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**British Airways response to NR23 Business Plan**  
**Economic regulation of NATS En Route plc**

Thank you for the opportunity to respond to the NATS En Route plc ("NERL") business plan for the NR23 price control period; we set out below our views on the Civil Aviation Authority's ("CAA") proposals and implications for the wider policy environment.

### Executive Summary

We recognise that NATS has faced a challenging task in developing a business plan for NR23 in a short period of time in H2 2021, in order to meet the timelines required by the Competition and Markets Authority ("CMA") to undertake a further periodic review and establish a new price control on 1<sup>st</sup> January 2023; we commend the NATS team in setting out its priorities particularly since the refinancing challenge has only just been completed, and welcome further dialogue to ensure these plans align with those of our business.

We agree with Martin Rolfe that this has taken place in period of enormous uncertainty surrounding the shape and pace of the recovery, and welcome the continued dialogue that will be necessary to ensure that NR23 is aligned both with the traffic recovery and emerging priorities as airlines recover from the challenges of the pandemic.

Our main points are as follows:

#### **Customer and passenger priorities**

- a) We continue to recognise that NERL has faced significant challenges in developing a business plan and consulting with customers over the compressed timeline set by the CAA to conduct this periodic review; nevertheless, the CAA must fully scrutinise the business plan, and consider the Duties set out in the Acts when considering the appropriate priorities for the NR23 price control, where below the prime duty to safety, cost efficiency is as important as other secondary Duties
- b) We recognise a number of the passenger priorities identified through the research conducted by Blue Marble, although we are concerned that some conclusions

reached are inconsistent with the evidence presented; this is particularly important since the CMA have noted that customers may not reasonably be expected to reach an informed opinion on complex technical matters

- c) NR23 is an important period of recovery for the UK aviation industry, and one in which we must put ourselves in a position to deliver the challenges of airspace modernisation whilst ensuring the business is on track to become more sustainable; however, at heart, any delay or deviation from an optimal flightpath results in greater emissions and environmental damage, therefore ensuring that delays are minimised in any form is itself consistent with meeting sustainability challenges

### Traffic outlook

- d) The use of STATFOR forecasts as a base case appears appropriate and in line with that used for RP2 and RP3, so long as growth rates applied to generate CSU forecasts are correct; further forecast updates are due in May and October 2022, and subsequent changes to the NR23 plan should be scrutinised to ensure they flow through appropriately
- e) Oceanic forecasts clearly need further scrutiny to understand anomalies highlighted by NERL in the STATFOR data sets, and should be cross checked against any other available forecasts as a result; this is particularly important given the proposed new TRS mechanism to be applied to Oceanic charges
- f) NERL has produced useful information on sensitivities around its base case forecasts that can play a part in informing elasticities of costs; however these do not comprise scenarios requested by the CAA, and a productive discussion of plausible alternative scenarios would instead foster a fruitful debate that could better inform key assumptions for this periodic review

### Performance outcomes and metrics

- g) Performance incentives are important for any price control to ensure that the regulated company is appropriately incentivised to deliver service outcomes to the standard envisaged at the periodic review; as a result, the CAA must carefully scrutinise NERL's proposals to ensure that they maintain the appropriate incentive throughout the control period, neither being too stringent nor too lax, and targeting performance outcomes that are in the control of the NERL
- h) We support the continued measurement of safety against a range of metrics, and NERL's proposal to continue to follow the European Risk Assessment Tool ("RAT") scheme complemented by other measures during NR23; the effectiveness of the SMS is a critical component of safety as it underpins the culture of NERL
- i) Whilst we support the limited use of exemption days, it is not clear to us how the proposed allowance is calculated, and what historic usage and underlying performance during transitions has been; it is important that this is consistent with



performance regulation, and there may be a case for an enhanced airline role in approving and monitoring the use of such exemptions

- j) Traffic modulation, if pursued by the CAA, should seek to ensure the incentive remains consistent in different out-turn traffic scenarios and that its interaction with other mechanisms such as TRS is appropriate, and the CAA should carefully consider the evidence for both modulation and whether the proposed re-opener mechanisms ensure that the incentive is consistent rather than creating one-way bets, measured appropriately in the cost of capital; regardless we welcome greater discussion with NERL should issues or new evidence arise through appropriate forums
- k) The CAA should scrutinise NERL's proposals for capacity-related targets to ensure they are consistent with the evidence provided, and measurements are updated where appropriate; given the nature of this periodic review, more substantial updates to the metrics are best considered at NR28 when more time will be available to redesign aspects of the incentive
- l) Environmental targets are under increased scrutiny in order to allow aviation to meet its obligations toward net zero by 2050, and whilst 3Di remains the best available metric at present, we recognise that it should be further developed in future to support optimal flight management; NERL propose a number of changes to 3Di, including modulation, re-openers and narrower dead bands, and it is not clear that the resulting targets fully capture the appropriate challenge and capital investment benefits, which the CAA should scrutinise in depth

#### Service delivery

- m) We are concerned that the proposed resourcing plan will result in inadequate supply of ATCOs in summer 2023 and summer 2024, and that there appears little scope to meet demand should traffic rise to levels above the Eurocontrol STATFOR base case without significant degradation in service quality
- n) As a result, the CAA should scrutinise the supply plan in depth to ensure that assumptions reflect changes resulting from restructuring, and that opportunities are identified to further raise productivity and maintain resilience; in particular, NERL should seek to find incentives for ATCOs to remain in role for longer and achieve greater flexibility with validations
- o) It is clear that there is little spare training capacity now available, and that NERL is acting to increase ATCO numbers; we welcome the intent of the additional investment in synthetic training, though need to see further information on how this could impact training efficiency and when it might be delivered

#### Capital investment

- p) Capital investment plays an important role in ensuring that NERL continues to have sufficient capability in future, both facilitating future programmes such as airspace



modernisation whilst continuing to sustain existing operations and technology; as a result of the pandemic, it is clear that NERL has reprofiled capital expenditure to more efficiently deliver capabilities, while extending implementation out of necessity

- q) We support NERL's proposed approach to capital, with greater near-term definition as financial planning becomes locked in, with greater flexibility in the longer term to match capital plans to changing strategy; the CAA should ensure that the capital envelope informed by the programmes represents a reasonable level of expenditure that is likely to deliver the required capabilities over NR23
- r) In particular, the CAA should consider the detail provided to judge whether each programme is necessary and supported by reasonable cost estimate; in addition, the impact on operating costs should be carefully considered, particularly where retirement of older systems may allow for a reduction in operating expenditure over the course of NR23

#### Determined costs and prices

- s) The CAA should test NERL's cost projections, ensuring they are consistent, and assumptions remain relevant; this is particularly important given the significant and necessary restructuring that has taken place since RP3, where reliance upon previous allocations may no longer be appropriate
- t) In particular, costs should be consistent with other assumptions in the price control – particularly capital and resourcing plans – and all opportunities taken to ensure costs are as efficient as feasibly possible; in particular, we urge NERL to consider all options to further reduce pension costs and generate incremental single till income opportunities
- u) NERL's cost of capital allowance does not reflect a balanced and complete assessment of the available evidence on aviation sector asset betas in light of the impact of Covid-19 on the sector, which represents a clear break in beta evidence; proposed increases in the cost of equity do not reconcile with recent valuations and investor behaviour, and regulated energy and water networks continue to be a relevant cross-check to the overall judgement
- v) The starting point for assessing NERL's cost of debt is consistent with RP3, but the CAA should consider the incentive effects carefully to ensure its approach avoids creating one-way bets and that second-order implications, and that this does not result in higher costs than would be observed under a more overtly notional approach
- w) We welcome the starting point of considering a flat profile of charges and reserve judgement on an appropriate profile until analysis at this periodic review is complete; nevertheless, a PO adjustment and any deviation from a typical profile attached to the price path in the previous price control would have to be fully justified by the CAA

- x) NERL's financeability is important post pandemic, but assumptions related to notional gearing and credit rating tested to ensure assumptions can efficiently achieve the lowest cost of capital; furthermore, any stress testing of the price control for financial resilience should be based upon plausible scenarios

### Oceanic

- y) We support NERL's Oceanic proposals, in particularly the intent to remove oceanic clearances and reduce the footprint of the organised track structure; as a result, we hope to see benefits arise from ADS-B, which has resulted in extraordinary increases in charges
- z) Performance metrics should be based upon an aim to incentivise particular areas that are of key relevance to customers and are an issue at present; as a result, we welcome a metric to monitor variable speed clearance, but are cautious of the definition of operationally equivalent clearances, which may be incompatible with FMC calculations, and believe the proposed collision risk metrics to have already been comfortably achieved
- aa) We remain of the view that the introduction of any TRS should be reflected in the WACC as risk is transferred to customers and carefully calibrated; we also query the inclusion of an Oceanic TRS debtor based upon a justification grounded in the CAA's cost estimate work set out in CAP2291, which does not appear consistent with ex ante incentive regulation

### Regulatory mechanisms

- bb) We support continued calibration of regulatory mechanisms to ensure incentives are consistent and appropriate in the circumstances; in particular, we recognise that the existing TRS required modification to accommodate the demands of the pandemic, therefore considering how to manage such circumstances in future is a relevant question
- cc) However, any adjustments must be tailored to the issue they are trying to solve, and this is particularly important where inflation of the RAB resulting from the TRS debtor is so material; depreciation of amounts placed onto the RAB should be logically established, and if significant deviation is required from that logic, such debtors might instead be recovered through alternative mechanisms
- dd) The design of the TRS should be tailored to NERL's particular business, with dead bands only if they are logical based upon how operating leverage in the business, in particular avoiding incentive issues where sharing rates change dramatically; in addition, the inclusion of an Oceanic TRS should be carefully scrutinised and reflected in the WACC



## 1. Summary

- 1.1. NERL has set out a business plan that aims to deliver a safe air traffic system, efficient service levels, cost effective prices, provides capacity increases alongside enhanced environmental and fuel benefits, and delivers appropriate financial resilience for NR23; these aims appear reasonable, but in addition, NERL should ensure that it is no hinderance to airspace modernisation when it occurs
- 1.2. NERL is a critical part of the infrastructure that allows aviation to operate in the UK, and it is vital therefore that NERL is able both to provide high quality service and operational capacity for airlines to operate, and does so in a safe and cost effective manner; the pandemic has made this task more difficult through the loss of traffic and resulting constraints on finances, however, we are confident that NERL can deliver within the challenging parameters that exist at present
- 1.3. NERL must therefore seek to find an appropriate balance for service performance within the constraints of cost efficiency, financing limitations and capital investment requirements to deliver an operating platform that is fit for the future; the challenge of sustainability can only be delivered with a platform in place at NERL that facilitates the most efficient routing, minimises delays and allows airlines to plan and operate the most efficient trajectories possible

### **Impact of Covid-19**

- 1.4. The pandemic has had an undeniable impact on aviation, with passenger volumes declining significantly, causing cancellation of services and a reduction in air traffic movements only partially offset by increased cargo flying; it is a credit to NERL that airspace was kept open and safe throughout the pandemic despite the lack of incoming revenue
- 1.5. A reduction of cash outgoings amounting to £500m is a creditable achievement during such challenging circumstances; nevertheless, it is of critical importance to understand how such savings have been achieved, for example, some savings compared to the RP3 plan may already have been achieved prior to the onset of the pandemic, therefore the CAA must establish its efficient baseline
- 1.6. Cash savings may have been achieved through retiming of payments to defer cash into future years, fundamental restructuring of contracts to change services or cost exposure, or ultimately cancellation; whatever is the case, cash savings as presented need to be reconciled to the underlying fixed or variable cost base structure and be fully understood by the CAA
- 1.7. Retention of skills is a key priority in order to maintain the effectiveness of NERL, since that talent is an essential prerequisite to for supporting the recovery; supported by the use of the government's flexible furlough schemes, NERL appears to have taken prudent steps to ensuring that its capabilities have not been compromised whilst deferring the reset of the price control to 2023



- 1.8. In addition, NERL's refinancing of the business during the period has been made possible by a prudent approach to debt in recent years, resulting in the capacity to take on additional borrowing that has the effect of supporting the recovery of the aviation industry; it is important the NERL continues to take a prudent approach to its financing, returning to lower levels of debt only at an appropriate pace

## 2. Customer and passenger priorities

- 2.1. We recognise that the timescales under which this periodic review have been conducted are challenging, both for NERL and the CAA; the compression of this timetable resulted in engagement with airlines at an earlier stage of plan development than had been the case at RP3, although we welcome NERL's ongoing efforts to engage with airline customers to ensure the plan meets customer and consumer priorities
- 2.2. Given the stage at which the consultation was conducted, we further agree with NERL that some aspects may need to be revisited; as noted, we along with other airlines felt we had to reserve some positions until further information emerged, and it would be valuable for NERL, the CAA and airlines to have further, detailed discussions on some topics as Initial Proposals are being developed
- 2.3. Nevertheless, NERL provide a reasonable summary of the positions held by British Airways and other airlines within the Customer Consultation Working Group ("CCWG") held in 2021; we comment on each of the specific areas in the relevant sections later within this response
- 2.4. Our overall priorities for NERL remain consistent with those captured in this NR23 business plan, with safety above all others, supported by cost efficiency, resilience of operations and provision of appropriate capacity, airspace modernisation, and supporting sustainability objectives

### **Passenger research insights**

- 2.5. The passenger research undertaken by Blue Marble on behalf of NERL appears in general to have been conducted in a robust manner, using appropriate methodologies and drawing sensible conclusions; many insights noted are consistent with those we see in our own research, including the increasing importance of sustainability as a topic
- 2.6. We agree with the conclusions of Blue Marble that safety is passengers' number one priority for air travel, albeit implicitly important until prompted; the importance of punctuality is also consistent with our view that passengers are "keen to avoid long, disruptive delays which greatly affect their journeys and subsequent plans"<sup>1</sup>

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<sup>1</sup> [Blue Marble Research, "Passenger research for price control reset, Final Report", December 2021, p3](#)



- 2.7. In addition, we agree that few passengers would typically think about Air Traffic Control or know much about its operation, therefore caution should be exercised considering the comments of the CMA in relation to Ofwat's PR19 which states that "we consider that there are some areas where customers may not reasonably be expected to reach an informed opinion on the information, such as complex technical matters"<sup>2</sup>
- 2.8. The CMA continue that "there are difficulties with developing research methodologies to increase the reliability of survey results, particularly on willingness to pay studies"<sup>3</sup>, and note that "stated willingness to pay tended to be substantially higher than revealed willingness to pay, which highlighted the difficulties of relying on customer surveys to estimate willingness to pay"<sup>4</sup>
- 2.9. We agree with Blue Marble's observation that "longer delays are more frustrating than shorter delays since they are more likely to significantly impact passengers' journeys and subsequent plans"<sup>5</sup>, and in particular that passengers appreciate information in such situations; nevertheless, subsequent analysis of willingness to pay does not appear to directly support investment priorities in Air Traffic Control
- 2.10. Specifically, Blue Marble note that "it is rare that passengers blame Air Traffic Control for their delays", and that "many say that they would be much more inclined to blame their airline than Air Traffic Control, as so many other aspects of the flight seem to be in the airlines' control (e.g. organising an efficient boarding process)"<sup>6</sup>
- 2.11. This is particularly important since the General Duty of the Secretary of State, after that to "maintain a high standard of safety in the provision of air traffic services"<sup>7</sup>, is to "further the interests of operators and owners of aircraft, owners and managers of aerodromes, persons travelling in aircraft and persons with rights in property carried in them"<sup>8</sup>, "promote efficiency and economy on the part of licence holders"<sup>9</sup>, and "secure that licence holders will not find it unduly difficult to finance activities authorised by their licences"<sup>10</sup> ("the Duties")
- 2.12. The fact that passengers surveyed hold the opinion that "keeping costs low was the lowest priority"<sup>11</sup> must not therefore allow inefficient cost increases or priorities that are unrelated to the legislative requirements to take undue priority; NR23

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<sup>2</sup> [CMA Final report, Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations, para 3.28](#)

<sup>3</sup> [Ibid., para 3.31](#)

<sup>4</sup> [Ibid., para 7.294](#)

<sup>5</sup> [Blue Marble Research, "Passenger research for price control reset, Final Report", December 2021, p8](#)

<sup>6</sup> [Ibid., p13](#)

<sup>7</sup> [Transport Act 2000, "Secretary of State's general duty", Section 1](#)

<sup>8</sup> [Ibid., and specifically interests only "regarding the range, availability, continuity, cost and quality of air traffic services"](#)

<sup>9</sup> [Ibid.](#)

<sup>10</sup> [Ibid.](#)

<sup>11</sup> [NERL NR23 Business Plan, Chapter 2, Customer and Passenger Priorities, p11](#)



- must continue to place safety as the top priority whilst balancing those secondary duties that include efficiency of costs and operations
- 2.13. We remain concerned that numerous suppliers – facing understandable cost pressures of their own – portray increases in their charges as immaterial compared to overall ticket prices, when the only relevant benchmark is the rise in the cost of their individual charges; this is a path that leads to uncontrolled cost inflation
  - 2.14. It is important to consider that when aggregating all suppliers’ “small incremental ticket price increases”<sup>12</sup>, this would amount to unsustainable cost pressures at a total level, which could destroy airline economics and leave carriers unable to compete in a highly competitive global marketplace; globally, margins were already thin prior to the pandemic, and improperly justified cost increases compromise the ability to carriers operating in UK airspace to compete globally
  - 2.15. It therefore concerns us if this research were to be used to justify positions that are not aligned with the Duties at the heart of the Transport Act 2000 (“2000 Act”) as amended by the Air Traffic Management and Unmanned Aircraft Act 2021 (“2021 Act”); this is particularly important where research such as that undertaken by Blue Marble could be positioned to justify a specific point
  - 2.16. This is particularly the case for ADS-B on the North Atlantic, where the original justification for the introduction of this capability was based upon increased efficiency and capacity, which has yet to be demonstrated; this is entirely understandable due to the reduced traffic volumes resulting from the pandemic, and we hope the CAA can demonstrate the advertised improvements now traffic is returning and prescribed tracks below FL330 have been eliminated
  - 2.17. However, justification based solely upon theoretical safety assessments is problematic, particularly where ICAO has concluded that “the reduction in air travel caused by the COVID-19 pandemic is considered the reason for the significant decrease in estimated collision risks”<sup>13</sup>; any new system might be portrayed to increase safety, and asking consumers whether they would pay for more frequent updates of flight location in isolation does not justify a safety case
  - 2.18. Furthermore, the willingness to pay analysis presented earlier in the Blue Marble report is centred around delay management, which does not appear to have been addressed when considering ADS-B with participants in this study; as a result, the justification based upon a price of 20p to 40p does not appear to be consistent with the rationale of consumers’ stated willingness to pay
  - 2.19. Considering the investment trade-offs, the methodology used is slightly peculiar, since “keeping costs low” has been used as a trade-off in its own right, and is not necessarily mutually exclusive from the other categories; this is particularly the

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<sup>12</sup> [Ibid.](#)

<sup>13</sup> [ICAO North Atlantic Systems Planning Group \(NAT SPG\), 2020 Safety Report, p4](#)

case as the investment areas are likely to have cost implications that are not shown in the descriptions shown to participants

- 2.20. As a result, it should be considered whether showing the cost implications of the investment choices might make a difference to the scores, particularly if some of the investment choices could ultimately contribute to cost reduction efforts themselves in the longer term; this is particularly important since participants have no frame of reference as to how much is paid to NATS from the total ticket price

### **Airline feedback**

- 2.21. Ultimately, we agree with NERL that airline feedback is not wholly consistent with passenger feedback in some areas as a result, although we do not believe this should fundamentally create issues with the NR23 business plan and should be understood based upon our familiarity with NERL; we therefore welcome NERL's approach to follow airline feedback on specific options whilst recognising that the "overall ethos of the plan is broadly in line with passenger priorities"<sup>14</sup>
- 2.22. The evolutionary approach, whereby "continuing to deliver improving outcomes for airlines and passengers through operational resourcing scaled to meet the recovery in demand and continuing investment in the new generation of ATC technology platforms"<sup>15</sup> appear to be the most appropriate way to ensure that safety remains the primary focus whilst meeting new challenges as they arise
- 2.23. Of particular note, we continue to emphasise the importance of minimising all types of delay where feasible, and ensuring that NERL can meet the demand that is likely to arise in the NR23 period; whilst our position appears to differ from those of passengers "who indicated that relatively frequent shorter delays, up to 15-40 mins depending on short or long-haul flight, are considered tolerable"<sup>16</sup>, it is our experience that passengers are frustrated by any delay, particularly where what may be a relatively short delay compromises a connection onto another flight
- 2.24. Sustainability plays an important role in our strategy and commitments to meet climate change targets, therefore flight path efficiency will always be consistent with reducing net emissions and ensuring our operations become more sustainable; it is therefore important to understand the reason why we are opposed to strengthening this particular financial incentive despite this shared priority
- 2.25. At heart, NERL have played an important leadership role in developing metrics that measure flightpath efficiency, and this is rightly incentivised at present; however, as technology has evolved, the onboard flight management computers on our most modern aircraft can dynamically calculate optimal flight paths, which are not consistent with those that support NERL's existing 3Di metric

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<sup>14</sup> [NERL NR23 Business Plan, Chapter 2, Customer and Passenger Priorities, p11](#)

<sup>15</sup> [NERL NR23 Business Plan, Appendix B: Customer and passenger consultation, p10](#)

<sup>16</sup> [Ibid., p11](#)



- 2.26. For example, temperature and wind variations mean that a particular flight level is calculated by the aircraft to be most efficient based upon its exact weight, whilst the 3Di metric would suggest a different flight level and alternative descent profile without consideration of the actual wind and temperature conditions at that time; we would not want metrics to be inappropriately incentivised
- 2.27. As a result, we can commit to working with NERL to develop modified forms of such metrics in future, and sharing more information about how our most modern aircraft calculate optimal flight profiles; in addition, we can consider alternative future charging structures, but must avoid creating a system which incentivises more polluting operators simply to avoid NERL airspace, since such a situation would deliver no net reduction in emissions (and instead potentially increase them)
- 2.28. Costs remain important to our industry, which has historically operated on thin margins and – similar to NERL – has taken on significant debt to support operations throughout the pandemic; this debt must be repaid, and in an environment where inflation is rising and fuel prices have surged, this is more challenging than ever
- 2.29. We reiterate our earlier opposition to focusing upon the proportion of the price of a ticket that NERL's cost represent, and urge the CAA to consider the balance of Duties that are set out in the 2000 and 2021 Acts; untrammelled cost increases are destructive for economic productivity and will compromise the UK's ability to compete in the global economy
- 2.30. It is also worth highlighting that the Blue Marble research was only conducted in the UK; given the UK is well-visited by visitors from international markets, the passengers carried through UK airspace will be broader than in some markets, and whilst we might expect their needs to be similar to travellers from the UK, their perceptions around willingness to pay and acceptance ADS-B costs may differ

### **Conclusion**

- 2.31. We continue to recognise that NERL has faced significant challenges in developing a business plan and consulting with customers over the compressed timeline set by the CAA to conduct this periodic review; nevertheless, the CAA must fully scrutinise the business plan, and consider the Duties set out in the Acts when considering the appropriate priorities for the NR23 price control, where below the prime duty to safety, cost efficiency is as important as other secondary Duties
- 2.32. We recognise a number of the passenger priorities identified through the research conducted by Blue Marble, although we are concerned that some conclusions reached are inconsistent with the evidence presented; this is particularly important since the CMA have noted that customers may not reasonably be expected to reach an informed opinion on complex technical matters
- 2.33. NR23 is an important period of recovery for the UK aviation industry, and one in which we must put ourselves in a position to deliver the challenges of airspace modernisation whilst ensuring the business is on track to become more sustainable;

however, at heart, any delay or deviation from an optimal flightpath results in greater emissions and environmental damage, therefore ensuring that delays are minimised in any form is itself consistent with meeting sustainability challenges

### 3. Traffic outlook

- 3.1. Traffic forecasts are a central element to the price control, ultimately determining the unit price after costs have been determined; furthermore as noted by the CMA, “forecasts also play a key role in operational planning, for example ensuring that sufficient and efficient levels of staff resources are always available”<sup>17</sup>

#### **Eurocontrol forecasts**

- 3.2. We welcome NERL’s use of the STATFOR October 2021<sup>18</sup> base case as the basis of the NR23 business plan, noting that these forecasts will be updated approximately every six months; this should allow updates in May and October 2022 to be incorporated into the final NR23 price control as appropriate
- 3.3. This is appropriate, and continues the methodology used at RP2 and RP3, ensuring that forecasts remain independent of the regulated company and transparent forecasting is at the heart of the price control; as a sense check the base case forecasts a recovery in Europe by the end of 2023<sup>19</sup>, which broadly corresponds with our views and those of IAG, reinforcing the validity of independent forecasts
- 3.4. Nevertheless, given the uncertainty, we note NERL’s view that it may be necessary to reassess plans “in light of new forecasts to ensure resourcing and service performance are appropriately calibrated”<sup>20</sup>; it is our priority that ex ante incentives are set that are consistent and appropriate for economic regulation, however, from a process perspective, airlines must be able to provide feedback on any changes that occur to the plan before NR23 is finalised
- 3.5. We note that STATFOR calculated total service units, but “do not produce a CSU forecast, therefore, the CSU forecast shown below is calculated by deducting military and civil exempt flights from STATFOR’s TSU forecast, and then applying growth rates at the same level as the STATFOR TSU forecast”<sup>21</sup>
- 3.6. It is important to ensure that appropriate growth rates are applied to the CSU forecasts, such that they are an accurate reflection of the growth of traffic that excludes civil and military exempt flights; nevertheless any anomalies are likely to be relatively minor compared to the big picture of the price control

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<sup>17</sup> [CMA Final report, NATS \(En Route\) Plc/CAA Regulatory Appeal, para 7.1](#)

<sup>18</sup> [Eurocontrol, Forecast Update 2021-2027, October 2021](#)

<sup>19</sup> [NERL NR23 Business Plan, Appendix C: Traffic forecast, p1](#)

<sup>20</sup> [Ibid., p1](#)

<sup>21</sup> [NERL NR23 Business Plan, Appendix C: Traffic forecast, p3](#)

### Oceanic forecasts

- 3.7. Since STATFOR does not produce a dedicated Oceanic forecast, there is a clear issue with deriving an appropriate forecast that is similarly independent to that for En-Route and London Approach; it is particularly important to consider how this is achieved given NERL's proposal to introduce a form of traffic risk sharing for Oceanic services in addition to the existing risk sharing arrangements for En-Route and London Approach charges
- 3.8. Whilst it does not appear unreasonable to base forecasts on the STATFOR flow assumptions that form the basis of the underlying STATFOR data sets, we welcome NERL's transparency where – in discovering a discrepancy in the most recent data – it has committed to work with Eurocontrol to revisit the flow assumptions for the next STATFOR update in May 2022
- 3.9. As a result, it would appear good practice to consider alternative forecasts that may exist; these could include any produced by ICAO<sup>22</sup> for groups such as the North Atlantic Economic, Financial, and Forecast Group ("NAT EFFG"), or those used by NavCanada and other Air Navigation Service Providers ("ANSPs") across similar geographic regions
- 3.10. Ultimately, as noted by the CMA, "regulators typically are cautious about using forecasts produced by a regulated entity for its own price setting process"<sup>23</sup>, therefore it is important to ensure that the Oceanic forecasts are to the greatest extent based upon independent information, recognising that the CAA ultimately has to make a judgement about what is most appropriate

### Uncertainty and scenarios

- 3.11. We note the continued uncertainty resulting from government restrictions that have hindered the UK market, though expect that such situations are unlikely to occur in the future now that all legal restrictions related to the pandemic have been removed; nevertheless, we do not expect the pandemic to have a lasting effect upon the demand for aviation, with evidence of strong pent-up demand
- 3.12. We continue to advocate the development of alternative scenarios distinct from sensitivities to a central base case; such scenarios could prompt a rich discussions over the appropriate trade-offs that could be required if the future is significantly different than forecast at present, with actions prioritised in advance to mitigate the effect through charges, modify capital expenditure, and alter service performance outcomes to calibrate the business to such situations
- 3.13. We note NERL's comments that "we do not believe it is credible to deliver multiple scenarios or plans to the level of detail expected by the CAA"<sup>24</sup>, however for a

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<sup>22</sup> [ICAO Long Term Forecast products](#)

<sup>23</sup> [CMA Final report, NATS \(En Route\) Plc/CAA Regulatory Appeal, para 7.26](#)

<sup>24</sup> [NERL NR23 Business Plan, Appendix Q: Business plan scenarios, p1](#)

long-term business plan, it is important to understand how the business could adjust to the future, and for the regulator to understand how to keep economic incentives consistent with those that might exist in a competitive market

- 3.14. Such scenario planning is undertaken by a range of business, and has been particularly well-practised at Shell, where it is designed to prompt serious consideration of alternatives that cannot be predicted based upon sensitivities to a central plan; this was particularly important where standard financial planning based upon singular forecasts and sensitivities around that forecast fail “by trying to predict the future with relative certainty”<sup>25</sup>
- 3.15. Given the relative uncertainty over how the future will progress – including airspace modernisation – this form of scenario planning is highly informative, and the process of simply considering alternate plausible realities reveals true underlying assumptions that have been made, such that they can be more robustly tested; this can only drive a deeper understanding of how change might affect the business, and to be clear, is not a process of creating a fully costed business plan for each scenario, but of getting to the heart of key business drivers
- 3.16. This more strategic approach is an appropriate consideration for a five-year price control, particularly where single, linear forecasts can have limited accuracy beyond the very short term; given this approach to scenario panning is in operation at Shell who also are also “a fixed cost infrastructure provider with long operational training lead times”<sup>26</sup>, it makes such discussion more important to avoid expensive errors in capital investment
- 3.17. Furthermore, in an future event of similar magnitude to this pandemic, having considered such scenarios through a planned process in advance would enable plans to be developed that could be quickly executed; having upfront agreement as to the priorities could provide greater stability to the price control and avoid re-determinations such as the present periodic review
- 3.18. Although NERL provide a useful starting point for assessing cost elasticities in their analysis<sup>27</sup>, these assumptions need to be further tested; whilst it may be entirely correct to assess the current cost base as “more operationally geared than regulated utilities”, and “more fixed than ENAV’s”<sup>28</sup> at a single point in time, we need to understand specifically why this is the case, whether this remains appropriate, what might change, and what was structurally changed as a result of the current pandemic
- 3.19. Notwithstanding the redactions that mean we cannot interrogate these sensitivities in detail at this time, a qualitative discussion over what should be done in future such scenarios is relevant, for example:

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<sup>25</sup> Wilkinson, A. and Kupers, R. “The Essence of Scenarios”, Amsterdam University Press, p29

<sup>26</sup> [NERL NR23 Business Plan, Appendix Q: Business plan scenarios, p1](#)

<sup>27</sup> [Ibid.](#)

<sup>28</sup> [Ibid., p4](#)

- Should basic training be continued in similar scenarios to Covid in future?
  - Should training be combined with other countries with common capabilities?
  - Should NERL even operate its own training college?
  - Should there be a different approach to validations to accommodate materially different scenarios?
  - Should part time approaching retirement be fostered by reducing validations such that currency can be better maintained on a part time basis?
- 3.20. The point of such a discussion is to consider what the most appropriate response would be in those alternative but plausible scenarios; rather than having to react to future shocks; this would at least ensure the price control might accommodate necessary changes without the need for re-opening the price control
- 3.21. These considerations are particularly relevant to the capital expenditure programme, and whilst we welcome NERL's calculations as to the capacity of the envelope to adjust by up to £50m over NR23<sup>29</sup>, it would be helpful to have further understanding of what capabilities could be altered within the context of broader scenarios, as opposed to sensitivities around a singular forecast base case, for example:
- What specific capital expenditure projects – unrelated to resilience of capacity – might be postponed or cancelled?
  - What estate management costs and rationalisation alluded to could occur, or equally opportunities to generate revenue?
- 3.22. NERL have undertaken significant restructuring activity in the past two years, and we agree that scope might be "restricted in part by the cost containment measures that were put in place during the course of 2020 and 2021"<sup>30</sup>; nevertheless it is a useful exercise to understand the specific actions that could be taken in those plausible alternative scenarios
- 3.23. Ultimately another downturn with leave all parties with unpalatable choices and considering what those might be at an early stage would create greater certainty and allow all parties to plan accordingly; for example, the treatment of the current debtor from the Traffic Risk Sharing ("TRS") mechanism might warrant revisiting

## Conclusion

- 3.24. The use of STATFOR forecasts as a base case appears appropriate and in line with that used for RP2 and RP3, so long as growth rates applied to generate CSU forecasts are correct; further forecast updates are due in May and October 2022, and subsequent changes to the NR23 plan should be scrutinised to ensure they flow through appropriately

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<sup>29</sup> [Ibid., p5](#)

<sup>30</sup> [Ibid., p11](#)



- 3.25. Oceanic forecasts clearly need further scrutiny to understand anomalies highlighted by NERL in the STATFOR data sets, and should be cross checked against any other available forecasts as a result; this is particularly important given the proposed new TRS mechanism to be applied to Oceanic charges
- 3.26. NERL has produced useful information on sensitivities around its base case forecasts that can play a part in informing elasticities of costs; however these do not comprise scenarios requested by the CAA, and a productive discussion of plausible alternative scenarios would instead foster a fruitful debate that could better inform key assumptions for this periodic review

#### 4. Performance outcomes and metrics

- 4.1. Service quality measures are critical to any regulatory price control, since they ensure that the regulated company faces a commitment to spend money required to deliver the service quality outcomes specified by the regulator; otherwise, operating expenditure might be inappropriately constrained or management focus be diverted, causing service performance to decline
- 4.2. It is critical as a result that service performance links to the analysis of operating expenditure, ensuring that expenditure is calibrated to the required service outcomes; it is also important that incentives are consistent with delivery of airspace change and required technology improvements, but must be neither too lenient nor too stretching to achieve

##### **Safety**

- 4.3. Safety remains our highest priority, and we agree with NERL that it should also be at the heart of their business; in particular, it is important that NERL is able to ensure “safety levels are maintained against the background of rising traffic”, whilst being able to “articulate the safety benefits from planned investments and the real-world practical safety improvements that ADS-B has enabled”<sup>31</sup>
- 4.4. We support the continued measurement of safety against a range of metrics<sup>32</sup>, including rate and number of serious incidents, runway incursions, loss of separation events and effectiveness of safety management; as a key partner in our Safety Management System (“SMS”), it is critical that NERL’s operations dovetail with this aspect of airline operations, ensuring continued leadership in global safety
- 4.5. It is prudent to continue to follow the European Risk Assessment Tool (“RAT”) scheme complemented by other measures during NR23; such an approach ensures that NERL operates in line with best practice and supports the current SMS, along with continuing to target the rate or number of serious or risk bearing incidents

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<sup>31</sup> [NERL NR23 Business Plan, Chapter 4, Performance Outcomes and Metrics, p18](#)

<sup>32</sup> As set out in [NERL NR23 Business Plan, Appendix D: Safety](#)

- 4.6. The targets in relation to the number of category A and B airprox incidents (zero) and RAT events (two or less) appear appropriate; the baseline for NERL attributable RAT score and overall RAT score per 100,000 movements should however be set at an appropriate level to match traffic forecasts, and we note that NERL is undertaking work at present to calibrate this metric
- 4.7. The effectiveness of the SMS is a critical component of safety as it underpins the culture of NERL, informing the ability of the organisation to operate in a safe and effective manner; we agree with its continued use in line with the European performance framework, but ask whether further development is possible and whether a moderated self-assessment process remains at the forefront of measuring the effectiveness of the SMS
- 4.8. We welcome the use of other metrics, particularly as this informs the ability of the SMS to meet emerging risks and develop plans to reduce those risks should they become unacceptable; as a result, it would be prudent for NERL to set targets or historic data for benchmarking of the measures set out<sup>33</sup>, particularly as a number of these may change through the process of airspace modernisation
- 4.9. We note NERL's comment in relation to new airspace users that "our plan contains the funding required to ensure the continued safety of commercial aviation"<sup>34</sup>; given the CAA has yet to determine charging mechanisms for those new users, and the existing user pays principle, we would be concerned if existing users were funding developments that should be paid for by those new users
- 4.10. NERL will face challenges as a result of the return of traffic volumes, and additional safety priorities are appropriate to consider within the context of ensuring NERL's SMS continues to operate effectively; as a result, greater refresher training to support traffic recovery is prudent, continued technological innovation to support airspace modernisation is critical, and consideration of new airspace users is vital
- 4.11. With regards to Oceanic safety and the introduction of ADS-B, we agree with NERL that "the safety benefit of ADS-B in 2020 cannot be isolated from the impact of lower traffic"<sup>35</sup>, and look forward to working with NERL and the CAA to best consider how this can be assessed and strengthened in future

### **Exemption days**

- 4.12. At RP3, NERL requested an increase in exemption days from 75 to 150<sup>36</sup> as a result of airspace change, and the CAA granted 100 in its proposals<sup>37</sup>, which was supported by the CMA (and reduced to 60 across the truncated three year price

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<sup>33</sup> [ibid., p6](#)

<sup>34</sup> [ibid., p1](#)

<sup>35</sup> [ibid., p18](#)

<sup>36</sup> [CMA Final report, NATS \(En Route\) Plc/CAA Regulatory Appeal, para 6.20](#)

<sup>37</sup> [CMA Final report, NATS \(En Route\) Plc/CAA Regulatory Appeal, para 6.10](#)

- control); in this business plan, NERL are again requesting 150 exemption days<sup>38</sup>, however it seems appropriate for there to be detailed rationale directly linked to the key milestones<sup>39</sup> and transitions for the capital programme during NR23
- 4.13. To better understand the appropriate level of exemption days and calibrate the incentive, it would also be useful to understand the actual usage of exemption days in the past, and what the underlying performance was even on those days when the exemption was utilised; it is not unreasonable to exempt NERL from particular measures at times of major transitions and upgrades, however those periods need to be carefully circumscribed and tailored to the likely impact of those transitions<sup>40</sup>
- 4.14. Given that airspace modernisation investments and benefits now extend into NR28, it is also not clear how there are now more transitions than were the case at RP3, particularly where some steps in the capital programme have been substantially replanned to reduce the number of implementation steps (e.g. iTEC); it would therefore be sensible for the CAA to understand exactly how NERL now define a transition and whether that definition has changed since RP3
- 4.15. Similarly, based upon NERL's request to broaden the exemption to the C2 metric, it would seem appropriate to understand whether any breaches of this metric have occurred during transitions in the past, or instead whether maintaining the incentive during a transition is consistent with its intent; it is not possible to determine this from the data in the business plan at present
- 4.16. To be clear, we are not unsupportive of exemption days, used appropriately and tailored to the circumstances of each transition; however, rather than providing a fixed, large number of exemption days, it could instead be better to liaise with airlines when those transitions are ready for rollout, and request targeted exemption based upon an agreed plan for implementation, ensuring airline customers are fully informed of the circumstances related to each situation
- 4.17. We estimate that 150 days equates to 8% of days within NR23, which may be excessive (or too few) depending upon the specific circumstances of transitions, however the existing SIP and TCAB forums could be appropriate places to seek airline approval for use of those days when the details of transitions are clearer
- 4.18. Finally, it is important to avoid double counting issues where data from days that are exempt are included in baseline data used to calibrate the incentives, since this would weaken the baseline incentive; the CAA should therefore ensure that both the correct baseline and incentive strength is developed and exempt days do not duplicate the other performance incentives
- 4.19. This is particularly important given the discussions at RP3, where NERL's proposed transition delay approach was considered "inconsistent with performance

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<sup>38</sup> [NERL NR23 Business Plan, Appendix E: Capacity, p2](#)

<sup>39</sup> [NERL NR23 Business Plan, Chapter 6, Capital Investment, p29](#)

<sup>40</sup> [NERL NR23 Business Plan, Appendix H: Capital investment programme](#)

regulation"<sup>41</sup>; furthermore, exemption days should be aligned with other adjustments that are made to C1 and C3 targets, considering the logic of the adjustments made at RP3<sup>42</sup>

### **Traffic modulation**

- 4.20. The intent of having a traffic modulation mechanism does not appear unreasonable, should it ensure that the incentive remains effective in alternate traffic scenarios; given the significant uncertainty over the pace of the recovery, it is possible that deviations from the central traffic forecast may occur during NR23, however it is important to consider what time period would trigger any such modulation, particularly if seasonality differed than in the past
- 4.21. NERL raise a valid point regarding the mechanism in place at RP3, which apparently produced impossible numbers as a result of the decline in traffic; any incentive mechanism should be tested in all plausible scenarios to ensure such unintended consequences cannot occur, ensuring the incentive remains effective
- 4.22. In addition, the use of 4% as a threshold should be consistent with other incentives across the price control – for example the traffic risk sharing scheme – such that the same underlying logic and incentive strength is consistently applied; were deviations from baseline traffic forecast to result in an inconsistent incentive, this could otherwise result in perverse incentives on NERL
- 4.23. There is a case for considering any deviation from baseline to warrant modulation, particularly where traffic reductions make performance substantially easier to achieve, and traffic increases make short term performance harder; nevertheless, there is additional complexity in doing so, which should be balanced against the need to ensure incentives are consistent
- 4.24. As noted by NERL, this modulation applies at present to the C3 metric – the impact score using weighted metrics of NERL attributable delays that captures the impact of the timing in terms of morning and evening peaks and length of delay to place more weight on long delays
- 4.25. NERL propose that this is extended to the C2 metric – the weighted impact delay score of en route air traffic flow management (“AFTM”) delays per flight from NERL attributable causes on the basis of the uncertainty in the traffic forecast; whilst there is uncertainty, the decision as to whether to extend the modulation to the C2 metric should be considered alongside changes to the TRS mechanism to ensure that the mechanics do not conflict
- 4.26. In addition, in order to better understand the request, it would be useful for NERL to provide additional information as to what issues have arisen with the C2 metric whilst it has not been modulated during RP3; extending the modulation to further

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<sup>41</sup> [CAA CAP1830, UK RP3 CAA Decision Document, para 4.39](#)

<sup>42</sup> [ibid., para 4.51](#)

metrics should be based upon analysis of an existing issue, particularly where the NR23 periodic review is already under compressed timescales

- 4.27. NERL's proposed traffic modulation formula has a significantly different multiplier in the upper and lower cases of "8" and "2" to apply to deviations respectively above and below the modulated baseline; at first glance, this could result in some interesting outcomes in volatile traffic scenarios, particularly for a traffic outcome that sits within the original band after an earlier deviation
- 4.28. Nevertheless, NERL's observation that there is an "exponential relationship between traffic and delay"<sup>43</sup> is likely to be true, except where modified by capacity improvements, and the incentive should be scaled in a way that reflects deviations from forecast in order to remain effective; however, this modulation as proposed may not work to fully address this problem whilst keeping incentives consistent
- 4.29. Furthermore, it may not be proportionate to disapply the incentive based upon a floor of 50% of the traffic forecast; depending upon other changes that are made to the incentive in order to avoid the calculation producing impossible numbers, the incentive should be effective at any traffic level to ensure minimum service is provided, learning from the anomalies that occurred during the pandemic, and only disapplied in specific circumstances where incentives are ineffective
- 4.30. As a result, the CAA would be advised to carefully study the statistical relationships referred to by NERL, and ensure that the incentive is calibrated in a way that does not result in perverse outcomes as a result of volume volatility; this is particularly relevant in the recovery period from the pandemic, where such volatility is more likely, and prior statistical relationships may no longer be as strong
- 4.31. We agree further with NERL that any changes to the forecasts will require incentives to be recalibrated, and also of the importance of the incentive mechanism, particularly to avoid "windfall gains/losses when traffic deviates from the base forecast used to determine targets"<sup>44</sup>

### **Reopener mechanism**

- 4.32. In general, we do not support reopener mechanisms for ex ante incentive regulation, since they will generally undermine the incentives as calibrated at the periodic review; it is also important to ensure that the incentives as envisaged at the periodic review remain effective, and given uncertainty, it could be argued necessary to modify incentives where they result in perverse outcomes
- 4.33. At this stage, the impact of new users (for example, space launches) will be best incorporated into the regulatory framework through the CAA's development of appropriate charging mechanisms for new users; we are concerned that a blanket re-opener for space-related activity could create a significant ex post adjustment

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<sup>43</sup> [NERL NR23 Business Plan, Appendix E: Capacity, p3](#)

<sup>44</sup> [Ibid., p3](#)

- mechanism, particularly where such launches are likely to be in more remote airspace regions
- 4.34. Furthermore, it should be possible to incorporate the impact of airspace closures of any type (space, military, royal etc) within the existing incentive definitions; in addition, it would not be an acceptable outcome for major delays to commercial flights to occur on planned launch days, and it is for that reason that a re-opener could be such a disproportionate mechanism to address such concerns
- 4.35. At heart, the issue is around the design of incentives when new airspace users are integrated and major airspace modernisation takes place; we should seek to ensure that incentives isolate the effect of NERL's actions, and design appropriate incentives around the controllable impact of NERL's operations
- 4.36. As a result, the CAA should consider instead whether incentives should be strengthened once particular airspace modernisation activities have been implemented, and it is clear that the incentives have become less effective than in the past; including the impact of new airspace users in a carefully defined manner will then ensure regulation is consistent over the control period
- 4.37. In addition, the proposed re-opener for a 50% traffic reduction could also have perverse consequences, and it will always remain more optimal to incorporate such scenarios by design in the incentive framework ex ante; it is for this reason that we would recommend any incentive mechanism is stress tested for operation in extreme scenarios, ensuring stability of the price control and avoiding the need to curtail price controls with further limited periodic reviews
- 4.38. The CAA should also consider in this vein the effect of new investments over the course of the price control, and their effect on the ability of NERL deliver service standards; it is particularly important that – where new investments facilitate greater performance – that is automatically incorporated into the incentive framework to allow consumers to benefit in a timely manner
- 4.39. It may therefore be appropriate for such incentives to be automatically linked to the major implementation milestones of appropriate capital investment programmes; where designed appropriately, this process would allow the incentive to be modified without the need for a formal re-opening mechanism, but through an agreed modification to the existing licence
- 4.40. Ultimately, we welcome NERL's proposal to engage with us on the topics raised in this section of the plan, particularly where they propose to "present evidence of anticipated impacts on our ability to deliver the delay targets"<sup>45</sup>; we welcome greater and effective engagement that allows us to appropriate scrutinise NERL's business, and ensure an appropriate level of transparency that provides context for the operation of NERL's business

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<sup>45</sup> [Ibid., p3](#)

- 4.41. We value the nature of our collaborative relationship with NERL, and fostering a quality discussion over solutions or adjustments whilst minimising the service impact only strengthens that relationship; regardless of our view on reopeners or the ultimate decisions made by the CAA in this area, we would value the opportunity to engage with NERL at this level of detail through an appropriate forum
- 4.42. Discussion of specific performance issues, understanding the causes, and working together to develop solutions is valuable, and we advocate such a forum for NR23 and beyond; that said, whilst the agenda should be focussed on problem areas of emerging issues, we do not believe that specific triggers should be the prompt for such discussions, particularly where they could be captured and addressed earlier

### **Capacity**

- 4.43. We reiterate our position, shared with other airlines, that it is critical for NERL to be in a position to meet capacity demands as the industry recovers, mirroring the priority passengers also place upon punctuality; given the compressed nature of this periodic review, it does not appear unreasonable to start from a point of considering performance outcomes based upon existing metrics
- 4.44. We therefore agree with NERL that "planned service performance outcomes are based on the same metrics and coding structure as our RP3 plan (C1, C2, C3 and C4)"<sup>46</sup>; this will ensure the periodic review is efficiently conducted and concluded, and given substantial input at RP3 including from the CMA, this appears reasonable
- 4.45. We also agree that underlying delays will increase as traffic volumes return, and in particular welcome the commitment to "improved service performance compared to historic levels up to 2023, when traffic returns to 2019 levels"<sup>47</sup>; it is particularly important that efficiency, productivity and service performance continue to rise under a regulatory price control, especially where the effect of delay is further environmental damage
- 4.46. It is our understanding that the C1 and C2 targets are EU-wide targets mandated under the EU Single European Sky ("SES"), and that C3 and C4 are UK-specific targets; we agree with NERL that it would be appropriate to maintain the current calculation methodology for each metric to ensure consistency, however the targets need to be tailored both to the traffic environment and any airspace and technology changes that occur during NR23
- 4.47. We agree with NERL that adjustments to reported delays should be made in a more timely manner through Network Manager ("NM") forums, with "sufficient granularity of data to enable accurate calculation of all capacity metrics"<sup>48</sup>; however, it would be useful to understand the extent to which delayed were

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<sup>46</sup> [NERL NR23 Business Plan, Chapter 4, Performance outcomes and metrics, p19](#)

<sup>47</sup> [Ibid., p19](#)

<sup>48</sup> [NERL NR23 Business Plan, Appendix E: Capacity, p2](#)



reattributed through the Enhanced NM/ANSP Network Measures (“eNM”) process from summer 2019, enabling the CAA to calibrate the incentives effectively

### Targets

- 4.48. Consistent with our views on incentives, it is our view that all performance incentives should be calibrated to ensure that they are both achievable and incentivise performance improvement over time, calibrated for current performance and modified for likely performance improvements driven by the capital investment programme
- 4.49. Ultimately the design of the incentive should ideally be linked to the operating expenditure required to deliver the service, and bonuses used only to incentivise areas that have a clearly identified service improvement that needs to be targeted by the regulatory regime; as a result, asymmetry over individual metrics may be appropriate where it is clear that certain behaviour should be incentivised<sup>49</sup>
- 4.50. Furthermore, it would seem appropriate that investment programmes are able to deliver improvements in performance metrics as they are delivered; the CAA should therefore scrutinise the calculations provided by NERL in proposing these targets to ensure that they do not represent a weakening of the incentive, particularly where we understand that “in RP3, the CAA set less stringent targets for NERL than in RP2, to take account of the impact of airspace modernisation”<sup>50</sup>
- 4.51. Furthermore, we note that NERL have taken “account of the expected level of transition delay generated by implementation of the capital programme milestones”<sup>51</sup>; clearly the CAA should ensure that such measurement excludes any use of exemption days to avoid double counting of the effect of those transitions
- 4.52. Furthermore, whilst the transitions themselves are important to consider when calibrating the incentive, it is relevant to consider the strength of the incentive following those transitions; given these transitions are known ex ante at this periodic review, the benefit of those transitions should also be incorporated into the price control through an adjustment mechanism

### C1: Average enroute ATFM delay per flight

- 4.53. We welcome NERL’s proposed progression of the target for the NR23 period, where this target has moved from 19.2s in 2021 and 2022 to 14.7s in 2023, then 15.3s for the remaining years of NR23; however, it is essential that the underlying assumptions in developing this target remain appropriate, and the CAA should consider whether there is scope to move this further

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<sup>49</sup> For example, see: [CMA Final report, Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations, para 7.128](#)

<sup>50</sup> [CMA Final report, NATS \(En Route\) Plc/CAA Regulatory Appeal, para 6.9](#)

<sup>51</sup> [NERL NR23 Business Plan, Appendix E: Capacity, p4](#)

- 4.54. We agree with NERL that this should incorporate the effect of transitions within the capital investment programme, and that weather delay is consistent with historic performance; however, it is not clear exactly what correlation to traffic growth has been used to calculate the metric, and whether this should be updated given performance improvements prior to and during the pandemic
- 4.55. As a result, the CAA should interrogate the historic data to understand the appropriate baseline upon which the all NR23 targets should be based, using a correlation to traffic volumes informed by the actual performance achievable, and increased to reflect performance improvements driven by capital investment

### **C2: Average NERL attributable ATFM delay per flight**

- 4.56. We also welcome NERL's proposals to improve performance over RP3 from 15s to 10.8s; noting its dependence upon the planning assumptions for DP En Route implementation contrasted with similar levels at RP2, the CAA should scrutinise these calculations to ensure they sufficiently incentivise NERL given the technology improvement over RP2 and the likely increased traffic environment
- 4.57. Furthermore, the out-turn level of penalties and bonuses at RP2 and RP3 should be considered to ensure this incentive is sufficiently calibrated at the start of NR23; in particular, the rationale for a bonus and penalty should be clearly specified to ensure the 0.05% bonus and 0.25% penalty represents the right financial incentive
- 4.58. As with any performance incentive, there should be a direct relationship with operating expenditure, and we note NERL's observation that the projected performance is also dependent upon staffing levels<sup>52</sup>; it is important therefore to ensure that when assessing NERL's training plans and any flexibility or opportunities that arise, this metric is updated to ensure consistency of incentives
- 4.59. Furthermore, there appears to be some scope for improvement in NERL's performance based upon the proposed capital plan, where an identified opportunity for performance improvement has been advertised by NERL<sup>53</sup>; this 0.7s to 1.2s improvement is expected to be delivered in NR23, and should therefore be incorporated at this periodic review
- 4.60. Finally, as previously noted, the impact of traffic variation is important to the incentive design, and should be fully understood by the CAA; a threshold of 15% (i.e. 9.2s to 12.4s band around 10.8s from 2024 to 2027) before activation of the incentive must also be calibrated to the data and the scale of the problem the price control is trying to incentivise

### **C3: Weighted impact delay score**

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<sup>52</sup> [NERL NR23 Business Plan, Appendix E: Capacity, p5](#)

<sup>53</sup> [NERL NR23 Business Plan, Appendix H: Capital investment programme, p8](#)

- 4.61. We understand that the C3 score is determined by “doubling the C2 targets (as was the case for RP3)”<sup>54</sup>; however, this starting point to establish the impact score the basis of the C2 score may need to be recalibrated, particular considering the actual C3 performance in RP2, which – with the exception of 2016 – was within or very close to the bonus performance
- 4.62. The weighting bands used at RP3<sup>55</sup>, where longer delays are more heavily penalised, does not appear unreasonable in a traffic environment similar to that of 2019, but may also need to be considered in a lower traffic environment; regardless, we agree with NERL that the aim should be to “drive optimal decision making in minimising delay in peak periods of the day”<sup>56</sup>
- 4.63. However, we note that whilst it is important that this is targeted “particularly around first rotation which is important to airline customers due to the impact on the schedules for the rest of the day”<sup>57</sup>, our business has a number of waves of activity due to operation of a hub network; as a result, it would be useful to clarify the times of the day used to weight the incentive to ensure that they are still consistent with our network expectations
- 4.64. We note that the proposed C3 targets have been rounded up when calculated as a doubling on the C2 target, which have the effect of slightly weakening the incentive; given our question above as to whether a doubling of the C2 target remains appropriate, we would suggest that regardless of whether this is recalibrated or not that the metric is calculated to the same number of decimal places as the C2 metric for consistency
- 4.65. Furthermore, it is not clear to us what the rationale is for the +/- 5s bandwidth used to determine bonuses or penalties; although we recognise this is what was used for RP3, it is important that the bandwidth is calibrated to the expected delays and historical performance such that the incentive is of consistent strength
- 4.66. As noted above, the interaction of these bands with the proposed modulation would have to be carefully scrutinised to avoid unintended consequences; it would be useful to calculate the effect of such modulation in a number of scenarios that reflected plausible volatility that might be seen during NR23 to test such a mechanism and understand whether it would undermine incentives or not
- 4.67. Finally, we understand that the bonus and penalty was recalibrated at RP3 to become 0.25% bonus and 0.75% penalty; as above, the rationale for such levels should be clearly specified to ensure this represents the right financial incentive

#### **C4: Variability of daily average delays**

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<sup>54</sup> [NERL NR23 Business Plan, Chapter 4, Performance outcomes and metrics, p19](#)

<sup>55</sup> See table at: [NERL NR23 Business Plan, Appendix E: Capacity, p6-7](#)

<sup>56</sup> [Ibid., p6](#)

<sup>57</sup> [Ibid., p6](#)

- 4.68. We understand that NERL propose to maintain the present C4 metric without change<sup>58</sup>, a measure that represents the annual sum of the weighted daily excess delay score, and designed to disincentivise major service outages; this is clearly an important metric where such outages have disproportionate impact on airline operations
- 4.69. We note that this measure was reduced from 2000 to 1800 per year from RP2 to RP3, and that historic C4 has been substantially lower than the target with previous spikes in 2016 and 2019 being far below target; it is therefore worth considering whether the target needs recalibration to match historic performance
- 4.70. This is particularly relevant given the disproportionate effect of service outages on airline operations, which clearly impact consumers directly; NERL are quite correct that there is no forward project for such events – nor should there be – but system resilience suggests that actions should be taken to ensure that the risk of such outages is minimised, particularly given the potential impact upon safety
- 4.71. In addition, the target level of 0.25% penalty should be rationalised based upon an appropriate calibration to NERL’s cost base; we note that there is significant expenditure on sustainment in NR23 as new systems are developed but are not yet operational, giving a greater level of resilience despite significant transition, which should themselves be designed to minimise any adverse customer impact

#### **Discounted options**

- 4.72. We agree with NERL that whilst the C1 metric has limitations, its continued inclusion is consistent with metrics applied to other ANSPs; given the metric is reputational without a financial incentive attached, it does not appear to be a particularly pressing priority to revisit this metric at this periodic review
- 4.73. We note that NERL have discounted the removal of military activity as reason from capture from C2 and C3 metrics due to complexity; considering space activity in future, this is not dissimilar from airspace blocks being removed due to military activity, and it is therefore worth considering the consistency of approach to assessing NERL’s performance should such activity become greater in future
- 4.74. Nevertheless, it is also worth considering that a re-opener for space activity may be unnecessary as military activity is already accommodated at present; given the close working relationship between controllers in planning such activity – which would also be the case for space activity – it is worth considering the actual level of influence held by NERL should such exclusions be reconsidered in the future
- 4.75. We agree with NERL that removal of the C4 metric would also be inappropriate; whilst a licence condition that mandates investigation of equipment failure ex post is useful, and ex ante incentive to focus the mind on ensuring that they do not

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<sup>58</sup> [NERL NR23 Business Plan, Chapter 4, Performance outcomes and metrics, p19](#)



occur in the first place is important, since it ensures forethought as systems are designed and implemented

- 4.76. Arrival delays are important to consider, and are important for customers particularly where they are trying to make tight connections through network hubs; nevertheless, we agree with NERL that “a shift to metrics based on arrival times would require change across the industry”<sup>59</sup>, particularly given this periodic review is operating under compressed timescales
- 4.77. Nevertheless, the importance of such a metric is worth considering for NR28 or beyond, particularly given the incentives to coordinate activity across Oceanic regions and with adjacent ANSPs; there is a long-term opportunity in this area to think differently with other ANSPs and airline customers and deliver what is most important to passengers and other users of airspace

### **Environment**

- 4.78. Given the UK’s legal commitments to net zero by 2050, and the commitments made by the aviation industry as a result that enable that goal to be achieved, it is particularly important that the industry continues to deliver incremental and transformational improvements to achieve those goals
- 4.79. The ability to plan and fly optimal flight paths through UK airspace is a critical contributor to reducing emissions, and means that flight efficiency is directly linked to sustainability; as a result, we support NERL’s ambitions to “achieve this through a range of measures including optimising flight paths to reduce airlines’ fuel burn and CO2 emissions and delivering airspace modernisation”<sup>60</sup>
- 4.80. We also recognise that the existing programme has worked well to ensure that NERL is incentivised to route aircraft in a manner that reduces emissions through the 3Di metric; as a result, we support the continued ambition to “achieve a reduction in 3Di, even as traffic levels grow”<sup>61</sup>
- 4.81. However, as previously noted, we do not support increasing the value of the incentive on 3Di at this periodic review; this is predominantly since – as noted by NERL – the metric “compares the vertical and horizontal path an aircraft flies with a theoretical ideal to assess efficiency”<sup>62</sup>
- 4.82. Therefore, whilst it is entirely correct to ensure that for NR23, the 3Di targets reflect “annual improvements applied which reflect assumed benefits of

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<sup>59</sup> [NERL NR23 Business Plan, Appendix E: Capacity, p8](#)

<sup>60</sup> [NERL NR23 Business Plan, Chapter 4, Performance outcomes and metrics, p20](#)

<sup>61</sup> [Ibid., p20](#)

<sup>62</sup> [Ibid., p20](#)

operational improvements and our capital investment portfolio<sup>63</sup>, since this will be reflected in “a reduction in 3Di even as traffic levels grow”<sup>64</sup>

- 4.83. However, given the theoretical ideal that supports the mechanics of 3Di, it is important to evolve 3Di and ensure its continued relevance, and we welcome NERL’s commitment to “work with airlines to further develop the metric ahead of NR28”<sup>65</sup>; this is important where 3Di operates as a “proxy measure for aircraft fuel burn and emissions”<sup>66</sup>, yet optimal flight paths change constantly based upon environmental conditions
- 4.84. As a result, in the horizontal flight plan where “3Di compares the actual distance flown by aircraft with the most direct ‘great-circle’ route possible”<sup>67</sup>, wind conditions on the day are likely to result in an efficient path that significantly deviates from a Great Circle<sup>68</sup> route; this is most stark when considering the different westbound and eastbound traffic flows over the North Atlantic to take advantage of and avoid the Jetstream respectively
- 4.85. Furthermore, in the vertical plane, ideal profiles also vary when facing real weather conditions, and where “the 3Di tool measures vertical inefficiency using the amount of time spent in level flight and how far away it takes place compared to the airline’s flight planned cruise level”<sup>69</sup>, the planned level can and does differ from the aircraft’s subsequent calculations using actual wind and temperature conditions
- 4.86. Despite this, we recognise that the 3Di metric at present places an important incentive on NERL and its controllers to try to find a more efficient routing than might otherwise be the case, and agree with NERL that it is unlikely to be able to perfect scores due to many other factors that influence operations
- 4.87. For NR23, we therefore tend to agree that the 3Di structure and calculation methodology should not be changed significantly, since a more comprehensive assessment of measuring the most efficient flight path is required, which is not possible within the time constraints of this periodic review
- 4.88. As a result of this sensible objective, the CAA should carefully scrutinise NERL’s proposed changes to 3Di both on the individual elements and the aggregate change as a package to ensure the incentive remains appropriate and consistent; the inter-relations between changes should ensure that the incentive is not unduly weakened or indeed excessive and unachievable

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<sup>63</sup> [Ibid., p20](#)

<sup>64</sup> [Ibid., p20](#)

<sup>65</sup> [NERL NR23 Business Plan, Appendix F: Environment, p5](#)

<sup>66</sup> [Ibid., p1](#)

<sup>67</sup> [Ibid., p1](#)

<sup>68</sup> A Great Circle is the section of a sphere that contains a diameter of the sphere, as set out by (Kern and Bland, 1948, p. 87), and becomes a straight line in a gnomonic projection (Steinhaus 1999, pp. 220-221); the shortest path between two points on a sphere, also known as an orthodrome, is a segment of a Great Circle ([Wolfram Mathworld](#))

<sup>69</sup> [NERL NR23 Business Plan, Appendix F: Environment, p1](#)

- 4.89. NERL is correct to raise questions over the mechanics of performance incentives, and some proposals contain elements that are both logical and could be appropriate in limited circumstances; however, the sheer number of changes proposed and the complexity of their interaction suggests that some of these proposals might be more appropriately considered at the NR28 periodic review once some stability has been restored
- 4.90. Ultimately, we agree with NERL that 3Di is preferable to the European KEA metric, and support its continued use for NR23, whilst welcoming the "need to continue to evolve 3Di"<sup>70</sup>, and NERL's desire to "work with airlines to further develop the metric ahead of NR28"<sup>71</sup>

### **3Di modulation**

- 4.91. NERL note that the effect of the pandemic has been to significantly reduce traffic volumes, and as a result allow more optimal routings; with the removal of much arrival holding, the 3Di performance was the best ever achieved<sup>72</sup>; however, a severe reduction in traffic volumes was clearly the result of an external influence, and rewarding volume variations through 3Di does not appear consistent with the intent of the incentive
- 4.92. The statistical relationships between the data therefore need careful interpretation, and those portrayed in the regressions<sup>73</sup> scrutinised, particularly where the outputs are used to determine the proposed modulation; this could have an important bearing on the strength and effectiveness of the incentive and may require specialist independent statistical expertise as a result
- 4.93. It should of course be noted that  $R^2$  is the coefficient of determination, representing the proportion of the variation in the dependent variable that is predictable from the independent variable, or the "goodness of fit"; the exact interpretation depends upon the type of regression performed, and certain caution by the CAA in interpreting  $R^2$  is required as it is depending upon judgements taken to build the hypothesis, in particular the number of variables included
- 4.94. NERL's interpretation shows that, up until the start of the pandemic, changes in traffic volume were unrelated to 3Di score, with a  $R^2$  value of 0.05 between two data sets containing 2018 and 2019 to March 2020 data; however, 3Di data extends back to 2006<sup>74</sup> and it is not clear why these particular time periods were chosen
- 4.95. Furthermore, It is not clear why the second regression with an  $R^2$  value of 0.80 is performed with the 2018 data excluded, and where time series trends and sample

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<sup>70</sup> [Ibid., p5](#)

<sup>71</sup> [Ibid., p5](#)

<sup>72</sup> [Ibid., p2](#)

<sup>73</sup> [Ibid., p3](#)

<sup>74</sup> [NATS Fuel Efficiency Metric, 6<sup>th</sup> January 2012, p3](#)



- sizes restrictions are an important inflator of  $R^2$  values in regression analysis, this is an important consideration; data used for regressions should be consistent, particularly as the  $R^2$  value seems abnormally high in the second analysis
- 4.96. This might suggest either that the relationship is not linear, or that other factors are also relevant such as collinearity<sup>75</sup>; regardless of the reason, it is likely to be useful to incorporate more information from after June 2021 and prior to 2018, particularly as the current traffic recovery taking place in 2022 will provide useful additional information as to the relationship between volumes and 3Di scores
  - 4.97. Indeed, the original research from NATS<sup>76</sup> summarises a number of key external factors, in addition to traffic levels, such as type of flight, weather, runway in use and holding; the change in mix of flights could for example be a more important predictor of performance, as might controller workload itself, rather than number of daily Air Traffic Movements ("ATMs") in isolation
  - 4.98. Intuitively, the CAA should be trying to minimise the possibility that the 3Di incentive is achieved through effects other than NERL's own efforts and we agree with NERL that the CAA should aim to avoid "windfall gains/losses when traffic deviates from the base forecast"<sup>77</sup>; however it seems difficult to conclude that "every 100,000 "change in traffic movements p.a. leads to a change in 3Di of 0.5 points"<sup>78</sup> from the analysis presented as this was not the case in 2018 and 2019
  - 4.99. As a result, the proposed modulation would significantly weaken the incentive at traffic volumes at the low end of those seen in 2018 and 2019, and where adjusting the target in year n+1 based upon traffic deviation in year n, cause a weakening of the incentive in the year after a traffic decline, rather than modulating the incentive when the decline actually occurs
  - 4.100. With a trigger set at 100,000 flights per annum away from base forecast, this would represent a 3.9% variation from 2019 traffic levels of 2,560,000 UK flights, therefore only small deviations can trigger a modulation rather than the extreme changes that were problematic in the pandemic; this risk creating instability over the incentive, with inconsistent strength compared to actual volumes
  - 4.101. A better method may instead be to modulate the incentive to pre-set levels based upon out-turn traffic volumes, therefore NERL will know ex ante the consistent effort that has to be applied to achieve the incentive and varying traffic volumes would not affect the consistency of the incentive; were this established in a non-linear manner for every 10,000 increment of traffic, this could present a more effective way of modulating the incentive whilst keeping it consistently strong

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<sup>75</sup> [Farrar, Donald E.; Glauber, Robert R. \(1967\). "Multicollinearity in Regression Analysis: The Problem Revisited", Review of Economics and Statistics. 49 \(1\): 92–107](#)

<sup>76</sup> [Ibid., Section 5](#)

<sup>77</sup> [NERL NR23 Business Plan, Appendix F: Environment, p3](#)

<sup>78</sup> [Ibid., p3](#)

- 4.102. Furthermore, it may be appropriate to narrow the dead band as traffic volume falls, instead basing it upon percentage deviation from a central volume, but ensuring that it maintains a consistent incentive on NERL were volumes to fall again in any future scenario; otherwise fixed value dead bands also risk being less meaningful at lower volumes
- 4.103. In addition, the CAA should carefully consider the logic of any modulation in comparison to the TRS mechanism that also operates over NERL's price control; anomalies may result where such modulation is inconsistent with that in place for the main TRS, and the incentive may therefore become inconsistent with the remainder of the price control

### **3Di reopener mechanisms**

- 4.104. NERL is not incorrect to suggest that 3Di scores can be influenced by other external factors, which may inappropriately strengthen or weaken the incentive over time; nevertheless, it is the intent of the periodic review to recalibrate incentives in the round across the whole price control, and where reopeners are used on specific areas in isolation, this could risk an imbalance in the price control
- 4.105. For example, many of the areas noted by NERL as having potential impact will also have bearing on the operating expenditure incurred; without also recalibrating operating expenditure, the charges risk become inefficient with an incentive whose quantum or strength is not calibrated to the underlying issue that is the focus of the service outcome incentives
- 4.106. Furthermore, such changes may also require a period of data collection to ensure they are recalibrated in an intelligent manner, further reinforcing the intent of a five yearly periodic review to properly fulfil that function; given the intent of NR23 to recalibrate the price control in a compressed time period, we are not fully convinced that reopeners as suggested are required at this time
- 4.107. There are further considerations that also warrant similar treatment, such as the effect of new technology implemented through capital investment, where capability may be improved; as a result, new investments should be considered for their effect on the incentives, and adjusted if required to reflect any weakening of the incentive, perhaps at existing TCAB and SIP forums where exemption days could also be considered during transitions (see above)
- 4.108. In addition, operating expenditure would likely fall as new technology and airspace modernisation projects are implemented, and simply re-opening 3Di or other performance incentives in isolation could result in gross inconsistencies in the incentive across other building blocks of the price control
- 4.109. The NERL proposal is also too broad as currently worded, and whilst we agree there should be open dialogue concerning "evidence of the impacts of non-NERL events on our ability to deliver the 3Di target and to consult with customers about

solutions/adjustments"<sup>79</sup>, an automatic reopener mechanism could have unintended consequences should NERL so broadly "seek either an adjustment to the individual flight scores/data affected, an adjustment to the aggregated 3Discore, or an adjustment to 3Di target"<sup>80</sup>

- 4.110. A more appropriate mechanism might therefore be a self-modification provision in the licence that operates subject to airline approval at appropriate consultation; in the absence of a standing CCWG, airline consultation and agreement might be complicated to achieve, therefore the CAA should consider what its role might be to ensure consistent incentive properties under any such proposed changes
- 4.111. In a similar vein, the proposed call-in process<sup>81</sup> should be appropriate to avoid undue complexity and/or repeated small and immaterial requests for adjustment; where the incentive is broadly effective, changes of the order of 2% seem onerous to alter through an incentive mechanism, in contrast to an ex ante adjustment mechanism that has pre-calibrated incentives at – say – different traffic volumes
- 4.112. Given NERL propose a mechanism allowing them to present evidence to adjust incentives, it might also be appropriate that airlines also have similar rights to proposed adjustments to performance incentives where they are no longer effective or demonstrably weaker than envisaged at the periodic review; as above, it is not clear how this might be managed, potentially disadvantaging airlines and customers when the incentive has weakened

#### **Narrower dead bands**

- 4.113. Given NERL's proposed logic of dead bands, based upon "the level of uncertainty seen in the historical data caused by traffic volume and unanticipated events"<sup>82</sup>, it might appear reasonable to consider a tighter dead band now substantial data has been collated and entirely separate from NERL's other proposals for reopener mechanisms and modulation
- 4.114. We agree with NERL that a percentage-based dead band is more intuitive, as this would ensure consistent incentive strength at different baselines for the incentive; however the incentive could also be sharpened by considering the gradient of the incentive once applied beyond the dead band
- 4.115. Ultimately, it is important to understand how the incentive would operate, what is truly achievable by NERL and needs to be incentivised, and equally what should be disincentivised under the performance incentive; narrowing the dead band would equally make it easier to achieve outperformance, and therefore needs careful consideration by the CAA to incentivise the right performance

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<sup>79</sup> [Ibid., p4](#)

<sup>80</sup> [Ibid., p4](#)

<sup>81</sup> [Ibid., p4](#)

<sup>82</sup> [NATS Fuel Efficiency Metric, 6<sup>th</sup> January 2012, p20](#)

### **Non-revenue flights**

- 4.116. Engineering test flights and other types of non-revenue flying could clearly have a distorting impact on 3Di data, particularly where such flying comprises non-standard operations; base training flights would – for example – be conducted at low levels to allow flight crew to practice multiple approaches, and test flying may require prolonged flight at lower than typical altitudes
- 4.117. As a result, NERL’s request to remove such data from the 3Di score in their entirety might not appear unreasonable; nevertheless, it would be irrational to apply to positioning flights that still require the most efficient service from NERL, and the CAA should consider whether the removal of some categories of non-revenue flying might weaken the incentive inappropriately
- 4.118. However, once any such exclusion is determined, NERL’s proposal to fully exclude from the data some flying that would not be appropriate to incentivise does not appear unreasonable, as that would appear to ensure that the 3Di metric is applied only to those flights where NERL has influence over the optimal efficient flight path
- 4.119. To consider this further, it would be useful for the CAA to understand exactly what categories of non-revenue flying result in disproportionately large impacts on the 3Di score, and consider what is happening to each of those categories that result in a perverse incentive that should be corrected in the data

### **NR23 targets**

- 4.120. In order to contribute towards the decarbonisation of aviation and achieve the net zero targets for 2050, it is appropriate that ANSPs contribute to that goal by aiming for greater performance; it is therefore appropriate that NERL continues to aspire to improved 3Di metrics over time, and ratchets those targets over the course of NR23 resulting in an improved 3Di target each year
- 4.121. There is likely to be considerable complexity in determining an appropriate annual improvement rate, and the CAA should ensure that the 4.4% calculation (or 0.29% per annum)<sup>83</sup> does not represent improvements achieved by efforts other than those of NERL; for example, airspace modernisation improvements that result in significant performance improvements should be considered separately from the targeted improvement rate
- 4.122. As a result, it would be most appropriate to apply such a reduction to the 3Di performance after considering the effect of capital investment projects and airspace modernisation, ensuring that the performance challenge is appropriately targeted at NERL’s operational contributions to 3Di performance improvements

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<sup>83</sup> [Ibid., p6](#)

- 4.123. Whilst we agree with NERL that the focus should be a “sustainable reduction in 3Di scores”<sup>84</sup>, it is worth considering previous 3Di targets for comparison purposes; these show that a sustained decrease over each control period from 29.1 to 27.1, then 27.8 to 26.7 over RP2 and RP3 respectively<sup>85</sup>, and this therefore suggest that despite a lower starting point for traffic in 2023, NERL’s proposed targets of 28.0 to 27.6 over NR23 may not be calibrated to the same strength
- 4.124. Considering the lower and faster reducing 3Di scores targeted by the CAA at RP2 and RP3, along with the lower traffic environment at that time, it appears the cumulative 4.4% reduction target for sustainability purposes might be weaker than the CAA’s previously proposed performance improvements
- 4.125. Without studying the detailed modelling, this is also difficult to reconcile with the statement that the “do-nothing forecast assumes ongoing continuous improvements to the score which are yet to be identified, and become harder to achieve as we approach the frontier of efficiency”<sup>86</sup>; the CAA must therefore carefully scrutinise any claim of stretch embedded in NERL’s proposals to ensure that they are appropriately calibrated
- 4.126. Given forecast traffic growth at RP2 and RP3 would likely have also put similar pressure on the score in a do-nothing scenario to the 1.2 points calculated by NERL for NR23<sup>87</sup>, it is not clear that the proposed 0.29% per annum performance improvement target is consistent with the performance improvement challenge at previous periodic reviews
- 4.127. It appear the NERL machine learning model<sup>88</sup> could provide useful input as to the actual performance likely to occur in different traffic scenarios; this model could therefore be incredibly useful for calibrating the incentive, particularly if it can forecast more accurate baseline 3Di performance than the linear modulation based upon regression analysis proposed for modulation on which we comment earlier, for which this model may provide better insight for a modulation, if implemented
- 4.128. This machine learning model appears to develop baseline performance considering the effect of traffic and the existing limitations of airspace; the CAA should consider how this model has been developed to ensure that assumptions – including those within the holding algorithm – capture known changes in airport operations and CAP1616 airspace changes that might drive holding activity in NR23
- 4.129. Further, given the granularity at which the model operates and the additional 0.29% per annum performance challenge incorporated, it may also be appropriate to ensure the incentive is specified at the appropriate number of decimal places;

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<sup>84</sup> [Ibid., p6](#)

<sup>85</sup> [CMA Final report, NATS \(En Route\) Plc/CAA Regulatory Appeal, table 6-3](#)

<sup>86</sup> [NERL NR23 Business Plan, Appendix F: Environment, p6](#)

<sup>87</sup> [Ibid., p6](#)

<sup>88</sup> [Ibid., p6](#)

rounding to one decimal place may result in an inaccuracy that could have a material effect, considering the scale of the numbers involved

- 4.130. It is important that benefits deriving from known capital investments are also incorporated into the 3Di target; this is particularly important where NERL note a “combined impact from the proposed portfolio is expected to improve 3Di performance by up to a maximum of 2-3 points”<sup>89</sup>; it is not clear how this has been factored into NERL’s proposed 3Di targets when compared to a do-nothing level
- 4.131. Finally, we note NERL’s discounted options contain a number of potential changes that would likely benefit 3Di scores, particularly where emissions become more important than noise as measured at a distance from airfield, and where re-design is initiated through the CAP1616 process; whilst flight efficiency is limited by procedure and airspace design, we would challenge the statement that “NERL has no effective means of influencing horizontal flight efficiency below 7,000ft”<sup>90</sup>
- 4.132. Nevertheless, we agree that for these areas “the potential impacts still remain emergent and, for now, unclear in terms of materiality”<sup>91</sup>; given the intent at NR23 to recalibrate the incentives and ensure the update is as simple as possible it does not appear prudent to address such factors at this stage

## Conclusion

- 4.133. Performance incentives are important for any price control to ensure that the regulated company is appropriately incentivised to deliver service outcomes to the standard envisaged at the periodic review; as a result, the CAA must carefully scrutinise NERL’s proposals to ensure that they maintain the appropriate incentive throughout the control period, neither being too stringent nor too lax, and targeting performance outcomes that are in the control of the NERL
- 4.134. We support the continued measurement of safety against a range of metrics, and NERL’s proposal to continue to follow the European Risk Assessment Tool (“RAT”) scheme complemented by other measures during NR23; the effectiveness of the SMS is a critical component of safety as it underpins the culture of NERL
- 4.135. Whilst we support the limited use of exemption days, it is not clear to us how the proposed allowance is calculated, and what historic usage and underlying performance during transitions has been; it is important that this is consistent with performance regulation, and there may be a case for an enhanced airline role in approving and monitoring the use of such exemptions
- 4.136. Traffic modulation, if pursued by the CAA, should seek to ensure the incentive remains consistent in different out-turn traffic scenarios and that its interaction with other mechanisms such as TRS is appropriate, and the CAA should carefully

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<sup>89</sup> [ibid., p7](#)

<sup>90</sup> [ibid., p8](#)

<sup>91</sup> [ibid., p8](#)

consider the evidence for both modulation and whether the proposed re-opener mechanisms ensure that the incentive is consistent rather than creating one-way bets, measured appropriately in the cost of capital; regardless we welcome greater discussion with NERL should issues or new evidence arise through appropriate forums

- 4.137. The CAA should scrutinise NERL's proposals for capacity-related targets to ensure they are consistent with the evidence provided, and measurements are updated where appropriate; given the nature of this periodic review, more substantial updates to the metrics are best considered at NR28 when more time will be available to redesign aspects of the incentive
- 4.138. Environmental targets are under increased scrutiny in order to allow aviation to meet its obligations toward net zero by 2050, and whilst 3Di remains the best available metric at present, we recognise that it should be further developed in future to support optimal flight management; NERL propose a number of changes to 3Di, including modulation, re-openers and narrower dead bands, and it is not clear that the resulting targets fully capture the appropriate challenge and capital investment benefits, which the CAA should scrutinise in depth

## 5. Service delivery

- 5.1. Operational resourcing is undoubtedly related to service performance outcomes, particularly where controller resourcing and workload have a direct bearing on NERL's ability to deliver more optimal flight paths; nevertheless, NERL's plans should be fully scrutinised by the CAA to ensure that they are consistent, and operating expenditure is no greater than necessary to deliver the service required
- 5.2. We agree with NERL that resourcing should aim "to match the supply of controllers to reasonable projected demand levels to provide a safe operational service of the right level of performance, sustain the operation and support the investment programme"<sup>92</sup>; we agree further that NERL should seek to ensure resilience in its operation, and ensure it has sufficient flexibility to meet demand for its services
- 5.3. Given's NERL already have "an established process to forecast the number of Air Traffic Controllers ("ATCOs") that we require for a safe operation of the right service quality and resilience"<sup>93</sup>, we expect NERL to have a strong understand of the headcount requirements when combined with non-operational demand
- 5.4. However, the CAA must ensure that such modelling has incorporated any changes to operational planning that have evolved during the pandemic; for example, where a different approach to validations increases flexibility, this must be incorporated into the modelling to ensure operational headcount requirements are not greater than necessary based upon known changes at this periodic review

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<sup>92</sup> [NERL NR23 Business Plan, Appendix G: Operational Resourcing, p1](#)

<sup>93</sup> [ibid., p1](#)



## Supply planning

- 5.5. It is important that the CAA fully understand the supply projections that sit at the heart of NERL's resourcing plan, and can validate these assumptions as being reasonable, appropriate, and consistent across the price control; as with other aspects of the price control, the incentive must be achievable, and neither too stringent nor ineffective to ensure controller resourcing is appropriate
- 5.6. We note that operational demand is based upon the STATFOR October 2021 base traffic forecast at present; given this forecast will be updated twice in 2022, this element of the resourcing plan should be updated consistently across the price control, ensuring that updated plans can meet the latest forecast demand
- 5.7. Operational supply assumptions should be consistent with the shift patterns that are planned for operational staff, including those undertaking training, business development or management activities; this is particularly important where NERL's plans include greater synthetic training activity, which is likely to reduce the requirement for training ATCOs and potentially raise productivity
- 5.8. Retirement forecasts are a key driver of the resourcing plan and appear to be the area of greatest opportunity to enable NERL both to meet the forecast traffic demand and mitigate the effect of the pause in ab initio training; given the relatively low retirement age at present<sup>94</sup>, it is essential that NERL makes every effort to find ways in which it can raise the typical retirement age
- 5.9. This is not dissimilar to the position some airlines faced when retirement ages below age 65 were abolished, after an earlier retirement age of 55 or 60 was deemed to be age based discrimination; as a result, certain airlines saw a rapid rise actual retirement age, despite initially expecting little change in retirement profile
- 5.10. As a result, it is important that NERL consider what additional incentives it can put in place to avoid particularly high levels of retirement, drawing upon approaches taken in other industries; in particular, a key enabler of later retirement has been the provision of part time options in the run-up to statutory retirement, and considering the number of operational shifts undertaken by ATCOs fulfilling non-operational tasks could inform an approach for part-time options
- 5.11. This also appear to offer an opportunity for further operational resilience, where flexible retirement options allow NERL to retain scarce skills whilst facilitating a gradual wind-down in the run-up to retirement; we urge NERL and the CAA to consider creative options to avoid a wall of retirement that precludes an ability to meet upside demand scenarios in NR23 and beyond
- 5.12. It seems appropriate to model other reductions in operational headcount based upon past experience of medical loss or resignations; nevertheless, it is important

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<sup>94</sup> [Ibid., p2](#)

that the historic statistics are not unduly influence by retirement figures; given that there is no particular differentiation between a retirement and a resignation, that a loss of medical near retirement might be classified as a retirement, and that such medical losses may not preclude other work (such as training) when skill availability is limited, it remains important to model appropriately

- 5.13. ATCO validations are a central part of the modelling that NERL undertakes to determine its ability to meet demand through its resourcing plans; changes in approach to validations or changing regulatory requirements from the CAA may also impact validations, and it is important that NERL is incentivised to find more flexible approaches to validation over time, within the confines of safety
- 5.14. We welcome NERL's approach to reduce the time taken for a trainee to be fully validated upon arrival at unit from 21 to 15 months as a result of the training transformation programme; in addition, it would be valuable to compare the training footprint to that in other ANSPs to consider what further efficiencies might safely be achieved, also looking forward to airspace modernisation when complexity of the London airspace controlled by Swanwick is reduced
- 5.15. Furthermore, it would be useful to study greater detail on the cost of these changes and the actual benefit in terms of incremental ATCO numbers delivered throughout the period of the plan from this aspect of the supply plan; the business plan does not otherwise appear to isolate the effect of this on the overall supply
- 5.16. Trainee pass rates should also be scrutinised to ensure that whilst simultaneously reducing the time to fully validate new ATCOs, the rise in the pass rate is compatible; given the significant improvement indicated by NERL in this business plan for NR23, it would be useful to understand what new conditions have occurred that have allowed this transformation that previously precluded such initiatives
- 5.17. Since it is important that the price control represents an efficient operation, we particularly value NERL's efforts in this area to drive greater efficiency; where possible, similar efforts should be applied to the training college, particularly where greater efficiencies might be achieved than were previously the case
- 5.18. Nevertheless, it remains important to consider whether operation of the training college should remain in house or not, and if there are further opportunities to influence the resourcing plan through its operation; for example, opportunities to mitigate the effect of retirement through offering ATCOs nearing retirement the opportunity to teach in the college could foster useful flexibility whilst ensuring costs are efficiently scaled to the training requirement at the time
- 5.19. Finally, the overtime assumptions used should be both realistic and the most cost effective option for achieving the resourcing plan; given other areas use five years of data, it may be prudent to consider whether overtime uptake is best linked to that in 2019, or should instead be a five year average, or even differ entirely due to changes in update behaviour

- 5.20. In addition, it may be useful to link the overtime assumption to forecast levels of sickness, which could decline if the age profile of the workforce begins to decline in future; it would also be useful to clarify whether the 15 FTEs of overtime contained within the plan is consistent with the statement that “we have not assumed a level of overtime within our long-term resource planning to deliver the operational service”<sup>95</sup>
- 5.21. We remain concerned that the STATFOR October 2021 high case traffic “equates to a demand of at least an additional 80 controllers above the base in all years of NR23”<sup>96</sup>, and “should demand accelerate to this level, increasing supply to this extent through training new controllers will not be possible”<sup>97</sup>
- 5.22. We are particularly concerned that the proposed resourcing plan will result in inadequate supply of ATCOs in summer 2023 and summer 2024, and to a lesser extent in summer 2025 for demand based upon the STATFOR October 2021 base case; in particular, should traffic be closer to the high case, there appear to be significant implications for service outcomes, raising costs as suggested by the Eurocontrol analysis
- 5.23. Given the reality that NERL’s plans claim to “already maximise available capacity to recover the lost progress from the enforced 13 month suspension of unit training activities and two-year closure of the training college in response to Covid-19”<sup>98</sup>, it is of critical importance to continue to find additional flexibility to provide resilience in the event that greater traffic volumes arise
- 5.24. NERL’s view is that “managing high case traffic demand while continuing to commit the required resource to sustain the operation and support the investment programme is very likely to lead to service quality being degraded”<sup>99</sup>; however, it is important that the CAA carefully scrutinise the plan and calibrate performance incentives to ensure that they reflect the actual effort required
- 5.25. Particularly where NERL propose narrower dead bands in some performance incentives, were service quality metrics in fact easily met when increased volumes occur, it would be a poor outcome of regulation if those performance incentives readily rewarded NERL; equally, regulation should seek to incentivise NERL to find additional efficiencies and innovate to meet capacity demands if it were in fact very difficult to otherwise meet additional demand above the base case
- 5.26. As a result, the consequences of the proposed modulation need to be carefully considered, since the addition C2 capacity score of 5 to 7 seconds per flight would represent a significant degradation in performance; the CAA should seek to ensure

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<sup>95</sup> [ibid., p2](#)

<sup>96</sup> [ibid., p3](#)

<sup>97</sup> [ibid., p3](#)

<sup>98</sup> [ibid., p3](#)

<sup>99</sup> [ibid., p3](#)

the incentive remains effective at any out-turn traffic volume and consider whether other adjustment mechanisms may best achieve that objective

### Training

- 5.27. We welcome NERL's restart of its initial training programme for new ATCOs in February 2022 "ensuring that the next cohort of trainees will arrive on unit as seats become available for on-the-job training, thereby minimising the risk of bottlenecks in the system"<sup>100</sup>; whilst we reiterate our earlier comments on opportunities for restructuring this element of training, we recognise that there are limited options in the short term for ensuring a flow of new trainees to meet demand
- 5.28. We welcome the initiatives taken in the training transformation programme to "reduce the duration of unit training and increase success rates in both the training college and unit training"<sup>101</sup>; we further agree with NERL that "given the volume of new controllers required in NR23 and NR28, assuring the resourcing pipeline through effective, efficient and evolutionary training is critical"<sup>102</sup>
- 5.29. Synthetic training can offer significant efficiencies, particularly where they result in reduced use of critical resources in an inefficient manner, and deliver more targeted and therefore more effective training in a more efficient manner; we are therefore not averse to investment in such facilities if they are demonstrably strong investment opportunities that raise output quality and increase efficiency
- 5.30. NERL propose a "£15m investment in training and synthetic capability to establish a training academy at our Swanwick centre to deliver initial and unit training"<sup>103</sup>, and the stated benefits are certainly appealing where they could contribute to meeting demand in NR23; however, there remains insufficient information to assess this initiative at this stage
- 5.31. The CAA should therefore ensure that NERL has sufficient definition of such a programme to include in NR23, and that the benefits stated can both be delivered in time to be incorporated into the supply plan; given this is not yet defined at TCAB, this may be a challenge, but NERL should endeavour to do so as it appears to be a strong opportunity to raise supply and efficiency
- 5.32. Such a programme is a good example of where capital efficiency incentives may be an appropriate future development for the NERL regulatory framework; it is difficult to otherwise hold NERL accountable for the stated benefits and timing of delivery, and whilst we have strong confidence in NERL's management capability, investment should not come without appropriate challenge and scrutiny

### Productivity improvements

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<sup>100</sup> [Ibid., p4](#)

<sup>101</sup> [Ibid., p5](#)

<sup>102</sup> [Ibid., p5](#)

<sup>103</sup> [Ibid., p5](#)

- 5.33. We welcome NERL's strong performance in productivity, which has "been trending upwards in the decade since 2010"<sup>104</sup>, particularly since this productivity has been "consistently at or very close to the best in our comparator group, and among the best in Europe"<sup>105</sup>; it is therefore appropriate to consider whether the NR23 supply plan should continue to be aligned to maintaining flights per ATCO managed in 2019, or whether this should instead factor in continued productivity growth
- 5.34. Establishing the relationship between productivity and traffic volume should reveal the extent to which underlying productivity improvements themselves contributed to such rising scores, and the CAA should validate such assumptions in the supply plan to ensure they are both robust and baselined appropriately; this is particularly relevant to ensure incentives are not inadvertently weakened
- 5.35. The CAA should also seek to understand how ATCO validations are increased as they become more experienced, and how such upskilling has been incorporated into the supply plan; given that controllers with more validations are inherently more flexible and therefore more efficient, it would be instructive to understand whether this has been considered as an additional opportunity or already feeds into the supply planning process

### **Conclusion**

- 5.36. We are concerned that the proposed resourcing plan will result in inadequate supply of ATCOs in summer 2023 and summer 2024, and that there appears little scope to meet demand should traffic rise to levels above the Eurocontrol STATFOR base case without significant degradation in service quality
- 5.37. As a result, the CAA should scrutinise the supply plan in depth to ensure that assumptions reflect changes resulting from restructuring, and that opportunities are identified to further raise productivity and maintain resilience; in particular, NERL should seek to find incentives for ATCOs to remain in role for longer and achieve greater flexibility with validations
- 5.38. It is clear that there is little spare training capacity now available, and that NERL is acting to increase ATCO numbers; we welcome the intent of the additional investment in synthetic training, though need to see further information on how this could impact training efficiency and when it might be delivered

## **6. Capital investment**

- 6.1. We recognise that the pandemic has created a significant challenge for NERL's investment programme, with a substantial change in the programme required; as a result, the reduction in expenditure along with an extension of delivery timeframe

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<sup>104</sup> [Ibid., p6](#)

<sup>105</sup> [Ibid., p6](#)

has been offset in NERL's plans through an increase in expected sustainment costs of legacy equipment

- 6.2. Sustainment is clearly a critical leg of the capital investment programme, since maintaining resilience and redundancy of existing assets allows NERL to deliver its high quality service to the highest safety standards; nevertheless, the logic underpinning this level of costs needs to be carefully scrutinised to ensure it is both appropriate and realistic
- 6.3. Technical transformation is important for delivering modern technical solutions, and is essential for providing the resilience and capacity for future growth; this is particularly important as an enabler for airspace modernisation, and we continue to support the re-profiling of delivery as articulated at the SIP forum
- 6.4. It is important that NERL continues to enable airspace modernisation, allowing the industry to become more efficient and removing unnecessary emissions from the atmosphere; ultimately, we understand that NERL's investment in new system architecture to be one of the key requirements to deliver the full potential benefits

### **RP3 to NR23 plan**

- 6.5. We agree that the pandemic forced hard choices on NERL, and that "changed our original investment plans and reduced our costs in RP3 to ensure we remained financeable, not only to reduce cost pressure on our customers but also to ensure we could meet our licence requirements"<sup>106</sup>; and we recognise that the £230m reduction during the pandemic has resulted in an elongation of investment plans alongside a total cost rise from £769m to £864m over that longer time horizon
- 6.6. For the DP Enroute and Voice and common platform programmes, it would be useful to understand where the common platform solution could be more efficient, particularly where this is delivered alongside partner ANSPs; the CAA might seek to understand how those partners have been able to reprofile or change delivery given the common experience during the pandemic, and what further efficiencies may exist
- 6.7. For sustainment, it is challenging to understand how the estimated costs have been derived, and why there is such an increase in those costs particularly in 2024 from earlier years where presumably the same systems have been under sustainment; in addition, the CAA should test the assumption that a complete renewal of surveillance assets is required, considering whether NERL has studied any alternative delivery mechanisms that may exist
- 6.8. It is important that airspace and operational change enhancements correspond to the Airspace Change Organising Group's ("ACOG") ability to deliver focused upon the higher priority areas; despite the reduced expenditure, the CAA should ensure

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<sup>106</sup> [NERL NR23 Business Plan, Appendix H: Capital investment programme, p3](#)



that benefits flowing from this investment that results in improved performance or reduced operating expenditure is also reflected in the price control

### Investment portfolio

- 6.9. NERL's portfolio planning approach to capital investment priorities appears to offer advantages in terms of greater agility and responsiveness to changing circumstances, and the pandemic has demonstrated how the investment profile might change as a result of changing circumstances; we support NERL's continued development of this framework along with the proposed 2+5 approach
- 6.10. The framework goes a long way to providing clear and consistent objectives for each programme, and we would advocate that each programme is further described in terms of specific, measurable, attainable, relevant and time-based criteria where possible, if nothing else to aid clear understanding of how each programme contributes to NERL's overall strategic direction
- 6.11. Furthermore, given the programme approach is flexible, it may be valuable to understand how each programme individually contributes to the stated service performance benefits<sup>107</sup> in a manner similar to that set out for safety performance by programme<sup>108</sup>; therefore should timescales change again in future, the implications for customers in service performance could be clearer
- 6.12. NERL's approach to risk and contingency of less than 8% of the total does not appear unreasonable given its detailed knowledge and expertise of the underlying programmes; nevertheless it would be prudent for the CAA to ensure that customers are not exposed to unnecessary cost escalation risk and that NERL is appropriately incentivised to prevent such a situation arising
- 6.13. Consistent with our feedback through the SIP process, we continue to support NERL's prioritisation and the major enhancements planned for NR23; however, whilst we agree that there are "interdependencies within the portfolio" that "help to achieve the right balance of resilience and benefits"<sup>109</sup>, the CAA should further scrutinise plans to ensure that they are planned as efficiently as possible
- 6.14. We note the expectation that "the deployment of DP En Route & Voice will eventually enable reduced investment on 33 of our current assets after 2024"<sup>110</sup>, however considering operating expenditure<sup>111</sup> do not see that occurring until some period in NR28; it may be useful to better understand the operating expenditure implementations of each major investment programme as a result

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<sup>107</sup> [Ibid., p8](#)

<sup>108</sup> [Ibid., p9](#)

<sup>109</sup> [Ibid., p10](#)

<sup>110</sup> [Ibid., p13](#)

<sup>111</sup> [NERL NR23 Business Plan, Chapter 6, Capital investment, p32](#)



6.15. It is difficult to benchmark investment rates between businesses that are particularly unique and subject to different regulatory regimes; nevertheless, in the long term, we would expect aggregate investment to be relatively constrained as a result of the pandemic, and tailored to the specific priorities required for NR23, and any anomalies such as the spike in 2023 property investment costs<sup>112</sup> should be well understood by the CAA

### **Programme areas**

6.16. NERL provide a useful overview of the major programme areas, alongside the benefits, costs and risk of each; these do not appear unreasonable, and the CAA should validate these estimates by reference to those presented at RP3, considering the revised rationale and timescales for NR23

6.17. To avoid duplication of our input through the SIP and TCAB processes, we do not intend to comment significantly on the other programme areas, with the exception of the following questions below; where any further questions arise that are relevant to the periodic review, we shall aim to raise those as they come up

6.18. Sustainment and surveillance:

- Should faster development occur on the common platform, it would be useful to understand how this could reduce NAS sustainment costs, or whether these are relatively inflexible even where NAS is used for smaller areas of airspace;
- It would be useful to understand how the costs of maintaining cyber security protection have evolved throughout RP2 and RP3, and whether those remain as relevant when moving to the common platform and different architecture;
- What level of sustainment is required for the 155 systems in operation, and how does that scale when 33 are retired after the deployment of DP En Route & Voice in 2024;
- How do information systems differ from the aforementioned 155 systems in operation, and what service obligations do these refer to in the NERL licence;
- Are UHF radio replacement costs covered by the contract with the UK Ministry of Defence, and are there synergies with VHF radio replacement from which customers can benefit by changing both at the same time;
- Should CAP1616 airspace change processes be delayed, what is the contingency plan for the removal of dependencies on DVORs;
- Is the provision of primary and secondary surveillance radar ("PSR") and ("SSR") driven by particular airspace or regulatory requirements, and are there synergies with any change to the Lower Airspace Radar Service ("LARS");

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<sup>112</sup> See chart at [NERL NR23 Business Plan, Appendix H: Capital investment programme, p13](#)

- Does fix on fail present any additional risks to the capital estimate, or does NERL envisage returning to a risk-based approach to sustainment during NR23

#### 6.19. DP En Route & Voice:

- Is the transition into operational service “which will place a demand on controller resource late in 2023 and through 2024”<sup>113</sup> compatible with the resourcing plan set out previously;
- As mentioned above, it would be useful to see the impact on sustainment of the replacement of the 33 systems referred to through this programme;
- What further cost savings are possible through procurement through the iTEC collaboration to reduce development costs in future

#### 6.20. Common platform:

- What risks and opportunities are there with partners ANSPs through the development programme referred to, and what is the framework agreement that supports the collaboration;
- When do partner ANSPs plan to transition to iTEC v3 product, and is there co-dependency on when they do so that informs the planned transition of the lower operation initially before the upper airspace;
- Is the iTEC v3 transition for lower airspace dependent upon or does it facilitate airspace modernisation activity through ACOG

#### 6.21. Airspace and operational enhancements:

- To what extent are airspace programmes dependent upon the deployment of iTEC v3, and is there any risk that proposed changes cannot be fully utilised until the deployment of iTEC v3;
- Is there any risk that proposed projects might have to be performed twice following the reprofiling of the common platform project;
- Do proposed ExCDS enhancements offer a potential synergy with sustainment costs related to the Frequentis flight strip product used in Prestwick lower airspace and the Manchester TMA

#### 6.22. Information solutions:

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<sup>113</sup> [Ibid., p17](#)

- Do opportunities exist to continue to use existing applications for business support e.g. ERP and business intelligence, rather than modernising them at a time of constrained capital investment;
- Are there synergies from sustainment costs for cyber security in the sustainment section and those related to business applications referred to in this section

#### 6.23. Property and facilities management:

- What property exists within the total portfolio, and can value be realised through sales or commercial tenancies given that there are “177 freehold and leasehold sites across the UK with an insured value of approximately £410m for the buildings alone”<sup>114</sup>;
- Do any opportunities to reduce charges exist through a review of this property portfolio, given NERL’s ambition in NR23 to consider “‘right-sizing’ our estate following our re-organisation and adoption of agile working practices”<sup>115</sup>

#### 6.24. Oceanic:

- What are the latest developments at ICAO for the NAT Vision 2030, and does this have any implications for Oceanic investment over NR23 and beyond;
- Does the GAATS+ system offer the most appropriate solution for the North Atlantic, or are there synergies achievable from the common platform in development for UK airspace;
- Does NavCanada have any plans to update their common platform that could result in additional unforeseen costs should the North Atlantic remain on the GAATS+ system;
- Given planning with NavCanada is in its infancy at present, what further risks exist within this programme and how might they arise;
- Is the proposed profile tool optimised consistent with the calculations that would be made by the Flight Management Computers (“FMC”) onboard aircraft crossing the North Atlantic;
- What are the estimated cost savings that would arise from the proposed Message Extraction and Correction System (“MECS”) capability;

#### 6.25. Training transformation:

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<sup>114</sup> [Ibid., p23](#)

<sup>115</sup> [Ibid., p23](#)

- When does NERL expect to deliver this proposed modernisation of simulation platforms, and what cost efficiency is it expected to deliver;
  - What are the risks related to delivery of best in class simulation services, considering the costs of such simulation services are significantly higher for airline operations;
  - With the introduction of new technology through the common platform, what is the risk that such solutions will become redundant should it not be possible to update them to the latest platforms e.g. iTEC v3;
  - To what extent do these solutions deliver efficiencies in unit training as opposed to initial training, and what is required at present to deliver unit training e.g. location and efficiency of trainer time
- 6.26. The phasing of the capital investment programme appears appropriate given the financial constraints of the NR23 period; clearly there will be cost uncertainty at this stage of developing proposed programmes, however we urge NERL to pursue measures to reduce the potential £680m high end of the range and establish appropriate certainty for estimates where possible

#### **Impact on operating costs**

- 6.27. We understand that at RP3 prior to the pandemic, NERL “anticipated that we would move off our current technology by the end of RP3, and that this would generate cost savings by ending dual running, concluding external support contracts and reducing headcount”<sup>116</sup>
- 6.28. As a result of the pandemic and the reprofiling of capital expenditure, it is clear that old systems will be maintained for longer out of necessity; nevertheless it is important that NERL continue to seek to optimise the balance of sustainment costs, investment in new technology, and achieve reductions in operating expenditure where possible
- 6.29. We therefore welcome the £55m operating cost saving resulting from the VR programme that has “enabled a shift to new ways of working and greater automation, together with the deferral of implementation costs for new systems”<sup>117</sup>, and urge NERL to continue to seek additional efficiencies where possible
- 6.30. It would be useful to understand in more detail how the “benefits and savings from previously anticipated headcount reductions and ending external service contracts following ‘legacy escape’”<sup>118</sup> specifically arise; this is particularly important since the introduction of DP En Route & Voice and the associated retirement of 33 systems would appear to present some opportunity to reducing costs

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<sup>116</sup> [NERL NR23 Business Plan, Chapter 6, Capital investment, p31](#)

<sup>117</sup> [Ibid., p31](#)

<sup>118</sup> [Ibid., p31](#)

- 6.31. This is particularly relevant given the pre-pandemic operating cost base of c.£100m per annum, and where pandemic restructuring would appear to reduce that baseline to a lower level to support present systems; the detail of the calculations should therefore be scrutinised to ensure they are consistent and appropriate
- 6.32. The details cost breakdown<sup>119</sup> shows a £133m permanent cost reduction within staff costs as a result of the VR programme across NR23, offset by a number of temporary changes and additional scope requirements; we understand that the VR programme was carefully targeted to ensure retention of key skills within NERL, but ultimately these temporary costs must be unwound at NR28
- 6.33. Whilst temporary additional costs of contractors appear logical to support the longer investment programme and implementation of DP En Route, it is not clear how exactly the additional £88m of costs arise as a result of delayed legacy escape; this is particularly relevant as DP En Route implementation appears to allow the closure of 33 systems, therefore the CAA should validate those costs compared to those estimated at RP3 and in light of actions taken under the VR programme
- 6.34. Furthermore, whilst we welcome NERL's commitment to "deliver similar levels of service in the future with a significantly lower headcount following further technology-enabled automation savings and the VR programme"<sup>120</sup>, we ask whether such initiatives can feasibly be brought forward into NR23
- 6.35. We agree with NERL that there would likely be increased risk by delaying investment in new operational platforms, which would required ongoing support of legacy systems by engineering staff whose age profile raises significant retirement risk; nevertheless, this risk is common to many companies supported by mainframe technology, and we are pleased to note that NERL has the "necessary resourcing plans in place to mitigate this"<sup>121</sup>

### **Governance**

- 6.36. We support a more flexible governance process building on the progress made at RP3, and particularly one that "recognises the requirement to provide sufficient detail for the price control, while also enabling us to respond to the changing external environment and to offer choices to customers on an ongoing basis"<sup>122</sup>
- 6.37. In line with our comments earlier on scenarios, it is difficult to see how the future will specifically unfold beyond two years into the future, therefore the 2+5 approach appears to offer an appropriate means of bridging between strategy and

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<sup>119</sup> See chart at [NERL NR23 Business Plan, Appendix H: Capital investment programme, Annex A p33](#)

<sup>120</sup> [Ibid., p35](#)

<sup>121</sup> [Ibid., p35](#)

<sup>122</sup> [NERL NR23 Business Plan, Chapter 6, Capital investment, p32](#)

implementation; furthermore, we agree that this should “facilitate discussions about longer term options and benefits for customers”<sup>123</sup>

- 6.38. However, the CAA should consider the compatibility of such an approach – which would be better at delivering outcomes – with the existing regulatory framework where operating expenditure is detailed on a five year basis; given the potential for the capital envelope to evolve, it appears appropriate to consider how operating expenditure might also evolve in response to changing capital requirements
- 6.39. As a result, the CAA should consider carefully the extent to which operating expenditure is linked to the capital plan, and set up appropriate mechanisms ex ante to ensure a consistent incentive exists over NERL; this may suggest an different approach to periodic reviews could become more relevant in future, particularly given the significant amount of technology change facilitating airspace modernisation

### **Conclusion**

- 6.40. Capital investment plays an important role in ensuring that NERL continues to have sufficient capability in future, both facilitating future programmes such as airspace modernisation whilst continuing to sustain existing operations and technology; as a result of the pandemic, it is clear that NERL has reprofiled capital expenditure to more efficiently deliver capabilities, while extending implementation out of necessity
- 6.41. We support NERL’s proposed approach to capital, with greater near-term definition as financial planning becomes locked in, with greater flexibility in the longer term to match capital plans to changing strategy; the CAA should ensure that the capital envelope informed by the programmes represents a reasonable level of expenditure that is likely to deliver the required capabilities over NR23
- 6.42. In particular, the CAA should consider the detail provided to judge whether each programme is necessary and supported by reasonable cost estimate; in addition, the impact on operating costs should be carefully considered, particularly where retirement of older systems may allow for a reduction in operating expenditure over the course of NR23

## **7. Determined costs and prices**

- 7.1. As we note above, the actions taken by NERL in response to the pandemic appear prudent, ensuring that outgoings were significantly limited whilst ensuring the business was still in a position to deliver a high quality and safe service for those who were still flying through UK airspace; whilst a difficult process, this transformation also presented the opportunity for a permanent restructuring of the cost base for NR23 and beyond

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<sup>123</sup> [ibid., p32](#)

- 7.2. As a result, the £70m per annum of sustainable cost savings help to reduce NERL's charges, and the CAA should ensure that where costs need to be built back into the plan to support traffic volumes, that they are calibrated to the new cost base structure; in addition, where cost pressures of dual running etc arise, these should also be based upon both the revised capital plan and transformed cost base
- 7.3. Whilst inflation is rising at present, contributing to wage inflation in the general economy, the index-linked nature of the price control should insulate NERL to a large extent from inflationary cost pressures from its workforce and suppliers; the CAA should therefore carefully model these to ensure that inflationary pressure is not double counted through the price control model

### **Determined cost projections**

- 7.4. NERL set out projections using "a cost allocation methodology previously reviewed by the CAA as part of the RP3 process"<sup>124</sup>, noting that this methodology and service line drivers have not materially changes since the RP3 review; the CAA should validate this for appropriateness, ensuring that where major restructuring has taken place, that such allocations and assumptions do indeed remain relevant
- 7.5. NERL's projections result in average determined costs that are £4m or 1% higher than 2019 and £20m or 3% lower than the original RP3 plan, with decreases in operating costs and regulatory depreciation largely offset by an increase to pension costs and regulatory return; being determined in 2020 prices, it is important that operating costs also incorporate efficiency gains over time to raise productivity
- 7.6. NERL also note certain adjustments that have been made to the cost projections, and further adjustment that will have to be made before the start of NR23; the mechanics of those adjustments are relatively formulaic, though should be consistently applied unless the charging formula is adjusted in any form

### **Operating costs**

- 7.7. We welcome the material reduction in operating costs, which are c.£46m or 10% lower than the CMA determination<sup>125</sup>; considering the progression of those costs are presented, the bridge previously set out<sup>126</sup> between RP3 2020 to 2027 costs and NR23 2020 to 2027 costs provided a useful like for like comparison to that considered at the RP3 periodic review
- 7.8. As a result, it would be useful for NERL to set out similar like for like comparison to this previous analysis that was set out in the capital section of the business plan,

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<sup>124</sup> [NERL NR23 Business Plan, Appendix I: Determined costs, DUCs and prices, p1](#)

<sup>125</sup> [NERL NR23 Business Plan, Appendix J: Operating costs, p1](#)

<sup>126</sup> [NERL NR23 Business Plan, Appendix H: Capital investment programme, Annex A p33](#)



since the bridge analysis set out for operating costs<sup>127</sup> is otherwise harder to interpret, not being like for like comparison of the same cost base

- 7.9. Whilst noting that “quantitative comparisons of actions taken across different ANSPs are challenging due to the absence of detailed financial data for these entities”<sup>128</sup>, we recognise that NERL has sought to “achieve sustainable cost savings of a larger magnitude compared to the other ‘big 5’, which will reduce our cost base during NR23”<sup>129</sup>
- 7.10. Nevertheless, such benchmarking<sup>130</sup> should be scrutinised to ensure that appropriate conclusions are drawn, particularly given the relative cost efficiency of NERL can be flattered in some analysis due to the volumes flowing through its airspace; the CAA should ensure its incentives are appropriately calibrated to continue to incentivise ongoing cost efficiency over time
- 7.11. Specific comments on each of the cost movements are as follows:
- Where VR programme saving have been achieved, it would be useful to understand whether – when adding back headcount as a result of rising traffic volumes – those heads are at the same or lower levels of pay than prior to the pandemic, and also whether those heads would have access to automatic incremental pay rises;
  - Other sustainable savings are also likely linked to the property portfolio, and where NERL refer in the capital programme to right-sizing of the estate during NR23<sup>131</sup>, are potential savings of related operating costs incorporated into the operating expenditure projections for NR23;
  - We note that pay and progression remains linked to incremental pay increases, which remain a legacy of NERL’s state ownership; whilst this likely remains linked to union agreements, a continuation of such a structure remains an anomaly in the private sector, and we urge NERL to seek alternative and more efficiency pay structure as a result;
  - The running costs of net technology systems will likely be estimated at this stage given those systems have not yet been fully implemented, and the CAA should scrutinise the cost assumptions for appropriateness, including considering whether they might be more efficiently delivered through contractual outsourcing arrangements rather than in house;
  - Scope will clearly have changed since the RP3 periodic review as strategic imperatives continue to change; nevertheless, whilst ACOG is essential for

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<sup>127</sup> [NERL NR23 Business Plan, Appendix J: Operating costs, p1](#)

<sup>128</sup> [NERL NR23 Business Plan, Chapter 7, Determined costs and prices, p36](#)

<sup>129</sup> [Ibid., p37](#)

<sup>130</sup> [NERL NR23 Business Plan, Appendix O: Benchmarking](#)

<sup>131</sup> [NERL NR23 Business Plan, Appendix H: Capital investment programme, p23](#)

delivery of airspace modernisation, the CAA should ensure the scope of costs included remains consistent with any change in activity, and in addition that greater costs of cyber security relate to meaningful additional activity;

- Costs related to the management of NR23 demands and returning volumes are clearly relevant as traffic volumes return; nevertheless the elements noted in the commentary appear similar to some of the previous categories, therefore the CAA should ensure that there is no double counting of costs within this category, and in addition that the costs of the UK leaving the European Union would likely have already been considered at RP3
- Other costs that show a low level of capitalised labour costs demonstrate how NERL has developed a more efficient cost base as a result of the pandemic; the CAA should therefore ask itself if its previous incentives were sufficient to assure efficiency, when it instead took a pandemic to prompt restructuring that resulted in these efficiencies, rather than the incentives of the price control

### Staff costs

7.12. As the CAA consider the detailed cost items, these should be consistent with the resourcing plan set out previously in the business plan, ensuring that NERL is in an appropriate position to meet likely demand that will arise during NR23; it is important that these costs are both efficient and realistic so that airline operations are neither compromised, nor that customers are not over-funding NERL

7.13. Specific comments on each of the cost movements are as follows:

- Considering the number of ATCOs, and in particular operational ATCOs forecast for NR23 set out in the table<sup>132</sup>, it is not clear how the demand shortfall in 2022 and 2023 is consistent with the operational resourcing chart previously set out<sup>133</sup>, considering that a similar ATCO total served 2019 traffic volumes that were lower than that in 2023
- Furthermore, it is not clear that this projected supply shortfall in operational resourcing is caused by having fewer Air Traffic Assistants (“ATSAs”), whose number appears to be relatively constant across NR23, despite falling from 2019, whereas operational ATCO numbers rise in 2026 and 2027 as the resourcing supply also begins to rise
- The CAA should ensure that the non-operational ATCO requirements are consistent with investment plans and projected requirements in training roles; this is particularly the case should the £15m investment in synthetic training become more defined and included in NR23, particularly given the rationale for declining ATSAs, suggesting a greater synthetic training benefit has already been defined than set out in the capital plan section

<sup>132</sup> [NERL NR23 Business Plan, Appendix J: Operating costs, p3](#)

<sup>133</sup> [NERL NR23 Business Plan, Appendix G: Operational Resourcing, p3](#)

- Trainee air traffic controller (“TATC”) numbers should also be consistent with the time trainees spend in training and flow into the operational ATCO numbers following validation; given the significant reduction in forecast training footprint on unit referred to previously, the CAA should ensure that the operational ATCO numbers and costs are not inappropriately inflated should this footprint be unachievable
  - Engineer (“ATCE”) headcount appear consistent with the actions presented during the VR programme undertaken in response to the pandemic; nevertheless, the CAA should ensure that these assumptions are appropriate in future, particularly once DP En Route & Voice are implemented in 2024
  - Similarly, analytical support and other support roles also appear consistent with the VR programme and permanent restructuring in response to the pandemic; the graduate programme appears to be a sensible response to ensure that roles can be backfilled, though the CAA should ensure that the numbers assumed are representative of the roles that need to be fulfilled
  - In addition, the level of contractors does not appear wholly consistent with the requirement for contractors set out in the capital plan, where the impact on operating costs<sup>134</sup> suggests a requirement for contractors that does not appear to be compatible with the numbers presented in this section
- 7.14. Wages should attract talent to NERL without over-rewarding at levels far above market, or disincentivising talent through being uncompetitively below market; the CAA should test the wage assumptions to ensure that they are representative of the experience levels set out in this business plan, benchmarked appropriately against market rates
- 7.15. The CAA should therefore ensure that the conclusions drawn from NERA’s report<sup>135</sup> to NERL for this NR23 business plan are appropriate; in particular, the position of several job categories shows NERL to be at the top end of the ranges presented, even where interpreted as being within the range<sup>136</sup>, and where adjusted R<sup>2</sup> is only around 40%
- 7.16. It is also worth considering that the comparator data for ATCOs and ATCEs show a decline in the bottom end of each range, likely as a result of pandemic-related pressures; this would be consistent with those seen in the labour market for flight crew, where pilots have experienced unprecedented job losses and pay cuts
- 7.17. We reiterate our point above that incremental pay increases are a legacy of NERL’s state ownership, and whilst this likely remains linked to union agreements, a

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<sup>134</sup> [NERL NR23 Business Plan, Appendix H: Capital investment programme, Annex A p33](#)

<sup>135</sup> [NERA wages benchmarking study](#)

<sup>136</sup> [ibid., p3](#)

continuation of such a structure remains an anomaly in the private sector; we urge NERL to seek alternative and more efficiency pay structure as a result

- 7.18. It is particularly relevant that ATSAs and ATCEs benchmark above comparators, and the CAA should test whether such explanations are consistent with the analysis previously presented at RP3; this persistent inefficiency indicates that the regulatory incentives might be directed towards its correction
- 7.19. Other staff costs, particularly those related to overtime, should be modelled on the basis of requirements and the most efficient means of fulfilling those requirements; should resourcing indicate a requirement that is most efficiently filled by overtime, this would indicate it might be incorporated
- 7.20. However, the significant levels of restructuring since 2019 suggest using a peak traffic year as a benchmark could be problematic; as a result, a range of data from a number of historic years consistent with traffic levels in the early years of NR23 may be more consistent with the traffic levels forecast for NR23
- 7.21. We are not clear where the calculations for capitalised labour are set out; we agree with NERL that this is linked to the capital programme, but the assumptions should be consistent to avoid double counting elements of operating expenditure in the capital allowance that would be ultimately incorporated into the Regulated Asset Base ("RAB")

#### **Non-staff costs**

- 7.22. Facilities management ("FM") costs appear broadly flat for NR23, justified on the basis of several cost headwinds offset by a efficiencies achieved; considering NERL's ambition in NR23 to consider "'right-sizing' our estate following our re-organisation and adoption of agile working practices"<sup>137</sup>, this statement would appear inconsistent with an apparently static level of FM activity
- 7.23. For example, "mothballing parts of the office"<sup>138</sup>, whilst entirely appropriately in the short term during the pandemic, is not likely to be an efficient use of office space for a whole price control; this is particularly relevant where NERL's offices are in a location with a strong commercial property market, and single till opportunities must therefore exist that could benefit NR23
- 7.24. In addition, we note that the cost of utilities rises "as a result of increasing electricity and gas prices and living wages increase"<sup>139</sup>; as previously noted, given the index-linked nature of the price control should insulate NERL to a large extent from inflationary cost pressures from its workforce and suppliers, the CAA should carefully model these areas to ensure that inflationary pressure is not double counted through the price control model

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<sup>137</sup> [NERL NR23 Business Plan, Appendix H: Capital investment programme, p23](#)

<sup>138</sup> [NERL NR23 Business Plan, Appendix J: Operating costs, p6](#)

<sup>139</sup> [ibid., p6](#)

- 7.25. The CAA should scrutinise other IT costs to ensure they are appropriate and benchmarked adequately; given NERL will likely have less non-operational IT per employee with its extensive system of operational IT, it is not clear that a standard Gartner benchmark will be informative
- 7.26. NERL's justification for rising asset management costs appears logical given the nature of dual running systems whilst transferring to new subscription-based systems and the rising cost of legacy support; it is not clear however whether capital costs of sustainment may also cover some similar costs, and the CAA should ensure that both categories are consistent and avoid double-counting
- 7.27. Business support and Other costs both appear to rise in line with a resumption of activity, but at a reduced level following restructuring; the CAA should ensure the logic behind these is also consistent with that previously set out at RP3, and validate that the opex flexibility fund ("OFF") should no longer continue, with previously unspent funds returned to the single till
- 7.28. However, we understand that Uncrewed Aircraft Systems ("UAS") relate to new airspace users, where charging mechanisms have yet to be determined by the CAA; it is not therefore clear whether this figure should also be included until that mechanism is established by the CAA, though returning exceptional items to more normal levels at NR23 appears to be a reasonable approach, along with including the costs of ACOG as forecast

### **Cash pensions**

- 7.29. We understand that pension costs are subject to the regulatory pension pass through mechanism, which results in all costs being borne directly through NERL's unit rate; as a result, it is important that NERL continues to seek to drive down pension costs, ensuring the charge remains efficient whilst providing a competitive pension for NERL employees
- 7.30. The CAA should consider the incentives of such an approach, and ensure that NERL continues to act in the best interests of consumers when negotiating changes to the pension arrangements; this will continue the work done by NERL to mitigate recent cost increases through negotiation supported by the CAA's regulatory policy statement ("RPS")
- 7.31. As a result, we understand the adverse changes in financial markets formulaically result in increases to assumed pension costs, but also that future positive moves in financial markets will benefit NERL charges; nevertheless, we have some specific suggestions that may enable NERL to future reduce pension costs as follows

### **Transfer Incentive Exercises**

- 7.32. This essentially offers employees enhanced terms to take their "pot" from the DB scheme and transfer it to another fund (e.g. St James Place Personal Retirement

- Plan); this will give an immediate funding benefit to the scheme, so would help out in future valuations in terms of reducing down the investment needs from carriers
- 7.33. Liabilities are valued at prudent assumptions for the purpose of actuarial and funding valuations; they are however valued at “best estimate” for the purposes of transferring out, and this means fewer assets are required to be transferred compared to how they are valued in the scheme’s funding
- 7.34. Employees have these options anyway, but the scheme can offer “enhanced” terms to encourage take up (while still delivering a funding benefit); the sponsoring employer would need to fund Independent Financial Advice, however since trustees can be unwilling to go for this, for reputational risk, it may need NERL to encourage trustees to consider such an option
- 7.35. This focusses on dealing with a historic deficit, which is different to getting people to move their future accrual from the DB scheme to the DC scheme; more generally, it would be useful to understand if there an allowance for transfers made in the valuation, and what the historic take up of partial or full transfers has been if that is not the case (i.e. should there have been an allowance)

#### **Pension Increase Exchange**

- 7.36. This would provide members with the option to give up some of their inflation linked benefit with a “flat” amount, resulting in members getting a greater pension in their early years of retirement, reducing if they live for longer; often members prefer to have more cash early in retirement when still active
- 7.37. Effectively, the “present value neutral” non-inflating pension is calculated, and a haircut is taken off that amount, with that haircut being the benefit to the scheme’s funding at the point the member takes that option
- 7.38. Should people not live as long in future, then members will have “won” and the scheme would have “lost”, but as there is already prudence in the mortality assumptions it is unlikely that on average the ‘breakeven’ life expectancy at which this becomes unfavourable for the scheme is missed, and at the next valuation, an assumption could be made on take up that would limit the size of future deficits

#### **Review of Commutation Factors**

- 7.39. This considers how many pounds of lump sum does a member get for giving up one pound of pension each year at retirement, i.e. giving up £1,000 p.a. in retirement at a Commutation Factor of 40 would lead to a lump sum of £40k
- 7.40. Members can take such a sum tax free at retirement (on a portion of their pension), and similar to the above options, this tends to give a funding gain when exercised; however the NR23 business plan does not show where the commutation factors sits, or what the typical take up is at present

- 7.41. If both the factors and take up is low, it would be worth considering whether a higher factor would encourage more members to commute on retirement, driving funding gains; this can influence the assumption on take-up of commutation at the next valuation, and in fact, it would be interesting to know what is assumed on take up in setting the funding requirements

### **Overfunding Mechanism**

- 7.42. Asset returns can mean that a deficit is in effect “cleared” before the end of the current Schedule of Contributions; if this happens, NATS will still be committed to make payments despite the deficit being fully-funded and these payments would continue until a new valuation is agreed, with no chance of NATS or customers getting them back
- 7.43. It would be useful to understand if NATS and the Trustee have discussed an “overfunding mechanism” or “switch off” mechanism to ensure that ‘unnecessary’ contributions are not paid and passed through the mechanism to the charge; an alternative is to use an escrow account, such that while contributions would continue, they would be earmarked for the scheme if a future valuation shows a deficit again, or if there is still a surplus it would be passed back through charges
- 7.44. If any of the earlier proposals are in use, they would lead to the scheme (all else equal) being fully-funding more quickly and therefore this overfunding mechanism triggering more quickly

### **NR23 plan**

- 7.45. We note that the NR23 figures are based upon NERL’s portion of the NATS group scheme, using a cost allocation model from RP3<sup>140</sup>; the CAA should ensure that this remains appropriate given the significant restructuring that has taken place since 2019, and may result in a reduced proportion that should pass through to NERL

### **Pension cash alternative**

- 7.46. We note that “during 2016/17, more than 900 members deferred their membership or transferred out to take advantage of the PCA”<sup>141</sup>, and “this reduced assets and liabilities by £1.7bn, significantly de-risking the scheme”
- 7.47. NERL propose formalising the inclusion of pension cash alternative costs in the pass-through mechanism; this may not be appropriate as could result in perverse incentives and needs careful consideration from the CAA as to where this should be most appropriately incentivised

### **Single till income**

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<sup>140</sup> [NERL NR23 Business Plan, Appendix K: Cash pensions, p4](#)

<sup>141</sup> [NERL NR23 Business Plan, Appendix K: Cash pensions, p3](#)



- 7.48. We note that income from the single till is forecast to fall over NR23, largely as a result of the lower income from the Ministry of Defence contract; however we note that a £6m reduction in the headline price would activate “gainshare mechanism means that only around £1m of the savings are passed to the MOD via a reduction in the FMARS revenue”<sup>142</sup>
- 7.49. As a result, it is not clear why the full £6m single till income reduction is modelled in the NR23 forecasts, and furthermore where “FMARS income is most closely linked to NERL’s regulatory depreciation and non-staff costs”<sup>143</sup>, that single till income does not rise again in future where depreciation is also rising
- 7.50. The London Approach forecasts suggest that increasing costs offset the lower costs of providing the service following pandemic related restructuring; the CAA should consider whether such cost increases accurately reflect the airspace change requirements in 2025 to 2026, or whether such costs are likely instead to occur further in the future
- 7.51. NSL forecasts contribute significantly to the single till, and the CAA should test the assumptions to ensure they remain appropriate, including:
- NERL state that “NSL demand for trainee controllers for its airports business, has reduced with a peak of around £2m in 2019, but just £0.5m in 2021”<sup>144</sup>, yet this would appear inconsistent with NERL’s own forecast demand for trainee controllers, and airports also need to meet rising demand post pandemic
  - Assumptions that a “constrained UK market for commercial services as airports seek to reduce costs and defer investment”<sup>145</sup> should be considered alongside the requirements for airports to drive CAP1616 airspace change processes
  - We note that one-off projects are by their nature one-off, therefore an incentive to seek to win new contracts may be appropriate, calibrated by past contract win rates
- 7.52. SESAR income assumptions appear reasonable, though we note the lack of expected revenue from other one-off contracts such as time based separation studies may recur should traffic at the end of NR23 exceed that of 2019 as forecast; the remaining assumptions underpinning the forecasts should be tested by the CAA for logic and consistency

### **Regulatory depreciation**

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<sup>142</sup> [NERL NR23 Business Plan, Appendix L: Single till income, p3](#)

<sup>143</sup> [ibid., p3](#)

<sup>144</sup> [ibid., p4](#)

<sup>145</sup> [ibid., p4](#)

- 7.53. Regulatory depreciation plays an important role in the price control, and that the CAA should ensure any proposed depreciation schedule is supported by a detailed rationale; given the RAB at privatisation was depreciated over 20 years and will be fully depreciated by 2022<sup>146</sup>, yet additions since 2011 are depreciated over 15 years<sup>147</sup>, it may be appropriate to review depreciation for NR23 to ensure consistency
- 7.54. This is relevant since “increase in the average RAB, (+55% from 2019 to 2023 in real terms) is a direct result of the slump in traffic due to the pandemic, with the TRS debtor added to the RAB until it is recovered”<sup>148</sup>, yet NERL state that “we do not distinguish between the underlying RAB, which represents the stock of previous capital investment, and the TRS debtor”<sup>149</sup>
- 7.55. It also remains appropriate that backlog adjustments continue as “true-ups for differences in depreciation that occur because of changes in the timing and/or value of capital expenditure relative to the price control assumptions”<sup>150</sup>

### **Regulatory return**

- 7.56. We note some use of RPI in the present regulatory model; whilst this is a longstanding metric, we observe that the measure will be discontinued in 2030 due to its significant measurement problems, and the CAA should consider how any transition can be best managed in areas it is used before that date
- 7.57. CEPA has, on behalf of IAG and British Airways, reviewed the cost of capital aspects of NERL’s draft Business Plan<sup>151</sup> covering the NR23 price control period and the supporting cost of capital report prepared by Oxera<sup>152</sup>
- 7.58. In advance of preparing our own analysis of an appropriate cost of capital for NERL during NR23, CEPA have highlighted the key issues that the CAA should focus on ahead of publishing its Initial Proposals as below:

### **Asset beta**

- 7.59. NERL’s proposed cost of capital allowance does not reflect a balanced and complete assessment of the available evidence on aviation sector asset betas in light of the impact of Covid-19 on the sector. We obtain significantly lower forward-looking estimates using an approach which:
- is pragmatic;

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<sup>146</sup> [NERL NR23 Business Plan, Appendix I: Determined costs, DUCs and prices, p4](#)

<sup>147</sup> [Ibid., p5](#)

<sup>148</sup> [NERL NR23 Business Plan, Chapter 7, Determined costs and prices, p39](#)

<sup>149</sup> [Ibid., p39](#)

<sup>150</sup> [NERL NR23 Business Plan, Appendix I: Determined costs, DUCs and prices, p5](#)

<sup>151</sup> As set out in [NERL NR23 Business Plan, Appendix M: Cost of capital](#)

<sup>152</sup> [Oxera, Cost of capital for NR23, 28<sup>th</sup> October 2021](#)

- draws on well-accepted regulatory beta estimation techniques;
  - relies on input assumptions that reflect significant common ground between us, the CAA and NERL/Oxera;
  - and is consistent with evidence of investors' behaviour
- 7.60. We appear to agree with NERL/Oxera and the CAA on a suitable characterisation of the objective in interpreting beta evidence. We seek to ensure that neither pre-Covid crisis evidence nor evidence after February 2020 is underweighted in our judgement
- 7.61. The onset of the Covid-19 crisis represents a clear break in beta evidence. Our approach says simply that (all figures illustrative) if:
- a stock's beta is measured prior to the crisis at, say, 0.5; and
  - during the Covid-19 crisis it is measured at, say, 0.8; and
  - such pandemics can be expected to recur every thirty years with a two-year period of heightened sensitivity to wider market movements; then
  - an estimate of 0.52 would reflect the expected evidence over the long-term.
- 7.62. The CAA would need to put forward very clear and compelling reasons not to adopt such an approach
- 7.63. Oxera's analysis for NERL adopts a different approach. We disagree with a number of more technical points:
- The use of a relatively long estimation window (five years) risks giving undue weight to outlier data points generated during a period of time that is quite distinct from the period that preceded it
  - It is problematic to use OLS on a pooled sample spanning two periods in which beta is assumed to have changed markedly
  - We disagree with Oxera's interpretation that beta fluctuations must necessarily represent investors' fundamental re-assessment of companies' systematic risk exposure. This leads them to underweight beta evidence generated prior to the Covid-19 crisis.
- 7.64. These concerns go beyond the technical. Evidence from comparators is difficult to reconcile with investor behaviour as reflected in transactions and asset valuations. Recent beta measurements for some comparators, if applied directly, would appear to indicate an increase in the cost of equity of around 60%, which would in turn imply a c. 40% reduction in the discounted value of future cash flows – before

accounting for lost revenue and growth opportunities. In fact, we have observed some airports recovering much if not all of their reduced equity values and transactions have taken place (for example in relation to Sydney Airport) that imply valuations consistent with pre-Covid highs

- 7.65. Before concluding on a materially higher beta assumption than has previously been applied, the CAA would need to explain how investors rationalise such valuations despite the hindrance of a significantly increased cost of capital
- 7.66. The cost of capital allowance will also need to reflect a robust and systematic comparator selection and relative risk assessment. We have identified a number of areas where Oxera's conclusions do not reflect such an assessment. The CAA should ensure that the following points are captured in its own analysis:
- NERL is a monopoly provider of an essential service. Whilst Oxera does acknowledge NERL's position it does not appear to feature in the subsequent analysis of relative risk, in particular in relation to airports and airport groups
  - It also has a reasonably close comparator in ENAV that now has a longer time series of beta estimates available than was available for analysis prior to RP3. Given their inherently different characteristics – greater exposure (in most cases) to sector risk and considerably larger asset bases relative to operating profits – we would expect airports and airport groups to be used with caution
  - Oxera's approach to selecting airport comparators, particularly in relation to geographic location and liquidity, is unnecessarily restrictive
  - Finally, we continue to consider regulated energy and water networks to be a relevant cross-check to the overall judgement. Regulated networks share a characteristic – their monopoly status – with NERL that airports and airport groups generally do not. This means that even if not used directly to set the limits of a judgement on beta, they are informative as to the overall spectrum of betas on which to place regulated assets. Such beta spectrums have been a useful reference point for regulatory determinations by the CC/CMA and CAA in the sector in the past.

### **Cost of debt**

- 7.67. We recognise that the approach taken by Oxera – beginning with an assessment of Oxera's actual cost of debt and subjecting that to cross-checks – is consistent with the approach used for RP3. We have no objection to such an approach being used as a starting point given NERL's particular characteristics: it has no direct UK peers and as an asset light company with a relatively short economic asset life may reasonably be expected to adopt a different treasury strategy to other regulated companies.
- 7.68. That being said:

- The CAA should be mindful of the incentive properties of applying an approach so closely grounded in NERL's actual debt costs, and should bear in mind the apparent outperformance of the RP3 determination indicated by Oxera's analysis
- Where any regulator reflects a company's actual treasury strategy and debt costs, it must be mindful of the challenge of maintaining regulatory consistency. It must ensure that its approach avoids creating one-way bets and that second-order implications – for example, through fluctuations in notional gearing – do not expose airline customers to higher costs than would be observed under a more overtly notional approach
- Where debt rates are subject to adjustments (for example to project forward rates or to adjust rates observed for specific instruments) the CAA should take into account all possible approaches for carrying out such adjustments

### **Market parameters**

- 7.69. Given that both TMR and RFR have been extensively debated in UK regulatory circles we do not expect that the NR23 determination will broach new ground
- 7.70. We continue to place greater weight than Oxera on CPI-based indices as an input into historic TMR estimates. We do not expect to depart from our recommended range for H7 of 5.2-6.0%, which we note is broadly consistent with recent determinations by regulators and the CMA in the aviation, energy and water sectors
- 7.71. We continue to prefer the use of ILGs as a benchmark for the RFR – and note that the CMA has endorsed such an approach on the part of Ofgem. To the extent that the CAA considers it appropriate to take into account commercial rates or adjustments to gilt rates, it should cross-check the resulting implied rates and ensure that the resulting implications for airline customers are justifiable

### **Gearing**

- 7.72. The appropriate notional gearing assumption for NERL may be challenging to benchmark. Sector comparators generally have lower levels of gearing than is typically adopted as a notional assumption in a UK regulatory context, and NERL's own actual gearing has recently changed
- 7.73. In reaching a view on notional gearing it would be prudent for the CAA to evaluate two particular issues:
- If a WACC can be estimated directly for comparators (based on their own equity beta and gearing), how would the CAA justify a higher WACC based on a different gearing assumption as being in the overall interests of passengers?

- In light of the Covid-19 crisis, what would represent a plausible and prudent forward-looking long-term gearing assumption for NERL? This assessment should have reference to gearing trends as NERL's debt is repaid over time.
- 7.74. Oxera's sensitivity analysis of the WACC with respect to changes in the notional gearing assumption is helpful. The CAA should ensure that this analysis is carried out using its own parameter assumptions.

### **Wider considerations**

- 7.75. We broadly agree with Oxera's proposed conceptual approach to selecting a point estimate, based primarily on its judgement of the distribution and relative weight of different evidence. We expect the CAA to adopt a similar approach. We disagree with Oxera's characterisation of a suitable point estimate for the asset beta, however, as in our view the relevant evidence base is quite different.
- 7.76. As an independent regulator, the CAA should reach and justify its own view on the appropriate cost of capital allowance. In doing so it should be informed – but not necessarily constrained – by regulatory determinations (and re-determinations) by the CMA, which help indicate a reasonable range of judgements on common parameters, and also by merit-based appeals, which are a guide as to approaches and estimates that may or may not be considered reasonable

### **Determined unit costs**

- 7.77. With Determined Unit Costs ("DUCs") being the result of the above single till calculations, our comments are focussed upon those individual building blocks; set correctly, the output of the building blocks should be reflected in an efficient DUC; maintaining a consistent approach for London Approach DUC also appears sensible given the recent review at RP3
- 7.78. However, in Oceanic, we are not clear where the assumption has arisen that "we are assuming that the cost reconciliation will apply equally to the oceanic business"<sup>153</sup> leading to an assumption that "applying the TRS debtor process for oceanic would add around a further £13 - £15 pa on average to the core oceanic charge in NR23"<sup>154</sup>
- 7.79. Given the extraordinary increase in costs resulting from ADS-B charges in 2020, and a near doubling of the North Atlantic charges per flight, and a 50% rise in Tango charges per flight, this does not appear sustainable; we comment further on Oceanic charges below

### **Prices**

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<sup>153</sup> [NERL NR23 Business Plan, Appendix I: Determined costs, DUCs and prices, p8](#)

<sup>154</sup> [Ibid., p8](#)

- 7.80. We support setting out a flat profile of prices initially in this NR23 business plan, allowing customers to understand the mechanics of the building blocks separately from assessing pricing within each year; we therefore reserve our position on any particular pricing profile at this stage
- 7.81. However, we note that significant PO adjustments should generally be reserved for upward or downward steps in capital expenditure, and where this logic is otherwise absent, prices might more logically continue to follow the previously established price path on a flat gradient real terms price profile
- 7.82. We note NERL's proposal that "our projected prices for the en route service assume that 75% of the TRS debtor, relating to the recovery of revenue shortfalls in 2020-22, is recovered via charges across NR23, with the remaining 25% recovered in NR28"<sup>155</sup>; with the NPV-neutral adjustments this contributes to a price rise from £44 in 2019 to £61 per service unit over NR23
- 7.83. Given the pandemic has hit airlines as severely as NERL, the CAA should consider whether more of this debtor should be pushed into NR28 and beyond, or whether a similar depreciation profile to capital expenditure should be implemented; whilst we recognise the financeability constraints on NERL that must be balanced with this particular judgement, such material price rises in this environment are painful

### **Financeability**

- 7.84. As a result of redactions<sup>156</sup>, we are unable to establish the effect of the NR23 business plan on NERL's gearing levels, and as a result the headroom in the plan that could accommodate variations; noting that downside sensitivities result in an "average gearing remains within a range of 51% -58%"<sup>157</sup>, this suggests additional headroom in the base case that the CAA might further explore
- 7.85. We support NERL's aspiration to make "efficient use of NERL's balance sheet to suppress price increases during NR23"<sup>158</sup> by making an appropriate balance between affordability and financeability, and agree that NERL has taken actions that assist in this challenge; nevertheless, whilst it must be true that at some point, suppressing charges will "reduce the company's ability to withstand further significant traffic shocks"<sup>159</sup>, the extent of any headroom is unclear
- 7.86. Given an average gearing of 41% over NR23<sup>160</sup>, this might suggest this headroom is in fact relatively large, and it is not clear what downside scenario is referred to; as a result, the CAA should carefully scrutinise the assumptions made to ensure that this balance remains appropriate for NR23

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<sup>155</sup> [Ibid., p8](#)

<sup>156</sup> [NERL NR23 Business Plan, Chapter 7, Determined costs and prices, p45](#)

<sup>157</sup> [Ibid., p45](#)

<sup>158</sup> [NERL NR23 Business Plan, Appendix N: Financeability, p1](#)

<sup>159</sup> [Ibid., p1](#)

<sup>160</sup> [Ibid., p1](#)



7.87. Furthermore, the CAA should consider how appropriate dividends might be in NR23, particularly where airlines have required significant equity injections and there is unlikely to be the prospect of dividend payments in the near term; in addition the credit ratings target should be sufficient but not excessive, and the CAA should understand whether the target used by NERL is appropriate

### **Credit ratings**

7.88. Given the “actual credit rating is expected to be higher than the target rating for the notional company, due to the uplift given by both Moody’s and S&P for their assessment of the likelihood of extraordinary government support”<sup>161</sup>, this would appear to suggest that in order to maintain the same credit rating as assumed by the notional company (A-), that the target for the actual company should instead be set to one notch below that of the notional company

7.89. In addition, it would be useful to see analysis that supports the statement that “customers benefit from NERL having a higher credit rating”<sup>162</sup>, as whilst such a strategy may indeed result in a lower cost of debt, it is whether such a credit rating target lowers the weighted average cost of capital (“WACC”) that is the more relevant question for customers and efficiency of financing

7.90. This is particularly the case since evidence from other regulated sectors and companies often suggests that the greatest benefit might arise at investment grade credit ratings such as BBB-/Baa3 and sometimes the WACC can even be optimised at sub investment grade credit ratings; the most appropriate credit rating is therefore one that results in the lowest WACC

7.91. Furthermore, absolute gearing is only one of many factors that credit ratings agencies consider when determining credit ratings; the particular model used for the regulated company and the sector are both relevant, and as a result the CAA would be advised to target an appropriate level of gearing consistent with the lowest cost of capital available given reasonable financing constraints

### **Target leverage**

7.92. Considering target leverage further, we note the guidance provided by the CAA to NERL identifying two broad options, being equity injections and new debt issuance; we note that the jury is still out in respect to the CAA’s approach to this in the Heathrow H7 periodic review, and refer to our response to the CAA’s H7 Initial Proposals<sup>163</sup> and previous consultations on this topic

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<sup>161</sup> [Ibid., p2](#)

<sup>162</sup> [Ibid., p2](#)

<sup>163</sup> [British Airways response to CAP2265, Economic regulation of Heathrow Airport Ltd H7 Initial Proposals](#)

- 7.93. This aside, the contrast with Heathrow could not be more stark, as NERL has taken a prudent approach to financing its investment programme and ensured financial capacity to absorb unforeseen shocks; we agree with NERL that this “has been critical to the company’s ability to fund the shortfall in operating cash receipts”<sup>164</sup>
- 7.94. This prudent approach to drive gearing towards that targeted in the notional company at the heart of price control is in stark contrast to that of many other regulated companies, and the CAA should carefully consider what it is within NERL’s incentives that work effectively, ensuring those are preserved; it is likely that the existence of a Special Administration regime plays no small part in this
- 7.95. Ultimately the notional gearing assumption plays an important role in determining the WACC, and where the CMA note that raising the gearing “has the unexpected effect resulting in the WACC strictly increasing with gearing”<sup>165</sup>, changes to this assumption should be fully justified; it is also relevant to consider the incentive effect of where this is set, and ensure that the notional company target reflects where the CAA wants to drive actual gearing to ensure financial resilience
- 7.96. As previously mentioned, we continue to advocate the approach that the optimal level of gearing is “the level of gearing which minimised the cost of capital for the firm and therefore should in principle result in the lowest cost of capital to be paid by the customers of the regulated firm”<sup>166</sup>
- 7.97. We agree with NERL that the “gearing of the notional ANSP would trend down slightly over NR23”<sup>167</sup>, however are not clear that there is sufficient evidence set out to demonstrate “that an appropriate target leverage over NR23 for the notional ANSP would be in the region of 50%”<sup>168</sup>; this is particularly the case given the previous suggestion that the average gearing might be 41% over NR23<sup>169</sup>, suggesting it would be even lower at the end of NR23
- 7.98. Finally, it is not clear what consequence NERL are referring to when stating that “average gearing of over 60% or gearing above 65% for more than a year would have longer term adverse impacts on NERL’s cost of capital”<sup>170</sup>, particularly when only a gearing ratio based upon net debt to RAB above 70% appears to generate a risk of downgrade by Moody’s<sup>171</sup>

### **Stress testing**

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<sup>164</sup> [NERL NR23 Business Plan, Appendix N: Financeability, p1](#)

<sup>165</sup> [CMA Final report, NATS \(En Route\) Plc/CAA Regulatory Appeal, para 13.112](#)

<sup>166</sup> [Ibid., para 13.115\(c\)](#)

<sup>167</sup> [NERL NR23 Business Plan, Appendix N: Financeability, p3](#)

<sup>168</sup> [Ibid., p3](#)

<sup>169</sup> [Ibid., p1](#)

<sup>170</sup> [Ibid., p3](#)

<sup>171</sup> [Ibid., p5](#)

- 7.99. Stress testing the business plan appears to be a sensible approach, and referring to our comments on scenarios earlier in this response, the CAA should assess the plausibility of each of these downside scenarios<sup>172</sup>; this will ensure that the logic underpinning each is consistent, and that they are not inappropriately pessimistic
- 7.100. For example, should traffic trend significantly downward, it may be implausible for operating expenditure to also be greater than forecasts for the baseline level of traffic due to a separate problem implementing new technology; in addition, should traffic forecasts be substantially below even the low STATFOR forecast by 2027, this suggests that STATFOR forecasts are substantially implausible
- 7.101. As a result, it may instead be best to assess component parts of these scenarios individually, matching the intent of plausible scenarios to assess what response might occur to respond to such circumstances; for example, a single scenario should focus upon potential problems with the development of DP En Route & Voice whilst another might focus on the STATFOR low case being the out-turn
- 7.102. Nevertheless, this exercise is valuable in ensuring financial resilience for NERL, and the work presented is a valuable basis for discussion with the CAA as to the appropriate financeability metrics that might provide an envelope for plausible scenarios; the CAA should test these financeability metrics<sup>173</sup>, and in particular their result in NERL's downside scenarios, which has been redacted and cannot therefore be scrutinised effectively by us in this review

### **Conclusion**

- 7.103. The CAA should test NERL's cost projections, ensuring they are consistent, and assumptions remain relevant; this is particularly important given the significant and necessary restructuring that has taken place since RP3, where reliance upon previous allocations may no longer be appropriate
- 7.104. In particular, costs should be consistent with other assumptions in the price control – particularly capital and resourcing plans – and all opportunities taken to ensure costs are as efficient as feasibly possible; in particular, we urge NERL to consider all options to further reduce pension costs and generate incremental single till income opportunities
- 7.105. NERL's cost of capital allowance does not reflect a balanced and complete assessment of the available evidence on aviation sector asset betas in light of the impact of Covid-19 on the sector, which represents a clear break in beta evidence; proposed increases in the cost of equity do not reconcile with recent valuations and investor behaviour, and regulated energy and water networks continue to be a relevant cross-check to the overall judgement

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<sup>172</sup> [Ibid., p4](#)

<sup>173</sup> [Ibid., p5-6](#)

- 7.106. The starting point for assessing NERL's cost of debt is consistent with RP3, but the CAA should consider the incentive effects carefully to ensure its approach avoids creating one-way bets and that second-order implications, and that this does not result in higher costs than would be observed under a more overtly notional approach
- 7.107. We welcome the starting point of considering a flat profile of charges and reserve judgement on an appropriate profile until analysis at this periodic review is complete; nevertheless, a PO adjustment and any deviation from a typical profile attached to the price path in the previous price control would have to be fully justified by the CAA
- 7.108. NERL's financeability is important post pandemic, but assumptions related to notional gearing and credit rating tested to ensure assumptions can efficiently achieve the lowest cost of capital; furthermore, any stress testing of the price control for financial resilience should be based upon plausible scenarios

## 8. Oceanic plan

- 8.1. We note NERL's Oceanic plan continues largely unchanged from that RP3, and recognise therefore that much of the plan will already have received scrutiny at that periodic review; nevertheless, the CAA should ensure that it remains consistent with the new post pandemic reality and the rest of the NR23 business plan such that anomalous incentives do not arise
- 8.2. In particular, the CAA should ensure that NERL's proposals are consistent with those agreed already in the oceanic gateway partnership, and welcome the intent to remove oceanic clearances, introduce a new profile optimiser and workload management tools, and reduce the organised track structure footprint

### **Service performance**

- 8.3. We note NERL's comment in reference to ADS-B that "the findings of the passenger research point towards a clear preference to invest in these safety benefits rather than reduce prices"<sup>174</sup>; we reiterate the comments of the CMA in relation to Ofwat's PR19 which states that "we consider that there are some areas where customers may not reasonably be expected to reach an informed opinion on the information, such as complex technical matters"<sup>175</sup>
- 8.4. As a result, the extraordinary increase in costs resulting from ADS-B charges in 2020, with a near doubling of the North Atlantic charges per flight, and a 50% rise in Tango charges per flight, must provide greater benefits than one based upon theoretical calculations, as such rises in charges are not sustainable, and as a result

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<sup>174</sup> [NERL NR23 Business Plan, Chapter 8, Oceanic plan, p47](#)

<sup>175</sup> [CMA Final report, Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations, para 3.28](#)

welcome further demonstrable benefits particularly when such studies are performance in a normal traffic environment

- 8.5. NERL propose that there should be “an adjustment to the service performance measurement so that when an aircraft’s first requested trajectory is not available, we are measured on our ability to provide an operationally equivalent or better profile, in terms of fuel burn and/or time”<sup>176</sup>; it is not clear how this would be measured given our earlier comments on the most optimal being determined by the onboard FMC rather than the tools available today to controllers
- 8.6. Nevertheless, similar to 3Di and future developments that are required to bring this in line with FMC calculations, we are prepared to work with NERL to develop better service performance measurements that are more in line with the most efficient flight trajectory possible; only by doing this work can we ensure the correct metric is incentivised in future price controls
- 8.7. As a result of the work that is required to define this, it may be premature to adjust the service performance metric at the NR23 periodic review, whilst welcoming the opportunity to engage with NERL to aid a common understanding of what should be considered an “operationally equivalent profile”<sup>177</sup>; we therefore welcome NERL’s aspiration to provide the requested clearance to greater levels of traffic, with the caveat that what is operationally equivalent may be allow too wide an interpretation that is incompatible at present with FMC calculations
- 8.8. We welcome the ongoing improvements in service performance that have allowed a significant number of flights to benefit from variable speed operations; we note that this has occurred in a period when traffic volumes are particularly low, and therefore welcome the aspiration to provide “80% variable speed clearance for eligible flights, allowing each aircraft the flexibility to slow down or speed up to achieve maximum operational benefit”<sup>178</sup>, though query the definition of “eligible”
- 8.9. The CAA should consider therefore whether the proposed performance metrics are appropriate in light of the comments above; in addition, given the collision risk estimates resulting from the mathematical calculation have purportedly already been achieved with the introduction of ADS-B, this does not seem to have a clear value being incorporated into the performance targets for NR23

### **Costs and prices**

- 8.10. Given the significant rise in prices compared to 2019, largely resulting from the charge for ADS-B, the CAA should closely scrutinise the proposed charge to ensure it is appropriate; it is particularly important to validate that charges are

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<sup>176</sup> [NERL NR23 Business Plan, Chapter 8, Oceanic plan, p48](#)

<sup>177</sup> [ibid., p48](#)

<sup>178</sup> [ibid., p48](#)

actually based upon a “fixed per flight fee which we pass directly to customers at no additional margin”<sup>179</sup>

- 8.11. In addition, where in the Tango region “the ADS-B data charge is calculated by sharing the fixed cost of providing data”<sup>180</sup>, the calculation is based upon reasonable estimates and traffic forecasts that should be validated by the CAA

### **Traffic risk sharing**

- 8.12. We note that there is at present no TRS for Oceanic traffic, and as a result NERL experienced a significant shortfall of traffic compared that that forecast at RP3; nevertheless the re-opening of RP3 based upon the extraordinary impact that the TRS debtor would have on charges in the short term was based upon the ex-ante mechanism already established
- 8.13. As a result, it is not clear that introducing a TRS mechanism for Oceanic on an ex-post basis is either consistent with the CAA’s intent, or is an appropriate approach for incentive regulation; ultimately the introduction of any TRS should be performed ex-ante at a periodic review where it can be fully assessed alongside the other incentives in the price control
- 8.14. NERL estimate that “applying the TRS debtor process for oceanic would add around a further £13 –£15 pa on average to the underlying core oceanic charge in NR23, assuming that 75% of the oceanic TRS debtor is recovered in NR23, with the remaining 25% recovered in NR28”<sup>181</sup>, yet this would appear to be an ex post adjustment to RP3 that significantly transfer risk to customers
- 8.15. Given that an assessment of efficient costs could not be undertaken without assessing all costs in the NERL business, the CAA’s CAP2291 request does not appear intended to introduce an ex-post TRS; we therefore do not support such an approach that would significantly increase Oceanic charges when they are already unaffordable at present
- 8.16. In addition, the proposal to introduce a new TRS for the core oceanic charge needs to be carefully considered by the CAA; given the experience of the pandemic, we appreciate the logic for proposing such a mechanism, but note that any further de-risking of NERL’s business should be incorporated into the WACC through a reduction in the cost of capital
- 8.17. Should such a mechanism be pursued, its mechanics should be tailored to robust analysis of the operating expenditure to provide Oceanic services, and ensure that NERL is incentivised to operate efficiently at all deviations from the baseline traffic forecast; it remains our view that at the shoulder of changes in risk sharing rates

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<sup>179</sup> [Ibid., p50](#)

<sup>180</sup> [Ibid., p50](#)

<sup>181</sup> [Ibid., p50](#)

that TRS mechanisms can introduce some adverse incentives if not carefully designed and calibrated

### **Conclusion**

- 8.18. We support NERL's Oceanic proposals, in particularly the intent to remove oceanic clearances and reduce the footprint of the organised track structure; as a result, we hope to see benefits arise from ADS-B, which has resulted in extraordinary increases in charges
- 8.19. Performance metrics should be based upon an aim to incentivise particular areas that are of key relevance to customers and are an issue at present; as a result, we welcome a metric to monitor variable speed clearance, but are cautious of the definition of operationally equivalent clearances, which may be incompatible with FMC calculations, and believe the proposed collision risk metrics to have already been comfortably achieved
- 8.20. We remain of the view that the introduction of any TRS should be reflected in the WACC as risk is transferred to customers and carefully calibrated; we also query the inclusion of an Oceanic TRS debtor based upon a justification grounded in the CAA's cost estimate work set out in CAP2291, which does not appear consistent with ex ante incentive regulation

## **9. Regulatory mechanisms and prices**

- 9.1. The pandemic resulted in an extreme reduction in traffic volumes, largely because of government intervention; we therefore agree with NERL that mechanisms "were not expressly designed for the traffic variation seen in 2020/21"<sup>182</sup>, and as directed by the CAA should be updated to accommodate such situations in future
- 9.2. We recognise that there is merit in considering how to mitigate "the risks of a further reopener given the uncertainty at the time we developed our plan"<sup>183</sup>, particularly in light of the requirement to re-open the price control as a result of the pandemic; nevertheless, this needs to be carefully calibrated to the incentives, ensuring that it is also reflected in the cost of capital appropriately

### **Traffic risk sharing**

- 9.3. We recognise too that the existence of the Traffic Risk Sharing ("TRS") scheme has enabled NERL "to access current liquidity and long term debt financing efficiently"<sup>184</sup>, although we stress that any modifications should support the incentives and ensure that risk is not inappropriately transferred to customers without a corresponding reduction in the cost of capital

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<sup>182</sup> [NERL NR23 Business Plan, Chapter 9, Regulatory mechanisms, p53](#)

<sup>183</sup> [NERL NR23 Business Plan, Appendix P: Regulatory model and mechanisms, p6](#)

<sup>184</sup> [Ibid., p6](#)



- 9.4. In addition, we appreciate that the TRS was “temporarily modified to mitigate adverse charging impacts for our customers, while retaining the revenue recovery principle on which our financial structure is based”<sup>185</sup>; this drew upon the changes to the TRS recommended by the European Commission for other ANSPs
- 9.5. The recovery profile of the TRS debtor should however be carefully considered; where increments to the RAB are depreciated over 15 years and the RAB is used as the tool for recovery of the debtor, this suggests the same, longer recovery profile may be more appropriate than the recovery of 75% in NR23 and 25% in NR28 in equal instalments proposed by NERL<sup>186</sup>, complicating RAB calculations
- 9.6. Furthermore, the proposed separate treatment and recovery of the TRS debtor from the main RAB raises the question of whether a different cost of capital should instead be applied to the TRS debtor; the logic should be based upon consistent use of the RAB or separate depreciation of the debtor at a different cost of capital
- 9.7. Considering that the existing TRS “and the strong incentives it provides on NERL to seek to reduce costs where traffic falls below the level forecast”<sup>187</sup>, the CAA should only make modifications where the evidence is clear that proposed changes will benefit customers or raise the incentive on NERL for efficiency
- 9.8. We agree with NERL that it is “in users’ interests to seek to avoid sharp increases in prices following major shocks to the aviation sector, while recognising that a clear and secure regulatory policy on the ultimate recovery of allowed revenues is vital to underpin the efficient long term financing of the ANSPs”<sup>188</sup>
- 9.9. The proposed modification to the TRS that moves large, downside deviations in traffic volume to a lengthier recovery appear logical, but the CAA should assess the incentives that result from such a mechanism and consider the TRS structure as a whole given the other incentives in the price control
- 9.10. For example, should a dead band continue, it should be calibrated based upon the any deviation that can occur around a fixed level of operating expenditure; it is our preference that dead bands are removed since they tend to weaken or strengthen the incentive as traffic varies within the dead band, resulting in an inconsistent incentive
- 9.11. Furthermore, as the sharing rate change beyond 4.4%, the behaviour of the regulated firm can be influenced by motivations to avoid or enter the strong sharing rate, and the sharp change in sharing between a dead band and the area beyond is likely to undermine incentives, which could be better calibrated now information is

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<sup>185</sup> [Ibid., p7](#)

<sup>186</sup> [Ibid., p8](#)

<sup>187</sup> [Ibid., p10](#)

<sup>188</sup> [Ibid., p10](#)

available on large changes in volumes and resulting operating expenditure as a result of the pandemic

- 9.12. We therefore suggest that sharing might occur immediately following any deviation in traffic volumes, with the sharing being over a similar time period up to between -10% and any positive deviation from baseline forecast; we agree with the logic of NERL's longer recovery period for deviations greater than -10%, but suggest this might best be incorporated into the RAB and depreciated consistently with any other additions resulting from capital expenditure
- 9.13. Similarly, a sharing rate would be appropriate based upon analysis of NERL's operational leverage; any ability to scale the cost base needs to be appropriately incentivised where possible
- 9.14. We further note NERL's proposal to extend TRS to Oceanic services, where NERL consider that "had a TRS mechanism been in place, customers would have benefitted through a reduction in prices"<sup>189</sup>; before considering further, we reiterate that any risk reduction should be reflected in the WACC, and such a TRS this would appear to be a significant, further risk reduction of NERL
- 9.15. The CAA should consider its logic in dismissing NERL's previous request to extend TRS to Oceanic services, particularly given the cost incentives that interact with those of other partner ANSPs; given the proposed structure is the same as for En Route charges, our comments on this proposed structure are identical should it be pursued, however we are not supportive of its introduction without the aforementioned WACC decrease from that of RP3

### **Cost risk sharing**

- 9.16. Given the CAA's position on charges for new airspace users has yet to be defined, but that our existing position that users should fund their own services, we welcome the proposal that NERL should "protect our commercial aviation customers from the potential cost impacts arising from new users by excluding any costs for supporting such new activity from our NR23 business plan"<sup>190</sup>
- 9.17. Nevertheless, it would be useful to understand what this means in practice, particularly in circumstances "where NERL is not able to recover costs for servicing new users, then such costs would be logged up, to be assessed and then approved by the CAA as reasonably and efficiently incurred"<sup>191</sup>
- 9.18. As a result, it may be better to consider how to incorporate such services as single till commercial opportunities, particularly where use of airspace disrupts activities of current airspace users, and especially where NERL is proposing a re-opener to support new users of airspace might radically undermine incentives

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<sup>189</sup> [Ibid., p12](#)

<sup>190</sup> [Ibid., p14](#)

<sup>191</sup> [Ibid., p14](#)



## Conclusion

- 9.19. We support continued calibration of regulatory mechanisms to ensure incentives are consistent and appropriate in the circumstances; in particular, we recognise that the existing TRS required modification to accommodate the demands of the pandemic, therefore considering how to manage such circumstances in future is a relevant question
- 9.20. However, any adjustments must be tailored to the issue they are trying to solve, and this is particularly important where inflation of the RAB resulting from the TRS debtor is so material; depreciation of amounts placed onto the RAB should be logically established, and if significant deviation is required from that logic, such debtors might instead be recovered through alternative mechanisms
- 9.21. The design of the TRS should be tailored to NERL's particular business, with dead bands only if they are logical based upon how operating leverage in the business, in particular avoiding incentive issues where sharing rates change dramatically; in addition, the inclusion of an Oceanic TRS should be carefully scrutinised and reflected in the WACC

Yours sincerely,



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