NERL response to CAA NR23 Initial Proposals, CAP2394

13 December 2022

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Table of contents

Foreword & Overview 3
1. Introduction 15
2. Traffic forecast 27
3. Safety 31
4. Capacity 34
5. Environment 46
6. Reconciliation review 53
7. Operating costs 66
8. Single till income 98
9. Capital investment 100
10. Oceanic 112
11. Cost of capital 124
12. Charges, financeability & other finance issues 132
13. Regulatory model 144
Appendix A 3Di-traffic relationship 162
Appendix B Updated Investment Plan 168
Appendix C Capex engagement incentive 187
Appendix D Licence modifications 194

Published version

Foreword & Overview

Chief Executive's foreword

At NATS we pay great attention to the role we play in UK aviation. Our primary purpose is to provide a safe and reliable air navigation service every single day. Our track record shows we have achieved this consistently for many years regardless of the changing environment around us. Our role extends beyond this as well. We have an enduring commitment to improving our efficiency, evident from the 33% reduction in our underlying operating costs since the Public Private Partnership was established in 2001. It is easy to forget that the industry would simply not function without these contributions.

We also always look for ways to make a difference to the bigger picture. We committed in 2020 to ensure that we would not impair the recovery of aviation post pandemic. This meant ensuring that we retained capacity and capability in our organisation, not least because it takes three years to train an air traffic controller. At the time, this was widely understood and supported by our stakeholders. No one knew how long Covid would last and so it was a decision taken in the best interests of the wider industry. It meant we could not reduce our costs as much as other aviation sector participants despite traffic, and our revenues, falling to a tiny fraction of planned levels. However, as flights started to pick up again earlier this year, it meant we were able to honour that commitment. We geared our operation back up very quickly and safely to support the level of demand . We delivered a solid performance through 2022, despite one of the most volatile and unpredictable operational environments we've ever experienced and often in contrast to air traffic control performance in neighbouring countries.

We also took significant steps to ensure that the company would survive the pandemic financially. Rather than seeking government support, we took it upon ourselves, supported by our shareholders, to refinance. Again this self-reliance while so many other businesses, including some within aviation, were seeking government supported bail-outs, was commended by wider stakeholders with the understanding that the company would have to recover its financial position in the years ahead.

The decisions we took and the costs we incurred had a constant eye on the future needs of the industry, and we have not let UK aviation down. Now, as we seek to get our longer-term business plans back on track, the same considerations dominate our thinking: what role do we play, what role should we play, what role can we play in the industry? Conversely, what contribution does the UK want from its air traffic control infrastructure?

During the NR23 process, we put considerable effort into trying to answer these questions. Before writing a single word of our proposed plan, we first asked our airline customers for their priorities. We looked at the unfolding scenarios for the recovery of traffic and also recognised the financial challenges the entire industry was going to face. We looked at the developing trends and challenges facing the industry, particularly from a sustainability perspective, and the emerging new demands drones and space launches place on our airspace. We also, of course, looked to the challenges we had ourselves to recover from the pandemic operationally and financially. Delays to our strategic objectives during and due to the pandemic were inevitable, but at the same time the industry still needed us to support a return to growth paths that were, and still are, only sustainable through significant reform.

The plan we produced had its deep foundations set in all these considerations, and more. Building on our position as consistently one of the top two highest productivity major European Air Navigation Service Providers over the past 20 years, we maintained our commitment to service quality and improved efficiency. We also outlined that our business is not in a position to forego the return of revenues lost during the pandemic that is afforded us through the UK regulatory model . Despite wildly different circumstances compared to 2019, both in our business and the industry, we retained and refined the airspace modernisation programme in order to accommodate future aviation growth and improve sustainability. We also had to rebuild the plan to replace our entire technology infrastructure, without which we could not reap the benefits of airspace change.

In many ways, the CAA’s initial proposals for NR23 recognise the struggles the company has come through. Struggles that were at times existential threats. The CAA too has had to find a balance in their assessments between our needs and those of our customers. While there are differences and issues to resolve across many elements of what has been proposed, many of these remain within the normal bounds of the regulatory process at this stage of a price control review.

However, we are sorry to note that there are also some specific aspects in the CAA’s Initial Proposals, where the balance has skewed well away from regulatory best practice and which present us with some fundamental challenges. These risk undoing all the good work put into surviving Covid-19 by placing new, unmanageable and unexpected burdens on the company. We are in no doubt that these would both significantly impede the delivery of our primary role, as well as run counter to the CAA’s stated objectives for consumers. If left unaddressed, these cuts are of such severity that they would make the plan unworkable. We are, though, committed to continuing to work with the CAA in the remaining months of the NR23 review to help bridge the gaps in understanding and assessment, with the aim of ensuring that the Final Decision represents a better evidenced, balanced and thus more deliverable package.

These issues and the challenges they present are examined in detail in the pages that follow.

For example, the proposals for pension payments run counter to any prior engagement or the standards of reasonable regulatory practice, even more so where the CAA’s consultants state the company’s position to be reasonable and efficient. Simply put, the outcomes appear perverse and likely to lead to increased pension costs, in contrast to the CAA’s assumed intention. Similarly, the proposals and scenario for inflation, as best as we can understand them, do not appear to have been fully thought through. Rather, they seem to be a short-term, reflex reaction to rapid economic developments that were not foreseen at the time of developing the plan or consulting with customers. As a result, and due to our responsibilities

to our licence, our customers, our employees and our shareholders, the CAA's proposals are a long way from something we could accept.

Separately, we have identified that certain elements of the CAA's proposals include miscalculations, misunderstandings and misjudgements. We identify these in detail and have provided new evidence in this submission. We look forward to engaging with the CAA on this material in the remaining period of the NR23 review. I sincerely hope that this time good sense will prevail without the need for lengthy, time-consuming and expensive conflict resolution processes.

The UK is the envy of the world for the excellence of our aviation industry, but we are in danger of undermining that position in the course of the decade ahead, if we do not correctly organise and support the reform that is needed. The research conducted for the CAA that appears in our NR23 plan, shows categorically that the public supports high quality air traffic services. The increase in charges proposed in our plan represents less than the price of a cup of coffee to each UK passenger. Consumers have already said they would be prepared to pay much more. We call upon the CAA to reconsider their proposals in the light of this response, so as to ensure that air traffic services in this country can continue on the improvement path in both quality and cost that they have followed for the past two decades, and support the aviation industry and the flying public in the way they need and expect.

Martin Rolfe

Chief Executive Officer, NATS

13 December 2022

Overview

The NR23 review for NERL is complex. It deals with the retrospective review of costs as well as a forward-looking assessment of the five-year plan, against a backdrop of still uncertain recovery from the very significant impacts of the 2020-22 pandemic. Additional complexities arise from heightened geopolitical, macroeconomic and financial market uncertainty.

In the 13 chapters of this document we respond to each of the CAA's specific proposals, largely in the sequence in which the CAA put them forward. There are also a number of over-arching themes between aspects of the CAA's proposals which merit being highlighted separately at this stage to help orientate the CAA in considering NERL's response. These connecting topics relate to:

- Overall plan calibration
- Updates for latest evidence and developments
- Consistency of regulatory policy development
- Correction of misinterpretation and miscalculations

Overall Plan Calibration

We set out our NR23 business plan on the basis of the latest traffic forecast available at the time, coalesced with plans for growing and developing our workforce and renewing our long term technology transformation programme as we emerged from the pandemic period. We ensured that the plan was fundamentally consistent and aligned; and that targets for service delivery reflected the levels and flows of operational staff, and were calibrated carefully for planned transitions during NR23 relating to airspace change and technology implementations.

The inter-dependent 'triangle' of supply-demand-service delivery was set in a taut but resilient manner. This was finely balanced alongside many other related components: staff attraction and retention, employee and industrial relations, and financeability to name but a few. All were considered such that NERL's plan maximised the benefits for customers given the position from which the NR23 period starts. The starting point has known impacts that will still be felt from some of the unavoidable actions taken in 2020 to respond to the most extreme circumstances during the first year of the pandemic.

Our assessment of the CAA's proposals is that a number of inter-connected components have been unconventionally and independently optimised, on a siloed type basis, without considering the interdependencies and the coherence or otherwise of the resulting construct. It is essential that the CAA adjusts for this lack of coherence within its final determination, in line with best regulatory practice.

For example, service targets have been set by reference to performance in earlier, pre-pandemic years. This is without recognition of the changed circumstances for NR23 of technology and airspace implementation, where the investment programme has been adjusted following the pandemic-induced pause and the resulting continuing constraint on delivery capacity, and a less experienced workforce as a result of demographic changes arising from a retirement 'bulge' anticipated in NR23.

Similarly, operational productivity targets have been set without basis, whether from additional changes in underlying technology or in further working practice revisions which would sustain any permanent improvements in productivity. These targets have also been set without regard for more challenging service targets (and vice versa). Simply wishing for optimised performance in each dimension without checking the feasibility of the whole is not a sound basis for economic regulation. This approach means that the CAA is not demonstrably balancing its statutory duties with users' interests in supporting safe, operationally and financially resilient performance.

Updating for Latest Evidence and Developments

The CAA's analysis is based on STATFOR's October 2021 traffic forecast which NERL used within its own plan. The CAA also draws on macroeconomic forecasts from March 2022, and assessments of operating and financing costs which were updated only to April 2022. This leaves six months of disruptive movements in the wider economy, up to the CAA publishing its Initial Proposals on 28 October, which are not yet factored into the CAA's assessment. This gap appears to have arisen as a result of the CAA deferring the timing of its Initial Proposals through 2022. These were promulgated as being due by May 2022, before finally being published some five months later, with multiple delays during that window.

The latest STATFOR traffic forecast, from October 2022, shows a marked step up in flights from 2024 onwards, albeit with material downside risk. Meanwhile the economic and financial market context continues to move into less favourable territory than earlier in the year. The prospect of higher than previously forecast inflation into 2023, economic recession and much higher interest rates is becoming ever more real with the passage of time. The contribution of these risks towards the aforementioned downside risk needs to be considered and assessed. There have also been changes in the timing of delivery for some investment projects in NR23, as a result of replanning our technology transformation programme earlier this year.

We have reflected the above developments in this response, which is based on the latest STATFOR traffic forecast, up to date financial market data, and the impact of the revised investment portfolio plan. There is likely to be a further traffic forecast from STATFOR in March 2023, along with fresh evidence about the macroeconomy and the extent to which an already slowing UK economy might impact demand for flying, particularly in the early years of 2023.

In line with best regulatory practice, and to ensure its legal obligations are met, the CAA needs to reassess its initial proposals in light of the latest facts, statistics and evidence presented in this response. It needs to keep its assessment up to date during 2023 as it approaches final decision-making for the NR23 review. Given the scale of movements, alongside the inevitable passage of time, not doing this could render the NR23 plan undeliverable from NERL's perspective.

Consistency of Regulatory Policy Development

The CAA's objectives, after its primary duty to exercise its functions to maintain a high standard of safety in air traffic services, require it to further the interests of users while at the same time promoting efficiency and economy by NERL and enabling its financing without undue difficulty. The perennial tension in economic regulation is weighing up a regulatory innovation which may ostensibly appear to be in users' interests, for example, through apparently lower charges than otherwise may be the case versus the longer term detriments

that can result from under-explained and unwarranted change that has not been subject to appropriate consultation. This only serves to undermine the longer term incentives on NERL towards greater efficiency and economy, and ultimately hinders its financing. The wider impacts of an ill-considered innovation can thus cut across the promotion of users' interests, even defeating its stated objective.

The CAA has outlined two such innovations in its Initial Proposals. Firstly, as far as we can understand its intent at this stage, outlining a scenario with an arbitrary inflation adjustment for 2023 opex, which leads to an effective £76m real cut over NR23. Secondly, imposing an unreasoned efficiency benchmark for Defined Benefit pension costs, which we estimate as amounting to a £94m cut in allowed operating costs. We assess that both of these unexpected and unforeseen innovations fall into the category described above.

Other proposed innovations include the substantial strengthening of the capital engagement incentive, to the extent that this now represents a material downside financial risk to NERL. This change comes after the current incentive regime has been in place for only two years, following the pause, replan and restart of the investment programme. It is not grounded in any assessment of either the costs versus benefits of change, the efficacy of the current scheme, or the CAA's parallel duty to impose on NERL only the minimum restrictions necessary.

In seeking to reduce headline costs in NR23 through policies introduced without adequate transparency or consultation, the CAA will increase costs for users in the longer term. Its policy innovations serve only to undermine the time-consistent and non-opportunistic approach to economic regulation which wider stakeholders and investors in UK regulated utilities have come to rely upon, in return for providing cost-effective long term finance.

Correction of Misinterpretations and Miscalculations

The NR23 review combines a retrospective review of the efficiency of actual and forecast spending in the 2020-22 period, together with a forward assessment of NERL's NR23 business plan for 2023-27. Complexity unavoidably arises from calculating the amount of revenue which NERL is allowed to recover for 2020-22, abstracting from existing mechanisms in the licence which adjust costs for the actual compared to forecast parameters, and integrating the recovery into the operation of the Regulated Asset Base. We have assisted the CAA in navigating this complexity through the submissions provided in support of our NR23 business plan, the cost reconciliation review and in response to the CAA's 200 requests for information.

We have identified a number of potential miscalculations and misunderstandings in the Initial Proposals, which are individually and collectively material. We have identified and corrected these throughout this response. We highlight below the most material issues that we have identified to date, which amount to a total value of £64m to NERL's detriment.

Topic	Issue	Value of impact
Cost reconciliation	Adjust regulatory return for impact of Traffic Risk Share and inflation: double counting of adjustment	£31m reduction in 'efficient cost baseline' for 2020-22
Cost reconciliation	Costs of refinancing – estimating costs of alternative scenario, retaining securitised finances: mis-calibration of debt costs	£6m reduction in 'efficient cost baseline' for 2020-22
Finance issues – tax	Modelling of tax allowance: amount proposed in Initial Proposals too low compared to calculations in CAA Price control model	£6m reduction in NR23 Determined Costs
Finance issues – tax	Modelling of tax allowance: CAA stated policy of allowing cost of capital return on Traffic Risk Share debtor and associated tax allowance: modelling of tax allowance not visible in IPs or Price Control Model	£21m reduction in NR23 Determined Costs

Given only six weeks[1] have been available to assess such a vast quantity of text, data and calculations as well as prepare this response, there may be other issues of error that we subsequently discover, and which we will bring to the CAA's attention.

For the avoidance of any doubt, we will continue to respond promptly and constructively to any further CAA requests for information on any aspect of our NR23 business plan or on this response to the NR23 Initial Proposals. It is in everyone's interests that the final outcome is a proposal which delivers for all stakeholders. Based on our current assessment of the Initial Proposals, we unfortunately do not assess that to be the case.

[1] In practice, only three weeks for one part of the CAA's proposals, namely the draft rules for the Regulated Asset Base

Summary of response to each proposal

The following table sets out our headline response to each of the individual proposals in the CAA's Initial Proposals document. As noted in this summary and elsewhere in our response, there are strong linkages between many aspects of the NR23 business plan, and thus close links between our responses on these topics. Our response on any one topic should thus be viewed firmly within the context of our response as a whole.

Topic	NERL NR23 business plan	CAA initial proposals	NERL's response
Traffic forecast	UKATS: derived from Eurocontrol STATFOR October 2021 Oceanic: NERL forecast derived from STATFOR's May 2021 projections	UKATS: Eurocontrol STATFOR October 2021 Oceanic: NERL forecast derived from SF May 2021 projections	UKATS: derived from Eurocontrol STATFOR October 2022 Oceanic: NERL forecast derived from STATFOR's October 2022 projections CAA should update to latest forecasts for UKATS and Oceanic and take account of evolving macro-economic circumstances
Safety	To remain in line with UK State Safety Programme acceptable level of performance, and to continue to provide a safe service - overarching objective to maintain or improve safety levels by ensuring that number of serious / risk bearing incidents per flight does not increase, and if possible decreases.	NERL will be able to provide a safe service under CAA proposals because operation is currently safe, and governance mechanisms exist to manage changes; efficiency adjustments should not impact negatively.	NERL maintains the safety objectives set out in its NR23 plan.
Service performance incentives for RP3 period	Not included in NERL's NR23 plan. NERL submission (August 2022) proposed that financial incentives be dis-applied for 2022 given level of traffic and volatility of demand in summer 2022, or at least C3 traffic modulation adjusted in light of low traffic.	3Di: financial incentive suspended given that annual review test was failed in two consecutive years C3: adjustment needed to traffic modulation mechanism.	NERL agrees that 3Di incentive should not apply in 2022, on grounds of lower than forecast traffic. NERL agrees that C3 traffic modulation should be adjusted or set aside for 2022.

Topic	NERL NR23 business plan	CAA initial proposals	NERL's response
Capacity service targets	C1: 15.2 seconds average in NR23 C2: 10.7 seconds; traffic modulation C3: 21.6 seconds C4: 1800 points	C1: 12.7 seconds average in NR23 C2: 8.9 seconds, no modulation C3: 14.7 seconds C4: 1800 points	New traffic forecast and revised sequencing of capex programme means capacity targets need to be reset. NERL proposes new targets: › C1: between 12.29 (2023) and 19.14 (2027) seconds › C2: between 8.45 (2023) and 15.3 (2027) seconds › C3: between 16.9 (2023) and 30.6 (2027) seconds › C4: 1800 points
Environment service target	3Di score reducing from 28.0 to 27.6 over period. Remove non-revenue flights from 3Di score. Traffic modulation of 3Di annual targets. Re-opener mechanism for events that have a significant impact on 3Di performance.	3Di score reducing from 27.6 to 25.3 over period. Maintain proxy adjustment of -0.6 from 3Di score, rather than all non-revenue flights. No traffic modulation. No pre-defined re-opener mechanism, but ability to apply in material cases.	New traffic forecast and revised sequencing of capex programme means 3Di targets need to be reset. NERL proposes new targets which would deliver better outcomes for customers. Latest evidence shows excluding non-revenue flights would better reflect NERL-attributable performance than proxy adjustment.
Cost reconciliation review	Evidence on efficiency of spending in 2020-22, to make savings where feasible and to prepare for the recovery in flights from 2022.	Reduction of £58m (3%) in the CAA's 'efficient cost baseline' Rebasing of nominal opex in 2022 by average wage growth rather than CPI inflation, equivalent to further £11m opex cut	Majority of CAA cost reductions are not warranted, either because alternatives posited would actually cost more in NR23 (for example £15m additional costs in relation to the VR programme and £14m of additional interest costs in relation to refinancing) or are based on mis-application of regulatory mechanisms through which costs are adjusted. Opex rebasing cuts across established inflation protections and not supported by any evidence

Topic	NERL NR23 business plan	CAA initial proposals	NERL's response
Operating costs	Opex levels in NERL NR23 BP	£30m reduction over NR23, primarily lower wage growth and higher Air Traffic Control Officer (ATCO) productivity assumptions	New higher traffic forecast, with NERL's proposed ATCO supply, will meet higher productivity targets regardless, so reductions in ATCO staffing not needed (and not aligned with resilient approach supported by airlines). Pay growth projections need to be realistic in context of unionised workforce, long term stability in NERL approach to pay setting, and the wider public interest in avoiding costly disruption.
Pensions	Pension contributions in NR23 BP, reflecting December 2020 triennial valuation and CAA's Regulatory Policy Statement	£116m reduction, of which £94m from reduced DB contribution rate, driven by higher interest rate assumption	NERL's DB costs are assessed as reasonable and efficient, so CAA's reduction not consistent with its own evidence, creates material uncertainty about operation of pension cost pass through mechanism (contrary to its recent Regulatory Policy Statement), and increase risk of DB scheme and cost to customers in future.
Capital expenditure	Capex levels in NR23 BP, to deliver the strategic technology platform, Deployed Position En Route & Voice, plus continuing airspace modernisation and sustaining existing infrastructure.	£17m reduction in risk allowance, with potential for further £20m cut if NERL unable to meet CAA requests for greater detail on delivery and benefits of plan.	Updated evidence on sequencing of portfolio investment in light of replan of DPER, plus greater clarity on benefits delivery, so 'low case' reduction should not proceed. Risk allowance cut not supported by best practice on efficient management of investment.

Topic	NERL NR23 business plan	CAA initial proposals	NERL's response
Oceanic	Traffic, service, opex, capex per NERL NR23 BP	Similar base case reductions as per UKATS price control. NERL to engage with airlines to agree service measures.	Rebasing plan for new higher traffic forecast means productivity analysis leading to opex reductions no longer relevant. Capex plan fully supported by customers to help achieve improving safety and service outcomes.
Cost of capital	3.54% real (RPI) vanilla WACC, based on 50% gearing, cost of equity 8.2%	2.81% WACC, based on 30% gearing, cost of equity 4.3%, and financial market data at March 2022	Cost of equity materially underestimates investors' continuing perception of risk post pandemic. With no extra risk mitigations in CAA proposals, and some regulatory risks heightened, investors need adequate compensation via cost of capital. NERL presents updated market evidence, primarily in relation to asset beta and interest rates, impacting cost of equity and cost of debt. NERL updated WACC 3.95%, based on 6.67% cost of equity, -0.14% cost of debt, gearing of 40%.
Regulatory Asset Base	Traffic Risk Share revenue from 2020-22 to be recovered through the RAB	Supports use of RAB to enable NERL to recover TRS debtor over time.	Agree with CAA's pragmatic and reasoned approach but note the equity financing pressures that longer 10-year recovery period presents: CAA should reduce the recovery period, per NERL's business plan. CAA deferral of revenue recovery not supported by negligible impact on price sensitivity of passengers.

Topic	NERL NR23 business plan	CAA initial proposals	NERL's response
Inflation	NERL NR23 BP based on forecasts from autumn 2021, and continuation of full CPI inflation protection	Proposals based on March 2022 forecasts, to be updated. CAA introduces possibility of less than full CPI adjustment from 2023 even though, despite forecasts for periods of very high inflation and deflation, average CPI across NR23 is projected to be c2%	CAA proposals introduced late, opaquely, against long established regulatory inflation protection with no evidence base or impact assessment and with insufficient clarity on how these would work in practice. Very material impact, equivalent to a nominal terms determined cost cut of c£76m over NR23 (based on Nov-22 OBR inflation forecast), in addition to real terms cuts identified separately. We remain available to engage with CAA further to understand evolving and uncertain inflation forecasts.
Financeability	TRS debt recovered 75% NR23, 25% NR28 and prices profiled flat in real terms to moderate impact on charges.	TRS debt recovery deferred, 50% to NR28, on grounds of 'affordability'	TRS deferral not supported by evidence, and CAA justification on 'affordability' grounds is out with its duties under the Transport Act 2000. Revenue deferral places further pressure on equity financeability of plan, relying unduly on shareholder dividend forbearance.
Regulatory mechanisms	NERL NR23 BP proposed new traffic risk sharing for the Oceanic service, changes to en route TRS to enable to cater better for significant traffic shocks, and new measures to reflect the ongoing risk of negative traffic shocks in traffic forecasts and opex allowances.	En route TRS adjusted along lines of NERL proposal. Oceanic TRS and all other NERL proposals rejected. Capex engagement incentive scoring shifted up materially, making it harder to avoid penalty.	Evidence supports NERL proposals to mitigate traffic risk, heightened by uncertainty from pandemic recovery and macro-economy, as complement to proper reward for equity risk reflecting financial market perceptions. NERL agrees with ambition of continuous improvement in engagement with customers on investment plans, proposes modified incentives to reflect a more realistic trajectory of further improvement.

1. Introduction

1.1. Overview

The CAA sets out in the Introduction to its Initial Proposals the context for the NR23 review, the process followed, and the statutory and regulatory framework for the review. We comment on these aspects in this chapter. The CAA also sets out views on safety and on traffic forecasts in its Introduction - we respond on these issues in later Chapters 2 and 3.

We agree that the CAA faces an important and difficult challenge in the NR23 review; to set regulation for the coming period which reflects the very significant impacts of the pandemic on NERL's financial position, responds to continuing economic uncertainties, and provides a strong basis for continued investment in airspace modernisation and technology transformation. The challenge is heightened by the now further compressed timescales for the review. Nevertheless, we are concerned that, despite regular dialogue between NERL and the CAA since the very outset of the NR23 process, the Initial Proposals have introduced new, additional uncertainties into the price control. By default there is limited opportunity now left in the process to clarify or resolve these material concerns, never mind consult effectively on them. Our two key concerns are:

- **Inflation**: insofar as we can understand it, the CAA outlines an inflation scenario which would depart from its established approach to inflation, upon which the NR23 process to date – and consequently our business plan - has been predicated. This change appears to reduce the extent to which our operating costs are adjusted for consumer price inflation, thereby undermining a core risk mitigation established by the regulatory framework and on which our investors rely. We estimate that in the scenario as outlined, and based on the latest Nov 2022 OBR forecast, it would reduce the operating cost allowance by c£76m over NR23, material enough to potentially render the plan undeliverable. The CAA has not consulted on this scenario which would be a departure from regulatory practice and has not explained adequately the rationale for, or the scale of, the real impact. However, following multiple discussions with the CAA to understand the rationale for what is outlined, whilst we remain unclear at this stage, it appears to be seeking to deal with uncertainty around OBR forecasts and timing of final determination. Assuming that to be the case, we remain available to answer follow up requests for information as soon as received.

- **Pensions**: the CAA proposes, without adequate clarity, to reduce allowed costs for Defined Benefit scheme contributions based on a new and partial metric of efficiency which goes beyond the 2021 Regulatory Policy Statement for pension costs, and contradicts the CAA's own expert advisers' conclusion that NERL's costs were within a reasonable and efficient range. This proposal would expose NERL to potential reductions in its operating cost allowance of c£100m. As with the inflation adjustment, the CAA has not, thus far, clarified transparently the purpose and impact of this proposal.

1.2. Context for NR23 review

1.2.1. Recovery from pandemic

The whole rationale for the NR23 review is to reset the price control to respond to the major challenges caused by the pandemic, notably the restrictions on travel and other activities which have curtailed aviation since early 2020 and had profound impacts on the economy as a whole. With aviation and the economy out of kilter, it has been a difficult period in which to make forecasts of demand for flights and the costs and supply of inputs. It is also challenging to assess how far previous assumptions about medium term trends remain valid as a basis for setting controls for the next five-year period.

The response of aviation and some other sectors to the pandemic and the recovery of activity thereafter has also highlighted an important phenomenon – once disturbed by a major shock, these sectors have taken and are still taking some time to return to fully stable and resilient levels of operation. Continuing instability, be that in supply chains, or operational demand on the day or over the coming season, means it is not possible for each individual actor in the system to achieve their own optimum performance as they are reliant on others who may be under-performing. Responding to that under-performance elsewhere in the system introduces additional pressures on costs and service delivery, which would not be present in a more stable system.

The risk of attempting to establish a tauter set of cost and service targets is that any miscalibration or future disruption could lead NERL to fall short on the delivery of outcomes expected by customers, with resulting costs for airlines and passengers and (in the case of flight efficiency targets), the environment.

We note that the CAA did invite NERL to bring forward suggestions for regulatory mechanisms to help to manage the heightened level of uncertainty in the recovery period[2]. We made a number of proposals in our NR23 business plan and were disappointed that the CAA has not supported any of these[3]. We restate the case for several of these proposed risk mitigations, with new evidence in some cases, and invite the CAA to reassess.

1.2.2. Airspace modernisation

We agree that the UK's Airspace Modernisation Strategy continues to be a central objective for the CAA and NERL in the coming period. We have prioritised investment in the airspace changes and the supporting technology transformation in order to be able to play our part fully in the vision to "deliver quicker, quieter and cleaner journeys and more capacity for the benefit of those who use and are affected by UK airspace".

1.3. Process to develop initial proposals

The process to develop initial proposals began in December 2020 with the CAA's initial consultation paper CAP1994. We responded with a clear preference to complete the review within two years, 2021-2022. We set out an outline timeline which allowed adequate time for

[2] CAA (2021) CAP2160. Business Plan guidance Principle 4: "Principle 4: in addition to its work on scenarios, NERL should consider how the uncertainty due to the impact of the covid-19 pandemic should be mitigated and managed effectively in the interests of consumers"
[3] See discussion in the Regulatory Model Chapter 13

NERL to develop and consult on its NR23 business plan, before the CAA conducted its own review, consultation and final decision-making. Although materially shorter than the most recent reviews, this would have provided enough time for NERL and other stakeholders to contribute substantively and for the CAA to conduct a sufficiently thorough and robust scrutiny of NERL's plan.

In March 2021, the CAA set out (in CAP2119) a timetable which would have delivered final proposals for statutory consultation in October 2022. NERL supported this approach and organised the development and delivery of its NR23 business plan in February 2022, including customer consultation, consistent with this timetable. In practice, however, the CAA has deferred delivery of the initial proposals by five months over the course of this year (from late May to end October) without explanation to, or consultation with, any stakeholder.

These delays have had negative consequences for NERL, and ultimately for customers, by prolonging the period of considerable uncertainty for the strategic and tactical management of its business until the NR23 price control parameters have been set. Practical examples include the foreclosing of an opportunity to complete NERL's refinancing in summer 2022, after the previously anticipated initial proposals in May/June. This refinancing has had to be postponed to the first half of 2023, against a backdrop of much higher interest rates. Customers will unfortunately now bear the higher costs, through charges, arising from this delay.

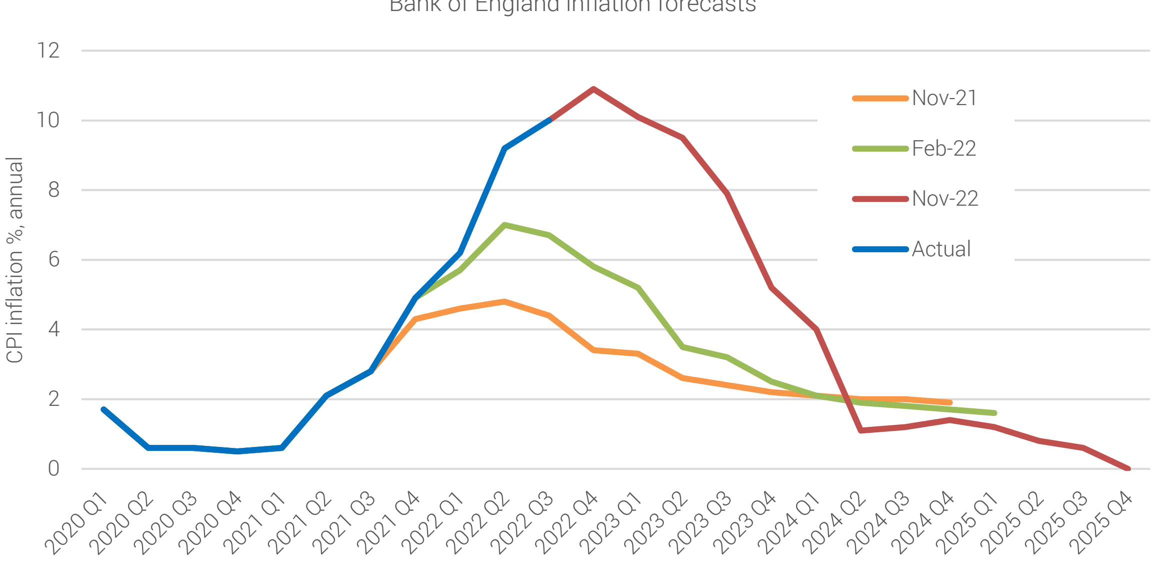
Uncertainty has also been introduced into annual pay negotiations with Trade Unions at a time when goodwill and trust, critical to the delivery of service for the recovering industry, have only been recently re-established following a protracted pay dispute this year. That dispute included a strongly endorsed indicative vote for industrial action short of a strike, akin to the wider summer of industrial unrest which has been observed throughout the UK. The delays also start to undermine the incentive properties of the price cap model, under which the regulated company faces clearly specified incentives to out-perform cost and service targets which have been established prior to the start of each price control period. For the NR23 review, NERL will not know the cost and service parameters which define its targets until the middle of 2023, with final settlement in revised licence terms some months later. By curtailing the time period in which we can seek to exceed regulatory targets, the CAA has effectively tilted the risk-reward balance away from shareholders.

Given that lost time cannot now be recovered, the only option available to the CAA from here on is to re-calibrate the final proposals carefully, taking account of the shortened period remaining for NERL to take the management actions necessary to operate within the financial envelope of the settlement, and the need to maintain equity financeability.

1.4. Inflation

Given the delays in the NR23 review outlined above, the key stages of stakeholder response to proposals and CAA review leading to final decisions are now taking place against the backdrop of unusually high and volatile inflation rates. This contrasts starkly with the more benign conditions in late 2021 when we were developing and consulting on the NR23 plan.

Figure 1-1



NERL, along with most other economically regulated companies in the UK, operates under a well-established regime which mitigates risk to the company from the direct impact of economy-wide inflation while maintaining a degree of efficiency incentive to meet or beat the regulator's targets for the following period. This has been described as 'RPI-X', indicating that the cap on regulated charges is allowed to rise each year by inflation (RPI measure in this case) less a percentage amount (X%) which captures the regulator's efficiency challenge to the company. In addition to the UK domestic regulatory model, NERL's regulatory framework is also guided by the Eurocontrol Charging Principles[4] which explicitly exempt certain costs from the cost risk sharing mechanism implied by 'RPI-X', thereby affording a further degree of inflation protection.

Given this inflation protection for revenues, regulators typically conduct assessments of regulated companies' business plans on a real terms basis, abstracting from the forecast or actual impact of inflation. Once levels of efficient spending in real terms are set, and the resulting inflation-linked cap on prices determined, the regulated company is then exposed to the risk of managing its costs in line with the relevant inflation index.

For some sectors, regulators seek to better match cost allowances to the spending power of regulated companies given their specific inputs. This is described by the UK Regulators' Network[5] as follows:

> *Inflation and setting cost allowances*
>
> *Price inflation for some categories of expenditure incurred by regulated businesses may be subject to specific market or exchange rate influences that could have a material effect on financial uncertainty. Due to different consumption patterns observed in a representative regulated company versus the representative*

[4] Eurocontrol (2019) Principles for Establishing the Cost-Base for En-Route Charges and the Calculation of the Unit Rates
[5] UKRN (2018) Position paper on the use of inflation indices

> *consumer, indexing company revenues to consumer price inflation measures may not keep the company's purchasing power constant in real terms. When setting allowances or benchmarking expenditure in such cases, it may therefore be appropriate for regulators to use alternative price indices, to construct and use baskets of such indices or to make ex ante adjustments for relative price effects (RPEs). As such adjustments are typically expressed relative to the choice of inflation index (e.g. RPI + 0.5%), any bias present in the inflation index used will be present in the total value of the uplift used to compensate for the RPE.*

When converting the cost forecast into nominal terms, in principle, a bespoke inflation forecast for each cost category should be used which best reflects the expected trend in input prices for that cost category. In the absence of any compelling bespoke forecasts, a general inflation trend could be used. Any difference between a bespoke forecast and general inflation for the price control is a "real price effect" (RPE).[6]

However, criteria are often used by regulators when determining when to use a bespoke series, i.e. when to apply RPEs. The CMA's May 2021 redetermination in water[7] used the criteria from Ofwat's assessment of real price effects:

- Criterion 1A – Is the expected value of the wedge between the changes in the input price and the level of inflation significantly different from zero during the price control period?
- Criterion 1B – Does the wedge exhibit high volatility over time? This criterion may also justify RPEs, particularly true-ups to address cost volatility.
- Criterion 2 – Are there sufficient and convincing reasons to think that CPIH does not adequately capture the input price?
- Criterion 3 – Is the input price and exposure to that input price outside management control for the duration of the price control? For example, can management reduce the volume of the input or reduce exposure by signing long-term contracts?

Real price effects are currently incorporated in the price control for Heathrow (notably for labour costs) and are proposed to be refined and continued for the H7 control period.

As is evident though, from this brief description, the process of establishing whether a real price effect should be incorporated in a price control and, if so, the scope and calibration of such an adjustment to measures of general inflation, is not a trivial exercise. The time to consider introducing from scratch such a new mechanism for the NERL NR23 price control should, we suggest, have been in the early planning stages of the NR23 review (late 2020-spring 2021) and fully consulted on. Until publishing its IPs, the CAA did not raise this consideration. It did though state (in CAP2119) that it would seek to: "proceed carefully so that we do not create undue risks for NERL that could lead to increases in the cost of capital, which in turn would feed into higher prices for users."

[6] Frontier Economics (December 2021) H7 IP OPEX REVIEW A report prepared for Heathrow
[7] CMA (2021) Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations Final report

The CAA has now proposed two potential deviations from the established CPI inflation:

- So called 'opex rebasing'[8]: To increase NERL's nominal cost base in 2022 by a proportion of the expected increase in inflation for the year, before converting to 2020 prices using the March 2022 OBR CPI forecast, used when calculating Determined Costs. Arithmetically, the CAA uplifts real opex projections by 5.34% (OBR March 2022 forecast of average earnings growth in 2022) and then deflates by 7.44% (OBR March 2022 forecast of CPI in 2022). This results in a 2% (£11m) reduction, in real (CPI) terms, in allowed opex across 2021 and 2022. The CAA ties this proposed adjustment to movements in average earnings, but then applies it to the whole of the opex base, including the 30% which are non-staff costs and thus not affected by labour market factors.

- Alternative inflation scenarios[9]: The CAA makes an assumption in this scenario that around one-third of the forecast increase in inflation rates will be passed through to higher nominal costs in the early years of NR23. The precise reference points for this assumption and the resulting financial modelling in the scenario are not made clear by the CAA. However, following a number of discussions, we understand the CAA to imply that operating costs would rise in 2023, not by the latest forecast for 2023 CPI inflation cited by the CAA (5.64%)[10] but by the previous forecast for 2023 used in the Initial Proposals (4.04%) plus one-third of the difference between these two, i.e. 4.04% + 1/3*(5.64 – 4.04)% = 4.47%. The application of the alternative scenario is unclear; at first the CAA states that the scenarios are "purely illustrative", but then goes on to state that "under higher inflation forecasts, our expectation is that NERL should be able to mitigate some of these increases in the short to medium term, such as through fixed price contracts and benchmarking with cost trends in other sectors where inflation is not fully passed through".

The impact of each of these novel mechanisms, if implemented, would be material (in so far as we can accurately understand their intended application) and likely to vary substantially from Initial Proposals to Final Decision. For example:

- The opex rebasing would imply a real term reduction of £11m based on the forecasts cited by the CAA, which result in a 2 percentage point gap between CPI and average earnings growth in 2022

- Latest forecasts[11] indicate this gap has increased to around 4%, resulting in an increased real terms cost reduction of £19m per annum

- For the alternative inflation scenario, latest forecasts of 2023 CPI[12] are around 7.5%. Applying the CAA's methodology[13], this would imply an uplift of real to nominal costs of only 5.1% for 2023, 2.3 percentage points short of CPI

[8] CAP2394, paragraph 4.12-4.21
[9] CAP2394, paragraph 6.103-6.116
[10] CAP2394, Table 6.14
[11] HM Treasury (November 2022) Survey of Independent Forecasts
[12] OBR (November 2022) Medium term forecast
[13] CAP2394, paragraph 6.105

- Having thus set an artificially low baseline, not reflecting inflation in full, this impact in 2023 (and any other years in NR23 where the inflation forecast is higher than the forecast used in the Initial Proposals) would roll through to every subsequent year in NR23. We estimate that the real cost of the CAA's suggested under-adjustment for the projected increase in inflation forecasts, within the scenario outlined, equates to a reduction in allowed costs of some £76m over NR23 (based on the Nov 2022 OBR inflation forecast).

We consider that the CAA's proposals with regard to these inflation adjustments are economically unfounded, do not take account of users' interests in a stable regulatory system and do not take account of the CAA's duties towards NERL's ability to finance itself. Equally important, the introduction of these elements of the settlement is procedurally unfair, as they have been raised late, contrary to expectations, and without consultation. This absence of proper consultation combined with the lack of time to respond, means that the CAA is proceeding without a proper understanding of the impact on stakeholders, contrary to its obligation properly to inform itself. That lack of time, as well as the uncertainty about the precise nature of the proposals, also inhibits our ability to respond in full and we reserve the right to make further comment after the closing date for this response.

1.4.1. Economic evidence

The CAA asserts that NERL should, in a period of substantially higher than normal inflation, be able to negotiate with its labour force and suppliers in a such a way as to avoid the full impact of CPI inflation in 2022, 2023 and potentially subsequent years. It does not demonstrate any specific evidence to support this assertion and does not address in any specific way the realities of NERL's actual exposure to inflation given its cost structure, the nature of its workforce and the labour market, and the position of NERL as a relatively small company procuring in a European-wide technology supply market.

We responded to the CAA's previous questions on this topic in a substantive submission in September 2022. This described the extent to which NERL's procurement is subject to contracts linked to inflation indices, the pattern of contract renegotiation after a number of price freezes secured at the start of the pandemic period, and the specific price pressures we were facing in energy, property and technology services. In summary, we concluded:

- NERL's regulatory framework sets prices on the basis of a business plan submission which is constructed in real terms, with *ex post* inflation adjustment mechanisms applied over the duration of the relevant price control. This approach ensures that there is no windfall loss or gain for NERL over the medium term if inflation changes materially from that forecast when the plan was set.

- Consumer price inflation affects NERL's own costs through different contractual terms and mechanisms (such as linkage of some or all of a contract's costs to a specific inflation index) and to differing timescales. Most of these impacts are in arrears to inflation by 6-12 months, the most notable being NERL's historic and established approach to setting pay (for example, the January 2022 pay award of c3% was settled at a time when the prevailing rate of CPI inflation was 5% in the previous quarter).

- The recent surge in consumer price inflation in 2022 has thus not yet entirely flowed through to increased input costs for NERL. This inflation rise will translate into higher costs in the coming months.

- Reflecting the inflation protection within NERL's economic licence, NERL is able to use this to achieve competitively priced inputs by incorporating inflation indexation into some medium-term procurement contracts, in exchange for better initial prices and better contractual terms (the results of which are already incorporated into NERL's NR23 plan, to the benefit of customers).
- Even where inflation indices are not explicitly incorporated into contracts, the current inflation context will have a direct bearing on future negotiations affecting NERL costs. An obvious example in this respect relates to staff costs, where discussions with Trade Unions focus on the previous year's consumer price inflation as the starting point for negotiation. Tight labour markets and continued strong bargaining power of the unions, as evidenced through the summer of industrial relations unrest currently being observed across the UK, will severely limit the extent to which NERL could realistically expect to implement wage rises below inflation over NR23, without incurring significant operational consequence. The recent strike by French air traffic controllers in September 2022 highlights the scale of impact of such industrial action. A one-day strike caused 228 thousand minutes of delay, affecting over 17 thousand flights, and likely impacting some 2.6 million passengers. This one-day strike is estimated to have inflicted at least £24m costs on airlines and at least £31m on passengers.

These conclusions were supported by quantified analysis of the inflation exposure of our procurement activity. In this response, we provide an update to this evidence, which is set out in Chapter 7, Operating Costs.

The CAA does not demonstrate in the Initial Proposals that it has adequately grappled with this evidence. Were it to do so, it would conclude that the proposed inflation adjustments and scenarios as outlined are not supported by the evidence.

1.4.2. Regulatory stability and efficient financing

Stability is one of the core strengths of the UK's system of economic regulation of infrastructure companies with enduring market power. This framework has developed over decades, as regulators understand better how to incentivise companies to achieve cost efficiencies, deliver improving service to consumers and maintain investment in renewing infrastructure assets. Success in improving outcomes has come in part through the focus of regulation on the costs and service delivery which are within each company's control, and mitigating other risks such as inflation and taxation. This provides long term stability in the returns which regulated companies can expect to achieve, if they meet or exceed regulatory targets. This in turn attracts equity investors who are willing to commit capital over decades in exchange for some predictability in the real (inflation adjusted) returns they can expect.

The CAA's proposed inflation adjustments undermine this stability, by introducing regulatory innovations, which are not adequately explained or justified, at a late stage in the NR23 review without any form of previous indication to any stakeholders. The CAA did not signal at any stage in consultation prior to the Initial Proposals that it was minded to develop novel policy in this area. The fact that, on the original timetable for the NR23 review, the CAA would have issued initial proposals in May 2022, before the rapid increase in inflation during the summer, suggests that the CAA's proposals are reactive and opportunistic, rather than grounded in a more measured assessment of the long-term implications.

Regulators, including the CAA, have faced comparable choices in the past decade, notably in the period following the global financial crisis of 2008-10, when interest rates and inflation fell

sharply to near zero. The choice then was to switch methodology from long-term projections to short-term forecasts for inflation in calculating risk free rates to use in setting cost of capital allowances. Examples of maintaining a consistent and non-opportunistic stance include:

- Ofwat PR09 – at the time of Ofwat's PR09 final determination (late 2009), outturn RPI inflation was negative, and had experienced steep declines. This created a higher degree of inflation uncertainty heading into the price control period. Ofwat continued to set a 2.5% assumption for RPI in light of this, noting that "Annual measures of RPI may be volatile, as is currently the case for forward projections. We have therefore assumed the nominal interest rate includes a longer-term view of inflation."[14]

- CAA Stansted Q5 – At the time of the Q5 decision for Stansted the CAA was conscious that economic uncertainty was making it more difficult to interpret inflation data. The CAA specifically noted that the latest Treasury survey of independent forecasts at the time was reporting an annual RPI inflation forecast of minus 1.9 per cent. Despite noting this very low short-term inflation forecast, the CAA did not update the inflation assumptions that fed into their building block approach.[15]

Thus, in previous situations where forecast inflation was expected to deviate from long-term trends, the CAA and other regulators have stuck to a long-term approach. This point is reinforced consistently by the CMA in its findings on price control appeals, for example in the PR19 water appeals when it stated "a stable approach to the cost of capital over regulatory periods is consistent with investors making long-term financing decisions"[16]. Although the precise context in the price control model is different here, i.e. inflation adjustments to cost allowances rather use of inflation forecasts for setting cost of capital, the underlying principle is very much the same. Deviating from previously established and understood approaches when inflation diverges markedly from long term trends creates asymmetric regulatory risk. This risk is then priced into the cost of equity and debt, and is ultimately borne by consumers in the form of higher cost of capital allowances than would otherwise be needed.

As evident in the demise of the previous short-lived UK Government, financial market confidence in the credibility of public policy can be lost very quickly and can take much longer to restore, incurring costs to consumers along the way. In the narrower field of economic regulation, a similar principle applies – investor confidence in the stability of each regulatory regime relies upon consistent and clearly articulated policy making, which in turn is based on longer term thinking. So the impact of a mis-step by the CAA in the NR23 review is likely to have negative repercussions for consumers in the longer term, as investors would price in a lower level of confidence in the consistency and transparency of the regulatory regime.

1.4.3. Procedural unfairness

As noted above, the CAA's inflation adjustments and scenarios have been introduced at a late stage in the NR23 review, without any consultation. NERL responded in September 2022 to a request for information on its inflation exposure, but there has not been engagement on the

[14] Ofwat (2015) Future water and sewerage charges 2010-15: Final determinations, pg.138
[15] CAA (March 2009) Airport Regulation Economic Regulation of Stansted Airport 2009-2014 CAA Decision
[16] CMA (2015), Bristol Water plc: A reference under section 12(3)(a) of the Water Industry Act 1991, Final Report, para 10.61

policy proposals or their implications. We are concerned that if the CAA were to proceed with these proposals to Final Decision in late spring 2023, there would be inadequate opportunity to understand and then make representations on the full impact of these adjustments, relying as they do on inflation forecasts which are varying substantially month on month. This would not only be procedurally unsound but would mean that the CAA's decision could not take account of properly informed representations from NERL and other stakeholders.

The forward-looking inflation scenario adjustment, as drafted, appears to be calibrated in particular on the latest inflation forecast for the NR23 period available to the CAA in spring 2023, as it finalises its analysis, and the comparison between that and the OBR forecasts produced in March 2022. We will not be able to estimate the financial impact of the CAA's inflation scenario proposal, in so far as we currently understand it and assuming that the policy does not change, until March/April 2023. That leaves no effective period for engagement or consultation with the CAA before it issues its final proposals. There may also be further shifts in CAA policy at the final proposals stage, which would then necessitate further review and response.

The final stages of the NR23 review appear to leave little or no room for such necessary consultation to take place effectively. The CAA states: "After considering the responses we receive to these Initial Proposals, the UK performance plan will be adopted through the NR23 decision of the CAA Board made in Spring 2023 and set out in a final performance plan decision document, which will be published on our website."[17] This timetable, as described, does not allow for meaningful consultation in spring 2023. The CAA does allow for the 'statutory consultation' of a minimum of 28 days on the proposed draft licence conditions. This (mandatory) stage in the process though is to consult on the question of whether the CAA's policy has been correctly translated into licence conditions, rather than on the substance of the policy itself.

1.5. Pensions costs

The CAA's Initial Proposals for defined benefit scheme costs impose a £95m reduction in the scheme's ongoing contributions and deficit repair payments from 2025 onwards. This proposal is inconsistent with the CAA's advisers' own assessment that NERL's projected DB pension costs for the NR23 period were within the range of reasonable and efficient, given the characteristics of the scheme. The proposal also appears at odds with the CAA's own Regulatory Policy Statement for NERL pension costs[18] which explicitly provides for NERL to recover through regulated charges the reasonable and efficient costs of its DB pension scheme. We set out our detailed response to these proposals in section 7.6 of Chapter 7 on Operating Costs.

As with our concerns about the CAA's inflation adjustments, the reduced allowance for DB pension costs represents a material departure from established policy, which has only recently been updated and formally codified in the Regulatory Policy Statement. Such policy instability works against the interest of consumers by creating uncertainty for NERL and its pension trustees as to the interpretation of the CAA's policy at future scheme valuations. The CAA

[17] CAP2394, Executive summary paragraph 120
[18] CAA (March 2021), CAP2119 Economic regulation of NATS (En Route) plc: Update on approach to the next price control review, Appendix C

appears to be 'second-guessing' the independent fiduciary duties of the trustees by effectively superimposing its own judgement above the future decisions of trustees, and doing so on the basis of evidence which does not bear the weight of that judgement. The fact that there remains considerable uncertainty, in our minds, about the CAA's new approach to DB pension costs, despite discussions at two meetings since publication of the CAA's Initial Proposals and expert input from NERL's specialist pension advisers Mercer, points to shortcomings by the CAA explaining the application, implementation and consequences of its policy. This in turn contributes to the wider undermining of regulatory stability and investor confidence.

Overall, we are concerned that the CAA has made errors of fact in using benchmark data to assess efficient pension costs, has also made errors in its presumptions as to NERL's ability to influence or vary those costs, and may well have made errors in the exercise of its discretion as a regulator in changing the application of its own Regulatory Policy Statement. The fact that there remains material uncertainty as to how the CAA's proposals might be interpreted in future points to a failure of process, to consult on the basis of a transparent and readily comprehensible set of proposals. This in turn reduces perceptions among investors of regulatory stability.

1.6. Users' interests – affordability

The CAA gives considerable prominence to the concept of 'affordability' in its Initial Proposals, and states that this factor is central to setting prices at a level which supports the recovery of demand from the pandemic. We have consistently argued through the NR23 review that the CAA's focus on affordability is too narrow an interpretation of customers' and consumers' interests which are defined in broad terms in the Transport Act 2000. We stated in our response to the CAA's initial consultation on the approach to the NR23 review[19] the following:

> *However, we caution that within a new five-year price control period beginning in 2022 or 2023, all currently available recovery scenarios predict that traffic levels will exceed 2019 levels again. With this return of traffic, the previous challenges of airspace congestion and delay will likely also re-emerge. Projecting forward the current understandable narrow focus on minimising costs across a longer time period could be a false economy, which would be regretted by all in the long term as it became superseded by other priorities for users relating to the range, availability, continuity and quality of Air Traffic Service. It is possible that this shift could happen half-way through the new price control period, or even earlier. ... Therefore, we would encourage the CAA to assess "affordability" of ATS charges in the wider context of users' overall costs, and in turn to balance these concerns with wider user interests in NERL delivering a resilient service, including meeting the developing needs for service and future capacity. It should also consider the impact of NERL's charges on ticket prices faced by passengers, the resulting demand for flights, and the extent to which this demand (which will drive the pace and scale of recovery in aviation) would be affected by the potential increases in charges which are in prospect.*

[19] CAA (March 2021), CAP2119

It is not apparent from the evidence the CAA presents on this topic in Appendix F that the CAA has, in practice, assessed affordability in the wider context of NERL's costs in airlines' own cost bases, of NERL's costs compared to passengers' costs of flying, and of users' broader interests in efficient costs alongside safe and resilient services. These are all relevant considerations which do not appear to inform the CAA's regulatory judgment.

The CAA sets out (in F30-F32) analysis which presents the proposed en route charges for NR23, NERL's business plan numbers and the CAA's Initial Proposals, in terms of equivalent charge per passenger on an average flight. This produces the following results:

Table 1-1

£ 2020 prices	A: 2019	B: NERL BP	C: CAA IP	C – B
Charge/pax	1.67	2.31	2.03	-0.28
TRS/pax		0.35	0.23	-0.12

The CAA observes that the changes in charges implied by the CAA's Initial Proposals "should have a relatively small impact on airlines' costs and also on ultimate ticket prices experienced by passengers".[20] The CAA does not examine the related question: how much impact would the differences in charges per passenger between NERL's business plan and the CAA's Initial Proposals have on passengers' cost of flying. Without doing so, it has no basis for deferring TRS revenue recovery to a greater extent than proposed by NERL.

The CAA's TRS profile (50% recovered in each of NR23 and NR28) would decrease NERL charge per passenger by around £0.12 in NR23. This very small difference is 0.2% of the £60 current average cost per passenger flying European short-haul[21]. Applying standard elasticities of demand[22] to this increment, then NERL's proposed marginally higher cost attributable to earlier TRS recovery in NR23 could be expected to moderate passenger demand by 0.1%. This level of impact is clearly immaterial in the context of continuing uncertainty about the medium-term level of demand as the aviation sector recovers following the pandemic – for example the Eurocontrol STATFOR forecast for UK flights in 2023 increased by 4% between October 2021 and October 2022. Nevertheless, on the basis of this immaterial difference in passenger impact, the CAA has proposed a deferral in revenue recovery which would have a material negative impact on NERL's cashflow in NR23.

Our view is that by focusing on affordability to the detriment of a wider assessment of all users' interests, and by failing to consider the materiality of its proposals on users and on NERL, the CAA has made errors of fact and in the exercise of its regulatory discretion.

[20] CAP2394, paragraph F32
[21] Based on revenue per passenger of £61 (Ryanair) and £62 (easyJet), from latest 2022 company financial statements
[22] IATA (2008) Air Travel Demand, Economics Briefing No.9

2. Traffic forecast

2.1. Overview

We propose using the Eurocontrol STATFOR forecast from October 2022 for NERL's en route business as the basis for both our response to the CAA's Initial Proposals and for the CAA to update its analysis for the NR23 final decisions. This is consistent with the CAA's general approach to use the most up to date traffic forecast available from STATFOR. We propose that the CAA adopts the NERL updated forecast of oceanic traffic, based on the STATFOR October 2022 data set. We understand that STATFOR do not intend to issue any further updated medium-term forecasts before the CAA concludes its analysis in spring 2023 for the NR23 final decisions.

2.2. Review of available forecasts

The number of flights and service unit forecasts remain fundamental assumptions, underpinning our operational resourcing requirements, service performance outcomes and charges for NR23. The flights forecast is also a key input into assessments of ATCO productivity projections.

2.2.1. En route forecast

Table 2-1 below illustrates the traffic forecast used by the CAA in its proposals for NR23.

Table 2-1

	Actuals		RP3			NR23			
	2019	2020	2021	2022	2023	2024	2025	2026	2027
UK flights ('000s)	2,580	1.029	1,063	2,294	2,444	2,549	2,584	2,624	2,662
% of 2019		*40%*	*41%*	*89%*	*95%*	*99%*	*100%*	*102%*	*103%*
TSU ('000s)	12,594	5,099	5,531	10,624	11,715	12,228	12,424	12,641	12,850
% of 2019		*40%*	*44%*	*84%*	*93%*	*97%*	*99%*	*100%*	*102%*

Source: STATFOR October 2021

The CAA stated in its proposals that on 17 October 2022 STATFOR issued an updated medium-term forecast, and that it proposed taking this into account alongside stakeholder responses to this consultation.

We have concluded our forecast updates and completed the derivation of the forecasts based on the STATFOR October 22. We agree with both the economic/political scenarios which STATFOR has adopted as its base and low/high cases, and with the methodology applied to produce the forecasts. As a result, our responses in this document will be based on the updated Table 2-2 below, derived from STATFOR data.

We retain our own modelling capability within NATS, to service all parts of the business with forecasts over differing time horizons and geographical scope, and to support expert scrutiny of and engagement with external forecasts, notably those of STATFOR.

We note that in the CAA proposals the STATFOR forecast numbers are quoted directly whereas in the NERL NR23 business plan, we referred to the *derived* forecast. There is a long-standing

difference in outturn traffic counts (and to a lesser extent TSUs) between NATS and STATFOR. This has been noted previously as an issue in reconciling our and STATFOR's starting points for forecasting. NATS cannot replicate the STATFOR UK Flights counts from our feed of the Central Flow Management System (CFMU) data. We therefore refer to the Derived forecast (calculated by applying STATFOR growth rates to NATS outturn numbers) for UK Flights and TSUs for expected traffic and TSU numbers in NERL's NR23 business plan. We recommend that the CAA adopt the same approach in using the STATFOR October 2022 in its final proposals for the NR23 review.

Table 2-2

UK Flights (000s)		2019	2020	2021	2022	2023	2024	2025	2026	2027	NR23
STATFOR Oct 22 Derived	High	2,560	1,012	1,045	2,150	2,616	2,794	2,865	2,935	2,988	14,198
	Base	2,560	1,012	1,045	2,124	2,410	2,608	2,671	2,724	2,769	13,182
	2019%		*40%*	*41%*	*83%*	*94%*	*102%*	*104%*	*106%*	*108%*	
	Low	2,560	1,012	1,045	2,093	2,262	2,409	2,449	2,487	2,520	12,126
STATFOR Oct 21 Derived	High	2,560	1,012	1,128	2,387	2,678	2,757	2,809	2,867	2,917	14,027
	Base	2,560	1,012	1,100	2,256	2,404	2,507	2,542	2,581	2,618	12,652
	2019%		*40%*	*43%*	*88%*	*94%*	*98%*	*99%*	*101%*	*102%*	
	Low	2,560	1,012	1,049	1,773	2,029	2,184	2,380	2,418	2,455	11,466
TSUs (000s)		**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**NR23**
STATFOR Oct 22 Derived	High	12,593	5,102	5,533	11,075	13,314	14,236	14,677	15,116	15,481	72,825
	Base	12,593	5,102	5,533	10,647	11,957	12,900	13,274	13,605	13,898	65,633
	2019%		*41%*	*44%*	*85%*	*95%*	*102%*	*105%*	*108%*	*110%*	
	Low	12,593	5,102	5,533	10,290	11,004	11,678	11,926	12,161	12,362	59,131
STATFOR Oct 21 Derived	High	12,593	5,102	5,645	11,570	13,334	13,673	13,948	14,259	14,516	69,729
	Base	12,593	5,102	5,399	10,630	11,722	12,235	12,431	12,649	12,858	61,895
	2019%		*41%*	*43%*	*84%*	*93%*	*97%*	*99%*	*100%*	*102%*	
	Low	12,593	5,102	4,973	7,781	9,313	10,098	11,129	11,502	11,718	53,759

The STATFOR October 22 forecast gives an overall increase in traffic levels across NR23 compared to the STATFOR October 21 forecast, with much stronger growth in 2023. This is compensating for the slower than previously forecast recovery from Covid-19 in 2022, primarily due to Omicron-related travel restrictions that were not foreseen in the STATFOR October 21 forecast. STATFOR October 22 Base anticipates stronger recovery in 2023 as Asian markets re-open, consumer confidence and demand for air travel remains strong and Covid & capacity restrictions become less prominent.

The STATFOR October 22 forecast is based on the Oxford Economics scenarios released in August 2022. These were asymmetric, with 45% likelihood attributed to scenarios below the Base and only 15% to a single scenario above the Base, with a constant 40% likelihood. Updates to Oxford Economics since August have increased this asymmetry further so it remains more likely that traffic will be between the Base and Low forecasts than between the Base and High. The Base forecast also forecasts growth in the UK economy every year of NR23.

We therefore agree with the CAA in the Initial Proposals that in setting the NR23 price control it is important for the CAA to consider carefully the impact of higher than forecast inflation and

lower than forecast traffic on customers, consumers and NERL. We note that the CAA used a 10% below base traffic scenario to sensitivity test the initial proposals, rather than the STATFOR low forecast scenario. We comment in Chapter 12 on Finance issues on the alternative traffic and inflation scenarios which the CAA considered.

2.2.2. Oceanic forecast

As STATFOR does not produce an oceanic forecast, we have updated our derived forecast from the appropriate STATFOR October 2022 forecast data set. The STATFOR October 2022 Derived Oceanic shows an uplift over the STATFOR October 2021 Derived Oceanic forecast in each year of the forecast horizon. This is due to the very robust recovery of this market segment in 2022, the strong growth seen in RP2 and the lesser impact of capacity restrictions on long haul travel. The forecast is summarised in Table 2-3 below.

Table 2-3

Oceanic Flights (000s)		2019	2020	2021	2022	2023	2024	2025	2026	2027	NR23
STATFOR Oct 22 Derived	*High*	508	213	265	493	569	595	612	630	646	3,052
	Base	508	213	265	484	535	566	581	595	608	2,885
	2019%		*42%*	*52%*	*95%*	*105%*	*111%*	*114%*	*117%*	*120%*	
	Low	508	213	265	473	507	530	540	551	560	2,689
STATFOR Oct 21 Derived	Base	508	213	234	386	499	488	498	509	520	2,515
	2019%		*42%*	*46%*	*76%*	*98%*	*96%*	*98%*	*100%*	*102%*	

Flights on some Tango routes have a different route charge applied. The STATFOR forecast does not break traffic out into the Core and South East Corner (SEC) hence historic traffic breakdown is used. NASCAR (NATS Analytics Shanwick Clearance And Route) data is used for historic data and this originally comes from the GAATS Audit logs. Each year of NASCAR is joined to waypoint reference data. This allows for the assessment of Shanwick Entry and Exit Fix as to whether they are within the SEC or not. For this update, as we have seen stronger recovery in Oceanic traffic than the overall UK FIR, we have used the percentage of historic SEC traffic from 2019 and applied this to the Derived Oceanic forecast based on the October 2022 STATFOR to estimate the Tango route traffic, as shown in Table 2-4 below. Note that this covers all Tango routes.

Table 2-4

Oceanic flights[23] ('000s)	2019 *Actual*	2020 *Actual*	2021 *Actual*	2022 *Plan*	2023 *Plan*	2024 *Plan*	2025 *Plan*	2026 *Plan*	2027 *Plan*
North Atlantic flights	467	197	249	444	492	520	534	547	559
Tango flights	42	16	16	40	44	46	47	49	50
Total oceanic flights	508	213	265	484	535	566	581	595	608

[23] This includes non-revenue flights and does not isolate T9 and T290 flights from other South East Corner routes. Actual Oceanic traffic in NERL's regulatory accounts in ('000s) are 2019: 505, 2020: 209 and 2021: 260, reflecting chargeable flights. Actual Tango traffic in NERL's regulatory accounts in ('000) are 2020: 7.7, 2021: 10.2 and forecasted to be approx. 2022: 30k

The split between Tango flights and North Atlantic flights was different during 2020 and 2021 (the years most affected by Covid-19) and it is not clear that the split will return to 2019 levels. We will continue to assess the projected balance of NAT and SEC/Tango flights and appropriateness of this methodology in light of latest evidence for 2022 and early 2023. We may provide a further update to the CAA on this issue in Q1 2023.

As at the end of November 2022, we expect Oceanic traffic levels for the whole of 2022 to be around 90% of 2019, but with considerable day to day variability, ranging from 79% to 112% of 2019 throughout November 2022 alone. Taking 2022 thus far, outturn traffic is approximately three percentage points below the low case. However, the strong recovery over the period and traffic levels during Autumn 2022 indicate that we are currently following the low case scenario. We will continue to assess outturn traffic against the forecast and may provide an updated view to the CAA on the medium to long term Oceanic forecast in Q1 2023.

3. Safety

3.1. Overview

We agree with the CAA's assessment that NERL's NR23 business plan proposals are consistent with a primary duty to safety and should allow NERL to continue to operate a safe ATC system, making improvements to its systems and arrangements as appropriate. We note that the CAA has allowed contingency mechanisms to address uncertainty.

We anticipate that the growth in activity by new airspace users in the NR23 period will place additional demand on NERL. We will need to design new procedures to manage airspace to integrate new airspace users safely into current systems. New users will have an adverse impact on service performance, and we therefore propose to revisit targets in NR23, when the implications are clearer.

3.2. Safety at the heart of NERL's NR23 business plan

Our business plan for NR23 focuses on the core capability required to deliver safe, efficient, predictable and reliable services. It also addresses the considerable uncertainty and wide range of scenarios that we may face over the period. To achieve the above, our plan requires resources to:

- develop and train the next generation of air traffic controllers to safely meet projected demand and provide further operational resilience
- progress our technology transformation programme, started in RP2, while sustaining our legacy technical equipment
- advance airspace modernisation to improve environmental performance and accommodate future traffic growth

The plan has been shaped by engagement with our airline customers and by our understanding of their needs and those of their passengers.

Safety is at the heart of what we do and will continue to be our priority; our customers continue to identify a safe service as a primary focus for NERL. Airlines' feedback centred around the need to:

- ensure safety levels are maintained against the background of rising traffic, including the safety implications of new airspace users
- articulate the safety benefits from planned investments and the real-world practical safety improvements that ADS-B has enabled. We will continue to measure safety against a range of metrics to ensure we maintain or improve performance

The safety performance indicators will assess:

- rate or number of serious incidents (including airprox and RAT events)
- rate of runway incursions and losses of separation

- effectiveness of safety management

Alongside the known safety challenges that we continue to manage and mitigate, our plan takes account of the evolving operational environment and contains the resources required to manage safety risks appropriately.

NATS' specific additional safety priorities for NR23 include:

- **Supporting traffic recovery**: As controllers have not provided a service in a high traffic environment since early 2020, they will all complete a series of refresher training courses, including in the early parts of NR23 when traffic is still expected to be below 2019 levels
- **Technology transition and airspace modernisation**: Investment in technology enhancements to electronic flight strips to improve the link between en route and approach operations, and airspace modernisation, will improve safety and help mitigate the effect of increasing traffic

Health and Safety is also a core focus that supports the wider safety programme where a robust Health and Safety Management System (HSMS), accredited to ISO 45001, will be maintained. Ensuring that significant health and safety risks have the correct control measures in place and are monitored for secureness by competent people is a key part of Health and Safety legislation.

3.3. New airspace users

The expected increase in 'beyond visual line of sight' drones and the emergence of other new airspace users, such as commercial space launches and vertical take-off vehicles, during the NR23 period will provide new challenges to UK airspace and to our operation. There are many uncertainties about how this new market will evolve, but it has the potential to compound current risks, such as infringements to controlled airspace, and to introduce new ones. However, following customer feedback, our plan only contains the funding required to ensure the continued safety of conventional crewed aviation.

In line with the approach taken during RP3, we have made provision in our plan to ensure the continued safety of conventional crewed aircraft as new airspace users such as drones increase. The funding included in our plan is similar to the RP3 determination. We respond to the CAA's proposals to reduce this budget in Chapter 7 on Operating Costs.

The growth of activity by new airspace users, in particular space flight and commercial drone operations, will place additional demand on NERL. We will need to design new procedures to manage airspace to integrate safely new airspace users into current systems. New users will have an adverse impact on service performance, and we therefore propose to revisit targets in NR23, when the implications are clearer.

In Chapter 13 on Regulatory Model, we describe how we will respond to the CAA's proposals for accounting for the additional costs of developing and providing new services to new users, and for establishing a charging mechanism to recover appropriate costs from a new user customer base.

3.4. Airspace modernisation

Airspace network modernisation will enable optimised cross-border flight planning, deliver fuel and CO_2 benefits, help alleviate bottlenecks/congestion points and reduce controller workload to support safety enhancements or capacity increases.

3.5. Oceanic service

The plan for our oceanic service in NR23 is largely unchanged from the previous RP3 plan for the original period 2020-24. This includes the continued use of ADS-B to support improved service delivery and compliance with the ICAO target level of safety. The findings of the passenger research point towards a clear preference to invest in these safety benefits, in favour of reducing airline costs from the ADS-B charges, resulting in potential marginal reductions in ticket prices.

During NR23, we aim to meet the target level of safety set by ICAO at 5×10^{-9} fatal accidents per flight hour year-on-year for both vertical and lateral metrics. Achieving this target is dependent on all aircraft being mandated to use on-board performance-based communication and surveillance equipment, increased use of ADS-B enabled benefits, and establishing agreed operationally equivalent profiles.

3.6. CAA's Initial Proposals

The CAA agrees NATS' initial proposals are consistent with a primary duty to safety and should allow NERL to continue to operate a safe ATC system, making improvements to its systems and arrangements as appropriate. The CAA has allowed contingency mechanisms to address uncertainty.

The CAA considers that NERL will be able to provide a safe service during NR23 under their NR23 Initial Proposals for the following reasons:

- the operation is currently safe, and appropriate safety governance mechanisms exist to manage changes
- our proposed efficiency adjustments should not impact negatively on safety

The CAA notes that NERL must meet the requirements of the safety regulatory framework, and at an operational level this means that where a challenge to the service quality targets presents itself, NERL must take appropriate steps to ensure safe operations and to meet its safety obligations.

We agree with the content of CAP2394 regarding provision of a safe service whilst allowing mechanisms to address future uncertainties.

4. Capacity

4.1. Overview

The CAA's Initial Proposals are based on a top-down calibration of NR23 delay performance by reference to achieved performance in the RP2 period 2015-19, comparing actual traffic served then with that forecast for NR23. We recommend a more detailed bottom-up approach to modelling projected delay performance, which takes full account of latest forecast traffic levels and distribution, and the forecast transitions to new airspace changes and technology updates. Our key responses to the CAA's Initial Proposals on capacity targets are:

- **Updating targets for new traffic forecast and updated capex plan**: we recommend that the CAA reassess its proposals in light of the new evidence on updated traffic forecasts and the revised investment programme.
- **New capacity targets C1, C2 and C3**: we propose a new C1 target, based on our understanding of the relationship between traffic and delay performance, and the likely impact of airspace and technology change on operational capacity in NR23. Based on established statistical relationships between C1 and C2, and C2 and C3, we propose a coherent suite of updated C1, C2 and C3 targets.
- **Linkage between C1 performance and bonus potential for C2 and C3**: the CAA's proposal is not well founded, runs counter to best practice in economic regulation, and is thus unlikely to deliver any benefit for customers, whilst shifting the service incentive framework decisively to an asymmetric downside risk for NERL.

4.2. Introduction

In our NR23 business plan, we explained how we had calibrated the proposed capacity targets in light of:

- the then latest traffic forecast, and
- our proposals for the scope and timing of key capital investment programmes, which would deliver capacity benefits into our operation over NR23 and beyond and require transitions which would themselves have temporary adverse impacts on service performance.

Since we submitted our NR23 business plan in February 2022, the key development has been the updating of the traffic forecast to the October 2022 STATFOR derived forecast. This is materially higher than the October 2021 forecast, which has resulted in a recalibration upwards of our capacity targets. We have also updated our investment programme and take this into account in presenting our updated capacity target proposals.

4.3. C1 capacity target

CAA proposal

The CAA proposes that NERL should be able to deliver better quality of service than set out in its business plan, given historical performance prior to the pandemic as well as recent capacity forecasts issued by Eurocontrol.

The CAA proposes a new starting point for 2023 of 12.29 seconds/flight based on the average performance between 2015 and 2019. This is similar to NERL's actual 2019 performance of 12.32 seconds/flight, while noting that the flights forecast for 2023 is around 5% lower than 2019 levels, suggesting (to the CAA) that this is reasonable. Beyond 2023, the CAA proposes to apply the average year-on-year growth that underpins NERL's business plan proposal, and so should reflect the expected impact from the increase in traffic levels and benefits from the capex programme.

NERL response

The CAA sets the C1 target as the average of the actual delay between 2015 to 2019, when the traffic levels were similar to our NR23 traffic forecast traffic, and notes that the actual delay in the year 2019 was similar to the average delay for the whole 2015-2019 period.

We consider that the CAA's top-down approach to setting the capacity targets (i.e., C1 and C2) using historical data does not capture the future drivers of delay, and instead propose NERL's bottom-up approach which considers forecasts for the full range of factors likely to impact the delay. We believe that a forward-looking perspective, rather than a retrospective view, must be taken when determining C1, and this can only be achieved by using a bottom-up forecast taking into account each of the potential variables from C2 in its construction, then adding the weather allowance to derive C1. The 3.84 seconds of delay per flight assumption (weather delay) is also derived from review of the historical data. However, the weather delay observed during 2022 year to date (YTD) is approximately 6 seconds per flight, showing an increase in weather disruption to the network, potentially related to global climate instability[24]. Despite this, we propose to use the agreed historic assumption for NR23 but note that this factor is not in NERL's control. We also note that academic papers[25] and recent industry reports[26] show that changes in weather patterns, i.e., precipitation, storms, snow and fog, might lead to increase in delays. Specifically, the average delay per flight due to major storms could be up to 21-22 mins by 2050 according to Eurocontrol[27], which is consistent with the 23 mins delay estimated in the USA[28].

[24]UK Met Office (September 2019) UK Climate Projections: Headline Findings
[25] Borsky S., Unterberger C. (2019) Bad weather and flight delays: The impact of sudden and slow onset weather events, Economics of Transportation Vol 18, pages 10-26.
[26] CAPA (2019) Climate change: its impact on aviation. The time to plan is now.
Royal Netherlands Aerospace Centre, SEO Amsterdam Economics (2021) Destination 2050 A route to net zero European aviation,
Eurocontrol (2021) Climate Change Risks for European Aviation
[27] Eurocontrol (2021) Climate Change Risks for European Aviation, page 5.
[28] Borsky S., Unterberger C. (2019) Bad weather and flight delays: The impact of sudden and slow onset weather events, Economics of Transportation, Vol 18, page 11: "*For sudden onset events, we find that flights, which face a weather shock, are additionally delayed by up to 23 min, depending on the type and intensity of the weather shock considered. For slow onset events, we find a significant impact of frost events on flight delays, ranging between 2 and 3 min per flight*"

Further, we believe that the CAA has mis-calibrated the C1 targets for NR23, assuming that the RP2 and NR23 periods are comparable, and therefore expects that the performance achieved in RP2 could be achieved in NR23, too. In our view the evidence does not support this perceived equivalence of the two periods, for the following reasons:

> **Traffic volumes**. During RP2 flight volumes each year were between 89% of 2019 levels of traffic and 100% during 2019 itself (mean 96%). For the NR23 period, the October 2022 STATFOR traffic forecast predicts between 94% and 108% of 2019 (mean 103%). The CAA's proposals would thus imply meeting a 16% lower C1 delay target in the context of traffic forecast to be on average 7% higher than in RP2. This equates to a compound stretch in target performance of 22%.

> Our assessment (see Table 4-1 below) shows that NERL is anticipating the same level of traffic during 2024 as was previously forecast for the end of the NR23 period (102%). We are anticipating higher traffic levels than previously experienced during the record peak year of 2019, for four of the five years of NR23.

> In conclusion, due to the traffic growth forecast, we believe there is no objective evidence for the CAA to expect such a step-up in performance.

Table 4-1 NERL traffic forecasts

% of 2019 traffic	2023	2024	2025	2026	2027
STATFOR Oct-21	94%	98%	99%	101%	102%
STATFOR Oct-22	94%	102%	104%	106%	108%

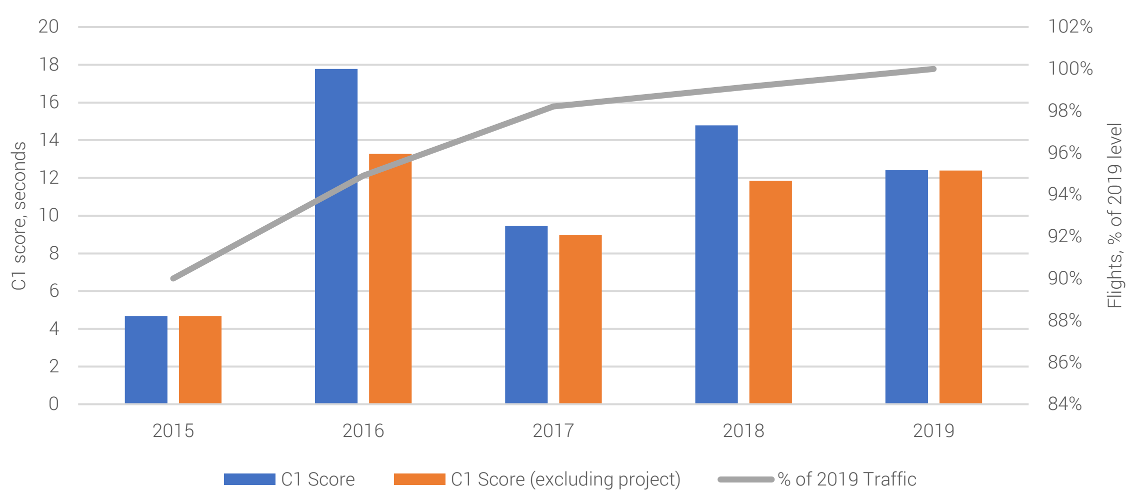
Source: NERL's analysis, EUROCONTROL STATFOR Oct 21 and Oct 22

> Technology impact and airspace transition projects. The two periods, RP2 and NR23, are not comparable in terms of the impact of technology and airspace transitions. During the RP2 period, only two of the five years were impacted by major airspace / technology transition projects, whereas NR23 will have major transition projects29 in four out of the five years. The comparison with performance to 2019 is only valid when considering the delay linked to capacity and staffing, as there were no transitions of major projects delivered during this period. Consequently, this would make C1 an artificially lowered starting point.

We have plotted in Figure 4-1 the relationship between traffic (as a proportion of 2019) and the C1 target during each year of RP2, both with and without transition project delay.

[29] These transition projects include the West Airspace Deployment (WAD) and large training programmes for DP En Route (DPER) at Prestwick, and later in the period for DPER at Area Control, Swanwick.

Figure 4- 1 Relationship between traffic and C1 delay in RP2



Source: NERL's own elaboration, Eurocontrol STATFOR

We note that there is a strong relationship between traffic and the C1 score when excluding transition projects[30] and that when the C1 score includes the project delay the same relationship is weakened. Therefore, we conclude that the underlying delay is directly affected by volume of traffic.

Our assessment shows that on average across RP2, the traffic as a proportion of 2019 was 96%, and the average underlying C1 delay (excluding project delay), was 10.3 seconds delay/flight. Hence, we believe that this reference point (average value across RP2) is more representative of the underlying delay since project delivery is variable year on year.

The updated projections[31] of delay based on the October 2022 traffic forecast are shown in Figure 4-2 below.

[30] Exception for 2016 (i.e., June) which was affected by higher than average weather delays
[31] These projections include the updated assumptions for training, transition impact and anticipated benefits from the capital investment plan. The delays incurred in the short term during the training and transition will yield long term benefits beyond NR23

Figure 4-2 C1 Projections and proposed target

Average Delay per Flight: 0, 5, 10, 15, 20, 25
UK FIR Flights: 0, 500,000, 1,000,000, 1,500,000, 2,000,000, 2,500,000, 3,000,000
2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027
C1 Target
C1 New Proposed Target
CAA C1 Proposed Target
C1 Forecast
C1 Actual
Historic Traffic
Base Traffic Forecast (Oct21)
Base Traffic Forecast (Oct22)

Source: NERL's own elaboration, Eurocontrol STATFOR

Considering the change in the traffic forecast from 2024 onwards we propose to adopt the CAA's suggested approach and revise the C1 targets based on the year-on-year growth, underpinning the business plan using the revised C2 proposals.

We outline our revised C1 targets in Table 4-2 below.

Table 4-2 NERL C1 revised targets

Seconds delay/flight	2023	2024	2025	2026	2027
NERL Initial C1 Target	14.70	15.30	15.30	15.30	15.30
CAA C1 Proposal	12.29	12.79	12.79	12.79	12.79
NERL Revised C1 Target	12.29	14.74	14.74	16.84	19.14

Source: NERL's own elaboration, NR23 and CAA Initial Proposals

Despite the traffic forecast predicting higher traffic than the UK has ever previously experienced, NERL is proposing more challenging targets than those allocated during RP3 and for three out of five years, more challenging than those from RP2.

Lastly, for direct comparison with C1, the current Eurocontrol target for the European region is 30 seconds of delay per flight, which is significantly higher than the revised NERL proposed targets.[32]

[32]Eurocontrol reference value for UK is 0.27 mins (0.2 for AC, 0.11 for TC and PC) – see NOP 22-26 report (based on Oct-21 STATFOR forecast), Oct-22 forecast increased for the summer period but not for whole year.

4.4. C2 capacity target

CAA proposal

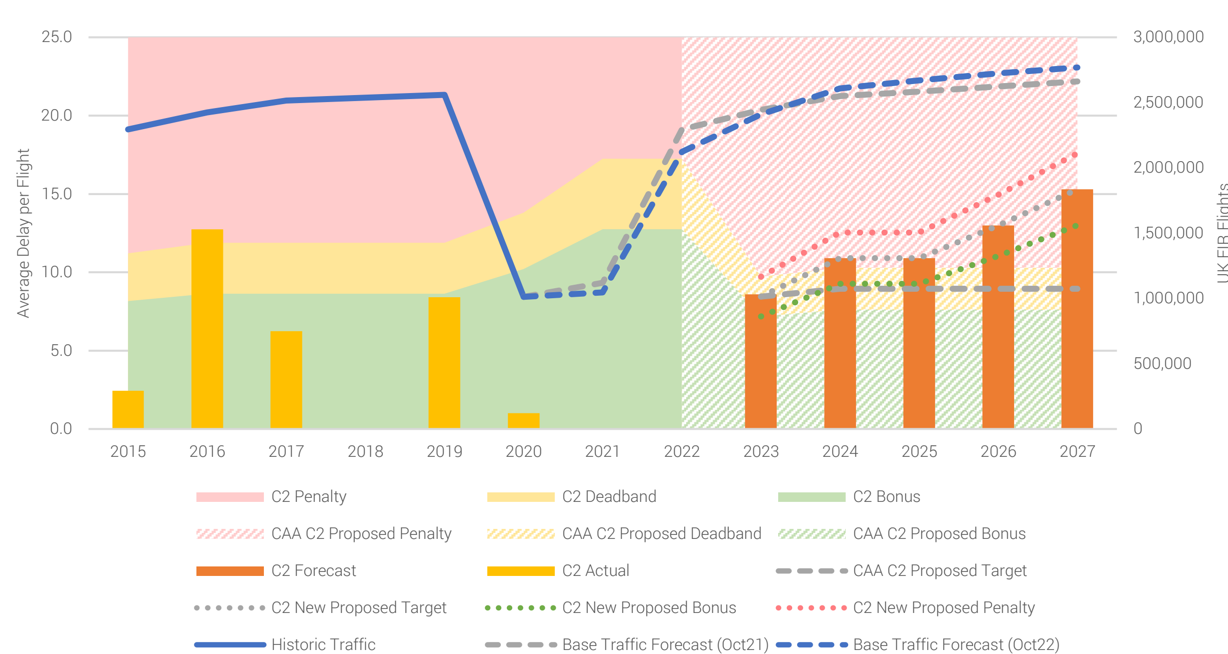
The C2 metric has an adjustment to exclude non-NERL attributable delay. NERL's plan adjusted the relationship between C1 and C2 compared to previous reviews and sets it at a constant 4.5 seconds/flight.

In the Initial Proposals the CAA uses the difference between actual C1 and C2 performance between 2015 and 2019 to set the C2 target (i.e., average of 3.84 seconds/flight) and then consistently with its approach to C1, proposes a new starting point of 8.45 seconds/flight for 2023. The CAA's proposed C2 target is similar to NERL 2019 actual performance of 8.40 seconds/flight.

NERL response

To determine C2, NERL has used the updated October 2022 STATFOR information and most up to date capital portfolio information to create a performance forecast. The updated traffic forecast has produced the C2 delay projection[33], shown in Figure 4-3 below.

Figure 4-3 C2 projections and proposed targets



Source: NERL's own elaboration, Eurocontrol STATFOR

Therefore, NERL proposes to revise the C2 targets reflecting the updated October 2022 STATFOR forecast, with increased traffic assumptions from 2024 onward, but accepts the new starting point proposed by the CAA for 2023.

NERL's revised C2 targets are summarised in Table 4-3.

[33]These projections include the updated assumptions for training, transition impact and anticipated benefits from the capital investment plan.

Table 4-3 NERL C2 revised targets

Seconds delay/flight	2023	2024	2025	2026	2027
NERL Initial C2 Target	10.20	10.80	10.80	10.80	10.80
CAA C2 Proposal	8.45	8.95	8.95	8.95	8.95
NERL Revised C2 Target	8.45	10.9	10.9	13.0	15.3

Source: NERL's own elaboration, NR23 and CAA Initial Proposals

4.5. C3 capacity target

CAA proposal

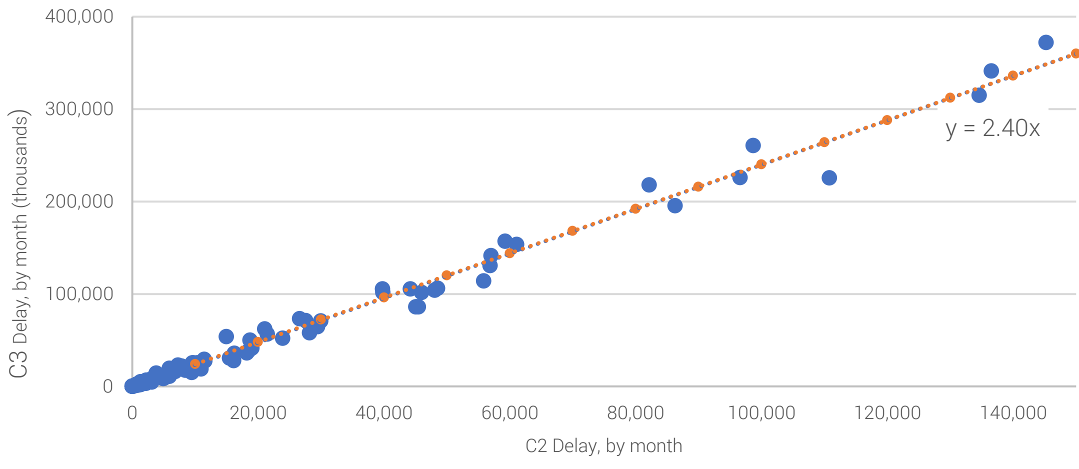
During RP3, the C3 metric was obtained by multiplying the C2 metric (expressed in seconds/flight) by a factor of 2 to identify the penalty threshold. In the Initial Proposals the CAA decides to retain the RP3 approach, rejecting our proposal because it would facilitate NERL avoiding penalties[34].

For NR23, the CAA proposes to switch from a range to a single C3 target, which represents a mid-point between the penalty and bonus thresholds[35]**.** The C3 actual performance, or Impact Score, is weighted by time of day and duration of individual flight delay. The CAA proposes to maintain the weighting of delay as per RP3 (greatest weight on morning peak period).

NERL response

NERL notes the CAA proposal to create a single C3 target and penalty and bonus thresholds. However, the relationship between C3 and C2 proposed by the CAA is not representative of the observed relationship based on historical data.

Figure 4-4 Monthly relationship between C2 and C3 ratio delay



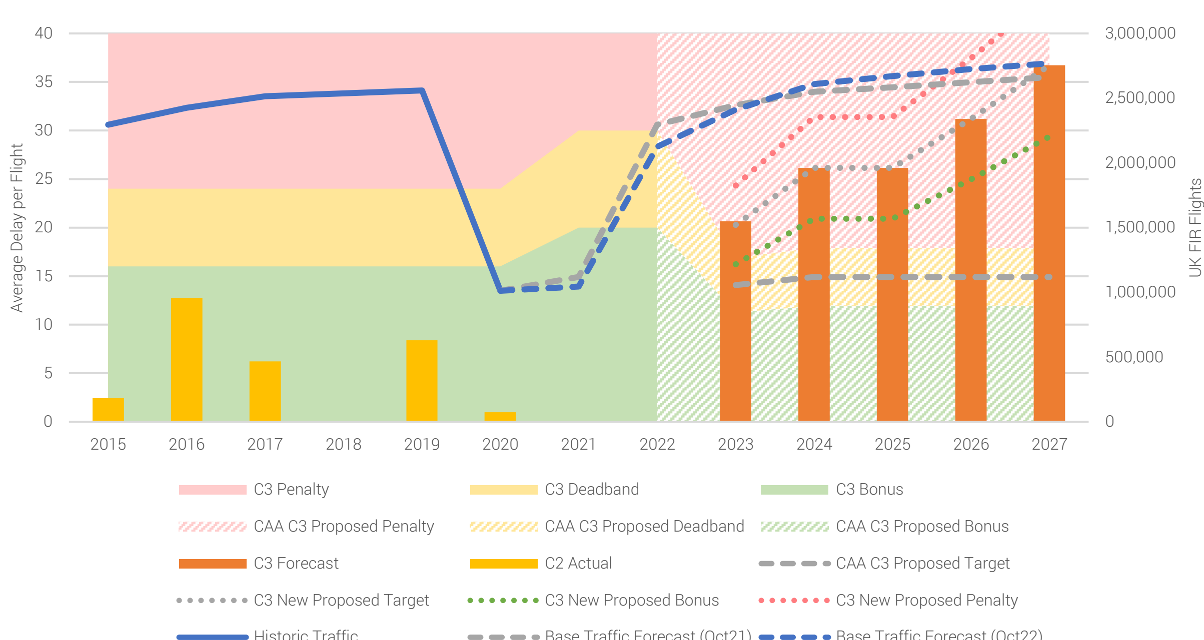
Source: NERL's analysis

[34]Economic regulation of NATS (En Route) plc: Initial Proposals for the next price control review ("NR23") (CAP 2394 October 2022), paragraph 2.87
[35]Further details on the incentive mechanism are available in Economic regulation of NATS (En Route) plc: Initial Proposals for the next price control review ("NR23") (CAP 2394b October 2022), Appendix D, pages 54-62.

Our analysis, based on monthly totals of C3 and C2 delay from 2015 to 2022, shows a relationship of 2.4:1 (see Figure 4-4). This demonstrates that a 2.4:1 ratio would be more representative for the C3 to C2 target ratio.

Applying the historically observed C3 to C2 relationship to the revised C2 targets, reflecting the revised traffic forecast, generates the C3 projections shown in Figure 4-5.

Figure 4-5 C3 projection and proposed target



Source: NERL's own elaboration, Eurocontrol STATFOR

Therefore, NERL proposes to revise the C3 targets for the NR23 period, based on the observed historical relationship between C3 and C2. For the remainder of the NR23 period, NERL proposes adopting the same year-on-year growth as that proposed for C1 and C2.

The revised C3 target proposal is shown in Table 4-4 below.

Table 4-4 NERL C3 revised targets

Seconds delay/flight	2023	2024	2025	2026	2027
NERL Initial C3 Target	20.00	22.00	22.00	22.00	22.00
CAA C3 Proposal	14.08	14.91	14.91	14.91	14.91
NERL Revised C3 Target	16.9	21.8	21.8	26	30.6

Source: NERL's own elaboration

NERL proposes to adopt the introduction of the C3 target and apply the methodology for calculating penalty and bonus thresholds, as suggested by the CAA, and to revise the relationship between C3 penalty and C2 target to 2.4:1. This implies that the penalty threshold would be derived as 2.4 times the C2 target, and the bonus threshold derived as 2/3rds of the penalty with the target as a midpoint between the two. For example, for 2023, the NERL revised C2 target is 8.45 seconds/flight. 8.45 x 2.4 = 20.28. This is the penalty threshold for C3. The bonus threshold is calculated as follows: 2/3 x 20.28 = 13.52 seconds/ flight. The target is the midpoint between 20.28 and 13.52 = 16.9.

4.6. C4 Daily Excess Delay Score

CAA proposal

The C4 metric and the underlying incentive scheme is the annual sum of daily excess delay scores and captures individual days of particularly severe disruption which can have a significant impact on stakeholders. Unlike the other capacity metrics, these severe disruptions are generally due to some form of system failure rather than an underlying shortfall in ongoing capacity. The C4 target is a penalty only since stakeholders should not expect to suffer such severe disruptions. The metric is designed to capture exceptional events, so under typical operating conditions NERL would not be expected to reach the penalty threshold. Following the introduction of a resilience condition into the NERL licence, the target was lowered from 2000 in RP2 to 1800 in RP3. The CAA proposes maintaining the C4 target at the RP3 level although, as NERL's resilience improves with the proposed capex programme, the CAA expects lower levels to be targeted in future price control periods.

NERL response

NERL agrees with the CAA that a target of 1800 each year in NR23 is an appropriately stretching target.

4.7. Incentives for service delivery

4.7.1. Traffic modulation

CAA proposal

The CAA argues that there is insufficient evidence to support a change in the existing modulation of C3 and its extension to C2 and hence rejects NERL's proposal to calibrate the financial incentives more appropriately to the level of traffic each year by:

- introducing a traffic modulation mechanism for C2
- calibrating such modulation mechanisms in light of the existing exponential relationship between traffic and capacity delay

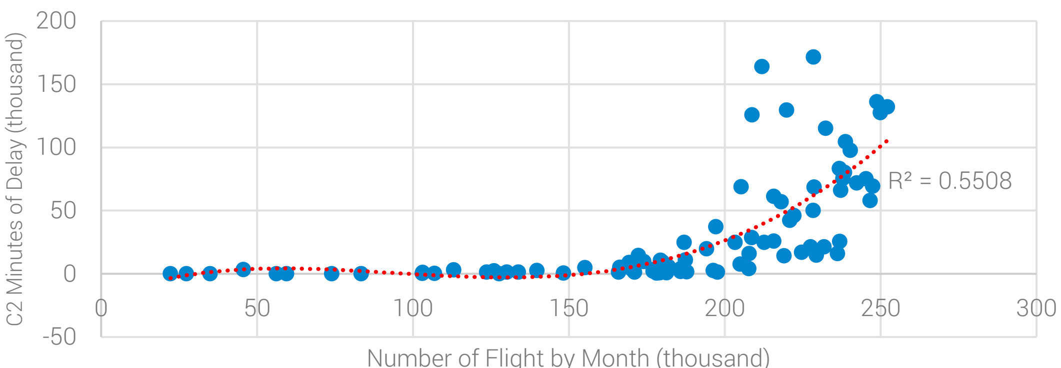
The CAA acknowledges that it may be necessary to review the 'elasticity factor' used for modulating the C3 metric based on data collected during NR23.

NERL response

NERL does not agree with the CAA's argument that dynamic modulation of C2 would impact the comparability of data at a European level because there is no comparable measure in the European region for C2. In addition, the modulation would apply to the incentive thresholds and not to the performance outturn data. Therefore, the proposed modulation does not affect participation with the Network Manager's post-operations process for reallocation of delay.

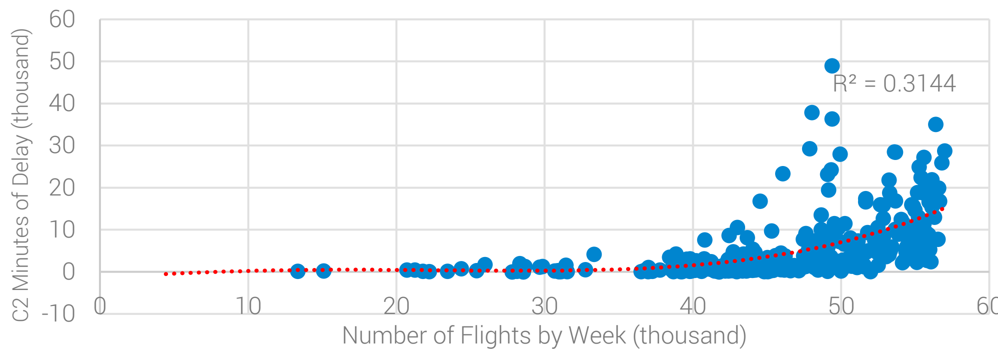
The CAA indicates that it is not clear that the relationship between traffic and delay is exponential based on annual data. NERL agrees with this statement; however, this is mostly due to the granularity of the data used to show this relationship. In fact, when comparing these variables at the weekly and monthly level of granularity, the relationship is clear. Our analysis in Figure 4-6 and 4-7 below refers to the observed traffic movements and C2 delays from 2015 to October 2022.

Figure 4-6 Monthly relationship between C2 delay and number of flights



Source: NERL's own elaboration

Figure 4-7 Weekly relationship between C2 delays and number of flights



Source: NERL's own elaboration

While NERL does not agree with some of the statements made by the CAA, we accept the proposal to maintain a similar approach for the C3 modulation mechanism consistent with previous regulatory periods, with the modulation instead applied to the target rather than the incentive thresholds.

4.7.2. Re-opener mechanism

CAA proposal

The CAA does not propose to introduce a specific re-opener mechanism for capacity metrics, in light of the existing flexibility inherent in the terms of the Transport Act 2000 to bring forward modifications to NERL's licence, subject to appropriate consultation, and in line with its statutory duties. The CAA encourages NERL to highlight any such one-off events and their impact on the delay performance as part of its quarterly performance reporting.

NERL response

NERL acknowledges this feedback from the CAA on the re-opener mechanism and will continue to provide the relevant information as suggested via quarterly performance reporting.

4.7.3. Allowance for exemption days

CAA proposal

The CAA rejects NERL's proposal to increase the allowance for exemption days (from 100 to 150 over NR23 as a whole) because the justification we provided was not specific enough for the magnitude of the increase requested. Moreover, the CAA believes that allowing NERL the additional exemption of transition days would introduce inconsistencies when benchmarking NERL's delay performance with other European counterparts. However, the CAA allows NERL to exclude up to 100 days throughout NR23 from counting against the C3 and C4 incentives when major new systems or airspace changes are being implemented.

NERL response

The CAA's concern about potential inconsistencies for the European benchmarking exercise is not well founded. The C2, C3 and C4 metrics are all unique to the UK performance plan and comparison of these measures with European counterparts is thus not possible.

NERL accepts the limit of 100 exemption days proposed by the CAA and offers no further counter proposal.

4.7.4. Incentive – use of C1 as trigger for bonuses

CAA proposal

The CAA is considering introducing a linkage between the actual delays experienced by airlines (from all sources) and the scope for NERL to achieve bonuses on its performance in NERL-attributable delays. The CAA opens consultation on the possibility to use a C1 trigger for bonus payments for C2 and C3 performance.

NERL response

A comparable linked approach was used during RP2[36], when to comply with EU-wide performance targets for a Single European Sky, the UK and Ireland submitted a Functional Airspace Block (FAB) plan for RP2, where UK-Ireland delay targets were used to define the incentive scheme i.e., joint incentive mechanism.

We note that the CAA introduced this joint incentive mechanism during RP2 in response to the SES EU regulation but since this is no longer a requirement the UK and Ireland had agreed to prepare separate national plans to determine the RP3 targets. Moreover, in the RP3 definition document[37] the CAA recognised the importance of incentivising NERL to improve service and invest in technologies and decided to keep the target at national network operational plan (NOP) level.

We consider that re-introducing a mechanism, linking NERL's financial incentives for service delivery to factors outside of its control, that was included in RP2 only to be compliant with the EU SES mechanism, would not incentivise NERL to provide a better service and therefore would not further the interests of airlines and passengers.

[36] UK Civil Aviation Authority and Irish Aviation Authority Safety Regulation Division (June 2014) UK-Ireland FAB RP2 Performance Plan – Supporting Document (link)
[37] CAA (2019) UK RP3 CAA Decision Document CAP1830 (link)

It would not be fair or rational to link achievement of financial bonuses for delivery of C2 and C3 performance to the C1 performance indicator over which NERL has no comprehensive control. This would effectively increase materially the risk for NERL in not achieving bonuses, and thus makes the financial incentives framework for service delivery even more asymmetric away from bonus potential. This would increase the financial risk on NERL, even if the overall level of revenue at risk across all delay metrics remained the same. The corollary of that would need to be some increase in NERL's cost of equity to compensate for the additional shareholder risk.

4.8. Conclusion

We agree with the CAA on the importance of setting stretching targets and incentives to protect the interests of consumers and stakeholders; however, we believe the CAA has mis-calibrated the calculations for the C1 target using retrospective data, rather than the forward-looking performance forecast, which is now available. We request the CAA to revise the capacity targets and consider the ones we now propose, in light of the evidence we have provided within this chapter, in particular referring to:

› the differences between the RP3 and NR23 periods, which make these two periods not directly comparable for the purposes of calibrating capacity targets

› the impact of the new traffic forecast.

5. Environment

5.1. Overview

The CAA's Initial Proposals confirm 3Di as the metric against which to measure our service performance in reducing the environmental impact of flights, and set stretching targets for the 3Di metric. We are concerned that in doing so the CAA has not integrated all relevant data, and thus arrives at inappropriate targets. Our key summary points are:

- **Relationship between traffic and 3Di score**: we demonstrate that this relationship, which is integral to the modelling on which we base our 3Di projections, is supported by analysis of the data. Eurocontrol reach the same conclusion
- **3Di starting point**: we re-calibrate the CAA's proposed starting point for the 3Di target score in 2023, based on latest evidence on traffic and the impact of the updated investment programme. In light of this, we propose a starting value of 28.2 (versus CAA 27.6)
- **Target profile**: similarly, we re-calibrate the CAA's proposed profile for the 3Di target score over NR23, based on latest evidence on traffic and the impact of the updated investment programme. In light of this, we propose an end-point value of 27.8 (versus CAA 25.3)
- **Treatment of non-revenue flights**: excluding such flights from the calculation of the 3Di score would improve the stability of the model used to derive the score from flight characteristics, would avoid windfall gains and losses, and would reduce data reporting anomalies which affect the incentive impact of 3Di. We therefore recommend this approach in place of the CAA's proxy adjustment of -0.6 to the overall 3Di score to account for non-revenue flights.

5.2. Choice of metric

CAA proposal

The CAA tested NERL's 3Di metric to check it is still a robust and appropriate metric to be used in NR23. The CAA concludes that, despite the 3Di metric tests being outside the tolerance threshold (i.e., +/-8%) between 2020-21, this instability is likely to be temporary. It thus accepts retaining the 3Di metric for NR23.

NERL response

We agree with the CAA's proposal. Our analysis shows that the 3Di metric passes the tolerance test, as traffic has started to recover. We will provide further corroborating evidence on this point during Q1 2023, in advance of the CAA's final determination for NR23.

5.3. Traffic relationship

CAA proposal

The CAA has reviewed our 3Di data and concluded that there is a weak correlation between traffic and 3Di score, when the Covid-19 period is removed from the analysis and reviewing data

over a long timeframe. Furthermore, the CAA assumes that the instability in the 3Di model is temporary because it assumes that lower traffic volumes lead to less complexity and more efficient routing compared to when the 3Di model was originally developed[38].Considering these points, it proposes a new set of targets based on a starting point lower than the one proposed by NERL.

NERL response

We contend that there is a 3Di-traffic relationship that is clear when looking at data provided at numerous levels; by airport and airspace sector, by hour, month, and year, and demonstrated within supporting environmental metrics such as airborne holding and horizontal track efficiency. In the Appendix to this Chapter, we provide additional evidence to corroborate the 3Di-traffic relationship, and references to the latest IATA - Air Transport Action Groups (ATAG) Waypoint 2050[39] report acknowledging the correlation between traffic and flight inefficiency. The CAA states that the 3Di model instability was 'probably temporary and caused by the impact of the Covid-19 pandemic, with lower traffic volumes leading to less complexity and more efficient routeings'[40], yet does not recognise this relationship more broadly, and removes from its analysis data describing 3Di in low traffic when determining that there is not a relationship.

The CAA analysis also recognises that we have delivered a reduction in the 3Di score over time but does not acknowledge that the driver of our lower 3Di score is essentially due to the airspace efficiency improvements delivered from 2015 to today. The CAA undertakes its assessment on a long timeframe (i.e., 2015 - 2022) and we are concerned that this will mask the existing relationship between traffic and 3Di since this will show a similar range of 3Di scores for the same levels of traffic. This is also highlighted in the CAA Initial Proposals[41], which show that, for the same level of traffic, between 2018 and (March) 2020 the 3Di scores are lower than the ones observed between 2015 to 2018.

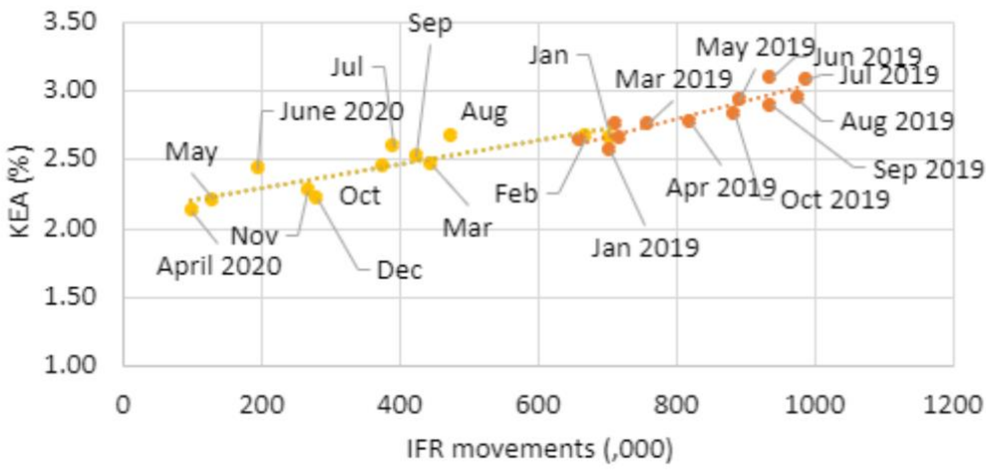
In the evidence supporting our NR23 business plan, we purposefully chose a timeframe, including the pandemic period, where our airspace modernisation efforts to improve efficiency would have had a limited impact on the 3Di score and traffic relationship. By abstracting from the longer-term improvements in 3Di which stem from airspace changes, we are able to demonstrate more clearly the existing relationship between 3Di score and traffic.

Our conclusions are supported by recent Eurocontrol analysis[42] stating that "the main determinants of environmental performance are both traffic levels and the ability of Member States to manage it with the capacity available". This relationship is shown in Figure 5-1 below; there is a clear correlation both before and during the pandemic period between monthly traffic flight efficiency scores. The Eurocontrol analysis focuses on the horizontal flight efficiency metric (KEA) which measures track extension. Two thirds of the inefficiency as calculated by 3Di is attributable to track extension (i.e., aircraft flying a longer track over the ground compared to

[38] CAP 2394, paragraph 2.30
[39]ATAG (September 2021) Waypoint 2050, Balancing growth in connectivity with a comprehensive global air transport response to the climate emergency: a vision of net-zero aviation by mid-century (website link)
[40] CAP2394, paragraph 2.30
[41] CAP2394b, paragraph D26
[42] Eurocontrol Performance Review Board (March 2022) PRB assessment of the revised draft performance plans for RP3. Union-wide assessment report, section 4.2

the most direct track across the ground). Since 3Di has track extension in it, and track extension is affected by traffic, 3Di is affected by traffic.

Figure 5-1 Relationship between traffic (IFR movements) and horizontal flight efficiency (KEA)



Source: Eurocontrol Performance Review Board (March 2022)[43]

We request that the CAA reviews our further evidence on the 3Di-traffic relationship in determining the performance scheme, in order to ensure the environment target for NR23, and the financial incentives which stem from this, are correctly calibrated in light of all available evidence.

5.4. 3Di target: starting point for NR23

CAA proposal

The CAA proposes a starting point 3Di target of **27.6 in 2023**, based on NERL's 3Di 'reckoner/explainer' document used to inform customer consultation in autumn 2021. The CAA considers this more appropriate than NERL's proposal as it reflects the benefits of capex up to 2023, and is not adjusted for traffic.

NERL response

We are concerned that the CAA has misinterpreted the 3Di 'ready reckoner' to arrive at its proposed starting point target for 2023. We recommend that the CAA revisits this assessment in light of the evidence presented below.

- **Non-revenue flights:** The CAA RP3 determination[44] proposed to remove non-revenue flights from the 3Di score, given that these flights do not typically seek to maximise efficiency; and

[43] Eurocontrol Performance Review Board (March 2022) PRB assessment of the revised draft performance plans for RP3. Union-wide assessment report, paragraph 82

[44] Draft UK Reference Period 3 Performance Plan proposals (CAP1758) paragraph 3.14: "non-revenue flights of the types listed are a small proportion of overall flights each year but may have a disproportionately large impact on the 3Di score. Since those flights do not typically seek to maximise flight efficiency, it is appropriate to exclude them from the metric and incentive. Based on data from NERL, it is estimated that excluding these types of flights would result in a downward adjustment of the 3Di score of around 0.6."

to apply a proxy adjustment to targets (-0.6), but with no guidance on how to apply such adjustment to the base data. We removed all non-revenue flights from the data, which had an impact on our NR23 proposed starting points and 3Di profiles. By selecting a starting point based on NERL's early proposals, the CAA chooses a starting point based on a sample that excludes the non-revenue flights, rather than applying its proposed methodology, i.e., 0.6 proxy on all flights sample. Hence, this inconsistency in the CAA's Initial Proposals leads to an artificially low 3Di starting point. Our updated proposals provided in Table 5-1 below address this point, as they are based on data using the CAA's proxy adjustment, to ensure consistency when setting the performance scheme.

- **Update for new traffic forecast**: The traffic forecast underpinning the 27.6 3Di starting point used by the CAA in its proposals is materially lower than we now expect and should be updated. The 3Di 'reckoner/explainer' starting point target for 2023 was based on the May 2021 STATFOR traffic forecast. This projected traffic to be 2.13 million flights in 2023, 15% lower than the 2.4m+ projected by the October 2021 STATFOR forecast on which we based our NR23 business plan. Consequently, in the 'ready reckoner' our ML model predicted a lower 3Di starting point of 27.6 (excluding all non-revenue flights). We request the CAA uses the current traffic forecast when determining the 3Di starting point.
- **Update for investment programme**: We agree that the 3Di proposals should reflect the benefits of investment projects implemented up to 2023. We confirm that our modelling has taken this into account, ensuring that the benefits delivered in RP3 have been included within our proposals.

Therefore, we have updated our assessment using the October 2022 STATFOR traffic forecast, and estimate that 3Di starting point for NR23, which we would request the CAA to update for its final decisions, should be **28.2** (adjusted based on CAA non-revenue flight exclusions decision).

5.5. Target profile

CAA proposal

The CAA proposes that the 3Di target should reduce from 27.59 in 2023 to 25.33 in 2027. The CAA states that this 2.3 point reduction over the period is derived from the application of the 'ready reckoner' previously mentioned, comparing the 'do nothing' and 'capex' scenarios.

NERL response

It is globally recognised that delivering improvements to airspace efficiency becomes more difficult with traffic growth, as gains delivered though specific projects are eroded by losses to efficiency at the network level. This reality was recently reinforced in the Air Traffic Action Group (ATAG) Waypoint 2050 report[45], commissioned by IATA, which states that: 'despite what looks like no improvement in this [high traffic] scenario, maintaining current efficiency despite traffic growth will require investment in ATM improvements in order to avoid a degradation in the performance of the system and reduction in efficiency.'

[45]ATAG (September 2021) Waypoint 2050, Balancing growth in connectivity with a comprehensive global air transport response to the climate emergency: a vision of net-zero aviation by mid-century, page 61

Our updated analysis (summarised in Table 5-1 below) shows that, without our planned investment in airspace modernisation, inefficiency within UK airspace would increase and the 3Di score would deteriorate by 1.9 points across NR23 due to traffic growth. Using the CAA proposed benefit of 2.3 points of 3Di attributed to specific investments planned, the net reduction that NERL can achieve is 0.4 points of 3Di from the starting point.

This conclusion is based on a re-run of our Machine Learning model using the latest October 2022 STATFOR forecast. We have evaluated the 3Di forecast in two scenarios:

- **do-nothing** in which we continue delivering service without any further capex investments, such that the 3Di scores are the result of the capex improvements delivered prior to NR23 and the projected rise in traffic over the period
- **investment scenario** which includes capex investments for NR23 and is based on October 2022 traffic forecasts. This is the basis of our updated proposed targets

Table 5-1 NERL updated 3Di target proposal

	NR23 3Di starting point	2023	2024	2025	2026	2027
Traffic ('000s)	-	2,410	2,608	2,671	2,724	2,769
Do nothing 3Di score*	28.2	28.2	29.2	29.6	29.8	30.1
Capital investment benefit (cumulative)	-	0.1	1.2	1.7	1.9	2.3
NERL's updated proposal	**28.2**	**28.1**	**28.0**	**27.9**	**27.9**	**27.8**

*Source: NERL's own analysis, * adjusted based on CAA non-revenue flight exclusions decision*

These results show that the 3Di score would increase from 28.2 to 30.1 between 2023 and 2027 if we were to opt for no capital investment, while our capital investment programme leads to a reduction in score. In conclusion, we believe that our proposed updated start point of 28.1 and end point of 27.8 is a stretching target profile with an overall performance gain of 2.3 3Di points across NR23 versus the 'do nothing' investment scenario.

5.6. Treatment of non-revenue flights

CAA proposal

To account for non-revenue flights[46], the CAA proposes to retain the proxy of a 0.6 deduction from the 3Di score (based on the observed impact of these flights in 2019 alone) and rejects NERL's proposals to remove the relevant flights at source from the data before calculating the 3Di score. The CAA argues that removal of these flights would risk creating an inconsistency between the source data and the 3Di scores that included non-revenue flights, thereby reducing the reliability of the modelling results.

[46]These flights include training, positioning, surveillance, calibration flights and other non-revenue flights (collectively referred to as non-revenue flights) and were initially proposed for exclusion during RP3 on the basis that the main imperative of these flights is not to achieve the most efficient flight track, that they are high scoring and therefore contribute disproportionately to the score and that their inclusion disengages NERL's operational community from working towards 3Di improvements over time.

NERL response

We consider the CAA's proposals to be inconsistent with the evidence presented during 2022 and that these should therefore be re-assessed in light of all relevant analysis.

We submitted additional analysis in August 2022 in response to CAA requests for information[47]. This showed the results of re-running the tests for 2020, 2021 and 2022, considering for each year two samples, one that included all flights and one that excluded all non-revenue flights. The results in Table 5-2 below show that the tests run on the sample that excluded the non-revenue flights achieved the threshold (+/-8%) set by the CAA. While the 2022 test with all flights included passed the test, the non-revenue flights sample showed less variability and was more stable[48].

Table 5-2 Results of 3Di tests

Year	Test on all-flight	Test excluding non-revenue flights
2020	✗	✓
2021	✗	✓
2022 H1	✓ but unstable	✓

Non-revenue flights do not fly typical profiles and due to their business nature, they do not operate with a flight efficiency target. We consider that this difference in mode of operation between different types of flights drives the instability of the tests which include both revenue and non-revenue flights and leads to higher variability in the coefficients.

The CAA proposal to apply a 0.6 deduction to the overall 3Di score would be a coarse method of dealing with non-revenue flights. We argue instead that excluding these flights from the base data would be better because:

- **Windfall gains/losses**: The use of a proxy might increase the risk of windfall gains or losses as the 3Di score and the target are obtained from different data sources. The proxy adjustment does not clearly demonstrate the contribution from non-revenue flights to the 3Di score during the pandemic (i.e., the impact was more than 0.6). However, the reverse might be possible in future whereby the contribution of the non-revenue flights could be lower than the 0.6 proxy adjustment.

- **Data reporting anomalies**: Introducing this proxy adjustment to base data leads to anomalies in our reporting data and undermines the management of the 3Di. This adjustment affects the reporting to CAA under Condition 11 (i.e. quarterly, and monthly performance reports), and internal reporting within NERL, which is fundamental to the management of 3Di (e.g. tracking performance and targeting improvement at centre, sector, ATC watch and airline level). Deducting 0.6 points off each flight would lead to a large number of flights (c.42,000 in 2022 YTD to November) having a negative score which is

[47] NATS (August 2022) 3Di 2022 Mid- Year Review

[48] The aim of the annual review test is to ensure the coefficients underpinning 3Di continue to accurately characterise the inefficiency within the UK airspace. A high percentage variance suggests that the metric is less representative of current day performance; while a low percentage variance suggests that the model continues to be representative i.e. stable.

counterintuitive given that an optimum flight profile should score zero. It would also lead to data at a disaggregated level not adding up to the national score.

Given the evidence discussed above, we recommend that the CAA reconsiders NERL's proposal to remove the non-revenue flights from targets, base of data, reporting and annual test. If the CAA nevertheless rejects this reconsidered proposal, we would suggest reverting to an unadjusted score and to adjust targets accordingly. This would prevent inaccuracies in our internal data, which undermine the management of the 3Di model.

5.7. Summary

We agree with the CAA on the importance of starting the performance scheme at an appropriate level and to set strong incentives in the interests of consumers and customers, but we believe the CAA's Initial Proposals would not achieve these goals. The CAA's targets are based on outdated inputs and a misinterpretation of evidence previously submitted by NERL. As they stand, these targets are undeliverable and provide a weaker incentive for NERL to work towards; they would imply a greater likelihood of incurring a penalty than bonus during the NR23 period.

We recommend that the CAA uses the most up-to-date traffic forecast to determine the 3Di targets, and to adopt a consistent approach to the treatment of non-revenue flights across its proposals – removing them from all base data and targets.

6. Reconciliation review

6.1. Overview

We welcome the CAA's overall assessment that NERL took a reasonable range of actions to reduce its costs in response to the reduction in traffic due to the impact of the covid-19 pandemic. We agree that, in most cases, the CAA has reached its conclusions based on information that was available to NERL at the time, without the benefit of hindsight. Nevertheless, we are concerned that in several areas, the CAA appears to have mis-judged what cost reduction options would have been practical or prudent to pursue in 2020. In other cases, the CAA appears to have mis-calibrated the potential savings which might have been delivered under its alternative scenarios of actions that NERL could have taken. Finally, we have identified a number of potential miscalculations in the adjustments which are applied to NERL's efficient cost baseline in order to integrate the retrospective cost reconciliation with the ongoing forward-looking adjustment mechanisms in the price control conditions, which provide automatically for changes in certain parameters from those set at the RP3 decision.

In summary, our key concerns with the CAA's proposals for the cost reconciliation review are:

- **Voluntary redundancy costs**: the CAA's proposed £9m cost reductions are based on an unfeasible and high risk alternative scenario for resetting the existing redundancy agreement quickly on lower terms and then exiting similar numbers of employees. Even in its own terms, the suggested cost reductions are overstated by a factor of two as a result of miscalculations
- **Voluntary staff wage reductions**: NERL concluded not to proceed with this option given the risks to operational resilience. On this basis, the CAA cannot assume an additional saving of £2m could have been made. But even on the CAA's terms, the assumption of 50% take-up for voluntary wage reduction by negotiated grades has no foundation at all
- **Refinancing costs**: the CAA's £6m cost reduction is based on an alternative of retaining the Whole Business Securitisation, which in turn rests on the false premise that the costs and risks of the latter (untried) approach can be assessed now, without the benefit of hindsight. Even on the CAA's narrow terms, the refinancing delivered a net benefit to customers and consumers of £7m, so there is no basis for the proposed cost reduction
- **Capital expenditure**: by not concluding now on the efficiency of RP3 capex, on the basis of the 'reasonable' assessment from its consultants, the CAA is unnecessarily extending and compounding regulatory uncertainty about the value of the Regulated Asset Base and hence, ultimately, the value of the company itself. The CAA should remedy this in its Final Decision
- **Cost reconciliation adjustments**: we welcome the CAA's assessment of, and agreement to, most of the adjustments proposed by NERL as part of the cost reconciliation review (necessary to integrate this review with the working of the price control model). However, the CAA appears to have double counted one adjustment (for the regulatory return on the Traffic Risk Share debtor and the impact of inflation), resulting in an excess cut of £31m.

Finally, with the CAA having already delayed the overall NR23 process well beyond its own timetable, we are also concerned that by deferring consideration of the actions that NERL took with regard to its capital expenditure in the period 2020-22 to a later date in NR23, the CAA is compounding regulatory risk unnecessarily and potentially undermining the credibility of the RAB as a store of value. It is unclear from the Initial Proposals what the CAA's rationale for this is, nor what it believes the benefits to customers, other stakeholders or NERL might be. We consider that the CAA has sufficient and all available evidence now to conclude that actions taken to pause, replan and then restart the investment programme, in consultation with customers, were not demonstrably inefficient or wasteful. We request that the CAA complete this assessment ahead of the Final Decision.

This chapter responds to the CAA's proposals for setting the 'efficient cost baseline' for 2020-22, which in turn determines the level of traffic risk share (TRS) revenue to be recovered in NR23 and subsequently. We have responded to the CAA's proposals for the timing of this recovery elsewhere, in the Introduction Chapter 1 and the Finance Issues Chapter 12. We argue there that the CAA has misjudged the balancing of its statutory duties, by giving undue weight to its 'affordability' arguments, which are not supported by a proper interpretation of available evidence, for deferring revenue recovery, with a resulting increase in risk to NERL's financing ability over the decade of NR23 and NR28. We also consider that the CAA has provided insufficient clarity regarding the value of TRS revenue that will remain to be recovered in NR28, and recommend that it remedies this in policy statements and explicit licence conditions.

6.2. Staff opex

6.2.1. Voluntary salary reductions

CAA proposals

The CAA concludes that had NERL expanded its voluntary salary reductions to all staff, savings would have amounted to approximately £2m, occurring in 2020 (assuming the same 50% level of take-up as among management grades). The CAA proposes to disallow £2m from the 2020 staff opex baseline.

NERL response

We consider that the CAA's proposals here do not reflect on or consider the broader employee relations climate at the time. Taking this wider perspective would suggest that the CAA's proposed staff opex cuts are not supported by evidence.

Immediately following the outbreak of the pandemic and the announcement of the first UK lockdown, NERL took several actions with the trade unions relating to negotiated grades. The most significant of these was an agreement reached with the trade unions to reverse the 2.3% pay rise awarded to all negotiated grades from 1 January 2020. This change was made without membership ballot, and therefore implemented in April 2020. At the same time, a collective agreement was reached on the use of the Coronavirus Job Retention Scheme (so-called 'furlough'), which enabled significant numbers of employees to be placed on furlough and costs to be mitigated under the job retention scheme. Importantly, this agreement enabled effective rotation of operational staff on/off furlough to ensure operational skills were maintained in preparation for recovery.

At the same time, the management population was invited to take a voluntary pay cut of 10% for a three-month period and no management pay increase was awarded. Approximately 50% of employees within the management group volunteered the suggested reduction in pay. Whilst

this action contributed to the cost savings that were being generated, it was not substantial. (Average pay among the management population was £97k in 2022 (in 2020 prices), compared to £76k for all other grades. The management population was 9% of NERL total, excluding contractors, in 2020).

Following the notice given on the existing Redeployment and Redundancy Agreement (RRA) during the summer of 2020, the employee relations climate within NATS became increasingly challenging, and the trade unions withdrew from key agreements including the operational ATCO overtime agreement. This had the potential to impact both operational resilience and the business' ability to respond to recovery of the sector. On the basis that the employee relations climate would not support any voluntary pay reduction scheme for negotiated grades, that the management population uptake of the reduction was only 50%, and that the equivalent uptake among (on average) lower paid negotiated grades would be lower than 50%, especially without the support of the trade union, NERL judged that the effort required to implement voluntary salary reductions for negotiated grades, and associated IR disharmony at that time, would not have been proportionate relative to the potential savings which were ultimately assessed to be minimal, if any. At a first principle level, the assumption of a 50% flow through equivalent to management grades is without basis and in our view wrong, for the reasonings outlined above, namely lower salary bandings and lack of TU support.

In conclusion, NERL actively considered the option of requesting voluntary salary reductions from negotiated pay grades, in addition to the management population, but concluded not to proceed with this option given the risks to operational resilience in both the near term and the recovery period from the pandemic. On this basis, the CAA cannot assume an additional saving of £2m from voluntary salary reductions could have been made. The appropriate assumption is that no reduction was possible. But even on the CAA's terms, the assumption of 50% take-up from negotiate grades has no foundation at all.

6.2.2. Voluntary redundancy scheme costs

CAA proposal

The CAA concludes that it would have been reasonable for NERL, with the information it had available at the time, to seek to implement either an exceptional VR scheme, or a VR scheme with a 12-month payback period from May 2021. Based on the upper end of its estimated £3m-£9m range of savings from the latter action, compared to the VR programme which NERL did implement, the CAA proposes to disallow £9m of the costs of the VR scheme in 2020.

NERL response

We consider that the CAA's proposals in this area have not fully considered all the evidence on two key aspects:

- the feasibility of the CAA's proposed course of action; and
- the costs and benefits arising from doing so, even if it were feasible.

On the question of **feasibility**:

The redundancy programme was launched in the summer of 2020, with expressions of interest being sought for volunteers to leave the business by the end of November 2020. At the point the redundancy programme was launched there was very limited knowledge as to what the extent of the pandemic would be, when and what recovery of the sector would look like, and how long the

impacts would continue to affect the aviation industry. It was therefore considered prudent to exit as many employees, and their costs, as soon as possible, where these roles did not directly support the operation. Anything less than the RRA terms which were still in place at the time would not have generated the same number of volunteers, thus reducing the potential of the available long term cost savings. The costs of the redundancy programme were £60.9m. This includes redundancy costs as well as any payment in lieu of notice payments that were incurred to expedite exits from the business.

We consider that this evidence of NERL's actual experience in 2020 and 2021 in seeking to renegotiate the RRA, in the face of resolute opposition from the trade unions, is directly relevant to assessing the feasibility of the CAA's alternative proposals for resetting the RRA quickly on lower terms and then exiting similar numbers of employees subsequently through VR. The CAA should not assume away the practical constraints on NERL in dealing with a highly unionised workforce which, by virtue of the continuing key role aviation played throughout the pandemic period, maintained very strong leverage in negotiations with the company.

On the question of **costs and benefits**:

Even if such a scheme could have been implemented in the way the CAA assumes, the CAA has mis-calibrated its estimates of cost savings by not taking into consideration the fact that fewer employees would have volunteered to leave due to the significantly reduced terms hypothesised by CAA.

It is important to remember that the employment market at that time in 2020 and 2021 was extremely negative due to the pandemic and resulting economic crisis. Anyone considering leaving then would have faced much greater risk in finding alternative employment than they do today. The number of job vacancies (seasonally adjusted) fell by 36% from the quarter December 2019 to February 2020, just prior to the pandemic, to the period March 2020 to April 2021. In our assessment, based on discussions with those who volunteered, both those who went on to leave and those who decided to stay, it is likely that:

- *All* **those who left on terms equivalent to 12 months' pay or less** in 2020 would have still volunteered (as their redundancy terms would not have reduced under such a scheme proposed by the CAA). We estimate 100% of this group would still have volunteered.

- *the majority* of **those very close to retirement would** still have volunteered to leave (because they would have been likely to retire relatively soon anyway and thus, for most, but not all, a reduced redundancy payment under the CAA scheme would not have changed their decision).We estimate that 75% of this group, aged 58 or over, would still have volunteered.

- But a **very significant number of others** would *not* have left (because their redundancy offers would have been around 50% lower than what they actually received in 2020). We estimate that 50% of this group would still have volunteered.

In addition, the CAA acknowledge that such a scheme as they propose would not have been able to start as early as the actual 2020 scheme due to having to wait for the notice period on the RRA agreement with NTUS to expire.

This would have generated staff cost savings of just £33m over RP3 (compared to £71m of actual cost savings delivered under the 2020 scheme) and redundancy costs of £19m (versus £61m), with net benefit of £14m (versus £10m). As such, in total the CAA proposed scheme (on the assumption that it was feasible) would, at best, have delivered a £4m better outcome than the actual VR programme *in RP3*, compared to the £9m calculated by CAA. The calculations are set out in Table 6-1 below.

Table 6-1

VR scheme	Years of Savings in RP3	Savings p.a.	Total Benefit	Redundancy Costs	Net Benefit
		£m	£m	£m	£m
NERL	2.10	34	71	61	10
CAA Proposed, re-estimated	1.58	21	33	19	14
		CAA proposed, re-estimated, vs NERL			4

Memo: UKATS share of redundancy costs is £58.5m

Finally and importantly, no account has been taken by the CAA of the additional staff costs that would then have been incurred *during NR23* as a result of the reduced VR programme take-up. We conservatively estimate that an additional £15m of costs would have flowed into the NR23 plan, costs that NERL avoided incurring and thus customers have been spared from paying, as a result of the VR decisions NERL took during the pandemic.

In summary, the evidence available indicates that the CAA's alternative approach, to delaying VR in order to renegotiate the existing redundancy agreement for one with less attractive terms:

- would not have been feasible in the timescales suggested,
- would have attracted fewer volunteers and thus delivered lower savings in the RP3 period than estimated by CAA
- would have resulted in higher ongoing costs in NR23, which do not feature in the CAA's cost benefit assessment.

6.3. Capex

CAA proposal

The CAA concludes that it is not able to take a view on the efficiency of the capex costs incurred in 2020-22 at this time for two reasons:

- the impact of the capex programmes delivered by NERL should be assessed after traffic recovery to allow for a reasonable comparison with previous pre-pandemic years
- some of the work is still ongoing and the programmes have had to be significantly replanned since 2020

The CAA states that it will consider the efficiency of NERL's capex over the reconciliation period as part of its overall review of NR23 capex, or at the earliest opportunity for those programmes that are not complete by the end of the NR23 period.

NERL response

We are concerned that by deferring consideration of the efficiency of NERL's capital expenditure in the period 2020-22 to a later date in NR23, the CAA is compounding regulatory risk unnecessarily and potentially undermining the credibility of the RAB as a store of value. We consider that the CAA has sufficient evidence now to conclude that actions taken to pause, replan and then restart the investment programme, in consultation with customers, were not demonstrably inefficient or wasteful.

The CAA's consultants Steer + Integra did review the actions taken by NERL in the RP3 period to pause all non-essential investment, consult with customers, then replan and restart. Steer + Integra's findings in summary are:

- Most ANSPs decided to temporarily pause or postpone their major projects, as a consequence of the COVID-19 related restrictions hindering work in simulation facilities (due to social distancing requirements). Following the lifting of restrictions, ANSPs continued carrying out their investments and running their transition programmes, although the exact timing of course depended on decisions imposed by local governments on the restrictions ('Stop-and-go strategy').
- A handful of ANSPs focused their response on scaling their businesses down as much as possible, in order to respond to the drop in traffic demand and provide at least some cost efficiency benefits to their customers. These ANSPs reshaped and re-planned their operations, including investments and airspace redesign projects as well ('Scale down strategy').
- There was also a handful of ANSPs which undertook to carry on with their investment programmes, and even considered speeding them up, as normally scarce ATCO resources became available during the traffic downturn. These ANSPs might also have experienced shorter pauses in their investment projects, but worked continuously against their existing plans, and took no decisive actions as regards postponing major projects ('Fly forward strategy').
- The actions and decisions taken by NERL fall within the 'Scale down strategy' group, being driven by financial and liquidity issues, as well as health and safety considerations.
- The actions taken by NERL during the pandemic resulted in significant savings (-44%) compared to the capital expenditure profile included in the CMA Final determination.
- The actions taken by NERL on its capital programme in response to the COVID-19 pandemic are **within the range of actions taken by other ANSPs and as a result are seen as reasonable and proportionate**. Based on experience with other European ANSPs, it must be highlighted, that the level of engagement with customers, the level of detail offered and the overall quality of information provided to airspace users about the actions taken were of **high quality**. [emphasis added]

The CAA's consultants also conclude that "all the actions and decisions have been situational at the time, affected by factors some of which are not reconcilable ex-post (such as the perceived risk of an outbreak in a centre). There may also have been factors (financing and liquidity of the company), which fall outside the scope of this review, but which have had a driving influence on how and what decisions were taken by NERL at the time".[49]

This conclusion points directly to the problem with proceeding, as the CAA proposes, to postpone to later in NR23 any efficiency assessment of capex in the RP3 period. By definition, actions taken in the period 2020-21 in particular, when the company and the wider economy were facing the most severe economic implications of the pandemic, were highly abnormal and would not have been considered and then implemented were it not for the extreme health and safety and financial context facing NERL. Such actions would *prima facie* likely lead to inefficiencies in programme delivery if that were measured using standard metrics and against a benchmark of stable, 'business as usual' operations. To take these into account in any assessment of what was appropriate during the pandemic would be to introduce extraneous information and would verge on the application of hindsight which the CAA has expressly ruled out of the reconciliation exercise[50]. This is the implication of the CAA's proposed approach.

This current approach contrasts with the version which the CAA has set out previously for stakeholder consultation. In its early guidance on the reconciliation review, the CAA confirmed that "it would be appropriate to review this building block [capex] given its materiality and importance"[51]. In its later guidance[52], the CAA sets out eight points for NERL to provide information on its capex during the period 2020-22. NERL included nine pages on this topic in its cost reconciliation review submission.

For the CAA's proposed DIWE review of RP3 capex later in the NR23 period, there will be no more or better information available than was available to the CAA and its consultants for the cost reconciliation review now. In addition to cost assessment provided by the CAA's consultants Steer + Integra in spring 2022, the CAA has been updated by continuing review of NERL's investment planning, engagement and delivery activity by Egis consultants, acting as its Independent Reviewer of capex engagement and efficiency. The CAA notes that "The Independent Reviewer reviewed the efficiency of NERL's capex in RP3 on an ongoing basis".[53] We are not aware of Egis highlighting any wasteful or inefficient capex expenditure whilst carrying out these activities.

The CAA's consultants (Steer + Integra) have already concluded that:

- NERL's actions were reasonable and proportionate
- all actions and decisions in the period were situational at the time, affected by a broader set of factors than simply the technical and cost management of an investment programme.

[49] Steer + Integra (October 2022) Cost assessment report, paragraph 4.4.4
[50] CAA (June 2021) Economic regulation of NATS (En Route) plc: further update on approach to the next price control review, CAP2160, paragraph 19
[51] CAP2160, paragraph 3.15
[52] CAA (November 2021) Economic Regulation of NATS (En Route) plc: working paper on the reconciliation review for NR23, including the request for information, paragraph A12
[53] CAP2394, Appendix I paragraph I76

As such, any subsequent DIWE review undertaken later in NR23 would confront the same evidence as Steer + Integra have used, and face the same methodological challenge; disentangling 'pure' cost efficiency factors, which might be solely attributable to NERL's delivery management of its investment portfolio, from the wider context in which NERL was making decisions at the time.

By not concluding now on RP3 capex as a whole, on the basis of the 'reasonable' assessment reached by the Steer + Integra analysis, the CAA is unnecessarily extending and compounding regulatory uncertainty about the value of the Regulated Asset Base and hence, ultimately, the value of the company itself. This uncertainty is not supportive of efficient debt or equity financing, and thus the CAA risks failing to meet its statutory duty "to secure that licence holders will not find it unduly difficult to finance activities".[54]

The CAA could remedy this by setting out clearly in its final decisions on the reconciliation review and the NR23 review that:

- capex undertaken in RP3 has been found to be not demonstrably inefficient or wasteful, in light of the review of available evidence conducted by Steer + Integra and given the wider context in which NERL was operating
- this capex is thus excluded from any future DIWE assessment and is not subject to any future *ex post* disqualification of this spending from the RAB
- the proposed DIWE assessment in NR23 will consider those projects and programmes which complete delivery in NR23. The quantum of capex on such projects and programmes which may be subject to *ex post* disqualification would exclude all spending on such programmes in the RP3 period (or at least in 2020 and 2021). In considering the DIWE test for such projects, the CAA should be mindful of any potential inefficiencies that resulted from the decisions forced on NERL by the circumstances of pandemic in 2020-22.

6.4. Regulatory depreciation

We note that the CAA agrees with the approach we adopted for the calculation of regulatory depreciation within the cost reconciliation review.

6.5. Regulatory return

We are aligned with the CAA in relation to the treatment of regulatory return within the cost reconciliation review. Use of the CMA's determination data is consistent with an assessment of an efficient cost baseline.

6.6. Non-regulatory revenue

We note and welcome the CAA's acknowledgement of the direct linkage between the cost reductions enabled by NERL and the corresponding reduction in revenue arising from the non-regulatory revenue contracts, such as the FMARS contract with the Ministry of Defence.

[54] Transport Act 2000, section 2(2)(c)

6.7. Financial restructuring costs

CAA proposal

NERL proposed the recovery of costs associated with the 2021 refinancing, which were not foreseen at the time of the RP3 decision and subsequent CMA redetermination. In response, the CAA was not convinced that NERL's customers and consumers should have to incur the costs associated with collapsing the Whole Business Securitisation that was previously in place and redeeming the 2026 bond early (thereby incurring so called 'spens' costs). It recognised, however, that the alternative of allowing the bond to remain outstanding until maturity would have involved certain additional costs being incurred; interest costs would have been higher, and NERL would most likely have needed to obtain various consents and waivers that would have most likely involved additional payments to bondholders.

The CAA concluded that these costs would have been less than the spens payments that were actually incurred. It proposed to provide NERL with an allowance of £16m in respect of net incremental financing costs, £6m less than NERL proposed.

NERL response

We welcome the careful consideration by the CAA of our financial restructuring costs. The side-by-side comparison which the CAA makes of the costs of NERL's strategy of refinancing versus a putative alternative of retaining the Whole Business Securitisation rests on the false premise that the costs and risks of the latter (untried) approach can be assessed now, without the benefit of hindsight. When the CAA attempts to quantify the cost of the retained WBS, in terms of interest costs, and consents and waivers involving additional payments to bondholders, it does not capture the fundamental uncertainty facing management at that time. In light of the most severe global pandemic since the Spanish flu in 1918, management had no certainty of, amongst many others:

- what these waivers might end up needing to be
- whether whatever consents/waivers were required would in practice even be granted, given the unprecedented circumstances and the pace of change which the business was facing
- how quickly such consents/waivers might be obtained
- what cost might be associated with those consents/waivers.

This extreme uncertainty represented a high risk at the time to proceeding with the retained WBS strategy, yet it does not feature at all in the CAA's assessment of information available to NERL at the time. This is particularly important given the negative cash flow experienced by NATS and the resulting essential nature of a timely refinancing operation.

In its own narrow terms, setting aside the fundamental question of risk and deliverability just noted, the general approach taken by the CAA to assessing the value to customers of the financing restructuring, of contrasting the actual costs with an estimate of the costs had the restructuring not taken place, is logically consistent. However, the CAA analysis includes both a significant miscalculation and a major miscalibration of the evidence NERL presented.

The **miscalculation** arises in the comparison that the CAA has undertaken between the interest costs arising from the financial restructuring in 2021 and a counter-factual scenario in which the pre-existing financing structure was maintained and supplemented by additional debt. The

premise of this calculation is well founded, as it enables a comparison of on the one hand, low interest costs arising from the new bonds coupled with a refinancing cost, with on the other hand, relatively higher interest costs (as the pre-existing bonds are maintained) alongside lower transaction costs.

The error in the CAA's calculations is that the amount of debt assumed in the counter-factual scenario (where the WBS structure is maintained) is materially understated. In the CAA's calculations, the average difference in debt over NR23 and NR28 between the two scenarios is £119m, and peaks at £211m in 2026. This difference is not justified and it fundamentally changes the conclusions drawn by the CAA, as it materially understates the interest costs that would have been incurred in the counter-factual scenario. Rather than the £9.6m of additional interest costs that the CAA references would have been incurred by maintaining the pre-existing debt structure, the appropriate estimate is around £24m. When this error is corrected, rather than showing the refinancing as being adverse to the interests of customers and consumers, the analysis demonstrates why it is advantageous to the interests of customers and consumers.

The **mis-calibration** arises in the application of the 15bps guarantor fee to the assumed new debt within CAA's counter-factual scenario. This guarantee fee would be paid on top of the interest costs associated with the bonds themselves. The 15bps fee is applied by the CAA to the £460m that it calculated would have been raised as new debt in 2021 in that counter-factual scenario. However, that scenario assumes that the existing whole business securitisation structure is maintained. This means that the 15bps would need to apply to all new debt necessary over NR23 and NR28 (being the time horizon of the CAA's calculations).

The miscalculation by the CAA above demonstrates that £460m is too small a number to apply to this calculation. The CAA references in its Initial Proposals expectation that NERL will issue additional debt in 2023. Using an assumption that this could be in the region of £250m (consistent with our response on cost of capital), a more appropriate estimation of the guarantee fees avoided would be £6m, rather than the £4m calculated by the CAA. This higher estimation is calculated by grossing up the CAA's estimate of £4m by £710m over £460m.

The consequence of correcting this miscalculation and miscalibration is that CAA's adjustments to NERL's refinancing costs should be removed entirely.

Table 6-2

£m	CAA calculation	CAA calculation – corrected (rounded)	
Interest costs avoided by undertaking the refinancing	9.6	24	Updated calculations provided to the CAA separately
Future guarantee fees avoided	4.0	6	Gross up of the CAA calculation by £710m/£460m
Consent fees and other transaction costs avoided	6.4	6	The estimate from Centrus that is used by the CAA appears reasonable
Total costs avoided	20.0	36	
Deductions put forward by NERL in business plan	(7.0)	(7)	
Net financing costs avoided by undertaking the refinancing	13.0	29	
Net incremental financing costs (per Table 3.7 on page 80 of CAP2394)	22	22	
Net benefit / (cost) to customers	(9) cost (noting CAA also refers to this as £6m net cost)	7 benefit	The corrections demonstrate the net benefit that arises to customers from the refinancing.

Instead, there is a net benefit to customers and consumers of £7m. As a result, and for the reasons above, the CAA should allow NERL to recover the £6m cost of refinancing that is being deducted in the Initial Proposals.

We reiterate that the analysis above demonstrates arithmetically, even on the narrow terms adopted by the CAA, that NERL's refinancing was cost beneficial to users.

6.8. Other reconciliation adjustments

CAA proposal

As part of the reconciliation between RP3 and NR23, NERL included a number of adjustments to arrive at the efficient cost baseline to be recovered. These adjustments are to reflect items that are compensated through other mechanisms in NERL's price control and so avoid double-counting. The CAA's proposals in respect of each of these adjustments are summarised as:

- **MOD uplift**: the CAA **agrees** with NERL's proposed adjustment to ensure the reconciled costs are uplifted for the costs of military and exempt flights included in TSUs, to arrive at reconciled Determined Costs used for the purpose of setting unit rates under the Eurocontrol Principles.
- **Rounding**: as a result of CAA rounding the annual values to the nearest integer, the NR23 totals described in paragraph 3.78 and Table 3.10 are undervalued by (£24m versus £25m outlined in paragraph 3.66). We request that CAA correct this in the final determination.
- **Tax allowance**: the CAA **agrees** with NERL's adjustment for the actual tax incurred versus what was allowed in the CMA's determination from the tax uplift in the pre-tax WACC.
- **Adjust regulatory return + inflation**: NERL made an adjustment to the regulatory return on the TRS and the impact of inflation to avoid double counting these figures in its price control. This adjustment was introduced to reflect the return on TRS revenues and other items in working capital in RP3, which was higher than the CMA determination. The CAA **agrees** with

this adjustment but has updated it using its RPI inflations forecasts for the Initial Proposals (OBR, March 2022).

- **Condition 21 Inflation Adjustment**: the CAA **agrees** that this adjustment is necessary to avoid double counting of the inflation adjustment which is incorporated into the unit rate. The CAA recalculated this adjustment using its CPI forecasts and TSU and CSU forecasts and as a result proposed that the adjustment amounts to -£22m between 2020 and 2022. This is significantly lower than NERL's proposal of +£14m, and reflects the significant difference between the outturn and forecast CPI in 2022, compared with the forecasts used by NERL in its business plan.

- **WACC Uplift for CMA difference**: in its November 2021 decision to modify NERL's licence, the CAA amended Condition 21 to account for the difference between the revenues for 2020 due to the application of a temporary unit rate based on the CAA's decision for RP3 and the final 2020 unit rate established on the basis of the CMA determination. The CAA concludes that it is therefore **not necessary to make a further adjustment** for the difference between the CAA's decision for RP3 and the CMA determination on WACC. It proposes to set this adjustment to zero, compared to NERL proposed adjustment of +£6m. NERL included this adjustment, along with the adjustment to regulatory return and inflation, in order to re-align regulatory return with the CMA determination. On the basis that the CAA included a separate adjustment to reduce regulatory return back to the CMA level in establishing its efficient Determined Costs, this adjustment is no longer required.

- **Remove recovery for 2020 in the 2022 charge**: an adjustment was made in the 2022 unit rate to account for the difference between the CAA's decision for RP3 and the CMA determination for 2020. An adjustment needs to be made to make sure that this adjustment to the unit rate is not double counted in the efficient cost baseline. The CAA **agrees** with the approach taken by NERL with regard to this adjustment.

NERL response

We welcome the CAA's assessment of, and agreement to, most of the adjustments proposed by NERL as part of the cost reconciliation review; these are necessary to avoid interactions with the existing mechanisms in the price control conditions which serve to 'true up' certain cost items between forecast and actual over time.

We consider that the CAA appears to have miscalculated the adjustments relating to regulatory return, with the result that it has double counted and removed an additional £31m from the efficient cost baseline. This is a gross material error. We set out our reasoning below:

In arriving at its efficient Determined Costs for RP3 the CAA has included an adjustment that re-aligns regulatory return with the CMA determination. NERL agrees that this is appropriate so our plan already included two adjustments to achieve the same. The 'WACC uplift for CMA 2020 diff' adjustment has been excluded by the CAA but the 'Adjust regulatory return to NERL proposed return on TRS + impact of inflation' has been retained. We believe this has the impact of double counting the £31m associated with this adjustment. Table 6-3 below details how these adjustments interact with the level of regulatory return currently allowed for in the CAA's reconciliation of RP3.

Table 6-3

	Pricing level per IP	Proposer	Source (CAA IPs)	2020 £m	2021 £m	2022 £m	RP3 £m
Regulatory return per CMA	2020		Table 3.5	35	38	40	113
CPI per IP				1.00	1.03	1.10	
Regulatory return per CMA	Nominal			35	39	44	118
Regulatory return per RP3 reconciliation:							
Regulatory return per NERL's Financial Model	2020	NERL	Table 3.2	37	47	52	136
Regulatory return - adjustment back to CMA	2020	CAA	Table 3.5	-2	-9	-12	-23
Sub-total	2020			35	38	40	113
CPI per IP				1.00	1.03	1.10	
Sub-total converted to outturn	Nominal			35	39	44	118
Adjust regulatory return to NERL proposed return on TRS + impact of inflation	Nominal	NERL	Table 3.10	-9	-9	-13	-31
Regulatory return allowed	Nominal			26	30	31	87
Delta to CMA allowance	Nominal			-9	-9	-13	-31

6.9. Request of the CAA

We request that the CAA reassesses the specific items highlighted above, in light of the evidence and interpretation of data provided, and as a result adjusts its assessment of the efficient cost baseline for the 2020-22 period as follows:

- **Staff costs**: reinstate the £2m reduction attributed by CAA to voluntary salary reductions
- **Voluntary redundancy**: reinstate the £9m reduction attributed by CAA to an alternative scenario for renegotiating the existing redundancy agreement and then proceeding to VR on the basis of new terms, less favourable to employees
- **Financial restructuring costs**: reinstate the £6m reduction attributed by CAA to an alternative scenario of refinancing whilst maintaining the pre-existing Whole Business Securitisation structure
- **Other reconciliation adjustments**: reinstate the £31m reduction attributed by CAA to regulatory return on the traffic risk share debt and to the impact of inflation

In respect of capex, we request that the CAA reach a conclusion now, on the basis of the analysis and conclusions provided by its consultants, that NERL's capex during the majority of RP3 was not demonstrably inefficient or wasteful, thereby avoiding the risk of hindsight influencing any later assessment of capital efficiency.

7. Operating costs

7.1. Overview

Our key points in response to the CAA's Initial Proposals for operating costs are:

- **ATCO productivity**: there is no evidential basis for the proposed reduction in ATCOs in the latter part of the NR23 period. The combination of our planned supply of ATCOs and the new higher traffic forecast for NR23 means that we are now projecting higher productivity growth than the CAA was itself targeting.
- **Pay growth**: there is no basis for the proposed reductions in the projected pay awards.
- **Pay levels**: there is no basis for the proposed 'low case' reductions in pay levels, which the CAA argues are above market benchmarks. The CAA's evidence for this proposal is not robust. Based on a more comprehensive assessment of available evidence, NERL staff pay is not currently above market benchmarks, therefore no real terms reduction is justified.
- **Pensions**: NERL is aligned with the CAA on its objective of ensuring that pension costs are in a reasonable and efficient range, which we have achieved for NERL's NR23 Defined Benefit scheme costs as acknowledged by CAA's advisers. However, we do not agree with the CAA's proposals to reduce the Defined Benefit pension cost allowance even further within this efficient benchmark: these ignore relevant benchmarking information (notably the Pension Regulator's analysis on the single equivalent discount rate for large schemes) and the benefits of recent discount rate changes, and will introduce additional investment and covenant risk to the scheme which will increase costs to customers.
- **Inflation**: the CAA makes assertions without evidence that NERL can and should plan on absorbing several percentage points of the forecast step up in inflation in 2023 (compared to earlier forecasts) despite *average* inflation over NR23 being just c2%. This ill-defined and unjustified policy innovation risks undermining the inflation risk protection on which NERL and its customers rely for efficient financing and financial resilience.

Following the structure of the CAA's Initial Proposals, this Chapter addresses opex for the UKATS business. Discussion of all aspects of the Oceanic business is in the Oceanic Chapter 10.

7.2. ATCO Productivity trends

The CAA concludes that "on the basis of historical levels of productivity, the profile of traffic recovery and the planned implementation of technology transformation programmes during NR23, NERL should be able to achieve productivity growth of 1.5% year on year from 2025 onwards. This is the top end of the range proposed by our consultants Steer. … For both the

base and the low case, we have assumed 1.5% per annum from 2025 onwards. This reduces staff opex in NR23 compared with NERL's business plan by around £16 million".[55]

We consider that the CAA's proposals are not supported, on three main grounds:

- **Basis for productivity assessment:** the CAA claims that its proposal has been informed by historic performance and the technology programme but we do not see that it has taken these, or the other major drivers for ATCO productivity, into consideration
- **ATCO resource resilience levels:** a misinterpretation of the level of resilience in the ATCO resource requirement we submitted, and not supported by customers
- **Increase in traffic forecast:** new evidence about the higher level of traffic in NR23 than the CAA assumed in deriving its Initial Proposals. This increased traffic delivers a 4-6% improvement in productivity, far in excess of the CAA's 1.5% proposal.

Basis for productivity assessment

We do not agree that a simple ATCO-hour productivity metric (as defined as the number of composite flight hours per hour of ATCOs in operations) is an appropriate output measure because, as detailed in response to a CAA question about our productivity assumptions[56], this is highly dependent on the level of traffic growth projected, what enabling productivity technology has been deployed, and the average level of experience of the controller workforce (as it relates to holding multiple sector validations).

NERL has no control over traffic volumes and must plan operational resourcing at a level that will meet long term (not just short term) customer demand with sufficient resilience. This will naturally lead to lower productivity in periods of traffic reduction, stagnation, or lower growth than it does in periods of higher growth. Any comparisons to historic productivity levels need to be based on a like for like basis in this respect.

NERL's technology plan for NR23 does not include any deployments of productivity enhancing technology, instead the main focus is on replacing the legacy core system infrastructure as it reaches end of life. Further productivity tools are planned for NR28.

NERL's ATCO demographics have a bulge of controllers reaching retirement age during NR23. These experienced controllers are able to hold multiple sector validations increasing both their flexibility and productivity. During NR23 we will have a large influx of newly qualified trainees replacing the experienced controllers, who will start with just single validation, and reducing productivity accordingly.

There is no evidence that any of these factors were taken into account by the CAA in its proposals. In fact the CAA appears to have ignored these factors when we highlighted them in our response to the CAA's initial analysis on this topic[57], without justification or explanation.

[55] CAP2394, paragraphs 4.46 and 4.48
[56] CAA request for information 23 and 25 February 22, CAA ID 11
[57] NERL submission to CAA on Steer + Integra draft report, 21 April 2021

ATCO resourcing resilience levels

In coming to its proposal, the CAA noted that 60 additional ATCOs had already been included in our core plan for resilience. This assumption is, we believe, a misinterpretation of our plan.

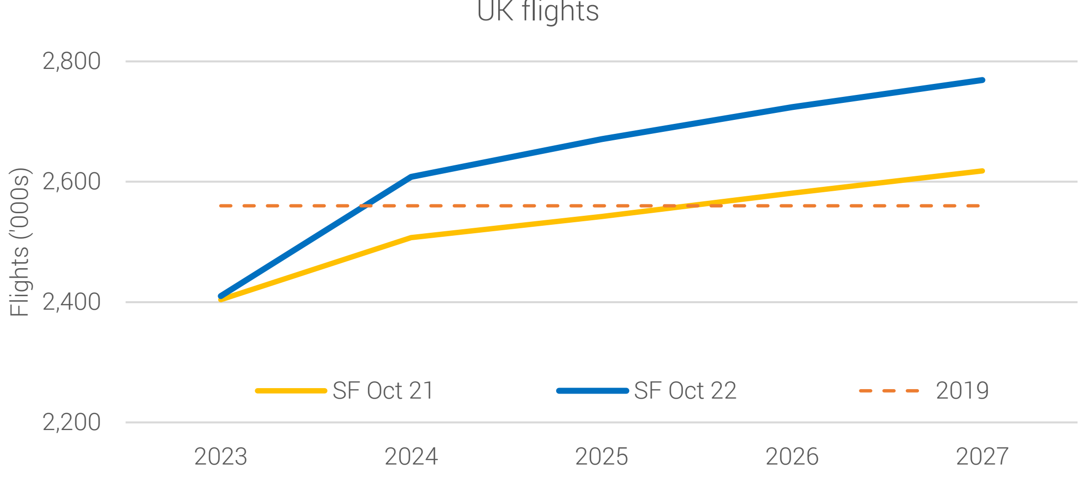
In our response to a CAA question following our submission, we confirmed that only 20 of the 75 additional ATCOs that our plan contained, above summer 2019 levels, were for resilience. The addition of these 20 ATCOs, on top of the 2019 staffing levels, in effect re-baselines our 2019 staffing levels to a new, more resilient starting point in light of the delay performance in certain sectors in 2019 for which NERL was found in breach of licence. The remaining 55 additional ATCOs were needed for traffic growth (based on STATFOR October 21 forecast which projected traffic volumes exceeding 2019 record levels in both 2026 and 2027).

As such, even if there had been no increase in forecast traffic volumes, the quantum of such an adjustment is unfounded. In addition, reductions to our operational staffing are not supported by our customers who then bear the risk for unforeseen traffic demand and presentation impacting day to day service quality and disrupting their flight operations.

Increase in traffic forecast from October 2021

The latest STATFOR October 22 base case forecast represents a 4-6% increase in demand per year over NR23, in comparison to STATFOR October 2021 used by the CAA in its Initial Proposals. The gap widens, from 4.0% in 2024 to 5.8% in 2027, as shown in Figure 7-1 below.

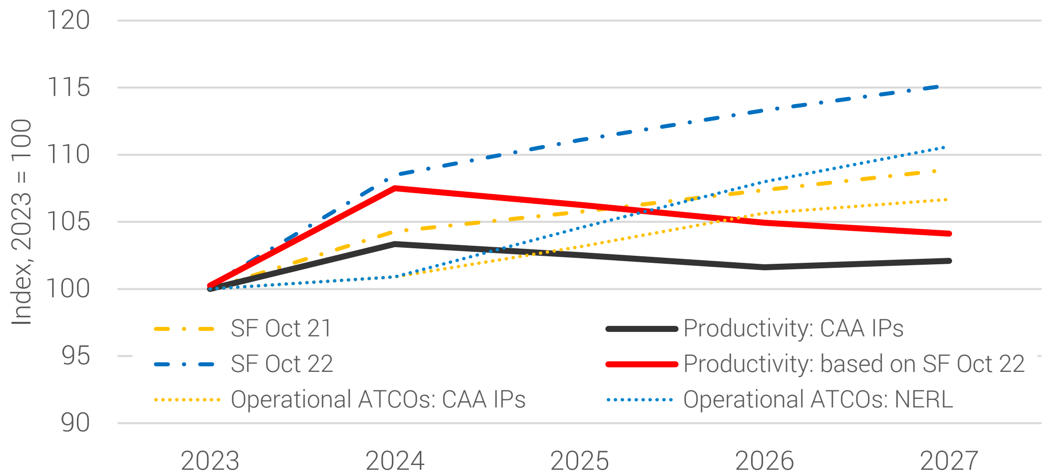
Figure 7-1



The CAA's Initial Proposals assumed a 1.5% annual increase in ATCO productivity (measured simply as UK FIR flights/operational ATCO) for each of three years 2025 to 2027, above that implied already by NERL's own planned level of operational resource and the October 2021 traffic forecast on which the NR23 business plan was based.

With no change in ATCO resourcing proposed by NERL, but handling the additional volume of traffic which is now forecast, we would deliver <u>more</u> productivity growth over the period than proposed by the CAA. This is illustrated in Figure 7-2 below. The black line shows the ATCO productivity trends implied by the 2021 traffic forecast and CAA proposals for ATCO resourcing, while the red line shows the productivity trend implied by the 2022 traffic forecast and NERL's NR23 plan ATCO resourcing.

Figure 7-2



Retaining this productivity adjustment alongside the higher traffic levels forecast would have no basis given productivity levels would (a) now be in excess of the CAA's proposal without any adjustment, and (b) be in excess of historic levels on which the CAA based its adjustment.

Conclusion

In conclusion, we propose that the CAA removes the proposed ATCO staff cut in recognition of the greater productivity which the operational workforce will need to deliver over NR23 to meet the new higher levels of traffic forecast.

7.3. Graduate recruitment and retention

CAA proposal

The CAA proposes a lower number of graduates required in NR23, on the grounds that the number of graduate roles planned for NR23 significantly exceeds rates of attrition modelled within the business. For both the base case and the low case the CAA has assumed 33 fewer graduates than in NERL's plan. This reduces staff opex in NR23 by around £3m compared with NERL's business plan.

NERL response

The investment in our Early Careers Talent is essential for both future skills and succession within NATS. To service our sustainability and ambition, it is vital that we identify the right capabilities. Our talent 'pipeline' will enable the growth of key domain expertise in skill shortage areas, such as engineering and cyber, as well as securing leadership high potential talent. Our current intake of graduate and industrial placement talent (43 in current year and 50 per annum in NR23) is modest compared to organisations of a similar size and operational complexity, and is broadly consistent with pre-pandemic recruitment (38 in 2019). Our ageing demographic creates a significant skills gap for our organisation increasing the importance, and volume required, to nurture and develop early careers talent.

We believe the CAA's proposals to reduce the graduate recruitment assumed in our plan may stem from a misunderstanding of employee attrition rates. We have seen that both our retirement profile and the widespread adoption of agile and remote working is increasing our turnover rates, creating a greater requirement for new recruits in excess of historic levels. We have 1951 non-operational staff at present of whom 143 left in the last 12 months. Abstracting from changes in staff numbers due to redundancies, termination, death, transfer for CAA, we

have 110 leavers arising from normal job turnover. This equates to a natural attrition rate of 5.64% for non-operational staff, which is substantially above the attrition rate of 1.6% which the CAA's consultants Steer estimated[58]. Therefore a graduate intake of 50 per annum (2.6% of the current non-operational staff total) is a moderate plan to fill those positions.

In addition, NERL has not planned for any increases in staff numbers relating to graduates progressing into other roles in NR23 so even if the CAA's assertions on scale were true then NERL would bear the cost risk for these staff.

In summary, the CAA's proposed cut to the graduate programme is not supported by the evidence and is based on a misunderstanding of the flow rates of graduates into our workforce and versus the natural movement of staff in the roles for which graduates are recruited.

7.4. Pay growth

CAA proposals

The CAA assumes slower wage growth in NR23 than forecast by NERL, particularly in the context of NERL's level of salaries relative to benchmarks, and also its assumptions about productivity increases in NR23. In the CAA base case, this results in a reduction of £11m in staff costs for NR23 as a whole.

NERL response

The CAA's 'base case' proposal derives from the Steer cost assessment study, which argued that pay increases [✂] are excessive given that the aviation industry is still recovering from the COVID-19 pandemic, inflation in the wider economy is running high, and NERL has not proposed any productivity improvements over NR23.

By focusing on a narrow time period and ignoring the specific characteristics of NERL's business and its workforce, the CAA mis-reads the available evidence about trends in NERL's pay relative to CPI, and about the levels and growth of operational productivity which NERL has delivered. The CAA must revisit its assessment in light of the analysis we commissioned from NERA in response to the CAA's Initial Proposals. A summary of the key points of NERA's study[59] is included below:

- Alignment to economy-wide earnings growth and productivity
- The implications of ATC industrial action
- Historic comparisons of average weekly earnings (AWE) and consumer price inflation (CPI)

Alignment to economy-wide earnings growth and productivity

In making this proposal, Steer assumes that NERL seeks to reflect, in each year, the productivity improvements achieved in that year and economy-wide conditions. If this were true, NERL's historical real-terms pay awards should vary from year to year in line with economy-wide pay growth.

[58] Steer (September 2022) paragraph 2.5.34
[59] NERA (December 2022) Response to the CAA Initial Proposal on Staff Costs at NR23

In practice, NERL's historical and projected real-terms pay awards differ from historical and projected economy-wide pay growth on a year-by-year basis. NERL's pay awards are less variable than economy-wide pay growth: NERL's pay awards have since 2016 been within the range of plus or minus 0.5% in real terms (measured against inflation in that year), whereas economy-wide pay growth is more variable.

It is unlikely that the discrepancy between NERL's pay awards and economy-wide pay growth could be driven by lower productivity growth among NERL staff than in the wider economy, given that the CAA reports that ATCO productivity improved by 1.75% per year on average over 2009-2019, compared to 1.4% per year for the UK economy as a whole over the same period[60].

NERL's pay strategy over the past decade has been to seek to smooth the impact of economy-wide changes in real-terms pay over different years. This is an efficient approach given NERL's specific circumstances, and one most likely to minimise costs for customers over the long term:

- First, demand for labour to deliver air traffic control services (as distinct from the demand for flights) is likely to be less sensitive to economic cycles than demand for labour in the wider economy (e.g. demand for labour in the retail and hospitality or manufacturing sectors). In this respect, air traffic control is likely to be similar to networked utilities such as electricity distribution networks, where studies[61] have shown that labour costs for electricity distribution networks do not move in line with economy-wide pay growth.
- Second, NERL's labour force has particularly strong bargaining power. The negotiated grades are heavily unionized, and the lead-time for NERL to train replacement staff at the negotiated grades is relatively long (particularly for safety-critical roles such as ATCOs and ATSAs). NERL staff have a revealed preference for predictable, CPI-linked pay growth. Imposing pay growth linked to economy-wide labour conditions would be challenging from a labour relations perspective and may expose NERL to the risk of industrial action.

[60] ONS UK Whole Economy: Productivity hours seasonally adjusted
[61] NERA (8 June 2021), Price Effects for the RIIO-ED2 Price Control Review, page 41

Impact of ATC industrial action

It should be recognised that the economic consequences of even relatively short-lasting industrial action would be severe. For example, the one-day strike by French air traffic control on 16 September 2022 resulted in 228 thousand minutes of delay, affecting over 17 thousand flights, and likely impacting 2.6 million passengers. Using standard parameters of delay costs[a], this one-day strike is estimated to have inflicted at least £24m costs on airlines and at least £31m on passengers. (This analysis focuses only on those flights which occurred and were delayed, and not those which were cancelled entirely). Above such economic impacts, there would be wider social and political consequences of any sustained campaign of industrial action by NERL operational staff.

This assessment of recent industrial action tallies with NERL's previous estimate, presented in its RP2 business plan[b], that a single day's disruption due to ATC industrial action in the UK would cost airlines c£50m. The Total Economic Value (TEV) to customers of proposals that significantly increase the risk of industrial action is very material, as demonstrated by the nine days of rail strikes in the UK thus far (up to end November) in 2022 and a further nine planned for December[c].

[a] EUROCONTROL Standard Inputs for Economic Analyses (2020), CAA Palamon report (2021)
[b] NERL RP2 Revised Business Plan (2015-2019) (October 2013) (page 32) and Appendix C (page 7)
[c] https://www.bbc.co.uk/news/business-63867226 (December 2022)

Historic comparisons of average weekly earnings (AWE) and consumer price inflation (CPI)

Over a *longer time horizon*, the cumulative growth implied by [✂] is broadly in line with the cumulative growth implied by average earnings growth. The long-term similarity between the two means that NERL's choice to adopt [✂] for pay awards does not systematically over- or under-compensate NERL staff as compared to the wider economy. The CAA's approach fails to take account of this longer term trend by overly focussing on evidence from a couple of years.

Further analysis and data supporting this section of our response is included the supporting study commissioned by NERL from NERA.

7.5. Pay levels

CAA proposals

The CAA's costs assessment work finds that pay for some NERL grades is above its estimates of the relevant market benchmarks. The CAA concludes that that it would thus be reasonable to assume slower wage growth in NR23 than forecast by NERL, particularly in the context of NERL's level of salaries relative to benchmarks, and also its assumptions about productivity increases in NR23. The CAA proposes in its low case that NERL's salaries reduce in NR23 to be more in line with its benchmarks. This results in low case reduction in opex of c£40m over NR23.

NERL response

The CAA's low case rests on a premise that NERL salaries are currently above benchmark salaries and should be reduced, in real terms, to bring them into line with benchmark salaries. The CAA and its consultants Steer rely on evidence to justify this premise that is not robust. Based on a more comprehensive assessment of the available evidence, NERL staff pay is not currently above market benchmarks and so no real terms reduction is justified.

The CAA's assessment and analysis are deficient in four areas:

- **Choice of industry sector and time periods** for benchmark analysis – NERL's highly qualified and specialised staff cannot reasonably be compared against high volume, low skill workforces (such as postal delivery and warehouse staff) included in the Transport & Storage sector comparator
- **Choice of upper quartile occupations** and Interpretation of findings – Steer's choices have no rationale and alternative choices show the opposite conclusion
- **Choice of pay variable** – Steer uses cruder annual pay as opposed to more reliable hourly pay, the results of which change the conclusions materially
- **Simplistic benchmarks** used by Steer ignore much relevant data and are thus, by design and in practice, less informative and useful than more sophisticated econometric models provided by NERA
- Misinterpretation, and ignoring, of results of **benchmarking against other ANSPs**, which demonstrate that NERL ATCO pay is within the range of ATCO pay for international comparators, and thus there is no case to mandate any relative reduction

We address each of these points in turn.

Choice of sector and time period

The CAA chooses the Transport & Storage sector as the benchmark for NERL's wages. This sector includes Land transport & transport via pipelines; Water transport; Air transport; Warehousing & support activities for transportation; and Postal & courier activities.

Air transport represents only one of five components of Transport & Storage and the other components are unrepresentative of the work that NERL staff do.

In addition, the CAA's results are highly sensitive to the time period selected. Steer offers no explanation for its choice of the 2003-2019 period for its 'low % change' case. Its analysis from 2015 to 2021 shows the opposite result of average weekly earnings (AWE) in the Transport & Storage sector outperforming NERL wages.

Steer assumes that any growth in NERL pay above growth in AWE Transport & Storage must perforce be excessive and unjustified. Steer offers no evidence to support this position. There are several factors which would point to the opposite conclusion:

- growth in air traffic over the period that would have increased demand for air traffic control staff and therefore led to real-terms pay growth, justified by market supply and demand
- substantial ATCO productivity improvements for much of this period, with productivity growing by 1.75% per year on average over 2009-2019, which may not have been replicated in the sector at large
- differences in pay growth between different parts of the economy are to be expected, given the differing supply and demand conditions prevailing across sectors and over time

Further analysis and data supporting this section of our response is included the supporting study commissioned by NERL from NERA.

Choice of upper quartile comparators

The specific target Steer sets is sensitive to its choice to use the upper quartile of comparator occupations as the summary statistic to set the target (rather than e.g. the maximum) as the basis of its analysis. Steer does not justify this choice. The supporting analysis for NERL by NERA shows that varying this factor changes the target substantially and that Steer's particular choices understate benchmark compensation.

Steer presents statistics showing that NERL pay for each staff grade lies above the upper quartile of pay across its comparators for that staff grade. Steer suggests that this provides evidence that NERL staff are paid above market rates. In particular, NERL staff are paid between 10% and 52% above the upper quartile across comparators, from which Steer conclude that NERL staff are paid above its measure of 'market rates' by 10% to 52%.

Steer's use of the upper quartile is inherently flawed insofar as it implies that NERL staff must be paid less than the upper end of the range of comparator occupations. Given the degree of training and specialisation of NERL staff, it is likely that their market pay would be towards or above the upper end of the range implied by comparator occupations. For example, ATCOs are more comparable to pilots than to air transport operatives, a category which includes baggage and cargo handlers and refuelling staff. Mean pilot pay is at the upper end of the range pay for ATCO comparator occupations and pay for experienced pilots is likely to be well above that mean.

NERA examined the sensitivity of NERL's target to the maximum of the range of values for comparator occupations. For ATCO staff, it finds that using the maximum halves the target correction. Across all staff groups NERA finds that Steer's results, based on the upper quartile and annual gross pay, are at the upper end of the range of plausible comparisons between pay at NERL and in each comparator group. This suggests that Steer's targets, even on its own terms, are likely to be overstated.

NERA's analysis demonstrates that there is similar variation at the other end of the scale, between the profession with the lowest mean pay in each comparator group and the lower quartile of pay in the comparator group. In other words, if Steer were correct that staff at NERL were overpaid, the profession with the lowest mean pay would need to be systematically underpaid by Steer's own standard. There is no reason to believe that the occupation with the lowest mean pay in each comparator group is systematically underpaid given the competitive labour markets in which those staff operate.

This striking similarity between apparent "overpayment" at NERL and "underpayment" at the lowest paid comparator leads to one conclusion: there is a normal rate of variation across professions which does not indicate problematic under or overpayment and that NERL's pay does not stand out unusually from the comparator professions. NERA's analysis considers and demonstrates that other potential conclusions which might be drawn from this two-sided variation are not supported.

Choice of pay variable

Steer's targeted real-terms pay corrections for NERL staff are based on calculations using annual pay, rather than any other definition of pay (e.g. hourly pay).

NERA's analysis for NERL uses hourly pay, as this accounts for differences in hours worked in specific job roles. For ATSAs and ATCEs, using hourly pay instead of annual pay reduces the gap with the comparator group by 10 percentage points.

Simplistic benchmark models

The comparison of means conducted by Steer only considers one determinant of pay: occupation. In practice, there are many other factors that determine pay. Educational qualifications, experience, and tenure in role all affect an individual's pay. Location also matters, with workers in cities such as London and the South East typically able to command a premium. Other characteristics such as whether pay is subject to union agreement also affect pay.

The wage equation analysis that NERA conducted for NERL accounts for all of these other determinants of pay. It better reflects the pay that NERL staff could command if they were to seek employment elsewhere than does Steer's simple comparison of mean wages by occupation. The difference in explanatory power between the two approaches is very material. NERA found that relying on occupation explained about a quarter of the total variation in pay which was explained by NERA's wage equations that account for other factors such as education and geographical location. Not only do the wage equations using only occupation codes explain less of the variation in pay than the wage equations including more determinants, but they also predict systematically lower pay for NERL staff. So Steer's simplistic approach leads to biased results.

Steer does not dispute the validity of the wage equation approach used by NERA. Instead, Steer misconstrues NERA's results and draws erroneous conclusions.

For ATCO, MSG and STAR pay, Steer indicates that NERA's analysis "is less conclusive". This is simply an error of interpretation by Steer. For ATCO, MSG and STAR pay, NERA's analysis is conclusive, clearly showing that pay for these grades lies within a reasonable range of candidate market benchmarks, once determinants of pay other than occupational code are accounted for. There is therefore no basis for Steer's low case recommendation for pay reductions.

For ATSAs and ATCEs, whose pay sits above the range estimated from the wage equations, Steer dismisses the evidence put forward in NERA's report in explaining this result as "qualitative reasons". Steer therefore concludes that the pay for these staff categories is "above market rates". Steer's characterisation of the NERA evidence as being exclusively "qualitative reasons" is misleading. There is clear quantitative evidence to suggest that ATCE pay is in fact in line with market benchmarks, once the non-reporting of bonuses in the benchmarking dataset is taken into account, and quantitative evidence from the medical profession that shift workers, like ATSAs, command a premium, also not captured in the benchmarking dataset.

Steer implicitly makes the erroneous assumption that any evidence to explain ATCE and ATSA pay that is not quantitative can simply be dismissed and warrants no consideration or engagement by Steer or the CAA. An assessment of pay is incomplete if it does not include a qualitative discussion of factors that are either inherently difficult to quantify or not quantifiable due to data limitations in that particular quantitative exercise. These other factors include illiquid structure of the market for NERL specialist staff, such as ATCEs, which requires NERL to offer sufficiently high pay to support retention; and compensation for the additional responsibility arising from holding a safety-critical role. This is particularly salient for ATSAs, who are required for the opening and safe use of airspace.

Benchmarking to other ANSPs

The CAA appears to ignore the findings of Steer's own benchmarking of NERL ATCO pay against those of other ANSPs. When NERA applies the same upper quartile benchmarking that Steer does for its benchmarking against comparator occupations, it finds that NERL's ATCO staff cost is actually below the upper quartile, providing evidence that NERL is not overpaying its ATCO staff relative to other countries. However, Steer appears to ignore this evidence in proposing its top-down corrections to NERL staff pay, instead focusing on its benchmarking relative to the wider UK economy and other occupations.

While comparisons across international labour markets have their own limitations, given Steer's difficulty in finding appropriate comparators in the UK, we are confused as to why this data source has been completely ignored.

Conclusion

The two most robust pieces of benchmarking evidence available are NERA's wage equation analysis, which benchmarks NERL staff pay against pay for UK workers with similar characteristics, and Steer's ANSP comparison, which benchmarks NERL ATCO pay against ATCO pay in other countries. Both pieces of analysis show that NERL staff pay is in line with benchmarks. The other two available pieces of analysis (historical benchmarking versus Transport sector wages and 2019 benchmarking across the whole economy) are not robust and should not be relied upon. The CAA should re-consider the data available to inform an intelligent approach to wage benchmarking, and apply best econometric practice to re-estimate and re-evaluate. Not to do so is essentially ignoring relevant data and the conclusions that could reasonably be drawn from them.

Overall, the evidence shows that NERL staff pay is not above market benchmark pay, and that the underlying premise of the CAA's low case (that NERL staff pay needs to be reduced in real terms to bring it in line with market benchmark pay) is false. The CAA therefore has no basis for applying its low case.

7.6. Pension costs

CAA proposals

The CAA has estimated two cases for the efficient cost allowances for pension costs based around Defined Benefit (DB) pension assumptions, DC pension rates, and the mechanical impact of its proposals for ATCO productivity and staff wage rates on pension costs:

- **Base case**, which informs the CAA's proposals, that reduces projected pension contributions in NR23 by adjusting (DB) costs downward from 2025 (£95m) based on a Government Actuary's Department (GAD) estimate of an 85th percentile discount rate assumption, a lower Defined Contribution (DC) scheme contribution rate of 12% for new joiners from 2024 (£1m), and applying the CAA's base case staff costs efficiencies to our DB and DC scheme projections (£10m).
- **Low case**, which reflects the base case discount rate assumption to DB scheme costs immediately from 2023 onwards (£157m), assumes the lower DC scheme contribution rate for new joiners from 2024 (£1m), and applies the CAA's low case staff cost efficiencies to our DB and DC scheme projections (£20m).

Both these cases are also applied for the Oceanic business.

The CAA offers the following justifications for its proposals:

- The CAA asked GAD to review the DB pension costs. GAD found the DB pension costs to be in a reasonable and efficient range of pension costs.
- However, the CAA believes NERL has not taken full account of regulatory protections in place and that costs were not appropriately aligned with relevant market benchmarks.
- With respect to the DB scheme, the CAA believes there may be opportunities for future valuations with a discount rate around the GAD mid-bound, reflecting assumptions which are more consistent with the 85th percentile of DB schemes.
- For the DC scheme, that there is evidence that the contribution rate, in particular for new hires, could reasonably be reduced without putting NERL in a disadvantageous position relative to comparator organisations in terms of attracting staff.
- Pension costs should be adjusted to reflect the efficient range proposed for staff costs more generally.

7.6.1. Defined benefit scheme costs

NERL response

NERL is aligned with the CAA on its objective of ensuring that pension costs are in a reasonable and efficient range (achieved for NERL's NR23 costs and acknowledged by GAD – see below). However, we do not agree with the CAA's proposals, which seem to ignore relevant benchmarking information and the benefits of recent discount rate changes, and would introduce additional investment and covenant risk to the scheme which will increase costs to customers.

In particular we draw CAA's attention to the following errors in judgement:

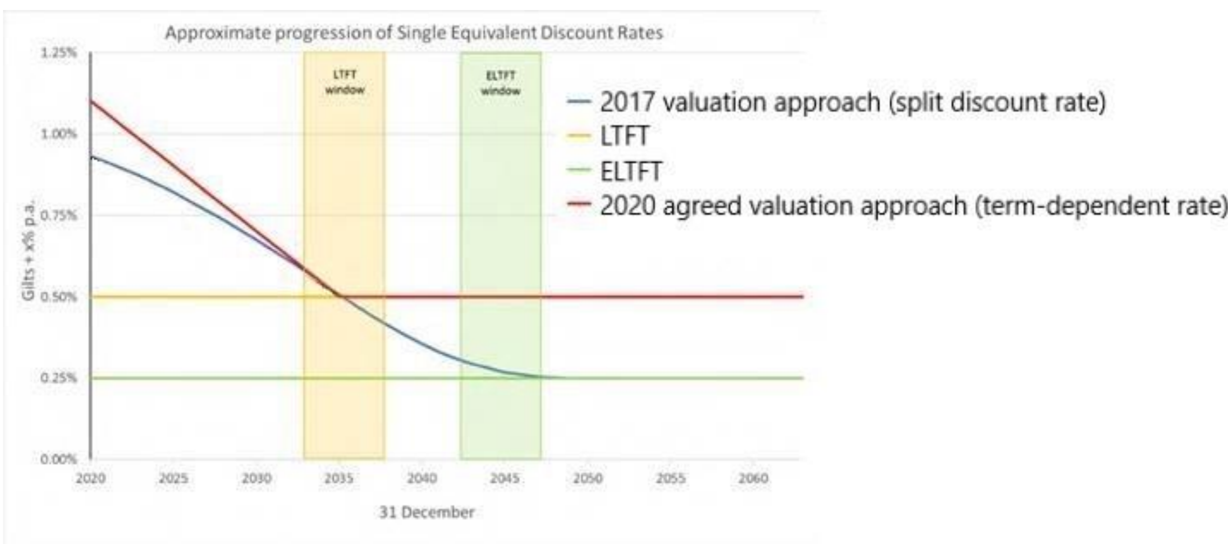
- Savings generated by agreeing the **current discount rate structure** with trustees that could potentially be undone by these proposals
- **Regulatory protections have already been taken into account** by trustees in their assumptions
- **Inconsistencies in GAD benchmarking and CAA's conclusions** with respect to the range of efficient assumptions
- **Errors in benchmarking with similarly sized schemes** which, when corrected drastically change the conclusions
- **Focussing on the discount rate assumption** to the exclusion of all other related components
- **Infeasibility of Low case scenario** proposals that imply changes to already agreed contractual contribution schedules
- **Implications for the trustees perception of the strength of the covenant** and as a result length of deficit repair recovery period and margins of prudence

We summarise each of these points in turn below.

Current discount rate structure

The outcome of the 2020 valuation of the DB scheme, where NERL worked with trustees to change the discount rate structure, in isolation reduced the deficit by £280m (other measures contributed a further £80m reduction). GAD's report[62] does not acknowledge that the new discount rate structure resulted in an increase to the Single Equivalent Discount Rate (SEDR) relative to gilts from 0.9% per annum to 1.1% per annum, which is illustrated in Figure 7-3 below, previously provided to GAD.

Figure 7-3



In addition, the trustees moved away from their gilts plus 0.25% per annum long term out performance assumption (LTFT) on the discount rate to gilts plus 0.5% per annum, after robust negotiation and specifically in recognition of the CAA's Regulatory Policy Statement (RPS) on pensions.

The result of this was to realise significant cost benefits for customers, estimated at a further £400m over the longer term (estimated deficit of c£170m as opposed to £600m on the 2017 valuation basis). The benefit of these actions and reforms made to the DB scheme since 2009 has avoided cost of c£1.5bn since the price control starting in 2011. These outcomes demonstrate NERL's commercially minded approach to mitigating the burden of pension costs on airspace users through constructive challenge and agreement with the trustees. The CAA's proposals to force the trustees to accept other generic and arbitrary assumptions that act directly against the trustees' fiduciary duties are an unnecessary, unwelcome, and erroneous action.

Account has been taken of regulatory protections

The CAA's statement that NERL and trustees have not taken full account of regulatory protections in place and that costs were not appropriately aligned with relevant market benchmarks is a mistake of fact.

[62] GAD (June 2022) Civil Aviation Authority - Analysis of pension costs for NATS (En Route) plc (hereafter referred to as GAD (June 2022))

As part of each valuation the Trustee assesses the strength of NERL's covenant, with the help of a specialist covenant advisor Penfida. This assessment, which is used to set the valuation assumptions including the discount rate, already takes into account the full range of regulatory protections in place, including traffic risk sharing and pass-through arrangements relating to capex and pension costs as well as the CAA's 2020 RPS.

Inconsistencies in GAD benchmarking and CAA's conclusions

We support the CAA's use of benchmarking as a regulatory tool where comparable independent data is available. Where this is not the case, we believe the data should be calibrated appropriately to ensure comparability. In any case, where such benchmarking concludes that costs are within an acceptable range (that range being necessary to cover the spectrum of possible outcomes given the approximations used in the benchmarking) the CAA should not seek to identify a specific target level of inefficiency within that range as being the single point of efficient outcomes.

GAD considered that for schemes with a similar investment strategy, strong employer covenant and relative immaturity, it expected the funding strategy to be broadly between 70th and 95th percentile of DB schemes. GAD states that the NATS scheme is within this range at the 75th percentile, thereby confirming that costs are within a reasonable and efficient range (which is the test specified in the RPS against which the CAA would assess whether such costs are allowed to be recovered through regulated charges). In addition, GAD estimates a range of pension costs that might be considered reasonable and efficient in comparison with similar DB schemes. GAD's overall conclusion is that, in general, the assumptions adopted for the 2020 funding valuation of the NATS Section are within a broadly reasonable range compared to wider practice given the investment strategy adopted by the NATS Section and the assessed employer covenant strength[63]. However, the CAA has determined, on the contrary, that these assumptions are inefficient.

The most financially material assumption underlying DB pension costs is the discount rate. GAD estimated that the single equivalent discount rate assumed by the DB scheme is around 1.1% a year above gilts, which is higher than the average rate adopted by UK DB schemes of around 0.8% a year above gilts. GAD states that this could indicate slightly more investment risk and reliance on the strength of the covenant than a typical scheme. It could also reflect the relative immaturity of the NATS scheme, which would justify a higher discount rate all other things being equal compared to a less immature scheme[64]. This statement is relevant evidence in assessing the CAA's Initial Proposals.

Errors in benchmarking with similarly sized schemes

Mercer, NERL's advisors, do not consider GAD's benchmark data to be representative of DB schemes of comparable size. As a result, the upper bound of GAD's reasonable and efficient range as well as the mid-point is skewed. GAD has used the Pensions Regulator's (TPR) dataset which comprises 70% small schemes with fewer than 500 members. By comparison, in 2020, the NATS section of the CAAPS scheme had 5,659 members. Mercer note that GAD have not considered that the same TPR dataset shows the mean discount rate for large schemes to be

[63] GAD (June 2022) paragraph 1.26
[64] GAD (June 2022) paragraph 1.25

gilts plus 0.506% per annum compared to gilts plus 0.735% per annum for the dataset as a whole, i.e. around 0.2 percentage points per annum lower[65] as shown in Table 7-1 below.

Table 7-1 Average outperformance of the nominal SEDR over nominal 20-year UK gilts by scheme characteristics

	Mean percentage
All schemes	0.735
Size by number of members	
Fewer than 100 members	0.731
100 to fewer than 500 members	0.826
500 to fewer than 1,000 members	0.644
1,000 to fewer than 5,000 members	0.687
5,000 members or more	0.506

Therefore, the DB scheme's discount rate assumption should be considered as broadly 0.5% higher than comparators (rather than the 0.3% per annum inferred by GAD). This reflects the strong regulatory protections afforded to NERL and suggests that NERL's position at the 75th percentile of the whole dataset is much closer to the mid bound of a reasonable and efficient range for schemes of its size. Further, this supports Mercer's view that the 95th percentile is an extreme outcome that is beyond an upper bound for a reasonable range for the NERL scheme.

Specific focus on the discount rate assumption

Aside from concerns with the comparability of GAD's benchmarking, we are concerned by the singular focus on a discount rate assumption in the CAA's proposals and its wider implications for investment strategy and funding volatility. As GAD states in its report, "the discount rate can be thought of as corresponding to an assumed rate of return on assets. A higher discount rate (or assumed rate of return) means that the scheme's assets are expected to generate higher investment returns and therefore the scheme needs to hold less assets now in order to meet its liabilities, its funding level is higher, and its standard contribution rate is lower"[66].

In light of this, alongside GAD's conclusion that the DB scheme's investment strategy "appears reasonable and is broadly consistent with a typical private sector DB scheme of similar maturity"[67], it is not clear whether the CAA is indicating that trustees should aim to adjust the investment strategy in favour of higher asset returns. If this is the CAA's intention, this has wider implications for investment risk and funding volatility. We do not consider it to be in the interests of customers for the scheme to adopt a higher risk investment strategy, with greater risk of a large deficit developing and additional contributions being required. Wt believe that consumers value more certainty and lower cost risk.

Such an approach would also be counter to the general direction of travel we are seeing from the UK pensions industry and messages from the Pensions Regulator. GAD's report to the CAA was concluded in June 2022; since then, the Department for Work and Pensions has consulted on

[65] Scheme funding analysis 2021 annex, table 4.4
[66] GAD (June 2022) Appendix F
[67] GAD (June 2022) paragraph 5.17

draft Regulations which require DB scheme funding and investment strategies to focus on long-term planning and risk management. Mercer believe that the implications of these proposals will lead many DB schemes, which do not benefit from strong regulatory protections like NERL, having to de-risk their pension scheme and adopt lower discount rates. If the draft Department for Work and Pensions Regulations become law, then we have concerns about the extent to which the DB scheme Trustees will be able to increase the level of investment risk (and the discount rate to the 85th percentile).

Finally, as noted above, the CAA states in proposals that it stands by its RPS on pension costs. The RPS recognises that pension costs should be assessed by the trustees using actuarial methods on the basis of reasonable and prudent assumptions in line with national law and current best practice, taking account of the strength of the employer covenant, the interest of airspace users and CAA's commitment to fund reasonable and efficiently incurred pension costs. This is the basis on which the 2020 valuation was agreed. The RPS does not reference anything about the CAA setting specific actuarial valuation parameters.

Infeasibility of 'low case' proposals

We acknowledge the CAA's statement that it proposes 'base case' pension cost allowances which allow a glide path from NERL's actual costs to these lower pension cost allowances based on the date when contributions could be revised following the next pensions valuation, rather than a reduction from the start of NR23, and that the contribution rates determined in the 2020 valuation will continue to apply for 2023 and 2024. For the reasons identified above we do not believe that these proposals are justified.

Even less justifiable is the 'low case' in light of GAD's report, the CAA's RPS and given NERL's commitments already made to DB scheme trustees. We expect that five monthly contributions will have been paid even before the CAA's final decision on the price control, and significantly more would continue to be paid before any new valuation could be completed and contributions renegotiated with the Trustees, the existing schedule of which is contractually binding. On this basis, CAA's 'low case' proposals are naive and impossible to effect.

Implications for the strength of the covenant

The apparent singular targeting of the discount rate valuation assumption could be interpreted by stakeholders as a sign that the CAA believes that more investment risk could be taken by the DB scheme, with implications for funding volatility and potential for larger deficits requiring higher contributions and more cost for customers.

In addition, if the intent of the CAA's proposals is to prevent any pension costs, which are above its projections because of reasons of the selected discount rate, from being subject to pension pass through mechanism then there is a very significant risk that the trustees will assess this as a material weakening of the pension pass through arrangement, in contradiction to the recent RPS, with a corresponding reduction in the strength of the covenant. This would likely lead to increases in pension costs in the short term as recovery periods and margins of prudence would be re-assessed and with that a request of NERL to pay higher or accelerated contributions following the 2023 valuation. This would be at variance with the direction of travel of recent years, endorsed by the CAA through its RPS, which has sought to ensure that regulatory protections reduce the costs of the scheme.

7.6.2. Defined contribution scheme

We acknowledge the CAA's agreement to the recovery of costs for the Defined Contribution (DC) scheme put in place as a condition of closing the DB scheme to new entrants in 2009. As GAD notes, the contribution rate for this scheme is significantly lower than the equivalent DB scheme contributions that it replaced[68]. We note the glide path proposed by the CAA for establishing a new DC scheme once the memorandum of understanding put in place at the closure of the DB scheme expires on 31 December 2023, with a reduced level of cost assumed for new joiners from 2024.

The objective of NERL's reward policy is to balance cost efficiency for customers with an appropriate benefits package that ensures NERL is able to compete effectively in attracting the resources necessary to support operational service and investment plans. Obtaining benchmarking data for DC costs is challenging, with low levels of transparency by reference companies and ANSPs in particular, and with different mechanisms for remunerating pensions such as through European social security contributions which mask the true employer pension cost. However, we are concerned that the combination of specific reductions in DC contribution rates on top of efficiency adjustments to staff costs generally, which curtails investment in staffing, reduces NERL's capacity to provide a total reward package attractive to new staff necessary to meet the wider staffing challenges NERL faces in NR23 and into NR28. It does not appear that the CAA has looked at its DC proposals in the context of other (in our view unjustified) adjustments it is seeking to make to staff costs.

7.6.3. Pension cash alternative

We agree with the CAA's conclusion that PCA costs, which represent a significant saving on those of the DB scheme, will probably decline over NR23 as staff reach retirement, although this will be mostly dictated by individual decisions and government pensions tax policy which, if changed, could materially change the level of DB opt outs to PCA.

We note that the CAA did not wish to include transfer costs from DB pension to pension cash alternative (PCA) in the pension pass-through arrangements, as it does not consider there is a clear customer benefit from making this change. We think the CAA has misunderstood NERL's proposal. NERL passes back to airspace users the savings which arise from staff in the DB scheme at the start of a price control period who subsequently transfer out in favour of PCA during the period. This saving arises from unforeseen staff behaviour and not from financial market conditions. Nevertheless, NERL has been and is including the offsetting (but lower) PCA costs which arise from the transfer in the pass-through calculation, thereby passing the net saving to airspace users. NERL's proposal was for the CAA to formalise this in the RPS.

If the CAA's intention was to pass the gross saving of people exiting the DB scheme to customers but not provide any allowances to NERL to fund the alternative PCA costs then NERL would have no choice but to remove the PCA option for anyone not already transferred out, foregoing any transfer saving for customers, in order to avoid being stranded with unremunerated pension costs. In any event, unless instructed otherwise by the CAA, NERL will continue to pass on this net saving to customers.

[68] GAD (June 2022) paragraph 1.28

7.6.4. Conclusions

In conclusion we do not agree with the CAA's proposals on pension costs which, for DB pensions in particular, will introduce additional investment and covenant risk which will go to higher prices to be borne by customers. The CAA needs to ensure that there are no disincentives to NERL in securing transfers from higher cost DB arrangements to lower cost PCA pensions arrangements and recognise the cost savings that the existing DC scheme has delivered against those same higher DB pension costs when it was implemented.

CAA could elect to make different assumptions underlying the DB pensions cost projections for NR23, for example based upon its own view about financial market factors affecting future pension valuations. If it were to do so, though, it should be clear that if these assumptions were not borne out in actuality and costs were subsequently assessed to be within a reasonable and efficient range, then they would continue to be subject to pension pass-through arrangements.

All of these points apply equally to the adjustments applied by CAA on the same basis for the Oceanic business.

7.7. Non-staff opex

CAA proposal

The CAA identifies a number of areas on non-staff opex where it considers that the efficient costs should be set below the cost levels in NERL's business plan:

- asset management costs, both for new and legacy systems
- inclusion of CAA fees within NERL's Determined Cost base, which will no longer be the case for NR23
- increases in DB pension management costs
- missing opex efficiencies resulting from RP2 capex
- increases in UTM development costs
- non-staff costs relating to interactions with CAA proposals for staff cost adjustments

We address each of these in turn below[69].

7.7.1. Asset Management Costs

CAA proposal

The CAA's consultants Steer suggested that capex across NR23 could be reconfigured to accelerate the realisation of planned legacy escape, and thereby reduce legacy systems asset management costs. Steer estimated that the 'stepwise legacy escape scenario' could realise an 18% (£20m) saving in legacy systems asset management costs over NR23 without needing to increase total capex over the regulatory period.

[69] The CAA has confirmed paragraph 4.99 is incorrect and should not include a reduction for CAA fees but should include a reduction for DB pension management costs (£3.3m) and non-staff related to interactions with staff cost adjustments (£1.6m)

Based on the CAA's own assessment of NERL's plan, it has not been able to adopt Steer's 'stepwise' legacy escape profile as part of its assumptions, and therefore has not included the £20m of asset management savings identified by Steer in its forecasts.

In light of the re-planning of the DP En Route programme, the CAA observes that delays in delivery of capex programmes could be inefficient and, where this is the case, customers should not be paying higher costs (capex or opex). The CAA will review these matters again for its final decision, including whether it should adjust asset management costs to reflect the efficient delivery of the wider programme. It will also carry out a full review of the DP En Route programme once it is complete, to establish whether NERL delivered it in an efficient way.

NERL response

As noted in our response to the CAA's assessment of our capex plan, we are pleased that Steer identified technical transformation of our operational services as the strategic priority for investment in NR23. We have considered and tested the value of our technical transformation a number of times with the CAA and customers.

The Steer 'stepwise legacy escape scenario' was based on a number of assumptions, notably that it would be possible to increase NERL's capacity to change, and to restore this capacity at least to pre-COVID-19 levels; to bring the iTEC v3 implementation earlier; and to transition lower airspace operations to iTEC v2, as deployed for en route operations.

We consider that the Steer scenario is not feasible because these underpinning assumptions are not supported by evidence:

- Expected delivery capacity of the portfolio in NR23: we have been clear in our proposal of the need to retain a balance of investment between the service we provide now and the investment we make for our future service. We are seeking opportunities to increase our delivery capacity through NR23. Any such feasible increase in capacity would be unlikely to meet the profile required by the Steer proposed scenario

- Development and implementation of iTEC v3 is uncertain, and also dependent on the decisions of iTEC collaboration partners. It is thus not reasonable to assume that it can be implemented to an accelerated timetable in the UK

- Complexity: the Steer scenario assumes iTEC v2 could be used in lower airspace. This is not feasible - we have always set out that we would expect either to develop an interim product (as we considered in the original RP3 plan) or to use the iTEC v3 product

- Impact of change on the operation: this factor was not taken into account by Steer. There is a limit to the rate and scale of change the operation can accept. The operation in NR23 is recovering from low traffic levels and there is a finite amount of change that can be safely implemented whilst also maintaining service delivery

With regard to the rephasing of DP En Route, this will require no change to the opex costs for our current systems and new systems (dual running), as we set out in our NR23 Business Plan. This is because:

- The costs for maintenance and support of the new cloud-based infrastructure are already being incurred and were planned in our NR23 submission. This position has not changed

- Maintenance for our current systems will continue as planned through NR23 and nothing in the changed DP En Route plan affects these. This is particularly true given that the revised portfolio protects our capital investment in these systems
- Our NR23 plan assumes that support costs for the new Main Voice System and Second Voice System broadly replace existing costs of supporting our legacy voice systems

Our planning assumption remains that we will still be able to deliver legacy escape in mid to late NR28. The concurrent activity in the iTEC collaboration during NR23 to develop v3 will reduce the risk of availability of this advanced flight data processing (FDP) system for use in NR28. Separately, we will also take a modular, progressive approach to begin the transition of our services from our current operational systems to the new architecture once it is available in NR28.

The CAA's suggestion, that our proposed opex requirement could be adjusted downwards as a consequence of delays in the investment portfolio, is not supported by evidence. Imposing a reduction in opex on these grounds would assume that our delivery of the investment portfolio is inefficient based solely on rephasing of plans. There has been no evidence presented by the CAA, its consultants, or the Independent Reviewer that this is the case. There is an incentive mechanism within the Licence to assess *ex post* the efficiency of capex against established criteria for Demonstrably Inefficient or Wasteful Expenditure, with consultation so that stakeholders have a fair opportunity to present evidence and make representations. To make an adjustment now to asset management opex on the basis of an untested hypothesis, and without following the discipline of the DIWE assessment route, would not only pre-judge any assessment but also create a position in which NERL potentially faces 'double jeopardy' for the same issue.

By opening up this possibility, the CAA appears to be moving contrary to the clear conclusions of the CMA's Final Report that the CAA should not introduce a delivery incentive[70]. Imposing a penalty as a consequence of delay to a planned delivery is indicative of a type of 'delivery incentive' which would run counter to the CMA decision and also introduce an additional one-sided penalty-only incentive upon NERL without explicit consultation.

7.7.2. CAA fees

CAA proposal

Following the CAA's Statutory Charges consultation, in relation to meeting the cost of its economic regulation activities for ATS, it concluded that the beneficiaries of the CAA's regulation of NERL should meet the costs of regulation directly. Consistent with its intention to implement this change from the start of NR23, the CAA has issued NERL with a licence fee that only covers until December 2022, rather than the full financial year to March 2023. On this basis, it is not appropriate to include these costs in its projections of NERL's opex.

NERL response

We agree with the approach adopted by the CAA for the CAA fees to be met directly through a specific item as part of the overall en route charge, rather than flowing through NERL's

[70] Competition & Markets Authority (2020) NATS (en Route) Plc/ CAA Regulatory Appeal Final Report, paragraph 9.97

Determined Costs base. Now this has been confirmed by CAA, this should result in a reduction to NERL operating costs of c£5.2m.

The CAA has confirmed the incorrect reference, in paragraph 4.99, to a reduction in CAA fees being part of the non-staff reductions listed in that section and in Table 4.6. Instead, CAA fees have been deducted from the NERL BP baseline prior to applying any of the reductions set out in the Initial Proposals.

We also wish to emphasise that the CAA fees referred to above are the CAA fees in respect to the economic regulation of NERL. NERL is also subject to other statutory charges, for example En Route Air Traffic Control Services Regulation, cyber programme (Security of Networks & Information Systems), ATCO licensing, which will continue to be paid by NERL.

Our initial NR23 business plan assumed that these other CAA fees would increase in line with CPI inflation, however, the statutory charges FY22/23 consultation document CAP2282 revealed the CAA's intent to increase its charges significantly above the rate of inflation in FY23/24, primarily due to the recovery of costs relating to additional activity previously funded by the DfT. These are summarised as regulatory rulemaking (+1.3%); future regulatory environment (+3.7%); and environmental sustainability (+0.6%). These additional charges are permanent additions and will follow through to each year of the NR23 period, accumulating to an additional £1m (2020 prices) by 2027, compared to our assumptions in our business plan submission.

An uplift of £1m to non-staff opex is also therefore required to meet these statutory charges set out by the CAA for NERL to bear.

7.7.3. DB Pension Management Costs

CAA proposal

The CAA proposes not to allow for the real increases in DB pension management costs above 2022 levels, on the grounds that NERL has proposed significant increases in DB pension management costs in NR23 which do not reflect the effects of falling scheme membership as a result of the PCA arrangements and the closure of the scheme to new members in 2009.

NERL response

By way of a reminder of the driver of these costs (which, as we explained to Steer, is actually an efficiency initiative aimed at reducing total DB pension costs paid by customers), NERL is discussing a proposal with HMRC that would enable the company to recover VAT on DB management costs paid on behalf of the DB scheme (which is unable to recover the VAT itself). This proposal is not yet agreed and so NERL has not been able to engage with the CAA.

VAT recovery

If HMRC confirms this approach, NERL would pay DB management costs on behalf of the DB scheme as a separate operating cost item. The DB scheme would recognise these as pension contributions paid in kind and deduct these from the agreed schedule of contributions. The VAT recovery element would represent a cost saving to NERL (and thus customers), compared to the prior arrangements, while the management costs themselves could be recovered as determined costs under operating costs **or** deemed to be pension contributions for the purpose of the pension pass through arrangements. The costs shown here assume that the former option will apply but we are content for the CAA to propose the latter; this would remove the need for these costs from the operating cost base, if the CAA agrees (in line with HMRC and the DB scheme, if

the proposals are approved) that the costs should be treated as pension contributions and included in any pass-through calculation.

Increase in admin costs

However, recovery treatment aside, we consider that the CAA's proposed cuts to these costs have been based upon a misunderstanding of the apparent step up in DB pension management costs from 2022 to 2023. The 2022 costs represent only 9 months of management costs from April to December 2022 with April reflecting the point at which we expected the change in treatment for VAT recovery to take effect. There is thus no basis for cutting the allowed DB pension management costs in NR23 simply because of an observed increase in costs from 2022 to 2023 which is simply a factor of timing with no increase in real terms from 2022 levels, instead they decrease by around 10% over NR23. As at December 2022, the scheme has not yet been approved by HMRC.

Table 7-2

£m CY, 2020 prices	2022	2023	2024	2025	2026	2027
DB pension admin costs	2.3	3.0	2.9	2.9	2.9	2.8

In light of the explanation, the CAA's proposed reduction to DB management costs should be removed, as the rationale for the proposal is due to a misunderstanding, but the CAA should consider the mechanism for how these costs are recovered as outlined above.

7.7.4. Opex efficiencies resulting from RP2 capex

CAA proposal

The CAA proposes to make a reduction of £1.75m in non-staff opex in recognition of cost efficiencies derived from RP2 investments which it understands from NERL have not been included in the NR23 business plan.

NERL response

The CAA sought further information on this issue during its scrutiny of the NERL NR23 business plan[71]. On reflection our response to this inquiry was not clear in confirming that all of the cost efficiencies arising from RP2 projects have already been included in the NR23 plan. The relevant projects are summarised below.

- **Communications, navigation and surveillance (CNS) infrastructure power savings**: The project to implement more efficient emergency generators at remote sites was commenced in RP2 as part of the sustainment of primary radars. A number of sites are particularly challenging to access and only have a small weather window in which it is feasible to implement change. As a result of this (and as a consequence of Covid impacts), one of the planned RP2 changes was incorporated into the RP3 project for Great Dun Fell radar radome replacement. The switchgear element was successfully completed in July 2021 and reported in the October 2021 Quarterly SIP update to customers with a forecast saving of £100k per annum. This has recently been confirmed with identified savings of £106k

[71] CAA Request for Information Q95

(representing just over 50% reduction in the annual electricity consumption), incorporated within our business plan for NR23.

- **Business intelligence (BI):** In response to the economy-wide growth in the use of data and the capacity to store and manipulate data, NERL took a significant decision to undertake a transformation project to allow us to gain greater insights into our organisation, driving efficiencies at the same time. It combined data from multiple sources into a data warehouse and trained the team on access/analysis using SQL programming language. The project commenced in 2012 with the core delivery completed by 2014. It has driven further development of data management, now using a BI 'cloud' for recent easy-access data and a cheaper data 'lake' for less frequently used sources. The BI investment enabled headcount savings in the Analytics team that were then realised in the VR programme, as shown in Table 7-3 below.

Table 7-3

	Pre-VR		Post-VR						
£m CY, 2020 prices	2019	2020	2021	2022	2023	2024	2025	2026	2027
Staff costs, exc. Pensions	3.3	3.0	2.3	2.5	2.6	2.6	2.7	2.7	2.8

10 FTE left the Analytics team as part of the VR programme, but were followed by further resignations in 2021 and 2022. These resignations will be replaced in 2022 and during NR23.

7.7.5. Non staff costs relating to interactions with CAA proposals for staff cost adjustments

CAA proposal

The CAA proposes to make a reduction of £1.6m in non-staff costs in recognition of cost efficiencies relating to interactions with adjustments it proposed to operating costs that affect staff pay and headcount.

Despite querying this with the CAA, NERL has not been provided with information as to what this adjustment relates to.

NERL response

The CAA had not included an explanation of the reduction in CAP2934 and CAP2394a so NERL has been unable to validate the basis of this reduction. We speculate that it may apply to envisioned reductions in intercompany costs as a result of changes to some of the cost drivers for these charges but then cannot replicate the quantum of the CAA's adjustment. We note, in the Single till Chapter 8, that the CAA had not made corresponding adjustments for intercompany revenues. We request that the CAA provides the basis for the reduction, with supporting evidence so NERL can assess this appropriately.

7.8. Context: inflation

CAA proposals

The CAA indicated that it expects NERL to provide a detailed explanation as to how it anticipates that updated inflation forecasts over the NR23 period will impact its cost base. The CAA states

that it is for NERL to evidence whether the full increase in inflation (relative to its original submission) would be passed through in its cost base, or whether NERL would be able to mitigate any of this increase[72]. The CAA goes on to state that, even under higher inflation forecasts, the CAA's expectation is that NERL should be able to mitigate some of these increases in the short to medium term, such as through fixed price contracts and benchmarking with cost trends in other sectors where inflation is not fully passed through.

The CAA sets further expectations in adjusting 2021 and 2022 determined costs down in real prices by the difference between CPI and AWE (equivalent to around £11m) and, in its high inflation scenario, setting out a potential proposal to limit allowance of any increases in forecast inflation between the IPs (based on Office for Budget Responsibility (OBR) March 2022 inflation forecast) and the final decision (presumably based on OBR March 2023 inflation).

We understand from further discussions with the CAA that these proposals and scenario are intended to deal with inflation uncertainty and the impacts it has on NERL's cost base and intend to revisit these in light of emerging inflation information for its Final Determination.

NERL response

At a high level NERL does not see the value in the CAA making complex and opaque adjustments to the well-established inflation indexation for NR23 especially as, despite predicted periods of both very high inflation and deflation during NR23, the latest OBR forecast for *average* inflation for the period is just c2%. However, we have provided information to, and will continue to engage with, the CAA on the implications of inflationary forecasts on our cost base.

Following questions from the CAA in August 2022, NERL submitted a response on the current and anticipated impact of inflation trends on NERL's cost base, the key conclusions of which remain valid and are as follows:

- NERL's regulatory framework sets prices on the basis of a business plan submission which is constructed in real terms, with *ex post* inflation adjustment mechanisms applied over the duration of the relevant price control. This approach ensures there is no windfall loss or gain for NERL over the medium term if inflation changes materially from that forecast when that plan was set.

- Consumer price inflation affects NERL's own costs through different contractual terms and mechanisms (such as linkage of some or all of a contract's costs to a specific inflation index) and to differing timescales. The majority of these impacts are in arrears to inflation by 6-12 months, with the most notable in this respect being the NERL's historic and long established approach to setting pay.

- The recent surge in consumer price inflation in 2022 has thus not yet entirely flowed through to increased input costs for NERL, but is expected to translate into higher costs in the coming months.

[72] CAP2394, paragraph 4.20

- Reflecting the inflation protection within NERL's economic licence, NERL is able to use this to achieve competitively priced inputs by incorporating inflation indexation into some medium-term procurement contracts, in exchange for better initial prices and better contractual terms and price protection over the terms of our contracts.
- Even where inflation indices are not explicitly incorporated into contracts, the current inflation context will have a direct bearing on future negotiations affecting NERL costs. An obvious example in this respect relates to staff costs, where discussions with Trade Unions focus on last year's consumer price inflation as the starting point for negotiation. Tight labour markets and continued strong bargaining power of the unions, as evidenced through the industrial relations unrest currently being observed across the UK, will severely limit the extent to which NERL could realistically expect to implement wage rises below inflation over NR23, without significant operational consequence.
- While individual cost components have differing inflation dynamics, which means that some may currently experience relative price effects compared to the overall measure of consumer price inflation, the combination of these effects over time does not lead to any material and sustained impact such that NERL's costs rise at a slower rate than general inflation.

There is thus no basis for diluting the operation or effect of the very important and heavily relied upon inflation adjustment to regulated charges over NR23.

In addition, the section below provides further information pertinent to the inflationary effects on NERL's cost base in the following areas:

- Average weekly earnings (AWE) vs consumer price inflation (CPI)
- Non-staff cost inflation
- Impact of CAA's 'high inflation scenario'

7.8.1. Average weekly earnings (AWE) versus consumer price inflation (CPI)

The use by the CAA in 2022 of AWE as a basis for calculating an efficient level of costs for the purposes of the retrospective actual cost reconciliation appears to us to be an unusual, unheralded, inappropriate and opportunistic choice.

It is unusual in that for the past five regulatory periods since the establishment of the Public Private Partnership in 2001, no element of NERL's inflation allowances have ever been based on AWE, instead reflecting the prevailing general inflation index in widespread use at the time (i.e. initially RPI followed by CPI in more recent periods).

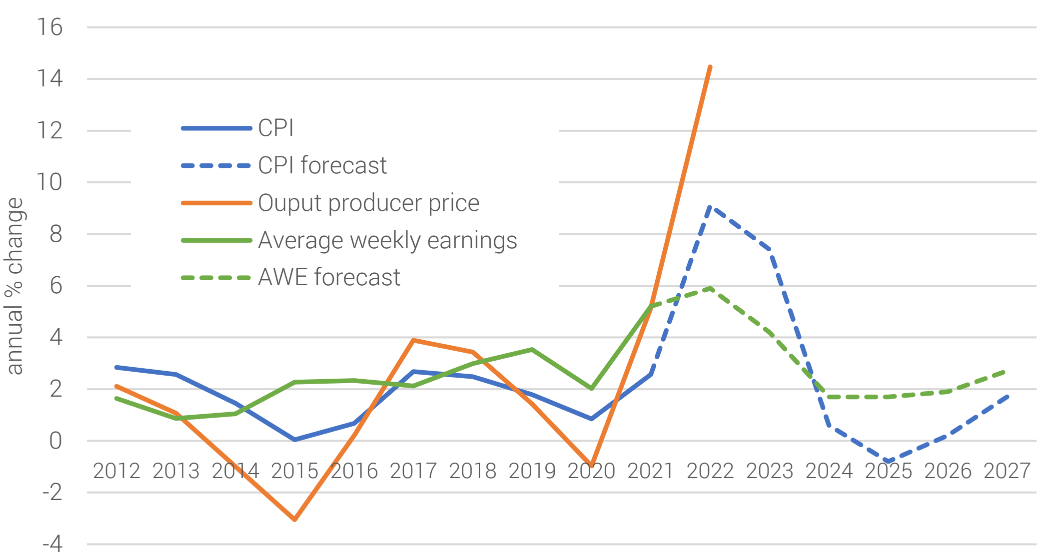
It is unheralded in that at no point has the CAA discussed or indicated that it intends to change the basis of its assessment of efficient costs away from general inflation to another indicator or indeed specifically AWE. This change in approach to what is an important and heavily relied upon approach by investors, lenders and suppliers, introduces regulatory uncertainty at a time of already unprecedented uncertainty after the Covid-19 pandemic.

It is inappropriate in that the CAA has applied AWE for 2022 for all determined costs (i.e. staff and non-staff costs alike) despite AWE being an economic indicator of salary and staff wage

growth and not related to non-staff costs and procurement activity, with no rationale provided by the CAA.

It is opportunistic in that the CAA has elected to use AWE precisely in the one year since 2012 and up to the forecast through to 2027 where AWE is at its lowest level versus CPI, as shown in Figure 7-4 below[73]. If the CAA had a sound, rational basis for the appropriateness of AWE as an indicator then presumably this would have been proposed for other periods where AWE was higher.

Figure 7-4

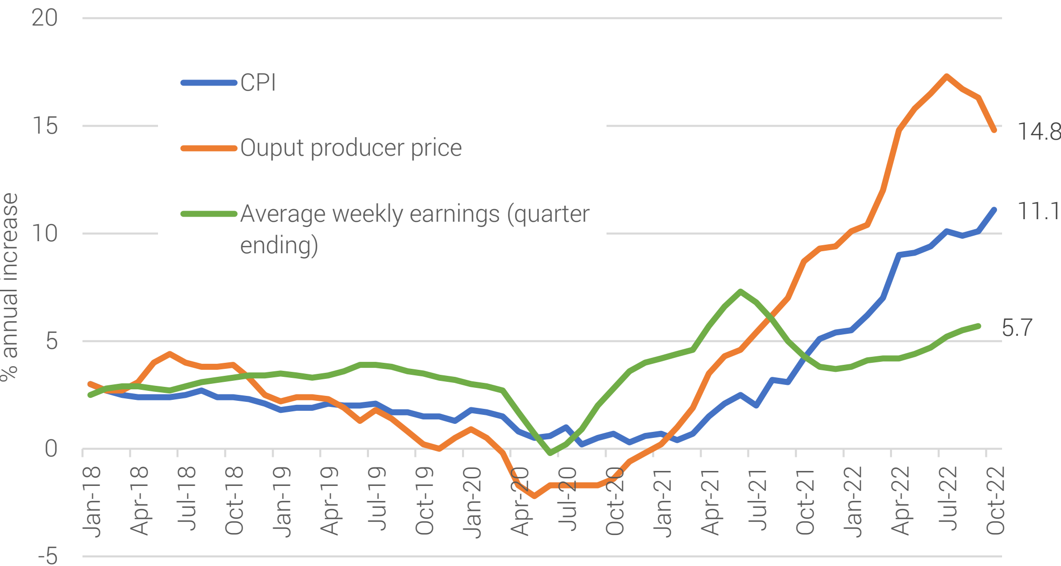


7.8.2. Non-staff costs - procurement

Consumer price inflation has continued to increase through the late summer and autumn, rising to 11.1% in the 12 months to October 2022, up from 10.1% in September 2022. Average weekly earnings also continued to rise over this period, reaching 5.7% in October. Producer price inflation remains very high, at 14.8% in October, but has declined since its peak of 17.3% in July. These recent movements are shown in the context of the trends over the past decade in Figure 7-5 below.

[73] Forecasts from OBR Medium Term Forecast, November 2022

Figure 7-5



This illustrates the dynamic relationship between CPI and producer price inflation (PPI). PPI tends to rise faster and further when CPI is rising relatively fast (e.g. May 2020 to date), and to fall faster and further when CPI is falling relatively fast (e.g. January 2012 to May 2015). While NERL's charge revenue is indexed to CPI, its non-staff cost base is exposed to PPI. So, contrary to the CAA's unfounded assertion that "even under higher inflation forecasts, our expectation is that NERL should be able to mitigate some of these increases in the short to medium term, such as through fixed price contracts and benchmarking with cost trends in other sectors where inflation is not fully passed through"[74], in practice NERL faces producer price rises higher than those reflected in the consumer price index.

The majority of NERL's major non-staff procurement are Facilities Management costs - examples of how these costs are affected by inflationary pressures are highlighted below.

- **Facilities Management equipment**: within the PPI index, certain components are particularly relevant to NERL's procurement. For our Facilities Management infrastructure projects (c£12m per annum), the pertinent indicator of the pressure on costs and prices is the 'Metal, machinery and equipment' element of the Producer Output price index, which showed a 17.5% rise in the year to September 2022. This level of increase is reflected in the quoted costs of materials required in delivering these projects.
- **FM services**: NERL's primary contract for the provision of FM services at its sites is worth around £11m pa and is contractually linked to RPI inflation, which is currently forecast to be on average 1.5 percentage points per year above CPI for the period 2021-27.
- **Energy**: energy costs across the UK economy have risen very rapidly between mid-2021 and mid 2022: +48% for electricity and +91% for gas, as shown in Figure 7-6 below[75]. While the

[74] CAP2394, paragraph 6.114
[75] BEIS (September 2022) Prices of fuels purchased by non-domestic consumers. Data shown for medium-sized business consumption of energy

sharp increases in prices in early 2022 are most obviously linked to disruption to European gas supplies caused by Russia's invasion of Ukraine, there are longer term supply constraints in the UK which are predicted to keep wholesale energy prices above the long term pre-2021 trend level. Energy market specialist Cornwall Insight predicted earlier this year[76] that energy prices will remain in excess of £100/MWh annually, as shown in Figure 7-7 below. This is significantly above the five year pre-2021 historic average of £50/MWh in Winter and the even lower prices in pre-2021 Summer. Prices are expected to rise to £150/MWh in Winter 2025 due to closures of nuclear power stations, delays to Hinkley C, and increasing high-cost peaking capacity.

Figure 7-6

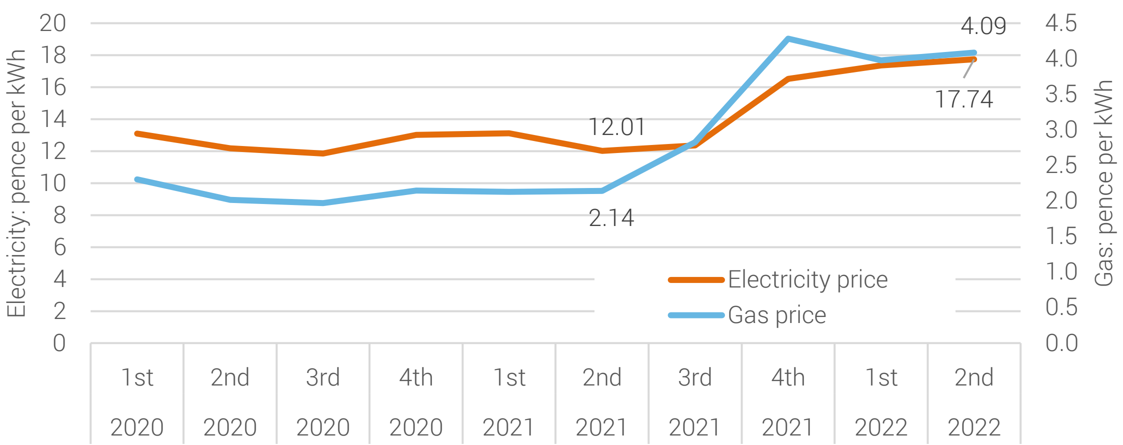
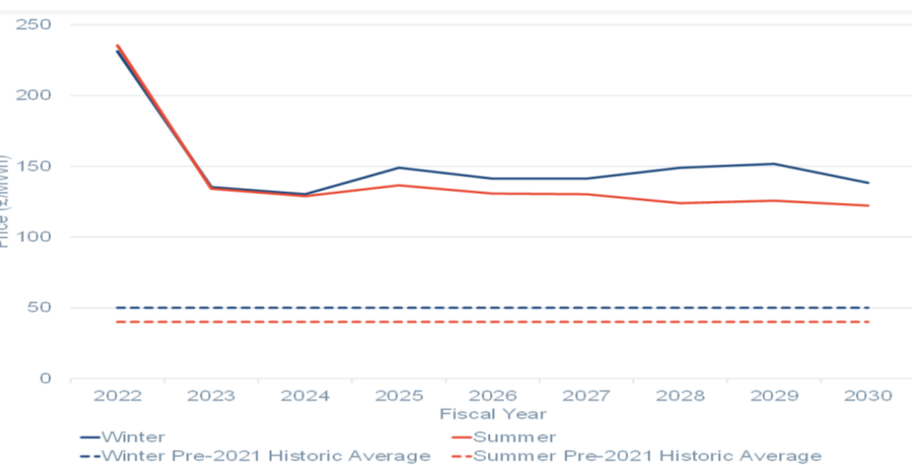


Figure 7-7



NATS energy costs increased by 75% from £8m in 2019 to £14m in 2022, even after the effect of forward buying, hedging mitigations, and a 7% reduction in usage (i.e. on like for like usage costs have increased 88%). For individual periods we have seen unhedged energy prices peak at 700% of pre-pandemic prices i.e. over £270/kwh. The latest forecast energy costs for NR23 are highly volatile but are estimated to be between 30% and 60% (£15-£30m) in excess of the projections included in our NR23 business plan. Despite this we are not proposing to update

[76] Cornwall Insight (April 2022) 'Energy prices to remain significantly above average up to 2030 and beyond' press notice

our planned cost forecasts but are instead relying on the regulatory inflation true-up mechanism as was in place for CP2, CP3, RP2, and RP3 to provide sufficient inflationary protections across our cost base *as a whole*.

NATS has currently adopted a three-year hedging strategy for electricity, targeting an 85% minimum hedge 12 months ahead, 60% minimum 24 months ahead and 50% minimum 36 months ahead. It has adopted the same strategy for gas. These are regularly reviewed based on prevailing energy prices and advice from experts.

Since 2019 NATS has secured a 46% real reduction in cost against market wholesale prices.

- **Rent and Rates**: these costs are around £11m pa with the Corporate & Training Centre at Whiteley currently accounting for 77% of total rental costs. This property is scheduled for a periodic rental review, starting in 2023. Under the contract, the landlord has the ability to impose rental increases based on realised rents in the local market. This exposes NERL to office property rental inflation pressures. We currently estimate that rental costs could increase by 6-18% per square foot at the next review, compared to a rent of £17/sq ft today. Other NERL rental properties, accounting for 7% of total rental costs, have leases where rents are directly linked to RPI inflation indices. NERL's warehouse property (Hedge End), accounting for 4% of rental costs, is likely to be subject to significant rent increase in coming years, as a result of strong occupier demand and a lack of available stock in the regional market for such 'big box' space driving up rents.
- **Contractor Labour costs**: prior to the pandemic, contractors made up a significant part of NERL's workforce (293FTEs, c8% in 2019) but are projected to be a much smaller share in NR23 (average 30, 1% of total workforce). Recent benchmarking conducted for NERL by KPMG77 demonstrated that NERL's contractor rates are, for the vast majority of roles surveyed (37 out of 40), within or below the market benchmark range. In the 30 months between September 2022 and February 2020 we have seen average contractor rate increases of just under 10%, CPI inflation for this period was 11%.

7.8.3. Procurement price trends

Our previous analysis in response to the CAA's request for information categorised our procurement spending as follows:

[77] KPMG (November 2022) NATS Contractor Salary Benchmark Analysis

Table 7-4

Analysis of NERL procurement spend, 2021/22	£m	%
NERL	168	100
Supplier 'tail' – 600 firms	23	14
Top 34 suppliers	145	86
Of which		
Non-addressable via NATS negotiation (e.g. regulators)	*12*	*8*
Balance	133	
Of which		
Linked to inflation indices	*66*	*50*
Other contracts, not directly linked to inflation indices	*66*	*50*

In summary:

› 7% of the total is non-addressable, i.e. non-negotiable costs paid to regulatory agencies

› 40% is contracted to align with a form of inflation indexation. While some of these indexation terms were suspended temporarily during the height of the pandemic, in order to provide support to the particularly exposed aviation sector, these are now subject to catch-up from previously supportive suppliers

› 40% is not protected by indices and therefore subject to market forces – albeit robustly negotiated by NERL's supply chain management team

Those **contracts already linked to a level of indexation**, primarily CPI but also other indicators (some of which are currently higher than CPI) provide a level of certainty in our budgeting for these contracts. The inflation indexation also provides a restraint/cap on suppliers' abilities to claim higher than CPI price increases, which is the observed trend we see across all spend categories.

The corollary of this is that we are committed to pay in line with the contracts and so are restrained from achieving any 'mitigation' of the forecast increase as assumed by the CAA's proposals.

In addition we are receiving – and rejecting – claims from suppliers for relief from the contractual CPI constraint cap as the prices being experienced within the supplier markets are higher than CPI. As an index based upon a basket of consumer goods, the CPI does not necessarily reflect the reality of cost movements within industry, as highlighted above in the discussion of CPI and PPI movements.

Notwithstanding inflation indexed contracts in place, we have relied on certain key suppliers holding or discounting prices during the pandemic as a recognition of long lasting relationships and the difficulties the UK aviation industry faced. In our previous submission we indicated that our suppliers had agreed not to invoke the CPI increases to which they were contractually entitled over the last two and sometimes three years, in order to support NERL through the pandemic and our recovery phase. Most of these suppliers are now reverting back as those discounts or cost freezes are not sustainable for them. We project that all such long term indexed contracts will return to full indexation for the NR23 period. In some cases, we are facing

a compound effect where price adjustments reflect more than just the current CPI but also a re-adjustment to the baseline costs and also consider inflation which the supplier had previously absorbed over the fixed price period in recent years. This restart at full indexation and 'catch up' for previous price freezes would undermine our ability to mitigate the impact of CPI as the CAA suggests.

For those **contracts linked to labour cost indices** rather than CPI, we anticipate a move to greater CPI indexation. We buy goods and assets as well as services and 'turn key' solutions, so while labour indexation (specifically, weekly earnings indexation) is a key consideration in our challenge to suppliers, we have seen already and anticipate more of our supplier base to push to CPI alignment. This is in recognition of the cost pressures on our suppliers being often wider than just labour and encompassing increasing hardware and prime material costs and increasing overhead costs (e.g. insurance premiums, electricity, property costs, etc), similar challenges we face ourselves.

For those **contracts not linked to inflation indices**, it is not surprising given the market context described that the pressures emerging for price increases for those goods being purchased from the markets are significantly above CPI inflation. This procurement has no CPI indexation due mainly to the *ad hoc* nature of the purchases and/or because NERL's purchasing power is low relative to other customers. NERL deploys its professional Supply Chain Management team to seek to leverage whatever commercial gains it can achieve in negotiating these supply contracts, including through use of NERL's status. Even with this activity, though, NERL has very limited ability to restrain the costs of these non-indexed contracts to below CPI.

7.8.4. Impact of CAA's 'high inflation scenario'

The CAA indicates in its 'high inflation scenario' that it would expect NERL to be able to absorb two-thirds of the step up in CPI inflation in 2023 from the level forecast by OBR in March 2022 (4.0%) to the final forecast used by the CAA in spring 2023 to inform its final NR23 decisions. The latest OBR forecast (November 2022) for 2023 CPI is 7.4%. The implications of the CAA's proposal are not fully specified in its Initial Proposals document, nor in subsequent discussions with the CAA.

We interpret the relevant text and subsequent dialogue with the CAA, however, to mean that in its illustrative scenario, our opex allowance for 2023 (and any other periods during NR23 where inflation has risen versus the forecast used in the Initial Proposals) would be adjusted from real to nominal basis (in order to derive Determined Costs and charges) not by forecast 2023 CPI (currently 7.4%) but by a lesser amount (5.1% = 4.0% + one third of (7.4-4.0)%). This would amount to a real-CPI reduction in opex of 2.3% in 2023. This reduction would then be compounded each year through NR23, resulting in a total real reduction in opex over the period of £76m (based on the Nov-22 OBR inflation forecast).

While we note this is an illustrative example of the potential adjustments the CAA is considering, the uncertainty that this ill-defined scenario brings at a time when, because of delays to publication of the CAA's Initial Proposals, we are about to enter into pay negotiations with our trade unions ahead of one of the most critical summer periods in the history of our sector, is very worrying for investors and the business. We are ready to help the CAA understand the implications of very high inflation and deflation forecasts on our cost base but maintain the position that the prevailing CPI indexation in previous regulatory periods is well understood, effective, and appropriate, especially with average CPI over NR23 projected to be just c2%.

7.8.5. Inflation: summary

NERL procures goods and services efficiently in competitive supply markets, using whatever leverage it can to secure favourable pricing and terms. Wherever possible, this is achieved by building and managing long term relationships with key technology partners. Outside of such supply chain relationships and long-term agreements, NERL is exposed as any other company to market forces and the dynamics of producer prices, which are rising materially faster than CPI.

Given this evidence, there is no basis for the CAA to conjecture, in the absence of facts, that NERL could somehow 'mitigate' above average levels of CPI and thus reduce its input prices by several percentage points below the high levels of CPI in 2022 and forecast for 2023.

We estimate the scale of the real reductions implied to be very material at around £76m over NR23, based on the latest Nov 2022 OBR inflation forecast.

8. Single till income

8.1. Overview

Our main points on the CAA's Initial Proposals with regard to single till income (non-regulatory revenue) are:

- **Future Military Area Radar Service (FMARS) gainshare arrangements**: the CAA has not correctly computed the impact on the gainshare mechanism from the Initial Proposals
- **Management Services Agreement (MSA) intercompany revenues**: the CAA has not correctly computed the impact on intercompany revenues from the Initial Proposals

8.2. Non-regulatory revenues

CAA proposal

On the basis that NERL has used the same approach to allocating the costs of non-regulatory revenues as at RP3 and having undertaken a high-level review of the forecast revenues and associated costs, the CAA does not consider that any specific adjustments are required to non-regulatory revenues.

However, the CAA takes account of the adjustments it proposed which reduce NERL's opex by 6% compared with its business plan. This results in a relatively small reduction of approximately £0.05m in NERL's forecast non-regulatory revenues over the course of NR23, in the base case. In the low case, the reduction is around £0.6 million due to the lower opex costs in the low case. These reductions relate only to Future Military Area Radar Service (FMARS) income from the Ministry of Defence.

NERL response

Any single till income NERL earns serves to offset, through the single till mechanism, the Determined Costs, which form the basis of the en route charge to airlines. The costs of delivering the services that generate this income are included in NERL's operating and depreciation cost base. The income comprises of five categories: MoD revenues, London Approach, North Sea Helicopters, income from NSL and NERL's directly traded income. We focus mainly on MoD income, namely the FMARS contract, and inter-company income. Other single till income remains unaffected by CAA's proposals.

The FMARS contract accounts for c45% of NERL's single till income across NR23. FMARS contract revenues are based on sharing a proportion of NERL's operating and depreciation costs agreed for the period at the time of the contract renewal. The contract has a gainshare arrangement whereby a proportion of the efficiencies made by NERL are passed on to the customer through reduced charges to MoD, hence reduced revenues to NERL. The exact size of this gainshare amount is determined by how much lower costs are than the baseline level in the contract.

Overall, the method which the CAA has used to apply the impact of its proposed opex reductions to gainshare is appropriate and consistent with the ready reckoner. However, the CAA has

overlooked a detail in the operation of the gainshare later in the NR23 period. As noted in NERL NR23 business plan, any further cost reductions in 2027 that contain elements that are attributable to the MoD's cost share would trigger additional gainshare payments. The result of the CAA's Initial Proposals in total would be a reduction to costs attributable to the MoD of £1.7m, which would trigger a 25% gainshare payment. This would drive a reduction in FMARS income of £0.4m in 2027 only, which has been omitted by the CAA.

In addition, Managed Service Agreements (MSAs), which share the cost of central support functions such as Finance, HR, and Facilities Management between NERL and NSL, and inter-company contractual agreements (ICAs) for traded services from NERL to NSL are based on labour and service costs to deliver those services. The costs and revenues of these are affected by the CAA's proposed reductions versus figures contained in NERL's NR23 plan. The CAA's proposals apply a 4% reduction in staff and underlying cash pension costs (excluding deficit repair) which would result in a reduction in inter-company revenues by a corresponding £2.6m across NR23. This has also been omitted from the CAA's calculations.

8.3. Request of the CAA

We request that the CAA reduce projected single till income by £3m to account for the automatic formulaic and contractual effects of the cost reductions proposed elsewhere in the Initial Proposals, comprised of:

- £0.4m to adjust for the MoD gainshare payment in 2027, and
- £2.6m to adjust for inter-company revenues, which are reduced by the CAA's proposals to reduce NERL staff and pension costs.

9. Capital investment

9.1. Overview

We are pleased that the CAA has recognised the focus and value of our balanced capex plan for the continuing replacement of our technology platform and the delivery of airspace modernisation. Our key points in response to the Initial Proposals in this area are:

- **2+5 planning approach for NR23**: we welcome the CAA's support for our more agile 2+5 planning approach for NR23
- **Business case evidence**: we do not agree with the CAA's conclusion that a lack of sufficient detail exists around the business cases associated with the programmes and projects which makes it difficult to assess the accuracy of the key benefits. We consider that NERL has provided clear evidence in support of the investment proposed for NR23 in line with the CAA's guidance
- **Risk and contingency**: we do not agree with the CAA's proposal to reduce the risk and contingency funds which we use to manage uncertainty. It is not clear what evidence the CAA has used to propose this reduction. We have already reduced our risk and contingency to address rephasing of investment in the portfolio
- **Low case reductions**: it is not clear what evidence the CAA has used to propose an 8% reduction in all programmes other than airspace, DP En Route and Common Platform. We have provided sufficient evidence, further updated and expanded in this response and the subsequent Service & Investment Plan consultation with customers, to justify the full capex allowance

Our response to the CAA's Initial Proposals on capital expenditure is structured as follows:

- **Summary**: our understanding of the key conclusions raised by the CAA and summary responses to those conclusions
- **Detailed responses** to specific points raised in by the CAA
- **Appendix B**: Updated Investment Plan details - our restated capex plan for NR23 as requested by the CAA.

9.2. Summary

CAA proposals

The key elements of the CAA's proposals for capex are:

- Recognition that we have a balanced plan for the ongoing modernisation of our technical systems and delivery of airspace change which will provide increased resilience and operational efficiencies in NR23 and beyond

- Agreement that the planning approach for capex in NR23 through the use of a '2+5' planning regime in combination with confirmation that there is no 'cap' on the capex allowances, provides a much greater level of flexibility and agility than previous periods in order to meet changing market conditions
- An allowance 3% lower overall than NERL's business plan forecasts for efficient costs in NR23 through a reduction in NERL's risk and contingency allowance
- Considering setting lower capex allowance for at least the last three years of NR23 if NERL does not set out in sufficient detail the impact on costs (including asset management opex), service quality and benefits to consumers due to changes in key milestones and deliverables
- A request that we set out our revised plan for capex providing evidence of the benefits that our programme will provide to customers in NR23 and the longer term

NERL Response

We are pleased that the CAA has recognised the focus and value of our balanced capex plan for the continuing replacement of our technology platform and the delivery of airspace modernisation, a key component of critical national infrastructure. This aligns with the overall view of customers who were supportive of our planned investment in NR23, and the view of the CAA's independent consultant, Steer. Steer noted the capex plan to deliver a target infrastructure is '…in line with that of the major European strategies and European ATM Masterplan'[78]. This approach was also supported by customers[79].

We consider that support for a more agile planning approach, underpinned by the option to request additional capex, will provide the necessary agility to maximise the efficiency and effectiveness of our investment capability in NR23 and beyond.

The CAA has challenged us on the level of evidence we provided. We provided a plan with supporting information in line with the direction provided by the CAA in its CAP2160 document with robust supporting evidence. This included the key drivers, options and trade-offs considered and rejected, evidence of opex interactions and how programmes may need to evolve if circumstances change. It is not clear from the Initial Proposals what additional evidence the CAA is seeking beyond the considerable evidence provided within our business plan, wide-ranging consultation and further detailed requests for information. We have provided further disaggregated information as requested, where we have restated the changes in our investment plan, in line with the guidance, in Appendix B to this response on capex, including a restatement of benefits which acknowledges the rephasing of some airspace change and the DP En Route programme (noting that service quality is addressed elsewhere in Chapter 3 Safety, Chapter 4 Capacity and Chapter 5 Environment of NERL's response). During NR23 we will continue to consult with customers through the 2+5 approach on further cost/ benefit detail and options for delivery of changes as they mature. We will evolve our SIP consultations to achieve this aim during the period.

[78] Steer (October 2022) Cost assessment for the NR23 period and reconciliation review (2020-2022), paragraph 4.5.25 (hereafter referenced as Steer)
[79] Customer Consultation Working Group Co-Chair Report dated 13 December 2021.

Key drivers we have considered in our evolving portfolio include our customers in the wider aviation industry and the delivery capacity of NERL and of our suppliers. This has generated continued uncertainty over the timing of consultation for Future Airspace Strategy Implementation (FASI) changes, which has impacted our airspace planning. As a consequence of the continued constraint on our delivery capacity we have replanned DP En Route as consulted with customers, and the effect this has on the remainder of the portfolio including airspace and sustainment. We have addressed the CAA's requests to provide further confirmation of the costs, milestones and benefits of the DP En Route programme and the portfolio.

Given the evidence we have provided in our business plan, consultations and subsequent requests from the CAA for further information, we consider that the full allowance for capex is required as submitted in our business plan. We are not clear what basis has been used for determining the CAA's proposed reductions in planned risk and contingency and in other capex. These appear arbitrary and not aligned to the prevailing wider circumstances in which we are planning. The maintenance of a safe and resilient service requires the sustainment of our current operational systems; this is our first priority. As a result, the proposal by the CAA to ringfence a number of programmes at the expense of proposed reductions in the sustainment and surveillance programme misunderstands the critical priority of this programme.

In the sections below we respond to the CAA's proposals on:

- delivery capacity
- consultations and the '2+5' approach
- evidence of benefits
- risk and contingency
- legacy escape and NR23 capex review
- potential further reductions in capex allowance

9.3. Delivery capacity

CAA Proposal

The CAA acknowledges that the capital investment proposed by NERL for NR23 is substantially smaller compared to RP3, reflecting the actions taken during 2020-21 in response to Covid-19 and the re-planning of the RP3 baseline investment plan. The CAA also highlights that these essential actions also resulted in a reduced capacity to change and implement major system transitions.

NERL Response

Our average planned investment by year in NR23 will be 30% lower than the last year of RP2 in 2019. However, our proposed plan for NR23 is around 25% lower than the original RP3 settlement overall. This a direct result of the actions taken to manage the impact of Covid-19, meaning the business has a lower capacity for delivering transformation. We are working to expand our capacity through a range of targeted measures.

We took swift and decisive action in 2020 to manage the very significant impacts of Covid-19. The extreme decline in traffic to 10% of 2019 levels required a focus on three priorities to:

- ensure the service to customers
- ensure the safety of our staff
- ensure the financial viability of the business

Our investment programme in RP3 was directly affected by all three of these priorities. We undertook a range of measures to preserve £70m of liquidity essential to the financial viability of the business including:

- an immediate stop on all external expenditure, and scale down of internal costs, on 10 of 14 programmes
- essential sustainment only of NERL assets, facilities and IT to maintain a safe, day to day operational service
- suspension of activity on DP En Route & Voice except for essential work for 6 months
- the release of 149 contractors and furlough of 850 Technical Services staff
- renegotiation of supplier contracts

This resulted in a reduced capacity for change, further reduced by the practical difficulties of utilising international suppliers during Covid-19. At the time these decisions were taken, there was no indication when and to what extent conditions might improve. These actions were therefore necessary and proportionate with the information available at the time. Our specialist skills provider has also provided evidence that there has been a significant and persistent reduction in the number of people with the right skills for our technology transformation that continues to affect us today. We consulted our customers throughout Autumn 2020, conducting three additional sessions to the main SIP consultation in November: in September (portfolio), October (airspace focus) and November (technical focus). This allowed us to understand their priorities, present options and move into an effective post Covid-19 plan within SIP21 which reflected customers' needs and challenges whilst taking account of the liquidity challenges facing NERL. The Steer report noted 'The actions taken by NERL…are seen as reasonable and proportionate'[80]. We have been very clear with our customers that our delivery capacity remains constrained.

Our portfolio investment capacity has reduced as a result of these changes and we have been careful to scale our portfolio to meet our expected delivery capacity in NR23 for efficient investment. We are progressing a number of actions to assure delivery of our NR23 plan. It is important that we generate capacity carefully, ensuring we can maintain our ability to invest and incur expenditure effectively and efficiently. On the demand side, we have produced a prioritised and phased deployment sequence for the earlier years in line with the 2+5 approach. On the

[80] Steer (October 2022) paragraph 4.4.23

supply side, this is enabling us to balance resource across the business and focus recruitment on key skills. We are working collaboratively with strategic suppliers and other service providers to leverage greater capacity from third parties; while this is expected to have the greatest benefit to delivery of the technology programmes, we are applying this principle across the entire portfolio. An early example is the increased use of partnering to deliver the essential Prestwick Upper Airspace change (as part of DP En Route) which will provide benefits to our customers and enable us to refine our partnering approach further across a range of activities.

9.4. Consultations and the '2+5' approach

CAA Proposal

The CAA noted that the actions taken by NERL on capex in response to the impact of the Covid-19 pandemic were presented to and consulted with customers, through the Technical Customer Advisory Board (TCAB) and Interim Service & Investment Plan 2021 (iSIP21) processes.

The CAA provided a summary of the '2+5' approach and that NERL would plan to keep capex within the overall level established as a point estimate at the price control review, including the risk and contingency allowance. The CAA stated that airlines wanted further clarification of how the '2+5' approach would work in practice, particularly in the context of a five-year price control and given existing SIP and TCAB processes.

NERL Response

It is important to distinguish our view on the role of the TCAB by comparison with the formal SIP consultations. While both forums provide an opportunity for customer engagement, the TCAB is an opportunity to present and engage with customers on current and future technical and engineering developments, including options for consideration in future SIP consultations. The TCAB has been welcomed by customers as a way of sharing their own technical evolution alongside our future developments. Issues discussed in the TCAB should not be considered as 'binding' until presented and agreed in a SIP consultation (which provides for a wider community of stakeholders to attend).

Our current investment plan aims to utilise the 2+5 approach within the capex request we have proposed and restated at section three. We welcome the proposal not to 'cap' the capex allowance in NR23 to provide additional agility and flexibility; this has been welcomed by customers and by external advisers to both NERL and the CAA.

We expect to continue to improve customer engagement through the SIP (noting that the CAA's Independent Reviewer considered our engagement is already '…high quality.'). Using the '2+5' approach will ensure our customers have an even greater understanding of the benefits enabled through our investments. The CAA's Independent Reviewer[81] agreed that '…limiting the view on capital investment to the regulatory period is not sensible since NERL's major programmes span longer timescales … The 2+5 view benefits the users by ensuring a realistic short-term forecast is provided and also that at the end of a regulatory period there is visibility of the expenditure planned in the first year of the next period (as we have demonstrated in SIP22 and interim SIP22 with a forecast for the first year of NR23)'.

[81] Egis (24 February 2022) Independent Reviewer Report – Review of SIP22

Our overall proposed capital allowance for NR23 encompasses two years of more granular information supported by outline plans for the final three years of the price control period. We expect this approach to enable better optioneering in the latter three years of NR23 and beyond (to match the 2+5 approach). Progress reports and actual delivery will continue to be monitored through the SIP process. The longer-term view provided by the '+5' assessment will ensure we remain focused on strategic requirements and alignment with UK and international strategies and developments. This is particularly important given the request by customers for NERL to ensure close alignment with the development of the European network.

9.5. Evidence of benefits

CAA Proposal

The CAA concludes that a lack of sufficient detail exists around the business cases associated with the programmes and projects which makes it difficult to assess the accuracy of the key benefits in NERL's business plan. The CAA acknowledges that NERL provided a sample of business cases in response to queries, which has provided some insight into the benefit calculation mechanisms applied by NERL.

NERL Response

Our investment plan aims to continue the modernisation of our technical systems and deliver major changes in support of UK airspace modernisation. The overall level of capex is lower as noted in the delivery capacity topic above. However, it is essential that the CAA and other stakeholders understand the importance of investment in the sustainment of our current operational systems. Our capital investment plan has the following three key priorities:

- **Sustainment of existing technology**: essential for the continued safe and resilient operation of our current systems as a component of Critical National Infrastructure, mitigating technical risk, cyber security risk and enabling the implementation of airspace changes. This investment also enables us to meet our Licence requirement to be able to meet a reasonable level of demand

- **Technical transformation**: critical to future capacity and environmental improvement, as well as the route away from existing ageing systems, reducing technical risk and cost

- **Airspace network modernisation**: will enable optimised flight planning, deliver fuel and CO_2 benefits, increase capacity by removing bottlenecks and improving flight predictability and reduce controller workload, supporting safety enhancements. We expect that our airspace modernisation investments will increase UK network capacity and contribute to the overall European network

The Steer report[82] acknowledges our planning process is well established and '…the logic is clear and transparent.' It is also states[83]: 'In general the evidence submitted shows that the capital programme contains the necessary elements to ensure service delivery and that it targets the appropriate areas of investment'.

[82] Steer (October 2022) paragraph 4.5.20
[83] Steer (October 2022) paragraph 4.5.27

We believe we have provided the level of information requested in the guidance set out in CAP2160; in particular principle 2[84]. During its analysis of our NR23 Business Plan the CAA raised a number of 'requests for information' and 'clarification questions' with us. We responded to these questions in exhaustive detail to ensure the CAA understood the outcomes, benefits and costs of our plan. There was no indication from the CAA on completion of this phase that they required further detailed information. We understand that the regulator, our customers and stakeholders would like to see greater detail in our investment portfolio at an earlier stage and we have set out more granular detail in the restatement of our investment plan at section three below. Portfolio planning is broadly comparable to the strategic assessment of a business case. High level benefits are identified as early as possible but it is only following some project activity, when design considerations are complete, that estimated benefits can be profiled.

Developing detailed cost/benefit estimates for a portfolio of programmes that runs over the next five years and beyond (in line with the 2+5 approach) means that detailed planning with specific business cases for each programme in later years could be inefficient, as there is a greater likelihood of change to market conditions or customer requirements further out. It would also require the allocation of significant resources to prepare well in advance of consultation for the regulatory period. Reconfiguring our approach to achieve this would present an additional regulatory burden.

The CAA has previously acknowledged this point, notably during the CMA price control appeal, where it commented[85] that: '…in practice we recognise that no capex programme set more than five years in advance of the period is likely to remain unaltered during the period. Circumstances and user requirements will change. To address this, we have proposed that the programme can change with user and CAA agreement, and we support NERL's proposals to enhance its capex governance during RP3'.

Part of our response to this challenge is to adopt the '2+5' approach precisely because our investment plan is likely to evolve to meet changing market conditions and customer requirements. This is especially true for our Sustainment, Information Solutions and Property & Facilities Management programmes which require an appropriate level of funding to meet their overarching investment objectives, and normally consist of many smaller projects which are prioritised based on the cost and benefits need. This enables us to be agile in response to changes in risk, market conditions and customer requirements. While we have a good understanding of the types of investment and benefits required in these programmes, the actual project business cases will be assessed through NERL capex governance throughout NR23 and consulted with customers, seeking their support, as part of the '2+5' approach and in line with the CAA's capex engagement incentive.

In summary: we do not agree with the conclusions drawn by the CAA as it is not clear what additional evidence they are seeking to provide sufficient assurance of the benefits of our investment plan. The CAA requested additional information from NERL during their analysis of our NR23 Business Plan to help their understanding, and we have provided responses. The CAA

[84] 'NERL should provide robust supporting evidence for its opex and capex plans, including: the key drivers, how the costs link with each other and to the traffic and service level forecasts, what other options and trade-offs it has considered and rejected, and how programmes might need to evolve if circumstances change.'
[85] CAA (2020) response to question 12 of RFI 2 from the CMA

has acknowledged the practical limitations of evidence in support of a 5-year plan, however, we have sought to provide further disaggregated information in our restated investment plan at Appendix B. As a result we consider that NERL has provided clear evidence in support of the investment proposed for NR23 in line with the CAA's guidance.

9.6. Risk and contingency

CAA Proposal

In its review of NERL's business plan, the CAA accepted that the range estimates provided by NERL reflect the uncertainty in costs and general variability in programmes to be expected in the NR23 plan. The CAA identified the proposed risk and contingency as greater, both as a percentage of the portfolio and in value, than that set in RP2 or RP3 and proposes a reduction.

NERL Response

It is not clear what evidence the CAA has used to propose a reduction. Risk and contingency will remain a dynamic factor throughout NR23, capable of being adjusted to meet the needs of the portfolio. This allows us to plan with a balanced net risk allowance to manage uncertainty in line with wider industry best practice. This approach also aligns with our 2+5 planning for capital investments. In restating our NR23 investment plan, we have revised the level of available portfolio contingency for NR23 down to £9m (2020 CPI prices). The risk and contingency specifically set aside for the DP En Route programme has been realised and is now allocated to the programme. This early realisation has reduced some of the remaining uncertainty within the portfolio, reducing the overall requirement. The available risk and contingency amount in NR23 is now lower than that in RP2 or RP3 and is stated at the minimum amount we believe appropriate for a portfolio of this size and complexity.

9.7. Legacy escape and NR23 capex review

CAA Proposal

Steer proposed two alternative scenarios for legacy escape in its report and recommended their 'stepwise' scenario which brought forward expenditure from NR28 into NR23, with associated reductions in sustainment spend (due to legacy systems being turned off).

The CAA proposed not to take forward the Steer 'stepwise' legacy escape profile as part of these Initial Proposals, as this did not seem to be deliverable by NERL. It has emphasised, however, the importance of NERL undertaking a thorough review of its NR23 capex programme and providing, as part of its response to these Initial Proposals:

- an updated NR23 capex programme for each year of NR23 to include updated scope, costs, service quality and benefits to users and customers
- how the changes to its capex programme affect the delivery of airspace modernisation programmes and the resilience of its operation
- the basis for all inflation assumptions used and the impact of inflation on costs when expressed in nominal prices and 2020 CPI prices

The CAA also noted the potential risk to efficient expenditure as a consequence of delays to delivery. It proposes to review adjusting asset management costs within the final performance plan decision to reflect the CAA's view of efficient expenditure. This would be in advance of a full review of the DP En Route programme, once it is complete.

NERL Response

We are pleased that Steer identified the technical transformation of our operational services as the strategic priority for our investment portfolio for NR23 (noting our priorities remain as in our capex plan response above). As we pointed out in our commentary on the Steer report, we have repeatedly tested our strategy for the value of our technical transformation with the CAA and customers during SIP engagements. We have also re-confirmed our approach with external advisors. Unfortunately, the Steer assumptions for achieving legacy escape through its step-wise approach are fundamentally flawed, notably their assumption that iTEC v2 could be used in lower airspace; this is a basic misunderstanding as we have been clear in consultations and note below. We remain confident our approach remains the correct approach to deliver a service with greater resilience, security, flexibility and enabling capabilities that provides capacity to meet traffic growth at reduced cost.

Factors that support the current profile we have proposed for legacy escape in NR28 include:

- **Delivery capacity**: we have been clear in our proposal of the need to retain a balance of investment between the service we provide now and the investment we make for our future service. We are seeking opportunities to increase our delivery capacity through NR23.
- **Complexity**: there is a dependency on our suppliers and broader iTEC collaboration to deliver the v3 product. They are facing similar delivery capacity challenges as we have faced across RP3, as a direct result of Covid-19. We are aware that development of the iTEC v3 (common version) will need to be capable of managing more complex airspace than iTEC v2 as it will be required to support operations within the London TMA. This is one of the most complex areas of airspace in the world and the most complex within our iTEC collaboration partnership.
- **Impact of change on the operation and network**: There is a limit to the rate and scale of change the operational service can accept. The operation in NR23 requires the ability to respond effectively to the recovery in traffic while managing the changes safely and effectively. We plan our transitions with our airline customers in order to minimise the impact on their businesses; this limits the periods available to deliver change into operation.

We are pleased that the CAA supports our priorities and objectives for the NR23 capex plan and understands in particular the importance of delivering DP En Route (noting the CAA's intent to review this programme on completion). We intend to work towards these objectives throughout NR23, consulting with customers on detailed plans adopting the 2+5 approach. We have restated our investment plan in section three, which provides a greater level of detail. As noted previously, we aim to use the 2+5 approach to retain our ability to respond to changing market conditions and customer requirements over the NR23 period and beyond. We will continue to enhance the information we provide to customers and the CAA during NR23.

Costs

We have taken measures to assure completion of the DP En Route programme and ensure delivery is balanced with the demands of the wider portfolio and the priorities of our customers. The options for the programme were consulted in detail with customers in Summer 2022 (receiving a positive score and endorsement from the CAA's Independent Reviewer). The introduction of the agile and responsive 2+5 governance regime will enable us to take advantage of opportunities presented to implement beneficial change to customers.

The revised DP En Route schedule has required us to adjust our overall capital plan to allow for the additional investment in NR23 to complete it whilst ensuring plans align with our delivery capacity. Capex in the DP En Route programme has increased by £126m (most of which is accounted for by a reduction in the Common Platform programme (£88m) and utilising risk and contingency by £35m). The development of greater opportunities for partnering with the wider supply chain may enable us to deliver aspects of DP En Route (and the Common Platform programme) at a faster rate than currently envisaged.

We continue to target deployment of our common platform in NR28 (with its associated opex benefits). However, the planned deferral of the majority of investment into NR28 is the most logical step to take as the key component of the iTEC v3 FDP must follow on from development and implementation of iTEC v2 in the DP En Route programme. We will seek to exploit alternative delivery options to achieve completion of our technical transformation as soon as practical.

We have maintained significant investment in Airspace, contributing to the UK's Airspace Modernisation Strategy and are fully committed to supporting our customers' plans. We have not de-prioritised any investments in the Airspace programme.

The changes to the capex plan have been designed to ensure we are able to manage our opex costs within the sumitted business plan. Further detail on the level of required opex is provided in our response to the CAA's Initial Proposals for asset management costs in the Operating costs Chapter 7 and there is no consequential material impact on opex as a result of the changes to the investment portfolio. Our current asset support costs are assumed to remain at current levels (allowing for inflation). There are some minor support cost changes related to the rephasing of DP En Route. We expect the significant change in support costs, as set out in our original business plan, will occur when we implement the common platform and move to fewer suppliers.

The CAA has considered that delays in delivery of capex programmes could be inefficient and has proposed an intent to consider a reduction in the allowance of asset management costs as part of their final performance plan decision. Delay within the investment portfolio is principally a consequence of our swift and decisive action in 2020 in response to the challenge the industry faced from Covid-19. Our asset management costs are necessarily incurred to maintain a safe and resilient service; we believe that the proposal to reduce asset management costs as a consequence would not be appropriate. The mechanisms for assessing the efficiency of our expenditure already exist. Applying an efficiency adjustment to expenditure on current operational systems, risks impacts to service. Our customers are clear that their priority is the availability of a safe and resilient service. We will always prioritise a safe and resilient service and, as such, do not agree the CAA should consider reducing asset management costs which are necessary to achieve that aim.

To clarify: we do not agree the CAA should consider reducing asset management costs as a consequence of delay in the portfolio, most of which has been as a result of the Covid-19 pandemic.

We have restated the investment plan in Appendix B to this Chapter with a greater level of detail, and will seek to develop detail in line with the 2+5 approach in NR23.

Scope

The overall scope of DP En Route remains as submitted within the NR23 business plan. The plan has been reconstructed to simplify the delivery and take advantage of opportunities from suppliers. This means that some of the specific interim deliverables have changed. However, the final delivered solution remains as previously stated. The changed timescale for DP En Route will mean that benefits have been rephased in line with the revised plan.

Benefits and service quality

As a result of changes to traffic forecast and the rephasing of some airspace change and the DP En Route programme we have re-assessed the benefits expected from the change portfolio. This is restated in the Appendix to this Chapter. These benefits have been modelled against the expected service quality outputs: and our responses on Safety, Capacity and Environment service delivery are contained in Chapters 3, 4 and 5 respectively.

Delivery of the airspace modernisation programmes

There is continued uncertainty over the timing of consultation for FASI changes which has impacted our airspace planning. As a consequence of these FASI changes and continued constraint on our delivery capacity, we have needed to make some changes to the airspace plan. The changes to the DP En Route plan have also required us to rephase our final stages of Free Route Airspace delivery. This has resulted in a minor reduction in investment in NR23 (less than 10%). We remain committed to the delivery of airspace modernisation in line with ACOG plans.

Resilience

Our number one priority is to ensure that a safe, resilient service is available to meet reasonable demand in line with our Licence requirements. We have rephased our sustainment investment in line with the changes to the DP En Route programme to ensure we can assure the resilience of the operation. Sustainment investment will change to meet changing risk profiles; this is managed through our service and asset management processes and we inform customers at TCAB of any changes in the risk profile. Any consequential change to the programmes is consulted through the SIP process.

9.8. Potential further reductions in capex allowance

CAA Proposal

In its **base case**, the CAA proposes that there should be a reduction in NERL's risk and contingency allowance, to bring it into line with the RP2 and RP3 baselines. For its **low case**, the CAA has proposed a reduction in all capex programmes other than airspace, DP En Route and Common Platform. This latter reduction would be based on an assessment of NERL's response to the CAA's Initial Proposals where the CAA has requested better information.

NERL Response

As we have noted in an earlier response, we have reduced the scale of capex contingency from our original Business Plan to 1.6% of the portfolio to balance the adjustments we have made to the portfolio since we submitted the Business Plan.

Given the evidence we have provided in our business plan, consultations and subsequent requests from the CAA for further information, we consider the full allowance for capex as submitted in our business plan is both justified and required. The maintenance of a safe and resilient service requires the sustainment of our current operational systems; this is our first priority. As a result, the proposal by the CAA to ringfence a number of programmes at the

expense of proposing reductions in the Sustainment and Surveillance programme misunderstands the critical priority of the Sustainment and Surveillance programme. The Sustainment and Surveillance programme continues to ensure the availability of a safe and resilient current operational service. Reductions in this programme would not be logical as we would always place the safety and resilience of our operation ahead of investment in any other programme.

The CAA has proposed an 8% cut to all programmes (other than DP En Route, Airspace and Common Platform) but the calculation of this adjustment has not been evidenced by the CAA. We are not clear on what basis the CAA has suggested a low case model for capex other than 'it is consistent with an adjustment we applied in RP3 to reflect the lack of detail and information in NERL's capex plan'[86]. Based on our assessed delivery capacity for change, our approach was to discount the 'higher effort-higher risk-higher benefit' strategy in favour of a more realistic middle strategy. As acknowledged by Steer and the CAA, this results in a 'capital programme for NR23 which is substantially smaller'[87]. As a consequence of this, NERL's NR23 proposed capital allowance is 25% lower than the original RP3, which has been achieved by prioritising and smoothing the investment profile delivered through the mature portfolio planning methodology used by NERL to assess business need in these categories for NR23. A reduction of 8% to the Sustainment, Information Solutions, Property & FM and Oceanic capex categories may be consistent with an adjustment applied in RP3 but it does not reflect the current business context which is very different to that which prevailed pre-Covid 19; nor does it reflect our careful planning process. We therefore do not believe the comparison to RP3 is relevant nor the actions proposed.

In summary: the action we have taken to adjust our investment plan and reduce our risk and contingency allocation means any further reduction would be unjustified. In addition, we consider we have provided sufficient evidence to support the full capital allowance we have proposed.

[86] CAP2394, paragraph 4.133
[87] Steer (October 2022) paragraph 4.5.12

10. Oceanic

10.1. Overview

Our key responses to the CAA's Initial Proposals for Oceanic are as follows:

- **Traffic forecast**: we welcome the use of our forecast for the CAA's Initial Proposals and request the CAA adopts our most up-to-date forecast in its final performance plan decision.
- **Service targets**: there is a need to recalibrate our Oceanic service performance targets, specifically, *requested clearance vs clearance received*, following the material uplift in our STATFOR October 22 derived oceanic forecast. We propose to engage with airlines during Q1 2023 and seek their endorsement on performance measures and targets over NR23.
- **Staff opex**: the CAA's proposed reduction in staff opex is not supported by evidence, in light of the greater productivity which the operational workforce will need to deliver over NR23 to meet the new higher levels of traffic and to ensure sufficient resources are available to deliver the planned Oceanic capital investment.
- **Pensions**: NERL is aligned with the CAA on its objective of ensuring that pension costs are in a reasonable and efficient range, which we have achieved for NERL's NR23 Defined Benefit scheme costs as acknowledged by CAA's advisers. However, we do not agree with the CAA's proposals to reduce the Defined Benefit pension cost allowance even further within this efficient benchmark: these ignore relevant benchmarking information (notably The Pension Regulator's analysis on the single equivalent discount rate for large schemes) and the benefits of recent discount rate changes, and will introduce additional investment and covenant risk to the scheme which will increase costs to customers.
- **Capital expenditure**: we support the CAA's view in applying no adjustments to capex in the base case as this will facilitate the successful delivery of essential investments to the oceanic operation. Any reduction in capex, as per the CAA's low case, would be counterproductive, as it would result in delays to programmes designed to improve service performance and operational efficiencies.
- **Financial risk**: we present further evidence in support of our proposal to extend the en route Traffic Risk Share mechanism to the Oceanic core charge[88]. Without a traffic volume risk sharing mechanism, variances in revenue caused by changes in oceanic traffic levels represent a material risk to the oceanic service (which should otherwise be reflected in the allowed WACC or alternative risk allowances). We recommend that the CAA reassesses the evidence and argument.

[88] Set out in Chapter 13 Regulatory Model

- **ADS-B unit cost:** New evidence has emerged since the business plan submission, in the form of flight hours, financial market developments and traffic. The allowance for ADS-B unit cost should be revised to reflect this new evidence and the pass through nature of these costs to our customers.
- **Oceanic RAB:** we have identified inconsistencies between the text and tables in the Initial Proposals and the CAA's policy decision to make no adjustments to Oceanic capex in the base case. Following clarification questions, we believe the CAA has made an error in this regard: we request that it updates its analysis to reflect a capital expenditure allowance that is in line with NERL's BP.

10.2. Summary of CAA proposals

For Oceanic, the CAA proposes:

- the method for calculating the Oceanic price control mirrors the method for calculating NERL's UK en route price control with no changes to the CAA's approach to WACC or the Oceanic RAB, compared to RP3
- the forecast derived by NERL from the STATFOR October 2021 forecast is the appropriate approach for their Initial Proposals
- for most building blocks, the CAA has assessed NERL's costs at a total level and proposes different price controls for UKATS and Oceanic based on NERL's allocation of costs (after applying efficiency adjustments)
- a base case and a low case are proposed for Oceanic:

Table 10-1

Reductions in £m, over the NR23 period	Base Case	Low Case
Staff opex	-5.0	-6.5
Pensions	-5.3[89]	-8.6
Non-staff opex	-0.3	-0.3
Capital expenditure	0.0	-1.7

- not to adopt NERL's proposal to extend the TRS mechanism to the Ocean at this stage
- to retain ADS-B with the two-tier charging arrangements for North Atlantic and Tango, with an independent cost benefit review to commence at an appropriate time in NR23
- to defer their approach for Oceanic service quality until their final performance plan decision, to consider NERL's planned engagement with airlines

[89] The CAA confirmed pensions in CAP2394 Table 9.8 is incorrect as it includes DB deficit repair costs for 2025 -2027. The CAA confirmed pensions in Table 9.3 is correct.

10.3. Traffic

NERL response

The CAA considers that the traffic forecast derived by NERL from the STATFOR October 2021 forecast is the appropriate approach for their Initial Proposals. The CAA explored the availability of other forecasts in response to feedback from stakeholders, however, STATFOR does not publish a specific Oceanic traffic forecast and the ICAO North Atlantic Economic Financial and Forecasting Group (NAT EFFG) has not published a forecast since the Covid-19 pandemic began.

We welcome the use of our forecast for the CAA's NR23 IPs and encourage the CAA to adopt our most up-to-date forecast in their final performance plan decision. As described in our traffic response and shown in Chapter 2 and below, our recent STATFOR October 2022 derived Oceanic forecast shows a material uplift in comparison to the STATFOR October 2021 derived forecast, with Oceanic traffic growing significantly in the base case, to 120% of 2019 traffic by the end of NR23. This has implications on our service performance, operational expenditure and productivity, as described below.

As at the end of November 2022, we expect Oceanic traffic levels for the whole of 2022 to be c. 90% of 2019, but with considerable day to day variability, ranging from 79% of 2019 to 112% of 2019 throughout November 2022 alone. Taking 2022 thus far, outturn traffic is approximately three percentage points below the low case, and traffic levels over Autumn 2022 indicate that we are currently following the low case scenario. Therefore, we will continue to assess outturn traffic against the forecast and may provide an updated view to the CAA on the medium to long term Oceanic forecast in Q1 2023.

Table 10-2

Oceanic Flights (000s)	2019	2020	2021	2022	2023	2024	2025	2026	2027	NR23
STATFOR Oct 22 Derived										
High	508	213	265	493	569	595	612	630	646	3,052
2019%		*42%*	*52%*	*97%*	*112%*	*117%*	*120%*	*124%*	*127%*	
Base	508	213	265	484	535	566	581	595	608	2,885
2019%		*42%*	*52%*	*95%*	*105%*	*111%*	*114%*	*117%*	*120%*	
Low	508	213	265	473	507	530	540	551	560	2,689
2019%		*42%*	*52%*	*93%*	*100%*	*104%*	*106%*	*108%*	*110%*	
STATFOR Oct 21 Derived										
Base	508	213	234	386	499	488	498	509	520	2,515
2019%		42%	46%	76%	98%	96%	98%	100%	102%	

Table 10-3

Oceanic flights[90]	2019	2020	2021	2022	2023	2024	2025	2026	2027
('000s)	*Actual*	*Actual*	*Actual*	*Plan*	*Plan*	*Plan*	*Plan*	*Plan*	*Plan*
North Atlantic flights	467	197	249	444	492	520	534	547	559
Tango flights	42	16	16	40	44	46	47	49	50
Total oceanic flights	508	213	265	484	535	566	581	595	608

10.4. Service Quality

NERL response

Based on the STATFOR derived October 2021 oceanic forecast and 55 Oceanic ATCO FTEs, we consider the oceanic service performance targets proposed in our NR23 business plan to be challenging yet achievable. Using historic performance, our analysis of the revised traffic forecast indicates that there will be no direct impact on our safety obligations, as Space Based ADS-B provides sufficient mitigations and resilience; we will be able to sustain 80% of flights being cleared for variable speeds[91] as previously proposed in our NR23 business plan.

Without additional Oceanic ATCO FTEs, however, the increase in expected traffic (as per our STATFOR derived October 2022 oceanic forecast) will directly impact the percentage of flights being provided with their requested clearance and the achievability of the 90% target proposed in our NR23 business plan. Our analytical assessment using historic data indicates we will be able to sustain at least 65% requested clearance vs clearance received (does not include operationally equivalent profiles), with an increase towards the end of the period to over 70% as an outcome from the introduction of the traffic management toolset.

We expect including operationally equivalent profiles to elevate this figure by 5 to 10 percentage points. We propose to engage with airlines during Q1 2023 on performance measures and seek their endorsement on service performance measures and targets over NR23.

The STATFOR derived October 22 Ocean forecast (base case) shows traffic at 120% of 2019 levels in 2027. If we were to aim to achieve the service performance levels proposed in the NR23 business plan at these traffic levels (90% requested clearance vs clearance received (or operationally equivalent)), additional ATCO FTE above our core plan submission for the Ocean would be required. The number of additional ATCO FTE required is partly mitigated by Space Based ADS-B from an additional 7 ATCO FTE to an additional 5 ATCO FTE.

As our plans already maximise available training capacity to recover the lost progress from the enforced 13-month suspension of unit training activities and two-year closure of the training

[90] This includes non-revenue flights and does not isolate T9 and T290 flights from other South East Corner routes.
Includes a modelled split between North Atlantic and Tango for forecasting purposes
Actual Oceanic traffic in NERL's regulatory accounts in ('000s) are 2019: 505, 2020: 209 and 2021: 260, reflecting chargeable flights.
Actual Tango traffic in NERL's regulatory accounts in ('000) are 2020: 7.7, 2021: 10.2 and forecasted to be approx. 2022: 30k
[91] Variable mach - to allow speeding up/slowing down to achieve operational benefits

college in response to Covid-19, our intended approach is to absorb the increase in expected traffic through greater productivity of our existing staff, far in excess of the productivity cited as a justification for the CAA's proposed reduction in staff opex. This is, however, likely to impact our service performance as described above. Increased levels of targeted seasonal overtime could be utilised as a temporary measure to achieve higher levels of service performance while waiting for additional Oceanic ATCOs to become available (likely to be in early NR28). SRATCOH rules[92] and employee relations will, however, limit the extent to which overtime could be utilised. Initial analysis indicates that an additional staff opex of c.£1m over NR23 could result in a 2 percentage points increase in flights receiving their requested clearance.

10.5. Opex: staff costs

CAA proposal

- **Base case:** A reduction in staff opex of -£5M over the NR23 period, with the assumption of lower growth in average wages relative to CPI, a higher assumed level of ATCO productivity and a lower number of graduates required in NR23

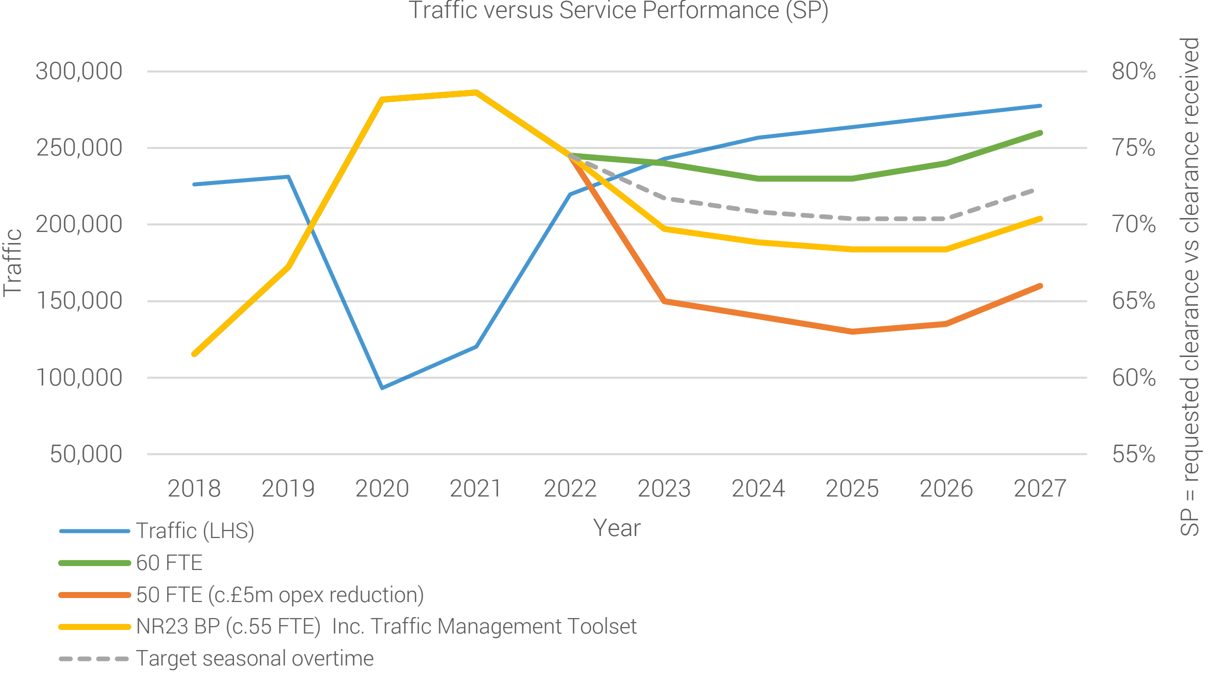
- **Low case:** A further reduction of -£1.5M over the course of NR23, relative to the base case, to bring NERL staff cost level more in line with benchmarking carried out by Steer

NERL response

The proposed £5 million reduction in Opex (CAA's IPs base case) will not have a direct impact on our safety obligations, as Space Based ADS-B provides sufficient mitigations and resilience. However, as each operational watch is small, any reduction in operational head count will have a direct and significant impact on the level of service we provide our customers. We predict an average decrease in service performance of 5% using our current Condition 11 metric of requested clearance versus clearance received. This decrease represents an additional 13,100 flights per annum that will not receive their requested Westbound trajectory in Shanwick, significantly increasing fuel burn and CO2. For flights already within the Shanwick region, there will be a reduction in customer focused services, with fewer proactive climbs and direct routings being offered and less ability to respond quickly to routine requests.

[92] Scheme for the Regulation of Air Traffic Controllers' Hours, part of CAA (2022) CAP670 Air Traffic Services Safety Requirements

Figure 10-1



Additionally, a reduction in headcount within our engineering team would hinder our ability to implement the capex programme, and most notably the technical refresh required as a result of the previous accumulation of technical debt. This will manifest itself in an increasing risk of failures over and above the 3 service outages in CY22 (and hence delays), as equipment continues to become end of life, and manufacturers continue to withdraw support.

The proposed £6.5m reduction in Opex staff costs (CAA's IPs low case) would further impact service performance and reduce the delivery capacity of the capital investment programme to an extent that we will also no longer be aligned with our strategic partners.

In terms of CAA justification, our analysis and response to the assumptions of lower growth in average wages relative to CPI and a lower number of graduates required in NR23 are detailed in our response to operating costs; these also apply to Oceanic. The following section addresses the Oceanic ATCO productivity assumption.

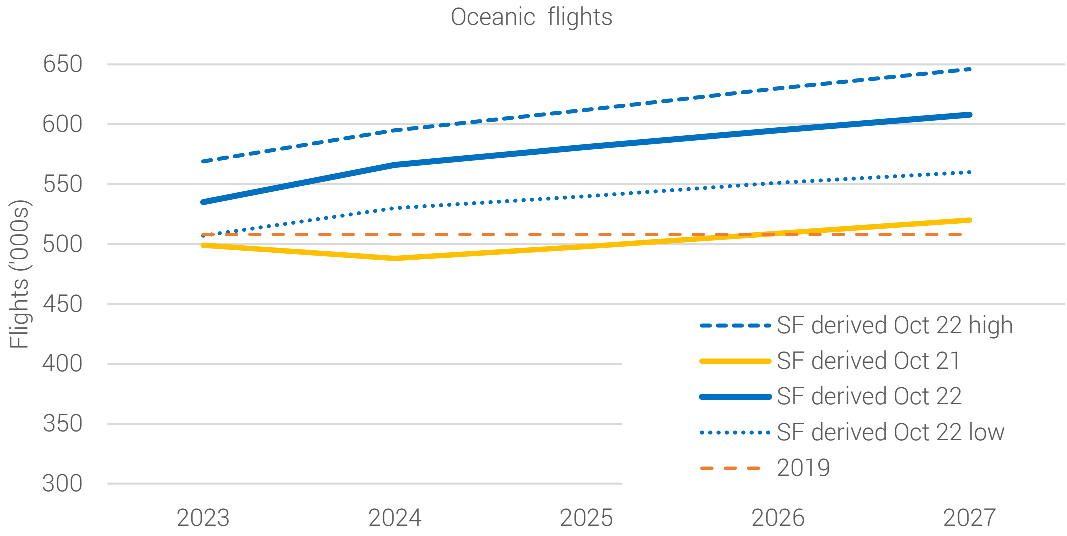
Oceanic ATCO productivity

In terms of productivity, the Shanwick oceanic operation offers a highly efficient service to customers and the largest aircraft per controller ratio across the NATS operation. Our analysis and response to CAA's proposals that NERL should be able to achieve productivity growth of 1.5% year on year from 2025 onwards for UKATS are mirrored here in the Ocean, with the impact of the revised traffic forecast being even more significant.

Impact of increased traffic forecast

The STATFOR derived October 22 forecast represents a 7% - 17% increase in demand per year over NR23, in comparison to the STATFOR derived October 21 forecast, with the gap widening over the whole period, as shown in below:

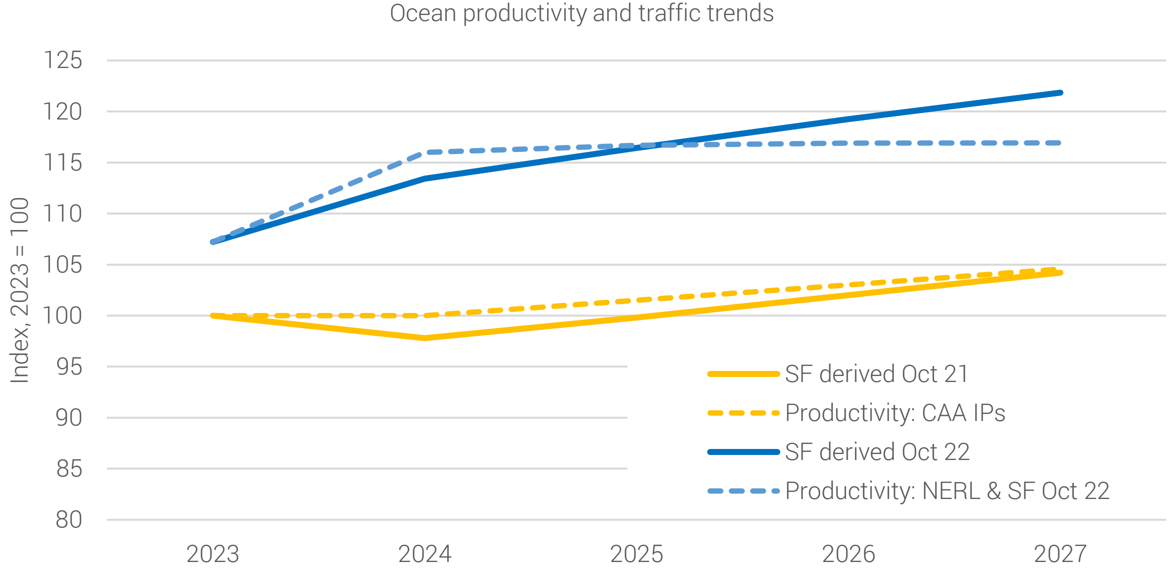
Figure 10-2



The CAA's assumed CAGR of ATCO productivity of 1.1% per annum over NR23 as a whole is insignificant compared with the 2023 starting position being 7.2% above the STATFOR October 21 forecast, on which the CAA's IPs are based, followed by an annual average difference in growth rates of 2.2% between the STATFOR derived October 21 Ocean forecast and STATFOR derived October 22 Ocean forecast.

With no change in ATCO resourcing into the operation from the NERL NR23 business plan, simply by handling the additional volume of traffic which is now forecast, we would deliver more productivity growth over the period (2.2% per year, with 13.6% increase in demand from 2023 to 2027) than would be delivered by the CAA's proposals (1.1% per year, 4.2% increase in demand from 2023 to 2027) through the suggested staff cuts. This is in addition to a 2023 base which is higher than 2019 traffic, 7.2% more than assumed in CAA's IPs. This is clearly illustrated in Figure 10-3 below.

Figure 10-3



We propose that the CAA removes the proposed ATCO staff cut for the Oceanic price control, in recognition of the greater productivity which the operational workforce will need to deliver over NR23 to meet the new higher levels of traffic.

10.6. Pensions

CAA proposal

The CAA has estimated two cases for the efficient cost allowances for pension costs based around Defined Benefit (DB) pension assumptions, DC pension rates, and the mechanical impact of their proposals for ATCO productivity and staff wage rates on pension costs:

- **Base case**, which informs the CAA's proposals, that reduces projected pension contributions in NR23 by adjusting (DB) costs downward from 2025 based on a Government Actuary's Department (GAD) estimate of an 85th percentile discount rate assumption, a lower Defined Contribution (DC) scheme contribution rate of 12% for new joiners from 2024, and applying the CAA's base case staff costs efficiencies to our DB and DC scheme projections. These adjustments result in a cumulative reduction in pension costs of £5.3 million over NR23, relative to NERL's business plan.

NERL response

Please refer to Chapter 7: Operating costs, section 1.6 as the same points apply equally to the adjustments applied by CAA on the same basis for the Oceanic business.

10.7. Capex

CAA proposal

- **Base case:** No reduction in the Oceanic capital expenditure (CAA's base case), based on the assumption that the risk and contingency allowance proposed by NERL in its business plan is allocated to the UKATS capex portfolio, for which the CAA has proposed a reduction.

- **Low case:** Adjust Oceanic capex costs by 8% relative to NERL's business plan. This is to reflect the lack of detailed information in NERL's capex plan[93].

NERL response

NERL supports the CAA's view in applying no adjustments to the capex in the base case as this will facilitate the successful delivery of essential investments to the oceanic operation. Any reduction in the capex (as per the low case example) would result in unachievable project deliveries and significant service impacts to our customers.

The current infrastructure will not be able to efficiently manage the increase in traffic demand forecast towards the end of the NR23 period. Therefore, the priority for the NR23 Oceanic Programme is addressing the technology deficit that has built within the supporting Oceanic systems. This will be addressed through two main deliverables:

- the situational display (ATCO workstation) upgrade

[93] Table 9.4 of CAP2394a includes row headings labelled as "base case". We assume these are mis-labelled and should in fact be labelled as "low case".

- the re-platforming of the GAATS+ system onto a modern hardware and software environment

Without these deliverables, future operational upgrades in support of customer benefits as proposed through the NAT vision 2030 cannot be delivered.

Any reduction in Capital Expenditure, as per the low case, will be directed at the remaining elements of the programme which are designed to improve service performance for the airline users and improve operational efficiencies, including:

- Traffic and Workload Management tools will use data to predict traffic demand and optimise traffic management. Reducing workload on both the controller and planning functions and resulting in more optimised routings for customers

- Message Entry and Correction System (MECS) Optimisation will bring more systemisation to the workstation and reduce the workload on Oceanic support staff. Additionally, the MECS terminal is written in Delphi in a Windows XP environment, and if this function remains an integral part of the operation, this element of technology deficit will need to be addressed in NR28.

Additionally, any capex reduction will bring with it the real risk that NERL is unable to remain aligned with the current NavCanada software state, which in turn means that future changes will be considerably more expensive.

However, while the CAA base case states no capex efficiencies have been applied to the Oceanic price control, there is a £2m reduction to regulatory deprecation shown in Table 9.7 in the IPs. In response to our query, the CAA advised that the adjustment relates to the CPI/RPI wedge. We have been unable to replicate this and do not believe it to be the case. We request CAA reviews its analysis and provides clarification or correction of the proposed reduction.

10.8. Traffic Risk Sharing (TRS)

We respond to the CAA's assessment of our proposal for a TRS mechanism for the Oceanic service in the Traffic Risk section of the Regulatory Model Chapter 13.

10.9. ADS-B

CAA proposal

The CAA proposes to retain ADS-B with the two-tier charging arrangements for North Atlantic and Tango and has used NERL's forecasts of ADS-B costs in their NR23 Initial Proposals. The CAA anticipates an ADS-B review will commence at an appropriate time in NR23 once suitable data is available and metrics have been developed, with appropriate input from stakeholders.

NERL response

We welcome the CAA's proposal to retain ADS-B, which will continue to provide significant safety benefits to our customers. We agree with the CAA that developing appropriate metrics

to measure the costs and benefits of ADS-B should not be addressed as part of the NR23 process but should instead be dealt with separately in the context of the ADS-B review.

The Project Telstar team was awarded the Royal Aeronautical Society's Silver Medal[94] in 2022 for their innovative introduction of space-based ADS-B technology, safely enabling real-time surveillance and safely reducing minimum separation standards to increase access to the most fuel-efficient trajectories, making flight operations within the world's busiest oceanic airspace safer, more predictable, more fuel efficient and more environmentally sustainable for all.

Update on ADS-B unit costs per flight

The North Atlantic ADS-B unit cost per flight is based on a fixed charge per flight, whereas the Tango ADS-B unit cost is based on a fixed cost which is spread over the number of Tango flights. New evidence since the business plan submission, in the form of flight hours, exchange rates, traffic and inflation, provides the basis for updating our forecast unit costs for ADS-B.

Flight Hours: As in RP3, the North Atlantic ADS-B unit cost is derived from a $ per flight hour charge from Aireon, using an assumption on the number of hours on average for each flight. This assumption was fixed at 1.075 hours across the plan horizon in the NR23 plan, however, recent analysis of actual movements over a 12-month period concluded that the average transit time in the North Atlantic is actually 3% higher than previously assumed, at 1.112 hours.

Exchange rate between US$ and GBP£: For the NR23 plan, we used hedged values until October 2024, then a Treasury forecast (based on Bloomberg) for the remainder of the NR23 period, and slight differences between the inflation assumption in the contract with Aireon and the inflation forecast used in the NR23 plan. The exchange rate between US$ and GBP£ has materially changed since producing the NR23 plan and recent forecast for 2025-2027 shows the £ over 12% lower on average versus the $ than the forecast used for the NR23 BP submitted in February 2022. This will have an impact on the unit cost per flight (£) in years 2025, 2026 and 2027. As we are currently hedged approximately 80% out to December 2024, the impact of the sudden exchange rate variation on the unit cost per flight (£) for 2023 and 2024 will be relatively small.

Traffic: The Tango ADS-B unit cost is based on a fixed cost which is spread over the forecast number of flights. Although the Tango ADS-B unit cost fluctuates for the same exchange rate reasons as the North Atlantic, these movements are outweighed by the effect of increasing flight volumes in the October 2022 forecast against the fixed cost of the service – this results in a decreasing unit cost.

Inflation: Increased UK inflation (and the relative movements in inflation between US and UK inflation rates) have increased prices in nominal terms. These revised prices have been deflated to 2020 prices based on the updated indices currently being used for business planning.

[94]https://www.aerosociety.com/media/19750/2022-medals-and-awards-brochure_final.pdf (Accessed 6 December 2022)

Error! Reference source not found. below shows the Oceanic unit costs, updated to a ccommodate the new evidence above.

Table 10-4

£, CY, 2020 prices[95]		2023	2024	2025	2026	2027
North Atlantic ADS-B unit cost (£)	NR23 BP Submission	32	32	30	30	30
	REVISED	32	31	32	33	34
Tango ADS-B unit cost (£)	NR23 BP Submission	6	6	5	5	4
	REVISED	1	3	3	3	3

Aireon negotiation: We have also been successful in negotiating a lower charge for 2023 Tango ADS-B data. Although this is only a temporary reduction, this negotiation has helped to further reduce the Tango ADS-B unit cost for 2023.

Since new evidence has emerged since the business plan submission, the allowance for ADS-B unit cost should be revised to reflect this new evidence and the pass through nature of these costs to our customers.

10.10. Oceanic RAB

CAA proposal

The CAA's proposed RAB for Oceanic for NR23 is lower on average than NERL's proposal (£16m lower over NR23), driven by[96]:

- lower capital expenditure allowance than in NERL's business plan
- lower allowed depreciation allowance resulting from the lower capital expenditure allowance.

NERL response

The CAA's average depreciation is also slightly lower than NERL's proposal, driven by the CAA's lower proposed capital expenditure allowance than NERL has proposed in its business plan, which lowers depreciation as it is a function of the existing RAB and new capital expenditure.

This is inconsistent with the CAA's policy decision[97] to make no adjustments to Oceanic capex in the base case. In response to our request for additional clarification, the CAA confirmed that it had not made a capex efficiency for Oceanic and the proposed allowance for Oceanic capex in NR23 is the same as NERL's BP. The CAA also advised us that they have assumed higher rates of CPI and RPI inflation, and a higher RPI-CPI wedge than in NERL's BP, and expect this to be one of the drivers of lower RAB and lower depreciation in the Initial Proposals.

[95] Index used to deflate revised outturn forecast to 2020 prices, where 2020 = 100, are as follows 2023: 118, 2024: 120, 2025: 122, 2026: 123, 2027: 125
[96] The CAA has confirmed the regulatory return and tax figures are incorrect in Tables 5.8 and 5.6, respectively.
[97] CAP2394a, paragraph 9.19

This explanation does not align with Table 9.6 or Table 9.7 of CAP2394a or with the justification given in paragraph 9.27 and 9.29 of CAP2394a. We therefore assume that the CAA has made an error in the Initial Proposals publication. We recommend therefore that Tables 9.6 and 9.7 and the accompanying justification in paragraph 9.27 and 9.29 of CAP2394a will be updated to reflect a capital expenditure allowance that is in line with NERL's BP.

11. Cost of capital

11.1. Overview

The CAA has proposed a vanilla RPI-deflated WACC range of 2.04% to 3.59% and has used the mid-point of 2.81% in its Initial Proposal. This is 73bps lower than NERL's proposal of 3.54% in its NR23 business plan. That difference was predominantly due to different approaches to the estimation of NERL's asset beta for NR23, as different assessments of the other parameters (risk-free rate, total market return, cost of debt and gearing) largely offset each other.

Consequently, our response to the CAA's Initial Proposals for cost of capital focuses principally on the errors and misjudgements that the CAA has made in estimating asset beta:

- the CAA uses a convoluted method for dealing with pre- and post-pandemic data points that creates a permanent legacy within the estimation of NERL's asset beta that can and should be avoided
- the CAA has placed insufficient weight on ENAV's asset beta, despite the CMA considering it to be the most appropriate comparator
- the CAA has provided inadequate explanation for its decision to cut-off the top end of Flint's range for asset beta.

Other key elements of our response on cost of capital relate to a point that the CAA itself acknowledges in its Initial Proposals, namely that market conditions have evolved significantly from the cut-off point used by the CAA of 31 March 2022. These changes in conditions will have a material impact on the CAA's final decision for cost of capital for NR23.

We have commissioned Oxera to provide an updated report on cost of capital[98]. This report is based on a cut-off date of 11 November 2022. As this is only 7 weeks before the start of NR23, we consider that this data is appropriately representative of conditions at the start of NR23. However, we acknowledge that the CAA may wish to refresh this data, particularly in relation to the risk-free rate and cost of debt, ahead of forming its final decision for cost of capital for NR23.

Oxera propose an updated range for the real, vanilla post-tax WACC of 3.41% to 4.48%, based on a gearing assumption of 40%. We consider that it would be appropriate for the CAA to adopt the mid-point of 3.95% in its final decision. This mid-point is higher than alternative scenario in the Initial Proposals of 3.05%, principally due to differences in the estimate of NERL's asset beta. CAA adopts a point estimate of 0.59, whereas we and Oxera consider that the new evidence available to the CAA along with application of CMA's approach to the comparator set indicate that a point estimate of 0.68 is more appropriate for NR23.

[98] Oxera (November 2022) NR23 cost of capital: November 2022 update

11.2. Asset beta

CAA proposal

The CAA proposed an asset beta range of 0.54 to 0.64, based on a report commissioned from Flint Global ("Flint"), whose method centres both on placing less weight on pandemic-period data, and less weight on ENAV in the assessment. CAA then without solid foundation or justification, ignores the top half of the full range recommended by Flint.

NERL response

Accounting for pandemic impact on asset beta

The general approach used by Flint, and adopted by the CAA, to estimate the asset beta places lower weight on data from the pandemic period, in order to ensure that the impact of the pandemic is not over-represented in the asset beta estimates. We agree that there is a need to consider the impact that the pandemic has had on the asset beta of comparable companies.

However, the general approach taken by the CAA has a number of shortcomings:

- it implies that the COVID pandemic ended on 31 March 2022, whereas in reality it is evident that the effects of the pandemic were still being felt by the aviation sector beyond this time and into NR23
- the approach can lead to important information about outliers being excluded, leading to an under-statement of tail risk
- it relies on an assessment of the duration and frequency of future pandemic-like events, which is highly subjective
- the implication of the approach is that such adjustments for future pandemic-like events will be needed for all future price controls so that the risk is appropriately reflected in the cost of capital over the long run. We consider that this is not a desirable outcome for NERL, customers or the CAA and therefore the CAA should not adopt such an approach for NR23.

Comparator companies

In relation to the comparator set, and despite the CMA considering that was a useful comparator for NERL, the CAA has chosen to place limited weight on ENAV's beta. The rationale for this appears to be unjustified. The CMA took ENAV's pre-pandemic asset beta into consideration in its final report and made no mention of ENAV exhibiting higher volatility than other comparators. As such, the CAA's argument that instability of ENAV's beta over time justified a lower weighting is mis-placed. The second argument from the CAA for a lower weighting of ENAV data appears to revolve around the fact that ENAV's beta is continuing to rise, while the airport betas are falling. We are concerned that this amounts to the CAA/Flint excluding a critical data point because it does not fit with the hypothesis that underpins their approach to estimating the NR23 beta (namely, that we should be witnessing a reversion of betas to pre-covid levels). Rather than this being cause to downplay the ENAV data, it represents highly relevant market evidence from the only other listed European ANSP that should be taken into account for NR23. The CAA should place at least equal weight, and better still greater weight, on the ENAV beta as it does the other comparators.

In addition to these methodological concerns, we consider that the removal by the CAA of the top end of Flint's range for asset beta is arbitrary, has not been substantiated with objective evidence, and appears to contradict the CMA's findings. NERL has higher operating leverage

than the airports. The CMA recognised that the risks faced by NERL and the airport comparators were different, but there was no evidence that these risks were greater or smaller. Furthermore, Flint recognised the cost reduction challenges faced by ANSPs. Finally, as ENAV's beta currently sits above the top end of the CAA's range and above the level of the airports, it shows that the top end of Flint's range is not unrealistic for an ANSP with a traffic sharing mechanism. The CAA should re-instate the top end of Flint's range in its final decision.

Oxera recommend a beta range of 0.61to 0.74 matching the full spectrum of empirical data available across 1y, 2y and 5y beta timeframes. We conclude that the new evidence available to the CAA does indeed support such a range and we consider that adoption of a mid-point estimate would be appropriate, particularly given the particular relevance of the ENAV asset beta at the upper end of this range. This would represent an increase in NERL's asset beta relative to RP3 and would be consistent with the CAA's view that *"NERL's asset beta is unlikely to return to its pre-pandemic level for at least some considerable time."*[99]

Debt beta

In relation to debt beta, we agree with the CAA's proposed approach to maintain this at 0.05. However, as the CMA's range for PR19 of 0.05 to 0.10 was based on a notional gearing of 60%, the CAA should consider with caution any increase in NERL's debt beta above 0.05 as a result of increasing the gearing assumption for NR23 on the basis that the resultant gearing is highly likely to be lower than that assumed by the CMA for PR19.

11.3. Risk-free rate

CAA proposal

The CAA proposed a range of -2.78% to -2.41% for the risk-free rate, based on 10-year index-linked gilts. UK government bond yields have clearly changed significantly since the CAA formed this range and so the starting point for the CAA's calculations will need to be refreshed. The CAA acknowledges[100] that this element of its analysis will indeed need to be updated in its final decision.

NERL response

In terms of methodology, we and Oxera agree that use of a trailing one-month average is appropriate, given market volatility. There is also agreement in relation to the use of a convenience yield, albeit not agreement in relation to its scale, to which Oxera provide updated market evidence further supporting a value of 50bps. However, having agreed that a convenience yield is appropriate and established a value of 37bps, the CAA then allows only half of this convenience yield in its mid-point estimate of the cost of capital. Such an approach is not justified and should be corrected in the final decision for NR23 by applying the full value of the convenience premium to both ends of the RfR range.

Aside from the CAA's inappropriate application of its convenience yield, the only other area of methodological difference is in relation to the inclusion, or otherwise, of a forward adjustment. Relative to the other elements of the risk-free rate calculation, this adjustment is the least

[99] CAP2394b paragraph C99
[100] CAP2394, Appendix C, paragraph C9

significant but nonetheless warrants consideration by the CAA given the current interest rate environment.

Oxera's updated range of 0.94% to 1.31%, using market data up to 11 November 2022, incorporates a trailing one-month average of the spot yield on 10-year index linked gilts, alongside a 50bps convenience yield and forward adjustment of between 0.01% and 0.38%. This reflects what we consider to be a more appropriate range for setting the risk-free rate for NR23 than the range proposed by the CAA of -2.41% to -2.78%.

11.4. Total market return

CAA proposal

The CAA proposed a range of 5.2% to 6.5% for total market return, in line with the CMA's PR19 determination.

NERL response

Oxera's proposed range of 5.85% to 6.5% is principally different from that of the CAA's because the more subjective historical *ex ante* evidence forming the lower half of the CAA's range, is excluded by Oxera. Whilst these significant differences in approach continue to apply, Oxera highlight in their report several pieces of new evidence that the CAA should take into account in its final decision.

In terms of the macro-economic environment, the argument employed by the CAA (that historically low gilt yields and high inflationary pressure put the assumption of a consistent, stable TMR in question) unwinds given the new evidence available to the CAA. This evidence is represented by the prevailing climate of far higher government yields since the UK Government's fiscal event in September 2022 and a lower medium-term inflation outlook (over the course of the whole of NR23) published by the OBR[101] . This lower inflation outlook and higher interest rate environment reinforce the arguments for maintaining a stable TMR.

In addition, Oxera have re-considered the appropriate deflator series to adopt – in light of the CPI and CPIH inflation series favoured by the CAA and CMA – with the publication by the ONS of a new, more robust CPI backcast data series earlier this year. Oxera find that they are able to place greater reliance on this new CPI series, which result in marginal increases when compared with the equivalent returns using the previous CPI data, as well as consistency with Oxera's own previous range (on RPI-real terms) when factoring in the RPI-CPI wedge.

We consider that this new evidence reinforces existing arguments for a stable TMR and supports the existence of upward pressure on real return levels. Taken together this points to the CAA applying a total market return point estimate that is in the upper half of its proposed range of 5.2% to 6.5% and maintaining the notion of a stable TMR.

[101] OBR (November 2022) Economic and fiscal outlook, paragraph 14: "by the end of our forecast, the price level is 0.8 per cent lower than our March forecast"

11.5. Cost of debt

CAA proposal

The CAA proposed a cost of embedded debt of -1.02% (real), inclusive of debt to replace the bridge facility. At a high level, the approach taken by the CAA is broadly similar to that of Oxera and NERL. However, the CAA has introduced a change in methodology when calculating the cost of embedded debt. This reflects stakeholder views about incentive properties associated with basing an allowance for the cost of embedded debt closely on NERL's actual costs.

NERL response

We consider that the CAA's proposed change in methodology for embedded debt costs is both significant and unwarranted.

There are two main issues with this proposed approach:

- the CAA provided no signalling of this change in approach ahead of the refinancing in 2021, notwithstanding that the CAA was fully aware of the proposed refinancing activity
- more importantly, the fact that the yield on the bonds was different from a basket of benchmark indices does not mean that the bonds were necessarily inefficiently priced. The bonds were issued using several highly experienced bookrunners who tightened the pricing on the issuance date to the extent that some potential investors elected to withdraw. Furthermore, the bond issuances were highly commended at the Association of Corporate Treasurer's Deal of the Year 2021. As such, we find that CAA's assertion that the amortising bond was not efficient to be unfounded. Rather there should be a recognition that a genuine market test of NATS' credit provides stronger evidence than necessarily more distant benchmarks

Oxera's updated calculations for the cost of debt, which reflect the average NR23 value rather than opening value of the £450m amortising bond, an assumed bond issuance of £250m in 2023, and 2.8% long term RPI inflation leads to a total real cost of debt of -0.14%, compared to the CAA's -0.89%. This includes 13bps for transaction and liquidity costs, in line with the CAA's Initial Proposals and NERL's NR23 business plan.

We consider that Oxera's revised cost of debt of -0.14% is reasonable. However, we agree with the CAA that it may be appropriate to update the cost of debt allowance for any further issuance, or expected issuance, by NERL in NR23.

11.6. Gearing

CAA proposal

The CAA has adopted a gearing assumption of 30% for determining the cost of capital of the notional company. The CAA considers this to be a long-run level of gearing, which is lower than the 50% gearing that the CAA assumes in its assessment of financeability.

NERL response

Inconsistency of CAA approach with economic reality

The CAA's approach to gearing in setting the cost of capital is inconsistent with that adopted when it conducts its financeability checks. This points directly to the incoherence in the CAA's position, which stems from an excessively abstract notion of the notional company.

On the one hand, the CAA assesses the financeability of NERL, operating under the price controls set out in the Initial Proposals, and based on the CAA's assessment on a 'notional' financial structure. Under this structure, the notional company is assumed to enter RP3 with a ratio of net debt to RAB in line with its historical gearing prior to the pandemic[102]. This starting assumption is a reasonable approximation of NERL's actual gearing in the period to 2020. Combined with the CAA's assumptions about reasonable contributions from equity investors in the form of dividend forbearance, this assessment shows gearing rising from 2020 to around 60% in 2021 before reducing slightly in subsequent years, averaging between 40% and 50% over NR23. Again, this analysis of the notional efficiently financed company produces results which mirror closely the actual and projected financing metrics for NERL.

On the other hand, the CAA posits the existence of a notional company which, notwithstanding the financial rigours of the most severe disruption ever to commercial aviation, would notionally have returned to the CAA's measure of long run gearing level immediately following the CAA's arbitrary end date for the pandemic impact on air travel. This construct is so abstract as to be incredible and therefore not a useful guide to effective policy making.

The CAA appears to have overlooked the original purpose of the notional company concept. This was established by utilities regulators in order to provide a benchmark of a reasonable, resilient and sustainably financed company which did not seek to exploit potential asymmetric risks for equity investors inherent in the previous regulatory finance framework, i.e. to avoid the potential for a strategy of higher risk high gearing to fund high dividends being effectively cross-subsidised by consumers bearing the costs in downturns[103]. The notional company concept was not intended to allow the regulator to assume away all or any divergences of financial and economic markets from a notional equilibrium. All companies, notional and real, would need to operate with sufficient balance sheet flexibility and resilience to manage through the economic cycle and any other industry-specific shocks. The Covid-19 pandemic is just the most recent and extreme example of such a shock.

In summary, we agree with the use of the notional company concept for the CAA to set an independent-of-NERL test of appropriate gearing for setting the cost of capital allowance and for financeability checks. But we consider that the CAA has fundamentally misjudged the application of this concept in the current economic circumstances, which must be taken into account fully in assessing notional efficient company financing.

Market evidence to inform notional company gearing

Oxera has revisited the gearing levels of comparable companies, concluding that the average market value of gearing of AdP, Aena, Fraport, Zurich and ENAV was 34% at 11 November 2022. The spread of gearing was between 18% (ENAV) and 70% (Fraport), meaning that both the CAA's proposed level of gearing of 30%, and NERL's proposal of 50% reside within this comparator range.

[102] CAP2394, paragraph 6.63

[103] See for example, Competition Commission (2010) Bristol Water plc reference, section 10. The CC highlighted that the notional gearing estimate should be applied consistently to both the WACC calculation and the financeability assessment and that this was integral to achieving the financing duty, e.g. paragraph 10.25: "at the level of gearing assumed in our WACC, financial projections show Bristol Water's financial ratios are consistent with its retaining investment grade credit status".

As part of its final decision, we encourage the CAA to revisit its assessment that 30% is an appropriate long-run level of gearing for NERL. The CMA's determination of 30% at RP3 took into consideration NERL's actual gearing, the gearing of comparator companies and the impact that gearing had on the overall WACC. In our view, this remains a robust approach. The CAA's own analysis of financeability also shows the more plausible range for gearing, closer to 50%, of a notional efficiently financed company over NR23, and is a further piece of evidence to consider.

Based on the evidence presented by Oxera, we consider there is a strong case for the CAA applying a gearing assumption of 40% for NR23. This would narrow the unusual gap between the gearing assumed by the CAA for the cost of capital in the Initial Proposals with that of its initial financeability assessment. It would also be more reflective of the increase in gearing across the comparator set since RP3, and would be more reflective of the CAA's assumed actual gearing of NERL over NR23. Finally, based on the evidence presented by Oxera, it could reduce NERL's WACC relative to a gearing assumption of 30%.

11.7. Proposed WACC

NERL response

Table 11-1 below summarises NERL's updated estimate of the WACC for NR23, based on Oxera's revised analysis, compared to the CAA's proposals inclusive of their alternative scenario.

Table 11-1

Parameter	CAA (Low)	CAA (High)	CAA (Alt Sc)	NERL, based on Oxera (Low)	NERL, based on Oxera (High)	Narrative
Asset beta	0.54	0.64	0.59	0.61	0.74	CAA should uplift its proposed range
Debt beta	0.05	0.05	0.05	0.05	0.05	Alignment between CAA and NERL
Gearing	30%	30%	30%	40%	40%	Using the mid-point of the range of 30% to 50%
Equity beta	0.75	0.89	0.82	0.98	1.21	
RfR	-2.41%	-2.78%	-0.09%	0.94%	1.31%	Recognising changes in market conditions
TMR	5.2%	6.5%	5.85%	5.85%	6.5%	New evidence provides further support for CAA to select a mid-point estimate in the upper half of its proposed range
Cost of equity	**3.30%**	**5.51%**	**4.79%**	**5.77%**	**7.57%**	Mid-point of 6.67%
Cost of embedded debt	-1.02%	-1.02%	-1.14%	-1.17%	-1.17%	Bonds efficiently priced, using yield at issuance
Cost of new debt	-0.27%	-0.27%	0.76%	2.09%	2.09%	To be updated for market conditions and any further issuance ahead of final decision
Proportion new debt	0%	0%	0%	27.5%	27.5%	Assumes new debt issued in NR23
Issuance and liquidity costs	0.13%	0.13%	0.13%	0.13%	0.13%	Alignment between CAA and NERL
Cost of debt	**-0.89%**	**-0.89%**	**-1.01%**	**-0.14%**	**-0.14%**	
Vanilla WACC	**2.04%**	**3.59%**	**3.05%**	**3.41%**	**4.48%**	Mid-point of 3.95%

The mid-point of this range from Oxera of 3.95% is more reflective of current financial market conditions and of the new evidence available to the CAA since 31 March 2022. As such it represents a more appropriate cost of capital to use for the final decision than that put forward by the CAA in its Initial Proposals. We recognise however, that there will be merit in assessing whether further updates to the risk-free rate and cost of debt are required, given the recent financial market volatility.

12. Charges, financeability & other finance issues

12.1. Overview

The CAA has invited comments on its approach to assessing financeability. We have a number of concerns with the approach being taken by the CAA, the most material of which are:

- **Insufficient clarity within the RAB proposals** about how the CAA is actually providing certainty around recovery of the TRS revenue during NR28. This must be remedied in the final decision. Our recommendation is for the TRS to be included as a separate RAB line item, distinct from other working capital balances, and for the values that are to be recovered in NR28 to be included in the RAB rules as well as a specific licence condition.

- **Understatement of the tax allowance:** the tax allowance in the Initial Proposals appears to understate the modelled tax allowance in the price control model by £6m and also appears not to include any allowance for tax on the indexation of the TRS debtor.

- **TRS recovery and affordability**: the CAA's stated rationale for amending NERL's proposed TRS recovery profile is 'affordability'. As we state in the Introduction Chapter 1, this is not a credible basis for such a material financial decision.

- **Downside scenarios**: the analysis undertaken by the CAA under this heading is remarkably benign in the context of the current macroeconomic and geo-political environment, alongside the ongoing demand risks associated with the Covid-19 pandemic. The CAA should include in the final decision more extreme downside scenarios when assessing financeability. .

- **Equity financeability – return to shareholders**: the Initial Proposals introduce significant uncertainty in relation to the CAA's proposed treatment of NERL's pension costs and also its indexation of operating costs more generally. This gives rise to an elevated risk that the Initial Proposals do not provide a fair chance for NERL to earn the allowed return on equity over NR23. In this context, there is significant doubt as to whether the Initial Proposals are financeable from an equity return perspective. By way of a reference point, the CAA reductions to the pension costs and operating costs in NERL's business plan represent 75% of the CAA's allowed regulatory return for NR23 in these Initial Proposals. In its final decision, greater clarity is required from the CAA in relation to its proposals on pension costs and inflation, with consequential consideration of the likely impact on equity returns during NR23.

- **Equity financeability – dividends**: the approach taken by the CAA in relation to dividend forbearance is wholly inconsistent with its approach to the cost of equity and with the expectations of investors in regulated companies whose underlying asset base does not exhibit significant growth. They also show a lack of consistency with the CAA's approach for Heathrow. The CAA should increase the assumed dividends over NR23 and bring forward the assumed start point for the notional ANSP, so that it is more in keeping with investor expectations and also the CAA's approach for Heathrow.

In this Chapter, we respond to the finance issues, apart from cost of capital, addressed by the CAA in the Financial Framework Chapter 5 of its Initial Proposals. These include RAB, regulatory depreciation, inflation and tax. We also address the Charges & Financeability issues addressed by the CAA in Chapter 6 of its Initial Proposals.

12.2. RAB

CAA proposal

The CAA confirms its intention to set a RAB-based price control, and sets out in its draft RAB rules some updates for how the RAB should be calculated for NR23.

NERL response

As the CAA acknowledges, confidence as to the treatment of the TRS adjustment arising from 2020-22 (the Covid-19 adjustment) is going to be important in enabling NERL to continue to finance its licensed activities efficiently.

The expectation that these TRS revenues would be recoverable was fundamental to NERL's ability to finance its activities during the pandemic and this will continue to be the case for NR23 and NR28. Looking ahead to the potential for some form of refinancing in the coming months and based on NERL's understanding of the CAA's intent, the company expects to engage with potential lenders on the basis that the final determination for NR23 will expressly confirm both (a) the amount of the Covid-19 adjustment; and (b) that the Covid-19 adjustment will be recoverable in full through NR23 and NR28. Were that not to be the case, it would damage NERL's efficient financing – indeed, Moody's have recently confirmed the company's rating on the basis of an equivalent expectation[104].

Given this, while we agree with the CAA's view that use of the RAB for the TRS revenues is a pragmatic way of ensuring that NERL can continue to finance its licensed activities efficiently, and provides a mechanism to help avoid an undue spike in NERL's charges that would raise affordability concerns for NERL's customers, it will be important to ensure that, at the end of this process, the amount of RP3 TRS revenues in both NR23 an NR28 is certain.

We are also concerned that the CAA's proposed approach of mingling the RP3 TRS revenues within working capital will create complexity and a lack of transparency in the TRS amounts for NR23 and NR28, as well as the boundary between NR23 and NR28. Assuming that this is not the CAA's intention, but rather that the CAA is looking to provide confidence regarding recovery of the Covid-19 adjustment by NERL, we suggest this be addressed by including a specific line item for the Covid-19 adjustment TRS revenues within the RAB. That would put the exact figures beyond any doubt.

This reason for our concern is that the draft RAB rules require working capital to reflect International Financial Reporting Standards (IFRS) accounting rules. This means that the value of the RAB in NERL's regulatory accounts at the end of NR23 will not be consistent with the proposed treatment, in CAP2394, of the TRS revenues during NR23 and NR28. This difference would occur because the inflation and return elements of the TRS revenues would not be

[104] Moody's (29 November 2022) Rating Action: Moody's affirms A2 ratings of NATS (En Route) PLC; changes outlook to stable from negative, link

reflected in NERL's actual reported RAB at the end of NR23, and an opening RAB adjustment would be required for the start of NR28 to ensure the value of the RAB was in line with the proposed approach in CAP2394. Creating a specific line item for the TRS revenues within the RAB, which would not need to reflect IFRS accounting rules, would expressly address that potential concern.

In relation more generally to working capital, the CAA notes[105] that the RAB rules will include "aligning the treatment of allowances for working capital for it to operate with the approach we are adopting in our PCM. In particular, working capital is estimated using our initial inputs such as a starting price, allowed costs and initial tax allowance and is fixed over the price control period". This could be interpreted as meaning that working capital, and working capital movements in the RAB, will be fixed at NR23 model forecast levels for the entire NR23 period rather than being updated for actual results. The proposed approach needs to be clarified by the CAA. It is standard practice for an *ex ante* fixed working capital assumption to be included in the price control model, but equally that the RAB over the price control gets updated by actual movements in working capital, taken from our accounting records. We ask that the CAA confirms in its final decision that this remains the case as it is a fundamental aspect of the existing RAB rules.

As part of our consideration of the CAA's proposals for the RAB, we have started to review the CAA's Price Control Model (PCM). We will continue this review of the model, and any future iterations thereof that the CAA shares with us, to ensure the PCM supporting the final decision is robust, reflective of the proposed RAB rules and provides accurate calculations.

As at the date of this submission, and in addition to modelling comments made elsewhere in this response, we had made the following observations:

> **Working capital**: the PCM has a hard coded run of numbers for the NR23 working capital movement which does not agree to the final calculated working capital movement. This means that the RAB in the IP model is reduced by £7.5m (outturn) over NR23 relative to the calculation that arises from the CAA's input assumptions. The CAA should rectify this ahead of the final decision.

> **Backlog depreciation**: within the workings of backlog depreciation NERL provided a profile of backlog depreciation covering RP3 and NR23 (with an overlap of backlog depreciation for years 2023 and 2024). The CAA's PCM appears to have a mix of actual (2020)/calculated (2021 and 2022)/fixed input (NR23)) and, within the calculated elements, the nominal year-end value is being mistaken for a 2020 price and gets inflated. This results in the RAB being reduced incorrectly by £3m.

> **Allowed return calculation**: absent from CAP2394, but included within the calculations for allowed return in the PCM, is a change in methodology that is flawed. The CAA's proposed approach discounts the closing RAB to 1 January, which would be appropriate if all of NERL's revenue was earned on 1 January. This is not a rational assumption, as revenue is received throughout the year. Consequently, the allowed return on the RAB is lower than it

[105] CAP2394, paragraph 5.15

should be. The CAA should revert to the method used in RP3 as this does not contain this shortcoming, which also features in the CAA's Final Proposals for the Heathrow H7 review[106]. Based on the RAB in the PCM and the cost of capital used for these Initial Proposals, the CAA's new approach understates the fair allowed return over NR23 by £3m.

- **Temporary Unit Rate**: currently the PCM does not include the Temporary Unit Rate (TUR) term within the calculations for Condition 21, or the ATCA or TTCA terms (which are the Oceanic equivalents of the TUR) in the calculations for Condition 22. Although the absence of these terms does not impact the Base Case Initial Proposals, the lack of these terms is an inconsistency with the Condition 21 and 22 as published in the Initial Proposals.
- **Oceanic traffic risk sharing**: the PCM includes functionality for traffic risk sharing for Oceanic Base costs within the logic for Condition 22. Although the CAA rejects in its Initial Proposals the introduction of a TRS mechanism for these costs, the TRS parameters have not been set correctly to ensure there are no TRS adjustments. Therefore when traffic downsides are run, Oceanic TRS is allowed in the PCM. The CAA needs to set these parameters to zero.
- **Tax clawback**: the PCM does not include the Tax Clawback calculation within the RAB calculations, although the model does include an input for the results of this calculation. As this is a stand-alone model it would be best to ensure all calculations are included in the model.

Finally, in relation to the RAB, we agree with the proposal to retain RPI indexation of the RAB for NR23, principally on the grounds that this would keep prices more affordable for customers in NR23, than switching to CPI indexation.

12.3. Regulatory depreciation

CAA proposal

The CAA proposes to retain the policy framework for calculating regulatory depreciation that was in place for RP3. The CAA's proposed depreciation profile is around £36m lower than NERL's business plan across NR23. This is because the CAA reallocates the financing costs adjustment to the TRS revenues so it is recovered in line with the TRS (rather than added to the RAB and depreciated over 15 years in line with any new capex, per NERL's proposal). The CAA has made a lower allowance for capex than the forecast in NERL's business plan, which lowers depreciation as it is a function of the existing RAB and new capex.

NERL response

We agree with the CAA that there are advantages in terms of credibility and stability in retaining a broadly consistent and reasonable approach to regulatory depreciation over time. It benefits customers and consumers, along with supporting investor confidence.

Although we agree with the mechanism around the calculation of regulatory depreciation contained within the CAA's PCM, we have several questions regarding the inputs which drive the

[106] Heathrow Airport Limited (August 2022) Response to CAA H7 Final Proposals, section 12.9

values in the regulatory depreciation across NR23 and would welcome the opportunity to work with the CAA over the coming months to fully understand the rationale behind these amounts. The differences we have noted are:

- within the CAA's PCM historic depreciation in the RAB has been changed resulting in the opening RABs at 1 January 2021 being £22.2m (UKATS) and £1.4m (Oceanic) lower than the closing 31 December 2020 RABs in the audited 2020 Regulatory Accounts. There is a similar issue for earlier years but we have focused on 2020 and its impact beyond
- in order to get the depreciation in the CAA's PCM working it required an input of deprecation profile for assets existing at 2020. NERL provided a profile along with supporting calculations, but the values in the CAA's PCM have subsequently changed. We do not consider that the CAA has treated this item correctly and will continue to engage with the CAA on this matter.

12.4. Inflation

CAA proposal

The CAA uses the Office for Budget Responsibility (OBR) forecasts for RPI and CPI that were available in March 2022. Recognising that inflation forecasts have been subject to significant changes in recent months, the CAA plans to update its inflation forecasts for its final decision. In addition, the CAA proposes to maintain the existing RPI-CPI wedge reconciliation from RP3 for NR23.

NERL response

We agree with the CAA that inflation forecasts will need to be updated ahead of final proposals.

The CAA should, however, correct the inflation calculations within the price control model, such that they align with the existing RAB rules and the draft RAB rules for NR23. These rules require use of monthly inflation, but the price control model incorrectly uses quarterly inflation. Using quarterly data, rather than the monthly data required by RAB rules, leads to a mis-statement of the impact of inflationary increases in that period. Consequently, the CAA's calculation of the RAB in the PCM is not prepared in accordance with its own RAB rules. Based on the UKATS closing RAB for 2020, as reported in NERL's Regulatory Accounts, this results in an inflationary uplift that is £12m lower than the correct December to December basis.

We agree with the CAA that it is appropriate to maintain the existing RPI-CPI wedge reconciliation. However, in relation to inflationary true-ups, we note that the RP3 TRS is to be recovered over 10 years with the current forecast inflation being used to inflate the carrying value each year. As this sits outside of Determined Costs there is currently no mechanism in place to adjust these values, which will be set within condition 21, for differences between forecast and actual inflation. We would expect the CAA to correct for this in the final decision.

12.5. Tax

CAA proposal

The CAA proposes to adapt its approach to tax for NR23 to increase transparency and to make it easier for stakeholders to compare NERL's actual tax expense against the tax allowance included in NERL's revenue allowance. The CAA notes that its revised approach is similar to the approach adopted by other regulators such as Ofwat and Ofgem.

NERL response

We agree that the approach the CAA proposes for determining NERL's tax allowance is reasonable and aligns with regulatory practice and also note that the CAA proposes that unforeseen changes in the rate of corporation tax are passed through in future charges, providing risk mitigation to NERL from increases in tax rates and ensuring airspace users benefit from reductions.

NERL's business plan for NR23 uplifted the cost of capital for corporation tax payable at the headline rate of 25%, which reflected legislation enacted in May 2021. This rate has been confirmed by recent changes in tax legislation, and we concur with the CAA's assumption in this respect in its revised approach to tax allowances.

However, we have noted that the tax allowance for NR23 of £107m (2020 prices) is not consistent with the CAA's detailed calculation of the tax building blocks for UKATS and Oceanic, which in aggregate amounts to £113m (2020 prices). As a result, the Initial Proposals understate the tax allowance building block for UKATS by £6m (2020 prices) during NR23, as set out in Table 12-1 below.

Table 12-1

£m (2020 prices)	2023	2024	2025	2026	2027	NR23	Source from CAA model
UKATS							
Modelled tax allowance	25	28	20	18	17	107	C_Reg_Tax_UKATS row 278
CAA Initial Proposals	25	28	18	17	14	101	C_Determinded Costs_UKATS row 285
Difference (Understated)	0	0	1	2	2	6	
Oceanic							
Modelled tax allowance	1	1	1	1	1	5	C_Reg_Tax_Oceanic row 199
CAA Initial Proposals	1	1	1	1	1	5	C_Determinded Costs_Oceanic row 219
Difference (Understated)	0	0	0	0	0	0	
NERL total							
Modelled tax allowance	26	29	20	19	17	113	
CAA Initial Proposals	26	29	19	18	15	107	
Difference (Understated)	0	0	1	2	2	6	

In addition to the above, the CAA has stated that it intended to apply its tax allowance to the TRS. However, we do not believe that the CAA's modelling provides an allowance for tax on the indexation of the TRS, potentially due to a modelling error. As a result, the UKATS tax allowance appears to be understated by a further £21m (2020 prices) through NR23, as shown in Table 12-2 below:

Table 12-2

£m (2020 prices)	2023	2024	2025	2026	2027	NR23
UKATS						
Including allowance for indexation	30	33	24	22	20	128
Modelled tax allowance	25	28	20	18	17	107
Difference (Understated)	5	5	4	4	3	21

Given the complexity of the Initial Proposals, NERL is reviewing the timing of the accounting recognition of the various elements of the TRS debtor recovery which could reduce or increase tax obligations in RP3 and NR23. We will update the CAA on the outcome of this matter before its final decision in May 2023.

Finally, we would expect the CAA to update the tax calculations to reflect its final decision on the appropriate gearing level of a notional company.

12.6. TRS recovery, the NERL unit rate and affordability

CAA proposal

The CAA has put in place special arrangements to allow NERL to recover its TRS revenues over an extended period of time, to mitigate the increase in allowed revenues and the unit rate that would arise if these revenues were recovered over a shorter period. The CAA proposes that an even recovery of TRS revenues shortfall over the 10-year period of NR23 and NR28 (that is, 50% recovery in each five-year period) would provide an appropriate balance between the affordability of charges in the short-term and longer-term certainty to support financeability.

The CAA proposes that NERL should earn an allowed return on the TRS revenues as these costs were efficiently incurred and are being recovered over an extended period of time, meaning they would otherwise lose value in present value terms. To calculate the allowed return, the CAA proposes to apply its estimate of NERL's WACC with corporation tax costs considered separately. This takes account of the implicit and explicit costs associated with raising the finance to cover the revenue shortfall and is consistent with its approach to the overall RAB and financing for the notional company.

NERL response

TRS recovery

We note that there have been differing views from stakeholders in relation to the TRS recovery. This reflects, in no small part, the significant impact that the pandemic has had on the aviation sector. We consider that the CAA has taken appropriate regard to the then prevailing regulatory framework and has correctly concluded that the notional company would require its full-time value of money reflected within the recoverable TRS balance.

The CAA comments[107] that it is "providing important certainty around recovery of the TRS revenue to support NERL's financeability and allow NERL to be able to continue to invest on the basis of a relatively low WACC, which supports lower Determined Costs and charges to users". Certainty of this nature is critically important.

We consider, however, that the CAA provides insufficient certainty in these Initial Proposals. We raise in our comments above on the RAB an example of where the proposed approach by the CAA creates complexity and a lack of transparency about the transition of the RAB from NR23 and NR28. This is a specific example of a concern that we have about the certainty in recovery of the TRS revenues. More generally, the draft RAB rules are insufficient in relation to their

[107] CAP2394, paragraph 6.36

documentation of how the TRS revenues will continue to be recovered over NR28. This deficiency should be addressed in the final decision by the CAA for NR23.

Subject to providing greater transparency of the continued recovery of the TRS revenues over NR28 in the RAB rules, the approach taken by the CAA provides credibility and stability to the overall regulatory framework that benefits customers and consumers in the long run, as it maintains an efficient cost of capital and supports new investment. However, as set out below in our comments on affordability, we consider that the CAA's rationale for changing the profile of the recovery of the TRS revenues is mis-judged.

Like the CAA, we continue to view flat profiled prices for NR23 as being a reasonable approach to reduce the increase in the unit rate in 2023.

Equally, the use of the Initial Proposals to set the level of charges in 2023 is a pragmatic approach from the CAA, recognising the need for a unit rate to be set ahead of 1 January 2023.

Affordability

- We proposed to recover the TRS debt over two control periods, 75% in NR23 and 25% in NR28. The CAA proposes to defer revenue recovery further, so that 50% is recovered in NR28. The CAA's stated rationale for doing so is 'affordability'. As we set out in the Introduction Chapter 1, this is not a credible basis for such a material financial decision:
- 'Affordability' is not an accurate interpretation of the CAA's duties to users' interests
- The statutory framework requires the CAA to reach its decisions in light of a balanced assessment of all of its duties (as specified in law), not a bespoke interpretation of only one of these duties
- Even in its own erroneous terms, the CAA's 'affordability' assessment does not address properly the available evidence, which shows that the proposed deferral of TRS revenue, on the scale and timing suggested by the CAA, would not have any discernible impact on the demand for aviation and hence on passengers' and airlines' interests
- The reduction in NERL charges implied by the CAA's TRS recovery timing would (if passed through by airlines) lead to a tiny marginal reduction in passenger air fares, of the order of 0.2%, which in turn would have a predicted impact on air travel demand of only +0.1%. It is not credible for the CAA to make such material change to NERL's financing over a decade on the strength of such an immaterial impact on users.

Our view is that by focusing on affordability to the detriment of a wider assessment of all users' interests, and by failing to consider the materiality of its proposals on users and on NERL, the CAA has made errors of fact and in the exercise of its regulatory discretion.

12.7. Financeability

CAA approach

The CAA considers that its financeability duty can be discharged by setting a price control "that facilitates an efficiently or 'notionally financed company' having ongoing access to sufficient capital to carry out its activities."[108]

NERL response

We consider that the CAA has mis-directed itself with regard to its financeability duty. Contrary to the CAA's own interpretation, the Transport Act 2000 states that the financeability duty is in relation to licence holders (i.e. NERL) and not to 'notional' companies. The CMA also considered NERL's actual financing arrangements in its final report in 2020[109]. Whilst this is perhaps not a critical distinction at NR23, the CAA should reassess its interpretation of its financeability duty in this regard.

12.7.1. Debt financeability

CAA proposal

In light of extensive financial modelling of outcomes against a range of credit metrics, the CAA concludes in respect of debt financeability that, in the base case and under reasonable downside scenarios, the notional company is financeable in NR23 and NERL should be able to access cost effective, investment-grade debt finance in a timely manner.

NERL response

We do not disagree with the CAA's conclusion in relation to debt financeability. However, there are several aspects of the CAA's analysis of debt financeability that should be corrected as part of the final decision.

Firstly, the CAA disregards actual comments made by Moody's about its use of NERL's net debt to RAB to establish potential trigger levels for ratings action, favouring instead the use of a less relevant Moody's rating framework for energy networks to make such judgements. This results in misleading statements about Moody's view of factors that could lead to a downgrade of NERL. The CAA should focus more on comments made by Moody's specifically about NERL.

Secondly, there appears also to be a presumption by the CAA that the calculation of net debt to RAB by Moody's is consistent with that of NERL's licence. It is not, hence the use by NERL of the additional metric of adjusted net debt to RAB (being the Moody's definition of net debt to RAB for NERL). This apparent misunderstanding by the CAA leads to a conflicting picture of what action Moody's may or may not take in the event that NERL's gearing reached 65% or higher. In its credit opinion dated 18 March 2022 Moody's stated that: *"downward pressure could result from a material deterioration in NERL's financial profile, such that Moody's adjusted net debt to regulated asset base (RAB) was to increase persistently above 65% excluding any accounting pension deficit or 70% including such obligations"*. These comments were re-iterated in its rating affirmation on 29 November 2022. In this context, downward pressure means a possible downgrade from A2. By contrast, the CAA portrays 70% as being the point at which NERL's

[108] CAP2394, paragraph 6.55
[109] CMA (2020) NATS (En Route) Plc/CAA Regulatory Appeal Final report, paragraph 13.300

credit rating may reduce to Baa2 (three notches lower than NERL's current rating of A2). The CAA needs to engage further with the credit rating agencies to refine the approach taken to assessing debt financeability prior to issuing its final determination.

Thirdly, the downside analysis undertaken by the CAA is remarkably benign in the context of the current macroeconomic and geo-political environment, alongside the ongoing demand risks associated with the Covid-19 pandemic. When considering its final decision, the CAA should consider the likelihood and severity of traffic shocks greater than 10%.

In addition to addressing the above points, the CAA should reconsider whether BBB+ is indeed an appropriate target credit rating for the notional company. The CAA appears to provide no evidence to base its assertion that the target credit rating for the notional company should be BBB+. Instead, it comments that cost efficient debt can be raised by BBB+ rated companies, albeit without any supporting evidence for what it meant by cost efficient. If BBB+ truly were the CAA's target credit rating for the notional company, then it calls into question the use by the CAA of iBoxx A benchmarks for assessing the cost efficiency of NERL's debt. Would it not be more consistent to have used an iBoxx benchmark that more closely mirrored this target credit rating of BBB+? In our view a target credit rating of A remains more appropriate and is also in the interest of customers due to the lower associated cost of debt.

12.7.2. Equity financeability

CAA proposal

The CAA assessed equity financeability by comparing the Internal Rate of Return (IRR) with its proposed cost of equity. It estimates an IRR over NR23 of 10.2% in nominal terms, similar to and slightly above the allowed cost of equity during NR23 when gearing is adjusted to match modelled values (10.1%). The CAA also considered the adequacy of its proposed dividend profile. This implies lower overall dividend payments in NR23 than NERL has set out in its business plan, with a return to dividends by 2025, and a reasonable expectation that this period of lower dividends will be compensated through the capacity for higher dividend payments in future periods as the TRS debtor unwinds. As such, the CAA considers that its proposed notional dividend profile is consistent with a financeable and investable business. Based on this equity financeability analysis, the CAA considers that its Initial Proposals provide for reasonable equity returns.

NERL response

The Initial Proposals introduce significant uncertainty in relation to the CAA's proposed treatment of NERL's pension costs and also its indexation of operating costs more generally. This gives rise to an elevated risk that the Initial Proposals do not provide a fair chance for NERL to earn the allowed return on equity over NR23. In this context, there is significant doubt as to whether the Initial Proposals are financeable from an equity return perspective. In its final decision, greater clarity is required from the CAA in relation to its proposals on pension costs and inflation, with consequential consideration of the likely impact on equity returns during NR23.

The approach taken by the CAA in relation to dividend forbearance is wholly inconsistent with its approach to the cost of equity within its estimate of NERL's cost of capital. It is not appropriate to place such significant weight as the CAA does on pre-pandemic data when determining the cost of equity and then to ignore this completely when considering investors' expectations of dividends. A consistency in approach is necessary. The CAA should also fully recognise that investors in regulated companies, that do not exhibit significant growth in their underlying asset

base, expect sight of regular dividends closely linked to the cost of equity. This recognition should be explicitly factored into the CAA's financeability assessment.

The CAA's comments about the timing of equity returns for NERL also show a lack of consistency with its proposed approach for Heathrow. In its Final Proposals for the Heathrow H7 review[110], the CAA assumes that the notional airport would start paying dividends in 2022. This flowed from the CAA's consideration of market expectations as reflected in a research note prepared by Barclays that stated the bank's expectation that ENAV had a prospect of paying dividends in 2022 and that Zurich airport and AENA should be able to pay dividends in 2023, but that AdP and Fraport will likely have to wait until 2024. In this context, the CAA's assumption of no dividends from NERL until 2025 appears to be misrepresentative of investor expectations, as well as being contrary to its own findings on Heathrow, and should therefore be revisited by the CAA in its final decision.

12.8. Alternative scenarios for traffic and inflation

CAA proposal

To illustrate the potential impact of these changes, the CAA examined two alternative scenarios, for higher inflation rates and lower traffic forecasts than assumed in setting the base case for these Initial Proposals. These alternative scenarios have been designed to illustrate the potential impact on costs, unit rate and financeability if the CAA were to adopt different forecasts for traffic and inflation, with corresponding changes to costs. The main finding from the CAA's analysis is that its forecasts for Determined Costs, Unit Costs and the unit rate will all be highly sensitive to its assumption for traffic forecasts and sensitive (probably to a lesser extent) to its forecasts for inflation and interest rates during NR23.

The CAA notes that the impacts of its alternative scenarios are 'purely illustrative'. But it then goes on to state that, even under higher inflation forecasts, its expectation is that NERL should be able to mitigate some of these increases in the short to medium term, such as through fixed price contracts and benchmarking with cost trends in other sectors where inflation is not fully passed through. Similarly, if traffic forecasts show reduction, the CAA expects to see management action by NERL to look at opportunities to reduce its cost base, recognising though that the ability to make cost savings will depend on some degree of certainty that any traffic reductions would be prolonged and predictable.

NERL response

Inflation

We comment elsewhere in this response (Introduction Chapter 1 and Operating Costs Chapter 7) on the lack of clarity and the instability that the CAA has injected into the NR23 review through its under-specified proposals on how NERL's Determined Costs for NR23 might be adjusted for changes in inflation forecasts in the period up to the CAA's final decision. The potential implications from these proposals for NERL's allowed revenues are material but also not fully specified, both in terms of the impact during NR23 and the potential precedent for future regulatory periods. This lack of clarity undermines investor confidence in and reliance on inflation protection as a fundamental aspect of NERL's long term regulatory framework. The

[110] CAA (June 2022) H7 Final Proposals CAP 2365A, paragraph 73

regulatory model, on which investors and other key stakeholders (such as pension scheme trustees) rely, is built upon a direct and transparent linkage between assessed Determined Costs and inflation.

Traffic

There are two elements of uncertainty:

- whether the Base Case traffic forecast adopted by the CAA in its final decision is consistent with the Determined Costs put forward by NERL in its business plan
- whether the traffic risk associated with that Base Case is symmetrical, and if not, as in the case of H7 for Heathrow, the CAA should adopt a slight downward adjustment to its traffic forecast

We present evidence in the Regulatory Model Chapter 13 to demonstrate the downward bias from traffic shocks over the past 22 years: on average (judged by several metrics across several periods), actual traffic levels each year tend to be lower than those forecast at the relevant previous price control review. This shows the asymmetric nature of traffic risk, which the CAA should address through a downward adjustment to the traffic forecast used to set the NR23 price control.

Interest rates

The CAA is correct to highlight that the WACC will need to be updated to reflect the rising interest rate environment. Our comments on this are set out in Cost of Capital Chapter 11 .

12.9. Conclusion

As set out in the overview of this chapter, there are a number of matters linked to financeability that the CAA should address as part of its final decision for NR23. The most material of these relate to the treatment of the TRS revenues in the RAB; the calculation of the tax allowance; the interaction between the period of recovery of the TRS revenues and affordability; the scale of downside scenarios considered by the CAA; and equity financeability issues associated with the expected equity return and investors' expectations in regard to dividend profiles. However, this chapter also highlights a number of other issues that need to be addressed as part of the final decision.

13. Regulatory model

13.1. Overview

The CAA proposes continuity in most of the risk mitigation measures which are currently incorporated in NERL's regulatory model. It amends some but rejects NERL's proposals for the introduction of new measures to mitigate traffic risk. The CAA also proposes a substantial tightening of the current Capex Engagement incentive.

Our key points in response are:

- **Traffic risk share (en route)**: we agree with the CAA's proposals
- **Traffic risk share (Oceanic)**: the CAA appears to have rejected NERL's proposal to introduce a comparable mechanism for the revenues driven by NERL's own direct costs of delivering the Oceanic service, without considering the evidence presented. We request that the CAA reconsider in light of the additional quantitative evidence presented on the extent of traffic risk for Oceanic
- **Cost risk (pension costs)**: the CAA rejected NERL's proposal to mitigate the cost risk from individual members of the Defined Benefit scheme transferring out of DB and into the Pension Cash Alternative scheme. We address the CAA's concerns and request that it reconsiders, in order to maintain the economic viability of the PCA as one means which contributes to managing the long-term costs and risks of the DB pension scheme
- **Asymmetric risk**: we request that the CAA reconsiders, in light of new evidence, the case for introducing adjustments to the price control mechanism to account for the negative impact, on average, of shocks to air traffic demand
- **Charging for new users**: we broadly support the CAA's approach on the development of a new charging scheme for new users. We request that the CAA reconsiders (and reinstates) the reduced cost allowance, provides greater clarity on the likely nature of any *ex post* assessment of recorded costs, and revises the new cost recording mechanism deadline
- **Capex engagement incentive**: we agree with the CAA's objective of incentivising continuous improvement, and support the continuity in several aspects of this regulatory mechanism. We consider that the CAA has not appreciated the individual or cumulative impact that the many proposed changes would have on outcomes or scoring. This would result in a premature step-change. We propose alternative approaches to performance scoring to address this.

We address these and other responses to the CAA's proposals in this chapter. In addition, we set out in Appendix D some initial comments on thee draft licence modifications proposed by the CAA in CAP2394c, Appendix J.

13.2. Traffic risk: en route

CAA proposal

The CAA proposes to continue to apply the traffic revenue risk sharing (TRS) mechanism for both the en route and London Approach price control. The CAA intends to continue to apply the same risk sharing parameters as now:

- For traffic outturn ±2% of forecast in a given year: NERL bears full risk
- For traffic outturn ±(2 to 10)% of forecast: risk sharing zone, with 30% of risk borne by NERL
- For traffic outturn greater than ±10% of forecast: NERL bears no further traffic risk (which is thus capped at 4.4% of the difference between outturn and forecast).

In case of a larger traffic downturn, more than 10% versus forecast, and to mitigate the burden of revenue recovery on airlines, the CAA intends to extend the recovery period, similar to NERL's proposal but with revenue recovery over three years starting in year N+2. The CAA proposes that the recovery of revenue arising from the application of the TRS mechanism for a 10% traffic downturn is made in year N+2, with outstanding amounts above 10% spread evenly over N+3 and N+4.

This extended recovery would not apply to traffic that is higher than forecast, where excess revenue would continue to be returned to airlines in N+2.

The CAA does not define the maximum level of traffic variation at which the TRS mechanism would warrant a review within the price control period. Instead, it proposes to retain the flexibility, established initially under the EU charging rules, to consider re-opening the price controls for traffic variations greater than 10%. It considers that the UK legislative framework[111] already allows it to review the best course of action following such events on a case-by-case basis, in light of its statutory duties.

NERL response

NERL proposed a similar elongation of the period for traffic recovery in the event of a material (>10%) negative traffic shock, and for the same reasons as articulated by the CAA, to reduce the impact of higher charges on airlines during a period of recovery from a downturn.

We agree with the CAA's proposals for the Traffic Risk Share mechanism as it applies to the en route and London Approach services.

[111] sections 11 to 11A of the Transport Act 2000

13.3. Traffic risk: Oceanic

CAA proposal

The CAA rejects NERL's proposal to extend the existing TRS mechanism to the Oceanic price control, to provide comparable traffic risk mitigation for the NERL-incurred costs of delivering this service (i.e. excluding the ADS-B charge). The CAA summarises its rationale for doing so as:

- a substantial portion of the Oceanic service is already protected from traffic risk under contractual arrangements with Aireon
- on balance, it might introduce unnecessary complexity to the price control with limited benefits for customers
- there was no support from airlines to introduce TRS on Oceanic, although the CAA does note that the Prospect trade union supported NERL's proposals for an adjusted TRS recovery mechanism and its extension to the Oceanic price controls

NERL response

We disagree with the CAA's proposal and its rationale for reaching this conclusion. We request that the CAA addresses substantively the relevant evidence, which we set out below, and reconsiders its conclusions.

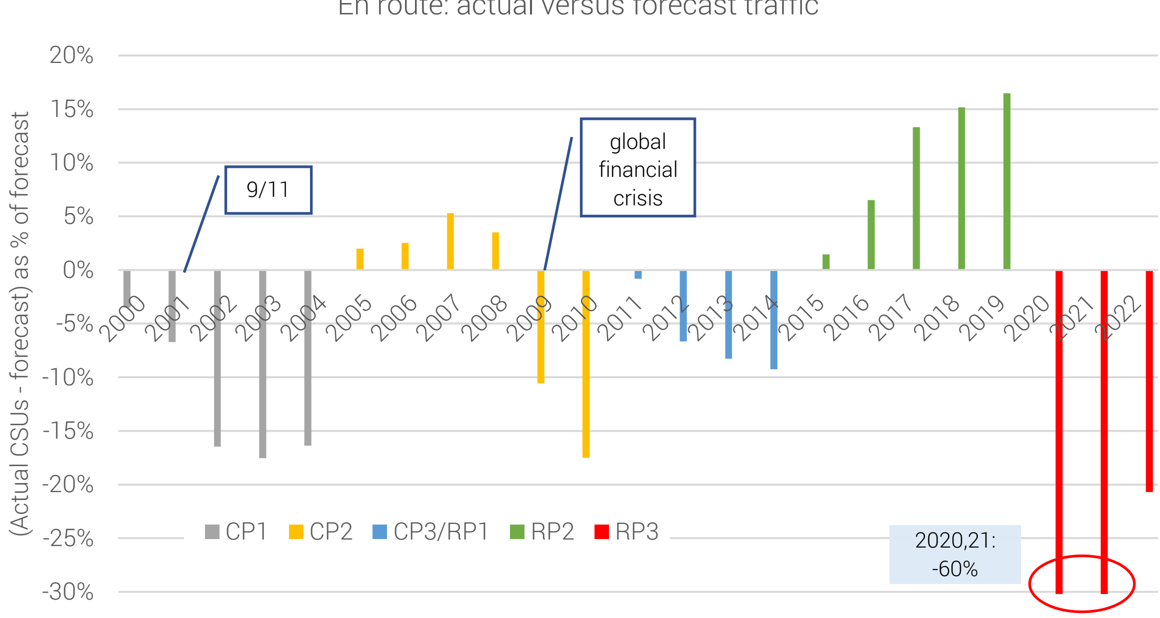
Turning first to the CAA's stated rationales:

- **Traffic risk protection already provided by contractual arrangements with Aireon**: this is true only in respect of the ADS-B charges which Aireon levies on NERL and which NERL then includes in the Oceanic unit charge. We acknowledged this clearly in our own proposal, which was designed explicitly to provide traffic risk mitigation only for NERL's own costs. It is these costs which are currently exposed to traffic risk – in the absence of any formal TRS mechanism, this risk is effectively absorbed by NERL shareholders, with no acknowledgment or incremental compensation via the cost of equity included in the allowed regulatory return.
- **Complexity**: the CAA's assessment on this point is peremptorily brief and does not address relevant points of fact:
  - any TRS mechanism would, by definition, involve a greater degree of complexity than the current regulatory framework, as it is designed to calibrate recovery over time of revenue shortfalls versus those forecast when the price control was set
  - NERL's proposal was simply to replicate for the Oceanic service the TRS mechanism in place for the en route service; this mechanism is well established, articulated in existing licence conditions for the en route service, well understood by all stakeholders and (as illustrated above in section 13.2) can be summarised in one paragraph
- **Airline support**: the CAA's statutory duties require it to balance a range of interests, one of which is to further the interests of airlines, airports and passengers. Simply stating an absence of airline support for this proposal does not discharge the CAA from its obligation to consider the proposal in the context of its duties as a whole.

Turning to the empirical evidence in support of NERL's proposal, we presented evidence showing the relatively high degree of variability over time between traffic forecasts for the Oceanic service set at each periodic price control review and the subsequent traffic outturn. We have updated this data presentation, summarised below.

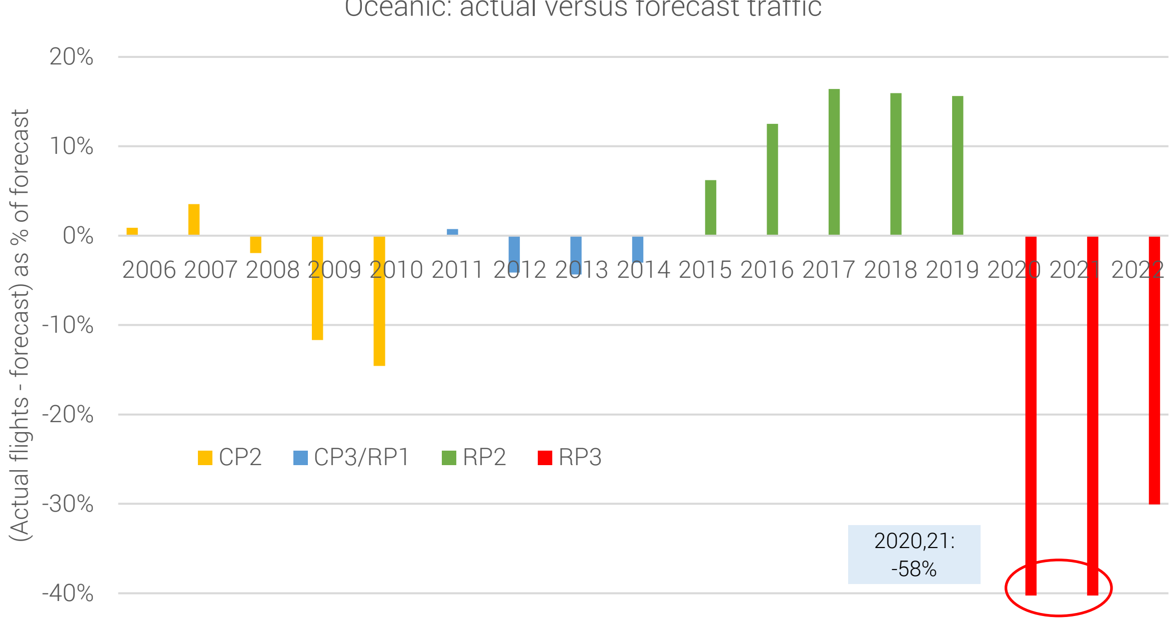
Both en route and Oceanic traffic exhibit a high degree of volatility in comparison with regulatory forecasts. Figure 13-1 below shows the percentage difference between outturn traffic and the relevant regulatory forecast for that year. Even when abstracting from the pandemic impact in 2020-22, there remains a high level of variability.

Figure 13-1



The same analysis for Oceanic is presented in Figure 13-2 below (for a shorter time period 2006-22).

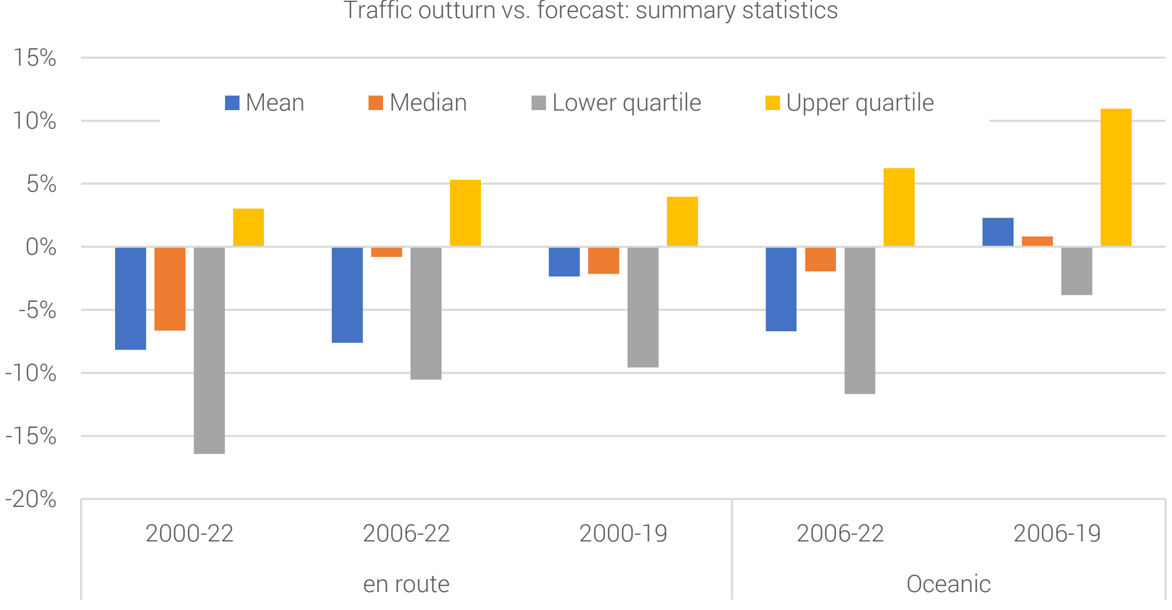
Figure 13-2



A similar pattern emerges, showing the high degree of exposure of NERL to both up and downside traffic risk.

The similarities between the underlying en route and Oceanic traffic risks are highlighted in the summary statistics shown in Figure 13-3 below. For example, inter-quartile range on traffic variation (2006-22) is 18% for Oceanic and 16% for en route. Hence the underlying rationale for introducing a traffic risk share mechanism is well founded.

Figure 13-3



We have examined the financial impact of the absence of a TRS mechanism for Oceanic in the NR23 period, in light of the latest Oceanic traffic forecasts. We have modelled the impact of TRS[112] versus no-TRS on our core Oceanic charge using the allowances in CAA's NR23 Initial Proposals and the base, high and low cases of our STATFOR October 2022 derived Oceanic forecast. Table 13-1 below highlights the monetary values concerned if traffic were to track the high case or low case over the whole NR23 period.

Table 13-1

	High case traffic		Low case traffic	
Average % difference in traffic from base case	+6.1%		-6.8%	
No TRS: Difference in revenues from Base case if no TRS is applied (NERL bears all risk / return)	+£11.6M		-£12.9M	
TRS: Difference in revenues from base case if TRS applied (NERL and airlines share risk / return)	NERL TRS	Airlines TRS	NERL TRS	Airlines TRS
	+£6M	+£5.5M	-£6.5M	-£6M

£m figures in nominal prices

The impact TRS would have on the unit rate in the high and low case scenarios is as follows:

- High case traffic scenario: the unit rate would be reduced by an average of £1.79 over the period 2025-2029 due to N+2 adjustment, compared to the base case
- Low case traffic scenario: the unit rate would be increased by an average of £2.09 over the period 2025-2029 due to N+2 adjustment, compared to the base case

It is clear from this analysis, even though a portion of the Oceanic service total costs are already protected from traffic risk under contractual arrangements with Aireon, variances in revenue caused by changes in oceanic traffic levels still represent a material risk to the oceanic service without a TRS mechanism.

Extending the TRS mechanism, as exists for UK en route, to the Ocean would better mirror the approach taken for UKATS and introduce more regulatory consistency and certainty between the different price controls, rather than adding 'unnecessary complexity'. It would give a degree of protection to the oceanic service by aligning risks and returns in a much better way which can only be of benefit to both customers and NERL.

We recommend that the CAA engages carefully with the evidence and arguments presented in this response, and reconsiders NERL's proposal for introducing a TRS mechanism for the Oceanic service.

[112] Using the same parameters as are in place for the en route TRS mechanism

13.4. Cost risks

CAA proposal

The CAA states that the same cost adjustments as in previous price controls will be applied for NR23 as well as the costs pass-through mechanism. This also applies to the unforeseen changes in the DB pension costs because of unforeseeable changes in financial market conditions.

The CAA does not propose to extend this pension cost pass-through to the costs from the transfer of employees from the DB pension scheme to the Pension Cash Alternative (PCA) scheme, as proposed by NERL. It does not consider full pass-through of changes in these costs to be appropriate as they are at least partially within NERL's control, it would reduce incentives on NERL to make sure costs are efficient, and they do not meet the criteria set out in the Eurocontrol Principles. It will continue to consider any cost savings, including PCA cost savings, when assessing any claim for recovery of additional pension costs, as has been done in previous years.

NERL response

We consider that the CAA's arguments against our proposal are not well founded, and we request that the CAA reconsiders.

NERL's proposal was simply to balance the cost risks which arise, within each regulatory period, when a member of the DB pension scheme decides to opt out of that scheme and take the Pension Cash Alternative. At present, customers benefit from such a transfer (via a lower DB contribution cost which is returned to customers through the pension pass-through mechanism) while NERL bears the (unfunded) cost risk for the duration of the regulatory period, until estimates of PCA members and costs are reset at the subsequent price control review.

In response to the CAA's objections to this proposal:

- **Control of costs**: the addition to PCA costs within a regulatory period is not within NERL's control at all, as it is triggered by decisions of individual DB members, made in light of their own personal circumstances which NERL cannot monitor or influence.

- **Efficiency incentives**: the PCA was introduced as one measure to manage NERL's DB pension scheme costs, by providing an alternative which was tax-advantageous for certain employees whose (net of tax) pension might otherwise be affected by the Lifetime Allowance set by Government, while at the same time reducing liability, future contributions and risk from the DB scheme. The route to assessing the efficiency of these arrangements would be through periodic scrutiny at price control reviews by the CAA and its pension consultants. Leaving an asymmetric cost risk on NERL within period does not provide any effective incentive to 'efficiency' of the PCA scheme.

- **Eurocontrol principles**: the relevant sections[113] of these principles allow for certain costs to be exempt from direct control including for "unforeseen and significant changes in pension costs established in accordance with Paragraph 2.3.1 resulting from unforeseeable changes in national pensions law, pensions accounting law or unforeseeable changes in financial market conditions, on the condition that such changes in pension costs are outside the control of the air navigation service provider and, in the case of cost increases, that the air navigation service provider has taken reasonable measures to manage cost increases during the reference period." We would argue that unforeseeable changes in financial market conditions (as they affect individual members of the DB scheme) cause individual members to decide to opt into the PCA scheme. The resulting changes in pension costs, within period, are (as described above) clearly outside the control of NERL. The 'reasonable measures' taken by NERL to manage the overall cost of pension contributions, considering the DB, PCA and DC schemes in the round, are discussed in the Operating Cost Chapter 7.

13.5. Inflation risk

CAA proposal

The CAA proposes to retain the same approach for the treatment of inflation risks as in RP3, so the unit rate remains indexed to CPI inflation and the RAB is indexed to RPI inflation.

The CAA goes on to observe that, while the mechanisms described above provide protection for unexpected changes in inflation during the price control period, given more recent inflation forecasts it will need to review its approach to setting the cost allowances in its final performance plan decision. The CAA "expects that NERL will be able to manage some of the recent increases in inflation in its cost base in line with other UK businesses".

NERL response

We reject the CAA's unevidenced assertion about NERL's ability to 'manage some of the recent increases in inflation'. We also have significant concerns about the implications of the CAA's ill-defined proposals for the well-established inflation risk protection embedded in the regulatory framework, on which investors rely. We set out our concerns in the Introduction Chapter 1 and our updated evidence on the impact of inflation on NERL's costs in Operating Costs Chapter 7.

13.6. Asymmetric risk

CAA proposals

The CAA states that it will not introduce any additional adjustments for asymmetric risks for NERL for the following reasons:

- **Shock factor**: The CAA concludes that there is no clear evidence that there would be asymmetric bias in forecasts, based on an assessment of STATFOR traffic forecast. Hence, the CAA does not support NERL's request to consider a shock factor to account for the asymmetric downside traffic risk.

[113] Eurocontrol (January 2020) Principles for establishing the cost-base for en route charges and the calculation of the unit rates, paragraph 3.3.4.2

- **Asymmetric allowance**: The CAA states that NERL has a smaller portion of revenue generated by non-regulated sources, excluded from the Determined Cost, and protected by the TRS scheme, compared to HAL. This implies that NERL has a higher level of protection than HAL and that NERL's non-regulated revenue would be less affected by economic downturn than HAL's commercial revenues. The CAA concludes that the approach taken for the reconciliation review of 2020-22 and its related revenue recovery guarantees a higher level of protection for NERL's revenue and costs due to the pandemic.

NERL response

The regulatory mechanisms we proposed in our business plan were aimed at managing the degree of exposure to risks linked with traffic volatility. The risk adjustments we proposed would allow us to continue to provide a safe, resilient, and efficient service to our customers; the greater financial resilience arising from our proposals would support greater operational resilience and support long term investment to the benefit of customers.

Traffic shock factor

The CAA cites one analysis of traffic, outturn versus forecast, in support of its position, focusing on the nine-year span encompassing RP1 and RP2 regulatory periods. It concludes that the average difference between actual and forecast TSU is positive, suggesting that forecasts were 'too conservative'.

We suggest that the CAA's analysis is too narrow in respect of the time horizons considered – using a broader set of data would inform a different conclusion. As we show in Figures 13-1, 13-2 and 13-3 above, the evidence over longer time horizons, both including and excluding the 2020-22 pandemic period, shows clearly that there is material downside bias in actual versus forecast traffic:

- Median actual versus forecast traffic is -2.2%
- Lower quartile actual versus forecast traffic is -10%, compared to +4% for the upper quartile

Our results prove that previous unexpected and unpredicted events (i.e. shocks) influenced the actual traffic movements. The evidence indicates that these shocks tend, on average, to be negative. The impact of these events is such that the downside risk is greater in its magnitude than the positive variation when the actual traffic exceeds the forecast one. We request that the CAA reconsiders its proposals in light of this broader interpretation of available data.

13.7. Airspace Modernisation

CAA proposal

The CAA proposes to maintain the Airspace Change Organising Group (ACOG) function and funding as part of NERL's operating costs, in line with NERL's business plan, but proposes some minor modifications to Condition 10a of NERL's licence to formalise delivery and expenditure reporting arrangements. The CAA's main objective in these amendments is to introduce new reporting requirements associated with programme management and delivery, including progress tracking, identification of risks and opportunities, stakeholder engagement, benefits delivery and cost reporting.

NERL response

In reviewing the CAA's proposals, we have consulted ACOG. We are concerned that the proposed modification of the Licence Condition 10a, paragraph 11, represents an unnecessary bureaucratic burden. The new reporting requirement would be on a small budget of circa £3m per annum; proposing quarterly reporting on such budget does not align with the strategic, long-term nature of the Airspace Modernisation Strategy (AMS) programme which adheres to the CAA's CAP 1616 process. The level of extra detail and meaningful information provided between the quarters and an annual report would provide minimal additional benefit to the CAA and other stakeholders; it would rather represent additional reporting and management burden for ACOG, its steering committee, the NATS Board and the CAA oversight team itself.

ACOG's view[114] is that:

"There are several forums in place as part of the governance process: masterplan reporting group; Co-sponsors Board; ministerial strategy board; the DMO team itself that is in regular dialogue with ACOG. All of these provide regular opportunities for oversight and reporting on both tactical and operational to strategic in-year issues at the requisite level of visibility."

We echo ACOG's views and suggest that Condition 10a, paragraph 11, is removed from the draft proposal.

13.8. New Users

CAA proposal

In the Initial Proposals, the CAA states that NERL should be able to recover its associated new user efficient costs, where they are consistent with its licence obligations and statutory duties and, furthermore, that airlines support this position. The CAA also recognises that, as the monopoly provider of en route and certain approach ATS in the UK, NERL must be able to provide licensed services to users in the airspace they are responsible for managing, regardless of whether they are conventional or new users. It must also be able to manage interfaces safely and efficiently with any users that may interact with its licensed activities.

The CAA proposes:

- £3.3 million cost allowance reduction over NR23 that was linked to trial and other activities that would have helped shape the definition of the scope of the new user service. It will also facilitate airspace access to new users where NATS provides services today.
- NERL should incur only those costs that are 'necessary and efficient' and requires that the new users cost recording mechanism is: *i.* transparent and proportionate; *ii.* inclusive of stakeholders' views; *iii.* accessible and easy to use for the review of baseline; and lastly *iv.* inclusive of a 12-month plan of activities and costs.
- NERL should submit a proposal no later than June 2025, making sure that all the requirements outlined by the CAA have been met. Therefore, until a new charging

[114] ACOG (November 2022) Response to CAA Initial Proposals for NR23, CAP2394

mechanism has been introduced, NERL will be unable to recover the efficient costs incurred. However, the CAA states that if NERL sets out a compelling case, then it would consider supporting the use of commercial bilateral agreements between NERL and new users on an interim basis.

NERL response

We broadly support the CAA's approach on the development of a new charging scheme for new users. The definition of new services and establishment of the charging scheme are the core elements of the future service framework for the entire UK industry. The enablement of sustainable operations for new types of users depends upon clarity in the roles and responsibilities of all parties, including NERL. We propose, where possible, an industry-wide collaborative approach to the development of this new charging scheme that is for the benefit of all users and industry.

For NERL to be in the position to deliver the new services and put in place the new charging mechanism for new airspace users during NR23, the CAA should:

- **Reconsider (and reinstate) the reduced cost allowance.** In an evolving market, where there is no previous experience, undertaking trials and customer activities is the only means by which to collectively shape the definition of new services, standards, and procedures. The CAA's Initial Proposals[115] state that it is reasonable to assume that there will be additional issues for NERL to deal with, particularly where new users need to interface or interact with conventional users and NERL's current licensed activities. The CAA must therefore include the cost allowance that was designed for managing an increased volume of trials of new airspace users' operational concepts in order that NATS does not unnecessarily hinder market growth.

- **Provide greater clarity on the likely nature of any *ex post* assessment of recorded costs.** We recognise the duties placed on the CAA to further the interests of consumers and promote efficiency on the part of NERL. However, in the context of the need for NERL to invest in the development of a new charging mechanism, the CAA should provide greater clarity on the tests that might get applied in such a review. Providing greater clarity, by setting out some high-level principles will promote investment, to the benefit of existing and new consumers. The absence of such guidance could create undue delay and caution at a time when this emerging industry needs providers of infrastructure to react quickly and in an agile fashion.

- **Revise the new cost recording mechanism deadline.** Due to our increasing involvement in New Airspace Users national and international forums and to our own core business objectives (i.e., "Our Strategy to 2040[116]"), we believe that the CAA's deadline for submission of a new cost recording mechanism delays and discourages the entire industry from setting out investments and development plans in the UK. NERL shares the UK Government's view[117] on the role that drones will have on our economy (i.e., *potential £45*

[115] CAP2394, paragraph 7.56
[116] NATS.aero website – Our Strategy to 2040.
[117] HM Government (July 2022) "Advancing airborne autonomy Commercial drones saving money and saving lives in the UK" (link).

billion of benefit to the economy by 2030[118]), providing a more sustainable service and generating benefits to the society[119]. We therefore propose to revise the schedule with the CAA, such that it is consistent with: *i.* the delivery of the UK Government commitment with the UTM industry; and *ii.* the Airspace Modernisation Strategy (AMS) objective to deliver a simpler, sustainable, more integrated, and safer airspace by 2040. This revised schedule should commit NERL and the CAA to a joint timetable, such that a new mechanism comes into effect by 2025.

13.9. Capex incentives and governance

CAA proposal

In respect of NERL's performance under the current capex engagement incentive, the CAA proposes not to include any penalty for RP3 in the NR23 settlement.

For NR23, the CAA proposes to retain the capex engagement incentive, with some elements remaining consistent:

- penalty only incentive
- incentive focused on capex only
- user approval not required to move capex projects from +5 to +2 year planning horizon (as proposed in NERL NR23 business plan)

The CAA proposes a number of actual/potential changes for NR23:

- Penalty threshold increased from the current “average” to the current “good”
- Combine Timeliness, User-focus and proportionality to give four criteria instead of six to be measured against
- Clarify the scoring criteria
- Keep the weighting of projects under review during NR23
- Provide stakeholders with an opportunity to engage with the Independent Reviewer on the quality of NERL's engagement.

13.9.1. NERL response

We welcome the recognition of better engagement by NERL on its capital investment, with iSIP22 considered a “strong document” that built further on earlier improvements.

We agree with the stated **elements of consistency**: penalty only, capex only, user approval not required to move capex projects from +5 to +2. The agreement to penalty only is conditional to our concerns on the CAA's proposed refinements being addressed.

118 UK Government press release June 2022 (link).
119 PwC (July 2022) Skies Without Limits v2.0, The potential to take the UK's economy to new heights (link)

We agree with the CAA's **decision not to impose a penalty** on NERL for its performance under the RP3 capex engagement incentive. This is supported by the Independent Reviewer, Egis' reports, engagement scoring, quality documentation and the trajectory of our capex engagement since the start of 2021. The CAA also received corroborating evidence for this decision from the cost assessment conducted by Steer; they highlighted in their final report on the NR23 price control review that based on their experience with other European ANSPs, the level of engagement with customers, the level of detail offered, and the overall quality of information provided to airspace users about the actions taken due to the pandemic were of high quality.

We understand and support the principle of **continual improvement** the CAA is seeking to achieve. High quality engagement is important to us, enabling us to inform our customers of the progress of our investment plan, the service we deliver and options for future investment. The value of that engagement is recognised by our customers, verified in feedback we have received through our annual customer surveys.

On the proposed refinements, we consider that the CAA has not appreciated the individual or **cumulative impact** that these would have on outcomes or scoring. Implementing all the proposed refinements at this relatively early stage of the operation of the incentive would result in a premature step-change rather than a trajectory of continuous improvement. Specifically, we do not agree with increasing the score required to avoid a penalty by a whole score point. We provide a counter proposal in our conclusion to this response.

We agree with Independent Reviewer, Egis, that **more clarity is needed on the scoring criteria** and consider this to be the main improvement to ensure the incentive works better in practice. It is disappointing that the CAA has not added clarity to its draft guidance on scoring, but instead kept the wording vague. For example, how should NERL or the Independent Reviewer differentiate between 'clear traceability' and 'comprehensive traceability' when deciding upon a score of 3 or 4? Care should also be taken with terminology to ensure that there is no confusion on the scope of the engagement incentive. The phrase "timeliness of mitigating/corrective actions" could be interpreted by some as measuring NERL's delivery of capex rather than engagement on the changes. We request that the CAA confirms that the scope of the engagement incentive does <u>not</u> include measuring NERL's delivery of capex.

It is recognised in the criteria that it is not always possible to provide a range of **alternative options** (e.g. due to maturity stage of project, the speed at which a decision needs to be made or no meaningful options available). For this reason, it was not possible during RP3 for the Independent Reviewer to provide an optioneering score to all programmes selected in scope of the incentive. It is also the case that the benefits of each option are sometimes not explicit/quantitative and/or there are no opex impacts for comparison; the guidance should acknowledge this. We expect more opportunities to carry out optioneering during NR23, which will complement the 2+5 process.

We do not object to stakeholders being provided with an **opportunity to engage with the Independent Reviewer** on the quality of NERL's engagement. We would, however, always encourage stakeholders to engage with NERL in the first instance so that a constructive customer relationship can be managed and maintained.

Overall, we agree that the capex engagement incentive has worked well with Egis, the Independent Reviewer, during RP3 and we support the CAA's proposal to retain the incentive for NR23. The incentive has motivated us to work very hard during RP3 to evolve our capex

engagement to ensure customers' expectations are met and our performance has remained consistently above the baseline expectation. To achieve this, additional resource had to be allocated and improvements rolled out iteratively to manage change. Like Egis and the CAA, we have also learned a significant amount about the practical operation of the incentive and acknowledge that some simplification and refinement could improve its operation. However, as the incentive was only introduced in 2021, our experience so far is limited, and we do not support the CAA's proposal of introducing multiple significant refinements at this relatively early stage of its operation. Our views on each of the proposed refinements are below.

13.9.2. Penalty only

Although the current engagement incentive is penalty only, and therefore asymmetric in nature, it assesses NERL's 'net' performance, and the penalty threshold and scale were set at an appropriate level in a context where NERL may have performed above expectations in some areas and below expectations in others. We conclude, based on our experience of the incentive thus far, that a fine balance was struck under the current arrangements for RP3. If no other refinements were being proposed, we would agree that a penalty only incentive would be appropriate for NR23 since there are diminishing returns from the potential improvements that could be achieved, and it would not be in customers' interests to incentivise NERL with a bonus for increasing the quality of their engagement above and beyond what is considered to be normal and expected.

Were the CAA's proposed refinements all to be implemented, we consider that a penalty only approach will not be appropriate for NR23 as progress on our performance would not be appropriately recognised and a more symmetric incentive arrangement would be needed. The CMA recommended[120] that the CAA should consider ways in which more symmetric incentive arrangements might be applied as part of its next price control review. However, there is no evidence of the CAA having done so in its Initial Proposals.

13.9.3. Penalty threshold increased by one whole score point

After analysing the CAA's proposal of increasing the penalty threshold by one whole score point, we consider this proposal to be unacceptable for the following reasons:

- It would create a substantial misalignment between normal and expected performance today and the penalty threshold
- A penalty at the level of the cap (calculated by NERL to be c.£40m based on CAA's IPs) would be applied at a score of just 0.5 points below the current baseline expectation. This is a step-change from the current incentive arrangements
- Overall, Egis' report indicates that the scoring process appears to be achieving its primary aim and the incentive appears to be having a positive effect. CAA's and Egis' expressed views on our capex engagement performance do not justify such a radical change in penalty threshold. Further, reducing the number of scores from five to four, by removing the bottom end of the performance scores, takes away the balance of the scoring framework and the revised labelling does not align with what is considered normal and expected

[120] CMA (2020) NATS (En Route) Plc/CAA Regulatory Appeal Final report, paragraph 9.88

- The improvements identified by Egis would not bridge the gap between "Average" and "Good" but rather bring all areas up to the current baseline expectation. This proposed change is therefore disproportionate to the improvements identified
- As noted above in our response to 'penalty only', there are diminishing returns from the potential improvements that could be achieved and it would not be in the customers' interest to incentivise NERL for increasing the quality of their engagement above and beyond what is considered to be normal and expected
- To achieve a weighted average score of "Good", we would need to aim to achieve "Excellent" to avoid a penalty. To accomplish this, NERL would have to divert significant resource from project management and delivery on a regular basis to support engagement. We consider this refinement to be disproportionate and unnecessary as:
  - Aiming too high would add significant regulatory burden on NERL and stakeholders through additional time, effort and cost, without providing material benefits over the current threshold arrangement.
  - It would be likely to increase substantially the size of consultation documentation to meet the criteria (which Egis noted as a challenge to avoid) and increase the number and length of customer consultations. Customers participate in an annual NERL survey to help us understand their views on the quality of our service performance, responsiveness to operational issues and the quality of our customer engagement, all of which score very positively indeed. Their feedback indicates a concern that they struggle to track all of the consultation we provide; there is a risk that this incentive will drive further consultation to chase a score while losing sight of overall customer needs.
- The penalty threshold score of 3 ("Average") was selected on the basis that each score for each criterion for each programme within scope of the incentive covers a range of potential performance (30 separate measurement points in RP3) and if the weighted average of NERL's performance was below baseline expectation then a penalty should apply. Increasing the penalty threshold by such a significant amount (to the equivalent of 4 under current arrangements) would mean that we could receive a financial penalty if it was assessed that we were not outperforming in just one of these 30 measurements.
- To illustrate the impact of the proposed scoring methodology using our current RP3 performance and using the CAA's proposed capex allowance and their proposed return on equity, NERL would receive a penalty of c.£14m at the end of NR23. It is unjustified that NERL should receive such a penalty for what is considered to be better than average performance on engagement with commentary such as below, especially alongside the other proposed refinements that make it more challenging for NERL to achieve the score:
  - The CAA has stated that the current arrangements have resulted in better engagement by NERL, especially in terms of the improved quality, clarity, consistency and traceability of NERL's consultation materials.
  - Egis was able to describe iSIP22 as a "strong document" that further built on earlier improvements, took into account previous comments on the way the material was presented and was understandable by non-expert readers.

- Steer highlighted in their final report on the NR23 price control review that based on their experience with other European ANSPs, the level of engagement with customers, the level of detail offered, and the overall quality of information provided to airspace users about the actions taken due to the pandemic were of high quality.
- Our annual airline customer survey shows that the importance score and delivery score for the SIP engagement are very similar (about 8/10), suggesting that the quality of delivery is meeting expectation, with supplementary feedback labelling NATS as the "gold standard".

In summary, in light of this evidence there looks to be no need to change the structure of the incentive at this early stage. Furthermore, to effect degree of change in the arrangements that the CAA has proposed, we would expect to see evidence of problems with existing arrangements, including from those with whom we are engaging, as well as clarity about the improvements that the CAA wants to see. None of this supporting evidence is present in the CAA's proposals.

13.9.4. Combining categories to give enhanced user-focus criteria

We agree there is some overlap between user-focus and proportionality and that the timeliness criterion is simpler than others, with fewer dimensions. We also agree that some simplification of the scoring criteria is required to improve how the incentive works in practice and combining these categories could contribute toward this simplification. Since Egis' report on our RP3 performance revealed the quality of our submissions scored higher than the quality of our responses to stakeholders, we carried out further analysis of the impact, if applied to our current scores, and concluded that the refinement would reduce our score by 0.25 (from 3.47 to 3.22, as shown in Table 13-2 below). This refinement, therefore, makes it much harder to achieve baseline expectation. It would achieve the CAA's aim of strengthening the incentive in a proportionate way. It would provide a better balance between the influence on the weighted final score of our submissions and the quality of our responses to stakeholders. Although we agree that this refinement could continue to incentivise improvement during NR23, we do not consider introducing this refinement alongside increasing the penalty threshold acceptable.

Table 13-2

Overall Capex Engagement Score Calculator

Project or Programme	Value (£m)	Weight	User-Focus Score	Optioneering Score	Responsiveness Score	Mitigating actions Score	Average Project Score	Weighted average Score
DP EnR & Voice	£175.0	0.588	4	4	3	2	3.3	1.9
Airspace exc AD6	£31.0	0.104	4		4	3	3.7	0.4
Sust & Surv & FM	£70.0	0.235	4	2	3	3	3.0	0.7
IS	£18.0	0.061	3		3	3	3.0	0.2
AD6	£3.4	0.011	3		3		3.0	0.0
		0.000					0.0	0.0
		0.000					0.0	0.0
		0.000					0.0	0.0
		0.000					0.0	0.0
		0.000					0.0	0.0
Total	£297	1	Quality of NERL submissions		Quality of Response to stakeholders			

Weighted Average Overall Capex Engagement Score: 3.22

Check: 3.2166

13.9.5. Clarifying the scoring criteria

We agree with Egis that more clarity is needed on the scoring criteria and consider this to be the main improvement to ensure the incentive works better in practice. The benefits include a better

understanding by NERL of what is expected and a more straightforward mechanism for an independent reviewer to score against. It is disappointing that, although the CAA has considered Egis' recommendations, it has not added much clarity to the draft guidance on scoring, but instead kept the current vague wording. More detailed guidance is required with respect to defining what is expected to achieve each score. For example, how does NERL or the Independent Reviewer differentiate between 'comprehensive substantiation' and 'excellent substantiation', 'good information' and 'excellent information', 'clear traceability' and 'comprehensive traceability' or 'reasonably clear' and 'clear'?

We agree that when there are changes to project scope and project milestones, the assessment of NERL's engagement should be on how well it communicates changes compared to both the 'baseline' SIP it publishes at the start of the NR23 period and the latest SIP or interim SIP published. Care should be taken with terminology to ensure that there is no confusion on the scope of the engagement incentive. The phrase 'timeliness of mitigating/corrective actions' could be interpreted by some as measuring NERL's delivery of capex rather than engagement on the changes. We request the CAA confirms that the scope of the engagement incentive does not include measuring NERL's delivery of capex.

It is recognised in the criteria that it is not always possible to provide a range of alternative options (e.g. due to maturity stage of project, the speed at which a decision needs to be made or there being no meaningful options available). For this reason, it was not possible during RP3 for the Independent Reviewer to provide an optioneering score to all programmes selected in scope of the incentive. It is also the case that the benefits of each option are sometimes not explicit/quantitative and/or there are no opex impacts for comparison; the guidance should acknowledge this. We expect more opportunities to carry out optioneering during NR23, which will complement the 2+5 process.

13.9.6. Score weighting of projects under review

We agree with the CAA to continue the current approach of selecting projects based on stakeholder views and to weight the selected projects in the overall scoring by forecast capex spend. We acknowledge that further consultation may be required during NR23 if there are significant changes, and it is proportionate to do so.

13.9.7. Opportunity for stakeholders to engage with the independent reviewer

We do not object to stakeholders being provided with an opportunity to engage with the independent reviewer on the quality of NERL's engagement. We would, however, always encourage stakeholders to engage with NERL in the first instance so that a constructive customer relationship can be managed and maintained – and we request that the CAA would support such an expectation among our stakeholders. We would be happy to facilitate this airline/IR engagement.

13.9.8. Conclusion on proposed refinements and NERL's counter proposal

We do not support the CAA's proposal of introducing multiple significant refinements to the incentive while simultaneously increasing the score needed in order to avoid a penalty by a whole score point. At this relatively early stage of the engagement incentive's operation, and given the positive trend in NERL's performance in the first two years of implementation, we do not consider that there are grounds for tightening regulatory policy in this manner.

High-quality engagement is important to us, as are appropriately stretching incentive mechanisms so that we are encouraged to perform well on a consistent and objectively verified

basis. We make an alternative proposal that would maintain our positive continual improvement trajectory without creating a step change in the incentive. We propose the following refinements:

- **Combine user-focus, proportionality and timeliness:** This would create a more enhanced user focus criteria and make it more difficult for us to achieve a high score. It would also provide better balance between assessing how well we engage with and respond to customers. This will be important during NR23 in the context of '2+5'.
- **Increase the penalty threshold to 3.2**: This would incentivise us to maintain our current performance or improve, as any reduction in performance would result in a penalty (3.2 is the average of our three RP3 scores, 3.22 is our most recent performance scored against the enhanced user-focus criteria).
- **Scoring should be carried out once a year**: Scoring once a year would reduce the regulatory burden from twice yearly scoring assessments and allow more evidence to be identified by the independent reviewer. The final score for NR23 could be calculated as the simple average of the annual weighted average scores.
- **Further clarify the scoring criteria**: Develop further clarity on the scoring criteria. Due to the subjective nature of current guidance, it would be very beneficial to include more objective elements and/or clear definitions to help us and the Independent Reviewer understand expectations. We have developed some proposed amendments for consideration (described in Appendix B to this response). We suggest that defining this improvement activity would be better executed through consultation or preferably a one-day workshop with NERL, the CAA, customers and the NR23 Independent Reviewer. We suggest that this is carried out during Q1 or Q2 of 2023 to ensure that improved guidance is agreed at an early stage in NR23, prior to the first round of scoring.

For clarity, we propose that no changes are made to the following:

- **Penalty only:** If our refinements proposed above were accepted, we would agree that a penalty only incentive would be appropriate for NR23. If all the CAA's proposed refinements were implemented, we consider that a penalty only approach will not be appropriate.
- **Covers capex only:** The capex engagement incentive should only cover capex as opex is incentivised by the element of the regulatory framework setting NERL's opex allowance.
- **User approval not required to move capex projects from +5 to +2:** Ensures that no unnecessary regulatory burden is added, which could lead to significant delays and complexity into the delivery process and require disproportionate levels of commitment from customers.
- **Maintain a scoring range of 1 to 5:** This would retain the balance of the scoring framework and is more aligned with what is considered normal and expected performance.

Appendix A 3Di-traffic relationship

Additional evidence of 3Di-traffic relationship

Our Machine Learning (ML) model forms the basis of our 3Di target proposals. The model predicts 3Di scores across NR23 based on the most recent STATFOR traffic forecast and accounting for our investments up to the end of 2022. Improvement targets are then overlaid to outperform where we would otherwise expect to be, to support customers and society in reducing climate change impacts.

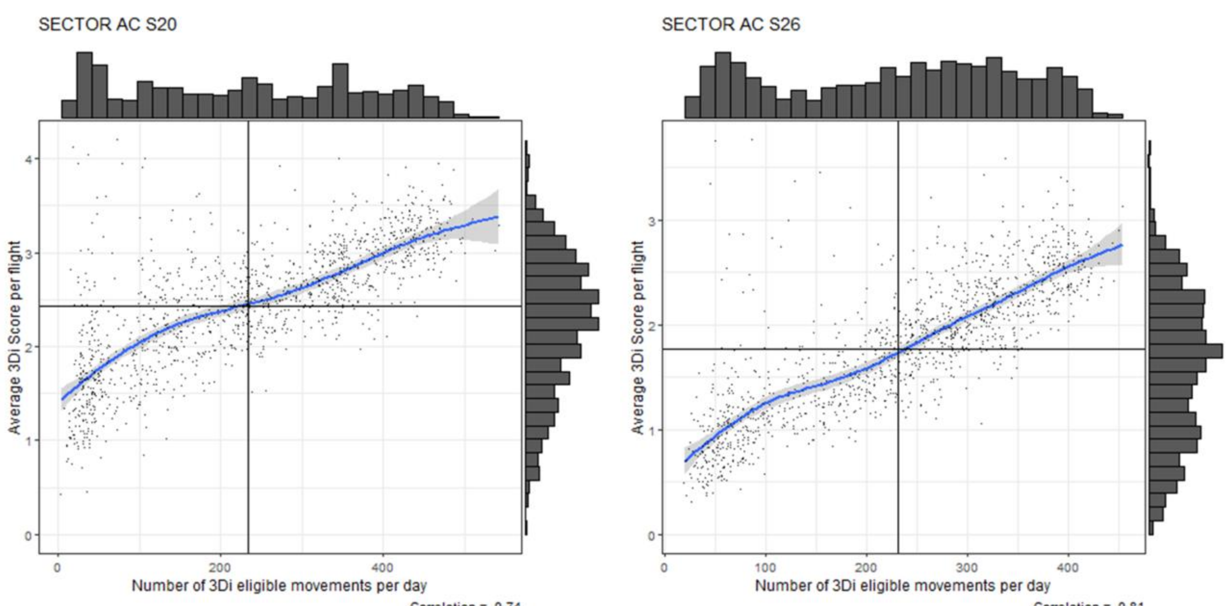
To support our views on the relationship between the 3Di target and traffic, we have assessed this relationship at different levels, i.e., airport, sector, hourly, monthly, and annual level.

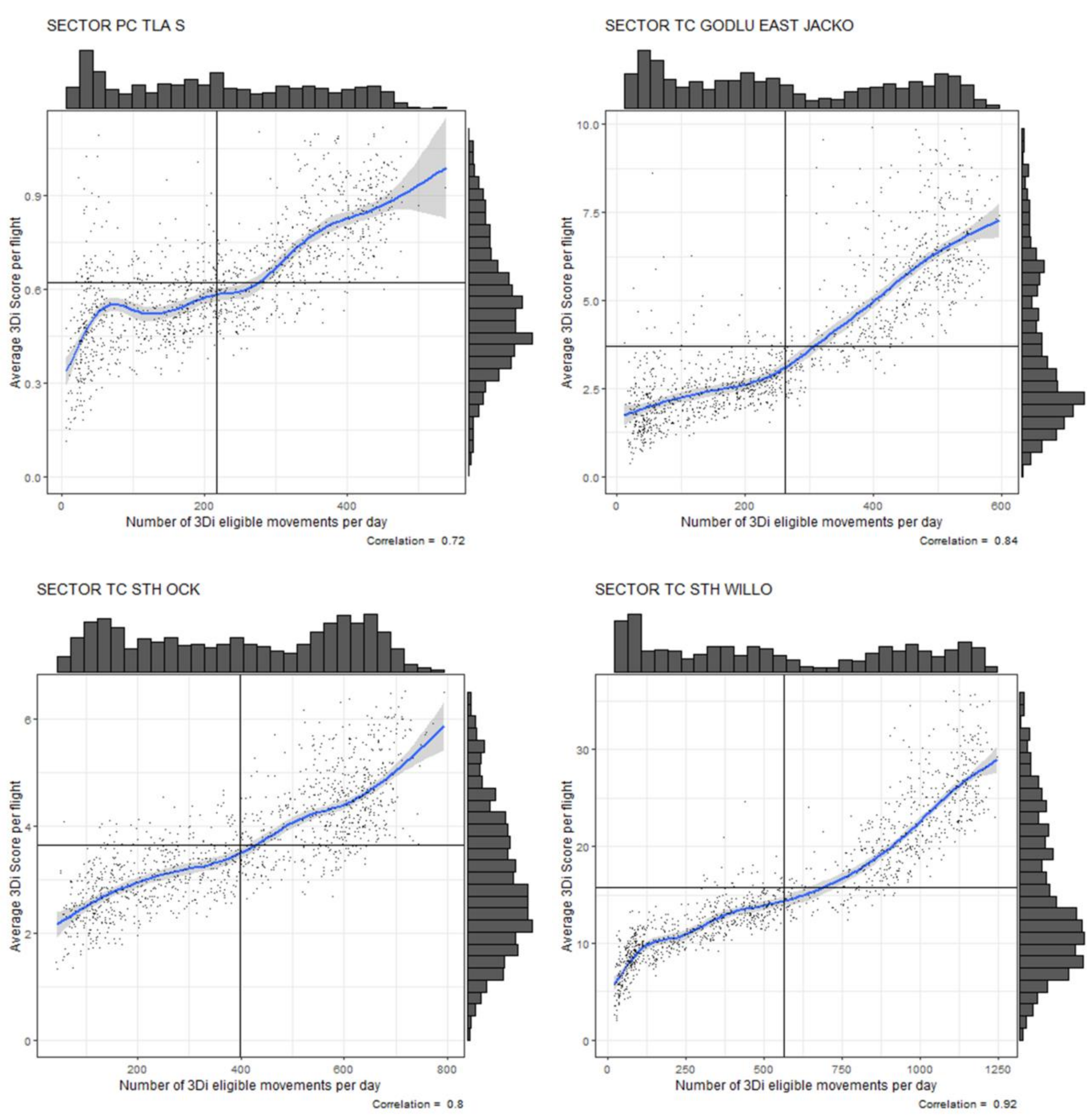
3Di target and traffic relationship at sector level and city pair

The ML model uses historical 3Di data by geographical airspace sector and city pair to forecast expected future scores based on its learnings of how traffic levels have impacted 3Di (empirically) in these categories in the past. When sectors and city pairs have higher traffic than usual on them, during different periods of the day, week, or month then this reflects in the 3Di score which consequently is higher (at sector and city pair level). In other words, the output of our ML model shows that with lower traffic levels, we can expect lower 3Di scores and vice versa.

The charts in Figure A-1 below report the historic 3Di data by sector against a range of traffic movement levels, and clearly depict a strong relationship between the average 3Di per flight across the range of 3Di eligible flights by day in different sectors.

Figure A-1 3Di movements per day versus average 3Di score per flight in different airspace sectors





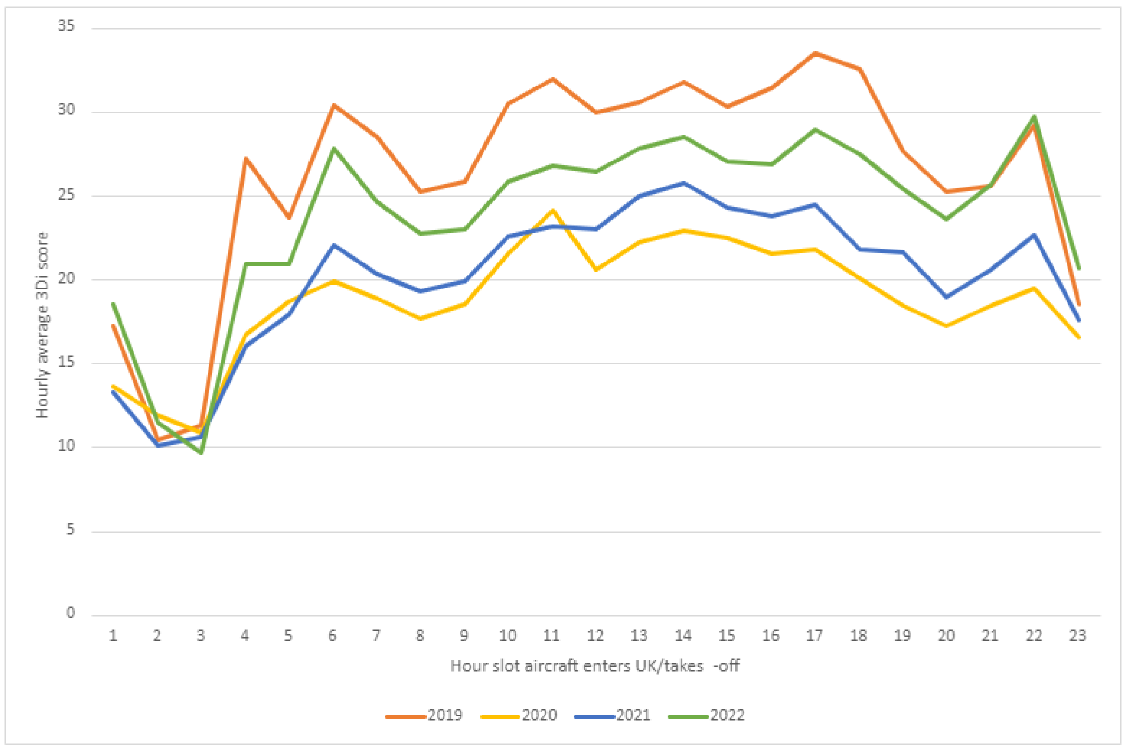
The CAA initially requested that we develop a means to deal with traffic uncertainty and the results of our ML model allowed us to suggest a method of adjusting targets with changes in traffic. We proposed that the 3Di targets should be adjusted/modulated by 0.5 points for every change in 100K annual movements observed from the original base level traffic forecast. As an indication of the accuracy of the proposed modulation, if we modulate the 2019 score down to the traffic level observed in 2022 year to date (up to November 2022), the expected average 3Di score would be 26.3 for 2022 YTD. The current November 2022 YTD score is 25.9 (in both instances non-revenue flights are accounted for in line with CAA's approach) and the above analysis does not take account of improvements delivered by NERL since 2020. Even using this basic modulation, the above shows that the ML model is a reasonable predictor of 3Di.

3Di target and traffic relationship at hourly level

We also observe similar trends in the 3Di - traffic relationship at an hourly level. Our analysis shows that across the years the efficiency per flight improves throughout the night-time, and

after the morning and evening rotations of traffic. The trend in hourly diurnal 3Di follows the typical traffic distribution seen across the day, and correlates also with annual traffic - 2019 traffic was higher than 2022 traffic, which in turn was higher than 2021 and 2020 traffic. The 3Di averages follow this.

Figure A-2 Summer average 3Di by hour



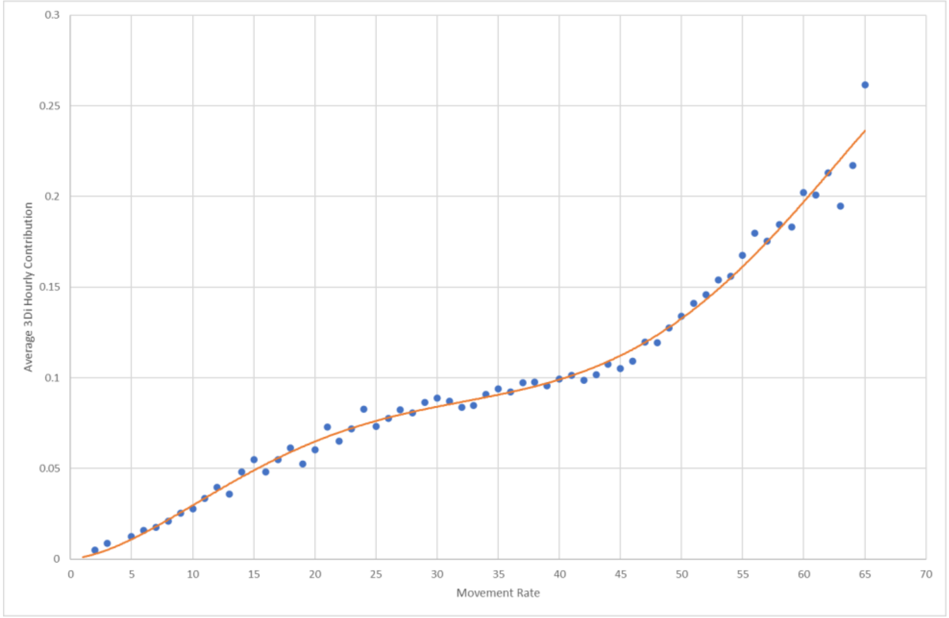
3Di target and traffic relationship at airport level

Looking at an airport and near airfield level, we notice that there is evidence of traffic related impacts. Figure A-3 below shows airborne delay at one airport from 2017 to 2022 to date. While there is large variability in airborne holding at high traffic levels, there is a clear relationship; higher daily arrivals correlate with higher holding totals equals higher 3Di.

Figure A-4 below represents the traffic relationship at a different airport to Figure A-3. These figures show how the overall airports contribution to the UK 3Di score varies with hourly movement rate (2019 data).

Figure A-3 Daily landers vs Airborne delay (mins)

Figure A-4 Average movement vs Average 3Di Hourly contribution



When a runway reaches its maximum movement rate then aircraft will need to start hold; more aircraft arriving beyond this leads to more aircraft holding with knock on impacts to departures, having to be capped below the arrival holds vertically or vectored around them (track extension). To operate at a higher annual, monthly, or daily traffic level will mean that the number of hours where the airport movement rates are higher will increase in number throughout the year, thereby increasing the total 3Di score.

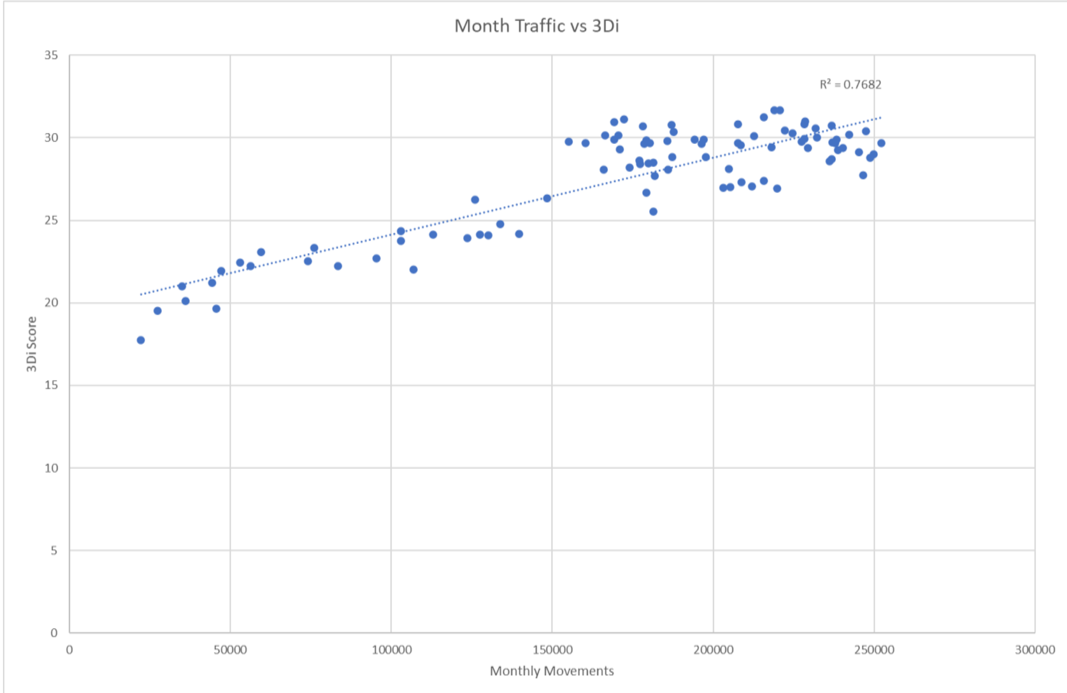
The IATA, Air Transport Action Groups (ATAG) Waypoint 2050[121] report recognises this interdependency and states as follows: *“The number of aircraft that an airport or an ANSP can safely manage, within a predefined time and area / airport, is described as capacity. In order to accommodate capacity limitations, aircraft may be required to hold on the airport, accept re-routing, or hold for a specific time prior to arrival. Whereas air traffic management has control over the available civil airspace capacity, the airport authority has control over an airport’s capacity. When traffic demand approaches the available levels of capacity, it will create congestion and reduce efficiency”.*

For an air traffic controller, the opportunities to offer direct routes and vertically efficient profiles diminish with increasing traffic through increased operational complexity and reduced capacity in the airspace sector/network to deliver those benefits. For example, as traffic increases within a sector, interactions between traffic increase, which are managed by capping aircraft vertically until the interaction has passed or the controller will extend routeings to ensure safe separation. Improvement activities such as the suspension of level caps, used to manage high-capacity traffic, also become fewer. This means that with high traffic, air traffic controllers operate in a standard and systemised way to manage the workload, and this hinders their ability to offer a more efficient service, which can have consequences on the environmental performance for the sector.

3Di target and traffic relationship at monthly and yearly level

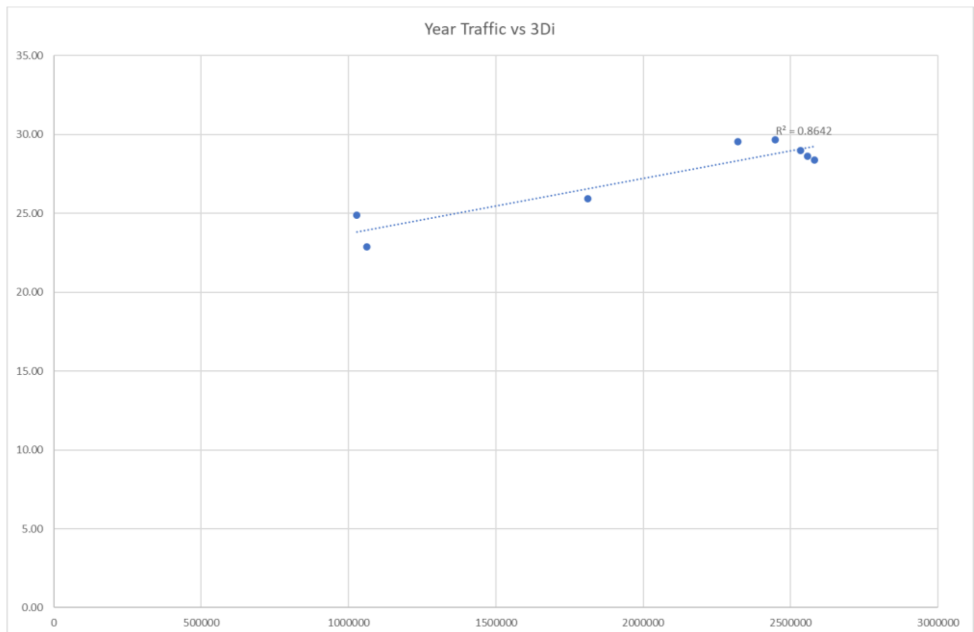
Figure A-5 and Figure A-6 below show the relationship between 3Di and traffic in a longer time span across different years, monthly and annual cuts of data (Jan 2015 to Oct 2022 inclusive).

Figure A-5 Monthly movements versus 3Di score



[121]ATAG (September 2021) Waypoint 2050, Balancing growth in connectivity with a comprehensive global air transport response to the climate emergency: a vision of net-zero aviation by mid-century, page 67 and reference no 92 at page 105, (website link)

Figure A-6 Yearly movements versus 3Di score



These trends have also been recognised by the Performance Review Board (March 2022), as referenced in the Environment Chapter 5.

Appendix B Updated Investment Plan

Overview

We have made various adjustments to the shape of our investment portfolio in response to a number of factors since we submitted our business plan in February 2022 (these adjustments should be read in conjunction with Appendix H of the submitted business plan). This has included the enduring impact of the pandemic on our sustainment profile, the emerging schedule constraints in our airspace modernisation programme from planning and coordination with ACOG, internal delivery capacity constraints and the rephasing of the DP En Route programme. The overall scale of our business plan remains in line with our proposal for a capital allowance of £574m in 2020 CPI prices.

To keep our overall plan balanced within the original financial envelope and our delivery capacity, we have offset most of the £126m increase in DPER costs by reducing investment in Common Platform (reduced by £88m to £32m) and allocating £35m from our risk and contingency provision (£9m remaining). NERL continues to review all options to increase change delivery capacity and we intend to engage with customers as part of the ‘2+5’ approach with alternative options to increase service delivery and achieve a single common platform as soon as practical.

The key changes to our portfolio include:

- Re-phasing the DP En Route plan to deliver second voice system (SVS) in 2023, Prestwick Upper Airspace FOS in 2024, Main Voice System for Swanwick AC in 2026/27 and Swanwick AC FOS and Prestwick Main Voice System in 2027/28
- Realignment of the Free Route airspace programme to deliver in 2027 onwards (as a dependency on DP En Route)
- Rephasing of the first LTMA deployment to 2028 as a result of external dependencies
- A reprofiling of the Common Platform in NR23 and NR28 in line with delivery capacity.

For the areas with significant spend in the first two years of NR23, such as DP En Route and Airspace, we set out more detailed information on the benefits in our business plan. We have provided the detailed deliverables for the first two years of NR23 in this response (which will be replicated in SIP23). We intend to provide greater detail for later years during consultation with customers in line with the 2+5 approach.

There have been a number of changes to the portfolio in response to external factors, for example, impacting our ability to develop and deliver aspects of the FASI changes in the airspace programme. In response to the revised proposal for DP En Route (consulted throughout summer 2022 and set out in iSIP22), we propose to retain the overall level of capex as outlined in our business plan by reducing the risk and contingency allowance (below the 5% RP2/RP3 comparator) and by deferring planned work on Common Platform. NERL continues to review all options to increase change delivery capacity and we intend to engage with customers as part of

the '2+5' approach with alternative options to increase service delivery and achieve a single common platform as soon as practical.

We are committed to sustaining existing technical infrastructure delivering operational services. This investment ensures we can continue to provide a safe and resilient air traffic management service and enable airspace infrastructure changes. We will achieve this through the Sustainment and Surveillance programme. If it becomes necessary to re-prioritise and divert resources from one of our other programmes to maintain the performance of our operation, we will not hesitate to do so.

We will continue to work closely with the CAA, our airline and airport customers to deliver towards on their priorities, improving operational performance targets and contributing to aviation's net zero emissions targets. We will achieve this through the Airspace programme which will provide our contribution to the UK's Airspace Modernisation Strategy.

We are undertaking two simultaneous and major changes to our operation: transforming our airspace infrastructure and our underpinning technology infrastructure whilst maintaining the day-to-day service. The rationale for the capital investment portfolio priorities and approach to NR23 are unchanged. This is to:

- Maintain a safe, resilient, secure service and efficient operation
- Deliver customers' priorities and be responsive to changes in them and/or the operating environment
- Facilitate the recovery and subsequent growth in traffic
- Deliver future efficiency in our operating costs
- Contribute to aviation's net zero emissions targets
- Deliver our Licence and regulatory obligations
- Continue to maintain close interoperability with other air navigation service providers (ANSPs) and contribute to overall network performance

Our strategic priority is to replace our ageing infrastructure and reduce operating costs through the deployment of a single common platform across the operation as soon as practical. Completion of DP En Route is the next step in this strategy, enabling the advanced tools and modernised airspace infrastructure required to support future traffic growth. We will then build on this foundation through the Common Platform programme.

The overall scale of our business plan remains at £574m in 2020 CPI prices. The anticipated profile for costs in our updated capex plan for NR23 is:

Table B-1

CY, 2020 CPI prices, £m[122]	2023	2024	2025	2026	2027	Revised Proposal
Sustainment and Surveillance	23	26	45	54	63	211
DP EnRoute (inc Voice)	47	46	36	24	11	164
Airspace & Ops Service Enh	16	15	15	15	15	76
Information Solutions	5	8	8	8	7	36
Common Platform	4	4	8	8	8	32
Property & Facilities Mgt	4	5	3	3	3	18
Risk & Contingency	-	-	2	3	4	9
ATC Training Transformation	0	3	2	2	1	7
UKATS Total	99	106	118	115	113	551
Oceanic	4	4	5	5	5	23
UKATS + Oceanic Total	103	110	123	120	118	574

DP En Route

Investing in DP En Route & Voice is a significant step on the way to implementing our technical transformation and a range of SESAR initiatives which will ensure we deliver a safe, resilient and cost-effective service in the future. Deploying modernised, industry standard technology will allow a more agile and efficient way of enhancing future capabilities and deliver long-term cost efficiencies. Our revised plan, consulted with customers in June and July 2022 and published in iSIP22, has been adopted within the portfolio plan.

In terms of outcomes and benefits, the overall scope of the plan is unchanged from our proposed business plan. The revision to the plan was developed through a number of options consulted with customers and set out in iSIP22. The CAA's Independent Reviewer[123] noted the '…options were well defined and presented clearly.' Our proposed plan maintains a simplified delivery approach breaking the programme into smaller, independent streams with an initial delivery focus in CY23 and CY24 on:

- Prestwick Full Operational Service (FOS) deployed on the existing operational technical platform, in 2024 (subject to operational consultation for the exact go-live date). This will enable us to gain the benefits of the new functionality as well as learn lessons for the more complex Swanwick deployment.
- Completing the new technical platform (Integrated DSESAR Services) targeting a milestone for Full Operational Service of Integrated DSESAR Services in Q3/Q4 2024, subject to the prioritisation of Prestwick FOS.

[122] Rounded to zero decimal places.
[123] Egis (August 2022) Independent Reviewer Report.

- Deploying Second Voice System (SVS) by June 2023 into the Swanwick Temporary Ops Room to provide enhanced voice resilience and learn lessons for Voice over Internet Protocol (VoIP) into the operational centres before the more complex deployment of Main Voice Systems (MVS).

Future workstreams, including the migration of Prestwick operations onto the new platform, Swanwick and Military FOS and MVS, will form part of further detailed planning as we progress through our priorities. Progressive updates will be provided during the first three streams. This will ensure an ongoing delivery of the benefits as the capabilities mature:

- Following a successful Prestwick FOS, we anticipate a Swanwick FOS during 2027, subject to detailed planning.
- We are currently investigating further options with our MVS supplier and our DSESAR Services supplier, to look at alternative approaches to accelerate those deployments. We expect this assessment to complete early in 2023 and we will engage with customers at the earliest opportunity.

The plan continues to take into account the ongoing consequences of COVID, the lessons learnt over the last 18 months including the Prestwick Limited Operational Service (LOS), Integrated DSESAR Services progress and MVS trials, feedback from our independent advisors, and consultation with our key suppliers and staff.

The re-stated benefits (with additional detail) include:

- **Resilience**: Our ageing infrastructure is becoming increasingly obsolete with limited access to the necessary skills to support it. Without replacement our core services infrastructure will become less resilient with a corresponding impact on our overall service delivery. DP En Route will deliver modern systems providing greater security, resilience, flexibility and enable interoperability with partner Air Navigation Service Providers (ANSPs). Specific examples include:
  - Replacement of our backup critical communications system. This supports the availability of a critical communications service enabling airlines to operate. This offers significantly increased functionality and flexibility over the current backup system, enabling access to multiple air-ground frequencies per workstation, and introducing a ground-ground capability. Military controllers at the Swanwick Centre will have a backup air-ground facility for the first time, which enhances the safety and availability of both their service and the NERL service due to the volume of interactions between the two agencies. Collectively these enhancements will have a positive impact on workload (and thereby safety) in the event of a failure of the primary communications system. This will also give us the experience of using the latest comms technologies in the NERL operation for the first time, in turn allowing us in the near future to deploy those modern technologies more widely, further reducing our technical risk and reducing support costs.
  - Replacement of both the primary and backup voice systems at Prestwick. This will bring them into line with those in use at Swanwick, and greatly simplify supportability as per the bullet above in the longer term.

  - With the introduction of iTEC v2 at Swanwick, all UK upper airspace systems will be running on a common FDP platform, enabling flexibility within the support team, and working towards the strategic objective of one operation running on a modern, supportable common platform for all of the UK FIRs. This will also facilitate greater flexibility and responsiveness in responding to airspace changes, for example full implementation of Free Route Airspace.

- **Safety:** The introduction of SESAR compliant solutions allows the introduction of new operational concepts that can reduce controller workload which will enable the organisation to maintain the level of safety and service as air traffic levels continue to increase. A modernised system, which has been assessed in its development by the national cyber security centre, will have far greater resilience to cyber threats.
  - In the early stages of DP En Route we will bring the Foursight product into service in Prestwick Upper airspace. This will bring a greater co-ordination capability, and in so doing reduce controller workload, which in turn delivers safety and future capacity benefits (based on the assumption that it delivers a similar benefit to the introduction of iFACTS at Swanwick). It also addresses three current safety recommendations through its implementation of medium-term conflict detection.
- **Costs:** Deployment of new technology, and automation of manually intensive processes, will enable us to leverage cost efficiencies and productivity gains. Delivery of the new technical platform, enabling standardisation of technology and working processes across the service provision creates the foundation for a single service offering. The completion of DP En Route is the most significant step towards this target which will be completed in NR28 with the completion of the Common Platform programme where those cost efficiencies and productivity gains are expected to be realised.
  - In consideration we have taken advantage of the iTEC collaboration to reduce development costs – we pay approximately 25% of these costs, and our commitment to introducing SESAR concepts has allowed us to access CINEA funding of which €48m has been returned to customers.
- **Environment:** In total DP En Route is forecast to provide environmental benefits delivering a minimum of 5-10kT of fuel savings per year.
  - The introduction of Foursight at Prestwick delivers an improvement to our conflict detection capability through the replacement of our current capability. This should deliver an enhancement to our environmental performance due to a reduction in the number of step climbs/level offs leading to a smoother and hence more fuel-efficient flight profile.

A summarised version of the DP En Route programme investment for CY23/24 is set out below:

Table B-2

Investment	Scope	Rationale/Service Benefit
Prestwick Full Operational Service (PC FOS)	This investment will transition our Prestwick Upper Area Control operations on to the iTEC v.2 flight data processor on our existing operational technical platform. It will also provide them	The investment in this programme will predominantly future proof our safe operational service, enabling it to accommodate increasing traffic and still meet customer expectations in terms of efficient flight trajectories. Specific benefits include improved

Investment	Scope	Rationale/Service Benefit
	with our advanced controller toolset, FourSight.	safety performance, small improvements in fuel saving and 3Di along with partial regulatory compliance, for en route, with UK REG (EU) 1206/2011 (ACID).
Second Voice System (SVS)	Delivery of the Secondary Voice System into Swanwick Area Control and military operations, replacing our back-up voice comms system with a modern system using Voice over IP on a secondary independent network.	The implementation of SVS will remove the technical risk on our current system, enhancing our service resilience as well as ensuring our continued ability to safely disperse traffic in the event of failure of our primary system.
Integrated DSESAR Services	This stream of work will culminate with the completion of our new strategic technical platform and encompasses all the changes required for our people, processes, and underpinning technology to support our future technical services.	By moving onto an industry standard architecture, our customers will enjoy enhanced service resilience and increased cyber security benefits. A modern service management framework coupled with a Service Management Command Centre will enable us to realise efficiencies in our service costs, accompanied in time by a reducing legacy asset base and associated estate emissions.

And CY25-CY27:

Table B-3

Investment	Scope	Rationale/Service Benefit
Main Voice System (MVS) AC/Mil	Delivery of the Main Voice System into Swanwick Area Control and Military operations, replacing our current voice comms system with a modern system using Voice over IP.	The implementation of MVS across both centres will remove the technical risks on our current systems, enhancing our service resilience. The subsequent removal of legacy assets from service will provide a contribution towards reductions in service costs and estate emissions.
Prestwick Voice	Delivery of the Main and Secondary Voice Systems into the Prestwick Centre replacing our current voice comms systems with modern systems, both main and secondary, using Voice over IP.	
Swanwick Area Control Full Operational Service (AC FOS)	This investment will transition our Swanwick Area Control operation, and the operations of our military customer onto the iTEC v.2 flight data processor on our strategic technical platform. It will also provide them with our advanced controller toolset, FourSight.	The investment in this programme will continue to future proof our safe operational service, enabling it to accommodate increasing traffic and still meet customer expectations in terms of efficient flight trajectories. New tools will enable our controllers to balance capacity and demand and implement Advanced Flexible Use of Airspace concepts into our operations. Specific benefits include improved safety performance, small improvements in fuel saving and 3Di as well as delivering partial compliance with UK REG (EU) 1206/2011 (ACID) and full compliance with UK REG (EU) 716/2014 (PCP) as follows: Annex 3.1.1 ASM and AFUA Annex 3.1.2 Free Route Annex 5.1.2 Infrastructure & Profiles Annex 5.1.3 Aeronautical Info Exchange Annex 5.1.4 Meteorological Info Exchange Annex 5.1.6 Flights Info Exchange

Airspace

Our proposed Airspace programme remains key to delivering our customers' priorities in terms of airspace modernisation and service quality (delivering increased network capacity, enhanced safety, improved environmental performance and reduced fuel burn for customers).

There is no change to the West airspace deployment early in 2023, and we remain committed to delivering airspace change in the Manchester TMA and Scottish TMA in line with customers' expectations. Modernisation of the London TMA is dependent on alignment with all affected

airports, and is being coordinated through the ACOG. Since submission of our business plan this alignment work has been progressing and the earliest feasible deployment of the first set of changes is currently assumed to be in early NR28. As a consequence the planned deliverables for FASI West Airport Connectivity and FASI London are not currently showing in the table of deliverables below. Significant work towards these deployments will continue throughout the period, as well as continual re-assessment of delivery options that could bring forward deployment subject to stakeholder alignment and customer consultation in the SIP.

No projects or deployments have been de-prioritised within the Airspace programme to create funding as a response to changes in DP En Route. The only changes are as a result of technical dependencies upon the DP En Route infrastructure; as a consequence, we have revised the dates for Borders & Central and Cross Border Free Route.

Protecting delivery of our day-to-day service as the traffic recovers is essential to ensure the airlines and airports can operate efficiently. Ensuring that we have sufficient staff available within the operation risks limiting the pace of change we would like, and we need to balance both. We will continue to seek opportunities to introduce improvements to the operation where feasible to maximise the efficiency of the resources available to the programme and in the operation. Our expected overview of investment in airspace includes in CY23/24:

Table B-4

Category	Investment	Scope	Rationale/Service Benefit
Free Route Airspace/ Airspace Modernisation	West Airspace Deployment (LD1)	Delivery of FRA and systemisation in the West of the UK. First delivery of FASI airspace changes. This deployment will also exploit Flexible Use of Airspace principles and performance-based navigation capabilities assuring appropriate airspace sharing and strategically deconflicted route structures.	As part of the UK's airspace modernisation strategy, we are deploying this change to enable our customers to become more efficient and reduce their environmental impact. This investment also delivers an enhancement to our existing compliance with UK REG (EU) 716/2014(PCP) – Annex 3.1.2 (Free Route).
Airspace Management Enhancements	LARA Enhancements	Delivery of improvements to the design of segregated airspace and flexible airspace structures, including enhancements to airspace management tools. This deployment in particular will enable our LARA tool to be enhanced with a web-based client and a Business-to-Business link with Eurocontrol.	We are required by our licence to maintain and enhance our airspace management tools, in addition to enabling advanced flexible use of airspace. This investment supports our customers through delivering improved airspace access and consequently fuel savings, and delivers compliance with UK REG (EU) 716/2014 (PCP) – Annex 3.1.1 (ASM & AFUA).
Operational Service Enhancements	Deployment 7	This project fast tracks some smaller changes in the Lakes/Irish Sea airspace in advance of our Borders project delivering more significant change in this airspace.	This category of changes is targeted at observed bottlenecks/ congestion points to deliver fuel and CO2 emission benefits, and the opportunity for controller workload reduction to support safety enhancements or capacity.
Time Based Separation (TBS)	Gatwick TBS Advanced Mixed Mode	Delivery of approach tools enabling arrivals to be separated based on time rather than distance taking into account generic mixed mode departure spacing requirements.	Our TBS initiatives create landing capacity, providing our airport customers with the opportunity to increase airport capacity, or reduce stack holding and save fuel, or a combination of these outcomes according to their needs. Each investment either delivers new
	Heathrow TBS Pairwise	Enhancement of Heathrow TBS (eTBS) with Pairwise capability, allowing spacing between aircraft to be tailored to leader	

		and follower aircraft type pairings,	compliance or enhances existing compliance with UK REG (EU) 716/2014 (PCP) – Annex 2.1.3 (TBS).

And in CY25-CY27:

Table B-5

Category	Investment	Scope	Rationale/Service Benefit
Time Based Separation	Gatwick TBS Optimised Mixed Mode	Upgraded approach tools enabling arrival gaps to be separated based on time rather than distance taking into account precise mixed mode departure aircraft spacing requirements increasing capacity.	Our TBS initiatives create landing capacity, providing our airport customers with the opportunity to increase airport capacity, or reduce stack holding and save fuel, or a combination of these outcomes according to their needs. Each investment either delivers new compliance or enhances existing compliance with UK REG (EU) 716/2014 (PCP) – Annex 2.1.3 (TBS).
	Stansted TBS Optimised Mixed Mode	Delivery of approach tools enabling arrivals to be separated based on time rather than distance, and arrival gaps to be spaced according to departing aircraft size,	
Airspace Modernisation	ScTMA	Delivery of airspace modernisation in the Scottish TMA	Deployment of PBN routes between the London, Manchester and Scottish Terminal Manoeuvring Areas (TMAs) and Free Route Airspace to increase airspace capacity and enable fuel and CO2 savings.
	MTMA	Delivery of airspace modernisation in the Manchester TMA,	
Extended Arrivals Management (AMAN/XMAN)	Interim XMAN HMI	As a pre-requisite for later initiatives, we will deploy an enhanced HMI for en route ATC to pass XMAN constraints for up to 8 airports,	By enabling holding delay to be absorbed earlier in the en-route and arrival phases, we will allow more aircraft to achieve uninterrupted continuous descent profiles saving fuel and CO_2. These initiatives also contribute to an improvement in passenger experience and deliver compliance with UK REG (EU) 716/2014 (PCP) – Annex 1.1.1 (Extended AMAN).
	Arrival Streaming	Upgraded AMAN tools enabling multiple airport arrival streaming capability (for Heathrow, Gatwick & Stansted),	
	Stansted XMAN	Extending visibility of Stansted AMAN data to neighbouring ANSPs to enable reduced stack holding,	
	XMAN on CSA at PWK for Manchester	Rehosting XMAN for Manchester on our Core Strategic Architecture (CSA), increasing visibility of arrival management data,	
Free Route	Borders	Deployment of FRA in high level airspace across Borders region,	Aligned with the UK Airspace Modernisation Strategy, and commitments made to the Borealis Alliance, we are planning to deliver
	Cross Border FRA D1	Deployment of Cross Border FRA in the FRA D1 region,	

	Cross Border FRA D2 with Ireland	Deployment of Cross Border FRA with Ireland in the West Airspace Deployment region	significant initiatives that will build upon the success of our existing Free Route Airspace implementation, enabling optimised customer-led cross border flight planning options across Europe to deliver fuel, CO_2 and 3Di benefits. Each initiative enhances or extends our existing compliance with UK REG (EU) 716/2014(PCP) – Annex 3.1.2 (Free Route) into additional airspace.

Ongoing analysis indicates that the benefits from the deliverables within the Airspace programme remain broadly comparable with our proposed plan. However, these will now be delivered later within the lifecycle of NR23. These benefits have been modelled against the expected service quality outputs and our response to the proposed service quality measures is in Chapters 3, 4 and 5.

The updated view of the benefits being delivered follows below:

Table B-6

	Safety (workload)	Service (capacity)	Environment (fuel kT CO_2)	Environment (3Di)
Airspace Management Enhancement/ OSEP/ iACM	Marginal workload impact	The improved C2 performance is as a result of an anticipated 6.5%(NERL Level) capacity increase, supported by the NR23 capital investment #Please see below table for estimated capacity increases with specified sectors	We have consistently delivered benefits with this project throughout RP3. We expect performance in NR23 consistent with RP3.	
Airspace modernisation	Workload reduction to Manchester TMA + * Workload reduction to TC Sectors [to be realised in NR28]		100 – 160 kT CO_2 [No change] + * Further CO_2 Reduction [to be realised in NR28]	1.04 – 2.33 [previous 0.8 – 1.3] + * Further 3Di reduction [to be realised in NR28]
ExCDS enhancements	Workload impact to TC Sectors		0 – 15 kT CO_2 [No change]	0 [No change]
Free Route	No safety impact expected		12 – 60 kT CO_2 [previous 30 – 60 kT CO_2]	0 [previous 0.4 – 0.6] + Further 3Di reduction [to be realised in NR28]
Queue & Capacity Mgt	Workload reduction to Heathrow and Gatwick + * Workload reduction to Stansted [to be realised in NR28]		Up to 100 kT CO_2 [previous 40 – 50kT CO_2]	Up to 1.73 [previous 0.6 – 0.8] + * Further 3Di reduction [to be realised in NR28]

	Pre-feasibility & Options – estimated capacity increases by sector	Rationale
Airspace modernisation	7.5% Capacity increase in TLA & GWY	Unchanged
	* Capacity increase across TC [to be realised in NR28]	Stakeholder consultation issues delaying LTMA delivery dates into NR28
	5% Capacity increase in the MTMA	Unchanged
	13.4% Capacity increase in West End Sector	Additional Capacity through West deployment not originally forecast
Free Route	* Capacity increase in NOR, LAK, DCS S, TYN & HUM [to be realised in NR28]	Borders later deployment in 2027
	* Capacity increase in Central, Channel, DTY & CLN [to be realised in NR28]	Central now delivers in NR28

* The anticipated benefits indicated in the table above are for currently expected deployments in NR23. Those deployments which are noted with an * are at an early stage in planning and incorporate wide ranges for delivery in NR28. These will be refined as they progress. As a result of being at the initial stages of design the Benefits described above that deliver in NR28 are at a low level of maturity; further detail will be made available as we progress through the programme/project lifecycle.

Common Platform

We will seek opportunities to accelerate deployment of our common platform should our delivery capacity allow.

We are pleased that the CAA and its Independent Reviewer, Steer, support the importance of the Common Platform programme to deploy the common version of iTEC across our upper and lower airspace on one architecture. The changes to DP En Route will cause some re-phasing of to the final implementation in NR28. We will revisit the impact of these changes as NR23 progresses.

We have reduced the amount of funding in NR23 to the Common Platform investment from £120m to £32m (2020 CPI prices) to balance our current change capacity. We will continue to maintain the resilience of our FDP for lower airspace, ensuring continued service until such time that the iTEC v3 FDP is ready to support our lower operation. Our submitted business plan also included scope in this programme to deliver software builds as required.

Sustainment and Surveillance

Our safe and resilient day to day operational service is underpinned by a sustainment programme of work on numerous highly complex and interdependent sub-systems and services. The NR23 plan reflects the core deliverables required within the period to provide safe, efficient, resilient, and secure services across our service domains. The programme has been adjusted to reflect a revision of risk assessments post-submission of our plan in February 2022. As a result we have proposed an uplift of 2.4% from £206m to £211m (2020 CPI prices) across NR23. Sustainment investment is planned to increase significantly from RP3, for the following reasons:

- The deferral of planned sustainment in RP3 required as a consequence of Covid-19
- Extension of legacy asset lives due to the pause in investment caused by Covid-19 (a significant contributor to the re-phasing of DP En Route)
- Increase of fix on fail methodology during the Covid-19 pandemic in place of routine sustainment leading to a further deferral in sustainment in RP3

The planned investment of £211m in sustainment and surveillance represents the need to recover the investment opportunity lost due to the challenges generated by Covid-19 above and the need to commence the replacement of our surveillance service. The comparative planned spend in our original RP3 plan was £151m.

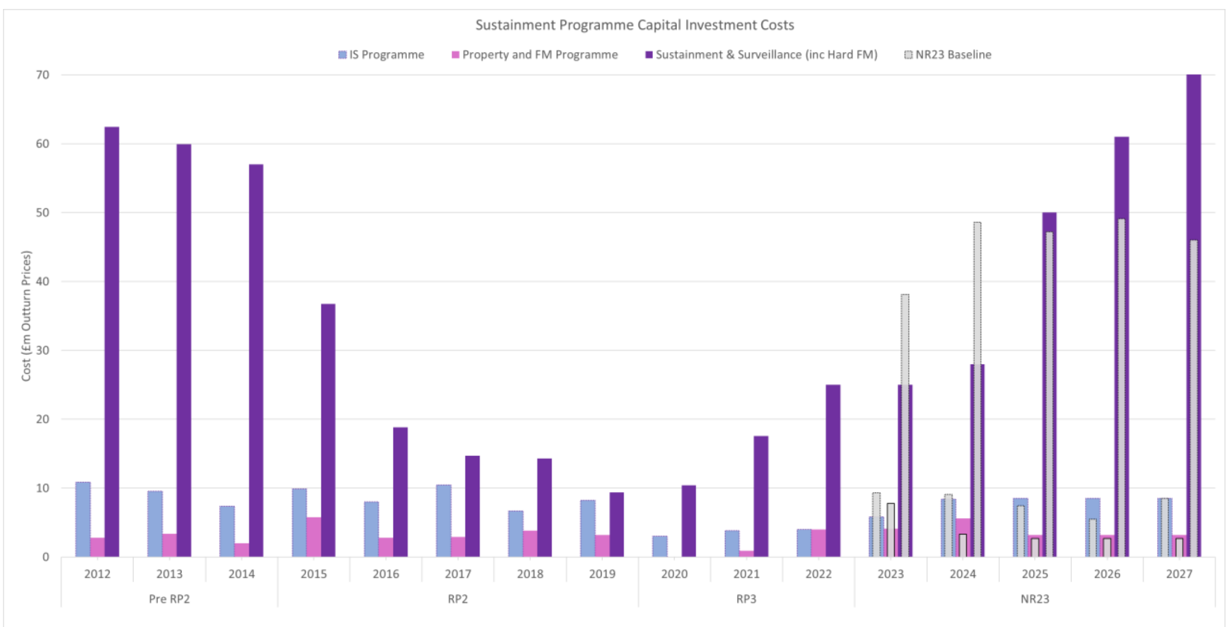
The overall benefit of this key investment programme is to ensure the technical infrastructure remains available to support a safe and resilient service to our customers. The proposed level of funding ensures that we have provision to deliver sustainment activities for current systems and minimise the likelihood and impact of disruptions to our services. The use of Net Weighted Value (NWV) to measure technical resilience risk has been discontinued. This was a proxy measure reflecting the financial impact and was not helpful in explaining risk with customers. A new set of measures is under development which will include a range of lagging and leading indicators of risk and service performance to better inform investment decisions within the sustainment and surveillance programme.

Our capital investment plan has the following three key priorities:

- **Sustainment of existing technology**: essential for the continued safe and resilient operation of our current systems as a component of Critical National Infrastructure, mitigating technical risk, cyber security risk and enabling the implementation of airspace changes. This investment also enables us to meet our Licence requirement to be able to meet a reasonable level of demand
- **Technical transformation**: critical to future capacity and environmental improvement, as well as the route away from existing ageing systems, reducing technical risk and cost
- **Airspace network modernisation**.

The adjusted investment profile for sustainment is illustrated in Figure B-1 below and has been balanced with the priorities above:

Figure B-1



We will always prioritise safety and service performance ahead of airspace and technological change; this is particularly true given the dependencies on our current operational systems to enable airspace change. The principle of ring-fencing investment, expressed in the CAA's Initial Proposals, misunderstands the integrated nature of our services delivering our current operation, meaning investment to maintain our service will always come first. This is in line with our requirement to make available our services in line with Condition 2.1 of our Licence.

We have conducted a thorough assessment of asset, system and service condition, longevity and supportability to determine the essential scope of this programme. The key list of deliverables (noted in the table below) has been assessed against a balanced scorecard to demonstrate its need and priority for investment by engineering professionals in conjunction with known in-service data.

The overall scope of our investment in sustainment remains mainly unchanged. The disaggregated range of services and supporting systems to receive investment starting in CY23/24 includes:

Table B-7

Service Domain	Deliverable	Scope	Rationale/Service Benefit
Communication	Radio Replacement Programme	Our radio infrastructure will be replaced as it reaches end of life (and end of supportability) during NR23. This will see c1800 radios replaced across the NERL estate.	This investment will maintain this critical capability enabling our operational staff to communicate with aircraft, each other and external agencies in the delivery of ATS and maintain service reliability into the future.
	Communications Service Sustainment	A number of smaller projects will be delivered extending the service operating life of our core operational communications systems in advance of its replacement through the DP En Route & Voice programme.	
Surveillance	Plot Service	Replacement of our surveillance radars	Securing a long-term reliable surveillance

Service Domain	Deliverable	Scope	Rationale/Service Benefit
	Replacement	will commence in early NR23. Our approach will use a mix of sensors, including new non-rotating sensors leading to a smaller fixed radar estate, and leveraging ADS-B.	service is essential for our operational staff to maintain an efficient and safe service. Our lifetime spares holding for our current fleet of radars is predicted to last into NR28 so investment is required to begin in NR23 and throughout the next RP to ensure an uninterrupted service. We expect benefits will include a reduction in likelihood and impact of service failure events, a reduction in our carbon emissions and opex reductions in this service.
	Surveillance Service Enhancement	The NATS Operational Display Equipment (NODE) Core Replacement project has improved the stability, capability and capacity of our surveillance display system in the London Terminal Control operation. During NR23 we will extend this project to bring our Prestwick Lower Operation, as well as our Sudden Loss and ATSOCAS Management capability, Western Radar, up to the same baseline. We will also be investing in the ARTAS v8 track source which predominantly supports London Area Control and Prestwick Centre Upper Airspace.	Investment in our NODE system will provide greater resilience both in reliability and its capacity to manage our display systems.
Flight	Flight Intention Sustainment	These systems directly contribute to our delay and safety performance. We will invest in our ExCDS flight-strip distribution system through its mid-life upgrade. We will build additional resilience in the CCDS-R system which connects our FDPs with the Radar data processors.	Our operational service is underpinned by Flight Data Processors (FDPs) which are in turn enabled by a number of subsidiary systems. Sustainment of these systems will ensure our controllers continue to have access to reliable flight data.
Navigation	Navigation Optimisation Programme	As part of the UK's Airspace Modernisation Strategy, NATS is working to rationalise our ground-based navigation infrastructure.	Key benefits include reductions in the technical risk exposure and addresses obsolescence. It ensures NAVAIDs which remain after rationalisation can be supported efficiently and continue to provide a reliable service to all airspace users.
Core Infrastructure	Cyber Security	We will invest in our Cyber Security capabilities to ensure we are able to manage the continuous and evolutionary threat of malicious cyber-attack aimed at disrupting impacting our services with consequent impacts to customers.	NERL provides Critical National Infrastructure to the UK. Investment ensures we are able to meet our Licence obligations and continue to deliver a safe and efficient service.
	Operational Networks Sustainment	Investment in network connectivity will mitigate a risk to several of our key operational services which currently rely on legacy communications networks provided by BT. These are either out of support or approaching end of life in NR23.	Investment will ensure we retain a safe and robust network across all of our distributed communication, navigation and surveillance services.
	Messaging Services sustainment and development	We will replace obsolete elements of our messaging systems and sustain this capability through a combination of service life extension, rehosting and optimisation of several other components that comprise our	Our aeronautical messaging service allows us to send messages between ANSPs, airlines and other stakeholders, helping us to minimise the impact of delays and safeguard airspace capacity. It also enables crucial flight planning and

Service Domain	Deliverable	Scope	Rationale/Service Benefit
		messaging service.	meteorological information to be disseminated and shared.
	Application and Hosting services sustainment	The timing application, which ensures our systems remain synchronised, will be replaced as it approaches end of support and cannot be extended.	The successful exchange of data and messages, via our networks, between systems requires system-wide accurate and aligned time services for their continued operation.
Technical Facilities	Technical Facilities Sustainment	Investment providing maintenance, repair, upgrade and replacement of electrical switchgear, Uninterruptable Power Supplies, heating, ventilation, air conditioning (including operational cooling) Building Management Systems. This includes life safety systems and structural integrity across all operational areas of the NATS estate.	All of our operational services are enabled by the technical facilities which keep them running and operating safely. This investment will continue to ensure we have safe, resilient and reliable power supplies, environmental control systems and physical infrastructure; meeting our health and safety obligations to all our staff and contractors involved in the delivery our services.
Platform	Aeronautical Information Regulation and Control (AIRAC).	Investment which will keep all of our flight data processing and information systems aligned with adaptation and other changes as required by the AIRAC Amendment Cycle.	AIRAC sustainment ensures we are able to implement optimisations, external changes, and deploy rectification adaptation with flexibility and agility. It also ensures we meet our Licence obligations.
Information	Aeronautical Information Service	Activity will upgrade and patch our EADPro and IBS systems. We also have two further projects: one covering a CAA / ICAO driven digital data-sets migration, the other a Static and Dynamic Data Measurement & Testing migration with Eurocontrol and the EAD UK AIS.	AIS is a regulated service and provides safety-related information to airspace users (AIP, PIBs, SUPs, NOTAM, etc).to meet our Licence obligations.

Due to start CY25 – CY27

Table B-8

Service Domain	Deliverable	Scope	Rationale/Service Benefit
Communication	Lower Communications Project	Extension of our London Terminal Control legacy communications assets in order to maintain this service until our strategic voice systems are deployed into that operation.	This investment will maintain this critical capability enabling our operational staff to communicate with aircraft, each other and external agencies in the delivery of ATS and maintain service reliability into the future.
	Recording Service Bridging Project	We will sustain our legacy recording system which risks becoming out of support. It will include a full technology replacement for all our operations (with the DPER recording solution).	A full display and audio recording solution is a CAA regulatory requirement under CAP670, and it enhances our safety performance by enabling us to investigate and learn from incidents in the operation.

Flight	NAS Sustainment	Investment in NAS over NR23 will include developing the resources (skills) we require until it is replaced through technical transformation. This includes maintaining and replacing components and updating the configuration of the main and peripheral systems which support current capability across the business.	NAS is at the core of all NATS FDP operations and thus directly contributes to our operational safety, service and environmental performance.
Core Infrastructure	Campus services sustainment	Our network sustainment activity in CY23 and 24 will be continued in CY25 onwards with further rationalisation and obsolescence management in our campus network services.	The delivery of a safe and efficient ATS is enabled by resilient and secure networks. It ensures the availability of data to our services. A number of these networks also support the fulfilment of our Licence obligations and to international organisations and our customers.
	CAPSIN retirement	Life of this asset will be extended with a lifetime buy of available spares and a change activity launched to migrate the relevant services (including our airport customers) off CAPSIN by 2025.	
	Wide Area services evolution	Work will be undertaken to rationalise and mitigate against obsolescence impacts of our Wide Area Networks throughout NR23.	
Simulations	Simulations Sustainment	Sustainment of the NATS simulation environments directly supports ATC training and validation services. Investment will maintain software, hardware and associated environments.	Our simulation service enables effective training and validation of new Air Traffic Controllers. It is also essential for the development of planned future airspace and technical changes to be developed and validated without impacting service delivery.

Information Solutions

The Steer[124] report notes that '…all organisations…must invest continuously to improve their IT infrastructure, and in particular to enhance cyber-security. The capex planned for the NR23 period in this regard is reasonable…'. In addition, in benchmarking terms (conducted by Gartner), IS compares favourably with both percentage IT spend against company revenue and IT spend per headcount; averaging at 2.8% of company revenue (benchmark between 3.00% to 4.25%) and £5.5k per headcount (benchmark £9.4k to £10.4k). The scope of our plan for this programme remains unchanged and our business IT is an essential component of business resilience and non-operational information systems. The IS programme delivers value by providing effective, reliable and secure IT services, enabling legal compliance. Continued investment in our business IT solutions remains key to enable our agile workforce to work from various locations and reduce demand on expensive office space.

[124] Steer (October 2022) paragraph 4.5.76

Property & FM

The scope of our plan for this programme remains unchanged as this is an essential component of business resilience. The Steer[125] report notes that 'According to our benchmark of European ANSPs, the expenditure planned by NERL on property and facilities management is reasonable…'. Our own benchmarking exercise with the real estate consultants, JLL, indicates that NERL's total costs (£ per m^2) are below benchmark. In 2020 total occupancy costs per full time equivalent (FTE) was 23% lower and total occupancy costs per m^2 was 31% lower. By 2025 JLL forecasts total occupancy costs in 2025 per FTE will be 50% lower than benchmark and total occupancy costs per m^2 will be 16% lower than the benchmark. The report also stated that our utilization m^2/FTE was above the benchmark. This represents the careful handling of our estate and efficient utilization of our property while at the same time ensuring good working conditions for our employees from Health and Safety perspective.

ATC Training Transformation

The scope of our plan for this programme remains unchanged and this programme will be consulted with customers when we are ready to launch projects.

Oceanic

The scope of our plan for this programme remains unchanged and our essential investment in the oceanic operation remains focused on transforming the information infrastructure for the North Atlantic service, with our strategic partners, NavCanada and Aireon, to continue to deliver the NAT Vison 2030.

The priority for the NR23 Oceanic programme will be addressed through two main deliverables, namely: a workstation upgrade, and the re-platforming of the GAATS+ system onto a modern hardware and software environment. Without these deliverables, future operational enhancements, such as Reduced Conflict Horizon (allowing more customers to get their requested plan) and User Preferred Routes (flexibility to fly most efficient plan), cannot be delivered. Notwithstanding enabling future development, the current infrastructure will struggle to cope with future increases in demand above 2019 levels.

This discrete investment area would be particularly susceptible to the application of any reductions in capex allowance and would have an immediate impact on our ability to deliver the changes we have proposed, risking service quality.

[125] Steer (October 2022) paragraph 4.5.76

Key Deliverables in CY23 and CY24

Table B-9

Forecast	Milestone/ Delivery	Description & Outcomes
	DP En Route and Voice	
Q2 23	SVS FOS (AC & Mil)	Delivery of the Secondary Voice System into Swanwick Area Control and Military operations, enabling resilience and cost efficiency benefits.
Q4 24	PCUA FOS	Transition of Prestwick Upper Area Control operations onto the DP En Route Platform, enabling safety, environmental and cost benefits. Delivers partial compliance with UK REG (EU) 1206/2011 (ACID)
Q4 24	Platform RFU and Tech Services Readiness	Commissioning of our Core Strategic Architecture platform enabling resilience and future benefit delivery.
	Sustainment and Surveillance	
Ongoing	Provide a safe & resilient ATM service every day	To enable airline & airports to operate
Q3 23	Prestwick UPS Replacement	Replacement of Prestwick Centre Uninterrupted Power Supply (UPS) system to replace end of life assets, ensuring service resilience.
Q3 23	Dry Air Coolers (DACs) and Chillers Deployment 1	Deployment of upgraded Chillers and 2 DACs at Swanwick Centre to ensure service resilience, enabling future benefit delivery.
Q4 23	Tiree Radome replacement	Replacement of the Radome at Tiree Radar to enhance service resilience
Q4 24	Surveillance Deployment 1	First deployment of our Surveillance Service Infrastructure project to ensure service resilience.
	Airspace and Operational Surveillance Enhancements	
Q1 23	West Airspace Deployment	Delivery of FRA and systemisation in the west of the UK. First delivery of FASI airspace changes. Delivers an enhancement to our existing compliance with UK REG (EU) 716/2014(PCP) – Annex 3.1.2 (Free Route)
Q2 23	Airspace Management Enhancements (LARA)	Delivery of improvements to the design of segregated airspace and flexible airspace structures, including enhancements to airspace management tools. This deployment enables LARA tool enhanced with Web Based Client & Business to Business link with Eurocontrol. Delivers compliance with UK REG (EU) 716/2014 (PCP) – Annex 3.1.1 (ASM & AFUA)
Q3 23	AMAN Headbranch	Deployment onto standalone hardware at TC Heathrow and TC Gatwick
Q1 24	Operational Service Enhancements Deployment 7	This project deploys comparatively small-scale changes to the operating environment aimed at delivering benefits between our large-scale deployments. Typically this focusses on ATC procedure change, system change and review of flight plan constraints.
Q1 24	Gatwick TBS Advanced Mixed Mode	Delivery of approach tools enabling arrivals to be separated based on time rather than distance taking into account generic mixed mode departure spacing requirements increasing capacity delivers compliance with UK REG (EU) 716/2014 (PCP) – Annex 2.1.3 (TBS).
Q2 24	Heathrow TBS Pairwise	Enhancement of Heathrow TBS (eTBS) with 2nm minimum radar separation and Pairwise capability, allowing spacing between aircraft to be tailored to leader and follower aircraft type pairings, offering choices in increasing capacity and/or environmental performance Delivers an enhancement to our existing compliance with UK REG (EU) 716/2014 (PCP) – Annex 2.1.3 (TBS).
	Oceanic	
Q3 23	GAATS+ Enhancement Build Programme: Alignment Build D4	Recovering technical debt in our GAATS+ platform aligned with the NAV Canada build programme.
Q2 24	Removal of Oceanic clearance	Clearance Requests removed from Oceanic operations, revised Condition 11 reporting agreed and in place. Delivers compliance with ICAO NAT 2030.
	Information Solutions	
Q2 23	STAR Replacement	Will enable data submission to the CAA to meet ECCAIRS requirements format. Delivers compliance with UK REG (EU) 376/2014 (Occurrence Reporting).
Q2 23	Aurora R4 Complete	Enhancing the standardisation of data not only internal to NATS but also across all ICAO member states. This standardisation will bring accuracy, and consistency to the cartography process.

Deliverables planned in CY25-27

Table B-10

Planning Range	Milestone/ Delivery	Description & Outcomes
		DP En Route and Voice
Q2 26-Q1 27	**MVS FOS (AC & Mil)**	Delivery of the Main Voice System into Swanwick Area Control and Military operations, enabling resilience and cost efficiency benefits.
Q1 27-Q2 28	**AC FOS**	Transition of Swanwick Area Control and Military operations onto the DP En Route Platform, enabling resilience, safety, environmental and cost benefits. Delivers partial compliance with UK REG (EU) 1206/2011 (ACID) and compliance with UK REG (EU) 716/2014 (PCP) as follows: **Annex 3.1.1** – **ASM and AFUA** **Annex 3.1.2** – Free Route **Annex 5.1.2** – Infrastructure & Profiles **Annex 5.1.3** – Aeronautical Info Exchange **Annex 5.1.4** – Meteorological Info Exchange **Annex 5.1.6** – Flights Info Exchange
Q2 27-Q1 28	**MVS & SVS FOS at Prestwick**	Delivery of the Main and Secondary Voice Systems at the Prestwick Centre, enabling resilience and cost efficiency benefits.
		Sustainment and Surveillance
Ongoing	**Provide a safe & resilient ATM service every day**	To enable airline & airports to operate
Q2 25-Q1 26	**Dry Air Coolers (DACs) Deployment 2**	Upgrade of remaining 2 DACs at Swanwick Centre to ensure service resilience
Q4 25-Q3 26	**ExCDS Mid Life upgrade**	ExCDS Mid-Life upgrade to ensure continued service resilience
Q4 25-Q2 26	**Surveillance Deployment 2**	Second deployment of our Surveillance Service Infrastructure project to ensure service resilience.
Q1 27-Q4 27	**Surveillance Deployment 3**	Third deployment of our Surveillance Service Infrastructure project to ensure service resilience.
		Airspace and Operational Surveillance Enhancements
Q1 25-Q4 25	**Gatwick TBS Optimised Mixed Mode**	Upgraded approach tools enabling arrival gaps to be separated based on time rather than distance taking into account precise mixed mode departure aircraft spacing requirements increasing capacity. Delivers an enhancement to our planned compliance with UK REG (EU) 716/2014 (PCP) – Annex 2.1.3 (TBS), from the Gatwick TBS AMM deliverable.
Q4 25-Q3 26	**ScTMA**	Delivery of airspace modernisation in the Scottish TMA, increasing capacity and enabling fuel and CO_2 savings.
Q4 25-Q3 26	**Interim XMAN HMI**	Deployment of an enhanced HMI for en route ATC to pass XMAN constraints for 8 airports, enabling future benefit delivery.
Q2 26-Q1 27	**MTMA**	Delivery of airspace modernisation in the Manchester TMA, increasing capacity and enabling fuel and CO_2 savings.
Q2 27-Q1 28	**Arrival Streaming**	Upgraded AMAN tools enabling multiple airport arrival streaming capability (for Heathrow, Gatwick & Stansted), increasing capacity.
Q3 27-Q2 28	**Stansted XMAN**	Extending visibility of Stansted AMAN data to neighbouring ANSPs to enable reduced stack holding, enabling fuel and CO_2 savings. Delivers compliance with UK REG (EU) 716/2014 (PCP) – Annex 1.1.1 (Extended AMAN)
Q3 27-Q2 28	**XMAN on CSA at PWK for Manchester**	Rehosting XMAN for Manchester on our Core Strategic Architecture (CSA), increasing visibility of arrival management data, enabling fuel and CO2 savings, and increasing resilience of this service. Delivers compliance with UK REG (EU) 716/2014 (PCP) – Annex 1.1.1 (Extended AMAN)
Q4 27-Q3 28	**Stansted TBS Optimised Mixed Mode ~~Plus~~**	Delivery of approach tools enabling arrivals to be separated based on time rather than distance, and arrival gaps to be spaced according to departing aircraft size, increasing capacity.
Q4 27-Q3 28	**Borders**	Deployment of FRA in high level airspace across Borders region, increasing capacity and enabling fuel and CO_2 savings. Extends our existing compliance with UK REG (EU) 716/2014(PCP) – Annex 3.1.2 (Free Route) into additional airspace.
Q4 27-Q3 28	**Cross Border FRA D1**	Deployment of Cross Border FRA in the FRA D1 region, enabling fuel and CO_2 savings. Deployment of FRA in high level airspace across Borders region, increasing capacity and enabling fuel and CO_2 savings. Enhances our existing compliance with UK REG (EU) 716/2014(PCP) – Annex 3.1.2 (Free Route).

Planning Range	Milestone/ Delivery	Description & Outcomes
Q4 27-Q3 28	**Cross Border FRA D2 with Ireland**	Deployment of Cross Border FRA with Ireland in the West Airspace Deployment region, enabling fuel and CO_2 savings. Deployment of FRA in high level airspace across Borders region, increasing capacity and enabling fuel and CO_2 savings. Enhances our existing compliance with UK REG (EU) 716/2014(PCP) – Annex 3.1.2 (Free Route).
	Oceanic	
Q1 25-Q4 25	**Oceanic Workstation Modernisation & Alignment**	Deployment of a modernised user interface, enabling future benefit delivery and enhancing service provision.
Q1 26-Q4 26	**New Traffic and workload management tools**	Introduction of new traffic and workload management tools, supporting controllers to provide optimised profiles, enhancing service provision.
Q1 26-Q4 26	**Optimised Ops Support: MECS Upgrade**	Modernisation of the Message Extraction and Correction System (MECS) capability, improving service resilience and providing cost efficiency benefits.
Q1 27-Q4 27	**FDP Modernisation**	Upgrade of GAATS+ platform building resilience into the Oceanic service enabling scalable and flexible future development and cost efficiency benefits.
	Information Solutions	
Q4 25-Q3 26	**SAP Core Upgraded**	Transformation of our key Enterprise Resource Planning (ERP) capabilities, reducing overheads through simplification, automation and modernisation of processes.

Appendix C Capex engagement incentive

This Appendix sets out some proposed amendments to the Capex Engagement Incentive scoring mechanism, for consideration.

1. User focus including timeliness of information, traceability and proportionality

	Underperformance		Baseline	Outperformance	
	Poor (1)	Weak (2)	Average (3)	Good (4)	Excellent (5)
Guidance	Substantial delay in providing information, very little early warning of factors that may affect delivery. Very unclear and inaccessible information provided in format not reflecting user priorities or resource constraints. Very little additional information provided for very material changes in capex plan.	Some delay in providing information, limited early warning of factors that may affect delivery. Unclear, inaccessible or perfunctory provision of information with limited regard for user priorities and resource constraints. Limited additional information provided for material changes in capex plan and unclear on traceability of changes back to previous plans.	Information provided in a timely manner, reasonable early warning (where possible) of factors that may affect delivery. Reasonably clear and accessible information provided with reasonable regard for user priorities and resource constraints. The level of substantiation provided reasonably reflects the materiality of the change under consideration but does not allow users systematically to trace changes to the plan to previous plans.	Information provided proactively and promptly, strong early warning and (where relevant) explanation of factors that may affect delivery. Clear and accessible information with good regard for user priorities and resource constraints. Comprehensive substantiation for all material changes in capex plan under consideration, including clear traceability of all material changes to both the last version of the capex plan consulted on and the first version of the capex plan consulted on during the NR23 period.	Information provided proactively and promptly, excellent quality early warning and explanation of factors that may affect delivery. Extremely clear and accessible information with excellent consideration of user priorities and resource constraints. Excellent substantiation for all material changes in capex plan under consideration and comprehensive traceability of all changes to both the last version of the capex plan consulted on and the first version of the capex plan consulted on during the NR23 period.
Deliverables	i. SIP documents submitted to CAA late and/or published to customer portal more than ten working days later; ii. <50% of responses to user and/or IR submissions are given after 20 working days. iii. Agreed engagement actions following customer submissions on previous SIP have not progressed. This means that NERL has no further update to provide to customers (but	i. SIP documents submitted to CAA late and/or published to customer portal between two and ten working days later; ii. >50% of user and/or IR submissions are given a response within 20 working days; iii. Agreed engagement actions following customer submissions on previous SIP have not progressed. This means that NERL has no further update to provide to customers (but	i. SIP documents submitted to CAA on time and published to customer portal within two working days. ii. All user/IR submissions are given a response within 20 working days. iii. Agreed engagement actions have been taken following customer submissions on previous SIP as planned in the response; iv. Changes to programme milestones/costs/benefits are	i. SIP documents submitted to CAA on time and published to customer portal on the same day; ii. All user / IR submissions are given a response within 15 working days; iii. Agreed engagement actions have been taken following customer submissions on previous SIP and iSIP as planned in the response; iv. Changes to programme	i. SIP documents submitted to CAA on time and published to customer portal on the same day. ii. All user and/or IR submissions are given a response within 10 working days. iii. Agreed engagement actions have been taken ahead of schedule in response to customer submissions on previous SIP or iSIP. iv. Changes to programme milestones/costs/benefits are communicated at the next SIP, iSIP

	accepting that the update may be 'no further action at this stage due to competing priorities in the portfolio); iv. Changes to programme milestones/costs/benefits are communicated more than 12 months after change or after re-baselined project; v. A description of each programme is available but exceeds the standard template by at least 2 pages and is not meaningful or is inaccessible to non-experts. More than 10% of acronyms remain undefined and/or undefined technical terms; vi. For very significant changes no statement is provided;	accepting that the update may be 'no further action at this stage due to competing priorities in the portfolio); iv. Changes to programme milestones/costs/benefits are communicated between 6 and 12 months after change or after re-baselined project; v. A description of each programme is available but exceeds the standard template by at least 2 pages and is not meaningful or is inaccessible to non-experts. More than 10% of acronyms remain undefined and/or undefined technical terms ; vi. Milestone due dates are available; vii. For significant changes, a short explanation of what has happened is provided;	communicated within 6 months after change or after re-baselined project ; v. A clear and understandable[126] description of each programme and its benefits is available with programme descriptions and milestones reflecting cost, scope and time; vi. Milestone due dates and their purpose are clear and understandable; vii. there is some use of tables, Gantt charts, 'tube maps' or other non-textual presentations; viii. For less significant changes, a short explanation of what has happened is provided; ix. For significant changes, more detail is provided and presented at a SIP consultation.	milestones/costs/benefits are communicated at the next SIP or iSIP after change or after re-baselined project ; v. A clear and understandable[126] description of each programme and its benefits is available with programme descriptions and milestones reflecting cost, scope and time; vi. Milestone due dates, their purpose are clear and understandable; vii. Information is traceable so that any changes in information (milestone names, costs, etc) are linked back to the SIP/iSIP/quarterly update and SIP23;; viii. there is good use of tables, Gantt charts, 'tube maps' or other non-textual presentations; ix. For less significant[127] changes, a short explanation of what has happened and why is provided; x. For significant changes, more detail is provided and/or specific discussions undertaken where users can ask questions.	or quarterly update after change or after re-baselined project ; v. A clear and understandable[1261] description of each programme and its benefits is available with programme descriptions and milestones reflecting cost, scope and time; vi. Milestone due dates, their purpose and interdependencies are clear and understandable; vii. Information is traceable so that any changes in information (milestone names, costs, etc) are clearly explained and linked back to the last SIP/iSIP/quarterly update and SIP23; viii. there is good use of tables, Gantt charts, 'tube maps' or other non-textual presentations; ix. For less significant changes, a short explanation of what has happened and why is provided; x. For significant changes, more detail is provided and/or specific discussions undertaken where users can ask questions. Users are asked specific questions to help understand their priorities; xi. The documentation is not excessively long and focuses on user priority areas.

[126] Clear and understandable requires all acronyms to be defined and descriptions given in plain language so they are understood by non-experts (can be done by reference back to the Business Plan or SIP23)
[127] SIP 20 defined a significant/material change to be i) an change in customer agreed milestone of more than 3 months, ii) a change in costs of more than 10% or iii) more than a 10% change in benefits. It should be agreed what constitutes a material change for NR23. Given the switch to a 2+5 planning cycle, significant changes should reflect those milestones/ deliverables due in the first 2 years of each annual cycle.

2. Optioneering

Engagement when changes are required: changes need to be made and there is only one reasonable course of action, NERL should explain why options are not being presented.

<table>
<tr><th></th><th colspan="2">Underperformance</th><th>Baseline</th><th colspan="2">Outperformance</th></tr>
<tr><th></th><th>Poor (1)</th><th>Weak (2)</th><th>Average (3)</th><th>Good (4)</th><th>Excellent (5)</th></tr>
<tr><td>Guidance</td><td>Very little information on alternative options presented (including no discussion of opex interactions), no real opportunity for users and IR to scrutinise relative merits of different options.</td><td>Poor information on the overall approach to optioneering adopted. Limited information on alternative options presented (including limited discussion of opex interactions), limited opportunity for meaningful scrutiny of relative merits of different options by users and IR.</td><td>Limited information on the overall approach to optioneering adopted. A range of different options identified where possible (including explicit consideration of opex interactions), reasonable opportunities for meaningful user and IR engagement and scrutiny.</td><td>Good information on the overall approach to optioneering adopted. Good information provided on a range of alternative options where possible (including explicit consideration of opex interactions), good opportunities for meaningful user and IR engagement and scrutiny</td><td>Excellent information on the overall approach to optioneering adopted. Excellent information provided on alternative options where possible (including explicit consideration of opex interactions), extensive opportunities for meaningful user and IR engagement and scrutiny.</td></tr>
<tr><td>Deliverables</td><td>i. Vey little information includes up to two of the following:
• the reason for changes being made to the programme;
• a list of relevant options;
• capex impact of each option;
• the impacts on benefits (both qualitative and quantitative); and
• how the options may be delivered.
ii. Unsers/IR not given sufficient time (< 5 working days) or opportunity to discuss / provide their view on options available.</td><td>i. Some information given on approach to optioneering
ii. Poor information includes three of the following:
• the reason for changes being made to the programme;
• a list of relevant options;
• capex impact of each option;
• refence to opex changes (if any);
• the impacts on benefits (both qualitative and/or quantitative); and
• how the options may be delivered.
iii. Information on options is included in SIP or other documentation.
iv. Users/IR not necessarily given opportunity to discuss.
v. At least 5 working days given to respond.</td><td>i. Overall approach to optioneering stated
ii. Limited information includes four of the following:
• the reason for changes being made to the programme;
• a description of relevant and meaningful options;
• capex impact of each option;
• the impact on opex (if any);
• the impacts on benefits (both qualitative and quantitative); and
• how the options may be delivered.
iii. Options are listed and discussed at SIP, TCAB or dedicated consultation meeting.
iv. At least 10 working days given to respond.</td><td>i. Overall approach to optioneering described
ii. Good information includes five of the following:
• the reason for changes being made to the programme;
• a description of relevant and meaningful options;
• capex impact of each option;
• the impact on opex (if any);
• the impacts on benefits (both qualitative and quantitative); and
• how the options may be delivered.
iii. Options are explained and discussed at SIP, TCAB or dedicated consultation meeting.
iv. At least 15 working days given to respond.</td><td>i. Overall approach to optioneering explained
ii. Good information includes ALL of the following:
• the reason for changes being made to the programme;
• an explanation of relevant and meaningful options;
• capex impact of each option;
• the impact on opex (if any);
• the impacts on benefits (both qualitative and quantitative); and
• how the options may be delivered.
iii. Options are explained in detail and discussed at dedicated consultation meeting.
iv. At least 20 working days given to respond.</td></tr>
</table>

3. Responsiveness (Quality of response)

	Underperformance		Baseline	Outperformance	
	Poor (1)	Weak (2)	Average (3)	Good (4)	Excellent (5)
Guidance	Very limited response to user and IR submissions, does not appear that submissions have been accounted for.	Perfunctory response to user and IR submissions, insufficiently clear how these submissions have been accounted for.	Generally constructive response to user and IR submissions, reasonably clear explanation of how these submissions have been accounted for.	Engaged and constructive response to user and IR submissions, clear explanation of how these submissions have been meaningfully accounted for.	Engaged and highly constructive response to user and IR submissions, very clear evidence that submissions have been meaningfully accounted for after substantial consideration.
Deliverables	i. < 50% of questions/points[128] raised by users and/or the IR are responded to. ii. Responses do not always acknowledge the questions/points raised by users and/or the IR.	i. > 50% of user and/or IR submissions are given a response. ii. The responses acknowledge the majority (>50%) of questions/points raised. iii. An explanation of NERL's view is given for the majority (>50%) of the point(s) raised. iv. A summary of the majority of (>50%) user and IR submissions is provided in each SIP document.	i. All user and/or IR submissions are given a response. ii. The responses acknowledge most (>75%) of the questions/points raised by users and/or the IR. iii. The responses given include an explanation of NERL's view on most (>75%) of the point(s) raised. iv. A summary of all user and IR submissions is provided in each SIP document, including a summary of NERL's view of the main points and a signpost to the next steps to be taken (if any).	i. All user and/or IR submissions are given a response; all of the questions/points raised are acknowledged. ii. The responses include an explanation of NERL's view on all point(s) raised. iii. The response to each point includes a description of the next steps to be taken (if any). iv. A summary of all user and IR submissions is provided in each SIP document, including NERL's view of the main points and a description of the next steps to be taken (if any).	i. All user and/or IR submissions are given a response; all of the questions/points raised are acknowledged. ii. The responses include an explanation of NERL's view on all point(s) raised. iii. The response to each point includes a description and justification for the next steps to be taken (if any). iv. A full list of all user and IR submissions is provided in each SIP, including NERL's view on each point raised. v. Mapping is provided to show how each point raised has been meaningfully accounted for, with justification for the decisions taken by NERL in response.

[128] NERL will need to collaborate with the IR to agree what constitutes a question or a point raised

4. Mitigation / corrective actions (Appropriateness of the actions)

Judgement will be required to assess what is reasonable, depending on the availability of wider contextual information, which is not always available to all external stakeholders

	Underperformance		Baseline	Outperformance	
	Poor (1)	Weak (2)	Average (3)	Good (4)	Excellent (5)
Guidance	Very little evidence of Mitigating and/or corrective actions, where appropriate, following user and IR submissions.	Limited evidence of mitigating and/or corrective actions, where appropriate, following user and IR submissions.	In most cases[129] reasonable mitigating and/or corrective actions taken, where appropriate, following user and IR submissions. Actions communicated to stakeholders.	In almost all cases appropriate mitigating and/or corrective actions taken promptly, where appropriate, following user and IR submissions. Actions clearly explained to stakeholders.	In all cases appropriate mitigating and/or corrective actions taken promptly and proactively, where appropriate, following user and IR submissions. Actions very clearly explained to stakeholders

[129] Most cases, almost all cases and all cases may not be appropriate if there are a limited number of submissions.

	Underperformance		Baseline	Outperformance	
	Poor (1)	Weak (2)	Average (3)	Good (4)	Excellent (5)
Deliverables	i. Where mitigating/corrective action is appropriate, some reasonable actions are undertaken; ii. There is some evidence of mitigating/corrective actions in the SIP and/or iSIP documents;	i. In >50% of cases where mitigating/corrective action is appropriate, reasonable actions are undertaken; ii. >50% of mitigating/corrective actions are communicated to users and the IR in the published SIP or iSIP documents; iii. In the case of competing requests, decisions are taken and communicated to stakeholders.	i. In >75% of cases where mitigating/corrective action is appropriate, reasonable actions are undertaken; ii. The time taken to complete any action is proportionate to the complexity of the situation; iii. >75% of mitigating/corrective actions are communicated to users / IR in the next available published SIP / iSIP documents; iv. In the case of competing requests, justification is given for the decisions taken with evidence to explain how a particular conclusion had come about; v. If no action is taken to a direct request, then an opportunity should be offered for further discussion and explanation.	i. In >90% of cases where mitigating/corrective action is appropriate, reasonable actions are undertaken; ii. The time taken to complete any action is proportionate to the complexity of the situation; iii. Mitigating/corrective actions are communicated to users and the IR in the next available published document (e.g. SIP, iSIP, quarterly update);. iv. All evidence presented by users and the IR have been considered; v. In the case of competing requests, justification is given for the decisions taken with evidence to explain how a particular conclusion had come about; v. If no action is taken to a direct request, then an opportunity should be offered for further discussion and explanation.	i. In all cases where mitigating/corrective action is appropriate, reasonable actions are undertaken; ii. The time taken to complete any action is proportionate to the complexity of the situation; iii. Mitigating/corrective actions are communicated to users and the IR in the next available published document (e.g. SIP, iSIP, quarterly update);. iv. All evidence presented by users and the IR have been considered and evidenced; v. In the case of competing requests, justification is given for the decisions taken with evidence to explain how a particular conclusion had come about; vi. If no action is taken to a direct request, then an opportunity should be offered for further discussion and explanation

Appendix D Licence modifications

Reference	Summary	Comment
CAP 2394c, Condition 21, paragraph 18	Financial incentives carried forward from RP3	We note that the CAA has removed the 3Di financial incentive for 2022, while retaining (in unmodified form) the capacity incentives. As set out in our letter of 19 August 2022, we requested that the CAA consider to disapply all the financial incentives for service performance for calendar year 2022, in light of the unpredictable daily presentation of traffic as the aviation industry has, collectively, struggled to return to a resilient service as traffic levels have recovered. We also requested, if relevant (i.e. if the CAA retained the financial incentive for C3), that the CAA suspend the traffic modulation of the C3 penalty threshold for 2022. These modulation parameters were set in 2019, before the pandemic, and were clearly designed in light of the much smaller variations in traffic outturn versus forecast which had been experienced up to then. The result is that the modulated C3 thresholds are no longer realistic.
CAP2394c Condition 21a paragraph 21 and CAP2394a Table 8.3	London Approach determined costs	London Approach determined costs in Table 8.3 of CAP2394a in 2020 CPI prices have the same values as London Approach determined costs in Condition 21, para 21 in CAP2394c in nominal values. Aligning with the CAA's Price Control Model, we have assumed these numbers are in fact nominal values and that there is a publication error in CAP2394a.
CAP2394c, $FHICP_t$ in paragraph 2 of Condition 21, paragraph 22 of Condition 21a and paragraph 3 of Condition 22	Inflation assumptions	The base year for 2021 and 2022 is incorrectly defined. We suggest the following wording: *$FHICP_t$ means the reference values of the HICP (all items) index in respect of the UK for NERL Regulatory Year t established prior to the control period, consistent with the projections in nominal prices (the index base is 2017=100 up to 2022 and 2020=100 thereafter), which shall be:*
CAP2394c, $Inflation_t$ in paragraph 2 of Condition 21, paragraph 22 of Condition 21a and paragraph 3 of Condition 22	Inflation adjustment	Eurostat no longer publishes inflation figures for the UK. An alternative reference should be used for the NR23 period.
CAP 2394c, Condition 21, paragraphs 9, 12 and 16	Penalty and bonus rates	We have noted the revised penalty and bonus rates for C3, C4 and 3Di. We are currently modelling the application of these new rates and will provide any comments along with our response to the draft RAB Rules.
CAP 2394c, Conditions 21, 21a and 22	Temporary unit rate adjustment	We are currently modelling the application of the temporary unit rate adjustment and will provide any comments along with our response to the draft RAB Rules.
CAP 2394c, Conditions 21 and 21a	Traffic Risk Sharing	We are currently modelling the application of the revised traffic risk sharing and will provide any comments along with our response to the draft RAB Rules.