possible, and desirable, to seek to establish the main cost drivers that underlie NERL’s Eurocontrol business, and to set a revenue constraint tied to those cost drivers.
- 6.25 Against this background, CAA intends to consider carefully what drives NERL’s Eurocontrol’s business costs. Amongst other potential drivers, the CAA would expect to consider available evidence as to the extent to which NATS costs are:
- fixed;
 - driven by the number of CSUs supplied;
 - driven by the total distance travelled by aircraft; and
 - driven by the complexity of the airspace through which the aircraft has travelled.
- 6.26 In particular, the CAA will seek to review the available evidence as to how NATS costs vary with incremental changes in these factors – and possibly other key parameters – over different periods of time.
- 6.27 A recent study for the European Commission by the Regulatory Policy Institute²⁶ considered the costs of air traffic service provision, and therefore provides a useful reference, and starting point, for such a review. Part of the analysis from this study suggested that, across member states, there might be two major, long-run cost-drivers that could account for most of the observed variations in en-route costs per CSU: total kilometres controlled, and the number of departures and arrivals in the relevant airspace (effectively a proxy for complexity).
- 6.28 The CAA will also consider the alternative drivers of the Oceanic En Route business. However, in the case of this business – which has less variation in the complexity of airspace – the need for a modification to the current structure of control is less obvious.
- 6.29 In reviewing the structure of the control, the CAA will have regard to the factors affecting the treatment of volume risk set out in the CAA’s RPS in March 2003.

²⁶ “Study on the implementation rules of economic regulation within the framework of the implementation of the single european sky”, Regulatory Policy Institute, October 2003

The CAA would welcome views on the structure of the control to be applied to NERL's Eurocontrol business. Should the drivers, or determinants, of allowed revenue reflect NERL's cost structure? If so, are the current drivers sufficiently cost reflective? If not, what changes to the weighting between drivers, or to the drivers themselves, should the CAA consider?

7. Service Quality

- 7.1 This chapter seeks views on whether NERL provides the right level of service and how NERL should be incentivised to provide better service. It also considers recent moves by NATS to consider, in the medium term, how to improve the clarity of its service offering, referred to by NATS as its ATM Strategy Review.

Licence Requirements

- 7.2 NERL is required by its licence to make available four core services:
- UK En Route air traffic control service;
 - Oceanic En Route air traffic control service;
 - Advisory Control Service; and
 - Terminal Approach service.
- 7.3 In each case, it is required to be capable of meeting on a continuing basis any reasonable level of overall demand. In addition, NERL is required to provide a number of specified services (e.g. the North Sea Helicopter Advisory Service).
- 7.4 For UK En Route and Oceanic En Route core services – which are currently price controlled – the licence defines ‘air traffic control services’ as the giving of instructions or advice to aircraft for the purpose of preventing, or assisting in the prevention of, collisions between aircraft, and managing the flow of air traffic for the purpose of expediting and maintaining an orderly flow of air traffic.
- 7.5 There is also a small financial incentive to minimise the average length of delays to aircraft (measured in minutes) that are caused by NERL. NERL’s allowed revenues are unaffected if outturn average delays match a ‘par value’ (1.2 minutes per flight in 2002). However, for every minute average delays caused by NATS exceed the par value, its allowed revenues are reduced by 59p per CSU (around £5m a year) up to a maximum reduction of £1 per CSU (around £10m a year). The permitted increase in allowed revenues is calculated as 27p for every minute average delays are below the par value (or around £2.5m).
- 7.6 Apart from these requirements, precisely how NERL should provide core air traffic control services – and to what standard – is not stipulated in the licence.

Current Functions

- 7.7 Against this background, NERL’s most important output is handling aircraft safety. Subject to that overriding consideration, NERL may be considered to carry out two distinct tasks. In the short term – anything up to 2 to 3 years – NERL has the task of managing the flow of traffic efficiently for a given level of capacity. In the longer term – say 2 to 3 years and beyond – NERL has the task of providing sufficient airspace capacity.

Shorter-term operations

- 7.8 NERL currently operates in an environment where it has little control over the volumes or patterns of traffic presented. As noted above, it is obliged to provide on a continuing basis any reasonable level of overall demand for en route services. It also has no control over its structure of charges (i.e. what it charges to individual

users), as this is prescribed by a multilateral agreement administered by Eurocontrol.

7.9 Users – on the other hand – have a high degree of commercial freedom. In particular, in making use of the en route service, they have:

- scheduling freedoms - the ability to schedule operations without consideration for the consequent impact on airspace capacity, i.e. there is no requirement to specify schedules precisely or adhere to them; and
- operating freedoms - the ability to submit a flight plan on the day at short notice (2 hours), with the flexibility subsequently to vary times, routes, levels and speeds against the plan.

7.10 NERL also has to manage the variability of demand arising from the operation of the airlines themselves, airports, other Air Navigation Service Providers and the weather. The combination of these factors – and the freedoms described above – inevitably leads to bunching of aircraft in certain areas of airspace at certain times, and associated delays.

7.11 Where bottlenecks can be predicted at least two hours in advance, it is open to NERL to request a ‘regulation’ to limit flow rates from the CFMU. Any resulting delay is attributed (by CFMU) to the most constricting area of airspace for each flight, which provides the delay data used in the service quality term described above. However, the CFMU sets the “queuing” discipline for flights subject to delay. This is currently that flights are given slots in the order that they would have passed through the most constraining piece of airspace (“first planned, first served”). The scope for NERL unilaterally to adopt different priorities is therefore limited.

Longer-term considerations

7.12 NATS has argued that the key short-term constraint on air traffic control capacity is the number and definition of airspace sectors. According to NATS, re-sectorisation, or reconfiguring sectors of airspace to create more capacity is a time-consuming process which can last anything up to 2 to 3 years. This is not only because of the necessary changes to and testing of new procedures and software, but also because each active Air Traffic Controller (ATCO) is required to be specially trained, (or ‘validated’), in the operation of a given sector.

7.13 On this basis, there is scope for a mismatch if demand should change more rapidly than NATS can reconfigure capacity. It follows that NATS has to take a view on future patterns and volumes of traffic sufficiently far in advance to plan ATCO staffing (and training) or to improve the airspace structure. But once it is within the lead-time for major change, the extent to which it can adapt to changing demand is very much constrained.

Relationship between short and long term issues

7.14 It should be noted that there is a very close relationship between the pattern of traffic, the level of traffic, capacity and delay. For example, for a given pattern of traffic and fixed capacity, the level of delay is very sensitive to the level of traffic. In other words, as the level of traffic approaches the short term (or fixed) capacity of the system, then delays can be expected to rise dramatically.

7.15 One implication of this is that in the short term a reduction in volumes might help prevent an increase in delays. Put another way, the downside normally associated

with a reduction in volumes may be offset to a small extent by better performance against the delay incentive than would otherwise have been the case.

7.16 Looking longer term, the relationship between traffic (patterns and levels), capacity and delays implies that investing in extra capacity may help to prevent future delays. The corollary is that expressing an intention to maintain the current incentive to reduce delays may provide NATS with an incentive to build such a cushion into their capacity plans, although if the delay incentive remains at or near today's levels it is unlikely to enhance materially the incentive to invest in new capacity.

Performance

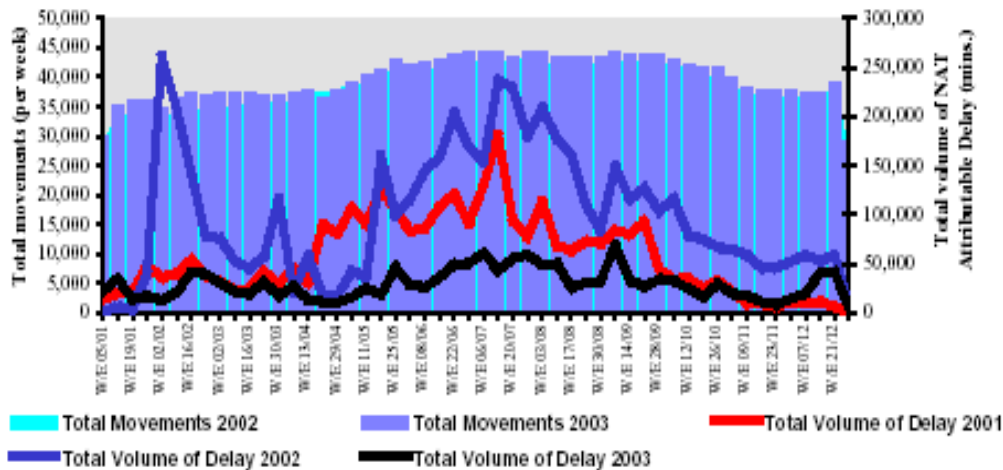
7.17 As discussed above there are a number of ways in which NATS' performance can be measured. In terms of flow management, the principal measures are:

- delay attributable to NATS by the CFMU;
- capacity – as measured by the number of movements per sector per time period that can be handled (for a given number and definition of sectors); and
- capacity – as measured by the number of ATCOs

7.18 NATS' recent performance on delays is shown in the chart below. This shows that NATS performance on delays has improved in 2003 relative to 2001 and 2002.

NATS OPERATIONAL PERFORMANCE REPORT: DECEMBER 2003

NATS Attributable Delays



7.19 NATS' performance in relation to capacity provision is harder to show in graphical form. This is principally because the number of possible measures of capacity means that it cannot easily be captured through one-dimensional reporting.

NATS' ATM Strategy

7.20 Just over a year ago, NATS initiated a project to understand more clearly the deal that it offered to users. This ATM Strategy review was partly inspired by the lack of clarity over what it was precisely responsible for providing, and partly because

NATS' performance had attracted what NATS regarded as unfair criticism, e.g. blaming NATS for delays resulting from queuing that – in its view – were outside NATS' control.

7.21 The work suggests that there are broadly three alternative approaches that the CAA could take towards the provision of NATS services in setting a revised price control:

- continue to hold NATS to account for delays that are attributed to it by the CFMU – this would align NATS incentives with those of users by directly linking NATS revenues to the quality of service experienced by users;
- require NATS to produce a capacity plan for users, and stick to it – under this approach NATS performance would then be measured on the extent to which it subsequently conformed to the capacity stipulated in the plan; or
- some combination of the above.

7.22 Continuing to regard NATS as responsible for delays has the advantage that delays represent an output that correspond to users' experience. The CFMU data also provides a statistical basis for an incentive. Moreover, if a long term commitment could be made, incentives based on delays could in themselves encourage NATS to create the requisite amount of capacity. On the other hand, NATS' ability to control delays is limited owing to a number of factors:

- variations in traffic volumes giving rise to 'queuing' which are outside NATS control;
- the limitations of the measurement systems;
- interactions with other service providers and the CFMU; and
- a five year price control period is short relative to the lead time for actions to reduce delays through increasing capacity.

7.23 Holding NATS accountable to a capacity plan is one approach that NATS has put to users in workshops directed at developing an ATM strategy. This would remove the variability of traffic and the actions of other parties from consideration and focus attention on functions more clearly within NATS' management control. On the other hand, it would raise the following issues:

- in order to define capacity without reference to traffic patterns, volumes and delay, the plan would have to set capacities at a very disaggregated level (possibly at the sector level and possibly by time of day to allow some sensible combining of sectors in off-peak periods);
- there would be no basis for holding NATS to account as to whether the plan is the best one in the circumstances;
- users would need to have a considerable insight into the implications of these detailed plans to be able to take on any approval role; and
- it is not clear what the time horizon of each capacity plan should be. A five year detailed plan linked to the price review cycle would be too inflexible to adapt to changing needs, and a shorter plan would need to be reset during the price control period.

- 7.24 An alternative, but related, approach might be to hold NATS accountable for the manning levels of sectors consistent with a pre-specified plan. Such an approach would require NATS to make an advance commitment to the number of staff it would post on each sector, and be judged on its ability to meet that commitment.

The CAA welcomes views on the appropriate level of service to be provided by NATS and how this should be defined. In particular, what scope do users see for making their valuations of the services that NATS provides more important in shaping NATS' outputs? What new forms of contracting between users and NATS could assist in delivering these changes?

Service Quality Incentives

- 7.25 As well as specifying the default level of service associated with revenue allowed under the price control, the CAA would also like to consider whether there is a case for amending or augmenting the incentives that currently apply to NATS' performance.

Proposed criteria

- 7.26 In making such an assessment, the CAA proposes to adopt certain criteria:
- as discussed in chapter 4, the price control (including the incentives) must be consistent with the overall level of risk that NATS can bear, given its gearing;
 - any performance incentives should – as far as practicable – be directed to the features of NATS' service offering that matter most to users;
 - within the constraints of NATS' financial structure, the rewards and penalties to NATS associated with good and bad performance should track the value of good and bad performance to users;
 - incentives should be ones to which NATS can respond, i.e. there is a real prospect that the existence of the incentive is likely to lead to improved performance compared to the performance that might be expected in the absence of the incentive; and
 - any incentives should be capable of being implemented effectively in practice, which includes ensuring that there are objective and reliable measurement processes.

The CAA would welcome comments on the criteria for assessing the current and potential incentives for service quality.

Potential incentives

- 7.27 There are essentially two possible forms of incentive on service quality that the CAA proposes to consider:
- incentives on delay performance; and
 - incentives on capacity performance.

Incentives on delay performance

- 7.28 In respect of the existing service quality incentive – which holds NATS to account for delays – there are three issues.
- 7.29 The first is whether the rewards and penalties associated with the incentive match the value placed on delay performance. The CAA will explore whether there is a case for modifying the incentive to bring the rewards better into line with the value placed on delay by users. The second issue is the question of the extent to which NATS can influence the degree of delay. The third issue, which is partly related to the second issue, is whether NATS' performance can be objectively and reliably understood from the Control Flow Management Unit reports. Although the manner in which the CFMU reports largely prevents the data from being unfairly influenced by NATS, there is a question as to whether the data can be taken as a true reflection of the NATS' performance in minimising delay.

The CAA would welcome users' views on these issues, and the implications for any development of the delay incentive.

Incentives to provide capacity

- 7.30 There may also be a case for devising other incentives on NATS short-term performance. For example, linking revenues to the availability of capacity as measured by, say, staff availability. Here the issues raised include how much revenue should be tied in this way; how should the rewards (or penalties) vary with performance; and what precisely should be the basis on which performance is measured?

The CAA would welcome users' views on these issues, and the implications for the development of a capacity provision incentive.

8. Operating Expenditure

- 8.1 Operating expenditure accounts for about 70% of NERL's Eurocontrol business revenues. The allowance that the CAA makes for it in determining the charge control therefore has a significant impact on the overall level of user charges. NERL's incentive to make savings against the operating expenditure allowed for in the Eurocontrol and Oceanic price caps should be the primary driver of efficiency gains at NATS, from which users should periodically benefit when the price cap is reset.
- 8.2 This chapter sets out how operating expenditure (opex) has developed so far in CP1. It also describes the implementation of the efficiency rollover mechanism introduced at the Composite Solution. It then sets out some preliminary considerations that the CAA will take into account in resetting the opex baseline for CP2.
- 8.3 The CAA will make initial proposals in November 2004, following work in the interim designed to provide some objective data (utilising existing sources where possible) on which to base new opex proposals. We invite suggestions as to where this work should focus and what type of research should be carried out. Benchmarking of NATS' costs is likely to be one element. This chapter also looks at the treatment of pension costs as part of opex, where there is a need for clarity going forward about the risk allocation between NATS and users. The CAA suggests amending the RPS to deal with this. Finally, it considers the treatment of NERL's radio spectrum costs in the light of proposals from Ofcom to facilitate spectrum trading and liberalisation of spectrum use.
- 8.4 Some data about NERL's opex, drawn from various sources, is included in this section. Unfortunately, a source with more up-to-date data, NATS' April 2004 business plan, was not available to CAA at the time of writing. The reader may therefore wish to read this section in conjunction with data from that plan when available, since some data here will not now be the most current available.

Cost Developments in CP1

- 8.5 A target of £170 million of operating expenditure cash savings by the end of CP was NERL's contribution to the Composite Solution. The company says that it is ahead of plan in delivering these savings and that they will be delivered in full. The target includes savings from staff and non-staff costs and a payment holiday from pensions contributions.
- 8.6 NERL's overall opex spend of £339.7 million (excluding depreciation) in the year to 31 March 2003 can be broken down as follows:

NERL's Operating Expenditure (excluding depreciation), 2002/03

<u>Operating costs^(a)</u>	UK Air Traffic Services	Oceanic	NERL
People costs	205.1	11.3	216.4
Services and materials	44.7	1.1	45.8
Repairs and maintenance	16.1	0.7	16.8
External research and development	0.3	-	.3
Other operating charges	11.6	1.5	13.1
Capitalisation of internal costs	(9.7)	-	(9.7)
Intra group allocated charges	54.9	2.1	57.0
<i>Net operating costs</i>	323.0	16.7	339.7

Source: NERL Regulatory Accounts 2002/3

Note: (a) Excludes depreciation

- 8.7 Staff costs are the largest single element of operating cost and are being reduced as part of the savings programme, as reflected in staffing numbers:

Average number of employees seconded from NATS Ltd to NERL, 2002/03

	Year ended 31 March 2003	Period from 21 December 2000 to 31 March 2002
	Number of staff	Number of staff
Air traffic controllers (ATCOs)	1425	1444
Air traffic service assistants (ATSAs)	810	987
Engineers	1141	1197
Others	506	644
<i>Totals</i>	3882	4272

Source: NERL Financial Statements, March 2003

- 8.8 Despite the fall in ATCOs in 2003, NATS still envisages a long-term increase in their numbers (by 10-15% to 2010/11), combined with measures to increase ATCO productivity. The decline in ATSAs of 18% over the year to March 2003 is in line with NATS' objective to reduce their number by over 50% up to 2010, in recognition that "NERL presently has more ATSAs per Area Control Centre than any comparable ATS provider".²⁷ A mix of more efficient working practices and automation of some support functions performed by ATSAs will be applied to

²⁷ NERL Business Plan March 2002, p.65

manage this reduction. Reductions in engineering staff numbers and support staff are also planned up to 2010.²⁸

Implementation of the Rollover Mechanism

- 8.9 Through the Composite Solution, the CAA introduced an efficiency rollover mechanism for operating expenditure. This carries forward gains or losses in operating expenditure in 2002, 2003 and 2004, measured against the CAA's baseline opex for the year concerned,²⁹ into the new control period from 2006.³⁰ This policy allows NATS to keep the benefit from operating cost savings for a full five-year period, regardless of when in the regulatory cycle the savings are made.
- 8.10 Given how recently the mechanism has been introduced, the CAA is minded to retain it in its current form for CP2 (which means that incremental out-performance in CP2 would receive some remuneration through CP3). If, though, there is evidence of a need for reform at this point, it will give proper consideration to the case for change. But CAA believes that the desired incentive properties arise in part from stability in the regulatory framework, so that, for example, operating expenditure choices that can be shifted over time are not unduly influenced by changes to the anticipated or actual regulatory treatment of operating expenditure between control periods. This points to avoiding change unless there is a significant case for it.
- 8.11 There are however issues concerning the definition of opex for the purposes of rollover that need to be clarified. The new mechanism allows NATS to keep a greater share than before of the total benefit arising from opex savings than previously. The CAA is concerned to ensure that the out-performance presented by NATS corresponds to genuine opex savings in the spirit of the mechanism. This requires clear definition and transparency about the treatment of, for example, one-off restructuring costs, such as redundancy and contract settlement costs, as well as tracking of the boundary between operating and capital expenditure, since NATS may have incentives to reclassify costs.
- 8.12 At the suggestion of the CAA, NATS has set out in its 2002/3 regulatory accounts what it understands to be its performance measured against the new mechanism. NATS presents two versions of Oceanic out-performance. The £11 million difference between the two is material. It relates to a one-off payment made in 2001/2 to buy NATS out of a contract. Treatment of such exceptional items should ideally be set out in a predefined policy so that the question of multiple interpretations of out-performance does not arise.
- 8.13 The CAA therefore proposes to validate out-performance with NATS and to provide guidelines for future transparency of data. This should give users greater confidence in the reporting of out-performance.

The CAA welcomes views on how it should ensure that performance against opex incentives is properly measured so that signals to NATS are not distorted and users benefit appropriately.

²⁸ More up-to-date details of NERL's manpower and business efficiency plans may be included in NATS' new business plan due for release in April 2004. Details here are quoted from the NERL Business Plan of March 2002.

²⁹ The baseline is the CAA's August 2000 opex projections in its advice to government.

³⁰ Gains or losses in respect of 2005 as Year 5 of the price control will not be rolled forward for the new price control period because actual performance will not be known next year when the new charge condition is being set (in 2005). The detail of the rollover mechanism calculation is set out in Annex 4, section 5, of the CAA's March 2003 decision

Setting the Cost Baseline for the Next Period

- 8.14 While the rollover mechanism provides some continuity in opex efficiency incentives, the resetting of the price control provides the opportunity to review the cost base. Since CAA last performed this task in 2000, AG has assumed operational control. While AG should have its own incentives to reduce the costs required to deliver a given level of service quality, as discussed in chapter 4, it would be premature to conclude that this reduces the need for CAA to scrutinise NERL's costs. Given that the costs of delay to airlines are large relative to price variations, AG may be inclined to conservatism in its approach to cost reduction. The CAA and users generally will need to be content with the trade-off between cost and service quality.
- 8.15 Traditionally, the regulator's allowed opex cost profile is central to the price determination but, once set, this profile has no determinative value to the company (the company will have the same incentive to increase its margins by reducing its costs regardless of the absolute opex amounts the regulator takes into account in arriving at the price cap). But with the rollover mechanism, allowed opex itself is part of the calculation that must be carried out to quantify what saving may be rolled forward. This does not change the process for arriving at allowed opex, but does point to the need for clarity on the CAA's final approved opex cost profile for CP2.
- 8.16 While the CAA only has confirmed actual opex data for the first two of the five years of CP1, the circumstances of the Composite Solution should mean that the CAA is in a stronger position than it might otherwise be to draw conclusions about the opex experience of CP1. The commitment to the cost savings programme was the company's contribution to its subsequent financial restructuring. These savings may put NERL on to a structurally lower opex cost trajectory than NERL was prepared to consider in 2000, although it is not yet clear to the CAA that this is the case. According to NERL, the savings programme led to deferral of opex spending on the New Prestwick Centre but have not been associated with any apparent direct impact on service delivery.³¹ Reduced demand following September 11th 2001 may not be the explanation, if, as NATS argues, its costs are almost totally insensitive to demand.³² Some of the savings reductions come from staff and non-staff cost savings, leading to operational efficiencies, which "will come primarily from better utilisation of ATCO and ATSA manpower resources".³³
- 8.17 Following the deterioration in service quality associated with the move to Swanwick in 2002, service quality markedly improved in 2003 at the same time as NATS was following through on significant cost reductions. Greater capacity and less delay should of course be positively correlated to cost in the long run. But there is little evidence to suggest that NATS is yet at all close to the efficiency frontier, where cost reductions translate inevitably into reduced service quality. In fact, while due allowance must be made for the relative complexity of UK airspace, what objective evidence there is tends to suggest that NATS remains a relatively high cost provider (see later section on benchmarking).
- 8.18 In pursuing cost reduction and efficiency at this review, the CAA will continue to recognise the absolute priority given to safety and the implications this has for the cost base. Beyond this, the CAA's objective is to encourage NATS to move towards the minimum efficient level of costs required to provide a given level of service

³¹ Part of the proposed savings derive from the pensions holiday and to this extent one would of course not expect service quality to be affected. However, this accounts for a relatively small proportion of the planned £170 million.

³² "NERL does not believe there will be any demand-related cost savings". NATS' application to reopen the Eurocontrol charge control, February 2002, p.7

³³ NERL Business Plan, March 2002, p.63

quality. But given that cost and quality should be inversely correlated, the CAA's objective could equally be described as achieving the maximum level of service quality for a given level of cost (where service quality is considered broadly as including long run capacity provision as well as short-term delay).

- 8.19 Given the consensus that the industry will face significant capacity issues (potentially implying reduced service quality) in the future, it is important to keep the cost/quality trade-off mind. For this reason, unit-based measures of cost, that take into account the traffic volumes managed for a given cost base (e.g. operating cost per flight) and the average quality of service received by that traffic are a better guide to NATS' efficiency than absolute cost measures.
- 8.20 On the basis of this information, and any that NATS may provide in its forthcoming business plan, the CAA invites views on the approach it should take to opex in this review, and in particular what considerations it should bear in mind in setting the opex allowance for CP2. The AG, together with the financial distress that became apparent in late 2001, has been a catalyst for NATS to uncover efficiency savings that it did not acknowledge existed in the past. The CAA will be looking with NATS at what further progress can be made to sustain and intensify efficiency savings consistent with the levels of service quality and capacity provision required by users.

The CAA welcomes views on how best the assessment of the allowance for operating expenditure should be conducted and how – more specifically – users might be able to assist in this review. Also, in the view of respondents, which might be the areas of NERL's business where savings are most likely to be achieved?

Benchmarking

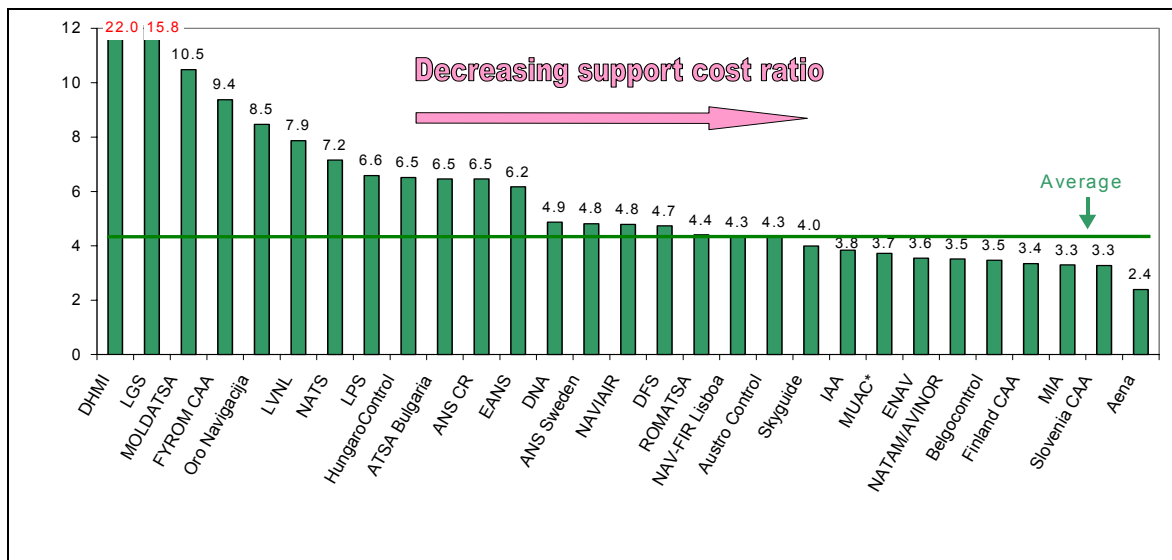
- 8.21 The opex allowance recommended by the CAA to government in August 2000 was based on internal analysis of the drivers of opex and information drawn from relevant international benchmarking, notably work done by the Performance Review Commission of EUROCONTROL (PRC).
- 8.22 The CAA believes there is likely to be scope for benchmarking again to add value to the opex assessment. Notwithstanding NERL's vested interest in the outcome of such analysis, CAA believes there is scope for NERL to play an active role in developing benchmarking as a tool for the business as well as a source of insight for the regulator. Properly executed, this work should be part of NERL's normal commercial planning. Indeed, NERL may be able to leverage existing work into the regulatory process.
- 8.23 During the recent review of Network Rail by the Office of the Rail Regulator, the three parties involved (ORR, Network Rail and the Strategic Rail Authority) jointly appointed a set of consultants to carry out efficiency studies. They also agreed the scope of the studies and the timetable for reports. The CAA will explore with NATS to what extent this experience may be instructive in progressing benchmarking.
- 8.24 In 2000 NATS was sceptical of the CAA's analysis, citing various reasons why it did not provide any valid insights or comparisons. However, more recently, NATS has appeared to recognise that where inadequate data may lead readers to draw mistaken conclusions, the answer is, as far as possible, to improve the data, so improving the quality of comparisons. Particularly in an environment of cost reduction, NATS needs the insights that benchmarking can provide, not primarily for the regulator, but to know how best to allocate its own scarce resources. Properly

executed studies, with a clear audit trail that can be verified by the regulator, will inevitably give the regulator more confidence in determining future opex allowances.

8.25 Besides NATS' own efforts, the CAA is interested in building on existing work comparing NATS and air traffic providers overseas. The PRC is playing a key role in developing high-level benchmarking of European air traffic providers, comparing them to each other and to US air traffic control. There is a degree of homogeneity in the data reported by European providers, which facilitates cross-country comparisons (even though any serious analysis for the purposes of this price control review will need to control for country-specific factors).

8.26 To create a powerful enough tool for policy, benchmarking must bring together high-level benchmarking of unit costs and productivity trends over time with more detailed comparisons of current practices in particular functional areas. For costs in corporate centres, such as finance, HR and procurement (where there may be reason to suspect scope for further efficiencies), it may be possible to benchmark NATS against companies from outside the aviation sector. Difficulties may arise in obtaining disaggregated cost data, based on cost allocation principles comparable to those employed by NATS. However, comparisons of this type have been important inputs into recent reviews of companies like Network Rail.

8.27 By way of example, the table below is taken from a recent PRC report.³⁴ It attempted to benchmark cost-effectiveness across 29 European air traffic navigation service providers. The support cost ratio measures total air traffic management cost (including communication, navigation and surveillance cost) as a multiple of ATCO employment costs. While one data view proves nothing in itself, the suggestion is that NATS has above average support costs. For every £ spent on employing an ATCO, NATS spends an additional £6.20 on other costs (compared to a European average of around £4.25).



8.28 NATS' view on the report³⁵ as a whole is that it does not adequately capture airspace complexity in its measures, nor does it reflect the forced restrictions on ATCO hours on duty arising from safety regulation. However, NERL is working with other ATSPs and EUROCONTROL better to define benchmarks reflecting the cost of complexity.

³⁴ ATM Cost-Effectiveness (ACE) 2001 Benchmarking Report, Performance Review Unit, Eurocontrol, September 2003

³⁵ NATS gives its opinion on p.3 of the Service and Investment Plan 2004 update (published December 2003).

- 8.29 The CAA's aim, working with NATS, and based on its own analysis and efficiency studies, is to arrive at a point in the autumn where it has assembled sufficient, credible data to take a view on the scope for further opex reductions in the course of CP2. The work may go into depth in particular functional areas, depending on initial findings. The CAA would welcome comments on its approach, and on specific cost areas that may merit particular attention.

Should the scope for further cost reductions be explored through a work plan based on benchmarking? How much priority should the CAA give to this work?

Treatment of Pension Costs³⁶

- 8.30 With the benefit of hindsight, the articulation of policy towards pensions funding has lagged somewhat the development of utility regulation generally. Where there has been a policy, it has often been implicit, rather than explicit, and a number of risk allocation questions have not been addressed. This policy gap is now starting to close, notably through work by Ofgem and other regulators.
- 8.31 Given the importance the CAA attaches to providing NATS with stability in its long-term regulatory outlook, the CAA believes the treatment of pensions should be addressed in the RPS. However, this review will not be able to answer all conceivable risk allocation issues that may arise in the future. This is a complex area, and the CAA will only make amendments to the RPS when it has a high degree of confidence that its proposed policy is robust and durable.
- 8.32 From 30 November 2001 to 19 December 2003 NATS took a payment holiday, taking into account its need to conserve cash following the events of 11 September 2001. NATS had a significant surplus in its fund in relation to the actuarial valuation of its future obligations at that time. The payment holiday was reflected in the Composite Solution, on which basis NATS' finances were restructured. The CAA identifies concerns that can arise in such a situation in future and proposes general policies to assist in managing them.
- 8.33 Users, rather than NATS, are implicitly taking the risk of fund contributions being adequate to meet the obligations of the scheme over time. Unlike companies in competitive markets, NATS has the option of seeking to pass through to users any funding shortfalls. Absent a regulatory policy to address these concerns, the company may exploit this situation.
- 8.34 Under the Statement of Standard Accounting Practice 24 (SSAP 24) the effect of a pension fund surplus or deficit is rolled into the calculation of the required smoothed rate to meet obligations. In this way, users benefit from a surplus through a lower accrued rate of contribution than if the calculation of the rate is based on the true cost (excluding the effect of a surplus or deficit). Similarly users contribute more through a higher accrued rate in servicing the event of a deficit. An advantage of the SSAP 24 approach is that it helps to make more transparent that, while the cost of meeting pension obligations is passed through to users, they receive the attendant cost and benefits.
- 8.35 The CAA acknowledges that Financial Reporting Standard 17 may in time replace SSAP 24, and International Accounting Standard 19 may also become relevant. Therefore, the general principles outlined here may need to be refined and expressed in the light of these new accounting standards (although SSAP 24 is

³⁶ NATS is a participating employer in the Civil Aviation Authority Pension Scheme. The NATS Section is separately funded from the CAA Section.

likely to remain relevant). CAA will consider this further in its November consultation document.

- 8.36 The NATS price control is constructed on the basis that a given level of pension cost will be incurred by NATS over the term of the control. This pension cost will generally be the accrued rate required to meet future obligations, based on a smooth path of contribution over time, taking into account any surplus or deficit.³⁷
- 8.37 If NATS contributes less in total over the term of the control than the accrued rate, it defers cash expenditure. If the effect of reducing pension contributions below the required accrued rate is to increase the recognition of pension costs in the long run, this may have consequences for the integrity of the charge control.
- 8.38 The price cap is designed to incentivise operating expenditure savings, but not saving that may lead to higher user charges in the future. The regulatory solution to discourage any incentive of this kind may be for the CAA to indicate that it will correct, at the start of the following control period, the difference, on a present value basis, between the accrued rate used in the charge control and the cash contribution made over the term. This would be a consideration to the extent that this is not already taken into account in the accounting for pension costs.
- 8.39 However, before adopting a new policy such as this, the CAA will need to understand in full its implications. Among the further risk allocation issues that the CAA may wish to consider later in the review are the following:
- Incentives to optimise fund performance, if the company does not ultimately bear in full the risk of deficits (although the role of the pension fund trustees must be taken fully into account).
 - Responsibility for the cost of providing enhanced pension benefits granted under severance arrangements or in the normal course of business.
 - Pension cost allocation between price-controlled and non-price controlled businesses.

CAA invites views on how important it is for regulatory policy to be developed on pensions. To the extent respondents believe it is important, is the CAA focused on the most important issues in this area?

Radio Spectrum

- 8.40 NERL is currently the holder of a significant number of radio spectrum licences for navigation, communications and radar equipment use for ground radio stations. Within the CAA, DAP issues these licences. The current cost to NERL of these licences is around £50,000.
- 8.41 Ofcom announced in November 2003 plans to facilitate spectrum trading and liberalisation of spectrum use.³⁸ Ofcom takes the view that the scope for applying these principles to on-board licences is limited. However, in respect of ground-based aeronautical communications, Ofcom seeks to provide holders of spectrum assignments with the option to trade in future. However, it acknowledges the constraints imposed by harmonisation, international obligations and safety of life considerations.

³⁷ In NATS' P&L account the accrued rate is included as an operating cost.

³⁸ Ofcom, Spectrum Trading Consultation, November 2003.

- 8.42 Whether or not trading is ultimately provided for in respect of ground-based communications licences, there may at least be provision for ground-based licence holders in aviation to pay for some measure of the opportunity cost of the licence they hold. At present the earliest date from which such provisions could apply looks like 2007. New provisions could certainly be in place before the end of CP2 in 2011.
- 8.43 For this reason, this price review should take into account the possible need to provide for the treatment of increased NATS radio spectrum costs at some point. In the event of NATS facing increased costs, there would appear prima facie to be a strong case for pass-through of the costs (except in cases where it could be demonstrated that NATS had no need for or did not utilise the spectrum that it holds).³⁹ However, CAA does not wish to prejudge the implementation of the new approach to spectrum and awaits further policy development following the consultation. The detailed approach will depend on the rules that come into force (which will need the agreement of both Ofcom and the CAA) and their impact on NATS.

The CAA welcomes views on the treatment of NATS' radio spectrum in the light of the Ofcom initiative.

³⁹ In the event that trading was possible and NATS had unused spectrum, there may be windfall gains to consider.

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9. Capital Expenditure

- 9.1 Given the anticipated shortage of air traffic capacity to meet forecast demand in the coming years, the success of NERL's capital expenditure (capex) programme in meeting its targets is likely to be one of the keys to ensuring that the UK airline industry can grow without encountering capacity constraints.
- 9.2 This chapter reviews NERL's capex plans up to 2011, as set out in its December 2003 Service and Investment Plan (SIP) (an update to this plan was issued in 2004 a few days before publication of this document). It then describes the current regulatory treatment of capex by the CAA and explores how that treatment might be modified, acknowledging the limitations of the current policy. The importance of ensuring that capacity grows to meet anticipated demand gives the CAA particular reason to ensure that modifications to the current treatment do not act to disincentivise NERL from investing. At the same time, however, NERL needs to be encouraged where possible to meet targets efficiently and effectively.
- 9.3 The final parts of the chapter deal with the role of users in the development of capex plans and a proposal for a change in the treatment of disposals and write-offs in CP2.

Proposed Capital Expenditure to 2011

- 9.4 NATS' capital expenditure plans for spending by NERL are set out annually in its Service and Investment Plan (SIP). This is a widely distributed document readily available to users, and as such we propose only briefly to summarise it here. The most recent comprehensive SIP setting out in detail NATS priorities to 2011 (up to the end of CP2) is a March 2004 version.
- 9.5 NERL's plan is as follows:

NERL Capital Expenditure (including capitalised internal costs)

Capex £m outturn (incl frs15)									
Programme	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	Total
	£m	£m	£m	£m	£m	£m	£m	£m	£m
Centre Systems and FDP	24	74	94	107	72	72	73	42	558
Comms, Nav aids & Surveillance	22	29	20	32	25	16	14	17	176
Other operational	8	8	5	13	20	25	31	37	147
Non-operational	18	24	15	7	2	4	9	3	81
Total NERL Capex	71	136	135	159	119	116	127	100	962

Source: NERL 8+4 forecast and investment plan Ver 3.00

- 9.6 The plan projects a spend of £962 million in total over the eight year period from now until the end of CP2. This covers all NERL's business areas, notably Eurocontrol, Oceanic, MoD, North Sea Helicopters and Terminal Approach.
- 9.7 Over 50% of the planned expenditure relates to the Future Centres Programme, the majority of which is intended to benefit the Eurocontrol business. According to NERL, the programme's objectives are to:
- Consolidate NERL's Area, Terminal and Military facilities into two Centres located at Swanwick and Prestwick,
 - Introduce common systems and support within NERL operations to reduce maintenance and future development costs (where possible with other European service providers),

- Replace the NAS and related Flight Data Processing (FDP) systems with a system that is interoperable with those of other Air Traffic Service Providers (ATSPs) by conforming with the requirements of the European FDP (eFOP) programme,
- Introduce automation in order to increase controller productivity and to improve the safety and quality of the service provided.

9.8 Key components of the Future Centres programme include:

- moving London Terminal Control (TC) and the London Military system (LMARS) from West Drayton to Swanwick – with TC first in early 2007, LMARS in mid 2007 – thereby enabling closure of the West Drayton site;
- deployment of Interim Future Area Control Tools Support (iFACTS) controller tools on the current London Area Control Centre (LACC) system at Swanwick in 2007; and
- deployment of the new centre system under the CASPIAN project (Commercially Available System Promoting Integration Across NATS).

9.9 According to NATS estimates, the CASPIAN collaboration strategy saves users about £70 million (equal to about 7% of the total capital expenditure budget plan), on the basis of comparing estimated CASPIAN costs (£330m) with the budget that NATS claims they would otherwise have required (£400m) in the absence of collaboration. The £330m includes £15m for the project definition with AENA, £65m for the rollout of SACTA 3 at Prestwick, with the remaining £250m for SACTA 4.

9.10 NATS proposes to deploy iFACTS in 2007 as an interim measure to expand capacity, in a way that will be compatible with development of a full-capability FACTS system that can be deployed on the SACTA 4 platform that should be completed by 2011/12. NATS' view is that in the absence of iFACTS, there are likely to be capacity constraints in the period 2007-11 if demand is above the base case traffic forecast, constraints which will only be very partially mitigated by the remaining sectorisation and systematisation options that will be available at that time.

9.11 The second major slice of the programme is the Communication, Navigation and Surveillance Plan (CNS). This accounts for £176m of planned expenditure in the 8 years up to 2011, including planned annual spending of between £14m and £32m in each year of CP2. Key elements of this plan are:

- Navigation: introduce navigation infrastructure based on global satellite-based positioning systems and distance measuring equipment, augmented by the European Geo-stationary Navigation Overlay Service (EGNOS). Full participation in EGNOS will be subject to consultation with customers in 2004 and a decision whether or not to participate in full in EGNOS will be made.
- Communications: replacement of analogue air-ground voice communications infrastructure with digital systems; migration of air-ground data communications from voice to data; introduction of use of pilot or controller initiated datalink communication to replace voice communications, reducing pilot and controller workload; integration of disparate data networks through a data and voice integrated digital communications network (DaVinci).

- Surveillance: a ten-year radar replacement, covering all en-route radar sites, that replaces installations, increases radar-processing capacity and, from autumn 2005, introduces Mode-S capable Secondary Surveillance Radar systems (the latest Secondary Surveillance Radar standard in the core area of Europe and a requirement being introduced by the CAA).
- 9.12 In the Oceanic business, there is currently plentiful airspace and readily expandable air traffic control capacity, although, according to NATS, capacity may re-emerge as a constraint towards the end of the decade. Investment priorities are focused on maintaining current levels of availability on a sustainable cost-effective platform. The plan is to replace the existing Oceanic flight data processing system at Prestwick with the Shanwick Automated Air Traffic System (SAATS) in autumn 2006. SAATS will be a development of the Gander Automated Air Traffic System (GAATS), developed by the Canadian air traffic provider, NavCanada. In 2003 NATS signed a contract with NavCanada to develop SAATS.
- 9.13 “Other operational expenditure” is planned at £126m over CP2. It covers “investment necessary to sustain operational ATC systems not specifically covered by Centre Systems or the CNS programme, and programme contingency”.
- 9.14 “Non-operational expenditure” is planned at £25m over CP2, comprising refreshment of the IT infrastructure, replacement of key business systems and completion of the establishment of the company HQ and Technical Centre near to Swanwick.

Treatment of Capital Expenditure in CP1

- 9.15 The CAA’s policy in CP1, determined in 2000 and confirmed by the Regulatory Policy Statement in 2003, is to allow remuneration through the cost of capital on projects expected to cost a total of £374 million⁴⁰ during the control period. This compared to NATS’ forecast in 2000 of proposed expenditure for the period of £699 million.
- 9.16 The basis for this policy was that, prior to the conclusion of the PPP in July 2001 and the arrival of a new controlling shareholder in NATS, there was inevitably much uncertainty about how far the proposed plans would be executed. The CAA therefore decided that it would only allow a proportion of the proposed projects, notably those forecast to be executed and completed during the control period, to be remunerated within the period. All other projects (those not expected to be completed before 2006, or “assets in the course of construction”, AICC) would still be remunerated, but remuneration was capitalised and deferred to the start of the next control period, with the regulatory asset base to be updated at that point to reflect actual capital expenditure over CP1.
- 9.17 This approach struck a balance between, on the one hand, preserving NATS’ incentives to invest and, on the other, protecting users in the short term from charges that might take into account the costs of an investment programme that might not materialise. It means that NATS effectively has a full cost pass-through regime in present value terms, although the cash flow returns on projects not completed in CP1 do not come on stream until 2006. At the same time, it reduces any incentive for NATS to underspend on capital expenditure once the price control has been set.

⁴⁰ See ERG’s Assumed Transfers to Current RAB, Annex to CAA Decision, March 2003, p.65

- 9.18 There has nevertheless been significant underspend against the original plan. Firstly, long term planning and investment was restricted for a time whilst AG's acquisition of shares was completed in 2001. Subsequently, the events of 11 September 2001 meant that investment was more or less suspended for 18 months, pending adoption of the Composite Solution. There are therefore limits on how far lessons can be drawn from the experience of the current capital expenditure regime in determining the regime for CP2.
- 9.19 In its RPS, the CAA noted that "the treatment of AICC in CP1 was specifically designed to address the circumstances arising when the initial price caps were set. At the next review, the CAA will consider the most appropriate measures to put appropriate incentives in place, encompassing the issue of whether or to what extent AICC should be included beyond 2005". This is the basis on which the CAA now intends to proceed.

Capital Expenditure Policy for CP2

- 9.20 While the current policy has preserved incentives to invest, it has certain limitations. These are:
- limited incentives for NATS to invest efficiently;
 - no output-based tests of the results of the capital expenditure; and
 - no mechanism for truly integrating user output valuations into the investment planning process (notwithstanding SIP consultation).
- 9.21 To the extent that NATS underspends against its plan, or underspends on specific projects, the CAA has no way of knowing if this is because:
- it found a cheaper way to reach the same objective;
 - resource or other constraints meant that the project was delayed or cancelled; and
 - there was a low probability in the first place that the project would ever happen and, as such, it should not have been in the plan.
- 9.22 Given AG's position, we would expect AG to impose its own discipline on how users' money is spent. This, taken with constraints on cash spend imposed by NATS' financing arrangements, should mitigate to a significant extent the concern that earning a given regulated rate on investments might incentivise NATS to over-invest.
- 9.23 Indeed, as discussed in chapter 4, the CAA envisages that AG's control of NATS is likely to bring the role of users in shaping NATS' investment priorities more sharply into focus. It should also increase the focus on cost efficiency and value to users. This has the potential to benefit all users. Nonetheless, it will be important that NATS sustains and enhances transparency about its capital expenditure plans, not least as a safeguard against any concern that its investment planning priorities may be oriented towards the preferences of its owners, rather than users more generally.
- 9.24 Overall it is not clear that it would be appropriate for the CAA to rely entirely on the presence of AG to act as a corrective to some of the capex policy limitations discussed above. The CAA would therefore wish to consider increasing if possible NATS' accountability for the delivery of outputs, reinforcing any beneficial impact

from AG in this regard, and underpinning a more user-driven focus. It would be important that any such developments fully preserved NATS' incentives to invest efficiently. Reshaping policy in this way with the possibility of improved results within the timeframe of CP2 is ambitious, in the light of the inherent difficulties. But progress could help contribute to delivering user requirements efficiently.

- 9.25 We discuss the potential usefulness of user valuations, output-based measurement and incremental cost assessment in aiding policy development in the remaining parts of this section.

User Valuation of Outputs

- 9.26 NERL is required by its licence⁴¹ to produce an annual SIP setting out its investment (capital expenditure) plan and any changes to the level and quality of service that it expects to provide to users. It is also required to consult with users and representatives of users according to methods and procedures agreed with the CAA.⁴²
- 9.27 Current practice is for annual consultation on the SIP as a whole, supplemented by consultations with users on specific material investments, as and when is deemed appropriate, within the context of a consultation framework set out by NATS. Consultation applies to large projects (outturn costs of £10m or more), which significantly affect prices, or to projects where various combinations of service and cost can be combined to achieve different outputs for a different level of input.
- 9.28 There are inevitably limitations on the extent to which the consultation process permits any measurable conclusions to be drawn in terms of the level of buy-in from users to the programme as a whole, or to individual projects. Moreover, there is no clear linkage between the dialogue with users, the setting of the charge control by the CAA and the provision of capacity in general by NERL. The industry consensus on the future traffic forecast is the implicit justification for NERL's capital investment programme (or at least the part dedicated to increased capacity and/or better service quality). Yet the configuration of that programme does not necessarily correspond to particular users' needs. No users actually contract with NATS for service,⁴³ and investments are for system benefit.
- 9.29 The industry is still some way off the introduction of an element of bilateral contracting for capacity. But one advantage of thinking in this way might be at least to facilitate the articulation by users of the value they would place on a long-term increase in capacity and/or service quality over which they could lay claim. While on a short-term basis there are measurements of avoided delay costs, which provide insight into airlines short-run valuations, there appears little data to inform a longer-term view of the valuation by users of additional capacity (this may partly be because such a valuation presupposes definition of the property right that the user is being asked to value e.g. to what service standard is the given capacity made available).
- 9.30 Clearly the SIP process has not been conceived to address such issues and there are limits to how far a multilateral consultation process can go in this direction. But a useful step on the road would be for NERL, perhaps guided by input from users, to take a much more commercial and output-driven approach to the presentation of its capex plans in the SIP.

⁴¹ Condition 10

⁴² Condition 16

⁴³ Indeed there would be legal problems in so doing because of the government's international duties in respect of air traffic control.

- 9.31 The SIP attempts to explain technical details in a coherent manner and to place project developments in the wider picture of capacity development. The CAA appreciates that investment decisions often interrelate and that, while capacity shortages are on the horizon in the medium term, NATS must show leadership in efficiently investing to fill the gap as soon as possible. However, there may be more scope than at present to frame the terms of the debate with users in a more output-focused manner, in which NERL makes commitments to deliver capacity according to specified service quality over certain time horizons.
- 9.32 There may also be scope for more openness about different options for dealing with issues and for presenting their costings accordingly. For instance, while NATS argues that sectorisation will soon reach its technical limits, resectorisation will often remain, if nothing else, a useful reference point for users when considering the merits of other higher-tech, but less proven options for delivering similar outputs.
- 9.33 The CAA accepts that there may be limits to the useful feedback that NATS can expect from users, given that it has a large number of individual and often uncoordinated customers, and that for many users, the return they can expect from engaging with NATS may not justify the costs they incur. This could be the case partly because their air traffic costs are not a large proportion of their total costs and also because the NATS investment programme is highly technical. However, while the underlying NATS solution may be technical, the output that users want is something that they will, in some cases, no doubt be prepared to discuss and refine with NATS in detail.
- 9.34 The CAA suggests that these initial thoughts are a basis for further exploration of how user input to NATS' investment planning process can be improved and made more rigorous.

Incremental Costs and Output-Based Tests

- 9.35 NATS' programme delivers broadly three kinds of output:
- replacement of existing facilities, resources and systems to maintain capacity and service quality at the current level;
 - increases in air traffic capacity; and
 - improved service quality.
- 9.36 A particular investment may deliver one or more of these categories of output, with each category typically being highly interrelated with the others. Any increase in air traffic capacity (for a given level of quality) or any increase in service quality (for example, measured by avoided delay cost) is associated with an incremental cost of providing that superior output.
- 9.37 Ideally, where the marginal benefit to users of the extra output exceeds the marginal (incremental) cost to NERL of providing it, NERL should make the investment. However, moving to pricing on the basis of incremental costs runs up against the general problem of finding any robust measure of future costs that is an improvement on NERL's own forward looking average accounting costs. (A similar problem applies to trying to bring user valuations to bear in determining investment decisions. The theoretical rationale is clear, but finding reliable data to move forward can be challenging.)

- 9.38 Particular problems in estimating incremental costs for delivering NATS' outputs are that:
- estimates need to take into account exogenous factors that change incremental costs over time, such as technology changes and traffic volume variation;
 - obtaining estimates that are truly comparable to a NATS-specified output is likely to be difficult; and
 - part of the "output" of a certain expenditure choice may be its compatibility with other technology selections or subsequent technology developments (e.g. the ability for iFACTS to be developed into FACTS). This makes it more difficult to break down expenditure items into discrete elements.
- 9.39 For incremental costs actually to be used as a parameter influencing NATS' remuneration on capital expenditure implies the CAA obtaining a high level of comfort in the methodology and approach to incremental cost calculation. Expecting to attain this level of comfort is probably unrealistic, given the technical and informative challenges. However, the CAA suggests it may be worth exploring to what extent incremental cost analysis can add value to this review.
- 9.40 There is a good argument in principle, for seeking to integrate user valuations and incremental cost considerations into NERL's investment planning process. If they are ignored altogether, the danger is that cost estimates from NERL, rather than other more objective reference points, drive the regulatory process. This can serve to decrease NERL's accountability to users in the long-run. But by the same token, finding a sufficiently robust basis for incentivising NERL to invest efficiently that is not primarily, if not exclusively, driven by NERL's own cost estimates is a serious regulatory challenge. The CAA proposes to explore the scope for progress on these matters which, even if not leading to deliverables that affect CP2 incentives and output, at least lay the foundations for a more sophisticated approach in CP3.

The CAA invites views on what incentive framework it should put in place to remunerate capital expenditure up to 2011. How should the balance be struck between maintaining investment incentives, and encouraging NATS to deliver outputs that users want in a timely and efficient manner? What scope is there for users' valuations of future output and incremental cost analysis to contribute to defining the incentives, either now or in the longer term?

Disposals and Write-Offs

- 9.41 The CAA suggests that the current approach of reducing the value of the RAB by the value of the proceeds of a disposal, rather than its book value, should be reviewed. There are differing opinions as to which basis sends the most appropriate signals to NATS.
- 9.42 Arguably NATS would face better efficiency incentives if RAB adjustments were made on the basis of book value, rather than sale proceeds, since NATS would face financial consequences that better correspond to the relative success or failures of individual projects. For example, if a disposal generated less revenue than the book value, adjusting the RAB by the value of the sale proceeds would leave the difference between the book and disposal value continuing to earn remuneration through the RAB.

- 9.43 However, by the same token using a book value reference point may eliminate any incentive to dispose of surplus assets that happen to have a disposal value less than book value. This may skew the company's disposal policies.
- 9.44 This is one issue that the CAA will consider in taking forward the calculation of the RAB into CP2. The starting point for approaching the RAB in CP2 is the policy set out in the RPS.

The CAA invites views on whether the current accounting treatment of disposals and write-offs should be maintained or modified.

10. Cost of Capital

Introduction

10.1 This chapter:

- describes the cost of capital allowance in the context of the prevailing CP1 control;
- outlines alternative approaches to calculating the cost of capital for use in deriving an appropriate allowance; and
- describes features of the cost of capital calculation that will require consideration should the CAA use the CAPM approach as a tool to derive an allowance.

The cost of capital and current CP1 control

10.2 The determination of the regulatory cost of capital is an important component in determining the overall returns NERL can be expected to earn. However, because NERL remains a relatively-labour intensive business, the returns generated by the cost of capital are perhaps less significant than is the case with other regulated UK utilities which are generally more capital intensive. By way of example, remuneration of the CP1 cost of capital equates, in very broad terms, to £50 million per annum (over 10%) of NERL's Eurocontrol annual revenues.⁴⁴ This figure will vary from year-to-year depending, for example, upon patterns of capital expenditure and hence the value of the asset base upon which returns are remunerated.

10.3 The Department for Environment, Transport and the Regions confirmed the price caps for NERL for CP1 in January 2001. The actual price caps adopted differed from the CAA's proposals, but took account of advice from the CAA. This advice was based on a regulatory cost of capital of 7.75% (pre-tax real), which represented a number comfortably in the middle of a proposed range of 7.0%-8.8%.

Approach to setting the CP2 regulatory cost of capital

10.4 The Capital Asset Pricing Model (CAPM) was used by the CAA in deriving a cost of capital for NERL in CP1. There are however other methods of calculating the cost of capital, including, but not limited to:

- **Multi-factor models** that afford consideration to a wider range of factors that might be influential in driving returns (e.g. variables relating to company specific performance) than does CAPM; and
- **Non-linear models.** Whereas CAPM is a linear model (essentially predicting that the return on a risky asset is a linear combination of both the risk free rate and the equity risk premium), non-linear models recognise the complexities of investing in such an optimal fashion.

10.5 The CAA acknowledges the empirical shortcomings of the CAPM, particularly in its application to NERL where company specific parameters that underpin the CAPM approach (e.g. aspects of the cost of equity) are not generally observable. The CAA also recognises that a recent Joint Regulators study⁴⁵ concluded that the CAPM has clear theoretical foundations and, after considering alternative approaches, could

⁴⁴ As expressed in 2001/2002 prices

⁴⁵ Smithers & Co (2003), A Study into Certain Aspects of the Cost of Capital for Regulated Utilities in the UK, February

not identify an obvious alternative for deriving the cost of capital. So whilst the CAA is currently minded to adopt the CAPM approach to setting a cost of capital allowance in this review, it is open to alternative approaches.

The CAA would welcome views on the approach the CAA should use in setting the allowance for the cost of capital and, in particular, whether it should use the framework implied by the Capital Asset Pricing Model.

Considerations in deriving a cost of capital using CAPM

10.6 Without prejudice to the outcome of the CAA's consultation process on alternative methods of calculating the cost of capital, it is useful at this stage to reflect in more detail on the considerations raised by the CAPM for the CP2 review. In summary, these considerations would include:

- **Derivation of an appropriate cost of equity.** CAPM defines the cost of equity as comprising: the risk free rate (for example, yields afforded by long term index linked gilts); the product of a firms' equity beta (reflecting the non-diversifiable business risk faced by investors in NERL relative to risk presented by a more general market portfolio) and the equity risk premium (average returns on equities, over and above the risk-free rate);
- **Derivation of a cost of debt.** The cost of debt will comprise the expected risk-free rate, in addition to a NERL-specific debt premium. This premium reflects the margin required by lenders over equivalent gilts (the safe rate) to compensate them for the greater risk of default;
- **Quantification of gearing.** Gearing is expressed as a ratio of NERL's net debt/Regulated Asset Base (RAB). Gearing influences both beta (on the basis of a relationship between gearing and risk) and tax (recognising that in some cases, tax efficiencies may arise through higher gearing); and
- **Treatment of tax.** The cost of capital can either be calibrated on the basis of a pre-tax, or post-tax approach. Historically, the CAA has used a pre-tax approach to calculating the cost of capital.

10.7 Of these components to CAPM, two are generic in nature and not specific to NERL. These are:

- the risk-free (or 'safe') rate; and
- the equity risk premium.

10.8 Other inputs to CAPM will be driven by financial data considerations specifically relating to NERL. These will include the following:

- the equity beta;
- the debt premium;
- gearing of the regulated company; and
- treatment of tax.

Risk-Free Rate

- 10.9 The risk free rate (or safe rate) is a market-wide parameter that applies to all firms. The rate used by the CAA in the calculation of the original CP1 7.75% figure was based on a range of 3.5% to 3.8%. More recently, in the context of the 2003 airport reviews, the CAA identified a range of 2.75%-3.25% with a mid-point of 3.0%.
- 10.10 Looking forward, the CAA will need to consider its approach for deriving a suitable risk free rate for use in calculating the CP2 regulatory cost of capital. Again, the CAA will be mindful of best regulatory practice. We note in this regard that the Joint Regulators' cost of capital study⁴⁶ concludes that a reasonable assumption for the risk free rate is 2.5%, whilst more recently Ofgem advocate a slightly wider range of 2.25% to 3.0% for the *expected* safe rate.⁴⁷

Equity Risk Premium

- 10.11 The Equity Risk Premium (ERP) is again a market-wide parameter and not specific to NERL. The CAA assumed an ERP in the range of 3.5%-5.0% as a basis for determining the CP1 regulatory cost of cost of capital. In most recent decisions, the Competition Commission have adopted an ERP in the range of 2.5%-4.5%, and we note that Ofgem have recently advocated an ERP at the upper end of this range.⁴⁸ In setting this parameter, the CAA would wish to review all relevant recent evidence.

Beta

- 10.12 The CAA adopted an equity beta (this being a measure of risk faced by investors in NERL relative to a more general market portfolio) in the range of 1.1-1.4 in deriving NERL's CP1 regulatory cost of capital. Looking forward, since there is no reference point from equity markets for the value of NERL's equity, the CAA would need to rely on estimates from traded stocks that bear some resemblance to NERL in terms of their general business characteristics and exposure to non-diversifiable risks. As part of this exercise, the CAA might explore comparators from other utilities, potentially characterised by one or more of the following:
- high operational leverage (high proportion of fixed costs relative to variable cost); and/or
 - a relationship with a regulator, involving exposure to price controls.
- 10.13 The CAA might also need to consider the non-diversifiable risks borne by NERL. In particular, the CAA is mindful that NERL currently bears 50% of traffic volume risk (the residual revenue implications of a deviation in traffic volumes from a 'base' forecast being borne by users, as part of a symmetrical risk sharing arrangement brokered as part of the 2003 exceptional user contribution). Furthermore, should traffic levels fall beyond a pre-specified benchmark, NERL is currently subject to only 20% of traffic risk.

Debt premium

- 10.14 The CAA will need to formulate a view of NERL's cost of debt, as expressed by the sum of the risk-free rate and the expected debt premium. In its CP1 advice, the CAA used a range of 1.2%-1.8% for the debt premium. This was based on a market observation of corporate credit premiums, predicated on the assumption that the

⁴⁶ Smithers & Co., 'A Study into Certain Aspects of the Cost of Capital for Regulated Utilities in the UK', February 2003

⁴⁷ Ofgem, 'Electricity Distribution Price Control Review: Background Information on the Cost of Capital', March 2004

⁴⁸ Ibid.

premium range demanded by investors for holding 'Single A' corporate credits above gilts was an appropriate benchmark.

- 10.15 Despite NERL's bond refinancing of £596 million in 2003, there is still no observable measure of the *current market value* of NERL debt, since the bond issue was 'credit wrapped' (effectively 'guaranteed') by MBIA. The CAA may however, gain some insight into prospective debt premia, as implied by NERL's investment grade credit rating, and from the pricing of guarantee facilities provided to NERL by MBIA. Building to some degree upon this base, the CAA might therefore wish to consider conducting a review of observable credit premiums applicable to a range of suitable benchmark companies that display similar investment grade credit ratings to NERL. This could inform the CAA's consideration of an appropriate range for the debt premium for CP2.

Gearing

- 10.16 For CP1, the CAA's advice to Government suggested that a forecast regulatory gearing level of 50% should be assumed; a level that turned out to be below NERL's regulatory gearing of 86% following the Composite Solution (March 2003).
- 10.17 Whilst both the CAA and the Competition Commission used forecast gearing in the course of the Manchester and BAA airports reviews, the CAA recognises that Ofwat tends to use an 'optimal' (an 'assumed') level of gearing. In large part, this is due to the range of gearing levels displayed by the water utilities. This approach is similar to that of Ofgem where most recently, gearing of 50-60% is assumed for the distribution companies in aggregate. Against this background the CAA intends to weigh-up the merits of the alternative approaches to expressing gearing; based either on actual, forecast, or assumed levels.

Tax

- 10.18 The treatment of tax is an important issue in deriving the regulatory cost of capital. In its CP1 advice, the CAA recommended an effective CP1 tax rate for use in calibrating a pre-tax real cost of capital. We note that the use of an effective (company specific) tax rate is an element of the approach now proposed by both Ofgem, although Ofgem intend to pursue a post-tax approach to setting the cost of capital. The CAA recognises the range of alternatives to the treatment of tax, and would therefore wish to consider the comparative merits of adopting:
- a **pre-tax** real approach, whereby the cost of equity is 'grossed-up' by the value of the tax shield; or
 - a **post-tax** real approach, whereby the cost of debt is adjusted for the tax shield.
- 10.19 The CAA might also consider the merits of applying an effective tax rate, as an alternative to the prevailing rate of corporation tax. An effective rate may imply that neither the cost of equity, nor the cost of debt are adjusted for the full rate of corporation tax – rather a NERL-specific tax allowance would be calculated.

The CAA would welcome views on the considerations the CAA should take into account in assessing the level of the inputs to the CAPM.

Appendix 1 – NERL's Top 30 En Route Customers

- 1 The table below shows which airlines contribute the most to of NERL's Eurocontrol revenue. It also compares the proportion of user charges paid by the members of the Airline Group with their shareholding.

		% of user demand (share of national charge)	% of NATS shares
1	British Airways	16.1%	6.7%
2	Lufthansa	5.0%	
3	bmi British Midland	4.0%	6.1%
4	Ryanair	3.8%	
5	United Airlines	3.4%	
6	KLM	3.1%	
7	American Airlines	3.1%	
8	easyJet	3.0%	5.5%
9	Air France	2.9%	
10	Aer Lingus	2.7%	
11	Delta Air Lines	2.3%	
12	Northwest Airlines	2.3%	
13	Air Canada	2.2%	
14	Go Fly	2.0%	
15	MyTravel Airways	2.0%	5.9%
16	Virgin Atlantic	1.9%	6.1%
17	Britannia Airways	1.9%	5.9%
18	Jersey European	1.6%	
19	KLM UK	1.6%	
20	SAS	1.4%	
21	Air 2000	1.4%	
22	Continental Airlines	1.4%	
23	Thomas Cook Airlines	1.2%	
24	Swiss	1.2%	
25	US Airways	1.0%	
26	Monarch Airlines	0.9%	5.5%
27	Alitalia	0.7%	
28	Martinair	0.6%	
29	Icelandair	0.6%	
30	EAT	0.6%	

Source: CRCO, NATS en-route data, 2002/3

*British Airways includes BA Citiexpress

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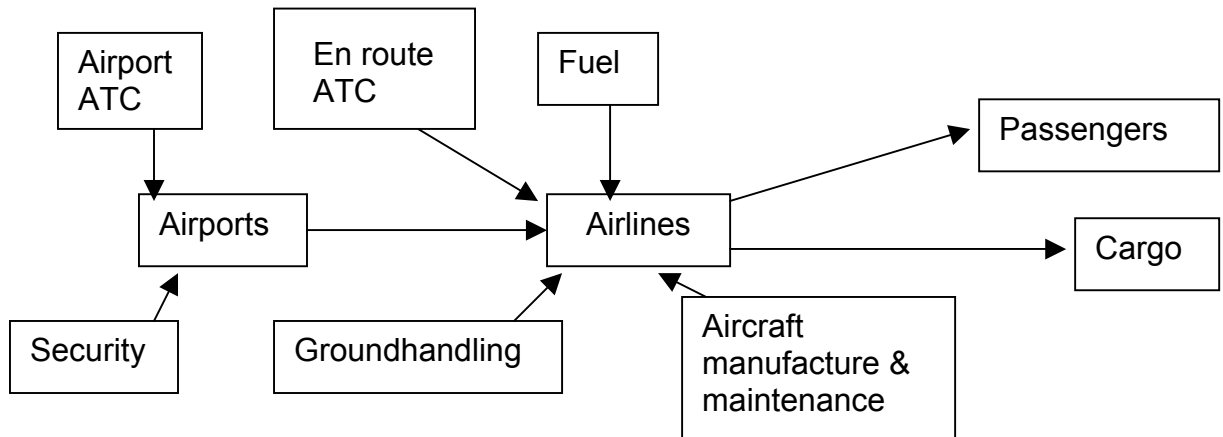
Appendix 2 – Contingency for Competition Commission reference

- 1 The current price cap on Eurocontrol charges in NERL's licence expires on 31 December 2005 (31 March 2006 for Oceanic charges). The CAA plans to announce its final decision on the new price caps in October 2005. If NERL accepts the decision the new cap on Eurocontrol charges would come into effect on 1 January 2006. The timing of the decision would allow the new charges to be subject to the normal Eurocontrol procedures for establishing the UK rate. If, on the other hand, NERL does not accept the decision the CAA would have to make a reference to the Competition Commission. The length of time this might take is not easy to predict but a period of between 10 and 14 months could elapse from the time of the reference to the final decision. This would mean that it might not be possible to announce a final decision until the second half of 2006.
- 2 If there were to be a reference to the Commission any price cap that emerges from its investigation would, we presume, be effectively back-dated to 1 January 2006. However, NERL will want to charge users on and from 1 January 2006 and will need a sound basis for doing so that is consistent with Eurocontrol principles and does not compromise the CAA's ability to set a price cap for 2006. It seems to the CAA that these objectives would be achieved through NERL bringing into effect on 1 January 2006 charges that are consistent with the CAA's decision even though that decision is contested. These charges would be a conditional basis and adjustments would be made in the charges applying over the succeeding years to reflect any under- or over-recovery in charges following the implementation of the Commission's recommendations.
- 3 NERL has agreed with this approach and is ready to give the necessary commitments to the CAA. However, the CAA would like to know that there is broad industry support before confirming these interim arrangements.

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Appendix 3 - Description of the Market

- 1 The diagram below shows in a simplified way how air traffic control fits into the aviation supply chain.



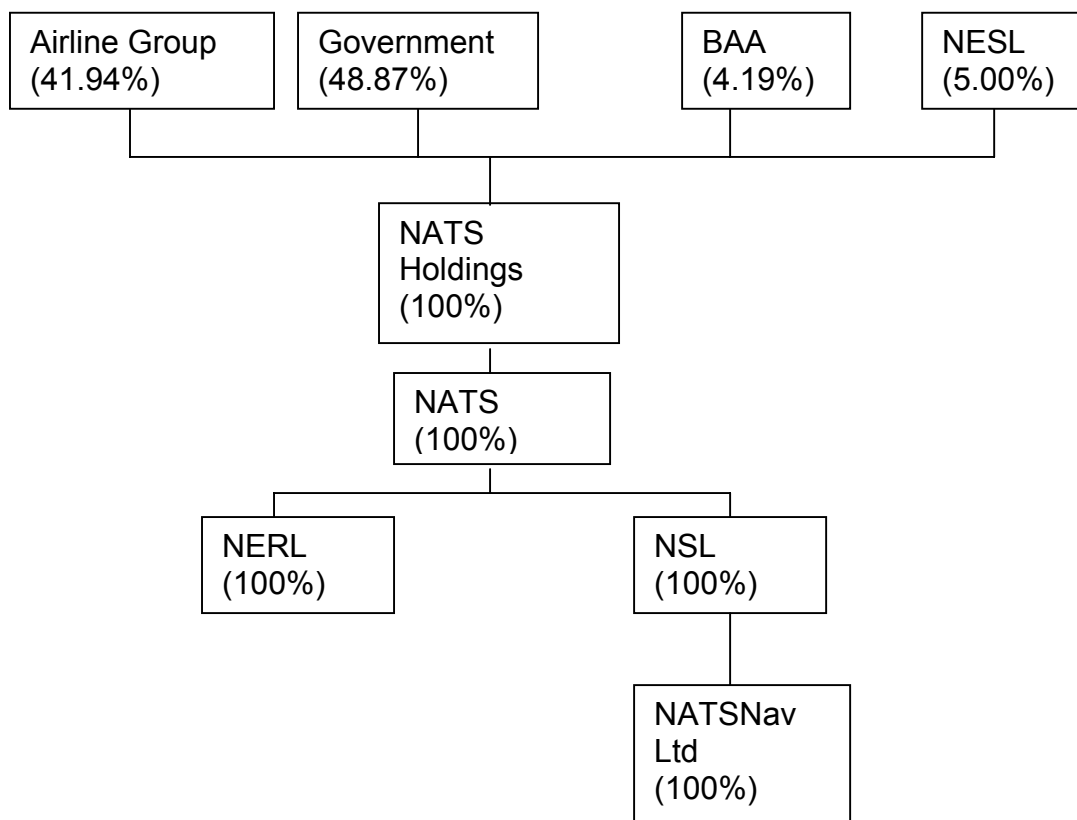
The AEA Handbook 2002 shows en-route ATC costs as about 5% of airlines costs, compared with fuel 14%, aircraft manufacture and maintenance 22% and airport and handling costs 16%.

- 2 Air traffic control is a vital part of the aviation supply chain. It assists in the safe and expeditious movement of aircraft through airspace and at an airport. The basic task is to maintain both lateral and vertical separation between aircraft. On a typical flight an aircraft on stand would require permission from air traffic control to move off-stand, it would then be guided by air traffic control on the ground at the airport and onto the runway and given clearance for take-off. Air traffic control would also give instructions on the departure path the aircraft should take. In the air the aircraft must obey instructions from air traffic controllers when it is in controlled airspace. Airspace is divided into sectors, so during a flight an aircraft will pass from one sector to another and from one team of controllers to another team. In uncontrolled airspace there is no mandatory control but aircraft may request assistance. On approach to its destination airport an aircraft would be instructed onto an arrivals path by air traffic control. It would require permission to land and would be guided by air traffic control on the ground onto a stand.
- 3 Air traffic control can basically be divided into two: en-route control which handles aircraft in flight and airport control which handles aircraft taking off, landing and while they are on the ground. In most of Europe airspace is divided according to national boundaries with responsibility for the provision of air traffic services the responsibility of the member state. The Government has granted NATS a statutory monopoly of civil air traffic control in UK airspace. NATS also has the responsibility to provide a service over part of the North Atlantic. (The latter comes from an international agreement which apportions the responsibility for air traffic services over the North Atlantic between a number of countries). It currently provides en-route air traffic control from four centres:
 - London Area Control Centre at Swanwick, Hampshire
 - London Terminal Control Centre at West Drayton, Middlesex
 - Scottish Area Control Centre and Oceanic Area Control Centre at Prestwick, Ayrshire
 - Manchester Area Control Centre at Manchester Airport

- 4 In the future NATS plans to provide both UK and Oceanic en route services from just two centres, the existing centre at Swanwick and a new one at Prestwick.
- 5 NATS provides air traffic control at fourteen airports in the UK including the top eight in terms of passenger numbers (Heathrow, Gatwick, Manchester, Stansted, Birmingham, Glasgow, Edinburgh and Luton). At other airports air traffic control is provided either by the airport company itself or on contract by an alternative supplier. East Midlands, Bristol and Newcastle are the largest airports in terms of passengers which carry out their own air traffic control. The main alternative supplier to NATS is Serco, but the largest airport (in terms of passengers) it provides a service to is Scatsta which is only the 28th largest airport in the CAA's latest monthly statistics. Using the CAA 's 2002 annual airport statistics NATS provided air traffic control at airports covering about 90% of passengers and about 55% of air traffic movements.
- 6 The Ministry of Defence employs its own controllers but buys some services and infrastructure from NATS. There is some overlap of civil and military air traffic control with civil controllers providing a service to some military flights in controlled airspace and military controllers providing some service to civil flights outside controlled airspace.
- 7 Air traffic controllers require a variety of equipment in order to provide a service to aircraft. Most important is the communications equipment which enables controllers to talk to pilots and to exchange data with aircraft. Controllers also rely on radar to enable them to locate aircraft. NATS provides the communications and radar infrastructure and also navigational aids which allow aircraft to establish their position.

Description of NATS

- 8 The current structure of the NATS Group is shown below Airline Group is owned by a consortium of seven UK airlines (British Airways, bmi, Virgin Atlantic, easyJet, Monarch, Britannia and MyTravel). Its sole undertaking is its involvement in the NATS Group. NESL is a trust company for the benefit of NATS Group staff. There is a Strategic Partnership Agreement which gives the Airline Group the right to appoint the majority of the members of the Board of NATS Holdings. Under the agreement the Airline Group, the Government and BAA all have rights of veto over certain major decisions of the NATS Group.



- 9 NATS employs all the Group's staff with management service agreements governing their availability to NERL and NSL. NERL provides en-route air traffic services while NSL provides air traffic services at airports. There is an inter-company service agreement which covers transactions between NERL and NSL. NATSNav Ltd was set up to provide funding support to the Geostationary Navigation Overlay System, a European satellite service provider.
- 10 In terms of turnover NERL accounts for 84% and NSL 16% of total turnover. This is shown in the table below as is the relative profitability of the businesses and NATS overall profit and loss position.

NATS group turnover and segmental analysis, year ended 31 March 2003 (£m)

	Turnover	Profit/(loss)	Net assets/(liabilities)
NERL activities	466.1	50.4	766.9
NSL activities	86.6	8.5	0.1
NATS (turnover/profit on ordinary activities before interest/net assets excluding cash balances and loans)	552.7	58.9	767.0
Loss on repurchase of debt		(27.8)	
Net interest payable and similar charges		(60.1)	
Net debt			(702.3)
Loss on ordinary activities before taxation		(29.1)	
Net assets			64.8

Source NATS Holdings accounts (2002/3)

11 Staff are employed by NATS and seconded to NERL and NSL. The number of staff seconded on 31 March 2003 is shown in the table below.

Staff numbers at 31 March 2003

	Seconded to NERL	Seconded to NSL	NATS
Air traffic controllers	1,430	530	1,961
Air traffics service assistants	802	218	1,021
Engineers	1,100	130	1,242
Others	478	103	864
Total	3,810	981	5,088

NERL's Business

12 In order to carry out en-route air traffic control NERL needs a licence, which was issued by the Government and is regulated by the CAA. The licence requires NERL to provide core activities and other specified services. As described in Chapter 7 the core activities are:

- the provision of en route services to aircraft operating in UK controlled airspace (UK en route service);
- the provision of en route services in the Shanwick Oceanic Control Area. The Area is part of the North Atlantic in which, by international agreement, the UK provides navigation services and Ireland communications services (Oceanic en route service);
- the giving of advice and instructions to aircraft in specific areas outside controlled airspace (advisory control service);
- the provision of air traffic services to aircraft arriving at or departing from Heathrow, Gatwick and Stansted airports (terminal approach service). This service is on the borderline between en route and airport services.

13 The specified services are:

- aeronautical messaging network;
- air traffic operational telephone network;
- emergency fixing facility;
- emergency frequency facility;
- navigational infrastructure services;
- North Sea helicopter advisory service;
- nuclear and chemical accident service;
- surveillance infrastructure services;
- UK Aeronautical Information Service;
- UK flight information service; and
- UK meteorological information service.

- 14 NERL receives revenue from the UK en route service, the Oceanic en route service, the terminal approach service and the North Sea helicopter advisory service. It receives no separate income from the advisory control service and the other specified services which are remunerated through the UK en route service charge. NERL also receives income from a contract to provide services and facilities to the MoD.

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Appendix 4 – Route charge formula

- 1 Member States provide air traffic control (ATC) facilities and services to ensure the safe, efficient and expeditious flow of air traffic through their airspace. They recover the costs of providing these facilities and services by means of route charges levied on users of their airspace.
- 2 A charge is levied for each flight performed under Instrument Flight Rules (IFR) in the Flight Information Regions (FIRs) falling within the competence of the Member States. This charge takes into account the distance flown and, less than proportionately, the aircraft weight.
- 3 The total charge per flight collected by EUROCONTROL (**R**) equals the sum of the charges (**r_i**) generated in the FIRs of the individual States (**i**) concerned:

$$R = \sum_n r_i$$

- 4 The individual charge (**r_i**) is equal to the product of the distance factor (**d_i**), the weight factor (**p**) and the unit rate (**t_i**).

$$r_i = d_i \times p \times t_i$$

- 5 (**d_i x p**) is defined as the number of service units in State (**i**) for this flight.
- 6 the **distance factor** (**d_i**) is equal to one hundredth of the great circle distance, expressed in kilometres, between the aerodrome of departure within, or the point of entry into, the airspace of the FIRs of State (**i**) and the aerodrome of first destination within, or the point of exit from, that airspace.
- 7 The entry and exit points are the points at which the lateral limits of the airspace are crossed by the route described in the last filed flight plan. This flight plan incorporates any changes made by the operator to the flight plan initially filed as well as any changes approved by the operator resulting from air traffic flow management measures.
- 8 The distance to be taken into account is reduced by a notional twenty kilometres for each take-off and for each landing on the territory of State (**i**).
- 9 the **weight factor** (**p**) is the square root of the quotient obtained by dividing by fifty (50) the number of metric tons in the maximum certificated take-off weight (MTOW) of the aircraft as follows:

$$p = \sqrt{\frac{MTOW}{50}}$$

- 10 Where the maximum take-off weight authorised of the aircraft is not known to the CRCO, the weight factor is calculated by taking the weight of the heaviest aircraft of the same type known to exist.
- 11 the **unit rate** (**t_i**) for flights in the FIRs of State (**i**) is determined for specific periods and is published by that State.

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Appendix 5 - The domestic and international policy framework

The UK policy framework

- 1 The Transport Act 2000 is the principal legislation that governs the provision and economic regulation of air traffic services in the UK. It provided for the transfer to the Secretary of State of the CAA's 100% shareholding in NATS in preparation for the implementation of the Public Private Partnership (PPP) one of whose key aims was to separate the supply of services from their regulation.
- 2 The Secretary of State and the CAA are given specific roles and responsibilities under the Act in the area of economic regulation. For example, the Secretary of State grants licences and exemptions. He also has powers of direction over the CAA in respect of licence modifications and over the Competition Commission in respect of references made by the CAA. He can petition the court for an air traffic administration order.
- 3 The role of the CAA under the Transport Act is principally that of economic regulator, acting by monitoring and enforcing licences and modifying conditions in them. In sharp distinction to the statutory framework for the regulation of airports, the Transport Act does not specify the nature of the controls on the regulated company. Within a statutory process the CAA is free to propose modifications to conditions, including changing existing conditions, removing them or adding new conditions.
- 4 In deciding on future price controls the CAA is bound by the objectives of Section 2 of the Transport Act. Subject to an overarching duty to maintain a high standard of safety, these are:
 - to further the interests of users (broadly defined);
 - to promote efficiency and economy by the Licensee;
 - to secure that the Licensee will not find it unduly difficult to finance activities authorised by its licence;
 - to take account of the UK's international obligations;
 - to take account of the Government's environmental objectives where these are notified to the CAA.

The CAA must also impose the minimum of restrictions that are consistent with the exercise of its regulatory functions.

- 5 In addition to the statutory framework, the CAA published a Statement of Regulatory Policy as part of the Composite Solution in March 2003. The Statement is designed to increase regulatory stability and continuity for NATS.

The Chicago Convention

- 6 The existing framework for the provision of air navigation services in UK airspace was established following the signing of the Convention on International Civil Aviation (the Chicago Convention) in 1944. Article 28 of the Convention places an obligation on signatory states, including the UK, to undertake, so far as practicable, to provide in their territory airports, radio services, meteorological services and other air navigation facilities to facilitate international air navigation, in accordance with the standards and practices recommended or established from time to time pursuant to the Chicago Convention.

- 7 Article 15 of the Convention has been specifically notified to the CAA by the Secretary of State as an international obligation of the UK that the CAA must take into account when performing its economic regulatory functions under the Transport Act 2000. Under this Article, uniform conditions are to be applied by a state to aircraft of another contracting state as to its own aircraft for the use of air navigation facilities. As far as charges are concerned, a non-state aircraft may not be charged a higher amount than an aircraft of the home state when engaged in similar operations or, in respect of international scheduled air services, when engaged in similar international air services.

ICAO

- 8 The International Civil Aviation Organisation (ICAO) was established through the Chicago Convention. Its aims and objectives are to develop principles and techniques of international air navigation and to foster the planning and development of international air transport so as to achieve a number of stated objectives. ICAO publishes material that is relevant to the setting of charges for air navigation services. This includes:
- Statement of ICAO's policies on charges for airports and air navigation services (Doc 9082/6). This document is reviewed from time to time and the latest edition was published in 2001 following a Conference on the Economics of Airports and Air Navigation Services. It covers the cost basis for charging, the allocation of costs among users, charging systems, pre-funding of projects, currency issues, approach and aerodrome control charges, en-route charges and consultation with users.
 - Manual on Air Navigation Services Economics (Doc 9161). This supplements the ICAO policy statement and is designed to assist states in the implementation of the policies. This document is currently being reviewed by a panel drawn from a number of ICAO member states including the UK.
- 9 Neither of these ICAO documents are legally binding on member states and have not been notified to the CAA as representing international obligations of the UK. However, they are widely considered to have some force and member states departing from them are expected to notify ICAO of any differences applied nationally.

Eurocontrol

- 10 The UK is a signatory to the Eurocontrol International Convention relating to Co-operation for the Safety of Air Navigation of December 1960. A revised Convention was opened for signature in June 1997 and which has yet to be ratified by the UK. The key roles of Eurocontrol include working to improve the co-ordination of air traffic control systems throughout Europe, to optimise the use of European airspace, prevent air traffic congestion and to carry out research and development aimed at increasing European air traffic capacity.
- 11 So far as charges are concerned the UK is a signatory to the Multilateral Agreement relating to Route Charges of February 1981 (this has also been notified to the CAA by the Secretary of State as an international obligation the CAA must take into account). Contracting States agreed to adopt a common policy in respect of charges for en route air navigation facilities and created a joint system for the establishment and collection of route charges via Eurocontrol. Each flight across Eurocontrol airspace receives one bill (in Euros) for en route services regardless of the number of contracting states overflown. This amount is calculated, billed and collected by the Central Route Charges Office (CRCO) which then remits the appropriate amounts to each of the states whose air navigation services have been used.

- 12 Eurocontrol prescribes the common basis of charging, a combination of aircraft weight and distance flown, which is set out in its publication “Conditions of Application of the Route Charges System and Conditions of Payment” (Doc No 02.60.02/1 of November 2002). Eurocontrol also lays down the principles for establishing the cost base for route facility charges and the calculation of the unit rates. The general approach is that providers of air navigation services may set charges so as to recover their expected costs subject to an adjustment for actual costs two years later. An exception to this was agreed in 1999 to allow for an alternative mechanism in those states that adopted independent economic regulation. This alternative mechanism requires states that opt for a system of independent economic regulation to recognise the importance of user consultation and of the provision of information to users. It also allows regulators to take financial issues into account and to monitor and enforce performance standards.
- 13 In 1998 Eurocontrol established the Performance Review Commission following adoption of the European Civil Aviation Conference (ECAC) Institutional Strategy. This states that “an independent Performance Review System covering all aspects of ATM in the ECAC area will be established to put greater emphasis on performance and improved cost-effectiveness in response to objectives set at a political level”. The PRC prepares annual Performance Review Reports, benchmarking reports on Air Navigation Service Providers (ANSPs) and ad hoc reports. The PRC has published six Performance Review Reports and a seventh is in production.
- 14 Finally, Eurocontrol itself provides air traffic services in parts of Northern Europe from its Maastricht Centre.

The European Commission

- 15 The European Commission has competence in a number of areas, including transport. The Community has established or proposed legislation in many areas that affects air transport either directly or indirectly but it has only relatively recently turned its attention to air traffic management. The Commission has now adopted four regulations that cover the essential elements for a European Air Traffic Management System (known as Single European Sky or SES). These are:
 - The Framework regulation for the creation of the SES which sets the objective of enhancing safety, efficiency and performance for general air traffic in Europe.
 - The Organisation and Use of Airspace in the SES whose object is to achieve a more integrated operationally focused airspace with common procedures for its design, planning and management.
 - The Provision of Air Navigation Services in the SES which establishes common requirements for the safe and efficient provision of air navigation and creates a system of certification and designation of Air Navigation Service Providers.
 - The Interoperability of the European Air Traffic Management Network whose aim is to overcome the varying levels of integration between national air traffic management systems and to facilitate the introduction of new concepts of operation and technology which offer greater capacity and efficiency.
- 16 The detailed methods of implementation of each of these measures is still to be worked out as is the precise timing of them coming into practical force. However, it is likely that key developments (for example the adoption of Implementing Rules for ANSP certification and Interoperability) will occur while the NATS review is still underway. Furthermore, the development of new innovative concepts such as Functional Airspace Blocks may alter the scope of existing service provision arrangements, including the

associated infrastructure, away from a nationally constrained entity. Given this likelihood the CAA will, of course, take account of any relevant developments in the implementation of SES that might influence either the future conduct or the outcome of the NATS review.

- 17 The European Commission will introduce measures to bring a common European Air Traffic Controller Licence into effect. While not regarded as an integral part of the SES programme, the common European ATC Licence will be developed and implemented concurrently with SES. Through mutual recognition of basic qualifications, this measure will open the European market for Air Traffic Control personnel resource.

GLOSSARY OF TERMS

AENA	The Spanish air traffic service provider
AG	The Airline Group – a consortium of seven UK airlines that holds a 42% shareholding in NATS
AICC	Assets in the course of construction
CAA	Civil Aviation Authority
CAPM	Capital Asset Pricing Model
CASPIAN	The new centre system for Swanwick and Prestwick
CFMU	Central Flow Management Unit of Eurocontrol
CNS	Communication, Navigation and Surveillance
CP1	First Eurocontrol price control period 2001-2005
CP2	Second Eurocontrol price control period 2006-2010
CP3	Third Eurocontrol price control period 2011-2015
CSU	Chargeable Service Unit – the basic unit for Eurocontrol charges
DAP	Directorate of Airspace Policy
DaVinci	Data and voice integrated digital communications network
DFS	The German air traffic service provider
EGNOS	European Geo-stationary Navigation Overlay Service
FDP	Flight Data Processing system
GAATS	Gander Automated Air Traffic System
iFACTS	Initial Future Areas Control Tools Support – new tools to assist controllers
iTEC	Interoperability through European Collaboration
LACC	London Area Control Centre at Swanwick
LMARS	London Military system
MoD	Ministry of Defence
NERL	NATS (En Route) plc – the licensed business of NATS
NSL	NATS Services Ltd – the unlicensed business of NATS
PPP	Public Private Partnership
PRC	Performance Review Commission of Eurocontrol
RAB	Regulatory asset base
RPS	Regulatory Policy Statement published by CAA in March 2003
SAATS	Shanwick Automated Air Traffic System
SACTA	The Spanish air traffic control system
SIP	NATS' Service and Investment Plan
TC	London Terminal Control currently at West Drayton
UKATS	United Kingdom Air Traffic Service