NERL response to CAA NR23 Provisional Decision, CAP2553

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Overview

We are pleased to note that CAA has responded positively in many areas to the new evidence and regulatory policy considerations we have raised since the publication of its Initial Proposals. For instance, we welcome that the CAA has acknowledged the need for reliable and reasonable treatment of inflation in setting the baseline for our costs in the coming period, and has endorsed the strategic direction of our investment programme, providing a flexible level of resources to enable us to deliver our customers' priorities.

However, there are several areas the CAA has not addressed. Crucially, in the effort to maximise the efficiency of each individual regulatory building block in the short term, sight has been lost of the overall strategic plan and the way the various building blocks work together as an integrated package. The Provisional Decision ultimately distorts the business towards delivering against unprecedented service targets today, with the only option for delivering at such a level being to the detriment of investment in modernisation for long term future customer benefit. The result is a proposed settlement that NERL would not be capable of delivering in its entirety and through its construction would not achieve the priorities identified by our customers.

Rather than listing at length the many areas of the Provisional Decision that NERL supports or accepts, we have focused this response document on the areas, evidence and information to be addressed to deliver a well-balanced and achievable overall settlement for the benefit of all parties.

Our response centres on three main areas:

- service targets
- pension costs, and
- cost of capital.

In addition, we respond in full on capital expenditure regulation, and include all other queries and concerns in a compendium appendix to this response.

Where relevant, we have provided new evidence or highlighted misreading of previous data that has led, in our view, to the CAA setting incorrect parameters in the Provisional Decision. In each area, we have offered alternative solutions, that either achieve our understanding of the CAA's intention in a more appropriate way, or seek to compromise in that direction to the extent that is possible for NERL in the light of the wider Provisional Decision parameters.

Given the very limited time remaining in the NR23 review, we have chosen not to engage further on most items in the CAA's reconciliation review and NR23 operating costs assessment. It should not however be inferred that NERL ultimately agrees with the conclusions reached or with the approach taken to assessing these costs. Instead, we stand by the evidence submitted in our February 2022 business plan, subsequent responses to information requests, our

December 2022 response to the Initial Proposals, and the further updates provided in May this year.

We hope the CAA will use this final phase of the NR23 review to make full use of all the information available to it. It has chosen the period immediately following an unprecedented global pandemic, to set the toughest targets ever for service outcomes. In doing so, it has inadvertently contradicted and rendered unachievable the simultaneous delivery of these service targets and our customers' stated desires for investment in future capability during this period, both technologically and operationally. We therefore call for a more strategic assessment of the unprecedented demands the Provisional Decision places upon NERL in the NR23 period.

This is all the more critical given the continued operational instability in Europe this summer that was not envisaged by either NERL or the CAA during this review process. We have already seen significant volatility, for example, easyJet removing 1,700 flights at short notice over the period[1]. Furthermore, there remains heightened uncertainty around medium term trends. This is driven by a macroeconomic backdrop of rising interest rates and volatile inflation, the prospect of growing costs for airlines and airports to decarbonise aviation, and the continued disruption to Europe's airways from the Russian war against Ukraine.

In this operating and financial context, the regulator should rationally consider whether the proposed settlement provides the regulated company with a fighting chance, or a fair bet, of delivering the required outcomes for the good of its customers and equity investors, both now and in the future. Our conclusion is that the Provisional Decision as currently drafted does not achieve this.

Service targets

Service quality is a primary focus of the company, and we recognise the CAA's desire to set challenging targets in this area. However, the CAA's service targets remain at the levels which were originally set based on information dating to October 2021. These targets do not adequately incorporate the latest, relevant, specific and contextual facts that NERL has submitted since the Initial Proposals. In applying its regulatory discretion, the CAA should also consider explicitly the risks to delivery of the targets, and thus whether the balance of the financial incentives applied to the capacity and environment targets is appropriately calibrated.

We provide updated evidence to explain why, on the back of an unprecedented global pandemic and the unstable exit path observed since, we continue to argue that our more detailed 'bottom up' approach to estimating service performance over NR23 provides a sounder basis for setting regulatory targets than the CAA's 'top down' approach and extrapolation from pre-2020 performance. We also show where the CAA appears to have misread its own econometric work; correcting for these errors would bring targets based on the CAA's model much closer to our own.

Addressing this is crucial, as the CAA's service targets will inevitably distort NERL's responses towards minimising the reputational impact of the inevitable service penalties that would

[1] BBC news website, 'easyJet cancels 1,700 flights from July to September', 10 July 2023

otherwise arise through NR23. The same constrained ATCO and operational management resource which would be deployed towards this priority would, by definition, reduce capacity to train the next generation of controllers, support the design and delivery of our technology transformation programme, and the airspace modernisation which is a priority for the UK aviation sector and the Government. This distortion of priorities would ultimately be to the detriment of our customers and the wider public, by delaying much needed modernisation of our physical and airspace infrastructure. The widely publicised consequences within other regulated sectors, from an apparent inappropriate historical skew towards short term targets against suitable investment for the future, should not be ignored.

Unlike in other regulated sectors, this ‘service now’ versus future capacity equation cannot simply be solved by additional financial resources in the near term. As a result of the pause in initial training for two years caused by the Covid pandemic, and the number of experienced controllers approaching expected retirement age, we already face a systemic operational resourcing challenge through NR23. We are working on measures which could add incrementally to available supply, such as more flexible forms of working which could encourage some colleagues to stay in the business. But fundamentally we face a pre-determined stock and flow of controller labour, with no significant external labour market from which to recruit additional resource. All management decisions about how and where to deploy our ATCO resource entail a tight trade-off. The CAA’s additional stretch to service targets would inevitably affect such decisions, as NERL would seek to avoid being in penalty consistently from 2024, which is NERL’s expert assessment of the outcome under the CAA’s Provisional Decision.

At this late stage in the NR23 review, we make several practical counter-proposals, which the CAA could readily implement in its Final Decision this autumn. These stem from a comprehensive assessment of the interaction between achieving service performance targets in the near term and NERL’s wider and longer-term service obligations. They are also grounded in a straightforward interpretation of the latest available statistical facts.

First, we suggest that the CAA revisit its own analysis which evidences 2the exponential, non-linear relationship between delay performance and traffic. This single, simple step of correctly applying econometric evidence would shift the C2 capacity target to a more realistic level, for example from 8.85 seconds delay per flight in 2027 to 11.41.

Second, we suggest that the CAA reflects the greater downside risk facing NERL in the NR23 period, given the well-understood uncertainties about the level and patterns of demand and the stability of the wider European air traffic network. Again, a simple straightforward means of effecting such would be to widen the zone of acceptable performance around the target level, before financial penalties or bonuses were incurred or achieved. The symmetrical nature of this adjustment would provide comfort to users as well as greater assurance to NERL.

The two approaches are complementary, and it is a matter for regulatory discretion where precisely to draw the boundaries of acceptable expected performance. We set out a short menu of leading proposals in our detailed response on service performance. What is not a matter of judgement, though, but essential for the CAA to fulfil its statutory duties, is that it should reach a balanced decision. This should consider carefully the interests of current airline users for resilient and efficient service now alongside the interests of future users for enhanced capability from investment in technology, airspace change and the next generation of controllers. Failure to adjust reasonably for the deliverables and targets required today, will absolutely have a detrimental impact on future users and will inevitably slow down technological and operational change through perversely incentivising the wrong overall focus for the business. The answer, to the benefit of all users, is a better balance between these two points.

Pension costs

NERL is concerned by and not yet able to accept the CAA's Provisional Decision on Defined Benefit pension costs.

We welcome the acknowledgement that the existing pension pass through mechanism would continue to operate in NR23, in line with the CAA's own Regulatory Policy Statement. We also understand that the CAA needs to set now a point estimate for DB costs in each year of NR23, in order to derive the overall price control.

However, our concerns relate to the execution of this policy and the language used to describe it. Left unchanged, the CAA's Provisional Decision would leave NERL facing potentially conflicting valuation drivers at the next scheme valuation at the end of 2023, from The Pension Regulator (tPR) on the one hand, and the CAA on the other. The CAA has alighted on a single point value in a 'reasonable and efficient' cost range for the NR23 price control, but NERL is not clear if this same approach will be applied, with hindsight, by CAA when assessing NERL's actual costs in future. This uncertainty is not consistent with the objectives of the CAA's own Regulatory Policy Statement and will undermine Trustee confidence in the strength of NERL's covenant, leading to higher costs for users. While NERL will continue, as it did for 2020, to be robust in its dealing with the Trustee to ensure the best outcome for customers, the primary duty of the Trustee is to the members of the scheme and fulfilment of legal obligations and tPR guidance. For this reason, it is essential that CAA restores regulatory clarity by confirming that its assessment of costs *ex post*, under the pass-through mechanism, will be assessed based on the reasonable and efficient range of discount rates on evidence available to NERL and the Trustee at the time of the valuation, and <u>not</u> based on an arbitrary mid-point in that range which has been used for the price control setting purposes.

This is a significant financial risk to NERL but one which can be simply addressed now, by the CAA amending the description of the application of its regulatory policy, to clarify its approach in line with the proposals above, the intent of the RPS and the CAA's own regulatory practice over the years Without such an amendment, we consider the CAA's Provisional Decision in this area to be unsupportable.

Cost of capital

Despite some modest movements since the Initial Proposals in some of the Weighted Average Cost of Capital parameters, the Provisional Decision maintains the CAA's previous misinterpretation of the market evidence, essentially artificially narrowing the scope of data considered. Correcting for this now should result in a higher cost of equity allowance.

The CAA's cost of equity assessment is complicated by an artificial construct which seeks to limit the impact of the pandemic on investors' decision-making to a very tightly defined time period. Assuming no impact outside this window, the CAA is then drawn into calculations about the likelihood and impact of future pandemic-scale events. This approach is well outside the range of accepted economic regulatory practice in the UK and the comparable model that the CAA used in its Heathrow H7 price control is currently being reviewed by the Competition & Markets Authority as part of the ongoing appeals of several aspects of that decision.

The CAA also draws on too narrow an evidence base, explicitly setting aside evidence from the only stock market-listed air navigation service provider, ENAV, the Italian air navigation service provider. The CMA, in its 2020 decision on the redetermination of the CAA's RP3 decision, concluded that ENAV was a relevant comparator, along with a small number of European airports. The criteria which the CMA used then remain valid. The CAA's exclusion of ENAV seems irrational, and outside the range of regulatory discretion, as recently validated by the CMA. We correct this in our updated counter proposals, which are based on an up to date and standard interpretation of the relevant equity beta data.

We also update our cost of debt estimate, in light of the efficient pricing achieved in the March 2023 tap issuance of our existing bonds. We believe that the CAA has made an easily remediable timing error in assessing these bonds against its benchmark. We maintain our previous challenge to the CAA's unorthodox use of near term (NR23 period) forecasts of RPI inflation when estimating the real costs of debt, rather than the well-established and embedded regulatory practice of using a more stable longer-term forecast which would better align with debt investors' financial planning horizons and the terms of the debt issued. This approach has previously been validated by the CMA in an earlier price control appeal and is currently one of the grounds of the Heathrow H7 appeals.

Overall, the CAA's Provisional Decision on the cost of capital remains too low, through a combination of data error, misreading relevant market information and applying judgments which appear outside the bounds of reasonable regulatory discretion. Several of these points are subject to consideration, directly or indirectly, by the CMA in the current Heathrow H7 price control appeal. We welcome the CAA's commitment to carefully consider the implications for its NR23 Final Decision of the CMA Provisional Findings in the H7 appeal, which are expected to be published in early September. Other more NERL-specific errors could be corrected by the CAA independently.

1. Introduction

1.1. Overview

This chapter contains four sections:

- **Structure of NERL response**
- **Regulatory framework and process**: NERL agrees with the CAA's description of legal framework and aviation industry context within which the NR23 review has been conducted. We welcome the prospect of the Final Decision in 'autumn' 2023, albeit nearly three years since the start of the review. We look forward to engaging with the CAA on the implications of the CMA's Provisional Findings in the Heathrow H7 appeal for aspects of the NR23 final decision.
- **Safety**: we agree with the CAA's assessment that NERL should be able to provide a safe service during NR23 under the terms of the Provisional Decision.
- **Traffic forecasts**: we agree with the CAA's Provisional Decision to use the Eurocontrol STATFOR March 2023 forecast of UK Flight Information Region flights and Total Service Units as the basis for calibrating the en route price control, and the use of an Oceanic flights forecast derived from STATFOR March 2023 as the basis for calibrating the Oceanic price control.

1.2. Structure of NERL response

We have focused this response on those critical aspects of the CAA's Provisional Decision which we consider have been mis-specified and which we believe could be remedied at this late stage in the NR23 review through a more careful and comprehensive reading of the updated data now available.

Our response document is structured as follows:

- Chapter 1 Overview, regulatory framework, safety and traffic
- Chapter 2 Service performance
- Chapter 3 Pension costs
- Chapter 4 Cost of capital
- Chapter 5 Capital expenditure
- Appendix A Other issues: queries arising from CAA Provisional Decision
- Appendix B Supporting analysis on service performance

This document is complemented by a supporting report, produced by our advisers Oxera, which provides an update on certain cost of capital parameters.

In terms of the CAA's categorisation of responses (Provisional Decision, paragraph 118), this response document addresses each of the CAA categories as follows:

- the proposed **licence modifications** that would implement the Provisional Decision: the response as a whole addresses various aspects of the CAA's analysis which in turn lead to specific licence modifications
- any **factual errors** identified in the review of this Provisional Decision: the response identifies a number of such, notably in the Service performance and Cost of capital chapters, and in Appendix A
- proposed **capex engagement incentive guidance**: this is addressed in the Capital expenditure chapter
- proposed **RAB rules**: these are addressed in Appendix A.

At this stage in the NR23 review and given the very limited time in which to assess the CAA's Provisional Decision and supporting documents, and then develop our response, we have chosen not to engage further on the vast majority of cost items which comprise the CAA's reconciliation review and NR23 operating costs assessment. The CAA should not infer though from the absence of any further substantive evidence or argument from NERL on these points that NERL either agrees with the specific conclusions reached for NR23, or with the regulatory approach taken to deriving such cost estimates. Unless otherwise stated, NERL continues to stand by the evidence submitted in the February 2022 business plan, as updated by the responses to requests for information in spring 2022, our December 2022 response to the Initial Proposals, and the further updates provided up to May this year.

1.3. Regulatory framework and process

CAA Provisional Decision

The CAA sets out the context for the NR23 review, including:

- the remit from the Competition & Markets Authority (CMA) to conduct a reconciliation review of costs in the shortened RP3 period 2020-22 and then reset price controls for a new period starting 2023
- the protracted recovery of the aviation sector from the Covid-related travel restrictions in 2020 and 2021, and then problems throughout the industry in bringing capacity back to meet sharply rising demand in 2022
- the parallel and extended H7 price control for Heathrow and the most recent appeal of aspects of the CAA's decision to the CMA.

The CAA notes the parallel development of Government and CAA policy on airspace modernisation, which led to the January 2023 publication of the refreshed Airspace Modernisation Strategy (AMS) or 2023-2040 parts 1 and 2, covering strategic objectives, enablers, governance arrangements and delivery elements. The CAA concludes that its Provisional Decision maintains the links and obligations between the AMS and NERL's role in its delivery, including running the Airspace Change Organising Group (ACOG) function and the delivery of related airspace and technology initiatives.

With regard to the CMA's current consideration of the Heathrow appeals, the CAA recognises that some areas of these appeals may have read across to NR23, such as the cost of capital. If the CAA were to make changes to parameters, such as the cost of capital, following the CMA's H7 provisional determination of the H7 appeals, it notes that this would lead to changes in the values of Determined Costs used in the licence modifications. The CAA sets out its current intention to consider any read-across from the CMA H7 provisional determination and, if possible, engage further with NERL and stakeholders as appropriate before publishing its decision notice.

NERL response

1.3.1. Airspace modernisation

We shaped our NR23 Business Plan considering the UK's strategic objective to deliver airspace modernisation and thus achieve the benefits to aviation and wider society that this programme offers. We are therefore strongly supportive of the CAA's emphasis in its Provisional Decision of the links and obligations between the AMS and NERL's role in its delivery.

1.3.2. Heathrow H7 appeals to the CMA

We welcome the clear acknowledgement by the CAA that it may need to amend aspects of the NR23 Final Decision, notably with respect to cost of capital, in light of CMA's Provisional Findings on the Heathrow H7 appeals. We understand that the CMA has committed to publishing the findings in early September, ahead of its statutory deadline for Final Decision by 17 October 2023[2].

We look forward to engaging with the CAA in September on the potential implications for the NR23 Final Decision of the CMA's Provisional Findings. Whatever decision the CAA reaches on whether any consequential changes to its NR23 Final Decision may be required, NERL reserves the right to appeal aspects of this decision.

1.3.3. NR23 regulatory process

NERL acknowledges the challenging context for conducting the NR23 price control review, including the protracted uncertainty in 2020 and 2021 regarding the course of the pandemic and the pace at which the economy and aviation might safely open up, and the parallel Heathrow price control review. Nevertheless, NERL is concerned and disappointed that the CAA's Final Decision will only now be made nearly a full year into the five-year control period, and even now the CAA can only indicate a seasonal target of 'autumn' for its Final Decision. This delay undermines one of the tenets of the regulatory framework, that the CAA sets a clear five-year financial 'envelope' and associated targets for outcome delivery, which NERL is then incentivised to work to achieve or exceed. The elapsed time and delay in the NR23 review has materially eaten into this period of settled regulatory contract.

NERL is also concerned by the growing cost of the NR23 review to its customers, arising from protracted and higher than budgeted expenditure by the CAA on staff and consultancy support.

[2] CMA, H7 Heathrow Airport Licence modification appeals, 2023

1.4. Safety

CAA Provisional Decision

The CAA considers that NERL will be able to provide a safe service during NR23 under this Provisional Decision because:

- the operation is currently safe, and appropriate safety governance mechanisms exist to manage changes
- the CAA's efficiency adjustments should not impact negatively on safety
- the CAA has developed regulatory mechanisms to help deal with uncertainty.

NERL response

NERL maintains the safety objectives set out in its NR23 plan. We agree that the Provisional Decision should enable the provision of a safe service in NR23 by enabling NERL to deploy adequate operational resources, whilst providing for mechanisms to address future uncertainties.

Our support for the CAA's safety judgement for NR23 does not detract from our significant concerns regarding the longer-term implications of the CAA's Provisional Decision, notably with regard to service targets, pension cost assessment and the cost of capital.

1.5. Traffic forecasts

CAA Provisional Decision

Eurocontrol's STATFOR produced a medium-term traffic forecast in March 2023, and the CAA has used that forecast for its Provisional Decision. The CAA has taken the STATFOR UK FIR flight and TSUs numbers directly, rather than NERL's preferred method of applying growth rates to Central Flow Management Unit (CFMU) UK FIR outturn flight counts. For Oceanic traffic, the CAA has continued to use NERL's methodology of applying STATFOR's growth rates for transatlantic flows to NERL's actual Oceanic flight counts.

NERL response

While the increase in total flight numbers across NR23 is small (0.3%) between the October 2021 STATFOR forecast, which the CAA used for Initial Proposals, and the March 2023 forecast, the larger increase in service units (5.6%) demonstrates that the traffic mix within those totals has shifted. This is driven by an increase in the proportion of overflights in total UKATS traffic and the reduction in Domestic flights in STATFOR's March 2023 forecast. Overflights typically generate more service units per flight than the UK average.

We are supportive of the CAA's Provisional Decision to use the STATFOR March 2023 forecast. While the use of the 'raw' STATFOR numbers rather than growth rates applied to CFMU UK FIR outturn flight counts results in around 1% higher traffic forecasts each year, this is well within NERL's derived forecast range and a difference we can accept. We also agree with the calculation of the Oceanic traffic forecast (measured in numbers of flights) and the adoption of the March 2023 forecast for Oceanic traffic. We query though (in Appendix A, section 7) the forecast of hours per flight which the CAA uses, which in turn affects the projected level of ADS-B satellite information charges incurred by NERL.

Table 1-1 Comparison of CAA and NERL traffic forecasts for UKATS

NR23 totals	UK FIR flights '000s	TSUs '000s
CAA forecast	12,908	65,323
NERL forecast	12,793	65,044
CAA versus NERL	0.9%	0.4%

2. Service performance

2.1. Summary

The CAA maintains the same capacity and environment targets as in its Initial Proposals, the same range before bonus or penalties would be applied, and the same strength of financial incentives.

We strongly disagree with the CAA's approach: the targets are mis-calibrated from the mis-reading of data analysis, and set more tightly than would be in users' broader long-term interests. We believe that the Provisional Decision is undeliverable as currently defined.

Even if the targets were to be set at a more appropriate level, the wider implications of setting targets with a narrow range of acceptable performance, against a backdrop of continuing uncertainty in European airspace and sector recovery, has not been considered. The interests of users, both now and in the future, need to be served by the right balance of service performance in the NR23 period today versus implementation of airspace change and technology transformation for the future.

We use the latest data on traffic, delay and 3Di performance to provide a cross-check on the CAA's Provisional Decision, highlighting where we believe that the CAA's data, updated with latest evidence and correcting for misinterpretation, would indicate higher targets are required. We also provide a counter-proposal, to widen the zone between target and penalty to create a broader area of acceptable performance, recognising the unique network challenges in this period to delivering what would be the tightest targets ever set for NERL. These changes are necessary to provide incentives towards the right customer-focused and balanced allocation of resources between 'service now' versus future capacity. Without such changes, the regulatory settlement would not be a 'fair bet' for NERL, with wider implications for financeability.

2.2. Overview

This chapter contains four sections:

- Capacity: reassessment of CAA targets and other parameters and NERL counter-proposals
- Environment: reassessment of targets and other parameters and NERL counter-proposals
- Service performance reporting
- Interaction between service performance incentives and financeability

2.3. Capacity

CAA Provisional Decision

The CAA has maintained the majority of the elements of its Initial Proposals:

- C1, C2, C3 and C4 targets: remain the same as in the Initial Proposals

- C1-C2 difference maintained at 3.84 seconds/flights
- The penalty threshold for C3 defined as twice the C2 target
- Re-opener mechanism not included
- Allowance for exemption days: set at 100 as in the Initial Proposals
- Strength of incentives: maintained at the same level as in the RP3 period.

The three changes since the Initial Proposals are:

- Traffic modulation: the CAA accepts NERL's proposal and will introduce traffic modulation for C2 for the NR23 period, thereby aligning it to the existing and future traffic modulation of the C3 financial incentive thresholds
- C1 as a trigger for bonus: the CAA has decided not to introduce a trigger for accessing financial bonuses for C2 and C3 delay based on C1 performance
- Delay coding: the CAA has provisionally decided that NERL should start coding and reporting delays in line with the additional categories which were subject to Eurocontrol trials and evaluation by the Performance Review Committee (PRC). The CAA is considering including these conditions in NERL's licence if NERL decides not to provide additional transparency voluntarily or in a timely way.

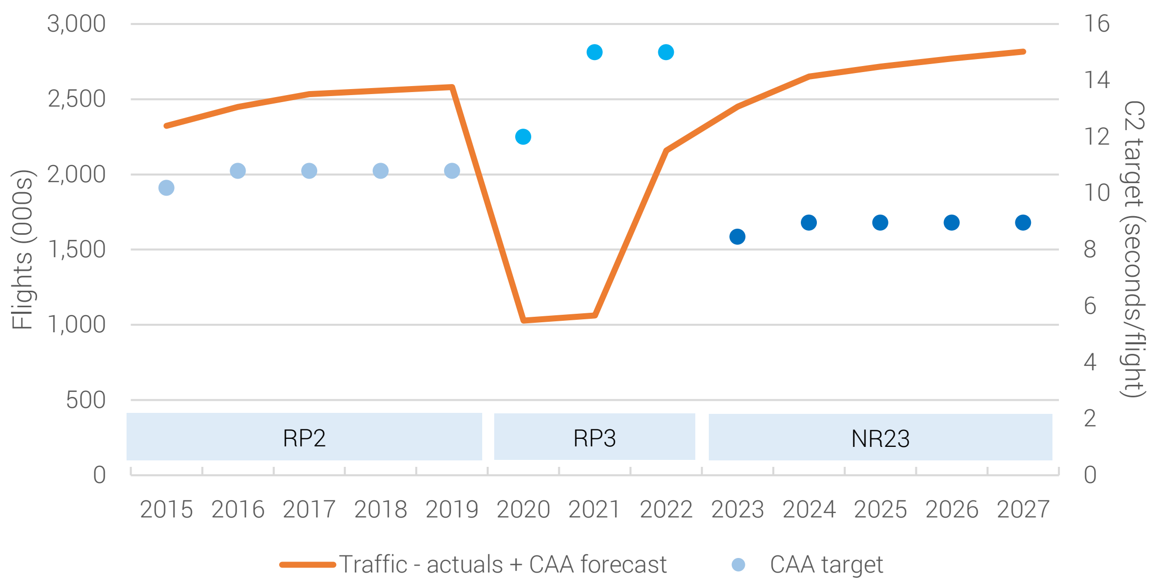
NERL response

2.3.1. Overall assessment

The CAA has set the tightest capacity targets ever, and as shown in Figure 2-1 below these are significantly below the last two reference periods. The targets have been set without proper consideration of:

- the uncertain environment in the aviation sector, which will continue to affect our ability to deliver, and
- the distorting effect on the balance of operational and technical resources between near term service delivery and medium term investment in capacity and capability.

Figure 2-1 UK FIR traffic and C2 capacity targets



This gap in the CAA's approach has led it to set targets in the wrong place, and with too narrow a zone of acceptable performance. We encourage the CAA to use this last stage in the NR23 review to reconsider all the evidence now available, and to reach a more holistic assessment of what would be in users' best interests for the coming decade.

We have identified several areas in the CAA's analysis where we believe the CAA has drawn the wrong conclusions. We set out what we consider to be a fairer and more reasonable interpretation of the data, including latest evidence, to develop a range of counter proposals.

2.3.2. Operational context for setting service performance outcomes

The CAA's Provisional Decision was issued against a backdrop of continuing uncertainty in the operation of European airspace. In NERL's view, the CAA should give material weight to this context in setting both single point targets and ranges of acceptable performance over the remainder of the NR23 period.

There are several dimensions to this operational context, at both the European network and UK FIR level.

At the European network level, collective ANSP performance across continental Europe is not improving during summer 2023, which directly impacts overall network volatility and NERL's own delay performance. There are several specific reasons this year for major delays, notably:

- labour disputes by French air traffic controllers
- increased flow regulations applied by other European ANSPs
- delays resulting from closure of airspace to civil flights to enable a major military exercise across central Europe
- the very significant distortion of regional and long haul traffic away from Ukrainian, Russian and Belarussian airspace, with concentrations of traffic further west in Europe.

These specific reasons could readily continue throughout the rest of NR23 – continuing macroeconomic imbalances and labour market tensions could well provoke further ATCO industrial action in one or more ANSPs, and the prospects for the return of normal service across Eastern Europe are currently not good. As such, it is reasonable to assume some level of continuing disturbance to the operation of the European air traffic network in coming years. To assume no disruption, to the extent that the toughest targets ever set become achievable, is an extreme position.

Within the UK FIR, we are experiencing a material shift in the pattern of traffic, with relatively more flights through Area Control sectors, and relatively fewer flights through Terminal Control. For example, overflight traffic is now around 98% of 2019 levels, whereas domestic traffic is only 83%[3]. The increase in overflights is itself related to the very strong recovery in trans-Atlantic traffic – our Oceanic service experienced its busiest ever day in early July, exceeding the previous maximum day in 2019 . The change in traffic patterns across UK airspace leads to a more concentrated impact in Area Control, and within that in certain key sectors, which in turn generates more delay than the equivalent level of traffic in Terminal Control. There are reasons to consider that this pattern could continue in coming years, driven in part by the relative strength of the North American and European economies versus the UK, and the relative decline in domestic UK flights. Again, it would be an extreme assumption to assume a full reversion to the traffic patterns and mix observed in 2019. Unfortunately, this seems to be the anchor point for the CAA's assessment of achievable service performance for the NR23 period, despite the different world being observed post pandemic.

2.3.3. Widening the range of acceptable performance

The assessment above should be considered when determining how tightly the financial penalty thresholds are set around the capacity targets. The unique circumstances of the NR23 period require a fresh regulatory judgment on this important parameter in the overall service incentive framework.

Currently the range of acceptable performance, before any financial incentive is applied for significantly better or worse than target performance, is defined as +/- 15% of the C2 target. This is referred to as the C2 deadband range. Due to the volatility still experienced as a result of the regeneration of traffic post-COVID, as well as the greater uncertainty of the traffic forecast for the later years of NR23, we recommend increasing the deadband range from 30% to 50% to accommodate for these factors. **We recommend that this increase should be applied symmetrically with +/-25% of target as the definition of the bonus and penalty thresholds**.

Combined with the proposal to adopt C2 targets derived from the exponential relationship between traffic and capacity delay (which we discuss below), the adaptation to the deadband range would give the thresholds demonstrated in Table 2-1.

[3] Data from NERL's June 2023 market segment analysis

Table 2-1 NERL Proposed C2 Target and Incentive Thresholds

C2 targets		2023	2024	2025	2026	2027
C2 Revised Target	seconds/flight	8.45	10.18	10.18	10.83	11.41
C2 Penalty Threshold	seconds/flight	10.56	12.73	12.73	13.54	14.26
C2 Bonus Threshold	seconds/flight	6.34	7.64	7.64	8.13	8.56

The same considerations regarding volatility of network operation and the width of the range of performance between target and penalty threshold apply also to setting the C3 deadband range. As discussed below, we consider that the evidence points to combining changes to the targets and to the C2 to C3 relationship. To apply a comparable change to C3, the CAA should determine the C3 target (rather than then C3 penalty threshold) from the C2 target and the associated deadband range derived from the new target. The proposed changes to the C3 incentive thresholds are to increase the threshold definition to +/- 30% of the target. These counter proposals are shown in Table 2-2.

Table 2-2 NERL Proposed C3 Target and Incentive Thresholds

C3 targets		2023	2024	2025	2026	2027
C3 Revised Target	seconds/flight	20.28	24.43	24.43	25.99	27.38
C3 Penalty Threshold	seconds/flight	26.36	31.76	31.76	33.79	35.60
C3 Bonus Threshold	seconds/flight	14.20	17.10	17.10	18.19	19.17

2.3.4. Relationship between traffic and delay

The CAA rejected NERL's proposal to calibrate delay targets based upon a clearly specified and demonstrated relationship between capacity delay and traffic, augmented with well-established and quantified impacts of the transition to and introduction of airspace changes and operational technology transformation. Instead, the CAA used its own calculations based on the Eurocontrol Network Operations Plan (NOP) monthly data from January 2016 to December 2021 (PD E21-E24). From this, it concludes (PD, E24) that:

> "We place **more weight** on the results generated using the **linear relationship** as it appears to better represent outcomes under "normal" traffic levels, whereas we have some concerns that the exponential relationship may be unduly influenced by the very highest and very lowest observations. We are also concerned that the exponential relationship may not reflect the impact of traffic growth where this is predicted in advance and therefore NERL can make appropriate plans to accommodate it, or where the severe delays are mitigated through other management actions." [emphasis added]

We have considered the CAA's conclusions, and contend that the statistical relationship between traffic and delay is indeed exponential and not linear, and also reflects the underlying operation of the UK's airspace by sectors. This is for the following reasons:

- The strength of the statistical relationship: as measured by the R^2 value, the exponential traffic relationship exhibits a materially higher value (0.5474) than the one obtained for the linear traffic relationship model (0.4461), a difference of 23%. This highlights that the exponential model explains more of the variance in the data than the linear one and therefore is a better representation of the relationship between traffic and delay.

- The CAA definition of “normal” seeks to exclude the higher and lower traffic values whereas the consideration of all values is required to truly understand the underlying relationship between traffic and delay, giving an appropriate range of data samples. Statistically, by excluding data points at either end of the traffic range, precisely because they reveal an underlying exponential relationship, the CAA is artificially constraining the range of relationship types which the ‘narrow’ data set could support to more linear ones. This looks like an arbitrary data cut-off which seeks to buttress an established policy stance. In doing so, the CAA also derives a linear relationship which predicts illogical outcomes, e.g. negative delay scores whenever traffic levels are below 150,000 flights per month. There is no statistical validity to the CAA statement that “the exponential relationship may be unduly influenced by the very highest and very lowest observations” – it is influenced, but not unduly so. The most appropriate measure of ‘best fit’ remains the R^2 value calculated on the full relevant data set.

- The non-linear relationship maps closely to the management in practice of air traffic flow through individual sectors as they each approach their specific capacity limits. Delays are triggered by demand reaching and exceeding sector capacity. Demands on sectors vary depending on growth on particular routes as well as airline flight planning behaviours. During 2023 to date, we have observed an increase in elemental sector demand in excess of the absolute capacity, and associated regulation due to traffic increases on routes concentrated through these sectors. As the traffic continues to increase across the UK in the coming years, these busy sectors will see further increase in demand. If concentrated into the already busy periods this would result in exponential increase in delay as more aircraft are seeking to utilise the same capacity. Likewise, the increase in traffic could result in more instances of the sectors exceeding capacity and therefore a greater number of regulations applied resulting in higher delays. In addition, the UK operational performance is compounded by the various capacity inefficiencies across the wider European network, which in turn introduce greater volatility.

- NERL is currently observing greater concentration of growth in traffic in the busiest sectors, rather than being dispersed more widely. Traffic does not grow at the same rate across the whole of UK airspace, some sectors have exceeded 2019 traffic levels despite current overall UK traffic levels at 90% of 2019. This means the likelihood of delays through those sectors is increased, and thus a relatively small increase in traffic, if concentrated on these busiest sectors, could have a much more than linear impact on total delays across UK en route airspace.

Using the CAA’s own modelling, the assumption of an exponential relationship between traffic and delay would yield revised targets for NR23 (CAA PD, Figure E.2), as shown in Table 2-3.

Table 2-3 CAA statistical modelling of Traffic-Delay relationship modelling

C2 targets		2023	2024	2025	2026	2027
Linear relationship	seconds/flight	8.45	9.28	8.81	9.02	9.19
Exponential relationship	seconds/flight	8.45	10.18	10.18	10.83	11.41

Source: CAA Provisional Decision

NERL counter proposal

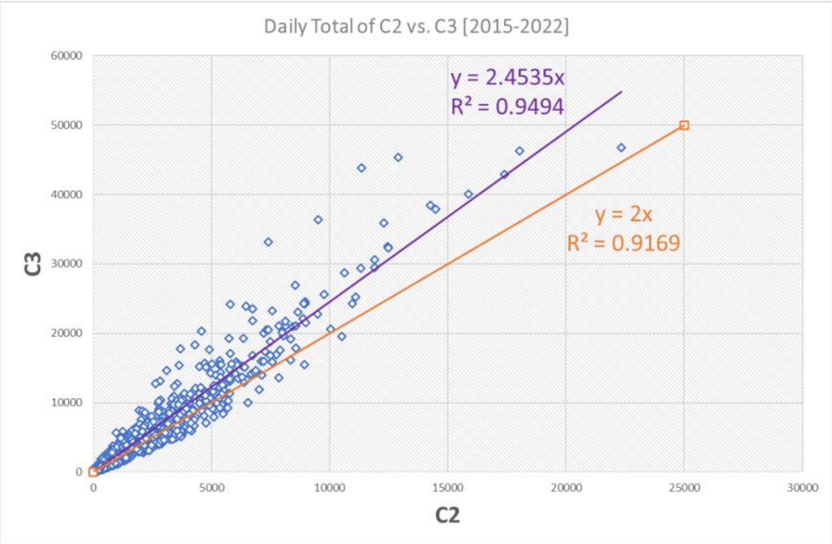
NERL proposes that the C2 targets for the NR23 period should follow those modelled assuming the exponential relationship, which is the more robust statistical link and also reflects the operational realities of the growing concentration of air traffic in the UK's busiest airspace sectors. The linear relationship assumption and resulting targets do not appropriately account for the impact of traffic growth over the period, nor the ability to facilitate all training, project and transition activities agreed to in other sections of the Provisional Decision.

2.3.5. Relationship between C2 and C3

The CAA maintains its calibration of the C3 incentive by setting the C3 penalty threshold at 2 times the C2 target. This relationship is no longer supported by evidence and should be updated. The CAA does not demonstrate in its Provisional Decision that it has considered the evidence provided.

Based on statistical evidence submitted to the CAA prior to the Provisional Decision, NERL has demonstrated that the C3 to C2 ratio is 2.4, averaged over a multi-year period to 2022. In **Error! Reference source not found.Error! Reference source not found.**2-2 below, we used monthly delay data, covering the 2015 to 2022 period, to identify that the actual C3-C2 ratio is 2.4 rather than 2 as the CAA states. This is supported by a high R^2 value of 0.95, which reinforces the significance of this relationship. By contrast, the CAA's own preferred ratio of 2 for the C3 penalty threshold to C2 target is less supported by the data: the R^2 value for this linear relationship is 3.4% lower at 0.92. It thus seems unreasonable not to reflect the statistical evidence in this case.

Figure 2-2 Relationship between C2 and C3



Source: NERL's own elaboration

NERL proposal

Taking account of the exponential relationship derived targets for C2, and applying the relationship for C3 to C2 at a ratio of 2.4 to determine the C3 target (and not the C3 penalty threshold as CAA does), the revised C3 target proposal is shown in Table 2-4*Table* . The proposed targets are derived based on the C3 par/target value being the comparable element to translate from the C2 par/target and to calibrate based upon the revealed statistical relationship. (The CAA instead uses the calibrates the C3 par value at 1.6 * C2 par value, and the C3 penalty threshold at 2 * C2 par value).

Table 2-4 NERL Proposed C3 Target

		2023	2024	2025	2026	2027
C3 Revised Target	seconds/flight	20.28	24.43	24.43	25.99	27.38

2.3.6. Conclusions on capacity

We use the latest data on traffic and delay performance to provide a cross-check on the CAA's Provisional Decision, highlighting where we believe that the CAA's data, updated with latest evidence and correcting for misinterpretation, would indicate that higher targets were justified. We also provide a complementary counter-proposal, to widen the zone between target and penalty to create a broader area of acceptable performance, recognising the unique network challenges in this period to delivering what would be the tightest targets ever set for NERL.

We encourage the CAA to reconsider the overall package of targets and thresholds for financial penalties, in light of a fresh review of key data and considering the wider perspective of users' interests in the delivery of future capability, to set a range of stretching but achievable capacity performance outcomes through NR23. We stand ready to engage further with the CAA on this topic to assist in reaching its NR23 Final Decision.

Given the centrality of service metrics and performance to users' experience of NERL's service delivery, and the trade-offs with longer term impacts of users' experience from investment in technology and airspace change, we recognise that proposals for such changes at this stage in the NR23 review could warrant a further round of consultation by the CAA with airlines and other stakeholders, before any licence modifications were made for the years 2024-27.

2.4. Environment

CAA Provisional Decision

The CAA confirms the same challenging environmental targets for NERL as it set out in its Initial Proposals:

- Targets for 3Di metric: the 27.6 3Di score from its Initial Proposals remains, in the CAA's view, a reasonable starting point for 2023

- 3Di and traffic relationship: the CAA concludes that there is no clear evidence of a relationship between traffic variations and 3Di score, hence does not accept NERL's proposals which take account of influences to the score from increases in traffic levels as well as from planned capex improvements

- Treatment of non-revenue flights: the -0.6 adjustment to the calculated 3Di score, to account for non-revenue flights, will continue to be applied to the 3Di score as a proxy adjustment, rather than excluding non-revenue flights from both data and targets, as NERL had proposed

- Financial incentives: the parameters of the regulatory mechanism (i.e., deadbands and maximum bonuses and penalties at +/- 0.5% of Determined Costs) are retained

- Traffic modulation: the CAA does not accept NERL's proposals for the modulation of the target or for a re-opener for events outside NERL's control.

NERL response

2.4.1. Relationship between traffic and 3Di score

2.4.1.1. CAA assessment

The CAA carried out its own assessment of the 3Di score on data from January 2018 to March 2020 and concluded in its Initial Proposals "that the relationship between 3Di and traffic forecast was weak and there was no robust argument to modulate the 3Di score on the basis of flight volumes in a normal traffic situation" (CAA PD, E17).

NERL contends that this CAA analysis provides limited insights due to:

- The choice of the years for the analysis (2018 to 2020), as they show the lowest year-on-year percentage growth in traffic across the whole of RP2, RP3 and forecasted for NR23 (excluding pandemic years). As the traffic numbers and patterns were stable in this period, it would by definition be harder for standard statistical tests to identify a relationship between traffic and 3Di outcomes.

- The benefits delivered by major investments undertaken during the CAA analysis period (e.g., ExCDS, TBS, AMAN builds) resulted in lower 3Di scores than would otherwise have been the case. Using only this specific period to estimate the 3Di-traffic relationship would thus tend to disguise the inherent and underlying relationship.

2.4.1.2. Updated evidence

In our previous submissions, we have provided a range of evidence which in our judgement demonstrates the 3Di-traffic relationship. This includes producing extensive evidence on the 3Di-traffic relationship, at airspace sector, airport, hourly, monthly, and annual level, and supporting evidence from external literature. We have now identified new evidence, not yet considered by the CAA, which also supports the 3Di-traffic relationship:

- Statistical evidence from the June 2023 Performance Review Body report[4] that capacity delay reduces horizontal flight efficiency (HFE). Combined with the proven and acknowledged relationship between traffic and capacity delay, and the fact the HFE is a key component of the 3Di score, this shows that increased traffic drives higher 3Di scores. The evidence demonstrates that non-ATC capacity delay has the largest impact on flight efficiency: one

[4] Performance Review Body (June 2023) The interdependency between the environment and capacity KPIs of the performance and charging scheme of the Single European Sky

minute of additional delay from this source reduces HFE by 1.23 percentage points in summer, and 2.9 percentage points in winter.

- Updated examples of the NERL model predictive power. For example, the model predicted that the 3Di score for 2023 would increase to c.28.0, under a 'no enhancements' scenario (i.e., without the benefit of airspace change and ATC technology upgrades). As at July 2023, the 3Di score for the year to date is 27.8. This latest score includes the impact of improvements delivered in 2022 and 2023. This provides a clear demonstration of the predictive capability of the model and that the inherent 3Di-traffic relationship holds true.

2.4.1.3. CAA's use of 3Di-traffic relationship

We note that the CAA's own approach in certain aspects <u>does</u> acknowledge a 3Di-traffic relationship:

- The CAA Initial Proposal 3Di score of 27.6, set as the NR23 starting point, was obtained by using the NERL 3Di ML model, which explicitly builds on traffic impacts, with the October 2021 STATFOR traffic forecast.

- The CAA states that NERL achieved a 3Di score of 26.5 (after applying the adjustment proxy for the non-revenue flights of -0.6) in the second half of 2022 (CAA PD 2.32) and then uses traffic modulation from 2022 to 2023 to adjust that score to derive a projected 2023 score of 27.5, which it takes as corroboration of its target 3Di score from Initial Proposals of 27.6.

The CAA's subsequent and wider repudiation of any 3Di-traffic relationship in target setting is thus inconsistent with the points above, and does not appear to be a robust and transparent regulatory practice.

2.4.2. NERL's updated projections

We have updated our projections of realistically achievable 3Di outcomes for NR23 in light of the March 2023 STATFOR traffic forecast and the latest schedule for planned delivery of capital investment projects which are likely to impact on 3Di performance. We consider that the capital investment impacts should be deducted from a 3Di forecast line that accounts for the traffic relationship, rather than subtracting these impacts directly off the NR23 starting point score. As shown in Table 2-5 below, NERL expects the 3Di score to increase by 2.3 points across NR23 under a 'do nothing' (no investment) scenario, due to expected traffic increases. With the benefits from planned investment, we project that we would be able to maintain the 3Di score at 27.7-27.8, i.e., the investment benefits exactly offset the upward impact on 3Di score from forecast increases in traffic.

Table 2-5 NERL updated 3Di target proposal

3Di Score	2023	2024	2025	2026	2027
NERL Response to CAA IPs	28.1	28.0	27.9	27.9	27.8
CAA Provisional Decision	27.59	26.99	26.45	25.91	25.33
NERL's updated 3Di 'do nothing' forecast*	27.8	28.9	29.4	29.7	30.0
NERL's updated target proposals (with capital investment benefits)*	27.7	27.8	27.7	27.7	27.7

* NERL's updated forecast 'do nothing' and updated target proposals includes the CAA's 0.6 adjustment for non-revenue flights

2.4.3. 3Di score adjustment for non-revenue flights

We disagree with the CAA's Provisional Decision to reject NERL's proposed removal of non-revenue flights from the sample used for the 3Di calculation. We consider that the CAA has misinterpreted the available data and analysis on this point, as we explain below. We also provide new evidence. We suggest that the CAA reappraise this issue in the round before reaching its Final Decision.

In summary, the removal of the actual non-revenue flights is more accurate and transparent than an increasingly dated statistical estimation of the effect of non-revenue flights, which is now demonstrably out of line with the actual impact it is intended to proxy.

2.4.3.1. Updated evidence

We have updated our statistical assessment of the impact of non-revenue flights on the achieved 3Di score using data for the first months 2023. In Table 2-6 below we report the 3Di scores for this latest period as follows:

- 3Di scores obtained on the full average flight sample per each month of 2023, up until July 2023
- 3Di scores obtained using the CAA methodology, estimated using the full average flight count sample and to which a 0.6 reduction is applied afterwards
- 3Di scores calculated using the proposed NERL approach, using a reduced flight count sample that excludes all non-revenue flights, i.e., training, positioning, surveillance, calibration flights and other non-revenue flights.

The results show that the impact of non-revenue flights lies in the range -1.2 to -1.5 over the period, with an average impact of -1.3. There is no discernible trend in these data in either the proportion of non-revenue flights or the impact of the exclusion of such flights on the 3Di score.

Table 2-6 3Di score assessment, January-June 2023

	3Di estimated on full sample			CAA methodology		NERL exclusion flights methodology			Difference in sample and 3Di scores	
	Average 3Di Score	YTD 3Di Score	Av. Flight Count per day	Av. 3Di Score - CAA	YTD 3Di Score - CAA	NERL Av. 3Di Score	NERL YTD Av. 3Di Score	Flight Counts for 3Di score	Sample diff %	Difference between 3Di on full vs reduced sample
	(a)	(b)	(c)	(d) = (a) -0.6	(e) = (b) - 0.6	(f)	(g)	(h)	[(c) – (h)]/(c)	(a) – (f)
Jan	26.63	26.63	5036	26.03	26.03	25.31	25.31	4873	3.2%	-1.32
Feb	26.98	26.80	5327	26.38	26.20	25.50	25.41	5141	3.5%	-1.48
Mar	28.41	27.39	5602	27.81	26.79	27.07	26.01	5418	3.3%	-1.34
Apr	28.12	27.59	6306	27.52	26.99	26.89	26.26	6104	3.2%	-1.23
May	29.46	28.04	6803	28.86	27.44	28.27	26.74	6586	3.2%	-1.19
June	29.97	28.42	7296	29.37	27.82	28.74	27.14	7051	3.4%	-1.23
July	29.33	28.58	7345	28.73	27.98	28.19	27.32	7121	3.1%	-1.14
									Average 3Di score difference	-1.26

Source: NERL's own elaboration

2.4.3.2. Addressing CAA's rationale for continued use of proxy adjustment

We consider that the latest evidence addresses the CAA's rationale for the continued use of a fixed proxy adjustment for non-revenue flights:

- The 0.6 reduction was determined by the CAA[5] using a data sample from January 2015 to September/October 2018 that was representative then of the average impact of non-revenue flights on the 3Di score. This result is now out of date and does not capture the current impact on the score of non-revenue flights. The CAA's original rationale ("it is appropriate to exclude them [non-revenue flights] from the metric and incentive") remains valid, more so given the latest analysis of the impact of such flights on the 3Di score, but the calculation to do so should be updated from *ex post* proxy adjustment to *ex ante* exclusion of such data from the sample used to measure the 3Di score.

- The CAA states that "to maintain consistency with the source data that was used to estimate the original 3Di model, it should allow for non-revenue flights through a proxy adjustment" (CAA PD, 2.38). We have clearly demonstrated, though, in the 2022 Mid-Year review of the calculation of the 3Di score[6], conducted following the annual review failures of 2020 and 2021, that the model used to derive the score is <u>more</u> stable and accurate when the non-revenue flights are excluded from the data than when they are included and a proxy adjustment applied.

[5] 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."
[6] A22098 3Di 2022 Mid-Year Review -24 August 2022

- The 0.6 value is a static number and does not allow for the 3Di data to be accurately adjusted at any level below the UK aggregated score. It has the potential to undermine the management of 3Di, which relies on assessment of scores at disaggregated sector, and watch level. This is because the 0.6 reduction applies to the overall UK score and does not lend itself to further breakdowns. It thus does not allow NERL to target identified areas of improvement accurately because it applies the same 0.6 proxy across the entire UK. By frustrating NERL's ability to learn and work to improve 3Di performance, this stands in the way of delivering a better service to airline users.

2.4.4. NERL proposal for traffic modulation

NERL believes that the CAA should consider the traffic volatility and current uncertainty around the traffic forecast when setting the 3Di targets for the next period.

To avoid maintaining fixed target levels through NR23 which may turn out to be inappropriately low or high in the event of stronger or weaker than forecast traffic growth, we request that the CAA reconsider our initial proposal on traffic modulation in light of the additional evidence presented in this response on the 3Di-traffic relationship. This would be the most reliable approach to set fair and achievable service targets under these unstable circumstances.

2.4.5. Conclusions on environment

We have presented new evidence which addresses directly the CAA's stated rationale for setting 3Di targets separate from any consideration of the impact of forecast traffic growth on our ability to meet such targets. We encourage the CAA to reconsider this evidence in the round in order to recalibrate NR23 service targets. Our proposals for NR23 are:

- Revised 3Di targets, in light of latest traffic forecasts and investment plans, as set out in Table 2-5 above

- Traffic modulation to be applied to such targets

- 3Di score to abstract from the influence of non-revenue flights by removing such from the sample of flights used to calculate the score, rather than from continued use of a fixed -0.6 proxy adjustment.

We recognise that proposals for such changes at this stage in the NR23 review would warrant a further round of consultation by the CAA with airlines and other stakeholders, before any licence modifications were made for the years 2024-27.

2.5. Service performance reporting - Delay coding

As part of the most recent update report to the CAA on actions taken by NERL in response to the CAA's Palamon investigation[7], NERL stated its position regarding the PRC trial and new delay codes.

[7] NERL, Project Palamon: Progress Update - February 2023, section 4.

NERL is not unwilling to provide delay transparency. The J and K codes proposed by the PRC have yet to be adopted by Eurocontrol Network Manager. The current codes and process documented in the ATFCM Operations Manual are automated from tactical operational application of regulations through to the post-operational reporting systems. The PRC trial required a manual post-operational process to categorise the delay independently from Eurocontrol Network Manager processes.

NERL will continue to follow the current requirements within the Eurocontrol ATFCM Operations Manual until such a time when the new codes may be incorporated into the document and communicated to ANSPs with guidance on the consistent application in both the tactical and post-operational analysis phases.

To address the post-operational delay reporting, NERL agrees to propose and consult on additional reporting into the Quarterly Condition 11 Report as part of the Service Standards Statement Consultation for 2024 onwards.

2.6. Interaction between service performance incentives and financeability

As demonstrated in this chapter, if the CAA were to make no changes to its Provisional Decision on service targets and financial incentives, we estimate that NERL would be in financial penalty for capacity metrics C2 and C3 every year from 2024 to 2027, and in penalty for 3Di for 2025 to 2027. This anticipated negative financial performance would undermine attempts elsewhere in the Provisional Decision for the CAA to set a balanced financial settlement which provides a 'fair bet' for equity investors.

The CAA can remedy this clear omission in its assessment, in one of two ways: by recalibrating the service incentive framework, adjusting the target and broadening the range of standard performance outcomes; or, failing this, increasing the point estimate for the cost of capital. The first of these measures would be clearly preferable, as it would benefit our customers in two ways. First, it would prevent an avoidable increase in the cost of capital, and therefore unit prices over NR23. Second, it would provide greater incentivisation to NERL to maintain a customer-focused and balanced allocation of resources between 'service now' versus future capacity. Otherwise, as discussed earlier in this chapter, the incentives on NERL would be overly focused on 'service now' to the detriment of longer term benefits for customers.

3. Pension costs

3.1. Introduction

The CAA has maintained its approach from the Initial Proposals, setting allowances for pension costs that it considers to be reasonable and efficient based on recent information and available benchmarks. In this context, there is a continuing lack of clarity about how the pension cost pass-through mechanism would work in practice. This in turn undermines the value which NERL and the Trustee can place on the CAA's Regulatory Policy Statement in respect of pension costs, and is likely to have an adverse impact on confidence in the strength of NERL's covenant. Ultimately, this would disbenefit users, who would bear the costs of resulting funding and investment strategies. To leave NERL exposed to this very material financial risk undermines the CAA's calibration of the overall price control package for NR23, adding materially to the risk borne by shareholders, and renders fine judgements about other aspects of the Provisional Decision moot. In our view, the CAA's approach runs counter to its own duties to users' interests in the costs of services, to efficiency on the part of NERL, and to NERL's financeability.

This is a cause for concern and NERL is thus not yet able to accept the CAA's Provisional Decision on Defined Benefit pension costs. We suggest that the CAA remedy this position through a clearer explanation of its future assessment of NERL's DB pension costs against the 'reasonable and efficient' criterion. Such a clarification should suffice to remedy the deficiencies with the Provisional Decision in this regard – we are not, at this stage, advocating that the CAA adjust its projected level of DB pension costs for the purposes of setting Determined Costs *ex ante* for NR23.

CAA Provisional Decision

The CAA has maintained its approach from the Initial Proposals to set allowances for pension costs that it considers to be reasonable and efficient based on recent information and available benchmarks. This includes:

- reduction to DB scheme costs in line with the mid-point in the range from its adviser, the Government Actuary's Department (GAD)
- reduction to DC pension costs from 2024, on the assumption that DC scheme costs for new starters can be set closer to (but still above) market benchmarks
- reductions to DB and DC scheme costs in proportion with adjustments made to overall staff costs.

3.2. Defined Benefit scheme costs

NERL response

NERL is concerned and not yet able to accept the CAA's Provisional Decision on Defined Benefit pension costs.

3.2.1. Evidential support and approach to benchmarking cost from 2025

NERL welcomes the CAA's confirmation that it continues to work in line with the Pension Regulatory Policy Statement (RPS)[8] and the pass-through mechanism and its recognition of the infeasibility of triggering an early valuation ahead of 2023.

However, NERL is concerned with the lack of clarity provided by the CAA on the approach it will apply *ex post* in assessing NERL's efficient pension costs for NR23. The CAA has used benchmarking data from The Pensions Regulator to assess whether NERL has an 'efficient' level of DB pensions cost in NR23. This benchmarking data was not available at the time NERL negotiated and agreed the level of cash contributions with the Trustees (as part of the 2020 actuarial valuation). It would be unreasonable for the CAA in future regulatory judgments to apply this benefit of consolidated knowledge hindsight to pension valuation decisions made earlier by NERL in light of a (by definition) narrower data set. Greater clarity from CAA is thus required for NERL to accept the CAA's Provisional Decision and to have confidence that the regulatory framework will not result in unremunerated costs that are reasonable and efficiently incurred. The scale of potential impact here is very material: the CAA has allowed DB pension costs for NR23 which are £94m lower than those proposed by NERL in its Business Plan: this is equivalent to 45% of the total allowed return on the Regulated Asset Base over the period.

The CAA has set the allowance for NR23 based on a mid-point that falls <u>within</u> the reasonable range determined by its advisor. Both the CAA and its advisor recognise that NERL's costs <u>are</u> within this reasonable range. NERL recognises that the CAA needs a basis for setting the value of pension costs for the price control and that its judgement that the mid-point of the reasonable range is one form of pragmatic approach for the purpose of determining the *ex ante* allowance for an as yet unknown cost.

However, the CAA has not been clear enough on the approach that it will apply to its *ex post* assessment of the actual costs that will result from the 2023 valuation, which NERL will incur in calendar years 2025 to 2027 and are not yet known. As the CAA acknowledges, pension costs represent a significant portion of NERL's total opex cost and will vary from its estimates of actual costs principally due to financial market conditions, which are outside NERL's control. The CAA also recognises that allowances for reasonable and efficiently incurred pension costs should be reflected in NERL's pricing. Yet it is not clear what the CAA means when it says that "pass-through calculations would be considered on a case-by-case basis and depends on the circumstances at the relevant time".

NERL is seeking clarity from the CAA on its *ex post* assessment and confirmation that this will be judged according to a reasonable range and not the single mid-point in that range. It is evident from the data that there is a wide range of reasonable discount rates that can be applied. The intent of the Regulatory Policy Statement[9] is clearly to leave the initiative with NERL, acting with the Trustee, to articulate how the proposed costs are reasonable and efficient, not to demonstrate how they align with any pre-determined metric of efficiency set by the CAA. In this respect, the CAA's Provisional Decision cuts right across the over-riding and perpetual RPS.

[8] CAA (March 2021) Regulatory policy statement – Policy principles relating to NERL defined benefit pension scheme costs, CAP2119
[9] Notably principles 1.4, 2.5 and 2.8

Consistent with the principles of the RPS and its usual practice, NERL will approach the 2023 valuation discussions with Trustees in a robust and commercial manner, challenging the Trustees' level of prudence in the valuation assumptions and the extent of their regard to the RPS. In this respect, NERL's approach to the 2020 valuation ensured that materially higher costs for NR23 were avoided. However, we are concerned that the lack of clarity in the application of the pension pass-through mechanism threatens to undermine Trustee confidence in the stability of the regulatory framework over the long term and in the company's ability to meet its legal obligations to support the Pension Scheme. The result of such reduced confidence and the concomitant perceived weakening of the employer covenant would likely to be increased costs to users, a result at variance with the intention of the RPS.

Having set out clearly a Regulatory Policy Statement in 2021, the CAA's Provisional Decision now risks subverting the achievement of the benefits which should stem from this policy. This in turn would frustrate the original intention of the CMA in recommending the development of such a policy in the first place, as described in its 2020 Final Report[10]:

> *"The CAA should produce improved guidance to clarify the pass-through provisions that apply, showing circumstances when determinations of future costs would and would not be subject to pass-through. The CAA's proposed approach of preparing a Regulatory Policy Statement (RPS) represents an opportunity to make this clarification and the CAA has confirmed its intention to consult on this. It is important that this is progressed swiftly to provide clarity on pensions."*

The remedy is straightforward. We suggest that the CAA set out a much clearer explanation of its future assessment of NERL's DB pension costs against the 'reasonable and efficient' criterion, specifically addressing the concerns raised by NERL and by the Trustee of the Civil Aviation Authority Pension Scheme (CAAPS). Such a clarification should suffice to remedy the deficiencies with the Provisional Decision in this regard. NERL is not, at this stage, advocating that the CAA adjust its projected level of DB pension costs for the purposes of setting Determined Costs ex ante for NR23.

3.2.2. 2023 and 2024 ongoing cost of Defined Benefit pensions

CAA has not provided a rationale for its decision to increase the allowance for the ongoing cost of defined benefit pensions in 2023 and 2024 by £9.4m in aggregate. NERL does not expect a material change in the ongoing cost in these years, which will continue to reflect the 2020 valuation contribution schedule as well as NERL's projected pensionable payroll. The ongoing cost will be assessed again at the Trustee's next formal valuation as at 31 December 2023, reflecting financial market conditions at that date. In line with past practice, any resulting change in ongoing costs following the 2023 valuation would then become effective from 1 January 2025.

[10] CMA (2020) NATS (En Route) Plc /CAA Regulatory Appeal, paragraph 11.35

3.3. Defined Contribution scheme costs

NERL response

We do not support the CAA's Provisional Decision in this respect – the lower level of employer contributions has been set in isolation from a broader consideration of the impact on NERL's ability to recruit and retain employees.

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. The CAA states that it has made reductions in the DC allowance in light of market data. However, 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.

We are concerned that the combination of specific reductions in DC contribution rates on top of efficiency adjustments to staff costs generally reduces NERL's capacity to provide an attractive total reward package to new staff. This would ultimately hamper our ability to meet the wider staffing challenges we face in NR23 and into NR28. It does not appear that the CAA has looked at its DC proposals in this wider context.

3.4. Conclusion

The Trustee is not subject to economic regulation by the CAA and is governed by separate pensions legislation and regulated by the Pensions Regulator. For this reason, Trustee confidence in the regulatory framework is an important consideration that influences the cost of the scheme. The CAA considers that the RPS provides benefits to customers and consumers by supporting a very strong employer covenant for future pension valuations. While the CAA has not indicated any intention of changing the operation of the RPS , yet the way in which the CAA has identified a benchmark discount rate has introduced an unfortunate degree of uncertainty about the operation of the RPS in the future. The resulting lack of clarity in the Provisional Decision threatens to undermine this confidence which needs to – and can - be remedied.

For airspace users who bear these costs, it is essential that the CAA confirms that the *ex post* assessment of DB pension costs will be:

› judged according to the reasonable and efficient range and not a specific point in this range given the wide range of reasonable discount rates that can be applied, and

› based on market benchmarks available to NERL and Trustees at the time the 2023 valuation assumptions are agreed.

4. Cost of capital

4.1. Summary

The CAA has proposed a vanilla RPI-deflated weighted average cost of capital (“WACC”) range of 2.31% to 4.06% and used the mid-point of 3.19% in its Provisional Decision. Due to a technical oversight, a number of errors and unorthodox regulatory positions, this materially understates NERL’s cost of capital.

Our response highlights this technical oversight, along with the errors and unorthodox regulatory positions that form part of the CAA’s methodology and sets out suggested remedies that would result in a more appropriate cost of capital for NR23.

These changes are important because the CAA’s point estimate of 3.19% is 42 basis points lower than what we and our advisors (Oxera) consider to be appropriate. This results in a significant discrepancy in relation to regulatory return. Changes are also necessary because the differences arise from a combination of oversights, errors and deviations by the CAA from established regulatory precedent and recommendations from the CMA in relation to NERL that are still recent and remain relevant to NR23. As such, the CAA should amend its position on cost of capital in the Final Decision.

Adopting the revised approach that we set out in this response would result in a mid-point vanilla RPI-deflated WACC of 3.61% for NR23. The CAA should adopt a point estimate no lower than this for the WACC in its Final Decision for NR23.

The main areas where the CAA should update its positions are:

- the estimation of the asset beta
- the calculation of the cost of debt.

In relation to the former, the CAA has attached insufficient weight to the only listed air navigation service provider and therefore the most relevant comparator company, namely ENAV, the Italian air navigation service provider. The CMA also concluded that ENAV was a relevant comparator in the redetermination of RP3.

In relation to the latter, the CAA is mistaken when assessing the efficiency of NERL’s recent debt issuance in not linking its assessment to the actual date of issuance. It has also maintained an approach to deflating finance costs that is at odds with long-established regulatory precedent.

4.2. Overview

CAA Provisional Decision

The CAA has estimated a vanilla RPI-deflated WACC range of 2.31% to 4.06% and used the mid-point of 3.19% in its Provisional Decision. Retaining largely the same methodology and assumptions as in its Initial Proposals, whilst adopting a cut-off of 15 March 2023, the CAA has significantly updated its review of changes in market conditions, which results in an increase in WACC of 38 basis points relative to its Initial Proposals.

NERL response

We consider this increase to fall short of the required level of regulatory return, principally as a result of two key parameters where the CAA has made errors and misjudgements:

- **Asset beta:** the CAA's assessment of NERL's asset beta (based on advice from its advisor Flint Global ("Flint")), excludes ENAV as a comparator from the core data-set, even though it is a highly relevant, listed air navigation service provider that the CMA considered likely to be lower risk than NERL[11], and adopts a spurious pandemic-weighting adjustment rather than relying on empirical data

- **Cost of debt:** the CAA has incorrectly benchmarked the cost of debt issued by NERL in March 2023 and has retained an RPI deflator method using near-term inflation forecasts that diverge from established regulatory practice, which in turn is designed to reflect relevant time horizons of issuing companies and investors.

We expand on these issues in the subsequent pages of our response and identify how they can be remedied by the CAA in the Final Decision.

Our comments are also supported by a further report from Oxera that provides an updated view of three market parameters: asset beta; risk-free rate; and cost of debt. Oxera have used a cut-off date of 31 March 2023 for this update, close to the CAA's cut-off date of 15 March 2023. Using the updates in their report, along with the CAA's proposals for remaining cost of capital parameters, Oxera present a composite range and point estimate for the WACC in their report. This composite WACC has been used to inform our response on cost of capital.

4.3. Asset beta

CAA Provisional Decision

The CAA has proposed an asset beta range of 0.52 to 0.70, based on an updated report from Flint, who, relative to their prior report, analyse a further year of data while adopting a consistent methodology.

The 0.61 mid-point of the CAA's proposed asset beta range represents a marginal increase on the 0.58 in its Initial Proposals, but otherwise the CAA's approach remains broadly consistent with its Initial Proposals.

NERL response

There are two fundamental issues with the approach that the CAA has taken to estimating the asset beta for NR23.

The first is the inadequacy of the CAA's cross-checking of its proposed asset beta range and point estimate with the asset beta of ENAV, the listed Italian air navigation service provider. This is a significant error that should be remedied.

[11] CMA (2020) NATS (En Route) Plc /CAA Regulatory Appeal Final Report, page 190

The second is the adherence to a highly complex Covid-19 adjustment that will require CAA to make pandemic adjustments forever to the estimate of asset beta for price controls. This approach, advocated by Flint, appears unnecessary given the time now taken to formulate a Final Decision for NR23 and so should now be dropped by the CAA. This would also enable the CAA to be unshackled from a methodology that has led Flint, for no good reason, to ignore relevant data – such as the recent post-pandemic asset beta of ENAV.

The CAA can remedy these issues by returning in the Final Decision to a more traditional approach to estimating the asset beta of NERL, such as that set out by Oxera, or failing that, by the selection of a point estimate for asset beta towards the top end of its updated range, rather than the mid-point. Doing so would effectively attaching greater weight to ENAV, more in line with the CMA's recent findings.

4.3.1. Weighting of ENAV's asset beta

Flint and the CAA remain committed to the view that ENAV's beta should be excluded from the core comparator set as a result of it being, in their opinion, less statistically reliable than the airport betas and thus use it as a "*cross-check of other evidence*" only. They argue that the beta's instability, lack of fit with an expected pattern of pre- and post-pandemic data and sensitivity to Flint's model parameters make it difficult to interpret, thereby inhibiting the estimation of a "clean" ENAV beta within their own methodology.

We do not accept that the CAA's adoption of the full recommended range from Flint sufficiently reflects the significance of ENAV's beta, which as Oxera have highlighted has in recent months been consistently higher in its one and two-year rolling average value than the other comparators and furthermore, since March 2023 continues to rise. There is considerable disparity between Flint's Covid-adjusted range for ENAV of 0.64 to 0.66 and the unadjusted range observed by Oxera of 0.70 to 0.75 (0.78 at 31 May) with Flint themselves noting that "*its evidence now points to a [ENAV] beta slightly above the mid-point of our range*". Rather than its anomalous trend being a basis for exclusion (because its characteristics run counter to Flint's supposition), NERL's view aligns with Oxera's that ENAV's beta is in fact the most relevant, its volatility an important attribute in considering systematic risks perceived by investors in ANSPs and its beta should be given weighting prominence.

As articulated in our response to the Initial Proposals, ENAV remains by far the most relevant comparator in terms of it being the only listed ANSP, plus its exposure to traffic volumes, regulatory regime and business mix are all very similar. Furthermore, the CMA in its RP3 Final Determination agreed (with both CAA and NERL) that ENAV was a relevant comparator and used it in its assessment of NERL's asset beta.

Oxera have also reviewed Flint's observation that the Single European Sky PRB appeared not to place any weight on ENAV in its own beta analysis, with Oxera concluding that this was not due to any implied statistical reliability concerns. NERL's reading of the PRB methodology is that the PRB followed a common approach for determining the cost of capital for all European ANSPs. When setting the asset beta, they adopted an EU-wide median of equity betas of comparable companies in defined aviation, transport and utilities sectors, with EU-wide optimal gearing, and country-specific tax rates. This methodology excludes, by design, evidence on the equity betas of the ANSPs themselves; the PRB explicitly looks to data from companies and sectors which are comparable to but separate from ANSPs. Thus market data on ENAV's beta was not even considered for inclusion by the PRB cost of capital study, as it lay outside the universe of relevant data – it was <u>not</u> explicitly excluded on grounds of statistical stability (as Flint argues for). As such, Flint and the CAA can derive no support at all from the PRB's cost of capital study for their own exclusion of the ENAV data.

4.3.2. Use of a Covid-19 adjustment

The CAA continues to adopt Flint's 'carve-out' of the empirical beta data, relying on a probability-weighted adjustment to estimate the impact of the pandemic on NERL's asset beta, whilst also shortening the period of "Covid-affected" data by three months compared to the Initial Proposals and extending the period of "clean" data by fifteen months. It argues that the extended data demonstrates that the Covid effect has "*receded from recently observed comparator evidence*" thus reinforcing the need for isolation and re-weighting of the pandemic-period data.

We do not accept the use of a Covid adjustment to re-weight the impact of the pandemic on NERL's asset beta given its highly judgemental nature, divergence from well-established regulatory practice in not drawing directly on market data and, as Oxera note, its complexity, combined with uncertainty, over such an approach being applied consistently in future control periods, heightens regulatory risk.

Oxera continue to rely on observable, unadjusted empirical data across different time periods as giving a balanced statistical view of the impact of the pandemic without arbitrary weighting mechanisms. Its proposed average range remains consistent with that put forward in our response to the Initial Proposals, representing a narrower and more credible view of the risks faced by an investor in NERL.

4.3.3. Conclusion on asset beta

The CAA needs to address the issues raised above and when forming a point estimate for the Final Decision, base that on an asset beta of 0.68. This being the mid-point of Oxera's range of 0.61 to 0.74 that is reflective of the updated average asset beta of four airport operators (Aeroports de Paris (AdP), Aena, Fraport and Zurich) and ENAV. Adopting such an approach would result in an asset beta that better reflects the significant uncertainty associated with traffic demand over NR23 and the overall balance of the risk-reward framework. It would also mean that the estimate of asset beta was more consistent with CMA precedent. By doing so, the CAA would also be able to avoid having to make explicit pandemic-related adjustments to the asset beta for future price controls.

In terms of the debt beta, NERL accepts the CAA's adoption of a debt beta of 0.05.

4.4. Risk-free rate

CAA Provisional Decision

The CAA has proposed an updated range for the risk-free rate, which captures the significant increase in index-linked gilt rates since its Initial Proposals, as a result of changes in market conditions. Based on these updated market conditions, the CAA proposes a range for the risk-free rate of 0.32% to 0.82% (mid-point 0.57%). In doing so, the CAA does not change its overall methodology for setting a risk-free rate.

NERL response

We are largely aligned with the CAA on the risk-free rate. The methodological differences that do persist are significantly less material than the errors that relate to the asset beta and, as set out later in this response, the cost of debt.

The increase in risk-free rate proposed by CAA more closely reflects market conditions prevalent in March 2023. However, as highlighted by Oxera in their updated report, gilt yields have increased by on average 42 basis points up to the end of May 2023. This reinforces the pertinence of a forward adjustment. We also remain of the view that it is more appropriate to include a convenience yield adjustment to the lower and upper bound of the range and not just the upper bound, as the CAA does.

We note that the CAA's approach to estimating a convenience yield, along with the continued absence of a forward adjustment, means that the CAA's mid-point of 0.57% is lower than the lower bound of Oxera's updated range of 0.67% to 0.98% (mid-point 0.83%).

4.4.1. Conclusion on risk-free rate

In our view, the CAA understates the risk-free rate and should uplift it in the Final Decision. However, the overall impact on the cost of capital of such an adjustment, taking into account the required upward adjustment to the asset beta, is likely to be minimal given how close NERL's equity beta would be to 1. In this context, given the very limited impact on the overall cost of capital assessment for the NR23 period, we conclude that this mis-calibrated parameter could stand.

4.5. Cost of debt

CAA Provisional Decision

The CAA has estimated a real cost of debt for NERL of -1.05% for NR23. This is based on the continued application of the benchmarking approach used in its Initial Proposals, after taking into consideration its assessment of the efficiency of the 'bullet' bond tap issuance by NERL in March 2023.

NERL response

We do not agree with the application of the approach employed by the CAA in relation to the cost of debt. Its methodology includes a technical oversight in relation to the assessment of NERL's newly issued bonds and the CAA's approach to adjusting for inflation remains inconsistent with regulatory precedent. These areas of disagreement are set out in more detail below:

4.5.1. Benchmarking the yield of NERL's newly issued bonds

NERL completed a "tap" of its existing 2033 bonds on 7 March 2023, raising proceeds of £105.5m. The actual yield of these newly issued bonds was 5.17% p.a.

The CAA compares this yield with an iBoxx benchmark for A-rated 10-15 year bonds of 4.84% p.a. and concludes that the bonds were not efficiently priced. It does this by using its market data cut-off of 15 March 2023 as the benchmarking date. However, yields on 15 March 2023 were not at all reflective of those on the date of issuance. Given that the CAA solely needs to assess the efficiency of this single bond issue, it should adjust its analysis to reflect the 7 March 2023 issuance date, as the proxy approach used by the CAA leads to a materially inaccurate conclusion given the market volatility at the time and which has continued at specific points since.

The iBoxx benchmark yield for 10-15 year bonds on the date of issuance, eight days prior to the CAA's benchmarking, was 5.17% p.a.

Therefore, based on the CAA's approach of benchmarking NERL's bonds to the relevant iBoxx index, NERL's bond issuance in March 2023 resulting in a yield of 5.17% p.a. was efficient as it matched the yield of the benchmark on that day.

Consequently, the CAA should revisit its conclusion that there was any inefficiency by reconsidering the reference date for its assessment.

Three further points of evidence reinforce that the 2023 bond issuance was efficient:

- the CAA concluded in its Initial Proposals that these 2033 bonds were efficiently priced when first issued in 2021
- the additional 2033 bonds issued in 2023 were priced inside (i.e. had a lower yield than) these existing efficiently issued bonds. The pricing of the tap was around 3-5 basis points lower than the prevailing market value price of the bonds
- as of 17 July 2023 and based on debt capital markets updates that it receives from its banks, NERL observes that it was one of only two issuers to have achieved a GBP corporate bond issuance this year without incurring a new issue premium. Issuances of bonds in 2023 have generally resulted in new issue premia (i.e. extra yield) of between 5bps and 30bps. Achieving a new issue discount, rather than a premium, further demonstrates the efficiency of NERL's bond issuance in 2023.

The available evidence, including the CAA's own benchmark properly applied, makes clear the efficiency of the 'tap' .The CAA should therefore reflect and conclude that the newly issued debt was clearly efficient, and adjust its calculations accordingly. This adjustment would not call into question the CAA's overall approach to remunerating debt costs but is a technical adjustment to ensure that the calculation is as accurate as it can be.

4.5.2. Inflation assumption

Consistent with its Initial Proposals, the CAA limits the inflation forecast to deflate the nominal cost of debt to the short-run OBR March 2023 forecast applicable over the five-year NR23 period, rather than adhering to the extensive regulatory precedent of setting a real cost of debt allowance by reference to a long-run inflation outlook. The CAA also now applies a phased annual forecast for each year through the price control period.

Oxera highlight in their updated report that as part of the PR19 water redeterminations, the CMA explicitly rejected the use of short-run inflation forecasts.

The CAA's persistence with this short-term approach, which has been explicitly rejected by the CMA, is an error of judgement that should be remedied ahead of the Final Decision. There is well-established logic in the use by regulators of long-run inflation forecasts when setting the cost of debt, as this better aligns with the long-term financing decisions made by regulated companies and the counterpart decisions made by investors in debt instruments issued by such companies. By adopting this highly unorthodox approach, the CAA is introducing unnecessary regulatory risk into the regulatory framework.

The CAA should use a long-run inflation forecast, such as the 2.88% advocated by Oxera, as the RPI deflator for the cost of debt.

4.5.3. Conclusion on cost of debt

The CAA should revisit its assessment of the efficiency of the bonds issued by NERL on 7 March 2023, and correct for the error identified in its inflation forecast above when setting the cost of debt in the Final Decision. Doing so would result in a cost of debt more aligned with the minus 0.64% p.a. real cost of debt Oxera have calculated for NR23.

4.6. Proposed WACC for NR23

Table 4-1 below summarises NERL's updated position on each of the cost of capital parameters, along with an updated point estimate of the WACC for NR23. This is based on Oxera's revised analysis combined with consideration of the CAA's Provisional Decision.

Table 4-1 Proposed WACC for NR23

Parameter	CAA (Low)	CAA (High)	CAA (Mid-point)	NERL (Low)	NERL (High)	NERL (Mid-Point)	Narrative
Basis	*CAA Provisional Decision*			*Composite of CAA PD and Oxera July 2023 update*			
Asset beta	0.52	0.70	0.61	0.61	0.74	0.68	CAA should raise its point estimate, giving greater weighting to ENAV
Debt beta	0.05	0.05	0.05	0.05	0.05	0.05	CAA proposal accepted
Gearing	34%	34%	34%	34%	34%	34%	CAA proposal accepted
Equity beta	0.76	1.03	0.90	0.89	1.09	0.99	CAA should uplift for asset beta
Risk-free rate	0.32%	0.82%	0.57%	0.67%	0.98%	0.83%	We adopt Oxera's range but note this has limited impact on the WACC
Total market return	5.20%	6.50%	5.85%	5.85%	5.85%	5.85%	CAA proposed mid-point accepted
Cost of equity	4.04%	6.70%	5.31%	5.29%	6.31%	5.80%	Derived from uplifted parameters
Cost of debt	(1.05)%	(1.05)%	(1.05)%	(0.64)%	(0.64)%	(0.64)%	CAA should correct identified errors
Vanilla WACC	2.31%	4.06%	3.19%	3.27%	3.95%	3.61%	Mid-point of composite range

4.7. Conclusion on cost of capital

A point estimate of 3.61% for the vanilla WACC, rather than the CAA's proposed 3.19%, is a more reflective of a rate of return aligned with NERL's risk profile, and corrects the errors made in the estimation of asset beta and calculation of cost of debt made by the CAA in its Provisional Decision. As such, the CAA should adopt a point estimate no lower than this for its Final Decision for NR23. Such a point estimate should also have regard for the CAA's updated equity financeability assessment.

5. Capital expenditure

5.1. Summary

We accept the CAA’s Provisional Decision to allow the full financial envelope for capital expenditure, in line with our NR23 Business Plan and subsequent evolution of the Service and Investment Plans. We strongly disagree, however, with the CAA’s reclassification of £15m from opex to capex in respect of a specific software project. All our evidence points to this cost needing to be categorised as an operating expense rather than a capital expenditure. We have provided further evidence to support this.

The large number of changes to the capex engagement incentive collectively represent a significant elevation in performance standards required. While we acknowledge and accept these changes, we also wish to highlight the considerable challenge they present and propose careful monitoring to evaluate the effectiveness of the engagement incentive scheme in practice. The further proposed refinements for consultation are generally considered a positive step forward and we provide a detailed response to these proposals.

Furthermore, any proposals for additional incentives related to monitoring or delivery of the capex plan would need very careful assessment. The CAA has not consulted on the evidence base and conclusions of its current ongoing review of recent changes in the delivery plan for NERL’s technology transformation programme. As such, we do not consider that the CAA has yet provided adequate rationale for developing any further policy interventions in this area.

5.2. Overview

Our response in this chapter is structured under the following headings:

- Capex allowance, regulatory mechanisms and adjustments
- IT system cost
- Capex engagement incentive
- Development of further capex measures and incentives.

5.3. Capex allowance, regulatory mechanisms and adjustments

CAA Provisional Decision

The CAA's Provisional Decision affirms the criticality of our capex plan for the continuation of safe, reliable services, including technological upgrades and airspace modernisation as traffic recovers. The CAA has approved our full capex request of £525m (2020 prices, CPI) for UKATS and reclassified £15m from opex to capex for an IT system, amounting to a total of £540m.

The capex pass-through for efficiently incurred costs remains uncapped, and an *ex post* review of NERL’s capex, including RP3 expenditure, is scheduled to be conducted during the NR23 period. Any expenditure found to be demonstrably inefficient or wasteful would be removed from NERL’s Regulatory Asset Base (RAB).

Earlier this year, the CAA commissioned the specialist consultancy Egis to review independently the changes to the capex plan since 2021, to assess the deliverability, optioneering, and customer impact of the new updated delivery plan. The CAA notes, that, following completion of the Egis review, further consideration and consultation could be undertaken for additional measures and incentives from NR23 or NR28 to ensure NERL's accountability for capex plan delivery and customer benefits.

NERL response

We welcome the CAA's confirmation of the importance of NERL delivering safe and resilient services as traffic recovers and grows through NR23. We also welcome the CAA's continued support for the 2+5 framework for planning the capex portfolio.

We are pleased that the CAA has agreed to fully fund the revised capex plan we set out in SIP23 which incorporates a number of changes from the plan submitted in February 2022. Our plan retains its focus on the continuing replacement of our technology platform and the delivery of airspace modernisation for the benefit of our customers and consumers. Considering the adjustments made by the CAA, we note:

- We utilised the risk and contingency funding in order to support the reconfiguration of our capex plan during 2022, as stated in SIP23, and agree with the CAA's decision not to impose the downward adjustment of £17m first highlighted in its Initial Proposals
- We consider the CAA's decision to emphasise existing flexibility in the capex allowance sensible. There is a presumption that all NERL capex is efficiently incurred and we acknowledge the continued requirement to demonstrate the efficient use of capex and benefits to customers and consumers should there be a need to seek additional allowance. We would be grateful if the CAA would confirm this flexibility remains in line with the existing pass-through mechanism
- The classification of IT system costs is a technical accounting issue and we remain clear that these costs require to be expensed as opex in accordance with latest accounting standards (see below for further explanation). In the interim we intend to ringfence the associated £15m funding until its resolution.

The CAA has noted its disappointment at the scale of change required in our plan. This was noted by other stakeholders including our customers. We too would have preferred that circumstances were such that we were able to maintain originally proposed budgets and delivery schedules. However, our capex portfolio is 'live' and, in conjunction with other businesses that undertake major investments, it is not unusual for strategic programmes to change, sometimes significantly, due to the inter-connectedness between many elements[12]. Our portfolio continued to evolve during consultation with a significant change to the structure of the capex portfolio driven by a rephasing of the DP En route programme. This was mainly a consequence of our constrained delivery capacity and the capacity of our supplier base reflecting longer-term impacts of Covid-19 on resource availability and the supply chain. The

[12] Flyvbjerg B et al (2022) The Empirical Reality of IT Project Cost Overruns: Discovering A Power-Law Distribution

restructuring of the DP En Route programme to deliver its key outputs through a number of independent streams has brought stability to the plan which has been recognised by our customers in the most recent engagement (iSIP23).

The CAA has challenged us on the level and timing of our evidence in support of our revised plan and considers the change to the portfolio presents a significant challenge to setting a capex allowance. We fundamentally disagree with the CAA's view that we provided insufficient information in support of our revised plan. We engaged customers and the CAA closely on the evolution of our capex planning for NR23, consulting with customers, the CAA and its advisers across 2022 on the initial impacts and options to progress DP En Route, and the effect this has on the remainder of the portfolio including airspace and sustainment. We have responded to all requests from the CAA and its advisers to provide further confirmation of the costs, milestones and benefits of the DP En Route programme and the portfolio. At each stage, we have sought confirmation from the CAA whether further information was required. It has not been made clear what evidence the CAA is lacking. The inference that we have not provided sufficient information for the CAA to make a decision is not supported by the facts. Rather, we consider the compressed timescale of the consultation on the Initial Proposals, in conjunction with the complexity and timing of our change, has limited the CAA's ability to assess information, hence the need for an additional review of capex.

We consider our revised plan was consistent with the key drivers, options and trade-offs considered and rejected within our original plan. The key drivers we considered in our evolving portfolio included our customers in the wider aviation industry and the delivery capacity of NERL and of our suppliers. Continued uncertainty remains over the timing of consultation for Future Airspace Strategy Implementation (FASI) changes, which has impacted our airspace planning.

5.4. IT system costs

CAA Provisional Decision

The CAA has not allowed NERL's proposed reclassification of £15m of costs of an IT system from capex to opex due to deemed insufficient information.

NERL response

We firmly disagree with the CAA's approach not to allow NERL's proposed reclassification of £15m of costs for the enterprise resource planning (ERP) IT system from capex to non-staff opex. We provided timely information as requested by the CAA and were not informed that this evidence had been deemed insufficient. We are though now able to supplement this with more recent specific analysis of the classification of costs for the project, which directly addresses the concern raised by the CAA in its Provisional Decision, that our earlier evidence was not specifically related to this project.

As outlined to the CAA, originally the accounting treatment for the procurement of a replacement ERP IT system was assumed to be capitalised as an asset. During the earlier define phase of the project (late 2022 to early 2023), we received accountancy advice from Deloitte and PwC on the rules relating to capitalisation of costs under IFRS accounting standards. This indicated that Software as a Service (SaaS) is almost exclusively non-capitalisable (hence the SAP Rise licences are treated as revenue expenditure in their entirety). This was the basis of our updated submissions on NR23 opex and capex during spring 2023.

More recently, we have been able to test this presumption against specific proposals from potential suppliers for delivering a new ERP system. Since the CAA's Provisional Decision was published in early July, we have received a number of supplier responses to our Request for Proposal. These have been considered against the guidance provided by the International Accounting Standards Board (IASB) in March 2021 around the capitalisation of SaaS arrangements and associated development costs. As a principle, SaaS arrangements are opex in nature given their service-based delivery model and the inability of companies to demonstrate control of the underlying software assets they are operating. On review of the supplier responses and using the guidance and tests from the IASB, our professional accounting judgment is clear that the majority of the implementation expenditure (both internal and external) will be opex. There may be some small discrete pockets of spend that could be capitalised depending on the scope and nature of the project. However costs that are eligible for capitalisation must meet three very specific tests. Our analysis of the requirements to date indicates that the costs to be incurred on this project do not satisfy these tests.

Clearly, classifying this cost within the price control as capex does not provide the appropriate funding to be able to undertake this work, given that we have no regulatory mechanism to adjust a capex allowance to opex within the price control period. We strongly request that the CAA reviews this area, seeking input from any of the large accounting firms to corroborate, if required, and adjusts the funding from capex to opex. We remain ready to provide any further information requested to support this. In the interim, we intend to ringfence the associated £15m capex funding until resolution of this issue.

5.5. Capex engagement incentive

CAA Provisional Decision

The CAA's provisional decision is to retain the capex engagement incentive. This will continue to be a penalty-only incentive, with biannual assessments, scored based on the quality of NERL's capex engagement (rather than delivery), any penalty capped at the return on equity on actual capex spend in the period, and stakeholders to have an opportunity to express their views on the quality of NERL engagement to the CAA's Independent Reviewer.

The CAA introduces a number of modifications for NR23 to the existing incentive mechanism, including a reduction in the number of assessment criteria and number of scores, and a revised score that NERL needs to achieve to avoid penalty.

In addition to its Provisional Decisions, the CAA is consulting on further proposals, including:

- Revised scoring criteria
- The overall aim of the guidance
- A proposal to award half marks
- Optioneering score of 3 as default for mature projects
- Revised description of timing and process for awarding scores, and
- How the changes that have been decided upon have been reflected in the guidance.

NERL response

While we acknowledge and accept the changes detailed in the CAA's Provisional Decision, we also wish to highlight the considerable challenge they present. Although other changes proposed (such as half marks and the last assessment being used for final scoring) provide opportunities for NERL to make progress towards the new elevated baseline, we must recognise that the magnitude of this shift will make it materially harder for NERL to avoid penalties. Absolute clarity in the assessment guidance is therefore of utmost importance, ensuring NERL's expectations are set accurately, and unambiguous directions are provided for scoring by the CAA's Independent Reviewer. It will also be important for the CAA's ultimate regulatory judgments in this area to be seen to be fully informed by the evidence gathered and conclusions reached by the IR, in order to avoid the risk of 'double jeopardy' for NERL.

In light of the challenges and uncertainties associated with the new performance standards, we propose careful monitoring to evaluate the effectiveness of the incentive scheme in practice and consider potential revisions if the scoring does not accurately reflect performance or if the scheme does not yield the desired outcomes.

We remain wholly committed to meeting these established goals and provide our feedback on related topics of the CAA's further proposals for consultation below:

5.5.1 Draft guidance for consultation

5.5.1.1 Criteria for assessment, including the detailed guidance on scoring

We note that the CAA has made a provisional decision to streamline the assessment criteria from six to four and to reduce the scoring range from five to four. While we understand the intent behind the simplification and balancing, we believe these changes coupled with the raised performance expectations pose a significant challenge for NERL to avoid penalties. The increased baseline expectation demands a very clear understanding of the scoring criteria. In this context, we appreciate the CAA's recognition of the need to clarify further the criteria outlined in the Initial Proposals. In addition, we consider it would be valuable to conduct a short consultation or workshop with the CAA and its selected independent reviewer to analyse scoring methodologies and expected appropriate evidence to minimise any remaining level of ambiguity.

The CAA's revisions, specifically those clarifying that the mitigating/corrective actions criterion should focus on NERL's customer engagement rather than capex delivery, are welcomed. This more accurately reflects the intended focus of the incentive on NERL's capex engagement rather than its delivery. Similarly, the clarity provided on scoring mature projects under the 'optioneering' criteria is appreciated and deemed sensible.

It is important to highlight that our intent when responding to CAA's Initial Proposals was not to encourage a process-driven approach. We were rather aiming to help develop a mutual understanding of the essential aspects that would facilitate better assessment of the quality of engagement, by setting clear expectations for NERL (to perform well and avoid penalty) and the IR (for fair scoring).

The CAA has adopted some of the specific changes suggested by NERL, by carrying out targeted refinements to the detailed guidance and this has helped with improving clarity. However, the lack of clarity in differentiating between 'good' and 'excellent' information, or 'comprehensive' and 'excellent' substantiation, among others, remains problematic. While the introduction of half marks provides some granularity, it does not fully address the underlying issue. A further problem regarding clarity exists in the threshold for scoring between 'below expectations' and 'baseline expectations' for engagement with stakeholders – in this case, it is not clear what definition would constitute 'all stakeholders' set out in the guidance. Explicit definitions or examples would offer far greater assistance in distinguishing between scores for all concerned.

5.5.1.2 The statement of overall aim for the guidance

In section G1 of Appendix G to the CAA's Provisional Decision, the CAA sets out revised guidance on NERL's capex engagement incentive. In the 'Overall aim of the guidance', the CAA states:

> *The Independent Reviewer (IR) should score NERL's performance using this guidance and assess NERL's performance from the perspective of what users of its services expect from meaningful engagement by NERL on its capex plans, so that:*
>
> › *there is sufficient transparency of NERL's capex plans and enhanced accountability by NERL to its stakeholders …*

We express our full agreement with the first bullet point, underlining the critical need for transparency and accountability in our capex plans to enhance our relations with stakeholders.

The CAA goes on state a second rationale for the guidance that:

> › *the incentive encourages NERL to seek improvements to the development of its capex plan to benefit both current and future users of its services.*

We respectfully propose a revision to this text. Instead of encouraging improvements to the capex plan's development alone, we believe the guidance should incentivise NERL to boost its engagement with stakeholders during the capex planning process. We suggest it be reworded as:

> › *the incentive encourages NERL to seek improvements in its engagement with stakeholders during the development of its capex plan, resulting in benefits for both current and future users of its services.*

Such an amendment would better highlight our commitment to an inclusive, productive dialogue with stakeholders, which ultimately leads to an improved, more responsive capex plan.

5.5.1.3 Awarding marks

The introduction of half-mark increments for IR scoring is a welcome addition, offering a more nuanced view of our performance and mitigating potential biases. This certainly paves the way for a finer delineation of performance, which we believe could be further enhanced through the provision of clear definitions or illustrative examples that differentiate the scoring tiers. A transparent, well-defined scoring rubric is essential for us to understand the expectations and criteria better and to align our performance accordingly.

The additional guidance added by the CAA that the IR should award a score of 3 ('Baseline expectations') for mature projects, where the focus should be on execution rather than optioneering, is appreciated. This clarification acknowledges the distinct nature of advanced projects, and it aligns with our understanding of project maturity and the consequent shift in priority to delivery. We consider this a pragmatic and sensible approach that respects the specific dynamics of project life cycles, although it may be challenging to apply to ongoing programmes that contain a mix of projects at different maturity levels. We believe this should be further enhanced by regular consultations with the IR to ensure a shared understanding of project lifecycles, their progress and challenges. This ongoing dialogue would allow us to align more closely with scoring expectations and to adapt effectively to evolving project demands.

5.5.1.4 Timing and process of scoring

We previously suggested annual assessments for efficiency, but we accept the CAA's decision to continue with the biannual assessments established during RP3. We value the clarity provided that, for penalty assessment purposes, the relevant score will be based on the most recent engagement assessed in the SIP or interim SIP or the score on project/programme completion, not from a cumulative review of the entire NR23 period. We agree that this provides NERL with a potential opportunity to improve scoring continuously throughout NR23.

For us to act effectively on feedback from these assessments, it is crucial that the feedback be both prompt and specific. Thus, we propose that the CAA provides explicit timelines for producing assessment scores following each SIP and iSIP, and for deciding on its own final scoring. These clear timeframes would increase transparency, predictability, and would enable us to plan and adapt more effectively. Our recommendation would be for a timeline of no more than 10 weeks after submission of the final version of each SIP (31 January and 31 July) to enable us to assimilate feedback and to seek to improve our subsequent engagement with customers.

5.5.1.5 How the other changes have been implemented in the guidance

In response to the changes implemented in the guidance, we believe that the majority have been successfully integrated and will have a positive impact. We do, however, have some concerns regarding some additions under the user focus criteria, specifically the underlined section from the extract below[13]:

> *Reasonably clear, accessible and meaningful information provided <u>on the capex proposed (and other details, including what is proposed, cost, delivery timescales and benefits, and any impacts on opex)</u> with reasonable regard for user priorities and resource constraints.*

While we acknowledge the importance of transparency and the provision of detailed information, it may not always be feasible to provide such extensive data, particularly the elements in brackets. These elements might be subject to changes or may not be available at the time of stakeholder involvement. We suggest adding a caveat to this requirement, such as 'where appropriate' or 'where practicable', to ensure that the guidance is practical and adaptable to various situations.

5.6. Development of further capex measures and incentives

CAA Provisional Decision

The CAA intends to introduce a strengthened capex monitoring framework from January 2025 and consider the imposition of additional capex incentives within NR23 or from NR28. This

[13] Appendix G of CAA Provisional Decision, Table G1.1, row 1 (user focus), columns 1 and 2 (under-performance)

regulatory policy development will be informed by the conclusions of the current review the CAA commissioned from the consultancy Egis to consider the recent changes to the delivery plan for the DP En Route capex programme.

NERL response

We do not accept the premises of the CAA's rationale for developing, at this juncture, additional regulatory interventions in this area. The CAA appears to have jumped straight to the specifics of 'how' a new incentive mechanism might be designed and implemented, without at all considering the rationale for 'why' any such new measure might be needed. The fact of the changes to the DP En Route programme is not, in and of itself, any support for introducing new measures. Any substantiated case for change would need to be evidenced and articulated carefully, having regard to the CAA's duties, including to impose the minimum conditions necessary. It should also have full regard to the CMA's findings in its 2020 report on the RP3 price determination appeal, where the CMA concluded that: "the way the capex delivery incentive proposed in the CAA RP3 Decision would be applied and its underlying purpose were not sufficiently clear"[14].

We have not had the opportunity to consider the evidence base on which the CAA sets out its case for action (primarily, the as yet incomplete review by Egis of changes between 2021 and 2023 in the delivery plan for the DP En Route programme). It would be irrational and unfair for the CAA to develop any policy conclusions in this area before it had provided the opportunity for NERL and other stakeholders to assess the evidence base for further action.

We consider it is essential to get the governance arrangements right. Delivery of NERL's capex plan is critical to the ability of the business to deliver our services to meet customers' priorities. It is essential that appropriate capex governance processes are in place that give NERL the flexibility and confidence to invest wisely, while giving customers and the CAA clarity and oversight of investments made. Processes and incentives must be set within the context of our top priority, and the CAA's primary statutory duty, of delivering a safe service.

The CAA notes its own, and stakeholders', concerns from NERL's revision of costs and timings for the NR23 capex plan as the key for driving its consideration of a performance monitoring framework. We consider the need for a further review of capex by Egis on behalf of the CAA is partly a function of the CAA's own compressed timescale for consultation and the timing of our changes to the portfolio. The CAA also draws on a specific lack of traceability of milestones in SIP21 as the rationale for increasing monitoring. This line of argument fails on two counts:

- First, it does not consider the CAA's independent reviewer's further narrative on our reporting through SIPs in NR23, which has undeniably improved across RP3 in meeting the requirements of the capex engagement incentive. Comments on our traceability indicate no further issues
- Second, the customer engagement incentive already exists to track the reporting of key metrics.

[14] CMA (2020), NATS (En Route) Plc/CAA Regulatory Appeal Final report, paragraph 9.97

Given these factors, care will be needed in any review to assess what the appropriate vehicle for introducing any further monitoring is and whether it is actually sensible to do so.

The introduction of the capex engagement incentive has undoubtedly increased the overall regulatory burden but on balance should be viewed as a success. The proposed changes to the capex engagement incentive are likely to increase the level of effort within NERL further. We consider it would be prudent to allow the revisions to the capex engagement incentive mechanism to 'bed in' effectively and enable it to continue to focus on its current remit of reporting on the quality of customer engagement. This would suggest any further measures would likely need an alternative vehicle.

The Provisional Decision also refers to the development of delivery incentives. The CMA made clear in its Final Determination that any design for a delivery incentive would have to clear a high bar. In particular, it stated it was inappropriate to rely on '…user priorities in particular engagement processes to reflect the range of considerations that may be relevant, particularly in a context where NERL's capex programme sought to provide a range of system improvements that were expected to have wide-ranging and long-term benefits.'[15]

This goes to the heart of our business. NERL runs a 24/7 operation and does not have any opportunity to voluntarily cease or interrupt services. The ATM service must continue to operate throughout all maintenance of existing systems and transition to new systems. This creates unique challenges in terms of managing change, especially in the context of delivering a safety critical service. Before any change is implemented, extensive testing, validation and training must be undertaken, leading to a precisely managed sequence of transition activities allowing upgrade or replacement of operational systems. We seek to invest for the long-term as efficiently as possible, with an eye to likely customer and Critical National Infrastructure priorities in future decades as well as our customers' immediate priorities.

There is a risk that a delivery incentive could lead to unintended consequences. NERL plans on a 'most likely' basis with very small factors for risk given the availability of the capex 'true-up' mechanism. Introducing a delivery mechanism in order to drive greater certainty of delivery would likely require NERL to adopt an alternative approach to planning. Methods to improve certainty of delivery would include incorporating significantly greater risk envelopes within the capex plan for time and cost. An alternative unintended consequence of a delivery incentive would be the pressure it could exert to stick to deadlines, even when there are risks or issues that should lead to dates being changed.

In summary, we do not consider a delivery incentive would be a sensible outcome from the review without exceptionally compelling evidence of its value. Any proposals for new measures should carefully weigh the potential incremental cost and benefit, taking into account the current extensive regulatory mechanisms for incentivising efficient delivery of and engagement with customers on investment plans.

[15] CMA (2020) NERL Price Control Final Determination, Paragraph 9.70.

Appendix A Other issues

A.1. Overview

This Appendix sets out NERL's queries on several aspects of the CAA's Provisional Decision. A number of these are very material to the overall NR23 settlement. We therefore request that the CAA review carefully its Provisional Decision and the financial modelling which supports this in light of these queries. In some cases, resolution of these queries may require modification to the Provisional Decision. In other cases, we request clarification of the financial modelling which the CAA has undertaken to adjust NERL's proposed cost base for NR23 to the allowed Determined Costs.

The Appendix contains the following sections:

- Operating costs
- Non-regulated costs and revenues
- Regulatory Asset Base
- Financeability
- Regulatory incentives and mechanisms
- Oceanic.

A.2. Operating costs

A.2.1 Staff costs

CAA Provisional Decision

The CAA has applied the following adjustments to set the allowance for efficient staff costs:

- a 1.5% productivity improvement per year for operational staff and 0.5% productivity improvement per year for non-operational staff, from 2024 onwards
- CPI +0.25% pay increases on average for all staff over NR23.

Following NERL's latest submission, the CAA has updated staff costs to reflect a reduction in staff costs forecast to be capitalised due to an update to the accounting pension accrual rate (reflecting recent market conditions).

NERL response

We welcome the CAA's update to staff costs reflecting a reduction in capitalised labour as a result of recent market conditions. However, despite requesting further information from the CAA on the breakdown of these proposed adjustments, we have not received any helpful information to help us understand the individual impact of each adjustment or to allow us to check whether there have been any material errors in how the adjustments have been applied. Given that the CAA has confirmed it is unable to break the costs down in that form and given the materiality of certain calculation-based errors identified in the CAA's Initial Proposals, this is concerning. As a result, we have been unable to reach a conclusion of the acceptability of these proposed costs.

A.2.2 Non-staff opex

CAA Provisional Decision

Based on the evidence provided by NERL, the CAA has deemed it appropriate to allow for increases in non-staff costs that are aligned with increases in CPI. It has allowed non-staff opex at a level of 3% below NERL's updated non-staff opex forecast.

NERL response

We welcome the CAA's recognition that it is appropriate to allow for increases in costs that are aligned with increases in CPI and for the update provided to NERL's allowance for CAA fees. However, as outlined in our response to the CAA's Initial Proposals, we do not agree with the CAA's approach on DB pension management costs or cost savings from the RP3 capex programme.

A.3. Non-regulated costs and revenues

CAA Provisional Decision

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

NERL response

We are disappointed that the CAA has not adjusted for these automatic formulaic and contractual effects of the cost reductions proposed elsewhere in its proposals. This results in a further efficiency requirement over and above that which the CAA has applied to opex and which it has already deemed to be an appropriate overall efficiency assessment.

A.4. Regulatory Asset Base

CAA Provisional Decision

The CAA states that its overall policy regarding the regulatory asset base (RAB) in its Provisional Decision is broadly unchanged from the RAB-based price control set out in Initial Proposals. However, some changes have been proposed in relation to the treatment of Traffic Risk Share (TRS) revenues in the RAB and to working capital. Elsewhere in relation to the RAB, the CAA's proposed approach appears unchanged from the Initial Proposals. The CAA has also shared its views on a number of PCM modelling queries that we have raised.

NERL response

A.4.1 Treatment of TRS revenues in the RAB

The CAA appears to have made an error in the modelling of the TRS balance. Although the modelling correctly includes the recovery of the regulatory return for the funding of the TRS balance in RP3, it is excluded from the opening NR23 RAB. As such, the RAB is understated each year by slightly over £60m. This has the effect of understating Determined Costs by £10m over NR23. This should be reviewed and corrected by the CAA ahead of the Final Decision. (Price Control Model reference: the working capital movement in calculated first in 'C_REVCost_UKATS 1275:1284' before being passed to Section '5e RP3 TRS Real movement in working capital'

'C_RAB_UKARS 224:235'. It is within this section that the regulatory return is removed. It should also be noted that within the first calculation the balance does not reduce to zero post 2033).

Aside from this specific issue, we agree with the CAA's revised approach to the treatment of TRS revenues in the RAB. The CAA has separated the TRS balance from other working capital balances and presented this as a separate line in the RAB. This is an appropriate approach to take as it improves transparency for all stakeholders. The CAA has also updated the RAB rules to clarify that the TRS balance will not need to reflect IFRS accounting rules. This was a necessary clarification.

A.4.2 Modelling of capitalised financing costs

There is an error in the modelling of capitalised financing costs. This is because there is an erroneous capitalised financing cost charge of c£11m in each year of NR23. This should not be present in the base case scenario because outturn (*ex post*) capital expenditure and pension costs are assumed by the CAA to align with the CAA's *ex ante* NR23 assumptions. (Price Control Model reference: row C_RAB_UKATS 971 does not flag the start of the NR23 control period and therefore does not reset the brought forward balance).

This error incorrectly reduces charges by £15m over NR23 and leads to the RAB being understated by £46m at the end of NR23. This error will need to be corrected by the CAA ahead of the Final Decision.

A.4.3 RAB indexation

We support the CAA's decision to retain RPI indexation for NR23 and the RPI-CPI wedge true up mechanism. However, the CAA has understated the required calculation for RP3, leading to an understatement of the opening RAB by £3m. Whilst this is not nearly as significant as the errors flagged above, the CAA should also correct this error ahead of the Final Decision. (Price Control Model reference: C_RAB_UKATS 904:951, where a number of previous flagged errors result in the incorrect calculation of Part C of the RPI-CPI wedge).

A.4.4 Working capital treatment

The CAA has confirmed that the RAB will be updated for actual movements in working capital from NERL's 2022 regulatory accounts. These are now published and therefore the CAA will be able to use these to ahead of the Final Decision. Updating for actual movements in working capital will have the effect of reducing the CAA's assumed opening RAB for NR23. This update will need to have due regard to the impact of the accounting treatment within these 2022 (and previous year) working capital movements, which due to the absence of a final decision for NR23 needed to include an appropriate degree of caution in order to comply with international accounting standards. NERL stands ready to provide CAA with further details in relation to how to address this matter.

A.4.5 Average RAB calculation

We still consider the CAA's methodology for calculating the average RAB to be 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. As stated in our response to the Initial Proposals, this is not a rational assumption, as revenue is received throughout the year. Consequently, the allowed return on the RAB is lower than it should be.

The CAA has failed to explain why it considers that its approach provides a more accurate calculation of the return on the average RAB.

The CAA should revert to the method used in RP3 as this does not contain this shortcoming. Based on the RAB in the PCM and the cost of capital used for this Provisional Decision, the CAA's new approach understates the fair allowed return over NR23 by £3m.

A.4.6 PCM modelling queries

The CAA has answered the majority of our modelling queries. Some remain outstanding. We are following up directly with the CAA modelling team in relation to these.

A.4.7 Tax clawback

The documentation of the tax clawback mechanism has improved since the Initial Proposals, but further refinement of the definition of Modelled Interest costs and the mechanism more generally would improve the transparency of this calculation.

A.4.8 Conclusion

We highlight a number of matters within the Price Control Model that impact the RAB and as a result the Determined Costs for NR23. The CAA should correct for these modelling errors and, as planned, adjust for appropriate actual working capital movements.

A.5. Financeability

A.5.1 Debt Financeability

CAA Provisional Decision

The CAA concludes that its debt financeability assessment indicates that the notional company would be able to maintain strong credit metrics even in the event of its traffic downside scenario.

NERL response

We agree with this conclusion. However, we continue to consider that the downside stress testing undertaken by the CAA is remarkably benign in the context of the current macroeconomic and geo-political environment. That said, we are pleased to see that the CAA has extended its engagement with the credit rating agencies in relation to the assessment of debt financeability and note the improvements in the CAA's methodology. In relation to the CAA's downside scenarios, we find that the CAA's price control model displays a number of internal inconsistencies that mean that in-built model checks fail. This calls into question the robustness of the price control model and also the quality of the downside scenario outcomes. We will share our detailed findings in this area with the CAA modelling team, as we believe that, like us, the CAA will want to remedy this ahead of the Final Decision for NR23.

A.5.2 Equity Financeability

CAA Provisional Decision

The CAA concluded that its equity financeability analysis showed that the notional company is able to earn returns broadly in line with the proposed allowed cost of equity in the base case scenario. It noted that in a downside scenario shareholders' returns within the NR23 period would be reduced and that this was reasonable.

NERL response

The CAA's conclusions on equity financeability are flawed, due to two principal reasons:

- The CAA's modelling shows that the expected return for shareholders is 17% lower than the proposed post-tax real allowed cost of equity. This is a material difference.
- The CAA fails to give due consideration to the very high prospect of service quality penalties being incurred by NERL over NR23. This has a very significant impact on expected returns and as such needs to be addressed by the CAA to ensure a 'fair bet' for equity investors.

A.5.2.1 CAA modelling of expected return

The CAA's modelling shows that using what it considers to be an appropriate dividend profile for the notional company, the internal rate of return is 90 basis points lower than the proposed allowed cost of equity. This represents a difference of 17%, relative to the proposed post-tax, real allowed cost of equity of 5.3%. To conclude, as the CAA does, that this is "broadly in line" is not appropriate.

The CAA does highlight that were NERL to pay dividends of £150m in each of 2025, 2026 and 2027 then the post-tax equity internal rate of return would equal 5.3%. Whilst this may be true, the consequence of this would be that NERL's gearing would need to be significantly higher than the 34% that the CAA assumes for the notional company. This demonstrates that the CAA's methodology is internally inconsistent and needs to be amended.

Furthermore, in PD paragraph 6.94 the CAA states that the assumed dividend profile in Figure 6.10: "shows the profile of dividends that we project the notional company will be able to achieve in the NR23 period". By selecting a dividend profile at that level, the CAA is implying that it does not believe that the notional company will be able to achieve a post-tax equity internal rate of return that is on a par with its proposed cost of equity.

The CAA can remedy this flaw in its methodology by increasing the point estimate for the cost of capital, so that the expected internal rate of return for the notional company is at least 5.3%.

A.5.2.2 Likelihood of service performance penalties

The CAA has ignored any consideration of whether the proposed service performance targets reflect a 'fair bet' for equity investors. The CAA should have considered the respective probabilities of penalties and bonuses and made a judgement as to whether these are balanced.

Our expectation, as set out in Chapter 2, is that under the CAA's Provisional Decision for service targets and financial incentives, we would be likely to incur capacity penalties from 2024 through to 2027, and environment penalties in 2026 and 2027, totalling around £12m. We calculate that this would reduce the average annual expected return by a further 13 basis points.

The CAA can remedy this clear omission in its assessment, by recalibrating the service targets, broadening the range of standard performance outcomes, or failing this, increasing the point estimate for the cost of capital. The first two of these measures would be preferable, as it would benefit our customers in two ways. Firstly, it permits an avoidable increase in the cost of capital, and therefore unit prices over NR23. Secondly, it provides greater incentivisation to NERL to use maintain a customer-focused and balanced allocation of resources between 'service now' versus future capacity. Failing this, the incentives on NERL are overly focused on 'service now' to the detriment of longer term benefits for customers.

A.5.3 Conclusion

As part of its final decision for NR23, the CAA must give greater consideration to the equity financeability of the NR23 price control. The Provisional Decision does not represent a 'fair bet' for equity investors because the CAA's own modelling shows that the notional company cannot afford to generate an internal rate of return for providers of equity that matches the allowed cost of equity. In addition, the Provision Decision does not give due consideration to the balance of probabilities associated with the service performance incentives. The risks are significantly skewed to the downside and as such the Provisional Decision must be adjusted accordingly.

The CAA can remedy the dividend related issue by aiming up within the cost of capital range for the allowed return. The asymmetry of service performance risks would though be better handled by the CAA adjusting the targets or broadening the range of standard performance outcomes as this approach generates better customer outcomes than further upward adjustment to the cost of capital.

A.6. Regulatory incentives and mechanisms

A.6.1 Oceanic traffic risk

CAA Provisional Decision

The CAA confirmed that it did not intend to introduce a Traffic Risk Share mechanism for the Oceanic price control.

NERL response

We disagree with the rationale put forward by the CAA for not proceeding with this proposal. We note that the CAA has not challenged the financial and traffic forecasting analysis from NERL which supports this proposal. We recognise that the CAA's Provisional Decision is a matter of regulatory judgment, for NR23. We may revert to this issue during NR23, with updated evidence, in preparation for the next price control review.

A.6.2 Cost risks

CAA Provisional Decision

The CAA's Provisional Decision on regulatory mechanisms to manage cost risks includes:

- Continuing to apply Eurocontrol Principles which allow for cost pass-through in defined circumstances
- As set out in Chapter 4, NERL costs, cost pass-through mechanisms will continue to apply in the case of unforeseen changes in Defined Benefit pension costs as a result of unforeseeable changes in financial market conditions
- Costs relating to the transfer of employees to NERL's Pension Cash Alternative (PCA) pension scheme should not be automatically included in the pension cost pass-through mechanism, as the CAA concludes that these are at least partly within NERL control and hence not consistent with Eurocontrol Principles to allow cost pass-through
- As set out in Chapter 5, Financial issues, should the actual tax rules be different during NR23 and if this difference has a material impact on actual tax costs, the CAA confirms that it would consider whether these should be eligible for pass-through as an unforeseen and significant change in cost resulting from unforeseeable changes in national taxation law.

NERL response

We agree to continued application of Eurocontrol Principles. It is, though, important that the specific operation of these principles is clarified where need be for specific cost categories, notably pension costs and tax.

With regard to Defined Benefit pension costs, our concerns are set out in Chapter 3 of this response. We argue there that more clarity is required on how the CAA will assess *ex post* the extent to which NERL DB cash pension costs are reasonable and efficient. This should use information available to NERL and the pension scheme trustees at the time the valuation and cash pension contribution decisions are taken, without the benefit of hindsight, and recognising that there will be a range of costs which are likely to be assessed as reasonable and efficient.

With regards to PCA costs relating to transfers out from the DB scheme during NR23, which are initiated by individual scheme members, we disagree with the CAA's rationale for excluding such costs from the scope of cost pass through. We accept however that this is the CAA's regulatory judgment. We will monitor trends in PCA transfers and gather further evidence on the factors influencing individuals' transfers, to inform the next price control review.

With regard to tax costs, addressed in response to Chapter 5 of the CAA's Provisional Decision, we agree that changes in tax rules should be subject to cost pass-through. Such changes include those made to corporation tax rates, and to allowances for investment, R&D and other cost items.

A.6.3 Asymmetric risk

CAA Provisional Decision

The CAA's Provisional Decision is to reject proposals from NERL for additional adjustment for asymmetric risk. The CAA's rationale is that there are important differences between the risks faced by Heathrow Airport Limited (HAL) and NERL, and the factors that justify specific allowances for asymmetric risk in HAL's case are much less relevant to NERL.

NERL response

We consider that our proposal was not reliant on the existence or otherwise of an asymmetric risk mitigation in the price control for Heathrow Airport, so a comparison between the current and prospective relative exposure to traffic risk is not relevant to the assessment of this proposal. Heathrow was cited in NERL's proposal only as an example of how and where such a measure has been implemented, not as a specific benchmark compactor to calibrate whether such a measure should apply to NERL.

Our case for proposing the introduction of this risk mitigation was solely based on the evidence pertaining to NERL itself. The key conclusion that we drew from the available data is that there is a downward bias to the difference between actual and forecast traffic which, if not corrected, would tend systematically to depress the rate of return achieved by investors in the company over the long term, and thus undermine the CAA's own calibration of the allowed cost of equity.

We note, however, the CAA's regulatory judgement on this point.

A.6.4 New users

CAA Provisional Decision

The CAA Provisional Decision includes:

- Not allowing the £3.3 million of costs relating to trials and new user systems development, on the grounds that allowing new user development and integration costs to be met by conventional users would not be consistent with the CAA's secondary duty to further the interests of (existing) customers and consumers and is not consistent with the 'user pays' principle
- NERL will bear the cost of providing the services to new users in the short term, and it will be important that it only incurs those costs that are necessary and efficient. NERL should propose updates to its Regulatory Accounting Guidelines to reflect the new recording and reporting requirements, to separate costs incurred in support of new airspace users from those incurred to provide services to existing en route customers
- By no later than the end of June 2025, NERL should submit a new user charging mechanism. However, NERL will not be able to recover the efficient costs it has incurred in relation to new users until the CAA has considered, consulted on, and implemented any new charging mechanism.

NERL response

We accept the CAA's Provisional Decisions in this area. We are committed over the coming months:

- To continue to engage with the new airspace users to outline the specifications of the new service
- To seek alignment with the CAA on the high-level service framework, leading to an agreement on the scope of the new service
- To develop the service architecture infrastructure to support the development of the integrated services and facilitate airspace integration, and
- To develop and submit the new users charging mechanism that will be evaluated by the CAA, seeking an agreement by beginning of 2025.

A.7. Oceanic

CAA Provisional Decision

The CAA's Provisional Decision in respect of the Oceanic price control includes the following elements:

- No extension of the Traffic Risk Share mechanism to the Oceanic price control
- Service performance targets and measures to be agreed by NERL and its customers as part of ongoing engagement
- All of NERL's proposed Oceanic capex allowed
- Increase in ADS-B costs relating to exchange rate allowed
- Proposed increase in ADS-B for higher flight hours not allowed
- Core cost profile front loaded with no explanation.

NERL response

We accept the NR23 cost totals and agree on the CAA's overall to setting the cost allowance. We have updated our analysis of average flight hours which should inform the CAA's Final Decision regarding allowed ADS-B costs. We query the declining profile of allowed costs over the NR23 period, which is not adequately explained in the CAA's Provisional Decision. The profile of costs then drives a declining profile of charges. We consider that users would be better served by a simple flat charge in real terms over the period – we request that the CAA re-profile allowed costs (in a net present value neutral manner) to achieve this objective.

A.7.1 Traffic Risk Share

While we respect and acknowledge the CAA's decision not to extend the Traffic Risk Sharing (TRS) mechanism to the oceanic charges, we are disappointed with this outcome, given the potential benefits that TRS implementation could bring for both users and NERL. We remain committed to advocating for TRS as a means to achieve risk mitigation and incentivised cost efficiencies, ultimately leading to improved outcomes for airlines and passengers. We remain hopeful for future opportunities to revisit this discussion and explore collaborative solutions.

A.7.2 Service Performance Measures and Targets

We appreciate the CAA's recognition of our ongoing stakeholder engagement for service performance measures and targets for NR23. We agree with the CAA's approach of continuing this engagement process to reach agreement on service measures and targets. The consultation process using the Condition 11 service standard statement allows stakeholders to contribute valuable insights and feedback, enhancing the effectiveness and relevance of the measures. Additionally, the upcoming ADS-B review workshops provide an opportunity to refine and enhance the measures based on review findings. We are committed to engaging with airlines and the regulator in this process.

A.7.3 Oceanic Capex

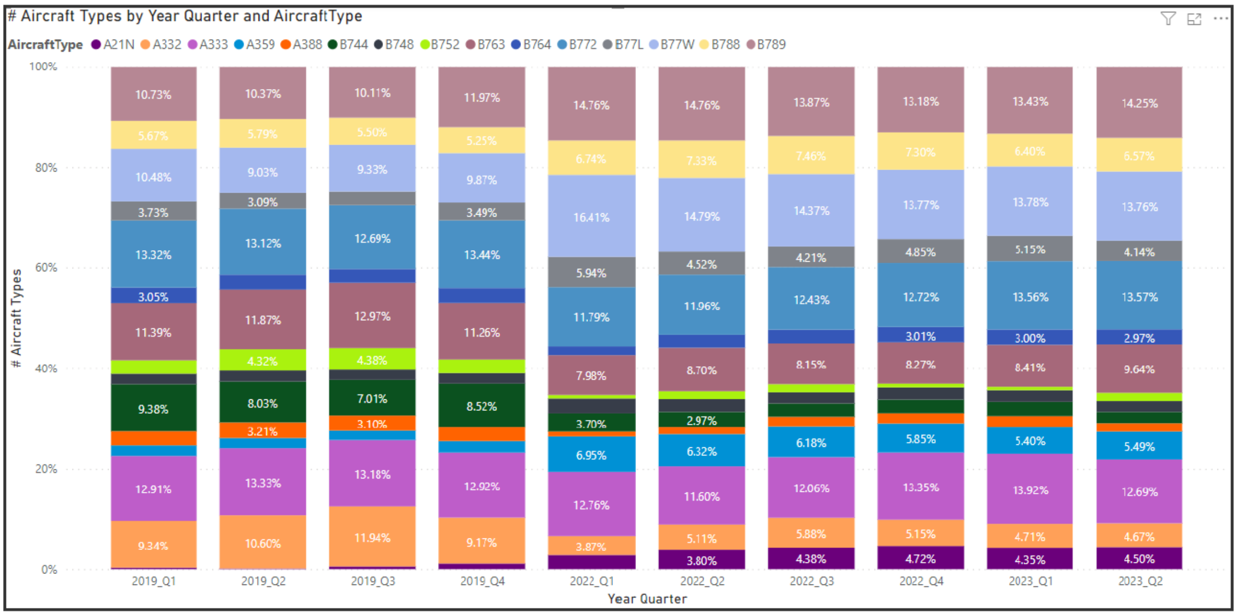
We are pleased to note, as in the base case of its Initial Proposals, the CAA has allowed all of NERL's Oceanic capex in its Provisional Decision. We also appreciate the acknowledgment that the table presented in the Initial Proposals did not include the correct figures for depreciation, and we welcome the clarification provided in this regard.

A.7.4 ADS-B Costs

Since the publication of CAA's Initial Proposals, updated cost forecasts were provided to the CAA, reflecting changes in exchange rates, flight hours and Aireon costs. We welcome the CAA's decision to incorporate the updated exchange rates for ADS-B costs. However, we are disappointed with the exclusion of the proposed increase in projected costs for higher flight hours. Our further analysis, based on most recent data from July 2022 to June 2023 show that the average transition time of flights entering Shanwick between FL 290 and FL 420 that were not flying TANGO routes was 1.107 hours (66 minutes and 25 seconds). Comparing CY2022 and Q1 and Q2 of 2023 with 2019 reveals that the main contributing factors for the increase include the fleet mix, airport pairs, and the tracks flown across Shanwick (more detail below).

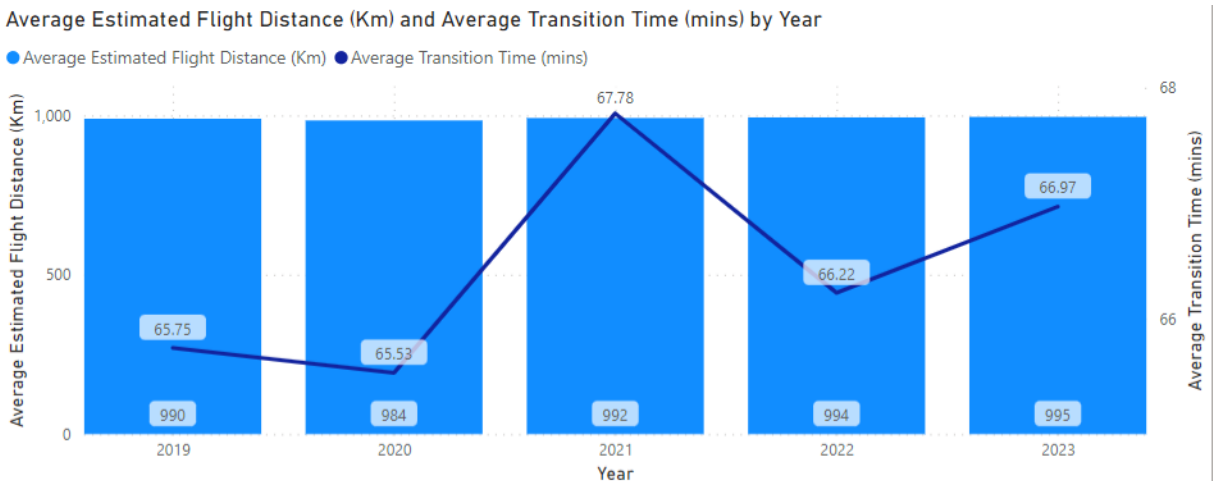
Aircraft Type and Fleet Mix: As we have previously mentioned, the fleet mix has significantly altered. Notably, aircraft types A332, B744, B763, and B752 have all seen a reduced proportion of flights in Shanwick, whereas types B77W, B789, B77L and B772 have all increased their proportion of flights. Each aircraft type varies in speed, range and size, which can greatly affect the overall transit times. Our recent study supports this fact, as shown in Figure A-1 below. Therefore, it is essential to consider the shifting dynamics in aircraft utilisation.

Figure A-1



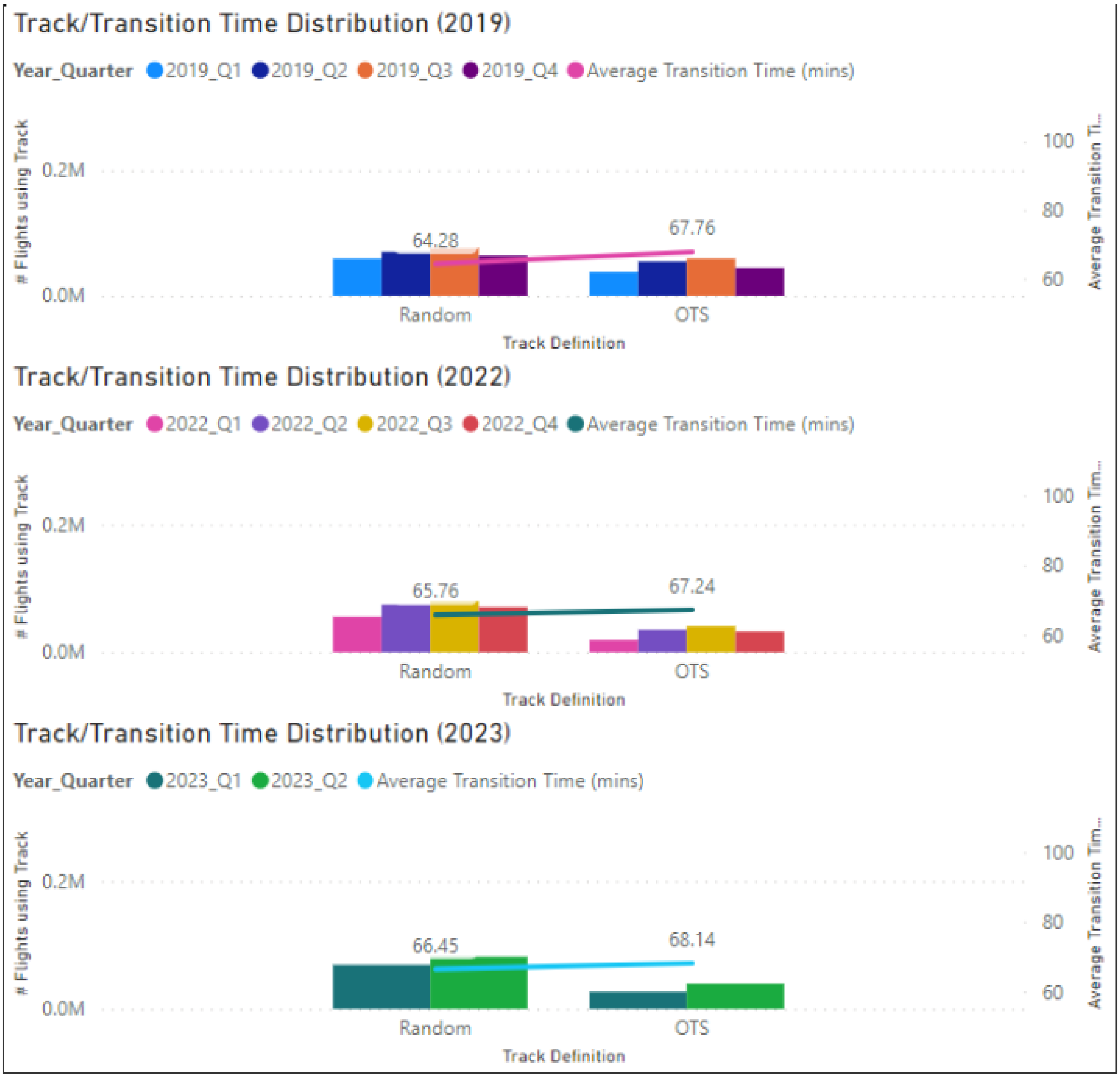
Route Length: Our study has revealed that routes were, on average, 5km (2.7NM) longer in 2022 and 2023 to date than in 2019. While we acknowledge that weather variations could be a contributing factor, this still represents an extension in route lengths which will invariably increase the flight time. Further substantiation is provided in Figure A-2 below.

Figure A-2



Flight Patterns: The proportion of flights on random routings versus organised tracks has increased from 58% in 2019 to 69% in 2022 and 2023. Our data also shows that the average transition time for flights on organised tracks is about 2.3 - 2.5% longer than those on random routings in 2022 and 2023. Thus, the shift towards a greater proportion of random routings is actually working to reduce the average transition time, the moderating the overall increase we have observed. There is a limit, however, to the positive impact this factor can have on transition times in the future as the proportion gets closer to 100%.

Figure A-3



Transition Time Analysis: Last year's study on data from August 2021 to July 2022 reported a transition time of 66 min 42 secs (1.112 hours), some 3.4% above the CAA's forecast. Our most recent study has shown the transition time to be 66 min 25 secs (1.107 hours). Although this is slightly less than the previous year, it is still 3% higher than the originally assumed 1.075 hours.

Considering these findings, it is reasonable to project that the transition time will continue to be greater than the initially assumed time of 1.075 hours. Therefore, these changes should be considered when determining the ADS-B costs for North Atlantic flights. Accurate predictions of flight hours play a pivotal role in ensuring sufficient revenue to effectively cover the costs.

Since ADS-B costs should be pass-through in nature, where we aim to avoid windfall gains or losses, we urge the CAA to allow the projected increase in flight hour charges for ADS-B based on these longer transition times. This would not only reflect the actual conditions of flights across the Shanwick airspace but also ensure fairness in levying the ADS-B costs.

A.7.5 ADS-B Review

We are pleased to see that the ADS-B cost-benefit review will proceed as planned. We are committed to engaging with airlines and the CAA on this review, and we believe the proposed timelines are challenging but achievable. We will maintain an open dialogue with all stakeholders to ensure that the review is conducted at the most opportune time. We are fully committed to fulfilling this obligation and ensuring a comprehensive assessment of the costs and benefits associated with ADS-B implementation and its continued use in the Oceanic operation.

A.7.6 Core Cost Profile

We query the declining profile of allowed costs over the NR23 period, which is not adequately explained in the CAA's Provisional Decision. The profile of costs then drives a declining profile of charges. We consider that users would be better served by a simple flat charge in real terms over the period.

We request that the CAA explain the factors behind the declining profile of costs in its Provisional Decision, and then re-profile allowed costs (in a net present value neutral manner) to achieve the objective of a constant real terms charge across the NR23 period.

Appendix B Service performance analysis

B.1 Overview

In this Appendix, we provide further evidence supporting the arguments we have outlined our Chapter 2 on service performance. In particular, we present analysis illustrating the relationship between traffic and service outcomes (delay and 3Di).

B.2 Delay

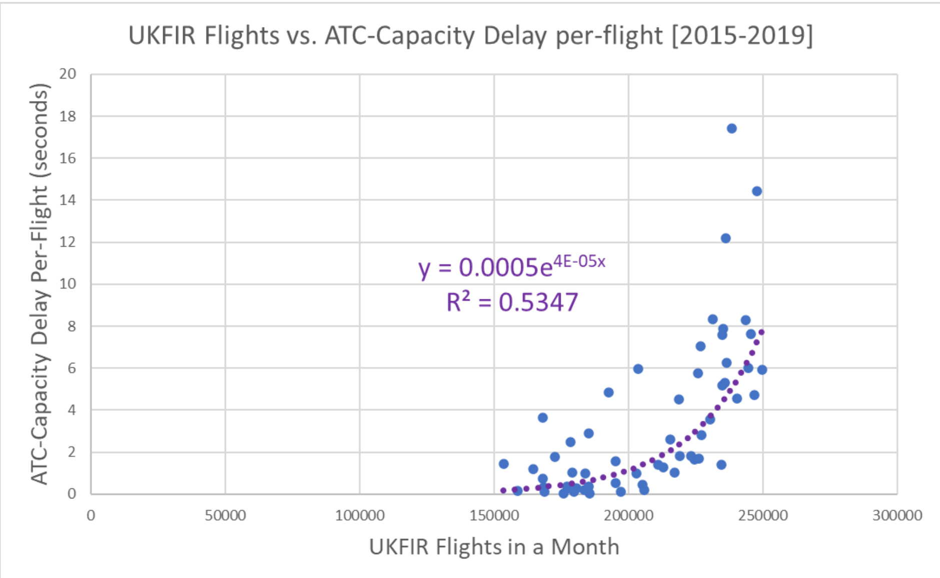
To support our argument on the exponential relationship between traffic and delay we have:

- re-run the CAA assessment using the same data span, i.e., excluding the pandemic years
- run statistical tests on delay data demonstrating the existing exponential relationship between traffic and delay.

B.2.1 NERL assessment of the CAA's delay and traffic relationship

We use Eurocontrol STATFOR monthly data, from 2015 to 2019, to replicate the CAA Provisional Decision assessment. Figure B-1 below shows that our results are very similar to the one the CAA reports in the Provisional Decision - Figure E2, Appendix E. The only difference is in the value of the R^2 (i.e., 0.5347) that appears to be slightly lower in our assessment (i.e., 0.5474 for the CAA). This is due to the different dataset used and the additional 2015 data included in our analysis.

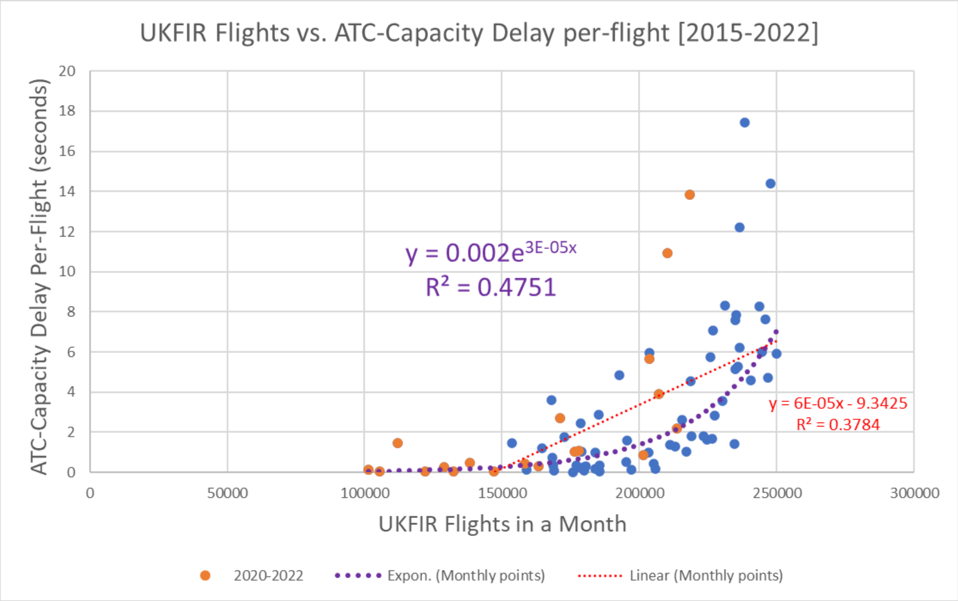
Figure B-1 NERL's assessment of the traffic-delay relationship



Source: NERL's own elaboration

In Figure B-2 below we show that the exponential traffic-delay relationship is still valid when the pandemic years are included in the data sample.

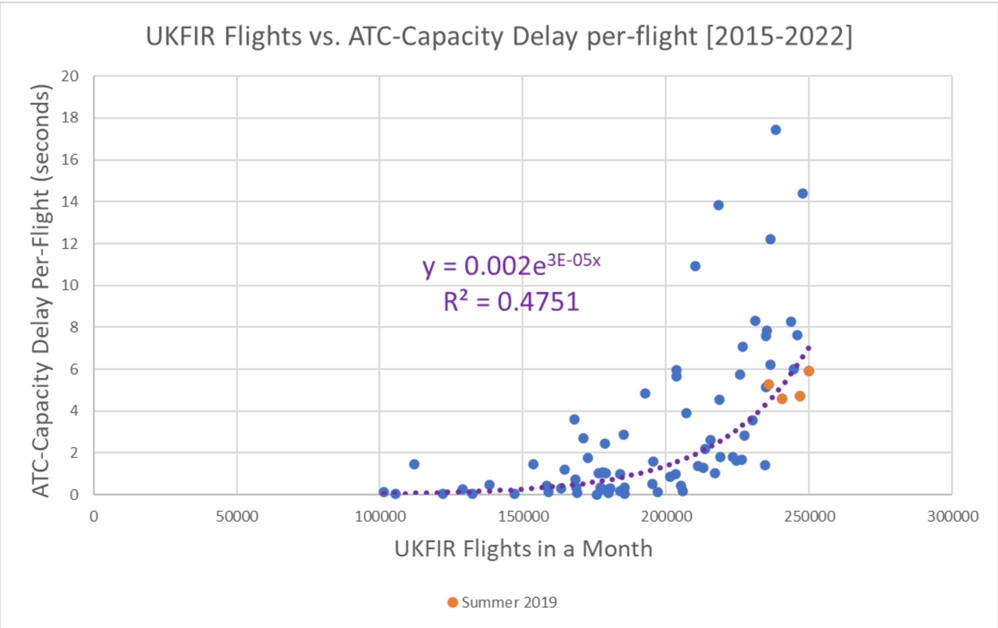
Figure B-2 Traffic-delay exponential relationship including pandemic years



Source: NERL's own elaboration

We notice that the higher R^2 value (i.e., 0.4751 versus 0.3784) validates the existence of such an exponential relationship. This is also confirmed in Figure B-3 when we consider the inclusion of the higher traffic values, i.e., years after 2019 with higher traffic.

Figure B-3 Traffic-delay exponential relationship including high traffic level in summer 2019



Source: NERL's own elaboration

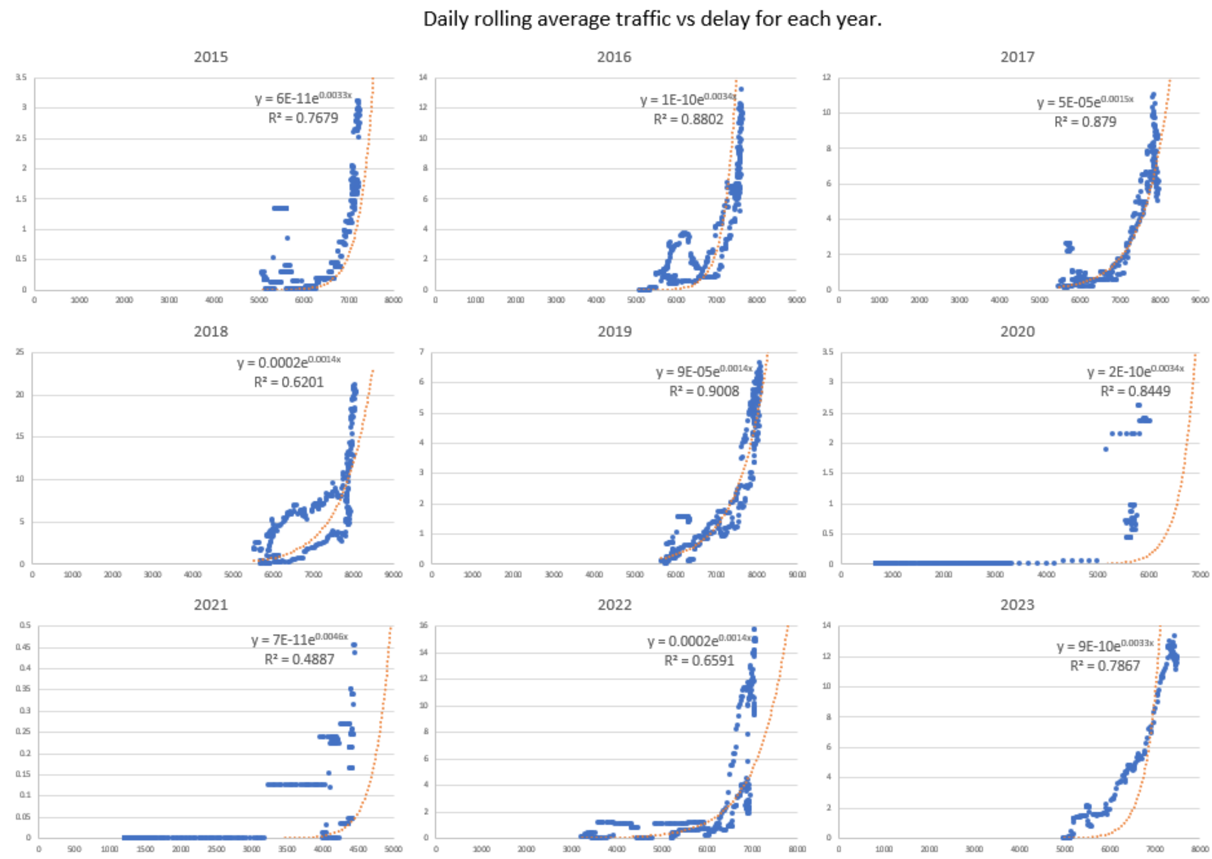
The highlighted data points correspond to summer 2019 months (June-Sept inclusive). These months indicate the sort of traffic levels we are expecting to reach and exceed over the NR23 period. They are also tightly grouped along the exponential trend line.

B.2.2 Statistical validation of the exponential relationship between delay and traffic

To further demonstrate the exponential relationship between traffic and delay we have calculated and plotted below (Figure B-4) the daily rolling average traffic *vs* delay for each year. Calculating this as a rolling average serves to smooth out variations from abnormally high or low delay days, as well as temporal variations such as the traffic fluctuations we see on different days of the week. The datapoints below have been calculated with a ± 15 day rolling window i.e., for each day, the average of delay and traffic was taken for each day 15 days either side of it to provide the smoothing effect.

Each individual chart shows a strong exponential relationship between traffic and delay, particularly in years 2017 and 2019 where the R^2 values are particularly high, respectively 0.879 and 0.9008. These are years with good performance we would seek to emulate.

Figure B-4 Daily rolling average traffic vs delay



Source: NERL's own elaboration

B.3 3Di

In this section we provide updated evidence of the existing relationship between 3Di score and traffic.

In Figure B-5 below, we illustrate the existing relationship between 3Di score and traffic using updated monthly data from January 2015 to June 2023. This sample includes the pandemic years.

Figure B-5 Traffic-3Di relationship, 2015-2023

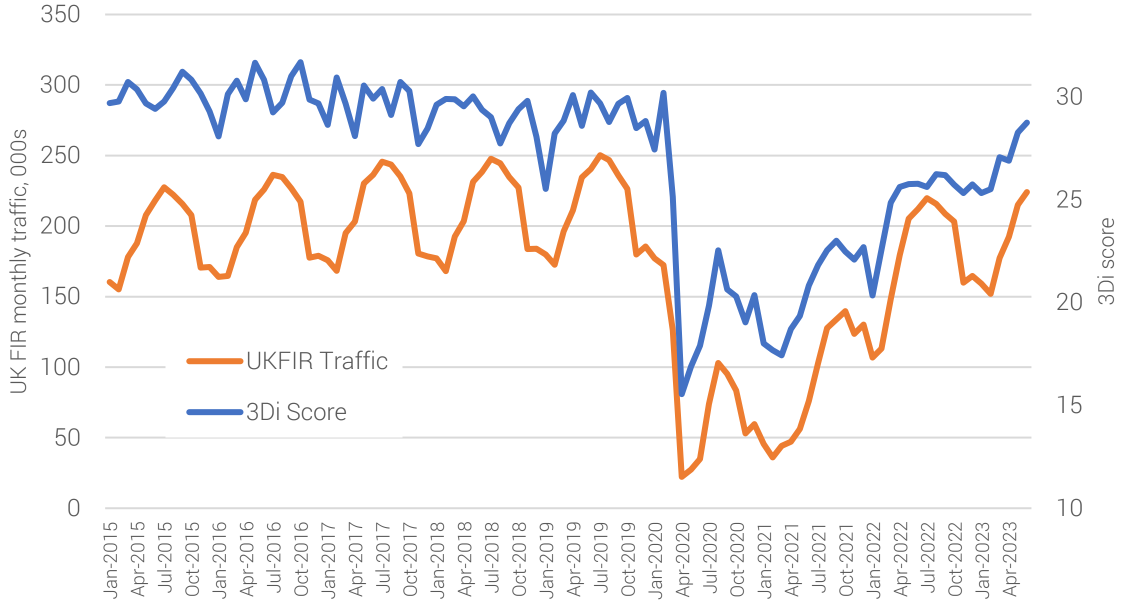
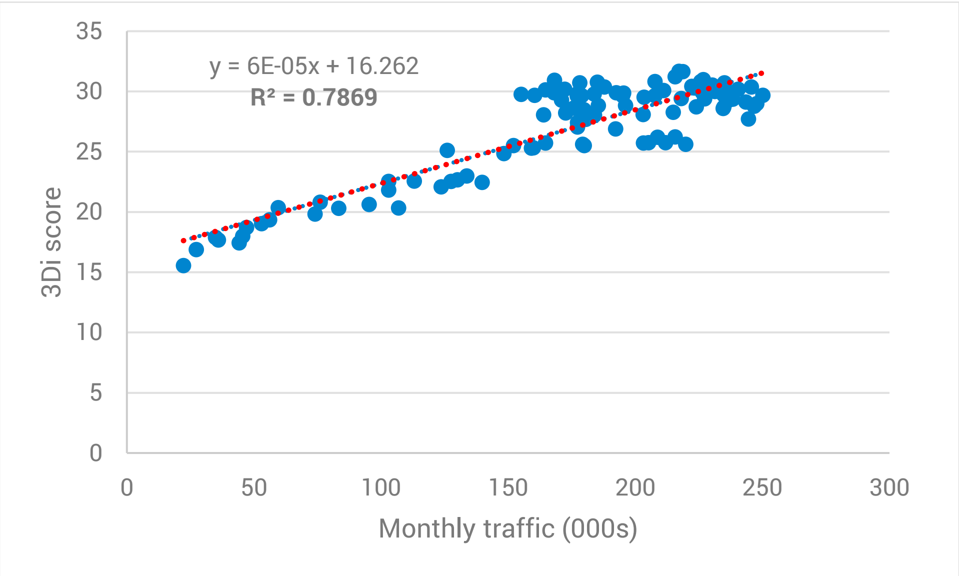


Figure B-6 displays updated evidence of what we submitted within the response to the CAA Initial Proposals (see Appendix A - Figure A-5). The higher magnitude of the R^2 (0.7869 on this sample versus 0.7682in our previous submission, based on data from Jan 2015 to Oct 2022, demonstrates the underlying existence of a relationship between 3Di score and traffic.

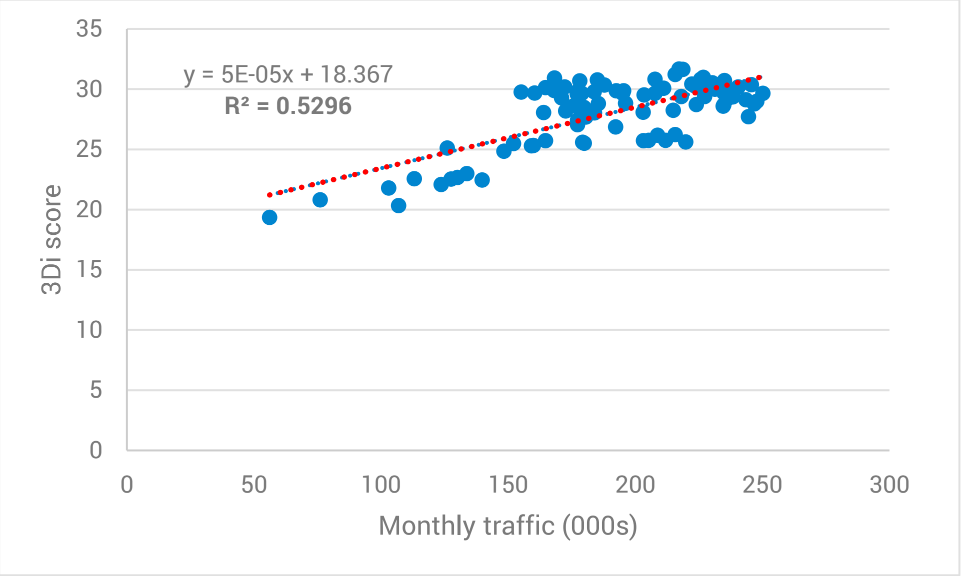
Figure B-6 Monthly 3Di score and UK FIR Traffic (Jan 2015 - June 2023)



Source: NERL's own elaboration

When we run the same test on the same sample but excluding the pandemic years, we notice that the R^2 values is 33% lower than if considering the full sample (i.e., 0.5296 vs 0.7869). This highlights that the 3Di-traffic relationship is better explained when using a richer dataset displaying more data variation (Figure B-7 below).

Figure B-7 Monthly 3Di score and UK FIR Traffic (excluding pandemic years)



Source: NERL's own elaboration

We believe that these outcomes corroborate our argument that the 3Di score is directly affected by the traffic variation.