

NATS (En Route) plc

RP2 Revised Business Plan (2015-2019)

Appendices

Revised Following Customer Consultation

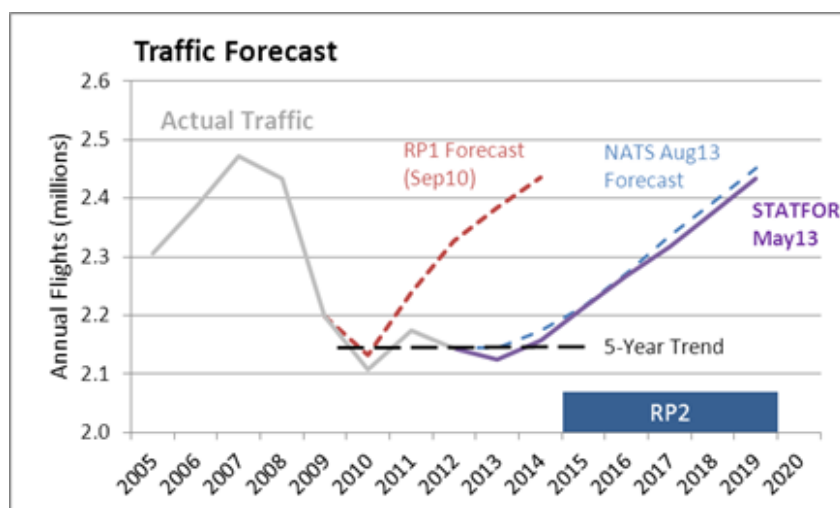
18th October 2013

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Appendix A: TRAFFIC FORECAST

The basis of our Traffic Forecast...



The traffic forecast underpinning this plan has been derived from the STATFOR May 2013 Forecast for 2013 & 2014, with 2015-2019 growth rates based on the STATFOR Medium Term Forecast 2013 (known as MTF13) published at the end of February 2013. STATFOR is the forecast source the CAA expects NERL to use for this revised business plan, although the CAA has no objection to NERL considering sensitivities using its own forecasts. The STATFOR forecast is, on average, c. 0.5% p.a. lower over the RP2 period than NATS' August 2013 forecast. The close alignment of the STATFOR and NATS Forecasts provides confidence in using the derived STATFOR forecast as a reference for the traffic outlook underpinning the Plan.

The forecast is influenced by current expectations that, in the near-term, there will be no or very low growth in the Eurozone and airline operators will maintain a cautious approach to network expansion. A slight improvement is expected for RP2, though the average annual flight growth (c. 2.4% pa in RP2) is projected to be below the previous historical trend (i.e. 2005-07). Flight volumes and service units are now forecast to reach previous (2007) peak traffic levels only beyond the end of RP2. This is markedly later than Europe as a whole (2017), reflecting the severity of the impact of the financial crisis and slow recovery in the UK.

Uncertainty surrounding the rate and sustainability of economic recovery in the UK and Europe means downside risk exists, with any delayed traffic recovery resulting in a continuation of the current flat-line trend into RP2. In the light of this uncertainty, NERL expects to update the CAA on later forecasts in order that it can take into account the best traffic information in setting RP2 prices.

STATFOR Base Case Forecast Growth Rates (May 2013 Update to MTF13)

	Forecast Growth (Year-on-Year)		Average Annual Growth RP2
	2013	2014	
UK Flights	-0.9%	1.5%	2.4%
Service Units	-1.2%	1.7%	2.7%

Inputs and Assumptions

Key inputs and assumptions underpinning the STATFOR growth forecast combine flight statistics with economic growth forecasts and with models of other influencing factors in the industry such as airport capacities (infrastructure improvements but no runway expansion before the end of RP2), and load factors (high).

Against this, the derived STATFOR May-13 Base Forecast represents a 'most likely' scenario:

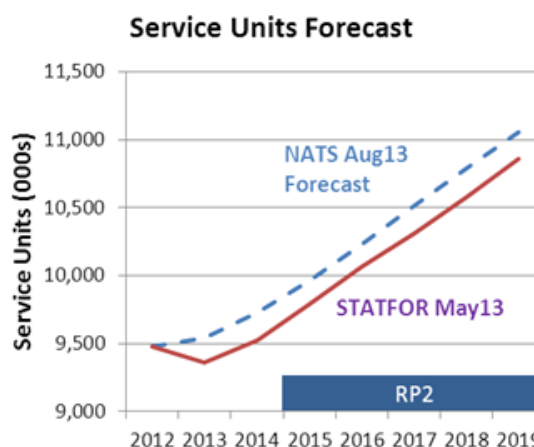
- The near-term outlook is based on a continuing uncertain outlook in the Eurozone which, in combination with continued high oil prices and in some cases difficulties in accessing finance, is conspiring to create a drag on network expansion and material traffic growth. Airline operators continue to respond through a strong focus on managing yields by exercising capacity discipline, even in the face of recovering passenger demand.
- The medium-term growth outlook reflects recovery in major economies (UK, EU and US) from 2014, though no bounce back and gradual growth to trend. It also reflects current high load factors being unable to absorb increasing passenger demand.

Resulting Service Unit Forecast

Service Units, which are a function of aircraft weight and distance flown, are used as the basis for charging NERL's En Route airline customers. The volume of service units is calculated by combining forecasts of distance factors and weight factors with the flight forecasts. The future distance and weight factors are derived from observed historical trends of average flown distance and average Maximum Take-Off Weight (MTOW) of aircraft on arrivals, departures, internals and over flights.

The chart below shows that the derived STATFOR May-13 Base Service Unit forecast for RP2 is lower than NATS' forecast from August 2013 – this is a result of observed increases in service units per flight used for rebasing the NATS August 2013 Forecast. This difference is c. 1.8% p.a. over the RP2 period.

May-13	Service Units (000s)	% Growth
2015	9,789	2.8%
2016	10,068	2.8%
2017	10,306	2.4%
2018	10,579	2.6%
2019	10,856	2.6%

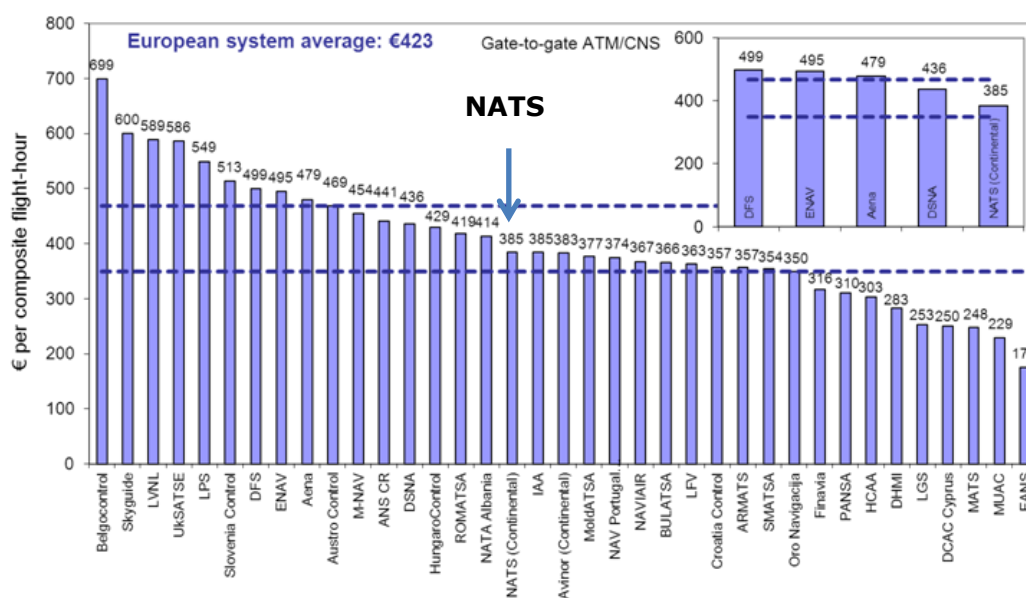


Appendix B: ANSP BENCHMARKING

There is a range of metrics that can and should be used to benchmark ANSP performance. One single measure cannot accurately provide a balanced picture. The purpose of this Appendix is to set out some of the relevant benchmarking information published by independent sources.

Recent PRC Results

The latest publicly available (2011) data from the EUROCONTROL Performance Review Commission (PRC) on the cost-effectiveness (ACE) benchmarking of European ANSPs are shown in the chart below. They show that NATS is around mid-table with the 17th highest (out of 37) unit costs in Europe in 2011, but placing us best of the big five ANSPs (inset chart).



The numbers refer to gate-to-gate unit costs per composite flight-hour i.e. En Route + Terminal (airport) unit costs. The PRC uses gate-to-gate costs as its metric to avoid the problem of different cost allocation between the En Route and Terminal cost-bases across Europe. Most of NATS' costs (c. 80%) are those of NERL. Composite flight-hours consist of En Route flight-hours factored up for airport movements.

Comparing like-with-like

Amongst the group of 37 ANSPs covered in the ACE 2011 report, some are better comparators with NATS than others because there are important differences in operating environments that bear directly on costs.

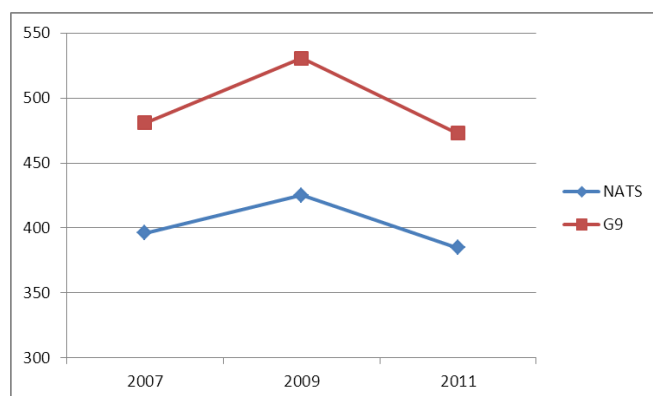
To gain a better sense of our position and trends compared with others, we need to compare ourselves with a peer group that has broadly similar traffic conditions, cost of living and preferably size. Therefore, we have repeated the comparison made by the CAA for the RP1/CP3 review of NATS and a group of nine other ANSPs (G9): Aena (Spain), Austro Control (Austria), Belgocontrol (Belgium), DFS (Germany), DSNA (France), ENAV (Italy), LVNL (Netherlands), Maastricht (EUROCONTROL), and Skyguide (Switzerland).

On the basis of the 2011 ACE benchmarking data set out above NATS has the second lowest unit costs out of this group of ten (including NATS). However, this must be qualified since Belgocontrol and LVNL handle only lower airspace whilst Maastricht handles only upper airspace. All of the other ANSPs in the group handle traffic in both lower and upper airspace.

In addition Maastricht is not cross-charged for the parts of the Belgian, Dutch and German infrastructure it uses. Hence the unit costs for MUAC, Belgocontrol, LVNL and DFS are not strictly on a comparable basis.

The figure below compares NATS with the average for the G9 ANSPs. It can be seen that NATS has been significantly lower than the G9 average during the period 2007-2011.

NATS' Unit Cost vs G9 Average (€2011 prices)



Explanatory factors

The figure below shows a comparison between NATS and the G9 average at component level.

NATS Unit Costs in 2011 compared with G9		
	WORSE	BETTER
		18% Controller Productivity
		18% Controller Employment Cost
Capital Related Cost	14%	
		28% Other Labour Cost
		12% Non-Staff Operating Cost

Controller Productivity: measured as the number of composite flight-hours per controller on duty. NATS' controller productivity was 18% better than the average of the G9 in 2011. This suggests effective management in the operations room, with resourcing well matched with the distribution of traffic.

Controller Employment Costs: measured per controller hour spent on duty in the Operations room. NATS' controller unit employment costs were 18% lower than the average of the G9 in 2011. However, the impact on the G9 average of the high Aena costs should be noted.

Other (Non-Controller) Labour Costs: measured per composite flight-hour and covering unit employment costs for all other staff – namely air traffic assistants, engineers, management and support staff. NATS' figure was 28% lower than the G9 average.

Non-Staff Operating Costs: measured per composite flight-hour and covering energy, communications, contracted services, rentals, rates, insurance and exceptional costs. Here our costs per unit of output were 12% lower than the G9 average in 2011.

Capital Costs: The PRC regards capital costs as consisting of depreciation and the cost of capital. In 2011 our figure was 14% higher than the G9 average. This is not unexpected, given our need to obtain financing from commercial markets on a fully risk adjusted basis. Other ANSPs in Europe do not necessarily operate on this basis.

Key conclusions from ACE 2011 analysis

- NATS' gate-gate unit cost is low in comparison with its peers;
- NATS is particularly strong with respect to ATCO productivity and employment costs (for both ATCOs and non-ATCOs); and
- NATS performs less well with respect to capital-related costs which reflect market factors.

Unit Cost versus Price

The focus of the PRC ANSP cost benchmarking analysis is on what it regards as ANSP-controllable costs presented on a like for like basis as measured by International Accounting Standards as appropriate:

- Staff costs;
- Non-staff Direct Operating Costs;
- Depreciation;
- Cost of Capital; and
- Exceptional Costs.

Under the EU Charging Regulation, the air navigation charges from ANSPs to airspace users will include additional items, including costs of regulation, traffic volume risk sharing and inflation variances. In NERL's case, further differences arise from recovering service quality incentives earned, pension costs on a fully funded basis and regulatory depreciation which includes cost of capital at fully commercial rates. Many ANSPs do not have financial incentives and some have different pension arrangements (e.g. are part of State level pension schemes).

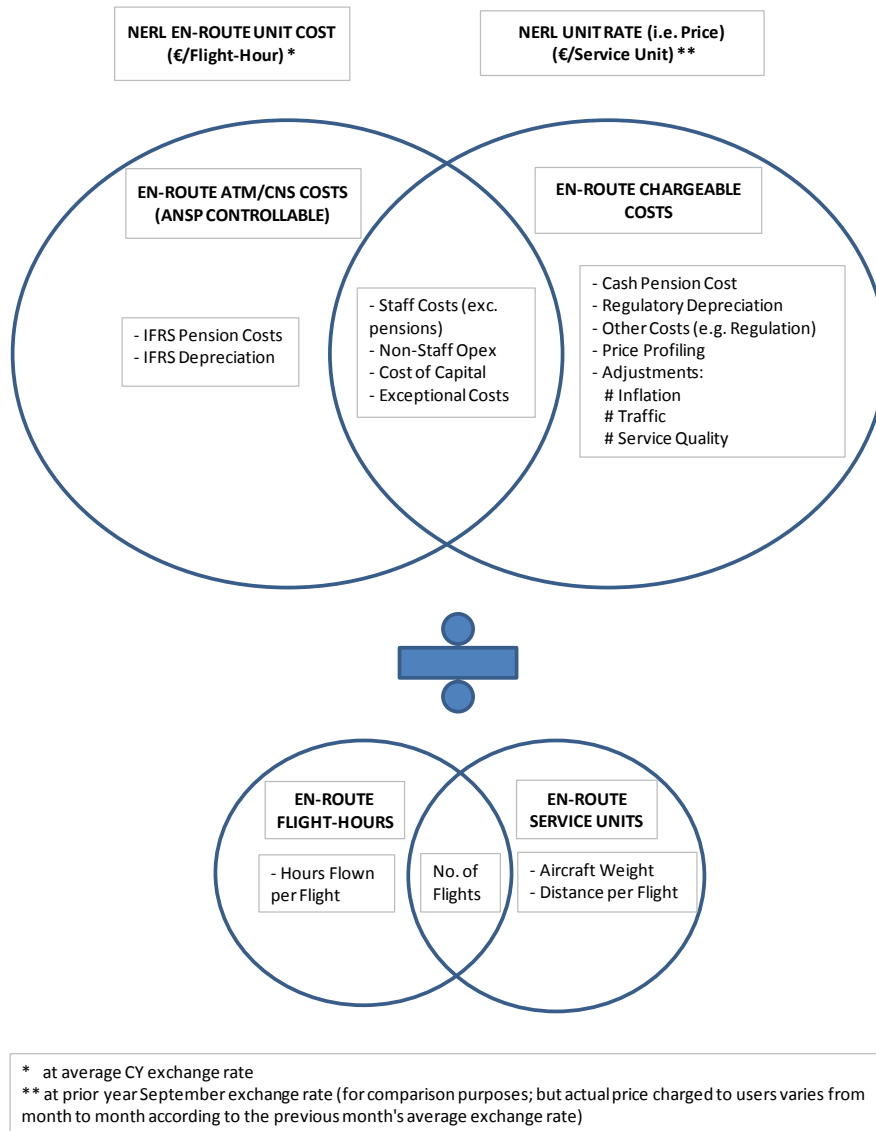
Given that NATS does not impose direct terminal navigation charges on users, a comparison between our unit cost and unit rate can only be made for En Route.

This is illustrated in the diagram below. The left side circle highlights costs used in cost-effectiveness benchmarking; the right side circle shows the costs used in unit rate calculations.

This shows that there are important differences in the cost figures applied in the numerator. Furthermore, the output metric in the denominator to compute the unit rate (price) is Service Units (distance flown and aircraft weight) while unit cost is computed on flight-hours. In comparison with Service Units, Flight-hours is arguably a better measure of the service provided to an aircraft (and hence of the workload incurred by the ANSP). This is because, although the distance flown element of each Service Unit bears some relation to the service provided (and in fact distance and flight-hours have previously been shown to correlate quite well), aircraft weight has no significant impact on controller workload in En Route airspace.

Finally, NERL’s prices are subject to exchange rate variation. 9% of the increase in the NERL 2013 unit rate was caused by the depreciation of Sterling against the Euro. In the ACE benchmarking analysis non-€ currencies are converted at the average rate during the year in question. In the unit rate comparison tables produced (in November/December) by the EUROCONTROL Central Route Charges Office for the next year the exchange rate used is normally the current year’s September value. However, the actual unit rate charged (in €) to users during the year varies according to the previous month’s average exchange rate.

EN-ROUTE UNIT COST vs UNIT RATE



In summary, NERL’s cost efficiency compares favourably with its peer group and with other ANSPs when benchmarked on a like for like basis using International Accounting Standards and relevant output measures (flight hours). Currently, NERL’s unit rate is relatively higher reflecting a range of factors such as the traffic mix (smaller number of service units compared with some other large ANSPs), the requirement to raise finance in commercial markets and exchange rate fluctuations.

Appendix C: ATM IMPACT ON AIRLINE COSTS

Reducing airlines' indirect ATM-related costs...

The Revised RP2 Business plan describes how we are continuing to drive cost efficiencies which enable reductions in the determined unit cost (DUC), i.e. airlines' direct costs of ATM. In addition, the plan influences a number of factors affecting airline operating costs, primarily in terms of capacity, delay and fuel burn – i.e. indirect ATM-related costs.

The analysis below assesses the influence our plan has on airlines' indirect costs.

NERL recognises that these costs can be very material to airline customers. This information is provided to inform discussion and to make sure NERL takes the right informed actions to help reduce indirect ATM costs.

Extent of NERL Influence on Indirect ATM Costs

The table below summarises our analysis which is then explained in more detail. The values reflect NERL's best estimate of the financial cost of delays and flight inefficiency due to a number of different causes.

ATC constraints often only account for a relatively small percentage of the total cost, and therefore the ability of NERL to reduce these costs will, in some cases, be limited. However, by working with other network partners (e.g. regulatory bodies, airports, airlines, other ANSPs), there is scope for significant cost saving. A number of NERL initiatives and investments in RP2 are designed to make a material contribution to the achievement of these savings.

Cost Area	En Route RP2 target	Eurocontrol Categorisation	Described in this Appendix	How airlines costs are affected	Current Cost Estimate £m pa	Basis of valuation	
Flight Efficiency *	Yes	Flight Efficiency	Flight Efficiency	Fuel	c. £470m	NATS internal modelling	
ATFM Delay - En Route - NERL capacity		ANS Performance (En Route ATFM Delay)	ATFM Delay	Ground Delay	c. £20m	Using PRB values for the cost of delay	
ATFM Delay - En Route - Other incl weather	ANS Performance (Airport)				Other Airport Delay		Airborne Delay
ATFM Delay - Airport Arrival incl. weather		No	Start Up Delay	c. £50m			
Additional Taxi Out Time				c. £75m			
Airborne Holding					c. £35m		

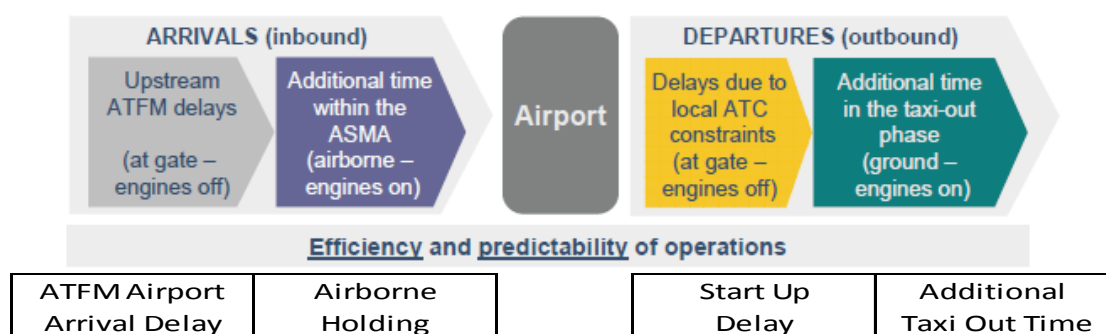
* NERL's measure of Flight Efficiency is based on 3Di (vertical and horizontal for the full flight including TMA) whereas the SES Environmental KPA relates only to En Route horizontal flight efficiency

The current cost estimate reflects the estimated current cost (per annum) in 2012 (in some cases, the average of 2011 and 2012 is used). It will not be possible for ATC improvement actions to fully remove this cost; in the cases of start-up delay and taxi-out time, the scope for NERL to enable savings will be particularly limited.

Consistency with Eurocontrol methodology

This assessment is designed to be as consistent as possible with the approach used by Eurocontrol in assessing the full range of ATM impacts on airline costs. The Performance Review Report 2011 measures the impact of Operational ANS Performance both for the En Route service (ATFM delay & flight efficiency) and at Airports.

Specifically in relation to Operational ANS Performance at Airports, Eurocontrol recognises the following four categories of airport delay, which are closely aligned to the four categories of delay measured and described by NERL within this Appendix:



Quantifying indirect ATM-related costs...

The remainder of this appendix describes the following: Flight Efficiency, ATFM delay – both En Route and Airport, and finally Other Airport Delay). The methodology used to estimate the value of indirect costs is also explained.

1. Flight Inefficiency

In the CP3 consultation process, airlines indicated their strong support for the NATS environmental programme and in particular our aspiration to reduce fuel burn and CO₂ emissions by an average of 10% per aircraft by 2020 against a 2006 baseline. At that time, airlines also requested that NATS be financially incentivised on delivering its programme of fuel and emissions savings.

In response to that request, and in the absence of a specific ATM efficiency metric, NATS agreed a set of metric criteria with the airlines and regulator. This led to the development of the 3Di Score, an entirely new way of measuring airspace inefficiency that met the agreed criteria. 3Di was accepted by airlines and the regulator as an incentivised metric and deployed as part of the NERL licence at the start of 2012. This new metric, which has a UK domestic airspace scope (as defined by the CP3 settlement), sits alongside the NATS strategic 10% ATM fuel burn and CO₂ target. Further information can be found at www.nats.co.uk/environment/3di.

The NATS strategic 10% fuel burn and CO₂ target is still useful in terms of tracking enabled savings and in particular provides an insight into the likely future enabled benefits accruing to large scale LTIP projects such as LAMP and NTCA. Alongside the fuel and emissions target and benefits analysis capability, 3Di is proving a valuable way of measuring the day to day performance of the airspace efficiency of the UK domestic network. Also, it is a tool through which NATS has been able to engage its operational stakeholders in the need to improve airspace efficiency.

Both metrics have played an important part in enabling NATS to drive airline fuel and emissions efficiency to the core of our business. The 3Di metric has continued to be strongly supported by customers during the recent RP2 consultation process. Airlines

have also valued the ability to be able to evaluate the fuel burn and CO₂ enabled benefits alongside 3Di performance. Therefore, as far as possible, our business plan aims to relate potential future fuel efficiency savings to our 3Di score. The relationship between these two metrics is set out later in this appendix (section 4).

During RP2, the main strategic improvements to flight efficiency will come from investment in:

- *Modernised airspace structures* – implementing a fundamentally more efficient route structure, the flexible use of airspace, based on a higher transition altitude and precision navigation with closer spaced routes, making maximum use of aircraft navigation performance to reduce aircraft CO₂ emissions.
- *New technology and tools:*
 - 1) Queue management (arrival and departure management) to achieve efficient traffic sequencing on busy runways and eliminating stack holding in normal operations, freeing up airspace to increase continuous climbs and descents
 - 2) Advanced flight data processing, high level sectors and multi-sector planning to facilitate optimum routes and profiles across several airspace sectors.

Indirect Cost Benefit Analysis for Flight Efficiency

Basis of indirect cost estimate	What influences indirect cost reduction	Main enabling investments	Potential indirect cost saving by end RP2
NERL 3Di modelling estimated fuel cost of flight inefficiency in NERL's airspace in 2012 = c. £470m pa , against 3Di baseline score of 24 ¹ ∴ 1 point on 3Di score = c. £20m pa.	Airspace and route design (investment) Queue management tools and techniques (investment) Multi sector planning (investment) Tactical (operational staff)	LAMP Transition Altitude NTCA Queue Management MSP	Revised Plan: -9 3Di points* = c.£180m pa <i>* the relationship between 3Di and fuel savings is complex. An equivalent value of fuel saving may be achieved with a less significant improvement in 3Di performance</i>

2. ATFM Delay

Two types of ATFM delay are included in this analysis:

En-route ATFM departure delay – is a function of our capability to manage traffic demand and network disruptions (e.g. weather, airport issues) in our airspace sectors.

Today there is very little delay to flights as a result of NERL's performance, with average NERL attributable delay c. 5 seconds per flight (average 2011 and 2012) and weather and other factors also very low (c. 2 seconds in 2011 and 2012).

Airport ATFM Arrival delay – delays mainly to weather at the destination airport but including other factors too. The information below highlights that Airport weather accounts for the majority of ATFM delays over the last three years (of which high wind is the most significant factor). Heathrow also has by far the largest proportion of Airport delays

¹ Improvements to data and modelling techniques underpinning 3Di will need to be implemented in the coming years. This will require a re-evaluation of the baseline 3Di performance and the impact of these improvements on the scores in line with standard model maintenance protocols.

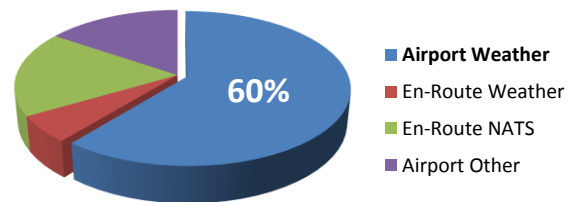
Although NERL ability to influence this is limited, investments during RP2, particularly Time Based Separation, suggest that an overall reduction of up to 20% in ATFM arrival delay may be achievable by reducing the impact of high wind at Heathrow and other large airports.

Analysis of ATFM Delay Causes

ATFM Delay Breakdown

Airport Weather is the dominant cause of ATFM delays
 En Route ATFM delays are relatively low compared to Airport Arrival ATFM delays

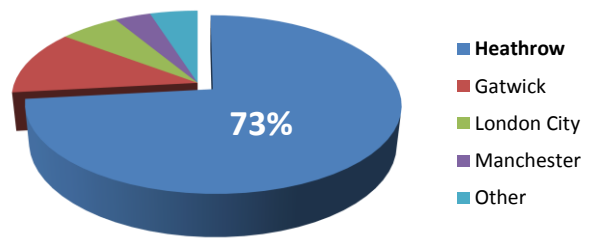
ATFM Delay: 3 Year Average (2010-2012)



ATFM Arrival Airport Delay Breakdown

Heathrow has the by far the greatest proportion of Airport ATFM delays.

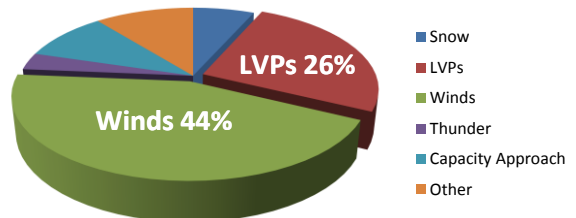
Airport ATFM Delay: 3 Year Average (2010-2012)



Heathrow ATFM Arrival delay

70% of Heathrow's Airport ATFM delays are due to bad weather, with strong winds reducing the airport's landing rate being the biggest single cause.

Heathrow Arrival ATFM Delay: 2 Year Average 2010-11



Indirect Cost Analysis for ATFM Delays

Basis of indirect cost estimate	What influences indirect cost reduction	Main enabling investments	Potential indirect saving by end RP2
En Route			
Average delay per flight in 2011 & 2012 NERL attributable: 5 seconds per flight Weather: 2 seconds per flight Cost estimate @ €81 per minute (PRB value) = £20m pa	Adequate staffing for service consistency (operational manpower & investment in productivity tools) Structural airspace capacity (investment)	None	Revised Plan: No change (avoid increase in delay)
Airport			
Average ATFM weather delay in 2011 and 2012 = c. 17 seconds / flight Cost estimate @ €81 per minute (PRB value) = £45m pa	Reducing weather related delay (investment) Queue / network management tools and techniques (investment)	Time Based Separation (enabling a reduction of up to 50% in wind related delays) Queue Management Network Management	Revised Plan: estimated <u>saving</u> of up to 20% = c.£10m pa

3. Other Airport Delay

This section describes the following types of other airport delay:

- Start-up delay: the measurements used in this analysis have been recorded by NERL for major airports in 2012, calculated as the difference between start request time and start approved time
- Additional taxi out time: the measurements in this analysis are based on Eurocontrol data for 2012 calculating the difference between unimpeded taxi out time (taxi-out time when there is no congestion) and the actual taxi out time. This measurement does not take into account that the scheduling baseline for Heathrow includes a maximum of 10 minutes delay at the holding point.
- Airborne holding and sequencing delay: based on NERL data for 2011 and 2012

While NERL has relatively little direct control over these delays, this high level analysis suggests that there is a large opportunity for NERL to work with all network partners to achieve a significant reduction in airport delays and hence, airline costs.

In combination with reducing fuel burn, our strategy for reducing airport delays is:

- Optimise the capacity of London and Manchester TMA airspace design to ensure a resilient airport operation at Heathrow, Gatwick, Stansted and Manchester (investment in LAMP and NTCA programmes);
- Queue management providing an efficient and more predictable flow of aircraft on busy runways with minimal airborne holding or start-up delays (investment);
- Implementing Time Based Spacing to maintain landing rates during strong headwind conditions (investment);
- Improved network management capabilities to balance network demand / capacity from mismatches due to weather, airport issues (investment and manpower).

Analysis of Other Airport Delay

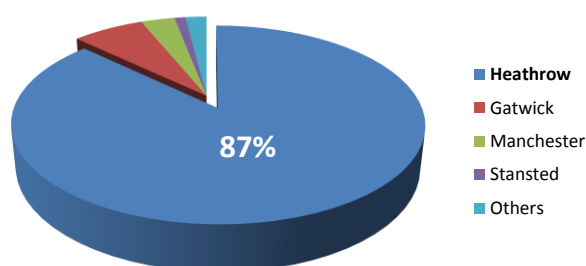
Start Up delay and Additional Taxi Out Time

- ATM-related causes include:
- Congestion on SID routes
 - Weather avoidance (thunderstorms)
 - Network congestion in the TMA where multiple airfields feed into the same route
 - Downstream ATFM delays in enroute and arrival airport
 - Short Term Air Traffic Flow and Capacity Measures (STAM) to protect airspace/routes from demand spikes.

Airborne Holding

Due to a combination of the airport operating at its capacity limit and the above factors, Heathrow accounts for the vast majority (87%) of all airborne holding at UK airports.

Airborne Holding (total mins): 2 Year Average 2011-12



Indirect Cost Analysis for Other Airport Delays

The indicative values in the table below are provided to give customers a high level estimate of the current cost of these delays and the scope for potential savings that could be realised if improvements are made in the network across industry during RP2.

A number of key investments which NERL plans to implement during RP2 are highlighted. Many of these enabling investments are at very early stages of development, but working with airlines, airports and the regulatory organisations – as part of FAS and other initiatives, we believe there is significant scope for cost savings.

Basis of indirect cost estimate	What influences indirect cost reduction	Main enabling investments
<p>Start Up Delay</p> <p>Start-up delay of c. 700,000 minutes; cost estimate @ €81 per minute (PRB value for tactical delay cost) = £50m pa cost</p> <p><i>Note that this measure includes ALL causes of start-up delay. A reduction in ATC constraints will only make a partial saving in overall Start Up delay</i></p>	<p>Reduce SID, STAM & TMA congestion delay:</p> <p>Optimised airspace design and PBN (investment)</p> <p>Queue / network management tools and techniques (investment)</p>	<p>LAMP (SID redesign)</p> <p>NTCA</p> <p>Queue Management</p>
<p>Taxi-Out Delay</p> <p>Additional taxi-out time of c. 3 million minutes; cost estimate @ €27 per minute (PRB value for strategic delay cost) = £75m pa cost</p> <p><i>The information used for this analysis is sourced from Eurocontrol for 2012. Note that a reduction in ATC constraints will only make a partial saving in Taxi Out delay</i></p>	<p>Similar factors which affect Start Up Delay</p>	<p>LAMP (SID redesign)</p> <p>NTCA</p> <p>Queue Management</p>

Basis of indirect cost estimate	What influences indirect cost reduction	Main enabling investments
Airborne Holding		
Average total airborne holding delay in 2011 & 2012 = 1.4m min Cost estimate @ €27 per minute (PRB value) = £35m pa cost	Queue / network management tools and techniques (investment) Reducing weather related delay (investment) Optimised airspace design and flexible arrival routes (investment)	Queue Management TBS LAMP NTCA
<i>Note: the fuel impact of airborne holding is captured within Flight Efficiency (3Di)</i>		

4. Basis of Estimating Indirect Cost Impact

Cost of Flight Inefficiency and the relationship between 3Di, CO₂ and enabled fuel savings

NERL undertook a study in 2012 which estimated that the current value of inefficient domestic fuel burn in domestic and terminal airspace, measured by the 3Di flight efficiency index, is £470m pa. This was measured against a baseline 3Di score of 24 for 2012. It is estimated that one point of 3Di saving is worth approximately £20m pa to airlines.

The methodology used for this study was to estimate the amount of additional fuel burn in the UK network over and above the amount required to allow an aircraft to fly an optimal user-based trajectory derived from its flight plan. This was based on the same methodology used for the 3Di score, measuring additional fuel burn in the four areas of inefficiency: track extension and level-offs in climb, cruise and descent.

Horizontally, this methodology converts the excess track mileage into additional fuel burn using a ratio of fuel burn per mile based on the aircraft type and requested flight level (RFL) of the flight. In the vertical plane, for flight-legs that are sub-optimal, an estimate is made of the expected fuel burn if the leg had been optimal and this value is then compared to the actual fuel burn for that flight leg.

This enables a calculation of additional fuel burn to be made for each flight leg and subsequently each area of inefficiency. This methodology has been applied to all En Route flights in 2012. This is converted to a monetary value based on a fuel price of £650 per metric tonne. This is the cost that was used in the Initial Business Plan and as, at the time of writing the Revised Business Plan, there has been no material change this has been maintained for consistency reasons.

Of course, not all of the 3Di flight inefficiency can be influenced by NERL. Examples of other factors include the impact of noise preferential routes, the impact of traffic flows across international borders, airport and airline decisions, and the need to safely separate aircraft. Therefore it will not be possible for NERL to reduce the 3Di score to zero. Nonetheless, NERL is committed to making reductions in the 3Di score during RP2 which we believe to have very significant financial value to airline customers.

However, for a number of reasons listed below, customers could realise even more fuel savings than represented in this plan and as measured by the 3Di metric. This is because the 3Di metric does not capture fuel saving benefits arising from:

- savings outside of domestic airspace
- savings within Oceanic airspace
- savings at airports on the ground (e.g. aircraft taxiing)
- certain climb and descent gradient improvements not captured by 3Di
- certain changes related to speed not captured by 3Di
- savings from airlines carrying less fuel arising from flight efficiency improvements

Therefore, in practice customers may realise a level of fuel savings exceeding those captured by 3Di.

The relationship between enabled fuel savings and changes in the 3Di score is complex. Therefore, NERL believes it will be important for the regulator to measure the company’s performance against the finally decided flight efficiency target using a combination of improvement in 3Di score and other project based evidence across the full range of airspace that we can influence.

Alongside 3Di, NATS will continue to measure its performance against its strategic 10% ATM fuel burn and CO₂ target.

Cost of delay

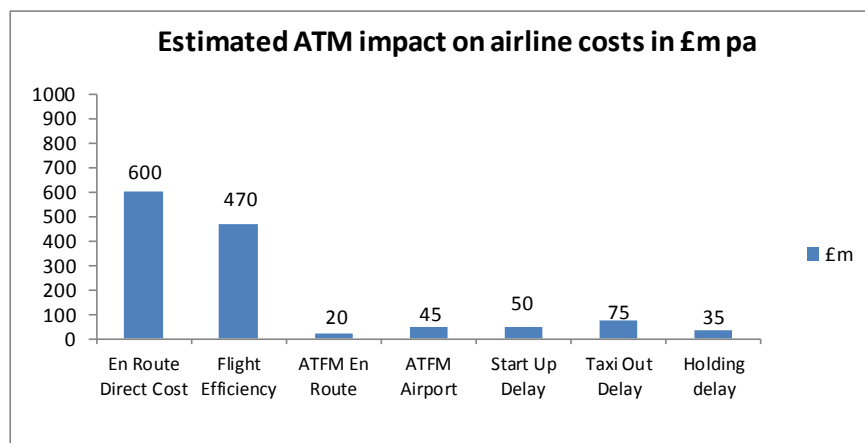
NERL has used PRB valuation techniques to estimate the cost of delay within this document. These values used for this analysis are those contained within the Performance Review Report 2011, sourced from University of Westminster 2011 report on European Delay costs (European airline delay cost reference values, Final Report (Version 3.2), University of Westminster, March 2011).

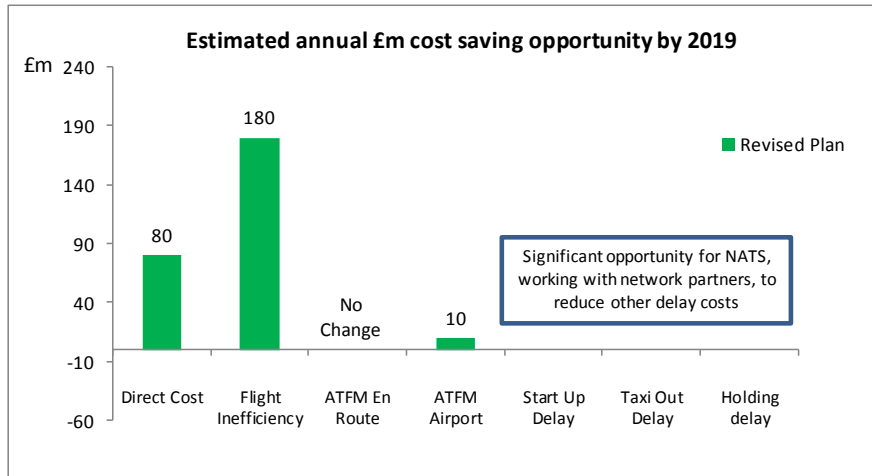
Values in the Performance Review Report 2011 are quoted in Euros and in 2010 prices. Adjustments have been made to update the values for latest inflation and to convert to Sterling at a rate of £1 = €1.15

Delay type	Category	Cost value	Cost Areas captured
ATFM Delay (all types) and Start Up Delay	Tactical	€81 / min (2010 prices) = £75 / min (2012 prices)	Crew costs, maintenance costs, passenger compensation costs and passenger opportunity costs
Holding Delay and Additional Taxi Out time	Strategic	€27 / min (2010 prices) = £25 / min (2012 prices)	Crew costs, maintenance costs, aircraft ownership

When assessing the benefit of individual business cases, NERL makes a distinction between delays of greater than and less than 15 minutes and also adjusts to take into account the mix of aircraft which use UK airspace.

Total impact and cost saving opportunity





Values are for 2012 (or average of 2011 and 2012 in some cases). The En Route Direct cost saving reflects difference between the RP1 National Performance Plan for 2012, and NERL's projection for 2019 (2012 prices)

Appendix D:

ECONOMIC REGULATORY MODEL FOR RP2

This Appendix describes the key features of the economic regulatory model that we expect to apply to En Route, London Approach and Oceanic Services in RP2. This framework remains subject to potential change following decisions by EU and UK regulatory authorities.

UK En Route services

The UK En Route unit rate is the aggregate of the following four components:

- *NERL*: the costs of providing UK En Route services;
- *CAA*: Directorate of Airspace Policy costs and depreciation fees;
- *DFT*: UK's allocation of Eurocontrol fees; and
- *Met Office*: costs of providing weather forecasts for civil aviation.

This Business Plan addresses the first of these items, which accounts for approximately 88% of the UK En Route unit rate.

Approach to developing prices for RP2

Many of the key regulatory build blocks of the economic model for RP2 will remain unchanged from NERL's previous regulatory periods (CP1, CP2 and CP3/RP1). However, there are some important differences to how the regulatory authorities will determine an appropriate level of prices, particularly the introduction of top-down target setting under the Single European Sky Performance Scheme. The three key steps for reaching a price settlement for RP2 are as follows:

First, EU-wide targets are established for improvements to En Route cost efficiency (determined unit costs) and some operational performance areas. National regulators will set targets for other operational areas;

Second, at the CAA's request, NERL develops a bottom up business plan, established in accordance with the regulatory building blocks described below. Following customer consultation and challenge and review by the CAA, the business plan will be revised as appropriate. Subsequently, the UK and Irish Governments will prepare a UK/Ireland FAB wide performance plan for RP2;

Third, the PRB/EU will assess whether the FAB plan makes an "adequate contribution" to the achievement of EU-wide targets for En Route cost efficiency and other operational performance areas. Where the contribution is judged to be sufficient, the plan is accepted. Where the contribution is judged to be insufficient, the business plan (and therefore the regulatory building blocks) would be adjusted and re-submitted for approval.

A summary of the expected national, FAB and EU level process for deciding the targets and plans for RP2 is set out below.

RP2 Planning Process

	2013			2014			
	Q2	Q3	Q4	Q1	Q2	Q3	Q4
UK/FAB activity	NERL consultation with customers on NERL Business Plan NERL presents revised NERL Business Plan to CAA		UK/Ireland draft FAB Performance Plan prepared	Consultation on draft FAB Performance Plan	FAB Performance Plan submitted to PRB/EC		
EU activity	PRB consultation on RP2 targets	EC proposal on RP2 targets	EU decision on RP2 targets			PRB/EC assessment of Performance Plans	EU decision on Performance Plans

Building blocks of En Route prices

The model for economic regulation for En Route services is a price cap model, which specifies a maximum increase in determined unit costs. Determined costs comprise the following core building blocks:

Efficient operating costs: operating costs (“opex”) make up the majority of NERL’s cost base, including staff costs (including cash pension costs), non-staff costs and exceptional items;

Depreciation of the RAB: NERL needs to fund capital investment (“capex”) to develop the infrastructure necessary to provide the required level of services to customers in RP2 and beyond. In line with commercial practice, the costs of this investment are spread over prices charged to customers over an assumed lifespan of the asset base rather than recovered in full in just a single year.

Adequate regulatory return: the final building block of determined cost provides a return to NERL’s providers of capital on a fully commercial basis. This covers the costs of debt and tax as well as providing a market based rate of return to shareholders reflecting NERL’s underlying risk. The regulatory profit is calculated as the size of the RAB multiplied by the cost of capital decided by the CAA.

Single Till (or non-regulated) income: determined costs are calculated net of certain other NERL sources of revenues, such as London Approach income, revenue from NERL’s FMARS contract with the MOD, North Sea Helicopters and an allowance for generating ancillary revenues from non-regulated sources.

Translating determined costs into NERL’s contribution to the En Route rate

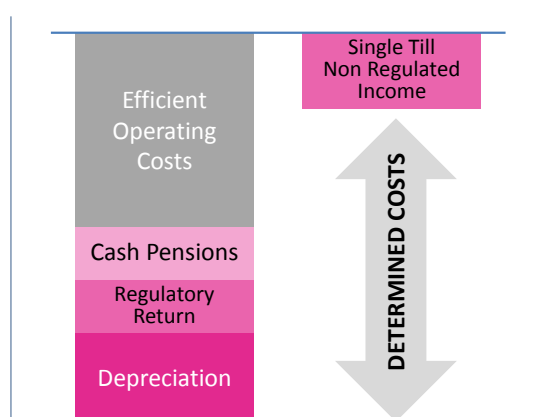
The diagram illustrates how determined costs are calculated by adding the main building blocks and subtracting single till revenues.

The EU target measure for cost efficiency is an improvement in the evolution of determined unit costs (“DUC”). DUC is calculated by dividing determined costs by forecast service units (traffic).

The unit rate actually paid customers is calculated by applying a number of adjustments to determined costs. These include:

- *Traffic risk sharing:* actual traffic levels can turn out to be either higher or lower than

NERL’s Price Building Blocks

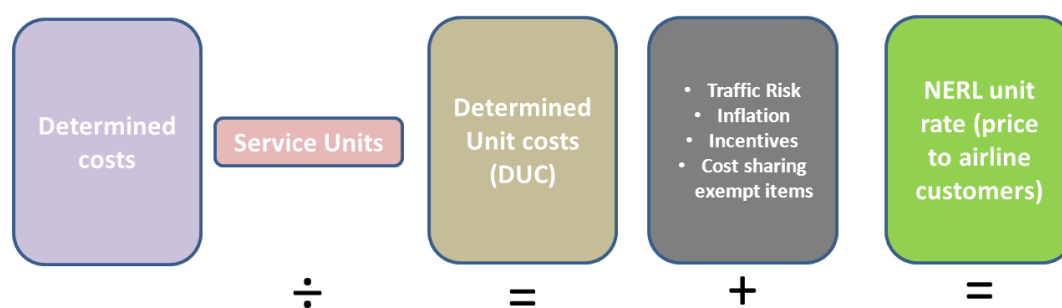


Determined Costs = Total Cost Base less Non Regulated Income

the level of traffic forecast in the agreed Performance Plan. The risk to prices that arise from any variation of actual traffic to forecast traffic levels is shared between airlines and ANSPs. The parameters for this sharing mechanism are set out in the SES Charging Regulation;

- *Inflation adjustment*: the price is adjusted for the difference between the level of inflation underpinning determined costs and the actual outturn level of inflation;
- *Incentives*: the payment of penalties to customers or bonuses by customers for under/over performance respectively;
- *Costs exempt from cost sharing*: this can include for example the risk/saving on certain cost items (eg cash pension costs) can be borne/rebated in full by/to airspace users and restructuring costs (where business case is approved), as specified in the SES Charging Regulation (e.g. Articles 7.4 and 14.2a). In some circumstances, they can be carry overs from previous reference periods.

The process for translating determined costs to the unit rate paid by airline customers is shown in the diagram below:



London Approach prices

The current London Approach service regulatory model currently contains both a revenue cap and a commitment to at least maintain the current level of cost reflectivity of prices over time (measured on an accounting basis).

The London Approach service is not currently included within the scope of En Route cost efficiency targets. NERL expects the CAA to consult shortly on the regulatory treatment of London Approach in RP2 and depending on the outcome of that consultation, the numbers contained in this Business Plan may need to be revised.

Oceanic prices

Oceanic Services are not within the scope of Single European Sky Performance Scheme and therefore the approach to pricing is determined solely by the CAA in line with agreed ICAO principles.

The Oceanic price cap is simpler than the Eurocontrol En Route cap, reflecting the relative size of the service. The Oceanic net revenue requirement is formed of the efficient operating costs, depreciation of the Oceanic RAB and a regulatory return. This requirement has not been offset by other revenue. The net revenue requirement is updated annually using an RPI-Z mechanism.

The Oceanic charge is created using the fixed forecast profile of traffic. This means that there is no volume risk protection for NERL.

CAA planning assumptions for NERL's Revised Business Plan for RP2

The CAA has asked NERL to prepare its Revised Business Plan against a set of assumptions described in full in a letter to NATS on 9th September 2013 (available at <http://www.caa.co.uk/docs/5/20130909%20GoodliffeFotherbyRBP%20Final.pdf>). This updates the CAA's earlier guidance of 14th March 2014 to take into account developments such as the PRB's latest advice on DUC efficiency targets. On 27th September 2013, the Performance Review Body (PRB) published its advice to the European Commission (EC) on EU-wide targets for RP2. Where indicated below, and with the agreement of the CAA, this Plan takes account of the PRB's advice.

The CAA's letter remains guidance only at this stage, and should not be regarded or interpreted as CAA policy for RP2. The main assumptions, which the CAA has reserved its right to change at any time, include:

- *Scope*: no changes to the current basis of regulating or the cost reflectivity of the London Approach or North Sea helicopter services, or to the Single Till arrangements included in RP1
- *Outcome of Customer Consultation*: the RBP should set out how NERL has responded to feedback from customers on the Initial Business Plan and give full regard to users' preferences on the trade-off between changes, flight efficiency and delay
- *Service Units*: allows NERL to prepare and present its Revised Business Plan on the basis of Service Units, with a gross up methodology applied to arrive at the Determined Cost per Total Service Unit measure
- *Target ranges for DUC efficiency*: to meet or surpass the rate of reduction likely to be adopted by the EU. The plan should therefore have regard to targets at the upper end of the expected cost efficiency range. On 27th September 2013, the PRB advised the EC to set an EU-wide cost efficiency target of 2.1% p.a. for Determined Costs, and 4.6% p.a. for Determined Unit Costs (based on the STATFOR Sept 2013 forecast).
- *DUC adjustments*: The measure of DUC should exclude adjustments permitted in the SES Charging Regulation (traffic risk adjustment from previous years, carry overs from the previous reference period resulting from costs exempt from risk sharing, bonuses/penalties resulting from financial incentive mechanisms and for RP1/2, under/over recoveries arising up to the year 2011). Where major restructuring costs are incurred, these will be the subject of a separate business case and excluded from the DUC measure. The Business Plan should show as sensitivities what the DUC would be if the first £25m and the first £50m of any aggregate restructuring costs over RP2 is included within DUC. Payments made in RP2 relating to the existing Rolling Incentive Mechanism (RIM) for RP1 should be included with the DUC definition;
- *Start point for measuring DUC improvements*: NERL's 2014 Determined Costs in the adopted RP1 UK Performance Plan, reduced by the expected losses in en-route revenues for 2014 arising from the application of the traffic risk sharing formula. This methodology was set out in the PRB's advice to the EC on 27th September 2013. For the purposes of this Plan, it replaces the start point methodology (including the request for alternative scenarios) set out in the CAA's letter to NATS of 9th September 2013.
- *Periodicity*: financial and traffic volume information presented on a calendar year basis
- *RP1 recoveries*: Under or over recoveries should be assumed to be made in year N+2 in line with CAA decision in CAP1058. For planning purposes only, NERL should assume a second round adjustment on this initial adjustment in year N+4.

- *Profile*: as a minimum requirement, this should be calculated so that the NPV of the profile is no greater than that would result if DUC was subject to a constant percentage
- *Traffic*: May 2013 STATFOR forecast (MTF13), with NATS' own forecasts presented as a sensitivity where appropriate
- *CPI*: most recent forecast from the IMF (available for 2013 to 2017 only) with Oxford Economics forecast added for 2018 and 2019. RPI forecast to be calculated by adding the value of the "RPI wedge" (the difference between CPI and RPI, sourced from the Oxford Economics inflation forecast) to the IMF CPI forecast
- *Cost of capital (costs of tax, debt and equity)*: NERL will assume a pre-tax real cost of capital based on its own assessment of an appropriate rate for RP2. CAA will engage its own consultants and take other evidence before deciding on an appropriate rate for RP2
- *Regulatory depreciation*: no change to the depreciation policy in RP1.
- *Modifications between the publication of the RBP and the draft FAB Plan*: CAA expects to update NERL's Revised Business Plan to reflect its own decision making, its own consultant studies and European guidelines or advice. In addition, CAA also expects to adjust the plan for other factors such as latest traffic forecasts and certain items such as better information about 2013/14 capex and opex components.

Appendix E: PENSIONS

Our pension mitigation plan – to address a significant increase in pension costs due to market conditions...

One of the economic regulator's 'building blocks' of determined costs is the cost NERL incurs to fund staff pension benefits. The cost of funding defined benefits has continued to rise during RP1, principally due to a deterioration in market conditions which we are not able to control. Despite options being limited by legal protections established at NATS' PPP, we have responded with further important pension reforms to avoid pension cost increases and the knock-on effect on prices to our customers.

Background

The company provides its staff with pension benefits through either a defined benefit pension scheme or a defined contribution scheme.

Prior to 2009, in common with the experience of many other companies across the UK, the cost of providing defined benefit pensions rose dramatically as a result of lower real investment returns and increasing life expectancy, both being outside of the company's control and difficult to foresee. In 2009 the company reformed its pension arrangements as a response to these developments.

The defined benefit scheme was closed to new members in April 2009 and from that date new employees have been able to join a new, and significantly lower-cost, defined contribution scheme with NATS matching employee contributions on a 2:1 basis up to a maximum employer cost of 18% of pensionable salary. In addition to the closure of the defined benefit scheme the company capped the rate of increase in pensionable pay for defined benefit members and put in place a tax efficient salary sacrifice structure to save employer national insurance on employees' pension contributions.

These reforms were introduced following challenging discussions with Trades Unions (TUs) yet were achieved without industrial action or other disruption to the service provided to customers. The range of options open to the company and its TUs in 2009 was limited by virtue of the legal protections provided by the defined benefit scheme's Trust Deed & Rules established at NATS' PPP, and as such, the company was unable to propose many of the changes that other companies made at that time (and since) when addressing the cost of pensions.

The financial benefits of the 2009 pension reforms to customers when compared to the position beforehand were estimated in our CP3 business plan document to be worth c. £200m (for NERL) over the 5 years 2011 to 2015 and a further c. £600m in the ten year period beyond from 2016, although these figures had the potential to vary depending on market conditions.

Notwithstanding the 2009 reforms, the company also recognised that the costs of the defined benefit pension scheme in CP3 would continue to be significant and subject to volatility due to external factors. For this reason, and to help mitigate the impact of rising pension costs on the unit rate, in CP2 the company reduced its underlying operating cost base by £45m from previously planned levels and also put forward further operating cost efficiencies in CP3 (and RP1).

The company's defined benefit pension scheme's funding position, along with the majority of similar UK defined benefit schemes, deteriorated significantly during 2011 due to the reduction in long term real interest rates (as derived from gilt yields) to historical low levels. This was caused by a combination of factors including the Bank of

England's programme of Quantitative Easing to stimulate economic recovery and the financial crisis in the Eurozone. The effect of lower real interest rates has been to increase past service pension liabilities and in turn create an additional funding deficit which without mitigating action would have been materially higher than the deficit applying in 2009.

The 31 December 2009 formal valuation of the NATS pension scheme reported a deficit of £351m, resulting in a pension cost of c. 46%, including deficit contributions under an 11-year recovery plan ending April 2021. The latest formal valuation was performed as at 31 December 2012. Based on the 2009 valuation methodology (as set out in the Trustees' Statement of Funding Principles as agreed as part of that valuation), the scheme's actuary determined that the funding deficit would have increased to £949m as at 31 December 2012. As this is a NATS group scheme, NATS En Route's economic share of this would have been c. £750m.

The company recognised that a funding a deficit of this magnitude would have been unacceptable as it would increase the company's cash pension contributions from c. 46% of pensionable pay today to around 81% by the start of RP2. However, recognising that the scheme funding position had deteriorated during 2011, the company developed and implemented a 'pension mitigation plan' in 2012/13 to help reduce the cost of pensions in RP2.

Mitigation Plan and Valuation Outcome

The mitigation plan was developed to ensure that the burden of increased pension costs would not fall on any single group of stakeholders and that any residual impact on customer charges represents only those unavoidable increases after the mitigations have been applied to the extent practicable.

The main lines of the plan included:

- A re-negotiation with trades unions of a reduction to the cap on the increase in pensionable pay introduced in 2009 for defined benefit members, which had the benefit of reducing the size of the funding deficit;
- A recommendation from the company, supported by its trades unions, that the indexation of future service benefits be linked to CPI instead of RPI, as it was at the time. This recommendation was ultimately accepted and implemented by the scheme Trustees thus reducing the future service cost; and
- Consultation with Trustees to establish funding assumptions which ensured affordable contributions through the remainder of RP1 and RP2 taking account of the strength of the employer's covenant (key to which was the financial support provided to NERL through its economic regulation), the long-term nature of pension provision and the unusual market conditions today. Various amendments to assumptions were agreed and these contributed to both a reduction in the funding deficit and to lower cash contributions during the RP2 period.

As a result of these mitigations the pension scheme deficit was valued at £383m at 31 December 2012: NATS En Route's share of this reduced deficit was c. £300m, compared with c. £750m had there been no mitigating actions. The actions taken have thus limited the impact of the deterioration in market conditions and so avoided higher pension costs and real increases in customer charges during RP2. The reduction of the cap on pensionable pay increases and future service indexation avoids cost increases in RP2 of £200m² although this figure has the potential to vary depending on market conditions.

² After including the impact of amendments to Trustee funding assumptions the costs avoided in RP2 amount to c. £340m, although this figure has the potential to vary depending on market conditions.

Pension Cash Contributions: Defined Benefits Scheme	Now (2013/14)	RP2 Start	RP2 End
As a % of Pensionable Pay	46%	40%	41%

We think the outcome summarised above is the best balance of the interests of trades unions and staff, the requirements of the Trustees of the pension scheme who have a legal obligation to ensure the long term funding of the pension scheme, and of customers. Furthermore we are firmly of the view that a contribution level materially below current levels was not deliverable. As with changes introduced in 2009, we were able to make these changes without an impact on service performance. The actions taken also achieve cash pension contributions for RP2 which are below current levels and which, together with other components of the company's business plan, enables the company to deliver real price reductions to customers in line with EC requirements.

Appendix F: **SES PERFORMANCE PLAN TEMPLATE**

This Appendix describes the format of the Performance Plan specified in the SES Performance Regulation (Commission Implementing Regulation (EU) No 390/2013 dated 3 May 2013). For RP2, this Performance Plan will be established at a FAB level. The table below summarises the key requirements of this template and describes how this plan will contribute to the UK/Ireland FAB Performance Plan.

SES PERFORMANCE PLAN REQUIREMENT	RELEVANT SECTION IN THIS PLAN
1. INTRODUCTION	
1.1 Scope of Plan who it covers (accountable entities)	3. Context
1.2 Macroeconomic Scenario – traffic forecast	3.3 & Appx A Traffic Forecast
1.3 Outcome of Stakeholder Consultation	<i>To be added post consultation</i>
1.4 Implementation of Network Strategy Plan at FAB level	<i>To be added post consultation</i>
1.5 & 1.6 Airports Included in Plan	<i>To be provided by CAA</i>
2. INVESTMENT	
2.1 & 2 Investment in ATM systems, including amount, coherence with ATM masterplan, FAB synergies, benefits across 4 KPAs and cost benefit analysis and user consultation	5.4 Investment Strategy 4. Customer Offerings and Choices
3. PERFORMANCE TARGETS AT LOCAL LEVEL	
3.1 Targets for each Key Performance Area (KPA)	Executive Summary 4. Customer Offerings and Choices
3.1A-C Safety, Capacity, Environment	Executive Summary 4. Customer Offerings and Choices 5.1 Service Strategies
3.1D Cost Efficiency <ul style="list-style-type: none"> • Determined Unit Costs for En Route and Terminal Air Navigation Services • Service Unit Forecasts • Justification for Return on Equity • Carry-overs from RP1 • Economic Assumptions • Cost items within Charging Regulation Art 14.2a • Restructuring costs and net benefits 	Executive Summary 4. Customer Offerings and Choices 5.1 Cost Efficiency Appx A Traffic Forecast Appx H-I Financials and Assumptions
3.2 Consistency with EU-wide Targets	4.4 Alignment with SES Targets
3.3 Any Trade-Offs Between KPAs	4. Customer Offerings and Choices
3.4 Contribution of each ANSP to FAB level targets	<i>To be added post consultation</i>
4 INCENTIVE SCHEMES MECHANISMS	<i>For the CAA to decide</i>
5 MILITARY DIMENSIONS OF PLAN	

SES PERFORMANCE PLAN REQUIREMENT	RELEVANT SECTION IN THIS PLAN
Performance of FUA to increase civil capacity with regard to military mission effectiveness	<i>To be provided by CAA</i>
6 PLAN SENSITIVITY & COMPARISON WITH RP1	
6.1 Sensitivity to External Assumptions	Appx D Economic Regulatory Model Appx H-I Financials and Assumptions
6.2 Comparison with RP1 Performance Plan	Appx C Impact on Airlines Costs
7 IMPLEMENTATION OF THE PERFORMANCE PLAN	
Measures put in place by National Supervisory Authority to ensure targets are achieved	<i>To be provided by CAA</i>

Appendix G: **DETERMINED COST EFFICIENCY & PRICE**

Introduction

Appendix D describes the methodology the CAA has required NERL to use to prepare its business plan for RP2. As part of this, the CAA asked NERL to set out some sensitivities showing the impact of changes in some key assumptions. The purpose of this Appendix is to provide these sensitivities along with other supporting information which NERL believes is relevant in relation to the items below:

1. En Route - Determined Unit Cost Efficiency

- 1.1 CAA's methodology with supporting calculations
- 1.2 Actual underlying methodology with supporting calculations
- 1.3 Determined Unit Cost (DUC) profiles
- 1.4 Sensitivity of DUC efficiency to key factors

2. En Route - Prices

- 2.1 A reconciliation between DUC and the Price paid by customers
- 2.2 Price profiles
- 2.3 Actual price comparison, excluding timing differences

3. Oceanic – Prices

Please note that small rounding differences may occur in the tables in this appendix

1. En Route – Determined Unit Cost Efficiency

1.1 CAA METHODOLOGY

The Performance Review Board (PRB) of the European Commission assesses cost efficiency by measuring the change in Determined Unit Cost (DUC) of an ANSP over time. As described in Appendix D, the DUC is calculated by dividing the total determined cost by traffic volumes (service units).

It should be noted that the PRB uses Total Service Units (TSUs) to calculate DUC. TSUs equal service units (for civil airlines) plus military service units. In the UK, military flights are subject to separate charging arrangements and therefore there are no determined costs or service units to be charged. Adopting the PRB's approach would require NERL to 'gross up' determined costs and use the slightly higher TSU traffic volumes.

However, it has no impact on customer prices or determined unit cost calculations and, therefore, NERL uses Service Units for its calculations. This is explained further in Appendix J (Reconciliation to approved RP1 National Performance Plan).

The calculations and methodology that we have used to describe the headline cost efficiency of the RP2 plan are based on guidance and wording provided to NERL by the CAA. This mainly relates to the three key assumptions which are now described in turn:

A. Composition of the DUC

For establishing the cost efficiency of the Plan, determined costs and therefore the DUC calculated by NERL excludes the following:

True-ups (adjustments to reflect actual, rather than assumed performance) which are permissible in Commission Implementing Regulation (EU) No 391/2013 of 3 May 2013 (“the Charging Regulation”) and for which there is a component in the calculation of the unit rate in annex IV. This exclusion is assumed to include the truing up of the variance in the relevant pension costs in RP1, to the extent that these qualify under Article 14.

Restructuring costs – relating to restructuring and non-capitalisable costs of projects which NERL will incur during RP2, as set out in Article 7 of the Charging Regulation. These are costs incurred by NERL to achieve significant changes in procedures or processes for the benefit of customers, relating to significant one-time costs, rather than minor restructuring costs which reflect the normal run of business over a five year period as evidenced by historic experience.

In this plan all restructuring costs which NERL expects to incur during RP2 have been excluded from the determined cost base for the assessment of cost efficiency. This is on the basis that all such costs benefit customers in RP2.

The CAA has asked NERL to show the impact on the DUC efficiency of the plan if a lower threshold of £25m or £50m was applied to restructuring costs which are excluded from the determined cost base for the assessment of cost efficiency. This is set out in the section ‘Sensitivity of DUC efficiency to key factors’ within this appendix.

Based on NERL’s experience during the last seven years, a further sensitivity is provided which applies a much lower threshold of £10m (£2m per annum) to restructuring costs which are excluded from the cost base for cost efficiency assessment. This reflects NERL’s analysis of restructuring cost that has been incurred in recent years, if the costs of major efficiency programmes (such as centre closure and the £45m cost saving programme, which resulted in a c.15% reduction in staff numbers), are excluded.

B. Start Point, Targets and Traffic Adjustment

B1. Start Point and Target

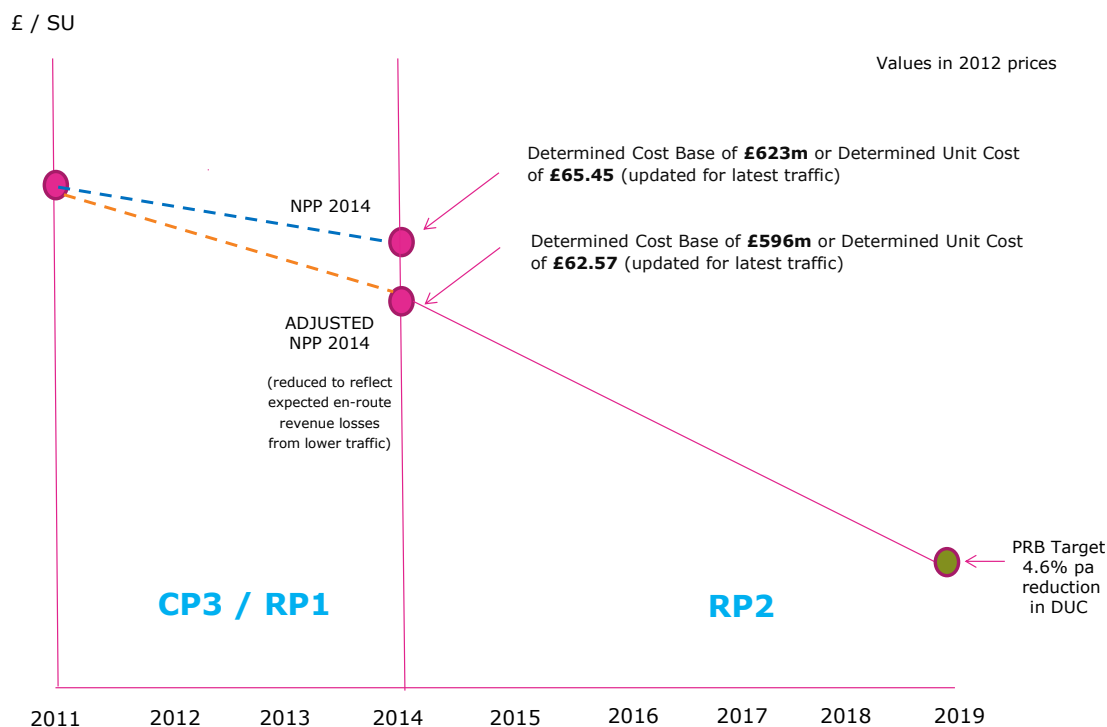
The CAA has asked NERL to use a **start point** for establishing the cost efficiency of the RP2 plan which is consistent with the PRB’s proposal as set out in section 8.5.7 of the September 2013 consultation document.

The PRB guidance is that the start point for assessing cost efficiencies during RP2 should be “States’ / ANSPs’ determined costs for 2014 from the adopted Performance Plans, reduced by the expected losses in en-route revenues for 2014”. This level of determined cost is to be divided by forecast traffic volumes for 2014 to derive the implied determined unit cost start point.

The CAA also asked NERL to produce a plan which, subject to customer preferences and evolving traffic forecasts, meets or surpasses the **target** set out by the PRB, which is set out in the table below:

	2015	2016	2017	2018	2019	Average over RP2
Determined Cost Reduction (real pa)	-1.5%	-1.5%	-2.5%	-2.5%	-2.5%	-2.1%
Determined Unit Cost Reduction (real pa)	-4.1%	-4.2%	-4.7%	-4.9%	-4.9%	-4.6%

The following chart below provides an illustration of the start point and target that the CAA has asked NERL to use in evaluating the efficiency of the RP2 plan:



B2. Start Point Implications

As shown on the previous chart, the orange dotted line reflects the PRB guidance to take NERL’s 2014 determined cost from the UK National Performance Plan (NPP) for RP1 was £623m (in 2012 prices), and reduce this to reflect expected losses in en-route revenues in 2014 (as a result of lower traffic).

Based on latest traffic forecasts, service units are projected to be 12.3% lower than the level assumed in the NPP for calendar year 2014. Applying volume risk sharing rules, NERL’s revenues would reduce by 4.4% (or £27m). The implied determined cost base start point is therefore £596m in 2012 prices. When this is divided by expected traffic volumes in 2014, the determined unit cost start point is £62.57 (2012 prices).

The blue dotted line represents the National Performance Plan for RP1 (agreed by the EC and the CAA and used to set prices for RP1). In 2014, the determined cost base was £623m in 2012 prices. Dividing this by expected traffic levels gives a determined unit cost of £65.45.

The pink line on the chart represents the PRB target for RP2 (a reduction of 4.6% per annum from the adjusted NPP start point).

Within this appendix, NERL has also calculated the actual efficiency for RP2 based on the original 2014 NPP start point (the value in the last year of the blue dotted line). This method highlights the full extent of the levels of cost efficiency improvement achieved in the Revised Business Plan, relative to the approved NPP.

B3. Traffic

The CAA has asked NERL to follow PRB guidance and calculate the DUC start point by using the latest available STATFOR forecast³. It should be noted that NERL has applied Service Units, rather than Total Service Unit forecast to calculate the DUC.

B4. Values for DUC calculations

Taking into account the CAA guidance (the NPP for 2014, reduced for expected revenue losses) and NERL's alternative start point (based on the original NPP), and adjusting both for latest traffic, gives the following start points (presented in 2009 and 2012 prices):

	2009 prices		2012 prices	
2014 Start Point	Determined Cost	Determined Unit Cost	Determined Cost	Determined Unit Cost
PRB Method (NPP less revenue losses)	£537m	£56.39	£596m	£62.57
Original NPP	£562m	£58.98	£623m	£65.45

C. DUC Profile

The CAA recognises that the profile of DUC and charges over the RP2 period may not be smooth (it may not reduce gradually during the five year period). The CAA has therefore asked NERL to calculate the Net Present Value of charges over the five years of RP2 if the DUC were subject to a constant annual percentage reduction.

The efficiency of the NERL plan (i.e. 6.1% per annum for the Revised Business Plan) is described in terms of the uniform annual reduction in the DUC which delivers the equivalent net present value as the profile of the determined costs in NERL's plan (which is not uniformly profiled).

³ Source: STATFOR MTF13, published in May 2013

Calculations – CAA Methodology

The following calculation is made to establish the efficiency of the **Revised Business Plan** using the CAA's guidance

£m, 2012 prices	2014	2015	2016	2017	2018	2019	RP2
Determined Costs		565	554	546	537	521	2,723
less: pension pass through re: CP3		(1)	(1)	(1)	(1)	(1)	(6)
less: costs of change		(8)	(8)	(5)	(4)	(5)	(31)
Adjusted Determined Cost		555	545	540	531	515	2,686
Traffic Forecast '000 SUs		9,789	10,068	10,306	10,579	10,856	
Determined Unit Cost (DUC)		56.72	54.12	52.36	50.22	47.42	
<i>Cost of Capital Factor (7%)</i>		0.967	0.903	0.844	0.789	0.738	
NPV of determined cost		537	492	456	419	380	2,284
Start Point	62.57						
Profiled DUC reduction		58.78	55.23	51.88	48.74	45.79	6.1%
Profiled Determined Cost		575	556	535	516	497	
<i>Cost of Capital Factor (7%)</i>		0.967	0.903	0.844	0.789	0.738	
NPV of determined cost		556	502	452	407	367	2,284

Total determined costs for RP2 in NERL's **Revised Business Plan** are £2,723m in 2012 prices. After deducting CP3 pension pass through costs and RP2 restructuring costs, total determined costs are £2,686m in 2012 prices. The net present value of these determined costs / charges (calculated using a 7% pre-tax real cost of capital) is £2,284m in 2012 prices.

The profile of determined costs is equivalent to an RP2 determined cost profile which reduced by **6.1%** per annum from the 2014 start point of £62.57 (as calculated in the previous section – i.e. the NPP for 2014, adjusted for expected revenue losses and described in 2012 prices)

Determined Cost Efficiency and Determined Unit Cost Efficiency

The table below provides a breakdown of the key components of the reduction in determined unit costs (6.1% pa when measured using the CAA methodology), highlighting the determined cost efficiency and the impact of traffic growth separately.

Compared to the theoretical determined cost start point in 2014 (i.e. the implied determined cost base at the end of RP2 based on the original NPP but reduced to reflect expected revenue losses from lower traffic), NERL's determined costs during RP2 reduce by the equivalent of **3.0%** per annum.

This efficiency is achieved despite the inclusion of restructuring costs of £31m and a further £6m of pension pass through costs from CP3 in the determined cost base. Adjusting for these items, following the CAA methodology, improves the underlying determined cost efficiency by 0.4% pa. Therefore the underlying determined cost efficiency is **3.4%** pa.

Finally, adding traffic growth of 2.7% pa results in an actual underlying determined unit cost efficiency of **6.1%** per annum.

	Revised Plan
Determined Cost Efficiency v Theoretical 2014 Start Point	3.0% pa
Add: Exceptional Items in Determined Cost *	0.4% pa
Determined Cost Efficiency (CAA method)	3.4% pa
Add: Impact of Traffic Growth (Service Units)	2.7% pa
Determined Unit Cost Efficiency (CAA method)	6.1% pa

** pension pass through costs relating to CP3 and costs of change incurred during RP2 total £37m. These costs are included in determined costs for RP2 (and factored into RP2 prices) but are removed for the purposes of assessing the actual underlying efficiency of the RP2 business plan. In total, they are equivalent to a c. 0.4% pa change in determined costs.*

1.2 Actual Underlying Determined Unit Cost Efficiency

NERL believes that the CAA's methodology does not fully represent the actual level of cost efficiency achieved by NERL's plan for RP2, for two key reasons:

1. The CAA methodology requires NERL to assess RP2 efficiency relative to a start point which is lower than the approved NPP for RP1
2. The CAA has requested that NERL's calculation of the DUC should not make any separate adjustment for the value of CP3 incentives earned under the cost efficiency incentive scheme from CP3 (known as the Rolling Incentive Mechanism or RIM*). This means that the recovery of any incentives earned in RP1/CP3 will increase determined costs in RP2 and therefore lead to an understatement of actual cost efficiency.

** Under the RIM mechanism, NERL receives the financial benefits of operating cost reductions for a full control period, irrespective of when the efficiency improvement is made. This is to ensure that the company has an incentive to make continued efficiency savings right up to the end of the reference period.*

These factors understate the efficiency of the plan and therefore an alternative calculation makes the following adjustments to the CAA method:

1. **Start point** – based on the original RP1 National Performance Plan (the blue dotted line in the graph which describes the CAA methodology), rather than the lower cost base which reduces this for expected revenue losses
2. **Incentives earned in CP3** – amounts within the RP2 determined cost base which relate to the CP3 cost efficiency incentive scheme are removed for the efficiency calculation

Calculations – Actual Underlying Determined Cost Efficiency

£m, 2012 prices	2014	2015	2016	2017	2018	2019	RP2
Determined Costs		565	554	546	537	521	2,723
less: pension pass through re: CP3		(1)	(1)	(1)	(1)	(1)	(6)
less: costs of change		(8)	(8)	(5)	(4)	(5)	(31)
less: incentive scheme costs		(4)	(5)	(5)	(1)		(15)
Underlying Determined Cost		551	540	534	530	515	2,671
Traffic Forecast '000 SUs		9,789	10,068	10,306	10,579	10,856	
Determined Unit Cost (DUC)		56.33	53.61	51.85	50.10	47.42	
Cost of Capital Factor (7%)		0.967	0.903	0.844	0.789	0.738	
NPV of determined cost		533	488	451	418	380	2,270
Start Point	65.45						
Profiled DUC reduction		60.36	55.67	51.35	47.36	43.68	7.8%
Profiled Determined Cost		591	561	529	501	474	
Cost of Capital Factor (7%)		0.967	0.903	0.844	0.789	0.738	
NPV of determined cost		571	506	447	395	350	2,270

As shown above, the start point reflects the NPP, adjusted for latest traffic volumes, and for latest inflation (£65.45 in 2012 prices). An estimated £15m of cost within the RP2 determined cost base, relating to the CP3 RIM mechanism, is removed to assess cost efficiency. The profile of determined costs in the RP2 plan, when assessed in this way, the efficiency of the Revised Business Plan is equivalent to profile which reduced by **7.8%** per annum from the NPP based 2014 start point.

Calculations – Value of reductions in Determined Cost

Consistent with the actual underlying cost efficiency of **7.8%** per annum, the table below shows the cumulative value of determined cost savings that NERL is projecting for the RP2 period, compared to base year 2014 in the RP1 National Performance Plan:

values in 2012 prices	NPP for RP1					RP2 Plan					2019	as %	2019	as %
	2011	2012	2013	2014	2015	2016	2017	2018	2019	v 2014		v 2012		
Operating Costs	374	367	372	377	333	330	331	332	330	(48)	-13%	(38)	-10%	
Pensions	93	95	92	81	75	75	75	76	74	(7)	-9%	(22)	-23%	
Depreciation	140	150	175	180	176	174	168	159	153	(27)	-15%	3	2%	
Allowed returns	81	80	80	79	73	67	61	57	53	(26)	-33%	(27)	-34%	
Non-regulated Revenues	(96)	(92)	(91)	(94)	(92)	(92)	(90)	(87)	(88)	6	-6%	4	-4%	
TOTAL Determined Cost	591	601	627	623	565	554	546	537	521	(102)	-16%	(80)	-13%	
Saving v 2014 baseline					(58)	(69)	(77)	(86)	(102)					
as a %					-9%	-11%	-12%	-14%	-16%					
Cumulative during RP2					(58)	(128)	(205)	(291)	(393)					
Equivalent annual profile (4.4% per annum)					595	569	544	519	496	4.4%				
Saving v 2014 baseline					(28)	(54)	(80)	(104)	(127)	pa				
Cumulative during RP2					(28)	(82)	(162)	(266)	(393)					

By the end of RP2 (2019), total determined costs (including the costs of the rolling incentive mechanism, restructuring costs, and pension pass through from CP3), are projected to be £102m (**16%**) lower than the base year of 2014. Of this, approaching half of the saving relates to reductions in operating costs.

Cumulative savings across RP2 total c. **£393m**, equivalent to a real reduction of **4.4% per annum**, relative to the value in the National Performance Plan for 2014.

Actual Underlying Determined Cost and Determined Unit Cost Efficiency

The table below breaks down the key components of the actual underlying annual reduction in determined unit costs of 7.8% pa.

As described above, the reduction in NERL's determined costs during RP2, relative to the approved NPP in 2014, is equivalent to a real annual efficiency of **4.4%**. This efficiency is achieved despite bearing the costs of the rolling incentive mechanism, restructuring costs and pension pass through costs from CP3. Adjusting for these items improves the underlying determined cost efficiency by **0.7%** pa. Finally, adding traffic growth of 2.7% pa results in an actual underlying determined unit cost efficiency of **7.8%** per annum.

	Revised Plan
Determined Cost Efficiency v NPP 2014 Start Point	4.4% pa
Add: Exceptional Items in Determined Cost *	0.7% pa
Actual Underlying Determined Cost Efficiency	5.1% pa
Add: Impact of Traffic Growth (Service Units)	2.7% pa
Actual Underlying Determined Unit Cost Efficiency	7.8% pa

* pension pass through costs, costs of change and costs associated with the CP3 Rolling Incentive Mechanism, total £52m during RP2. These costs are included in determined costs for RP2 (and factored into RP2 prices) but are removed for the purposes of assessing the actual underlying efficiency of the RP2 business plan. In total, they are equivalent to a c. 0.7% pa change in determined costs.

1.3 Determined Unit Cost Profiles

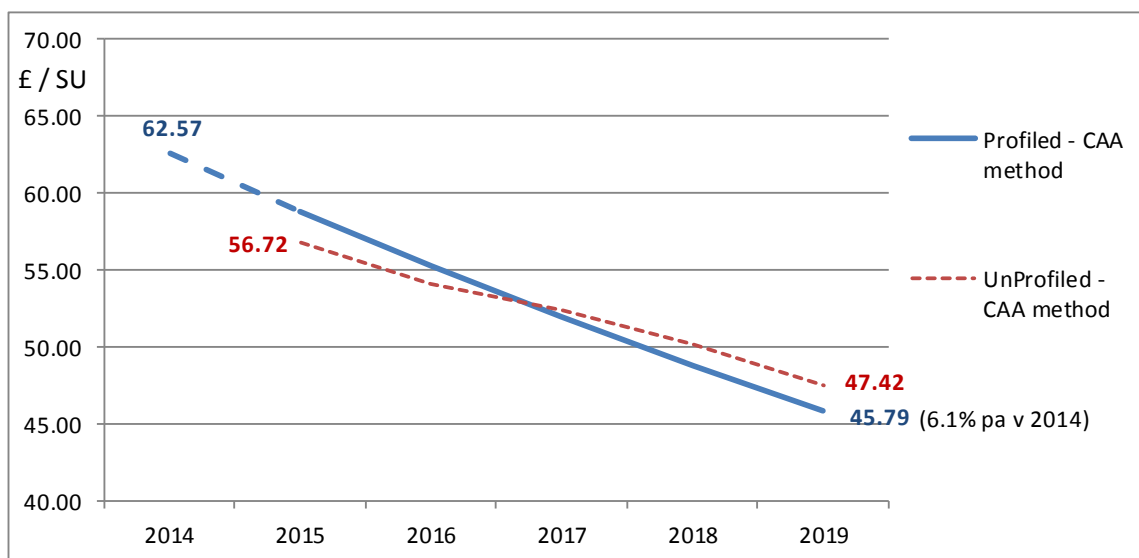
The determined unit cost profile which corresponds to the Revised Business Plan is shown below, using the efficiency methodology described by the CAA. Firstly, the profiled DUC is shown (red line - calculated by dividing determined costs by service units) and secondly, the profiled (smoothed) DUC is also shown (blue line - the net present value equivalent profile if the price reduced by a uniform percentage each year from the 2014 start point).

These profiles highlight that the DUC in NERL’s plan starts the RP2 period in 2015 at a lower level than the DUC from a profile which reduces in a uniform manner from 2014. The profile in the NERL plan ends at a slightly higher point in 2019.

This particularly reflects the efforts made by NERL during RP1 to take early action to reduce the cost base before the start of the next control period. It also demonstrates the emphasis on assessing efficiency by measuring the net present value of savings over the period (i.e. both profiles achieve the same outcome for customers). However, NERL would expect future cost efficiency targets (e.g. for RP3) to be based on the un-profiled position (reflecting the cost base and traffic volume for that year, rather than the uniform profile).

DUC – CAA Methodology

The chart below shows the un-profiled and profiled DUC reduction profile using the CAA methodology (**6.1%** per annum)



values in 2012 prices

Profiled - CAA method

UnProfiled - CAA method

	2014	2015	2016	2017	2018	2019
Profiled - CAA method	62.57	58.78	55.23	51.88	48.74	45.79
UnProfiled - CAA method	-	56.72	54.12	52.36	50.22	47.42

1.4 Sensitivity of DUC efficiency to key factors

The CAA has asked NERL to describe the impact of changing some key assumptions within the calculation of the DUC efficiency of the business plan. NERL has also provided a further sensitivity. The following three sensitivities are calculated:

- a) Applying a £25m lower threshold in relation to restructuring costs which can be excluded from determined costs, for target setting purposes
- b) Applying a £50m lower threshold in relation to restructuring costs which can be excluded from determined costs, for target setting purposes
- c) Applying a £10m (£2m per annum) lower threshold for restructuring costs which can be excluded from determined costs, for target setting purposes

1.4 a. Sensitivity - allowance only for restructuring costs in excess of £25m

Revised Plan

The CAA has asked NERL to calculate the impact on the DUC if the calculation is adjusted to remove any restructuring costs which are lower than a £25m cumulative threshold across the RP2 period, on the basis that the first £25m of costs may be considered to be part of the normal course of business.

NERL strongly believes that it can make a compelling case to support the restructuring costs that have been included in the cost efficiency calculations, demonstrating that these all make a significant net benefit to customers (reductions in operating expenditure or other service benefits) and are not costs that would normally be incurred as part of the normal course of business.

In addition, it should be noted that NERL is planning to incur significant further cost of change during late CP3, in order to reduce headcount, and that these costs will effectively be funded by the company and its shareholders and not by customers.

Within the Revised Plan, £31m of restructuring costs are incurred to realise cost savings and other benefits for customers. By removing the first £25m costs in the DUC efficiency calculation, the cost efficiency of the Revised Business Plan reduces to **5.7%** per annum (from 6.1% per annum if this is allowed).

£m, 2012 prices	2014	2015	2016	2017	2018	2019	RP2
Determined Costs		565	554	546	537	521	2,723
less: pension pass through re: CP3		(1)	(1)	(1)	(1)	(1)	(6)
less: costs of change		(8)	(8)	(5)	(4)	(5)	(31)
add back: amounts under £25m cumulatively		8	8	5	4		25
Adjusted Determined Cost		564	553	545	535	515	2,711
Traffic Forecast '000 SUs		9,789	10,068	10,306	10,579	10,856	
Determined Unit Cost (DUC)		57.58	54.90	52.84	50.60	47.42	
<i>Cost of Capital Factor (7%)</i>		0.967	0.903	0.844	0.789	0.738	
NPV of determined cost		545	499	460	422	380	2,306
Start Point	62.57						
Profiled DUC reduction		58.99	55.62	52.44	49.44	46.61	5.7%
Profiled Determined Cost		577	560	540	523	506	
<i>Cost of Capital Factor (7%)</i>		0.967	0.903	0.844	0.789	0.738	
NPV of determined cost		558	506	456	413	373	2,306

1.4 b. Sensitivity - allowance only for restructuring costs in excess of £50m

Revised Plan

The CAA has asked NERL to calculate the impact on the DUC if the calculation is adjusted to remove any restructuring costs which are lower than a £50m cumulative threshold across the RP2 period, on the basis that the first £50m of costs may be considered to be part of the normal course of business.

In addition, it should be noted that NERL is planning to incur significant further cost of change during late CP3, in order to reduce headcount, and that these costs will effectively be funded by the company and its shareholders and not by customers.

Within the Revised Plan, £31m of restructuring costs are incurred to realise cost savings and other benefits for customers. By removing the first £50m costs in the DUC efficiency calculation (effectively removing all restructuring costs) the cost efficiency of The Revised Plan reduces to **5.7%** per annum (from 6.1% per annum).

£m, 2012 prices	2014	2015	2016	2017	2018	2019	RP2
Determined Costs		565	554	546	537	521	2,723
less: pension pass through re: CP3		(1)	(1)	(1)	(1)	(1)	(6)
less: costs of change		(8)	(8)	(5)	(4)	(5)	(31)
add back: amounts under £50m cumulatively		8	8	5	4	5	31
Adjusted Determined Cost		564	553	545	536	520	2,717
Traffic Forecast '000 SUs		9,789	10,068	10,306	10,579	10,856	
Determined Unit Cost (DUC)		57.58	54.90	52.84	50.63	47.91	
<i>Cost of Capital Factor (7%)</i>		0.967	0.903	0.844	0.789	0.738	
NPV of determined cost		545	499	460	423	384	2,310
Start Point	62.57						
Profiled DUC reduction		59.03	55.69	52.54	49.56	46.76	5.7%
Profiled Determined Cost		578	561	541	524	508	
<i>Cost of Capital Factor (7%)</i>		0.967	0.903	0.844	0.789	0.738	
NPV of determined cost		559	507	457	414	374	2,310

1.4 c. Sensitivity - allowance only for restructuring costs in excess of £10m

Revised Plan

The analysis below removes the first £10m (£2m per annum) of restructuring costs from the determined cost base for the assessment of cost efficiency.

This reflects NERL's experience during the five years of CP2 and the first two years of CP3. If the costs of major efficiency programmes such as the closure of the West Drayton Centre and Manchester Centre, as well as the £45m cost saving programme (which realised a c. 15% reduction in staff numbers) are excluded from historical levels of expenditure, NERL's analysis shows that, on average, NERL has incurred approximately £2m per annum in relation to redundancies which could be classified as 'normal run of business'.

Within the Revised Plan, £31m of restructuring costs are incurred to realise cost savings and other benefits for customers. By removing the first £10m costs in the DUC efficiency calculation, the cost efficiency of the Revised Plan reduces to **5.9%** per annum (from 6.1% per annum).

£m, 2012 prices	2014	2015	2016	2017	2018	2019	RP2
Determined Costs		565	554	546	537	521	2,723
less: pension pass through re: CP3		(1)	(1)	(1)	(1)	(1)	(6)
less: costs of change		(8)	(8)	(5)	(4)	(5)	(31)
add back: £2m per annum		2	2	2	2	2	10
Adjusted Determined Cost		557	547	542	533	517	2,696
Traffic Forecast '000 SUs		9,789	10,068	10,306	10,579	10,856	
Determined Unit Cost (DUC)		56.93	54.32	52.55	50.41	47.61	
<i>Cost of Capital Factor (7%)</i>		0.967	0.903	0.844	0.789	0.738	
NPV of determined cost		539	494	457	421	381	2,292
Start Point	62.57						
Profiled DUC reduction		58.86	55.37	52.09	49.00	46.09	5.9%
Profiled Determined Cost		576	557	537	518	500	
<i>Cost of Capital Factor (7%)</i>		0.967	0.903	0.844	0.789	0.738	
NPV of determined cost		557	504	453	409	369	2,292

2. En Route Prices

2.1 Reconciliation between DUC and En Route Price

How prices compare against the DUC

The NERL component of the price which customers pay is closely related to the determined unit cost of NERL. However, there are some key differences:

1. The CAA sometimes uses price profiling to smooth prices over a control period (applying pricing adjustments to determined costs in individual years within a control period, which is cost neutral across the period in total but changes the price from one year to another)
2. Service quality incentives (bonuses / penalties) are included in the price, but not the DUC
3. Within a control period, customer prices are subject to volume risk sharing arrangements, so do not directly reflect changes in traffic volumes (for example, in CP3, the first 2% of any variance between actual and assumed traffic does not affect the price in any way)
4. Adjustments to price for changes in traffic and inflation (between actual and assumed levels) are made on an "n+2" basis (this means that they are not reflected in the price until 2 years after the period to which they relate), and therefore the price may be significantly different to the DUC in individual years
5. NERL may decide to price below the cap (as was the case in 2013)

Reconciliation

The table below compares the DUC for target setting / cost efficiency measurement purposes (top line – i.e. a **6.1%** pa real reduction compared to the 2014 start point) and the En Route price (bottom line – i.e. a reduction of 17.7% between the price in 2014 and 2019), for the Revised Business Plan

High level DUC and Price Bridge

Revised Plan

(2012 prices in £ / SU)	2011	2012	2013	2014	2015	2016	2017	2018	2019	Avg CP3	Avg RP2	Diff
DUC for target setting purposes <i>(CAA Method - based on NPP less revenue losses)</i>				62.57	56.72	54.12	52.36	50.22	47.42	n/a	52.17	6.1% <i>[per annum]</i>
Add: pension pass through from CP3					0.11	0.14	0.13	0.12	0.12			
Add: restructuring costs					0.86	0.78	0.48	0.41	0.49			
DUC from NPP / projected RP2	60.39	59.22	59.79	57.39	57.69	55.04	52.97	50.75	48.03	59.20	52.90	-11% <i>[average CP3 v RP2]</i>
Service Q Incentives re: CP3 (n+2 basis)		0.27	0.82	0.09						0.30	0.00	
Traffic volume risk sharing (n+2 basis)			1.84	0.17	3.93	4.72				0.50	1.73	
Inflation adjustments (n+2 basis)	-1.14	-0.46	-0.71	-2.37	2.32	2.59				-1.17	0.98	
Price profiling pre-2011 adjustment		1.55	0.85	3.08	0.09	0.41				1.37	0.10	
Pricing below the cap			-0.46							-0.12	0.00	
Price in 2012 prices	59.25	60.58	62.12	58.36	64.03	62.76	52.97	50.75	48.03	60.08	55.71	-17.7% <i>[end RP2 v end RP1]</i>

For RP1, the DUC values (factored into the RP1 price) are taken from the National Performance Plan (expressed in 2012 prices).

Within RP2 only, there are two key types of adjustment between the DUC for cost efficiency purposes (based on the CAA methodology), and the DUC for pricing purposes:

- Pension pass through relating to CP3
- Restructuring costs (restructuring costs to enable customer benefits)

The following adjustments are then made between the DUC for pricing purposes, and the unit rate / price

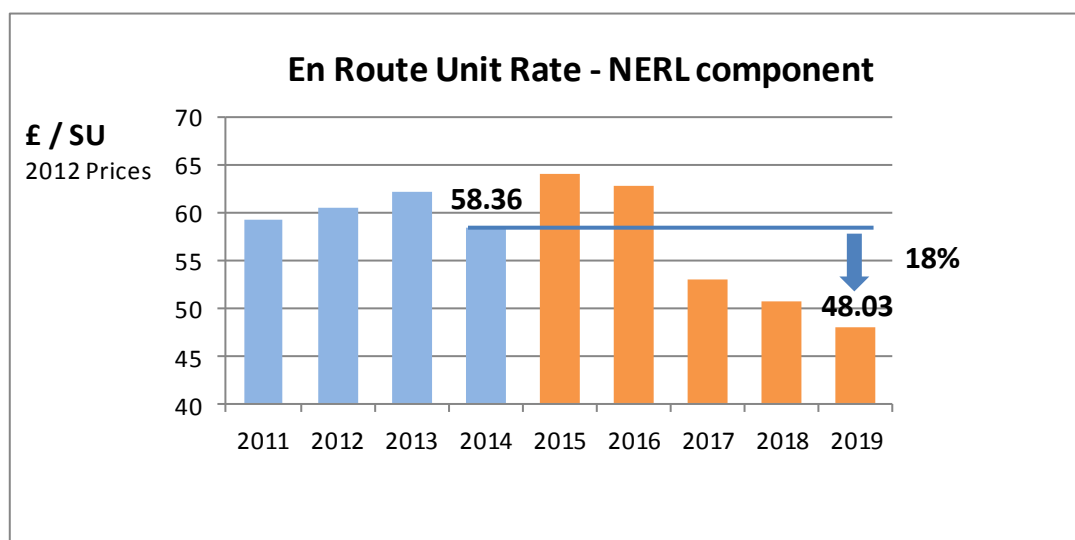
- In CP3, adjustments to the DUC for pre-2011 profiling and adjustments for service quality. Note that due to n+2 regulation, the RP2 price also includes an average of £0.10p in relation to pre-2011 profiling adjustments which will not be recovered during CP3
- In CP3 and RP2 - volume risk sharing adjustments (increases in the price to reflect shortfalls in traffic volume). Due to the n+2 regulation, this results in c. £1.73 per SU on average being added to the RP2 unit rate
- In CP3 and RP2 – inflation adjustments (also on an n+2 basis, adding £0.98p per SU on average to the RP2 unit rate)

By the end of RP2, the customer price will be c. **18% lower** than the customer price at the end of RP1.

2.2 Indicative Price Profiles

The chart below show the indicative profile of price for RP2 in NERL’s Revised Business Plan (the price in RP2 at the end of RP2 being 18% lower than the price at the end of RP1 in real terms):

Revised Plan



2.3 Actual price comparison: without timing differences

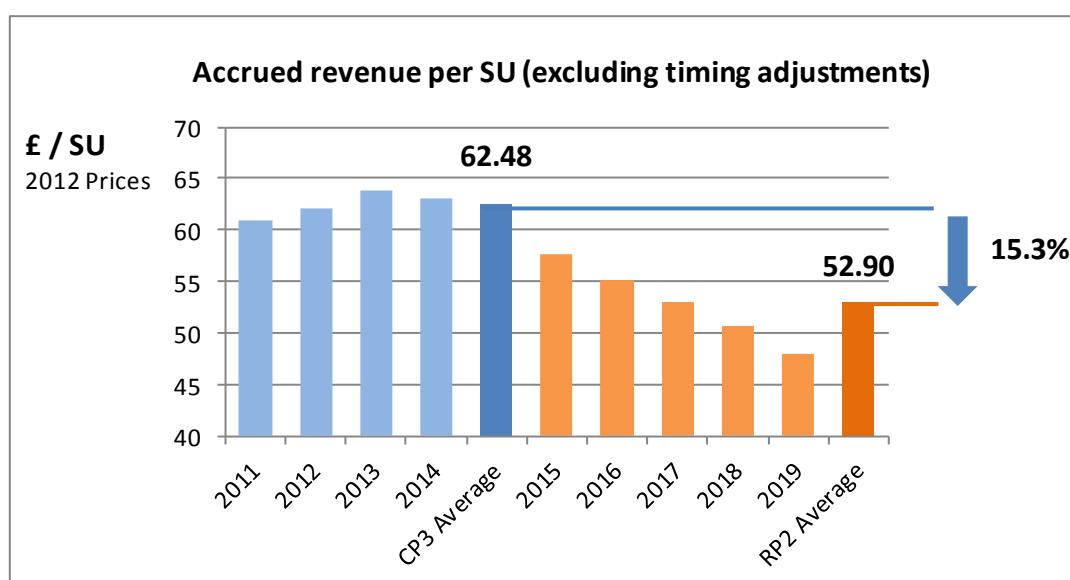
The tables below shows the average customer price comparison between CP3 and RP2 which removes the impact of cash-timing differences that affect the unit rate / price in the section above.

This comparison is made using the concept of accrued revenue – i.e. the accounting revenue in NERL’s financial statements, which matches the components of charges to the corresponding period of activity in which they were earned, and eliminates the impact of delayed recovery of inflation and volume risk-sharing differences.

As an example, volume risk sharing adjustments which are incorporated into the customer price in 2015, but relate to differences between actual and forecast traffic in 2013, are accounted for in 2013, rather than 2015.

Revised Plan

Under the accrued revenue measure, excluding timing differences, the average RP2 price in the Revised Plan is **15.3%** lower, in real terms, than the average CP3 price.



in 2012 prices, £m	2011	2012	2013	2014	2015	2016	2017	2018	2019	Avg CP3	Avg RP2
Accrued Revenue	592	589	598	600	565	554	546	537	521	595	545
SU forecast '000	9,715	9,475	9,361	9,523	9,789	10,068	10,306	10,579	10,856	9,519	10,320
per SU	60.91	62.12	63.91	62.97	57.69	55.04	52.97	50.75	48.03	62.48	52.90

RP2 average compared to CP3 **-15.3%**

3. Oceanic Prices

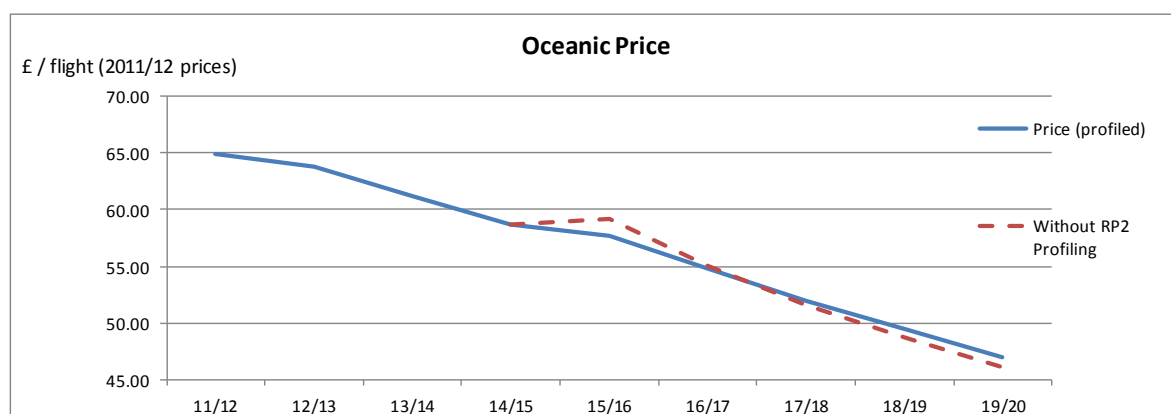
Price Profile

The Oceanic price for RP2 reduces by 20% in real terms by the end of RP2, compared to the price at the end of RP1.

This price reduction is calculated on the basis that the Oceanic price is likely to be determined using an RPI-Z price profile (consistent with previous control periods, including a one off "P0" adjustment in the first year and with the price in subsequent years being subject to an smooth annual reduction). This is consistent with the way in which the RP2 price was calculated in the Initial Business Plan, and is shown in the blue line in the chart below.

Without manual profiling, the Oceanic price (calculated by dividing the determined cost base by forecast Oceanic flight volumes for each year), would follow a slightly different trajectory. The price would be slightly higher at the start of the control period, and would be slightly lower at the end of the period. On this un-profiled basis, the Oceanic price at the end of RP2 would be 21% lower than the price in the last year of RP1.

Note that the Oceanic price projections are on a financial year, RPI basis in line with the price control.



	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20
Price (profiled)	64.92	63.73	61.14	58.68	57.70	54.85	51.93	49.50	47.05
End RP2 v End RP1									-20%
Average RP2 price									52.21

	14/15	15/16	16/17	17/18	18/19	19/20
Without RP2 Profiling	58.68	59.13	55.07	51.65	48.79	46.13
End RP2 v End RP1						-21%

Appendix H: **FINANCIALS**

Determined Cost Building Blocks

INDEX

Determined Cost Summary

A. Efficient Operating Costs

- 1. Staff and Direct Underlying Costs**
- 2. Cash Pension Costs**
- 3. Exceptional Items**
- 4. Operating Cost Contingency**

B. Depreciation of the RAB

C. Regulatory Return

D. Other Revenues

Financial projections are shown on the following pages. It should be noted that some table totals may have superficial arithmetic differences due to the rounding on numbers displayed in the tables.

Determined Cost Summary

The regulatory model for RP2 is set out in appendix D and follows a building block approach. These regulatory building blocks which make up our plan's net Determined Costs for NERL for RP2 are shown in the tables below. These total NERL building blocks are also shown split between En Route and Oceanic, all values being presented in constant 2012 prices, deflated by CPI. It should be noted that the Oceanic price is calculated on a financial year, applying RPI rather than CPI indexation.

In total, NERL Determined Costs for RP2 are £2,844m in 2012 prices (deflated by CPI). This is made up of £2,723m relating to the En Route service and £121m relating to the Oceanic service, as shown below:

Total NERL Determined Cost

Total NERL												
Calendar Year												
2012 CPI Prices	2011	2012	2013	2014	2015	2016	2017	2018	2019		CP3	RP2
£m	Actual	Actual	Plan	Plan	Plan	Plan	Plan	Plan	Plan		Total	Total
Efficient Operating Costs												
Staff & Direct Underlying Costs	343	333	330	324	319	319	320	321	318		1,330	1,596
Cash Pension Contributions - Defined Benefit	92	95	93	87	74	73	73	72	70		368	362
Cash Pension Contributions - Defined Contribution	1	2	3	4	4	5	6	7	7		10	29
Exceptionals & Cost of Services to NSL	17	15	34	28	23	20	20	21	20		94	104
Operating Cost Contingency	-	-	5	7	7	7	6	6	6		12	32
Depreciation of the RAB	145	156	178	181	181	179	172	163	157		660	852
Regulatory Return (inc. tax charges)	83	82	80	78	75	69	63	58	54		324	319
Other Revenues	(93)	(91)	(93)	(94)	(93)	(92)	(90)	(87)	(88)		(371)	(451)
TOTAL	589	592	631	615	590	579	570	560	545		2,427	2,844

En Route Determined Cost

En Route												
Calendar Year												
2012 CPI Prices	2011	2012	2013	2014	2015	2016	2017	2018	2019		CP3	RP2
£m	Actual	Actual	Plan	Plan	Plan	Plan	Plan	Plan	Plan		Total	Total
Efficient Operating Costs												
Staff & Direct Underlying Costs	329	319	316	310	304	304	305	306	303		1,273	1,521
Cash Pension Contributions - Defined Benefit	88	92	89	84	71	70	70	69	67		353	347
Cash Pension Contributions - Defined Contribution	1	2	3	4	4	5	6	6	7		9	28
Exceptionals & Cost of Services to NSL	16	15	34	27	23	20	20	21	20		92	103
Operating Cost Contingency	-	-	5	6	6	6	6	6	6		11	31
Depreciation of the RAB	140	149	172	175	176	174	168	159	153		635	830
Regulatory Return (inc. tax charges)	81	79	78	76	73	67	61	57	53		314	311
Other Revenues	(92)	(91)	(93)	(94)	(92)	(92)	(90)	(87)	(88)		(369)	(448)
TOTAL	562	565	604	589	565	554	546	537	521		2,320	2,723

Oceanic Determined Cost

Oceanic												
Calendar Year												
2012 CPI Prices	2011	2012	2013	2014	2015	2016	2017	2018	2019		CP3	RP2
£m	Actual	Actual	Plan	Plan	Plan	Plan	Plan	Plan	Plan		Total	Total
Efficient Operating Costs												
Staff & Direct Underlying Costs	15	14	14	14	15	15	15	15	15		57	75
Cash Pension Contributions - Defined Benefit	4	4	4	4	3	3	3	3	3		15	15
Cash Pension Contributions - Defined Contribution	0	0	0	0	0	0	0	0	0		0	1
Exceptionals & Cost of Services to NSL	0	0	1	1	0	0	0	0	0		0	1
Operating Cost Contingency	-	-	0	0	0	0	0	0	0		0	0
Depreciation of the RAB	6	7	7	6	5	5	4	4	4		25	22
Regulatory Return (inc. tax charges)	3	3	2	2	2	2	2	1	1		10	8
Other Revenues	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)		(2)	(2)
TOTAL	27	27	27	26	25	25	24	24	23		107	121

Note that values for the depreciation of the RAB and regulatory return for the CP3 period reflect the allowances / assumptions made by the CAA.

Further details of the building blocks are provided in the sections below:

1. Efficient Operating Costs
2. Depreciation of the RAB
3. Regulatory Return including tax charges
4. Other Revenues

This analysis concentrates on the description of the total for NERL, with additional breakdowns between Oceanic and En Route where appropriate.

A. Efficient Operating Costs

The tables and commentary below describe the efficient operating cost building blocks and the following constituent parts:

1. Staff and direct underlying costs
(These are the direct costs of running the business, excluding pension costs and excluding restructuring costs)
2. Cash pension contributions
(The cash cost of the company's contributions to the pension schemes)
3. Exceptional Items and costs of services to NSL
(One-off costs such as redundancy costs and the cost to NERL of providing services to NSL for which we receive income and a margin)
4. Operating Cost Contingency
(Contingency funds to ensure adequate cost allowance for unplanned costs, these represent less than 1% of total income)

1. Staff and Direct Underlying Costs

Staff and direct underlying costs comprise: Staff costs (less any FRS15 labour costs that are capitalised), Non-Staff costs, Intercompany costs, less the costs of services provided to NSL (for which income and margin is received). These items are shown and briefly described in the tables and commentary below.

Total NERL Staff & Direct Underlying Costs											
Calendar Year											
2012 CPI Prices	2011	2012	2013	2014	2015	2016	2017	2018	2019	CP3	RP2
£m	Actual	Actual	Plan	Plan	Plan	Plan	Plan	Plan	Plan	Total	Total
Staff Costs	(261)	(258)	(259)	(256)	(250)	(252)	(254)	(256)	(257)	(1,035)	(1,268)
Capitalised Internal Labour	34	37	38	40	39	38	38	37	37	149	189
Non Staff Costs	(101)	(95)	(96)	(96)	(97)	(94)	(93)	(91)	(87)	(388)	(462)
Intercompany Costs	(29)	(30)	(30)	(29)	(29)	(28)	(28)	(28)	(28)	(117)	(142)
Less Cost of Services to NSL	13	14	17	18	17	17	18	18	17	61	87
TOTAL	(343)	(333)	(330)	(324)	(319)	(319)	(320)	(321)	(318)	(1,330)	(1,596)

Staff Costs and Capitalised Internal Labour

The planned reductions in staff costs reflect the manpower efficiencies and cost saving initiatives detailed elsewhere in this plan.

Staff Costs are mainly driven by projections for headcount, as shown below. Total headcount is planned to reduce by c. 10% from current levels. Total controller headcount also reduces by c. 10% - i.e. reducing costs broadly evenly across the business in order to protect service quality at similar levels as today.

Total NERL	Start CP1 2001/02	Current 2013	2011 Average	2012 Average	2013 Average	2014 Average	2015 Average	2016 Average	2017 Average	2018 Average	2019 Average	Current v 2019
	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE
By Staff Type												
Controllers	1,430	1,278	1,318	1,282	1,243	1,198	1,159	1,147	1,150	1,160	1,153	(125)
Operational Support Staff	930	562	592	562	551	520	466	465	465	465	465	(98)
Engineers	1,180	849	810	843	845	828	825	824	824	824	824	(25)
Other Staff	900	661	724	669	651	631	615	606	603	598	592	(68)
Total	4,440	3,349	3,444	3,356	3,289	3,177	3,065	3,041	3,041	3,047	3,033	(316)

It should be noted that £38m (in outturn prices) of unallocated costs savings are included, for which no plan is yet developed, reflecting the stretching nature of the savings that are proposed.

Capitalised labour is projected to remain at similar levels throughout RP2 reflecting the continued internal effort on the investment plan, noting that the level of total capital expenditure decreases over the same time frame due to lower external expenditure.

When presented in 2008/09 prices deflated on an RPI basis (consistent with the basis used for CP3), underlying operating costs are projected to have reduced by c. 42% by 2019/20, relative to the position at PPP.

Non-Staff costs and Intercompany costs

Non-staff expenditure is relatively fixed in real terms, growing with inflationary pressures. However, savings are planned in a number of areas including unallocated savings that have not yet been identified and not yet secured savings as a result of closer collaboration with the Irish as part of the UK / IRE FAB.

Intercompany costs (charges to NERL from NSL or the NATS group) are projected to be broadly flat in real terms across the period.

2. Cash Pension Costs

Total cash pension costs are planned to reduce from £94m in 2012 to £74m in 2019.

This mainly reflects a reduction in cash pension contributions associated with the defined benefit pension scheme. These costs are projected to total £362m over RP2 despite cost pressures in the region of c. £200m which have been mitigated by both the further important pension reforms, detailed in Appendix E, and the manpower efficiencies that are outlined in our plan.

Defined contribution scheme costs are set to rise, from £2m in 2012 to £7m in 2019, as the proportion of the workforce included in this scheme increases, offset by reductions to numbers in the defined benefit scheme.

3. Exceptional Costs and Services to NSL

The increase in Exceptional costs at the end of CP3 reflects the major restructuring programme that is planned for that period (and the early part of RP2) and the associated redundancy costs.

Restructuring costs / Costs of Change

In order to deliver the cost efficiencies included in our plan, which will reduce prices, we will need to incur significant costs of change. The majority of these costs relate to redundancy costs necessary to realise our manpower efficiencies and headcount reductions. It should be noted that a significant proportion of these costs are planned to be incurred in the CP3 period (where only a very small allowance was made in the regulatory settlement).

No relocation costs are planned relating to further site closures. This reflects the completion, at the end of CP2, of our two centre strategy and a rationalisation of the existing property portfolio.

Transition costs relate to one-off costs such as training or decommissioning. These include costs for projects that deliver our plan for cost efficiency, fuel savings, and service quality in RP2. Primarily these are costs associated with LAMP, Transition Altitude

& Time based Flow Management; but also NTCA, ScTMA, & PC upper airspace. This does not include any capital expenditure in relation to these projects.

Further, no Transactional costs are planned for changing staff terms and conditions. It is assumed that any such costs would be funded from the efficiencies they generate.

The restructuring costs included are shown in the tables below; firstly for NERL in total, and then for the En Route and Oceanic charges. It should be noted that transition costs relate to the En Route projects listed above and shown in the table at the end of this section.

Total NERL											
Calendar Year											
2012 CPI Prices	2011	2012	2013	2014	2015	2016	2017	2018	2019		
£m	Actual	Actual	Plan	Plan	Plan	Plan	Plan	Plan	Plan	CP3	RP2
										Total	Total
Redundancy	4	2	18	10	5	3	3	3	3	34	17
Relocation	(1)	(0)	-	-	-	-	-	-	-	(1)	-
Transition Cost	-	-	1	2	3	5	2	1	2	3	15
Transactional Cost	-	-	-	-	-	-	-	-	-	-	-
Total Cost of Change	3	2	19	11	9	8	5	4	5	35	31

En Route											
Calendar Year											
2012 CPI Prices	2011	2012	2013	2014	2015	2016	2017	2018	2019		
£m	Actual	Actual	Plan	Plan	Plan	Plan	Plan	Plan	Plan	CP3	RP2
										Total	Total
Redundancy	3	2	17	9	5	2	3	3	3	31	16
Relocation	(1)	(0)	-	-	-	-	-	-	-	(2)	-
Transition Cost	-	-	1	2	3	5	2	1	2	3	15
Transactional Cost	-	-	-	-	-	-	-	-	-	-	-
Total Cost of Change	2	1	18	11	8	8	5	4	5	32	31

Oceanic											
Calendar Year											
2012 CPI Prices	2011	2012	2013	2014	2015	2016	2017	2018	2019		
£m	Actual	Actual	Plan	Plan	Plan	Plan	Plan	Plan	Plan	CP3	RP2
										Total	Total
Redundancy	0	0	1	1	0	0	0	0	0	1	1
Relocation	-	-	-	-	-	-	-	-	-	-	-
Transition Cost	-	-	-	-	-	-	-	-	-	-	-
Transactional Cost	-	-	-	-	-	-	-	-	-	-	-
Total Cost of Change	0	0	1	1	0	0	0	0	0	1	1

Making a Business Case for Redundancy costs

Fulfilling the price reduction targets requires the company to reduce its staff costs, which make up around 2/3^{rds} of the underlying operating cost base. These efficiencies are enabled mainly by new technology and changes to working practices.

In practice this can be realised through:

- **Natural attrition:** these levels are relatively low in our business. This is because many of our employees (e.g. ATCOs) join the company for a long term career and recent age legislation now allows them to choose the time of their retirement rather than being required to retire at a particular date. The manpower assumptions take account of the expected level of natural attrition.
- **Redundancy programmes:** in common with many organisations, the company has negotiated terms and conditions for staff redundancies. These reflect the relative bargaining strengths of the company and its trade unions. The expected costs of the programme required to reduce staff numbers to meet the price reduction targets are shown in the table above.

The extent and timing of the planned efficiencies cannot be realistically achieved without incurring the associated costs of redundancy.

Making a Business Case for Transition costs

Our plan for RP2 includes a number of investment cases that deliver a range of customer benefits including safety, service, environmental (fuel), and cost efficiency. In many cases these benefits are indivisible from one another. We presented the detail around the costs and benefits of these investments during our consultation with our customers.

Implementing these programmes typically involves the costs of decommissioning and, more significantly, one-off training costs. Training is required for staff to safely operate and maintain new systems, and to transition smoothly to new ways of working with the minimum level of service disruption.

To give an example, the LAMP project is a fundamental re-design of the airspace in and around the London TMA. It will enable fuel savings for customers of over £100m p.a. by the end of RP2, as well as improved safety and capacity in this busy and congested area of airspace. However, in order to deliver the LAMP project, we will incur around £7m of operating costs (mainly training for our controllers) in putting this concept into service.

The table below shows the breakdown of these transition costs by project:

Transition Costs						
Calendar Year						
2012 CPI Prices	2015	2016	2017	2018	2019	RP2
£m	Plan	Plan	Plan	Plan	Plan	Total
Transition Altitude	-	0.7	0.5	0.1	-	1.3
LAMP	1.3	1.1	0.9	1.3	2.4	7.0
NTCA	-	0.6	0.2	-	-	0.8
Time Based Flow Management	-	0.7	0.2	-	-	0.9
Other (inc. PC Upper Airspace and ScTMA)	1.9	2.4	0.6	-	-	4.9
Total Cost of Change	3.2	5.4	2.4	1.4	2.4	14.9

These costs do not include any capital expenditure related to these projects, nor do they include the costs of any Feasibility and Options (F&O) studies, re-work, or Post Transition Rectification (PTR) work.

Further, only those projects that deliver significant one-off changes to capability have been included here. Transition costs related to a number of smaller and/or less significant projects are included in the main operating cost projections.

4. Operating Cost Contingency

Operating cost contingency is set at £7m p.a. in outturn prices. This represents less than 1% of total income and is broadly consistent with what was allowed by the CAA in CP3. In CP3, NERL actively targeted the achievement of more stretching cost efficiencies than assumed by the CAA in order to retain a 2% operating cost contingency whilst still maintaining the total cost allowance for the control period.

Primarily this contingency is included to cover additional underlying operating costs or redundancy costs associated with:

- **Additional redundancy costs** required in order to realise the significant manpower reductions included in our plan. Our projections include assumptions that an element of these reductions will be realised through natural attrition which could be much lower than planned, due to (1) the extended restructuring programme, or (2) may not materialise in the areas where we can reduce staff numbers, e.g. attrition levels in total meet our plan expectation but not in a particular area such as controllers, or (3) lower

retirement levels, particularly in the operational areas, due to recent age legislation which allows people to work beyond normal retirement age

- **Delays to the restructuring programme** caused by extended consultation or negotiation with stakeholders including government, trade unions, and staff
- **Delays to, or failure of, highly complex technology enablers such as** Combined T&P, and FIR to SLAM which are required in order to realise manpower efficiencies, but are not yet proven
- **Failure to achieve working practice changes** that are required in order to enable our planned manpower efficiencies and that are not yet proven or agreed with staff and trade unions, and that are based on assumptions for staffing requirements that represent major changes to our methods of operation and significantly reduce operational flexibility and resilience
- **Market cost pressures** such as rapidly rising utility prices which have risen significantly above previous planning assumptions
- **Major changes to traffic presentation** which means that further working practice changes have to be implemented and/or additional costs, such as overtime or additional operational staff numbers, incurred to service higher demand whilst retaining service quality at the levels indicated in our plan

B. Depreciation of the RAB

Depreciation of the RAB is mainly driven by regulatory depreciation charges relating to capital expenditure made in previous control periods and, to a much lesser extent, RP2. An element of the depreciation charge also relates to recovery of 'true-ups' to reflect the pension pass through mechanism and revenues which are earned by NERL under the terms of the cost efficiency incentive scheme (the rolling incentive mechanism or RIM).

The RIM projections below assume that the cost efficiencies planned for 2013/14 are achieved, though RIM values are highly sensitive to the timing and scale of realising these savings. Other adjustments relate to the claw-back of an uplift to NERL's RAB made in the company's first control period (2001–2005) and to recover allowances provided previously for inter-period price profiling and to true-up for differences in depreciation allowances arising because actual capital expenditure and the level assumed by previous regulatory settlements was different in timing or amount.

It should be noted that the RAB is an RPI-based construct but for the purpose of establishing Determined Costs the regulatory depreciation is stated in CPI prices, consistent with other building blocks. Similarly, projections of capital expenditure are presented in the table below in CPI prices for consistency with other tables provided in this report.

Total NERL											
Calendar Year											
2012 CPI Prices	2011	2012	2013	2014	2015	2016	2017	2018	2019		
£m	Actual	Actual	Plan	Plan	Plan	Plan	Plan	Plan	Plan	CP3	RP2
										Total	Total
Regulatory Depreciation	166	184	188	193	192	189	182	177	172	730	911
RIM	9	12	12	3	4	5	5	1	-	35	15
Pension Pass Through	-	-	-	-	1	1	1	1	1	-	4
Other (RAB clawback and backlog depreciation)	(30)	(40)	(21)	(15)	(15)	(15)	(16)	(16)	(16)	(105)	(78)
Total Depreciation	145	156	178	181	181	179	172	163	157	660	852

En Route Calendar Year											
2012 CPI Prices £m	2011 Actual	2012 Actual	2013 Plan	2014 Plan	2015 Plan	2016 Plan	2017 Plan	2018 Plan	2019 Plan	CP3 Total	RP2 Total
Regulatory Depreciation	162	178	182	187	187	184	178	173	168	710	889
RIM	8	10	10	3	4	5	5	1	-	31	15
Pension Pass Through	-	-	-	-	1	1	1	1	1	-	3
Other (RAB clawback and backlog depreciation)	(30)	(40)	(21)	(15)	(15)	(15)	(16)	(16)	(16)	(105)	(78)
Total Depreciation	140	149	172	175	176	174	168	159	153	635	830

Oceanic Calendar Year											
2012 CPI Prices £m	2011 Actual	2012 Actual	2013 Plan	2014 Plan	2015 Plan	2016 Plan	2017 Plan	2018 Plan	2019 Plan	CP3 Total	RP2 Total
Regulatory Depreciation	5	5	5	5	5	5	4	4	4	21	21
RIM	1	1	1	0	-	-	-	-	-	4	-
Pension Pass Through	-	-	-	-	0	0	0	0	0	-	1
Other (RAB clawback and backlog depreciation)	-	-	-	-	-	-	-	-	-	-	-
Total Depreciation	6	7	7	6	5	5	4	4	4	25	22

The RIM projections are based on securing the cost efficiencies planned for 2013/14. RIM values are highly sensitive to the timing and scale of these savings.

Capital Expenditure

Capital expenditure projections are shown in the tables below, consistent with section 6.4 of the RP2 consultation plan. Note that the RAB capital does not include a small element (c. £30m) of capital expenditure that NERL is planning to incur in relation to non-regulated business. This element is not factored into the customer price, but is, instead, remunerated through separate commercial arrangements. Total capital expenditure including the element that relates to non-regulated business is c. £575m.

Total NERL Calendar Year											
2012 CPI Prices £m	2011 Actual	2012 Actual	2013 Plan	2014 Plan	2015 Plan	2016 Plan	2017 Plan	2018 Plan	2019 Plan	CP3 Total	RP2 Total
Total RAB Capex	129	119	114	122	130	125	107	97	89	484	547

En Route Calendar Year											
2012 CPI Prices £m	2011 Actual	2012 Actual	2013 Plan	2014 Plan	2015 Plan	2016 Plan	2017 Plan	2018 Plan	2019 Plan	CP3 Total	RP2 Total
Total RAB Capex	127	117	109	118	128	124	106	96	88	471	541

Oceanic Calendar Year											
2012 CPI Prices £m	2011 Actual	2012 Actual	2013 Plan	2014 Plan	2015 Plan	2016 Plan	2017 Plan	2018 Plan	2019 Plan	CP3 Total	RP2 Total
Total RAB Capex	2	2	4	5	2	1	1	1	1	13	6

It should be noted that capital expenditure is projected on a bottom-up basis of actual costs and deflated by CPI for the tables above. Capital expenditure is not based on RPI assumptions.

C. Regulatory Return

As requested by the CAA, for the IBP NERL assumed a regulatory rate of return consistent with the cost of capital allowed for CP3 of 7% pre-tax real.

For this plan NERL commissioned an independent study on cost of capital which concluded a range between 6.7% and 7.3%. This reflected a lower cost of debt but a higher tax uplift. Based on these findings the cost of capital assumed in this plan remains at 7% pre-tax real. This assumption will be reviewed by the CAA as part of the regulatory review process for RP2.

D. Other Revenues

Other revenues that offset the En Route charge to customers through the single till mechanism are shown in the table below.

Total NERL											
Calendar Year											
2012 CPI Prices	2011	2012	2013	2014	2015	2016	2017	2018	2019		
£m	Actual	Actual	Plan	Plan	Plan	Plan	Plan	Plan	Plan	CP3	RP2
										Total	Total
MoD Revenue	48	47	45	43	39	38	37	35	36	183	185
London Approach	10	10	10	11	11	11	12	12	12	42	57
North Sea Helicopters	9	9	8	8	9	9	9	9	9	35	44
Income from NSL	16	18	19	19	19	19	19	19	19	73	96
Other Revenue	9	7	10	12	14	15	14	13	13	39	68
Total NERL Revenue	93	91	93	94	93	92	90	87	88	371	451

MoD income has been projected on the basis of the existing FMARS contract that is in place until 2020/21.

London Approach income reflects charges that are no less cost reflective than the level assumed by the CAA in the CP3 determination.

Income from NSL represents revenue earned by NERL from intercompany transactions with NSL and is broadly flat from 2012 levels.

Other revenue includes SESAR funding which is projected to reduce materially as we reach the end of the current phase of activity (near the end of RP2). Revenues from the implementation phase are expected to be lower than current levels.

Appendix I: FINANCIAL ASSUMPTIONS

The following key assumptions are used for our financial projections.

Inflation

Where possible the inflation assumptions used in our plan are sourced from the July 2013 IMF forecast published in August 2013.

Where IMF data is not available (beyond 2017 and for the RPI index) we have derived the data using other independent sources (Oxford Economics).

Financial Year	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Average Financial Year CPI	4.3%	2.6%	2.6%	2.5%	2.2%	2.0%	1.9%	2.0%	2.0%
Average Financial Year RPI	4.8%	3.1%	3.1%	3.3%	3.1%	3.3%	3.7%	3.6%	3.7%
Calendar Year	2011	2012	2013	2014	2015	2016	2017	2018	2019
Average Calendar Year CPI	4.5%	2.8%	2.7%	2.5%	2.3%	2.1%	1.9%	2.0%	2.0%
Average Calendar Year RPI	5.2%	3.2%	3.1%	3.3%	3.2%	3.2%	3.7%	3.6%	3.7%
Aug-to-Aug CPI	4.5%	2.5%	2.8%	2.5%	2.3%	2.1%	2.0%	2.0%	2.0%
Aug-to-Aug RPI	5.2%	2.9%	3.2%	3.3%	3.2%	3.2%	3.8%	3.6%	3.7%

Indexes Used:

Eurocontrol income:	Average calendar year CPI
Oceanic & London Approach income:	August-to-August RPI forecasts
Elements of non-staff costs and non-regulated income:	Average financial year CPI & RPI
Pay:	August-to-August CPI forecasts

Traffic

The Traffic forecasts used in our plan are sourced from STATFOR as shown in detail in Appendix A.

Summary details of the key assumptions for En Route flights and service units (SUs) and Oceanic flights are shown in the table below.

Eurocontrol En Route Traffic Calendar Years	2011	2012	2013	2014	2015	2016	2017	2018	2019
En Route Flights (000s)	2,184	2,153	2,134	2,166	2,221	2,278	2,328	2,384	2,444
En Route SUs (000s)	9,715	9,475	9,361	9,523	9,789	10,068	10,306	10,579	10,856
Oceanic En Route Traffic Financial Years	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Oceanic Flights (000s)	404	395	393	400	411	420	430	439	449

Pensions

Appendix E describes the company's pension arrangements and the actions taken to control these costs.

The pension rate assumptions used in our plan are shown in the table below. These represent a weighted average of Defined Benefit (DB) and Defined Contribution (DC) schemes, expressed as a percentage of pensionable pay.

Financial Year Outturn Prices	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Accounting rate (%)	23.7%	26.4%	32.5%	31.9%	30.7%	30.2%	29.1%	27.7%	26.9%
Cash Contribution rate (BP13 %)	43.9%	43.7%	42.8%	40.9%	36.4%	36.4%	36.5%	36.1%	35.1%
Accounting rate (£m)	52.1	59.0	75.2	74.2	71.3	71.6	71.0	69.2	68.7
Cash Contribution rate (BP13 £m)	96.7	96.9	99.1	95.1	84.6	86.3	88.8	90.5	89.5

Accounting

Our plan is prepared on the basis of international accounting standards which apply at 31st March 2013.

From 2013/14 onwards the provisions of the amended pension accounting standard (IAS19 - 2011) apply. This introduces a requirement to recognise net interest on the net Defined Benefit liability / (asset). The net interest charge is calculated by multiplying this amount by the discount rate derived from the market yield on high quality corporate bonds.

The impact of this change is expected to increase the P&L charge. This is because effectively the same discount rate will be applied to both liabilities and to assets and, in the latter case will be lower than the rate applied previously which was based on expected asset returns. This has no impact on the overall balance sheet value, but will change the allocation between P&L and the movements on reserves.

As for 2012/13, costs relating to the MoD gainshare payments are shown as a reduction to revenue in the plan for 2013/14 onwards, consistent with the way these were presented to the CAA for the CP3 reference period. For statutory reporting purposes, an adjustment is made to include interest relating to gainshare payments as finance costs.

A number of accounting developments are being pursued by the International Accounting Standards Board (IASB) as part of its work plan for the on-going development of accounting standards. It is possible that this work plan results in new accounting standards being introduced which will require implementation during the 2015-2019 reference period. In particular the work plan includes: a review of leasing transactions for which an exposure draft has been issued for comment; accounting by rate-regulated activities which will be the subject of a discussion paper; and the recognition of revenue targeted as an accounting standard in 2013.

Tax

Our business plan assumptions reflect the Finance Act 2013. The rates of corporation tax assumed in our plan are as follows:

- 2012/13 - 24%
- 2013/14 - 23%
- 2014/15 - 21%
- 2015/16 onwards - 20%

The rate of capital allowance assumed on the plant and machinery main pool is 18% on a reducing balance basis for 2012/13 onwards.

An allowance for corporate tax charges is included within the cost of capital.

Financing

NERL and the CAA recognise the importance of ensuring that NERL's financial structure is sufficiently robust so as not to place investment, the operation of the business and/or service quality at undue risk.

NERL's Licence reflects a two-tier direct control of NERL's gearing through a gearing target of 60% and cap of 65% with a tax clawback mechanism.

If NERL's gearing exceeds 65% the company is precluded from paying dividends and must provide details to the CAA of the steps that it would take to reduce gearing to below 65%.

If NERL's gearing, as measured by its net debt to RAB, exceeds 65%, the company is precluded from paying dividends and must provide details to the CAA of the steps that it would take to reduce gearing to below 65%. If average gearing in the current reference period exceeds the target level of 60%, NERL loses the interest tax shield on the part above 60%.

NERL maintains a portfolio of debt diversified by source and maturity. The group's borrowings include a £600m 5.25% amortising bond maturing in 2026 (c.£557.4m currently outstanding) and bank loans at variable interest rates. To achieve an economic hedge of the impact of inflation on part of its regulated revenue, NERL entered into an amortising index-linked swap (final maturity 2026) with a notional principal of £200m whereby it receives fixed interest at 5.25% and pays interest at a rate of 3.43% adjusted for the movement in RPI. In May 2012, NERL re-financed existing bank facilities totalling c£211m with a new £275m bank facility maturing in December 2016.

Appendix J: RECONCILIATION TO NATIONAL PERFORMANCE PLAN FOR RP1

This Appendix provides a cross reference between some of the key values described in this business plan, and those from the European Commission approved National Performance Plan for RP1. This is particularly relevant due to the following two factors:

1. Determined unit cost calculations in the National Performance Plan were based on Total Service Units, with determined costs being 'grossed up' for military service units
2. The National Performance Plan for RP1 quoted values in 2009 prices whereas values have been updated to 2012 prices for the purpose of our business plan document

Key Values from RP1 National Performance Plan

The table below is extracted directly from the National Performance Plan ("UK Performance Plan for Air Navigation Services", published June 2011), showing the breakdown of the determined unit cost for NERL (second line only) and the UK State in total (figures in 2009 prices):

Figure 30: Consolidated Determined Unit Rate in Real Terms for RP1

£ (2009)	2011	2012	2013	2014
NERL unit rate	54.39	53.33	53.87	51.70
NSA unit rate	0.74	1.26	1.22	1.17
EUROCONTROL/DIT unit rate	3.93	4.23	4.05	3.93
MET Office unit rate	2.80	2.61	2.50	2.42
Total unit rate for en-route ANS (£)	61.86	61.44	61.64	59.22

NERL's determined costs which supported this (including gross up for military service units) were as follows:

Figure 41: NERL Determined Costs for RP1

£ (2009) million deflated for HICP	2009	2010	2011	2012	2013	2014
Opex	351	346	337	331	335	340
Pensions	54	71	83	86	83	73
Depreciation	110	116	126	135	158	162
Allowed returns	69	74	73	72	72	71
Non regulated revenues ³³	(64)	(69)	(67)	(63)	(62)	(65)
London Approach	(8)	(9)	(10)	(10)	(10)	(11)
Determined costs	512	528	542	551	575	571
Nominal (outturn) prices						
Determined costs in outturn prices³⁴	512	545	575	593	630	637

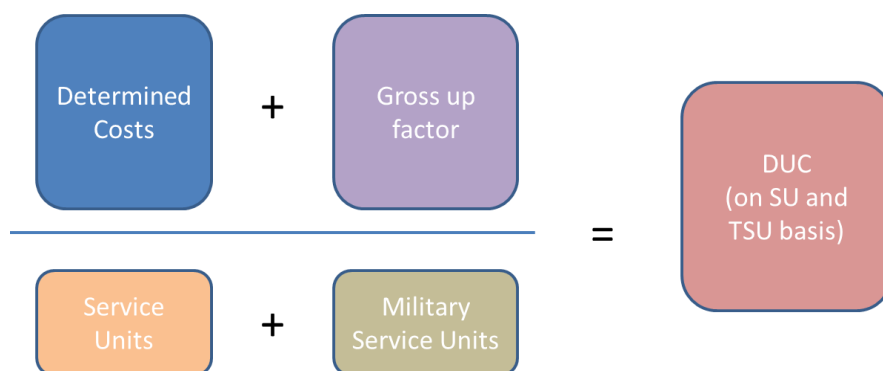
The traffic forecast (Total Service Units) which was used to generate the determined unit rate (including military service units) was as follows (and compared against the STATFOR September 2010 for information only):

Figure 21: Comparison of En-Route Total Service Units with Forecast STATFOR

	2009A	2010F	2011F	2012F	2013F	2014F
Total Service Units forecast (000) CP3 Price Control	9,914	9,567	9,971	10,325	10,667	11,035
Growth		-3.5%	4.2%	3.5%	3.3%	3.4%
STATFOR Sept 2010	9,914	9,539	9,931	10,188	10,395	10,629
Growth		-3.8%	4.1%	2.6%	2.0%	2.2%

Total Service Units and Service Units - an Explanation

European Regulations require NERL to use Total Service Units (TSUs) to calculate DUCs. However, in UK, military flights are funded separately so there is nothing to charge through this mechanism. Given these two constraints, we have to make an adjustment. This is described in the simple model below.



The DUC is the same on an SU and on a TSU basis.

The tables on the following page prove how the removal of military service units (from Total Service Units), and the removal of the 'grossing up' element of determined costs, makes no change to the Determined Unit Cost (DUC).

Determined Unit Cost: Reconciliation using Total Service Units and Service Units

National Performance Plan 2011 – 2014 (based on TSUs)

values in 2009 prices	2011 F	2012 F	2013 F	2014 F
Determined Cost £m	542	551	575	571
Total Service Units '000	9,971	10,325	10,667	11,035
DUC	54.39	53.33	53.87	51.70

Notional Military Adjustment / Gross-Up Factor

values in 2009 prices	2011 F	2012 F	2013 F	2014 F
Military Gross Up Costs £m	9	9	9	9
Military Service Units '000	174	174	174	174
DUC	54.39	53.33	53.87	51.70

NERL Plan excluding Military Adjustment (SUs)

values in 2009 prices	2011 F	2012 F	2013 F	2014 F
Determined Cost £m	533	542	565	562
Service Units '000	9,797	10,151	10,493	10,860
DUC	54.39	53.33	53.87	51.70

Includes small rounding variances e.g. military grossing up adjustment of £9m pa

Conversion to 2012 prices from 2009 prices

The following table breaks down the NERL element of the National Performance Plan, excluding the gross up for military services units, and presents this in 2009 prices. For example, the determined cost per service unit in 2014 is £51.72 (small rounding differences account for the variance between £51.70 and £51.72)

This is then inflated to 2012 prices by applying the actual CPI inflation between 2009 and 2012 (a factor of 1.1096). The determined cost per service unit in 2014 (in 2012 prices) is £57.39.

Determined Cost Breakdown

<i>values in 2009 prices (£m)</i>	NPP for RP1			
	2011	2012	2013	2014
Operating Costs	337	331	335	340
Pensions	83	86	83	73
Depreciation	126	135	158	162
Allowed returns	73	72	72	71
Non-regulated Revenues	(87)	(82)	(82)	(85)
TOTAL Determined Cost	533	542	565	562
Service Unit Forecast '000	9,797	10,151	10,493	10,860
Determined Cost per SU	54.39	53.36	53.87	51.72
2009 to 2012 inflation (CPI)	1.1096	1.1096	1.1096	1.1096
<i>values in 2012 prices (£m)</i>	NPP for RP1			
	2011	2012	2013	2014
Operating Costs	374	367	372	377
Pensions	93	95	92	81
Depreciation	140	150	175	180
Allowed returns	81	80	80	79
Non-regulated Revenues	(96)	(92)	(91)	(94)
TOTAL Determined Cost	591	601	627	623
Service Unit Forecast	9,797	10,151	10,493	10,860
Determined Cost per SU	60.35	59.21	59.78	57.39

Includes small rounding variances between NERL internal plan and the National Performance Plan

CAA Methodology – start point in 2009 prices

The table below shows how the CAA methodology would calculate the start point for RP2 cost efficiency, in 2009 prices. This starts from the 2014 determined costs of £562m in the National Performance Plan and reduces this by the expected revenue losses for that year (4.4% of determined cost as a result of lower traffic – i.e. £25m).

The revised cost base is divided by forecast traffic volumes, giving a determined unit cost of £56.39

	NPP for RP1			
	2011	2012	2013	2014
<i>values in 2009 prices</i>				
Determined Cost				562
En Route Revenue Losses				(25)
Revised Cost Base				537
Service Units				9,523
Determined Cost per SU				56.39

Applying the traffic adjustment to the NPP in 2009 and 2012 prices

The following table shows the impact of applying the traffic adjustment in both 2009 and 2012 prices. For example, whereas the traffic adjusted NPP value for 2014 is £65.45 in 2012 prices, this is equivalent to £58.98 in 2009 prices

	NPP for RP1			
	2011	2012	2013	2014
<i>values in 2009 prices (£m)</i>				
TOTAL Determined Cost	533	542	565	562
STATFOR May-13	9,715	9,475	9,361	9,523
Determined Cost per SU	54.84	57.16	60.39	58.98
2009 to 2012 inflation (CPI)	1.1096	1.1096	1.1096	1.1096
<i>values in 2012 prices (£m)</i>				
TOTAL Determined Cost	591	601	627	623
STATFOR May-13	9,715	9,475	9,361	9,523
Determined Cost per SU	60.86	63.43	67.01	65.45

DUC Cost Efficiency Calculation – CAA Method – 2009 prices

Revised Plan

The table below breaks down the projected movement in the determined costs base during RP2, relative to the cost base in RP1, in 2009 prices, for the **Revised Plan**

values in 2009 prices	NPP for RP1					RP2 Plan					2019		2019	
	2011	2012	2013	2014	2015	2016	2017	2018	2019	v 2014	as %	v 2012	as %	
Operating Costs	337	331	335	340	300	297	298	299	297	(43)	-13%	(34)	-11%	
Pensions	83	86	83	73	68	67	68	68	67	(6)	-9%	(19)	-29%	
Depreciation	126	135	158	162	158	157	152	143	138	(24)	-15%	3	2%	
Allowed returns	73	72	72	71	66	60	55	51	48	(23)	-33%	(24)	-44%	
Non-regulated Revenues	(87)	(82)	(82)	(85)	(83)	(83)	(81)	(78)	(79)	5	-6%	3	-4%	
TOTAL Determined Cost	533	542	565	562	509	499	492	484	470	(92)	-16%	(72)	-13%	
Saving v 2014 baseline					(53)	(62)	(70)	(78)	(92)					
as a %					-9%	-11%	-12%	-14%	-16%					
Cumulative during RP2					(53)	(115)	(185)	(262)	(354)					
Equivalent annual profile (4.4% per annum)					537	513	490	468	447	4.4%				
Saving v 2014 baseline					(25)	(49)	(72)	(94)	(115)	pa				
Cumulative during RP2					(25)	(74)	(146)	(240)	(354)					

The calculation of the determined unit cost efficiency, using the CAA methodology, for the **Revised Plan**, in 2009 prices, is **6.1%** as shown below:

£m, 2009 prices	2014	2015	2016	2017	2018	2019	RP2
Determined Costs		509	499	492	484	470	2,454
less: pension pass through re: CP3		(1)	(1)	(1)	(1)	(1)	(6)
less: costs of change		(8)	(7)	(4)	(4)	(5)	(28)
Adjusted Determined Cost		500	491	486	479	464	2,421
Traffic Forecast '000 SUs		9,789	10,068	10,306	10,579	10,856	
Determined Unit Cost (DUC)		51.12	48.77	47.18	45.26	42.74	
Cost of Capital Factor (7%)		0.967	0.903	0.844	0.789	0.738	
NPV of determined cost		484	444	411	378	342	2,058
Start Point	56.39						
Profiled DUC reduction		52.98	49.77	46.76	43.93	41.27	6.1%
Profiled Determined Cost		519	501	482	465	448	
Cost of Capital Factor (7%)		0.967	0.903	0.844	0.789	0.738	
NPV of determined cost		501	453	407	367	330	2,058

Appendix K: RECONCILIATION BETWEEN INITIAL AND REVISED BUSINESS PLAN

This Appendix describes how key financial and cost efficiency outputs have changed as a result of the revisions made by NERL to its Business Plan (RBP).

In particular, changes are highlighted between the values in Initial Business Plan (IBP) and the Revised Business Plan in relation to Determined Costs, the DUC % cost efficiency measure, and the average RP2 price. For the purposes of this analysis, the IBP is based on Plan 2 (rather than Plan 1) of the IBP document.

1. En Route

The changes made by NERL to the En Route plan which affect financial and efficiency outputs are as follows:

- (a) Operating Cost – a smaller reduction in controller numbers, relative to the assumptions in Plan 2 (assumed to reduce by 125 FTEs rather than 185 FTEs, by 2019, relative to the current position). As a result of this change, operating costs and pension costs increase, but restructuring costs reduce
- (b) Capital Expenditure – an increase of £15m, relative to assumptions in Plan 2, reflecting the additional capital costs associated with the LAMP programme (to deliver benefits within Plan 1 timescales). The impact of this change on determined costs is relatively small as capital expenditure is depreciated over a 15 year period
- (c) Additional stretch targets of £5m in relation to growth of non-regulated income (before the addition of associated direct variable costs, applying typical margins)
- (d) Other small changes, mainly to reflect updates for actual (rather than forecast) financials for the financial year 2012/13, as well as minor revisions to the assumptions regarding how the application of n+2 charging arrangements would affect prices in late CP3 and early RP2
- (e) An updated traffic forecast (STATFOR May 2013), which contains slightly lower service unit assumptions than the February 2013 STATFOR forecast

	Initial Business Plan (Plan 2)	Changes made					Revised Business Plan
		Changes to Controller Manpower	Changes to Investment (LAMP)	Non-Regulated Income	Other small changes	Updated Traffic Forecast	
En Route							
Determined Cost (£m, 2012 prices)	2,702	23	4	(1)	(5)	0	2,723
DUC Efficiency % (CAA method)	6.39%	-0.27%	-0.05%	0.01%	-0.02%	0.00%	6.05%
Average DUC (2012 prices)	52.15	0.45	0.07	(0.01)	(0.11)	0.22	52.78
Av. RP2 Price (2012 prices)	54.85	0.44	0.07	(0.01)	0.09	0.27	55.71

Note: 'Other small changes' includes minor revisions to determined costs and their profile over RP2 as well as the application of n+2 charging arrangements. The change in the DUC Efficiency % also reflects minor changes to the value of items which are removed from the determined cost base for the assessment of cost efficiency

The table above shows that determined costs have increased by £21m compared to Plan 2. The DUC cost efficiency of the Plan (calculated using the CAA method), reduces from just under 6.4%* pa (the efficiency of Plan 2 when assessed using the latest PRB methodology) to 6.1% pa.

* Plan 2 efficiency was 6.0% pa when assessed using the previous methodology

Average determined unit costs and average RP2 prices increase by £0.62p and £0.86p respectively, relative to Plan 2. This reflects increases in determined costs described above and also the slightly lower traffic forecast for service units. Note that the updated traffic forecast also affects the value of assumed n+2 adjustments to RP2 prices in early RP2 (in relation to differences between actual and CAA assumed traffic for the last years of CP3).

2. Oceanic

The changes made by NERL to the Oceanic plan which affect financial and efficiency outputs are as follows:

- (a) COAST (and other smaller changes) – mainly the impact of reductions in capital expenditure during RP2 and lower operating costs as a result of the acceleration of the replacement FDP system (GAATS+) at lower overall cost, leading to earlier delivery of flight efficiency benefits to airlines.
- (b) An updated traffic forecast – based on STATFOR May 2013. Oceanic flight volumes in RP2 are estimated to be c. 3% lower than the level assumed in the Initial Business Plan

	Initial Business Plan	COAST and other small changes	Updated Traffic Forecast	Revised Business Plan
Oceanic				
Determined Cost (£m, 2012 prices)	130	(9)	0	121
Average DUC (2012 prices)	58.34	(3.84)	1.84	56.33
Av. RP2 Price (11/12 RPI prices)	54.00	(3.50)	1.70	52.21

In total, determined costs during RP2 reduce by £9m compared to the Initial Business Plan. The average determined cost (2012 prices, CPI deflator) and average RP2 price (deflated by RPI, 11/12 prices) are 3.4% and 3.3% lower than the Initial Business Plan respectively.

The reductions in price and determined unit cost reflect the determined cost saving from COAST and other small changes, partially offset by the impact of lower traffic volumes.

Appendix L: **COMPARISON OF PRB'S LATEST ADVICE REGARDING COST EFFICIENCY METHODOLOGY /TARGETS FOR RP2 (SEP 2013) WITH PREVIOUS PROPOSALS (MAY 2013)**

On 27 September, the PRB provided updated guidance material in relation to performance targets for RP2. These included a revised methodology and targets for the level of cost efficiency which States / ANSPs were expected to make over the five year period.

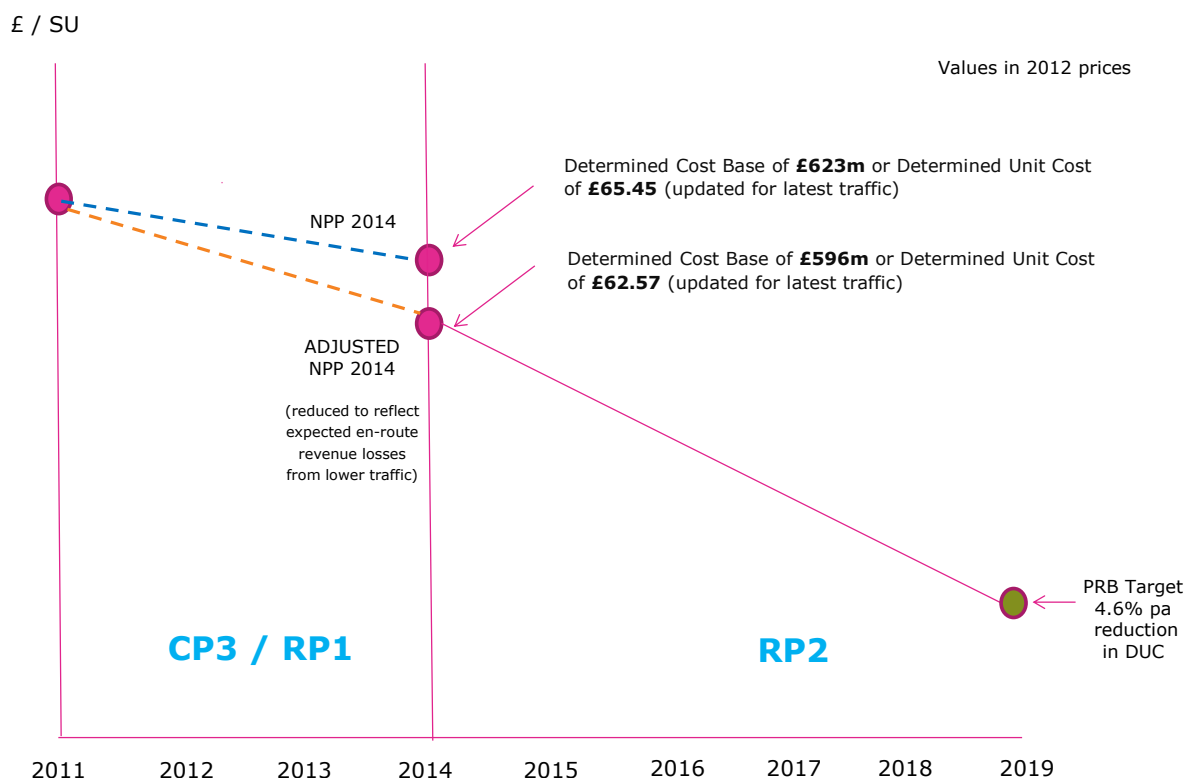
The cost efficiency calculations referred to in the Revised Business Plan (i.e. a 6.1% pa real reduction in DUC) have been performed using this new methodology, which is described in detail in Appendix G.

This Appendix explains how the new methodology has changed, and calculates the efficiency of our Revised Business Plan using the previous methodology (consistent with the way in which this was presented in the Initial Business Plan (a range of DUC reduction between 5.3% pa and 6.0% pa for our two reference points).

1. Changes to the Start Point

New Methodology (used in Revised Business Plan)

As described in Appendix G, the PRB guidance from September 2013 is that the start point for assessing cost efficiencies during RP2 should be 'States' / ANSPs' determined costs for 2014 from the adopted Performance Plans, reduced by the expected losses in en-route revenues for 2014'. This level of reduced determined cost is to be divided by forecast traffic volumes for 2014 to derive the implied determined unit cost start point.



NERL's 2014 determined cost from the UK National Performance Plan (NPP) for RP1 was £623m (in 2012 prices). Based on latest traffic forecasts, service units are projected to be 12.3% lower than the level assumed in the NPP for calendar year 2014. Applying volume risk sharing rules, NERL's revenues would reduce by 4.4% (or £27m) as shown below. The implied determined cost base start point is therefore £596m in 2012 prices. When this is divided by expected traffic volumes in 2014, the determined unit cost start point is £62.57 (2012 prices).

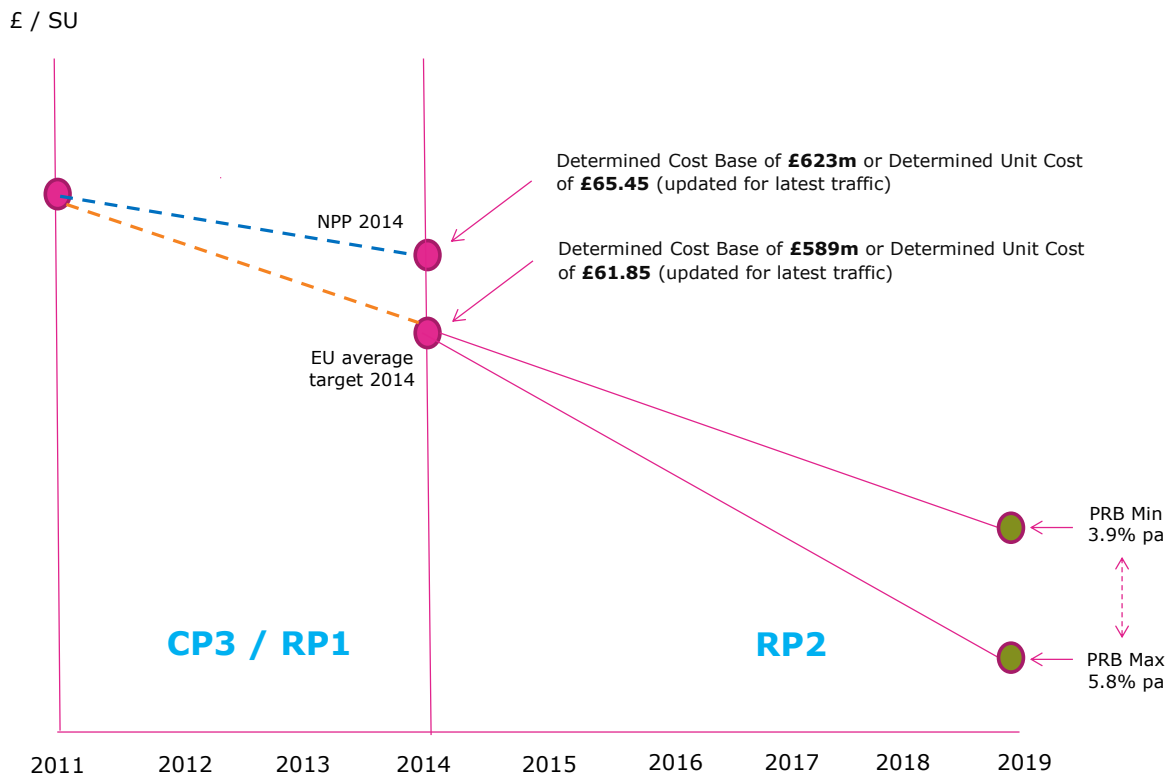
The PRB **target** for RP2 is for the DUC to reduce by an average of **4.6%** per annum in real terms, consistent with a **2.1%** real annual reduction in Determined Costs.

Previous Methodology (used in Initial Business Plan)

The methodology used to assess cost efficiency in the Initial Business Plan was based on a start point which was consistent with the PRB’s proposal as set out in section 4.5.24 of the February consultation document.

This reflects the theoretical DUC for 2014 which would have resulted if the EU wide target of an annual reduction of 3.5% in the DUC had applied to NERL DUC for the period 2011-2014. The value for 2014 is £48.87 in 2009 prices.

When updated for latest inflation and traffic forecasts, this is £61.85 (in 2012 prices). The implied determined cost base in 2014 is £589m (in 2012 prices), £34m lower than the cost base in the NPP.



The PRB provided a **target range** for targeted cost efficiency improvement in its revised May target document. Assuming base case traffic growth, this range was between **3.9%** and **5.8%** per annum from the 2014 start point, consistent with reductions of between **1%** and **3%** per annum in determined costs.

2. Cost Efficiency of NERL's Revised Business Plan

New Methodology (used in Revised Business Plan)

As described in Appendix G, the calculation of the determined unit cost efficiency of the Revised Business Plan using the new methodology is **6.1%** per annum:

£m, 2012 prices	2014	2015	2016	2017	2018	2019	RP2
Determined Costs		565	554	546	537	521	2,723
less: pension pass through re: CP3		(1)	(1)	(1)	(1)	(1)	(6)
less: costs of change		(8)	(8)	(5)	(4)	(5)	(31)
Adjusted Determined Cost		555	545	540	531	515	2,686
Traffic Forecast '000 SUs		9,789	10,068	10,306	10,579	10,856	
Determined Unit Cost (DUC)		56.72	54.12	52.36	50.22	47.42	
Cost of Capital Factor (7%)		0.967	0.903	0.844	0.789	0.738	
NPV of determined cost		537	492	456	419	380	2,284
Start Point	62.57						
Profiled DUC reduction		58.78	55.23	51.88	48.74	45.79	6.1%
Profiled Determined Cost		575	556	535	516	497	
Cost of Capital Factor (7%)		0.967	0.903	0.844	0.789	0.738	
NPV of determined cost		556	502	452	407	367	2,284

The chart below shows the impact of traffic growth and reductions in determined cost, separately. Compared to the theoretical determined cost start point in 2014 (i.e. based on the original NPP but reduced to reflect expected revenue losses from lower traffic), NERL's determined costs during RP2 reduce by the equivalent of **3.0%** per annum.

This efficiency is achieved despite the inclusion of restructuring costs of £31m and a further £6m of pension pass through costs from CP3 in the determined cost base. Adjusting for these items, following the CAA methodology, improves the underlying determined cost efficiency by 0.4% pa. Therefore the underlying determined cost efficiency is **3.4%** pa. Finally, adding traffic growth of 2.7% pa results in an actual underlying determined unit cost efficiency of **6.1%** per annum.

	Revised Plan
Determined Cost Efficiency v Theoretical 2014 Start Point	3.0% pa
Add: Exceptional Items in Determined Cost *	0.4% pa
Determined Cost Efficiency (CAA method)	3.4% pa
Add: Impact of Traffic Growth (Service Units)	2.7% pa
Determined Unit Cost Efficiency (CAA method)	6.1% pa

* pension pass through costs relating to CP3 and costs of change incurred during RP2 total £37m. These costs are included in determined costs for RP2 (and factored into RP2 prices) but are removed for the purposes of assessing the actual underlying efficiency of the RP2 business plan. In total, they are equivalent to a c. 0.4% pa change in determined costs.

Previous Methodology (used in Initial Business Plan)

Using the previous methodology, NERL's Initial Business Plan presented two different reference points (Plan 1 and Plan 2), showing reductions in DUC of between 5.3% and 6.0% pa. The calculation below measures the cost efficiency of the Revised Business Plan using the previous methodology, resulting in a DUC reduction of **5.7%** per annum.

£m, 2012 prices	2014	2015	2016	2017	2018	2019	RP2
Determined Costs		565	554	546	537	521	2,723
less: pension pass through re: CP3		(1)	(1)	(1)	(1)	(1)	(6)
less: costs of change		(8)	(8)	(5)	(4)	(5)	(31)
Adjusted Determined Cost		555	545	540	531	515	2,686
Traffic Forecast '000 SUs		9,789	10,068	10,306	10,579	10,856	
Determined Unit Cost (DUC)		56.72	54.12	52.36	50.22	47.42	
Cost of Capital Factor (7%)		0.967	0.903	0.844	0.789	0.738	
NPV of determined cost		537	492	456	419	380	2,284
Start Point	61.85						
Profiled DUC reduction		58.34	55.04	51.93	48.99	46.22	5.7%
Profiled Determined Cost		571	554	535	518	502	
Cost of Capital Factor (7%)		0.967	0.903	0.844	0.789	0.738	
NPV of determined cost		552	501	452	409	370	2,284

This can be broken down as follows, to show the impact of traffic growth and reductions in determined cost, separately. Applying the previous methodology, compared to the theoretical determined cost start point in 2014 (i.e. the implied determined cost base at the end of RP2 if the EU average target had been applied to NERL), NERL's determined costs during RP2 reduce by the equivalent of **2.6%** per annum.

This efficiency is achieved despite the inclusion of restructuring costs of £31m and a further £6m of pension pass through costs from CP3 in the determined cost base. Adjusting for these items, following the CAA methodology, improves the underlying determined cost efficiency by 0.4% pa. Therefore the underlying determined cost efficiency is **3.0%** pa. Finally, adding traffic growth of 2.7% pa results in an actual underlying determined unit cost efficiency of **5.7%** per annum.

	Revised Plan
Determined Cost Efficiency v Theoretical 2014 Start Point	2.6% pa
Add: Exceptional Items in Determined Cost *	0.4% pa
Determined Cost Efficiency (CAA method)	3.0% pa
Add: Impact of Traffic Growth (Service Units)	2.7% pa
Determined Unit Cost Efficiency (CAA method)	5.7% pa

* pension pass through costs relating to CP3 and costs of change incurred during RP2 total £37m. These costs are included in determined costs for RP2 (and factored into RP2 prices) but are removed for the purposes of assessing the actual underlying efficiency of the RP2 business plan. In total, they are equivalent to a c. 0.4% pa change in determined costs.