Economic Regulation and Competition Policy

Investigation under s.34 of the Transport Act 2000: Project Palamon – Draft Decision

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Introduction

1. This document sets out the CAA's draft analysis, provisional conclusions and provisional recommendations regarding the Palamon Investigation for the purpose of consultation with interested parties in this case. The CAA is investigating complaints brought by Ryanair plc ("Ryanair") and Stansted Airport LTD ("STAL") regarding the compliance of NATS (En-Route) plc ("NERL") with its obligations under its Air Traffic Services licence ("the Licence") and the Transport Act 2000 ("TA00"). The complaints related to Air Traffic Flow Management ("ATFM") delays experienced by airlines and passengers of Stansted and Luton airports.

2. The Palamon investigation follows an earlier investigation conducted by the CAA addressing similar complaints brought by Ryanair and STAL in 2016 in relation to NERL's performance (the "Oberon investigation"). At the end of that investigation, we did not make a finding of breach but required NERL to implement a number of recommendations made in the Oberon final report[1] (the "Oberon recommendations") and to comply with its action plan.

3. Since March 2020 demand for air travel and for NERL's air traffic services has fallen very significantly because of the impact of the Covid-19 pandemic. Given this unprecedented reduction in demand the difficulties and issues that have been previously experienced with airspace capacity and the resilience of NERL's operational staffing arrangements are not being experienced at present. As the focus of this investigation was NERL's performance between 2018 and early 2020 then it remains appropriate for us to consider whether NERL acted consistently with its statutory and licence obligations. Nonetheless, in considering what, if any, enforcement actions to take in relation to past performance or further steps to take to improve future performance in relation to these matters it is appropriate for us to consider and take into account the very difficult circumstances that the sector is now experiencing and the uncertainty over the profile of the recovery in demand for air travel. We address these issues in the sections on provisional conclusions and recommendations below.

[1] CAP1578: Investigation under section 34 of the Transport Act 2002: Project Oberon Final Report, August 2017 – Non-Confidential version, available at www.caa.co.uk/CAP1578; Unredacted version, KDN01

4. The CAA's analysis, conclusions and recommendations contained in this draft decision are provisional and may be subject to change, after we have considered representations and any further evidence from interested parties.

Summary of our assessment and analysis

5. **In Chapter 1 we set out further background information and provide more detail on the complaints and describe the scope of our investigation.** A summary of the scope of the investigation is set out below:

- whether NERL had carried out its action plan in compliance with the Oberon recommendations and the impact of such action or inaction;
- whether NERL has correctly coded delays associated with the London Approach Service ("LAS");
- the cause and impact of any delays in the LAS, particularly on aircraft using Essex airspace;[2]
- whether NERL has taken, or is taking, all reasonable steps to ensure it has sufficient staff to provide the LAS, and in particular to meet the reasonable demand of aircraft using Essex airspace, and whether NERL could take any other appropriate action in that regard;
- whether NERL has taken, or is taking, all reasonable steps to ensure sufficient capacity is provided within the Essex airspace for the provision of the LAS, and whether NERL could take any other appropriate action in that regard; and
- whether NERL has unduly discriminated between any person or class of persons in providing its LAS.

6. **Chapter 2 describes the legal framework.** Central to this investigation are NERL's duties under TA00 and its licence obligations. TA00 section 8(1)(c) provides that NERL must take all reasonable steps to secure that the demand for authorised air traffic services in respect of a licensed area is met, and, section 8(1)(d) provides that NERL must have regard, in providing, developing and maintaining the system, to the demands which are likely to be placed on it in the future.

7. The Licence imposes a number of obligations including the following:

[2] In the context of this investigation, Essex airspace refers to the segment of airspace relevant for the provision of the London Approach Service to users of Stansted and Luton airports.

- Condition 2.1(a) – the Licensee shall make available the Core Services[3] so as to be capable of meeting on a continuing basis any reasonable level of overall demand for such services;
- Condition 2.7 – in providing services under [Condition 2.1] the Licensee shall not unduly prefer or discriminate against any person or class of person in respect of the operation of the Licensee's systems; and
- Condition 5.2 – the Licensee shall at all times act in a manner calculated to secure that it has available to it sufficient resources including (without limitation) financial, management and staff resources, fixed and moveable assets, rights, licences, consents and facilities, on such terms and with all such rights as shall ensure that at all times it is able to: (a) carry out its Permitted Purpose[4] activities; and (b) comply in all respects with its obligations under TA00 and this Licence including, without limitation, its duties under section 8 TA00.

8. **In Chapter 3 we provide an overview of traffic and delays at the five major London airports.** Our main findings include:

- across the five main London airports, traffic[5] growth has been fastest at Stansted and Luton with growth of 19% and 24% respectively, over the 5-year period 2015 to 2019, compared with a 1% increase seen at Heathrow and 6% increase at Gatwick;
- as traffic has increased at Stansted and Luton, the overall flight punctuality (i.e. total delays to flights of which air traffic delays form only part) at these airports has worsened – in 2018, on average, arrivals were delayed by 22 minutes at Stansted and 18 minutes at Luton – resulting in some of the highest average delays per flight in Europe;
- approximately 20% of delay in 2018 was categorised as en route,[6] with the majority of overall delay being categorised as being caused by delays to earlier flights, or "reactionary".[7] The focus of the complaints is the services provided by NERL (and specifically the LAS), which typically contribute only a small proportion of the en route and total delays experienced by flights;

[3] Part of the Core Services includes the London Approach Service (see NERL Licence).

[4] As defined in the NERL Licence.

[5] The number of air transport movements i.e. landings and take-offs of aircraft engaged in commercial air transport.

[6] The en route ATFM delay are ATFM delays on the ground due to constraints en route (as opposed to constraints at the arriving airport or reactionary delays, for example).

[7] Reactionary delay is incurred by the late arrival of a previous flight (can also be considered "knock on" delay as a result of delays earlier in the day). This is the most significant cause of delay and it is typically greater in airlines whose aircraft operate multiple sectors per day with short turnaround times.

- on the LAS, delays attributable to NERL are typically in the 10-30 seconds range per flight, with those due to staffing issues (which are an important part of the complaints) contributing most of these delays;
- when flights are delayed due to the imposition of ATFM regulations, however, the impact on the individual flights concerned is much more material than the overall averages (which include many flights subject to no delay). For example, when a staffing shortage necessitated ATFM regulations in 2019 this caused an average delay on arrival of 26 minutes for the flights concerned across Stansted and Luton airports; and
- we estimate a potential cost of the delays that have been attributed to NERL's staff shortages to be approximately £5 million to £9 million per year for airlines and consumers across both Stansted and Luton, in the years that have seen significant staffing delays.

9. In 2017 we published our report and conclusions on the Oberon investigation, which addressed similar complaints to those made by Ryanair in 2016 in relation to NERL's performance. We concluded that NERL had not failed to meet its duties under TA00 or to comply with the conditions of its licence. We noted that delays in the LAS increased in 2016 as a result of there being too few operational staff available to provide a service with normal resilience levels, this was caused by a number of events which occurred in combination. We found that the combination of circumstances went beyond what NERL could reasonably have planned for and mitigated.

10. However, this finding was described as a "finely balanced decision" and the investigation highlighted several areas where NERL needed to improve. We said that NERL needed to deliver on a series of remedial actions to improve resilience levels in its operations. Furthermore, we said that we would take such actions into account in coming to a view on what would be considered reasonable in any potential future allegation of a breach of the Licence or TA00.[8]

11. **In Chapter 4 we set out our views on whether NERL has acted upon the Oberon recommendations and action plan.** The overall conclusions are that NERL has implemented all 23 items on its action plan and followed all of the Oberon recommendations. Nonetheless, it is apparent that the actions taken by NERL to date have not been sufficient to prevent further material issues arising regarding NERL's performance and staff resourcing.

12. **In Chapter 5 we set out our views on whether NERL has correctly coded delays**. As part of this investigation we commissioned a report from the Eurocontrol Performance Review Unit ("ECTL-PRU") to advise on this and other

[8] CAP1578, paragraph 1.14

matters. The ECTL-PRU report[9] found NERL's coding of delays was consistent with current guidelines[10] and not dissimilar to other Air Navigation Service Providers ("ANSPs") in Europe.

13. Nonetheless:

- current coding guidelines are not very prescriptive and the Performance Review Council of Eurocontrol ("PRC") found that they can lead to inconsistences and difficulties in monitoring ANSPs' performance. The PRC has recommended that the Air Traffic Flow and Capacity Management ("ATFCM") process be strengthened using a set of principles for delay coding as endorsed by ECTL's Provisional Council in 2017; and
- NERL's policy of attributing staffing delay to shortages against the Planning Staffing Schedule ("PSS") rather than actual demand does not appear consistent with best practice and PRC coding principles.

14. We have carried out additional analysis of the pattern of delays and have found no evidence of systematic miscoding from the patterns of capacity, staffing or weather delays. While we make a number of recommendations designed to encourage NERL to further improve its practice in respect of the coding of delays (as summarised below in the section on recommendations) we have seen no evidence, from either the ECTL-PRU report nor our own separate analysis, to indicate that NERL's coding of delays in 2018 or 2019 was intentionally wrong or misleading in a material manner.

15. **In chapter 6 we assess the evidence that is available as to whether NERL has taken, and is taking, all reasonable steps to ensure it has sufficient staff to provide the LAS, and in particular to meet the reasonable demand of aircraft using Essex airspace**.

16. The Oberon final report found that the NERL attributable delays in the LAS to Stansted and Luton increased in 2016 as a result of inadequate staffing resilience. We were clear that we expected NERL to take immediate steps to address its performance issues, failing which, it faced the risk of future regulatory intervention under the TA00 or its licence.

17. We note that NERL has continued to face difficulties with its staffing resilience. The number of validated Air Traffic Controllers ("ATCOs") decreased in 2019 compared to 2018 and the number of non-Heathrow approach ATCOs absent with long term health conditions increased in 2019 to 7.7% of the workforce (compared to 4.8% in summer 2018). NERL said its delay performance

[9] PRU assessment of NERL delays in the London Approach service (ECTL-PRU) 26 June 2019, KDN02

[10] As published by Eurocontrol in the ATFCM Manual, available at https://www.eurocontrol.int/publication/atfcm-operations-manual

continues to be vulnerable to short notice sickness and other factors, such as retirement profiles.

18. It is also clear from the evidence that we have reviewed that NERL has been taking some steps to try and address staffing issues and shortages, including:

- as noted above, it has delivered on the Oberon recommendations;
- increasing the number of trainee ATCOs;
- greater use of overtime in 2017 and 2018;
- greater emphasis on training in 2019;
- increased operational flexibility and focus on staffing; and
- new and improved management information.

19. Nonetheless:

- NERL has continued to face challenges in maintaining an appropriate number of validated ATCOs for the Stansted and Luton approaches, which remain below NERL's optimum and below 2016 levels (that were already inadequate to meet the lower levels of demand at that time);
- staffing delays at Stansted fell from an aggregate of 17,041 minutes in 2016 to 34 minutes in 2017 and 124 minutes in 2018. NERL said this reduction was due to increased take-up of voluntary overtime by its staff, compared with 2016, when there was a less favourable industrial relations climate;
- in 2019, while NERL's performance improved with reduced NERL attributable delays overall compared with 2018, there were significant increases in staffing delay to a total of 29,281 minutes at Stansted (and 16,719 minutes Luton) which was much higher than 2016. This suggests that NERL's actions have not been successful in improving ATCO resilience and service performance for users of Stansted and Luton. We consider that significant spikes in staffing delays for two out of four years is difficult to justify and demonstrates that NERL's actions have failed to improve its resilience on a consistent and sustained basis; and
- NERL's own forecasts of staffing for the non-Heathrow approaches consistently show the demand for operational staff exceeding supply and, in the absence of the Covid-19 crisis, anticipated that such shortfalls would continue until 2023.

20. The following factors are important considerations in assessing NERL's compliance with its obligations:

- delays in the Stansted airspace have previously been the subject of the CAA's Oberon investigation that concluded with a finely balanced decision, particularly on staffing resources, that there was no breach but found that NERL needed to take specific steps to improve delay performance and staffing resilience for the Stansted and Luton approaches;
- although NERL has taken a range of steps post-Oberon designed to improve resilience, these did not deliver the desired outcomes in 2019 and early 2020, with ATCO numbers remaining below the levels which NERL appears to consider necessary to provide a resilient service;
- a number of the underlying issues identified by NERL including short-term illness, early retirements, challenges and limitations of on-the-job training appear relatively long-standing and reasonably foreseeable issues that should be built into effective resource planning including some margin for error yet NERL has thus far failed to find solutions to properly address them; and
- NERL has not presented to us a recovery plan that, absent Covid-19, credibly demonstrated it could have closed the gap on supply of ATCOs meeting demand for non-Heathrow London airports in the near future.

21. As we explain further below, these matters (including the significant increase in ATC staffing delays in 2019, the persistent lack of staffing resilience on the LAS to Stansted and Luton airports over time and the failure to implement adequate and timely steps to resolve these issues) lead us to conclude that, from January 2019 until March 2020 (the "Relevant Period"), NERL contravened its obligations under section 8(1)(c) and 8(1)(d) of the TA00 and 5.2 of the Licence.

22. While the situation with respect to overall demand has changed radically with the development of the Covid-19 pandemic, which means that the demand NERL is currently required to meet under its statutory duties and licence obligations is much lower than usual, the evidence points to persistent and significant failings in NERL's historical performance with respect to staffing resilience for the Stansted and Luton approaches. Absent the pandemic, the evidence points towards a situation where that shortfall would have continued without effective measures to address it until at least 2023, which would have indicated a likely future contravention of its obligations.

23. Bearing in mind the impact of the pandemic, the future pattern of demand remains uncertain, but as traffic recovers it will be necessary for NERL to plan and operate its staffing arrangements in a way which avoids the repeated spikes in staffing related delays that have characterised its historical performance in relation to the Luton and Stansted approaches.

24. **In chapter 7 we assess the evidence that is available on whether NERL has taken, or is taking, all reasonable steps to ensure there is sufficient capacity within Essex airspace for the provision of the LAS.**

25. We note that:

- there is a history of challenges in redesigning the complex airspace in the south east of England. Previous initiatives to bring forward airspace changes have not always been fully supported by all stakeholders. In these circumstances, it is not necessarily reasonable to hold NERL solely responsible for delays in making progress with respect to airspace change;
- following the Terminal Control ("TC") North project[11] being abandoned in 2010, the next major airspace changes that NERL brought forward that would have addressed issues in Essex airspace were LAMP Phase 2[12] and the Swanwick Airspace Improvement Project AD6 ("AD6")[13], with NERL highlighting its discussions with airlines on these matters during 2018; and
- over the period 2015 to 2019 traffic growth was stronger than the STATFOR[14] base forecast but in line with the STRATFOR high case. Therefore, we consider it is difficult to argue that growth at Stansted and Luton was wholly unexpected, particularly given that traffic essentially rebounded to the peak levels previously seen in 2007. On balance, the evidence suggests that NERL did not reasonably anticipate demand growth or put in place timely capacity enhancing plans early enough;

26. Nonetheless, more recently, it has been working on AD6, a project that should be able to significantly address capacity issues by the time demand rebounds to 2019 levels. It has also made efforts to make incremental increases in airspace capacity in the LAS to users of Stansted and Luton. For example, monitoring values in Essex airspace have been reviewed upwards following ExCDS[15] implementation.

27. We also note that work on airspace modernisation more widely is now being undertaken through the Airspace Modernisation Strategy, the Government's legislative programme and the establishment of the Airspace Change Organising Group ("ACOG") within NERL. The role of NERL and ACOG and certain

[11] The TC North project was introduced around 2006 and dropped in 2010. One of its main elements was a re-design of the Essex airspace adding more capacity for Stansted and Luton approaches.

[12] For more information on LAMP phase 2, please see www.caa.co.uk/Commercial-industry/Airspace/Airspace-change/Decisions-from-2018/London-Airspace-Management-Programme-Phase-2---ATS-Network/.

[13] For more information on this airspace change, please see https://airspacechange.caa.co.uk/PublicProposalArea?pID=51.

[14] STATFOR is the Statistics and Forecast Service, part of EUROCONTROL

[15] This was a project implementing new technology, namely a new electronic flight strip system for use by ATCOs. More information on this is available at https://www.nats.aero/discover/excds-waving-goodbye-paper-strips/.

deliverables are also being included in a new Licence condition that has been agreed between the CAA and NERL. We appreciate the work that NERL has undertaken to date in supporting these changes and the leadership role it has taken on with respect to airspace modernisation. We also strongly encourage all parties to continue to contribute to this work and to help drive forward airspace modernisation so that it delivers the efficiency and environmental benefits necessary to support the operation of the sector in the future.

28. While we consider the AD6 proposed change could have been initiated in a timelier manner, we note that a single lapse by NERL does not necessarily indicate a contravention of its statutory or licence duties. On the whole, we consider that NERL has, particularly in recent years, been taking all reasonable steps to develop airspace capacity for the benefit of all airports including Stansted and Luton. On this basis we do not consider NERL has contravened or is likely to contravene in the future its duties under s.8(1)(c) and s.8(1)(d) of TA00 nor its obligations under Condition 2(1)(a) of the Licence.

29. **In Chapter 8 we assess the evidence available on whether NERL has discriminated and/or shown undue preference between airports or operators on the LAS, to the detriment of Ryanair and Stansted Airport.**

30. We note that:

- there are differing levels of NERL-attributable ATFM delay experienced by different airports in the LAS, and staffing and capacity ATFM delays are more significant per flight at Stansted than Heathrow;
- there are, however, objective differences between the operational requirements of these airports and when total Air Traffic Management ("ATM") delay is considered there is no indication that any one airport or operator is unduly favoured over another on the LAS; and
- Stansted is heavily constrained by its airspace capacity whereas Heathrow is constrained by its runway capacity. NERL addresses these constraints in different ways and we have seen no evidence to suggest that its approach to developing or enhancing airspace capacity at these airports demonstrates discrimination or undue preference and we do not consider that NERL has contravened or is likely to contravene, its obligations under Condition 2.7 of the Licence.

Provisional conclusions

31. In the Oberon investigation we examined the delays arising in 2016 because of a lack of resilience in NERL's arrangements for providing operational staff. We noted that there was the coming together of a range of circumstances, including higher than expected sickness levels, early retirements and the relatively rapid increase in flights at these airports. We concluded that the cumulation of the

circumstances noted above was not reasonably foreseeable, and while the decision was finely balanced NERL had not breached its licence or other statutory duties in respect of these matters.

32. The original focus of the Palamon investigation was the delays that had arisen in 2018 at Stansted and Luton and had been categorised by NERL as relating to capacity. We investigated the complaint that these delays had been mis-classified by NERL.

33. During the course of this investigation further delays arose at Stansted and Luton airports that related to the lack of resilience in NERL's operational staffing processes. This was despite NERL having satisfied the action plan and Oberon recommendations. NERL explained the steps it had taken to try and improve the resilience of its staffing arrangements but noted that the difficulties caused by issues such as sick leave and early retirements had led to staff shortages and delays.

Staffing

34. While we accept that NERL has taken a range of steps to address its staffing issues, the difficulties it cites are similar to those issues identified in the Oberon investigation. These issues, which include short-term illness, early retirements, challenges and limitations of on the job training, appear relatively long-standing and reasonably foreseeable. Given they were identified some years ago they should now be built into effective resource planning with a suitable margin for risk, yet NERL has thus far failed to develop effective solutions to properly address these matters, in terms of their effect on the outcome of staffing related delays in the Essex airspace, on a consistent and sustainable basis. We also note that NERL has not presented to us a recovery plan that credibly demonstrates it can close the gap on supply of ATCOs meeting demand for non-Heathrow London airports.

35. **These matters lead us to conclude that during the Relevant Period the significant increase in staffing delays together with a persistent lack of staffing resilience on the LAS to Stansted and Luton airports and the failure to anticipate and implement adequate and timely steps to resolve those issues means that NERL has contravened its duties under s.8(1)(c) and s.8(1)(d) TA00 and its obligations under Condition 5.2 of the Licence. That is because, based on the evidence made available to us:**

- NERL did not take all reasonable steps, in accordance with s.8(1)(c) of TA00 to secure that demand for air traffic services was met during the relevant period in respect of Stansted and Luton airports;

- NERL did not have proper regard, in accordance with s.8(1)(d) of TA00, in providing, developing and maintaining its ATC system, to the likely future demands for operational staff to support services to Stansted and Luton airports; and
- NERL did not at all time act in a manner calculated to secure, in accordance with Condition 5.2 of the Licence, that it had sufficient staffing resources available to ensure it could carry out its Permitted Purpose activities and to comply with its s.8 obligations to meet current and future demand for air traffic services in respect of Stansted and Luton airports.

36. This finding does not mean that all future instances of significant delay in a segment of UK airspace would be likely to constitute a contravention of NERL's relevant obligations. Some level of delay is to be expected in normal operations, as would be some variation in performance across different parts of the network. It is the particular circumstances of the evidence relating to Essex airspace that have led to the CAA's provisional finding. This includes the fact that the shortcomings identified in NERL's performance have been sustained over a considerable period of time and are material. It also follows a previous formal investigation (Oberon) that concluded it was a "finely balanced decision" that NERL did not breach its licence obligations with respect to staffing resilience in the same segment of airspace.

Airspace Capacity

37. In relation to the delivering of airspace change to increase the provision of air traffic capacity we note that following the difficulties with the TC North project that ended in 2010, the next major airspace changes that NERL brought forward to address issues in Essex airspace were LAMP Phase 2 and AD6, with NERL highlighting its discussions with airlines on these matters during 2018. It is not clear why NERL waited so long to bring forward AD6 and we do not find NERL's comments about unexpected traffic growth a compelling reason for delays in bringing forward these proposals.

38. We do however note the multilateral nature of airspace change, particularly with regard to fundamental redesign of airspace and the significant time it takes to develop and implement complex airspace change proposals. We further note the significant progress made in recent years to develop and deliver on the Airspace Modernisation Strategy[16] with NERL playing a central role in planning and delivering reform alongside a number of other stakeholders including airports, the CAA and the Department for Transport. While we note the complaints refer to alleged inaction by NERL dating back more than ten years, we have to be

[16] CAP1711, Airspace Modernisation Strategy, available at www.caa.co.uk/CAP1711

mindful of the temporal scope of this investigation and the nature and purpose of the enforcement regime under TA00.

39. **While we consider the AD6 proposed change could have been initiated in a timelier manner, we note that a single lapse by NERL does not necessarily indicate a contravention of its statutory or licence duties. Taking all the above matters into account, particularly the significant progress that has been made in recent years in relation to airspace modernisation, with respect to the development of airspace capacity, we conclude that:**

- regarding its Licence Condition 2.1(a) NERL has not failed, is not failing nor is likely to fail, to make available its core services so as to be capable of meeting on a continuing basis any reasonable level of overall demand for such services;
- regarding its s.8(1)(c) TA00 duty NERL has not failed, is not failing nor is likely to fail, to take all reasonable steps to secure demand is met; and
- regarding its s.8(1)(d) TA00 duty NERL has not failed, is not failing nor is likely to fail, to have regard, in providing, developing and maintaining the system, to the demands which are likely to be placed on it in the future.

Undue preference or discrimination

40. As noted above in paragraph 30, the evidence we have considered does not indicate that NERL has contravened its obligations in relation to discrimination.

41. **On that basis, and with respect to the complaints of undue preference and discrimination, we conclude that regarding its Licence Condition 2.7 NERL has not failed, is not failing, nor is likely to fail, to meet its obligation to not unduly prefer or discriminate against any person or class of person in respect of the operation of its systems.**

Enforcement powers, changes in circumstances and way forward

42. The CAA's enforcement powers under the TA00[17] are focussed on addressing current or likely future contraventions of statutory obligations and licence conditions by a licence holder with a view to bringing any non-compliance to an end or avoiding any likely future non-compliance.

43. Since March 2020 demand for air travel and NERL's air traffic services has fallen very significantly because of the impact of the Covid-19 pandemic. There remains significant uncertainty about the timing, shape and extent of the recovery in traffic levels.

[17] Set out in more detail in Chapter 2 of the draft decision

44. Given the unprecedented fall in demand for air traffic and the uncertainties about the recovery in traffic levels and the likely timing of such recovery, it is not clear that there will be a gap between demand for ATC services and NERL's staffing resources in the near future. Nor is it clear what steps (if any) NERL might need to take imminently to address the difficulties it has experienced with capacity and operational staffing and to prevent such problems reoccurring in the near future. Given these uncertainties, the CAA is not in a position to set out detailed obligations on NERL to deal with its historical contraventions.

45. The CAA's enforcement powers in TA00 are limited to taking action where there is a current or future likely contravention. The word "likely" indicates more probable than not on the balance of probabilities (i.e. more than 50%) and within a reasonable timescale. There is no current contravention and we cannot now say that a future contravention is likely due to the dramatic drop in demand as a result of Covid-19. We do not have firm evidence on the likely timing or shape of the recovery of air traffic. As such, the CAA does not consider it is appropriate to adopt formal enforcement measures when there is currently no clear shortfall between staffing resources and demand.

46. Nonetheless, the CAA considers that it should put recommendations in place to encourage NERL to use the intervening period to address the shortcomings in its approach to resourcing and other matters to make it less likely that similar issues arise in the future. These matters are dealt with in the section below.

Summary of provisional recommendations

Staffing

47. The reduction in demand as a result of the Covid-19 pandemic and Heathrow Airport Limited's (HAL's) decision to pause its capacity expansion programme provides NERL with the opportunity to reconsider its approach to staffing and technology and to bring forward plans for a more efficient and resilient service. In particular, by the time demand substantially recovers, NERL will have had more time to train ATCOs, increase the flexibility of its processes and make better use of technology. It should also be able to devise and implement a staffing and technology plan that better accommodates for short-term supply issues (such as sickness or industrial action), and longer-term issues (such as churn, validation requirements or retirement) to enable it to avoid a recurrence of the historical difficulties encountered at Stansted and Luton.

Capacity

48. We expect NERL to continue to take a leadership role in airspace modernisation in the UK. To the extent practicable this should be supported by other aviation stakeholders, including STAL and Ryanair. Wider cooperation should involve working constructively with each other on matters including airspace change proposals and early sharing of airline and airport scheduling and capacity

declarations to ensure that (despite the constraints that may exist in the relevant airspace) delays to passengers are minimised. NERL should take advantage of the new processes for coordinating airspace change it is putting in place with the help of its ACOG team to improve the capacity available in Essex airspace, including for example by making appropriate and timely progress with the AD6 change.

Stakeholder engagement

49. We have seen correspondence where Ryanair repeatedly asked for staffing and other information from NERL, but the parties were unable to come to an agreement on what information NERL should provide, and on an action plan to improve ATFM delay performance in Essex airspace. We note that Ryanair and other airlines using Stansted and Luton are a very important group of NERL's customers and could provide useful and timely inputs that would inform and assist NERL in formulating its demand forecasts and resource allocation. NERL should engage more pro-actively and transparently with its customers and key stakeholders including Ryanair and STAL. While the focus of this investigation has been NERL's compliance with its statutory and licence obligations, it has also become clear that Ryanair and STAL should do more to communicate with NERL in a constructive and cooperative manner (and we would encourage other airlines and airports, particularly those with capacity constraints, and Airport Coordination Limited (ACL) to do the same). Such an approach should support more constructive dialogue, which would be to the mutual benefit of all stakeholders.

50. It is disappointing that the parties to this investigation have been unable to improve communication and resolve issues in a timely way. We consider that some of the issues raised in the complaints which are the subject of this investigation may have been capable of resolution through improved dialogue or some form of dispute resolution between the parties. NERL and the other parties should take immediate steps to improve the quality of their dialogue and if necessary consider the use of a range of dispute resolution mechanisms in the future.

Coding of delays

51. We recommend that NERL:

- adopts the PRC best practice coding principles unless they can demonstrate to the CAA an important operational reason not to adopt the PRC best practice principles;

- provides dynamic Sector Opening Times to the Eurocontrol Network Manager (NM). This would be consistent with the new requirements imposed by Regulation (EU) No 2019/123 from 2020. Doing this would not necessarily change NERL's operational practices but could improve transparency and make it easier, particularly for Eurocontrol but also for other stakeholders, to review NERL's performance;
- continues providing Sector Opening Times information to the NM manually, while a system to provide dynamic sector opening times is being developed. It should also update the CAA and stakeholders on progress and when it expects a system to provide dynamic sector opening times to be operational; and
- engages with Eurocontrol, as NM, to ensure there is greater clarity on how NERL operates and that the data it submits to the NM is clear and accessible.

52. We also conclude that airport capacity declarations by Stansted and Luton and airline scheduling would benefit from taking into account airspace constraints in order to avoid delays and to make best use of limited airspace capacity. We recommend that airports and ACL, as the UK's slot coordinator, should seek timely input from NERL to feed into their capacity declaration and scheduling processes.

53. NERL should work with all parties in this investigation and seek to improve collaboration. For example, by making the most of the work of the Industry Resilience Group (IRG) and other fora in order to improve communication on strategic operational issues.

Overall reporting arrangements

54. We are minded to require NERL to report to the CAA and interested parties in this investigation, by the middle of 2021 and then on a six monthly basis on the progress that it is making with respect to all of the above matters in an open and transparent way. We are also minded to continue requiring that NERL publishes data on its performance as required by the data provision in NERL's Service Standards Statement produced under Condition 11 of its licence (which includes the data provided in the Oberon Indicators report) over the RP3 period to assist in the continued monitoring of its performance. NERL should also consider how best to provide any further contextual background information and data to ensure that its operations and plans are properly and reasonably transparent to all stakeholders.

Next steps

55. A confidential version of this draft decision document with supporting evidential materials has been placed in a confidentiality ring that included representatives of the parties to this investigation. We invited parties to make confidentiality and disclosure representations before preparing a non-confidential version of the draft decision document for wider comment.

56. We invite views, from the main parties and any other interested parties, on the findings and recommendations in our draft decision. All submissions should be made **by 19 October 2020** to economicregulation@caa.co.uk. Parties should make known to the CAA whether they consider any information contained in their submission is confidential. If so, they should also provide a second, non-confidential version of their submission and sufficient explanations to support their claims for confidentiality. The CAA will not accept blanket or unsubstantiated claims. The explanations provided will be taken into account when considering whether to disclose any of the information provided.

Chapter 1
Introduction

Introduction

1.1 This report sets out the CAA's analysis following its investigation into complaints regarding the compliance of NATS (En-Route) plc ("NERL") with its obligations under its Air Traffic Services licence[18] (the "NERL Licence") and the Transport Act 2000 ("TA00"). We have called this investigation Project Palamon to distinguish it from a previous investigation that the CAA has conducted into NERL's licence compliance in 2017 ("Project Oberon")[19] and other work that the CAA is currently undertaking regarding air traffic services and airspace regulation.

1.2 This document, its appendices and any supporting documents are strictly confidential and have been prepared for the purposes of consultation with the parties, and in order for NERL to exercise its rights of defence. The unredacted versions of this report have been provided to a limited number of individuals who are members of a confidentiality ring that has been specifically established for this investigation. The CAA considered proposed redactions and produced a non-confidential version of this decision. We now invite views, from the main parties and any other interested parties, on the findings and recommendations in our draft decision. All submissions should be made **by 19 October 2020** to economicregulation@caa.co.uk. We will then consider such views before publishing our final decision, which we intend to publish in Q4 2020.

1.3 In this chapter, we set out a description of the parties involved, the allegations made by the complainants, the scope of the investigation, and the commissioning and scope of the ECTL-PRU report.

Parties

1.4 The party under investigation is NATS (En-Route) plc ("NERL"). NERL holds an Air Traffic Services Licence issued under s.6 TA00. NERL is registered as company number 04129273 at 4000 Parkway, Whiteley, Fareham, Hampshire, PO15 7FL. It is a wholly owned subsidiary of NATS Holdings Ltd registered as

[18] Air Traffic Services Licence for NATS (En Route) Plc, June 2018 https://www.caa.co.uk/uploadedFiles/CAA/Content/Standard_Content/Commercial_industry/Airspace/Air_traffic_control/Licences/NERL%20LICENCE%2015%20(Jun%2018).pdf

[19] CAP 1578, Investigation under Section 34 of the Transport Act 2000: Project Oberon, Final report, Non-Confidential, www.caa.co.uk/1578 (the "Oberon final report")

company no. 04138218 at 4000 Parkway, Whiteley, Fareham, Hampshire, PO15 7FL[20].

1.5 The allegations have been made in separate complaints lodged with the CAA by:

- Ryanair plc ("Ryanair") – registered in the Republic of Ireland as company number 104547 at Ryanair Dublin Office, Airside Business Park, Swords, Co. Dublin and operates the airline Ryanair; and
- Stansted Airport Ltd ("STAL") – registered in the UK as company number 01990920 at Enterprise House, Bassingbourn Road, Stansted Airport, Essex, CM24 1QW and is the operator of Stansted Airport. It is a wholly owned subsidiary of Manchester Airports Group Plc ("MAG") - registered in the UK as company number 04330721 at Manchester Professional Services, PO BOX 532, Town Hall, Manchester, M60 2LA.

1.6 The two companies are referred to as "the complainants".

The allegations

Complaint from Ryanair

1.7 On 7 September 2018, the CAA received a written complaint[21] from Ryanair stating that "*it is now clear that NATS has failed to comply either with the specific recommendations made in the Oberon report or with the spirit of the CAA's guidance and continues to breach its obligations under the Act* [TA00]*, the Licence and the TFEU* [Treaty on the Functioning of the European Union]."

1.8 Ryanair stated that "*NATS continues to breach s 8(1)(c) and (d) of the Act [TA00] and conditions 2.1 and 5.2 of its Licence by failing to meet a reasonable level of demand for ATC services." In its complaint, Ryanair also stated that "despite clear guidance from the CAA, it is obvious that NATS has not improved the resilience of its operations. In fact, on 3 September last, the sickness of a single air traffic controller resulted in NATS closing the entire Essex airspace for nearly three hours.*"

1.9 Ryanair also stated that "*NATS continues to give preferential treatment to air traffic at Heathrow to the detriment of consumers using Stansted Airport, in breach of Art. 102 TFEU and conditions 2.7 and 2.8 of the Licence.*"

1.10 Ryanair expressed a concern that "*the reasons reported by NATS for delays may not accurately convey the underlying issue*." Ryanair stated that it had been

[20] In this report, references to NATS in extracts from documents submitted to the CAA by NERL, Ryanair, STAL and Eurocontrol Performance Review Report (except where clearly referring to NATS the parent company) should be understood to refer to NERL.

[21] Letter from Ryanair to CAA, 7 September 2018, KDN03

unable to obtain relevant data from NERL about staffing and that this "*refusal to engage with us is characteristic of NATS' inflexible and ineffective approach*."

Summary of Ryanair's allegations against NERL

1.11 Ryanair alleged that NERL:

- has not complied with the CAA's recommendations made in Oberon;
- is breaching s 8(1)(c) and (d) of the Transport Act 2000, article 102 of TFEU and conditions 2.1, 2.7, 2.8 and 5.2 of its licence;
- has not improved the resilience of its operations;
- gives preferential treatment to Heathrow airport to the detriment of consumers using Stansted airport;
- may not be accurately categorising delays on the basis of the underlying cause; and
- is not adequately engaging with Ryanair.

Complaint from STAL

1.12 In its letter to the CAA of 14 January 2019,[22] STAL complained about the provision of the LAS by NERL. It raised concerns with NERL's recent performance in managing the performance of the LAS.

1.13 STAL stated that:

- *"The latest Air Traffic Flow Management performance data demonstrates that, since the conclusion of the Oberon Report, performance of the LAS [London Approach Service] has significantly worsened with NERL attributable delays in the first nine months of 2018 being more than three times those in the entire 2016 calendar year that prompted the original complaints."*
- *"STAL considers that this is due to a combination of the following:* ***(A)*** *a failure by NERL to adequately implement the Oberon Report recommendations and/or that the Oberon Report recommendations themselves were not sufficient to improve delay performance;* ***(B)*** *a failure by NERL to develop and maintain the LTMA [London Terminal Manoeuvring Area] to meet demand as required under the TA00 and/or Licence;* ***(C)*** *NERL's discrimination/undue preference between London airports in provision of the LAS, to the detriment of Stansted Airport."*

[22] Letter from STAL to CAA, 14 January 2019, KDN04

- *"As a result of the above, STAL considers that NERL may be in breach of its statutory and licence obligations generally, but specifically any or all of:*
  - *Sections 8(1)(c) and (d) TA00;*
  - *Licence conditions 2.1, 2.2, 2.7, 2.8, 5.2, 10."*

1.14 STAL requested that the CAA review in detail whether NERL had complied with NERL's undertakings [from the Oberon investigation] or CAA's recommendations [from the Oberon investigation] to improve the LAS. STAL also requested that the CAA consider whether the Oberon recommendations were sufficient to improve delay performance and ensure continuity and quality of air traffic services. STAL stated that in its view Licence Condition 5.2 requires NERL to "*ensure it understands the likely future demand required of the airspace … so that it can resource plan from a day-to-day operational staffing perspective …[and] so that it can proactively manage the airspace itself to ensure it is able to meet the future demand*". STAL stated that "*such a sharp increase in ATC Capacity delays suggests NERL has failed to meet this obligation.*" STAL stated that it has shared its long-term growth plans "*with NERL on an annual basis from at least 2015 (and possibly earlier).*"

1.15 STAL noted that NERL has taken steps to identify a proposed solution in the form of the Swanwick Airspace Improvement Programme module AD6 Level 1 airspace change ("AD6")[23] but stated that these steps were taken relatively recently and that this will serve only as a medium-term solution as it would not be implemented until around 2020.

1.16 STAL expressed the view that "*whilst NERL may (subject to full CAA review […]) have adequately implemented the Oberon recommendations to help reduce staffing resilience issues*", that the "*same deficiencies in forecasting and planning identified by the CAA in the Oberon Report are now manifesting themselves in the ATC Capacity delays experienced at Stansted.*"

1.17 In addition, STAL stated that "*it appears that NERL has demonstrated discrimination and/or undue preference in respect of the LAS provision to the detriment of Stansted airport in comparison to Heathrow and Gatwick Airports, in breach of its obligations under the Licence.*" STAL suggested that "*all aspects of NERL's operations and corporate management (including consideration of the NATS Board composition) need to be reviewed to ensure that there are sufficient safeguards in place to ensure a non-discriminatory provision of services by NERL.*"

[23] For more information on this airspace change, please see https://airspacechange.caa.co.uk/PublicProposalArea?pID=51.

Summary of STAL's allegations against NERL

1.18 In summary, STAL alleged that:

- NERL had failed to adequately implement the Oberon recommendations/and or the Oberon recommendations were not sufficient to improve delay performance;
- NERL had failed to develop and maintain the LTMA to meet demand; and
- NERL discriminated between London airports.

1.19 STAL also noted that one of the chief focuses of the Oberon Report was staffing related delays and lack of contingencies made for short and long-term controller absences and that the latest statistics show a shift in the reason of delay. STAL therefore noted that it would welcome a detailed audit of the reasons for delay.

Scope of the Palamon investigation

1.20 In light of the allegations raised, the CAA adopted the following list of issues to determine the scope of the Palamon investigation:

- A. Whether NERL had carried out its action plan in compliance with the recommendations made by the CAA in the Oberon final report (the "Oberon recommendations") and the impact of such action or inaction.
- B. Whether NERL has correctly coded delays associated with the LAS;
- C. The cause and impact of any delays in the LAS, particularly on aircraft using Essex airspace;
- D. Whether NERL has taken, or is taking, all reasonable steps to ensure it has sufficient staff to provide the London Approach Service, and in particular to meet the reasonable demand of aircraft using Essex airspace, and whether NERL could take any other appropriate action in that regard;
- E. Whether NERL has taken, or is taking, all reasonable steps to ensure sufficient capacity is provided within the Essex airspace for the provision of the London Approach Service, and whether NERL could take any other appropriate action in that regard; and
- F. Whether NERL has unduly discriminated between any person or class of persons in providing its London Approach Service.

1.21 Whilst we note that the complainants' allegations include an alleged breach of competition law by NERL, we considered the range of tools available to the CAA to investigate the complaint as a whole and decided to open an investigation under s.34 of TA00. The CAA's primacy consideration is set out below in Chapter 2.

The Eurocontrol report

1.22 The CAA commissioned the Eurocontrol Performance Review Unit ("ECTL-PRU") to provide technical external support to the investigation, predominantly to assist with parts B(coding) and C (delays) and to a lesser extent E (capacity) and F (discrimination) of the scope. ECTL supports the European Commission, EASA and National Supervisory Authorities in their regulatory activities. The scope of the commissioned report ("the ECTL-PRU Report")[24] was:

a) Review the processes by which NERL records, categorises and reports delays;

b) Consider whether those processes are robust and follow existing best practice guidance;

c) Identify any issues encountered regarding those processes;

d) Review the demand growth forecasts for the LAS over the last 5-10 years and assess what their implications should have been for the purposes of capacity and staffing planning, and resilience management;

e) Audit the delays reported by NERL to establish whether delays have in practice been recorded appropriately in accordance with those processes;

f) Assess critically the underlying causes and contributory factors to ATFM delays in the London area. For this it may be helpful to correlate delay events with traffic, staffing availability, weather events, etc;

g) Assess the interrelations and impacts of other forms of delay on NERL attributable ATFM delays in the London area, and vice-versa;

h) Assess the magnitude of likely consumer harm (including additional costs borne by airlines and airports) arising from NERL attributable delay in the London approach area (including reactionary delays) and put it in the context of:

- Total flight delay experienced by consumers; and
- ATFM delays in other comparable airspace sectors both in the UK and in Europe, taking into account the reasons for ATFM delays (and in particular the staffing levels and resilience of other comparable airspace sectors).

j) Understand to what extent NERL has the ability and discretion to manage ATFM delays on a tactical basis across London airports and to what extent and how it exercises that discretion. For example, could ATFM delays

[24] PRU assessment of NERL delays in the London Approach service (ECTL-PRU) 26 July 2019, KDN02

affecting Stansted and Luton have been mitigated by increasing issues at another London airport?

k) Give an expert view on the key constraints faced by the provision of the LAS and what short to medium-term remedial actions (if any) are practically available to NERL to improve the service in the context of forecast demands to and operating conditions in the system and what would the likely costs of such actions be; and

l) Report on these matters to the CAA.

1.23 The CAA carried out its own independent review and analysis of evidence both to supplement those areas covered by the ECTL PRU report but also to consider separately those areas which were not part of ECTL PRU's scope, particularly staffing.

Content of chapters

1.24 The structure of the rest of this report is:

- Chapter 2 sets out the **legal framework** under which the CAA is conducting its investigation.
- Chapter 3 sets out an **overview of traffic and delays** at the five London approach airports.
- Chapter 4 sets out an analysis of **NERL's implementation of recommendations** following the Oberon Report in 2017.
- Chapter 5 sets out an analysis of how the relevant **delays have been coded**.
- Chapter 6 sets out an analysis into **staffing resilience**.
- Chapter 7 sets out an analysis of the relevant **capacity constraints** and airspace design constraints.
- Chapter 8 sets out an analysis of the **undue discrimination** allegation.
- Appendix A – lists **abbreviations** used in this document.
- Appendix B – sets out basic information on the **operation of Air Traffic Services**.
- Appendix C – sets out the **chronology** of this investigation.
- Appendix D – lists **NERL's action plan** following the Oberon Report.
- Appendix E – presents further analysis of the **coding of delays**.
- Appendix F – explains further the **categorisation of airspace sectors**, including the concept of conjoint airspace.

Chapter 2

Legal Framework

Introduction

2.1 In this chapter, we will describe the CAA's statutory duty to investigate under s.34 TA00, the statutory thresholds for regulatory intervention by the CAA, NERL's obligations under statute and its licence and the CAA's powers to regulate NERL through its licence. We will also set out a brief description of the stages of the investigation and explain why the CAA resolved not to investigate the complaint under the Competition Act 1998[25]. We will also summarise the CAA's published approach contained in our Economic Licensing Enforcement Guidance ("CAP 1234")[26] and our Regulatory Enforcement Guidance ("CAP 1326")[27].

2.2 This chapter is structured as follows:

- The CAA's statutory duty to investigate;
- The CAA's relevant enforcement powers;
- The obligations imposed on NERL by the TA00 and the NERL Licence; and
- The Competition Act 1998 and the CAA's primacy assessment.

The CAA's statutory duty to investigate

2.3 Under s.34 TA00, the CAA must investigate an allegation that there has been a contravention of a s.8 TA00 duty or a Licence condition, where this allegation is made by a person with an interest, unless the allegation is either frivolous or vexatious. The CAA cannot reject a complaint on administrative priorities but must investigate in accordance with the statutory framework, its public law responsibilities and the principles of good administration.

2.4 The CAA does not therefore have a discretion to dismiss complaints on grounds of administrative priority or resources. The words "frivolous" and "vexatious" are not defined in TA00 but we have considered their use in other analogous statutes and case law. By way of illustration, "frivolous" claims have been

[25] Given the geographical scope of the complaints our preliminary view was that the Competition Act 1998 would be the appropriate legislation if the complaints were investigated under competition law.

[26] CAP1234 Economic Licensing Enforcement Guidance, available at www.caa.co.uk/cap1234.

[27] CAP1326 Regulatory Enforcement Policy, available at www.caa.co.uk/cap1326.

considered by the Court of Appeal to mean "futile, misconceived, hopeless or academic"[28] whilst the Divisional Court has described[29] some of the hallmarks of vexatious claims including those having little or no basis in law and those which subject the defendant to inconvenience, harassment and expense out of all proportion to any gain likely to accrue to the claimant.

2.5 Based on our initial assessment of the complaints, we did not consider the complaints received from Ryanair and STAL to be frivolous or vexatious. The complaints include the provision of detailed information and data that suggest NERL has failed to reduce delays since the Oberon investigation and indicates that delay may have actually increased since then. The CAA is satisfied that Ryanair has a legitimate commercial interest in ensuring that NERL is acting in accordance with its statutory obligations and licence conditions since delays impact on its flight punctuality and customer relations. The CAA is likewise satisfied that, as an airport operator, STAL has a legitimate commercial interest in ensuring that NERL is acting in accordance with its statutory obligations and licence conditions.

The CAA's relevant enforcement powers

CAA's Statutory Duties and Economic Licensing Enforcement Guidance

2.6 Under Chapter 1 of the TA00 we have a primary duty to carry out our functions to maintain a high standard of safety in the provision of ATS. We also have some secondary duties such as furthering the interests of users of ATS,[30] promoting efficiency and economy by the licence holder and ensuring it can finance its licensed activities.

2.7 The CAA has published its approach to undertaking economic licensing enforcement ("CAP 1234"). That guidance document sets out the CAA's approach to enforcing airport economic licences under the Civil Aviation Act 2012 ("CAA12") and air traffic services licences under the TA00 and outlines the legal framework in which our work fits.

2.8 The CAA has also published its approach to undertaking regulatory enforcement ("CAP 1326"). That guidance document sets out the CAA's approach to all of its enforcement activities.

[28] *R v Mildenhall Magistrates Court ex parte Forest Heath District Council* (1997) 161 JP 401 at 408 per Lord Bingham CJ

[29] *Attorney-General v Barker* [2000] 1 FLR 759 at para 19 per Lord Bingham CJ.

[30] 'Users' in relation to ATS include aircraft owners and operators, airport owners and managers, people travelling in aircraft and cargo owners.

Stages of investigation

2.9 CAP1234 provides for a staged approach to enforcement that escalates from co-regulation through to informal investigation by the CAA to formal enforcement action.

2.10 The CAA has formal information gathering powers under s.25 TA00 where 'it appears to the CAA that a licence holder may have contravened or may be contravening or is likely to contravene a s.8 duty or a Licence condition" such that it may compel the provision of documents and information.

Statutory thresholds for regulatory intervention by the CAA

2.11 There are two courses of action available to the CAA under s.20 TA00 if, after conducting its investigation, it considers that there is or there is likely to be a contravention of a s.8 duty or a Licence condition. The choice between them will depend on the strength of the CAA's conclusions drawn from the evidence base:

- Under s.20(1) TA00, if the CAA is satisfied that a licence holder is in contravention of, or is likely to contravene, a s. 8 duty or a licence condition it must make a final order containing the provisions which it thinks are needed to secure compliance with the condition.
- If the CAA is not so satisfied but it appears to the CAA that a licence holder is in contravention of, or is likely to contravene, a s.8 duty or a Licence condition, then, under s.20(2) TA00, the CAA must make a provisional order containing provisions that it thinks are needed to secure compliance with the condition. The licence holder will then have the opportunity to remedy the CAA's concerns within a specified period, failing which the CAA may either confirm the provisional order or make a final order.

2.12 The standard of proof is the civil standard – i.e. on the balance of probabilities.

2.13 S.21 TA00 provides exceptions to the duty to make a final order or confirm a provisional order. The CAA must not make a final order or make or confirm a provisional order if:

- It is satisfied that its general duties in s.2 TA00 preclude it; or
- It considers that it would be more appropriate to proceed under the Competition Act 1998.

2.14 Further, the CAA must not, unless it considers it appropriate to do so, make a final order or make or confirm a provisional order where one or more of the following applies:

- The licence holder has agreed to take and is taking all the steps the CAA thinks appropriate to secure or facilitate compliance;

- The contravention is trivial;
- The contravention will not adversely affect the interests of users; or
- The Secretary of State has made an application for an air traffic administration order.

2.15 S.22 TA00 provides for certain procedural notification and consultation requirements in the event that the CAA decides to make a final order or make or confirm a provisional order. Further, under s.22(11) TA00, the CAA must also publish a notice where it decides not to make a final order or make or confirm a provisional order as a result of one or more of the above exceptions, to bring it to the attention of persons that are likely to be affected.

The obligations imposed on NERL by the TA00 and the NERL Licence

Obligations to meet demand for air traffic services

Transport Act 2000

2.16 S.8 of TA00 sets out the statutory duties of licence holders. The complainants allege that NERL has contravened the following statutory duties:

- S.8(1)(c) – while a licence is in force, its holder must take all reasonable steps to secure that the demand for authorised air traffic services in respect of a licensed area is met.
- S.8(1)(d) – while a licence is in force, its holder must have regard, in providing, developing and maintaining the system, to the demands which are likely to be placed on it in the future.

The NERL Licence

2.17 The NERL Licence[31] imposes a number of regulatory obligations on the licence holder including the following:

- **Condition 2.1** – Without prejudice to the general power conferred under this Licence, the Licensee shall make available:

  (a) the Core Services[32] so as to be capable of meeting on a continuing basis any reasonable level of overall demand for such services; and

[31] Air Traffic Services Licence for NATS (En Route) Plc, June 2018 https://www.caa.co.uk/uploadedFiles/CAA/Content/Standard_Content/Commercial_industry/Airspace/Air_traffic_control/Licences/NERL%20LICENCE%2015%20(Jun%2018).pdf

[32] Core Services are set out in condition 1 of the NERL Licence to mean the (a) UK En route Air Traffic Control Service, (b)

(b) the Specified Services.[33]

- **Condition 2.4**, which provides further clarification regarding the requirements of Condition 2.1, as follows:
  - *"In determining what is reasonable for the purposes of paragraph 1(a), regard shall be had to:*

    (a) the level of overall demand reasonably expected to be met at the relevant time, on the basis of capacity to be made available in accordance with the Service and Investment Plan provided by the Licensee pursuant to condition 10; and

    (b) the effect on overall demand of changes in legal or regulatory requirements made subsequent to the provision of such Plan, provided that the Licensee has taken all reasonable steps to meet the resulting changed demand."

- **Condition 2.7** – In providing services under [Condition 2.1] the Licensee shall not unduly prefer or discriminate against any person or class of person in respect of the operation of the Licensee's systems, after taking into account the need to maintain the most expeditious flow of air traffic as a whole without unreasonably delaying or diverting individual aircraft or such other criteria as the Licensee may apply from time to time with the approval of the CAA.
- **Condition 2.8** – Subject to [Condition 2.7], the Licensee shall not unduly discriminate against or give preferential treatment to any person or class of persons in respect of the terms on which services are provided, to the extent that such terms have or are intended to have or are likely to have the effect of preventing, restricting or distorting competition in any market.
- **Condition 5.2** – The Licensee shall at all times act in a manner calculated to secure that it has available to it sufficient resources including (without limitation) financial, management and staff resources, fixed and moveable assets, rights, licences, consents and facilities, on such terms and with all such rights as shall ensure that at all times it is able to:
  - (a) carry out its Permitted Purpose[34] activities; and

Oceanic En route Air Traffic Control Service, (c) Advisory Control Service and (d) London Approach Service. The London Approach Service "means, in respect of Heathrow, Gatwick, London City, Luton and Stansted airports, the Airfield Service other than such element of service as is provided to an aircraft on its final approach path or initial departure path or on the manoeuvring area or apron of the aerodrome".

[33] Specified services are set out in Schedule 4 of the Licence – no specific services are considered in this investigation.

[34] Permitted Purpose is set out in Condition 1 of the Licence. It means the purpose of all or any of the following (a) the En route (UK) Business, the En route (Oceanic) Business or any business or activity within the limits of condition 5.9 to 5.12; (b) without prejudice to the generality of paragraph (a), any payment or transaction lawfully made or undertaken by the Licensee for a purpose within sub-paragraphs (i) to (vii) of paragraph 19(b) of condition 5. The En route (UK) business is the focus of this investigation defined as the Licensee's business which consists of the provision by the Licensee of the UK En route Air Traffic Control Service, the Advisory Control Service, the London Approach Service and the Specified Services.

- (b) comply in all respects with its obligations under TA00 and this Licence including, without limitation, its duties under s 8 TA00.

Single European Sky Performance Scheme

2.18 As well as the broader conditions in the NERL licence and its statutory obligations, NERL is subject to the Single European Sky Performance Scheme ("the Performance Scheme"). The Performance Scheme sets specific targets in relation to cost efficiency, capacity, environment and safety. Apart from safety, these targets are reflected in the price control condition in the NERL Licence.

2.19 The capacity targets are split into four elements:

- C1 relates to all cause Air Traffic Flow Management "(ATFM") delay;
- C2 relates to NERL attributable ATFM delay per flight;
- C3 is a weighted version of C2 that gives greater prominence to delays in peak periods; and
- C4 is metric based on worst day.

2.20 Targets C2, C3, C4 and the environmental targets are financially incentivised.

2.21 Most of this investigation is about the second reference period ("RP2") which ran from January 2015 to December 2019. The reference periods normally run for a 5-year period pursuant to the Performance Scheme.

2.22 NERL's revised Business Plan for RP3 (2020-2024) includes plans to increase the number of operational ATCOs it employs by 150 (17%) by the end of the period.[35] The CAA does not set out how many ATCOs NERL should employ, however, its decisions on the RP3 Performance Plan allowed for 98% of NERL's planned operating costs. These decisions have been referred to the Competition and Markets Authority ("CMA") to investigate and determine. The CMA's provisional findings in March 2020 agreed with the CAA's decision on operating costs. The CMA's final decision is due by November 2020.[36]

[35] See Chapter 6

[36] See www.gov.uk/cma-cases/nats-en-route-limited-nerl-price-determination for further information.

The Competition Act 1998 and the CAA's primacy assessment

Primacy under TA00

2.23 S.21(6)-(7) TA00 (as amended by Schedule 14 Enterprise and Regulatory Reform Act 2013 ("ERRA13")) places a duty on the CAA stating:

> *"(6) Before making a final order or making or confirming a provisional order, the CAA must consider whether it would be more appropriate to proceed under the Competition Act 1998.*
> *(7) The CAA must not make a final order or make or confirm a provisional order to the extent that it considers that it would be more appropriate to proceed under the Competition Act 1998."*.

2.24 Paragraphs 1.60 and 1.61 of CAP1234 states that:

> *"1.60 We will not generally seek to use different enforcement mechanisms in relation to the same issue but will decide on the most effective mechanism based on:*
>
> - *the nature of the issue;*
> - *the effectiveness of the relevant mechanism to restore compliance and prevent harm to relevant users, including the potential speed of resolution;*
> - *our statutory duties, such as the need to ensure that our decisions do not jeopardise safety;*
> - *the need for ongoing regulation of the issue; and*
> - *the ability of third parties to seek damages or compensation.*
>
> *1.61 The CAA12 and the TA00 require us to consider at each stage of the enforcement process whether it would be more appropriate to proceed using our competition powers under CA98. This requirement is reinforced in the Enterprise and Regulatory Reform Act 2013. Once we have decided that it would be more appropriate to use the CA98, we cannot then proceed with licence enforcement under the CAA12 or theTA00."*

Primacy Assessment

2.25 The CAA's view when opening the investigation was that it would not be appropriate to proceed under the Competition Act 1998 ("CA98"). In reaching this assessment we considered a number of factors including:

- the nature of complaints raised;

- the comprehensiveness (or otherwise) of that solution in response to an alleged breach; and
- the effective use of the CAA's resources in investigating the allegations.

2.26 In the present case, the licensing complaints raise broader issues and allegations affecting airspace users which go beyond competition law matters. The CAA considers that in the event of a finding of breach by NERL, the enforcement tools under TA00 would be more likely to achieve a comprehensive solution to all aspects of the complaint, rather than one discrete allegation under the CA98; in any event the allegations of abuse contrary to the Chapter II prohibition and Article 102 TFEU overlap, to a significant extent, with the allegations of discrimination contrary to the Licence Conditions. A CA98 investigation would be limited to looking at alleged competition law infringements under the framework of Chapter I and Chapter II; this would not cover a number of the complainants' allegations. We consider that the CAA's finite resources are used most effectively by considering the allegations in the round under TA00.

2.27 Taking all of the relevant considerations into account, we remain of the view that an investigation under TA00 is more appropriate than CA98.

Chapter 3

Overview of traffic and delays at main London airports

Introduction

3.1 This chapter describes the historical traffic and delays at the five main London airports (Heathrow, Gatwick, Stansted, Luton and London City).

3.2 The rest of this chapter is structured as follows:

- Traffic growth at the five main London airports;
- Key airport characteristics;
- Background to air traffic delays;
- Recent ATFM delay performance;
- Recent ATFM delay performance on the LAS;
- Estimated cost of NERL attributable delays on airlines and consumers; and
- Summary.

Traffic growth at the five main London airports

3.3 The last five years (2015-2019) have seen a steady increase in aircraft movements across the London Terminal Manoeuvring Area ("LTMA"). This volume of airspace is controlled by the London Terminal Control Centre ("LTCC"). The LTCC handles traffic below 24,500 feet flying to or from London airports,[37] while the LAS controls and sequences arrivals between NERL's en route service and tower control at the airport. The LAS is integrated with the rest of NERL's Terminal Control Operations which charges users via the en route business.[38]

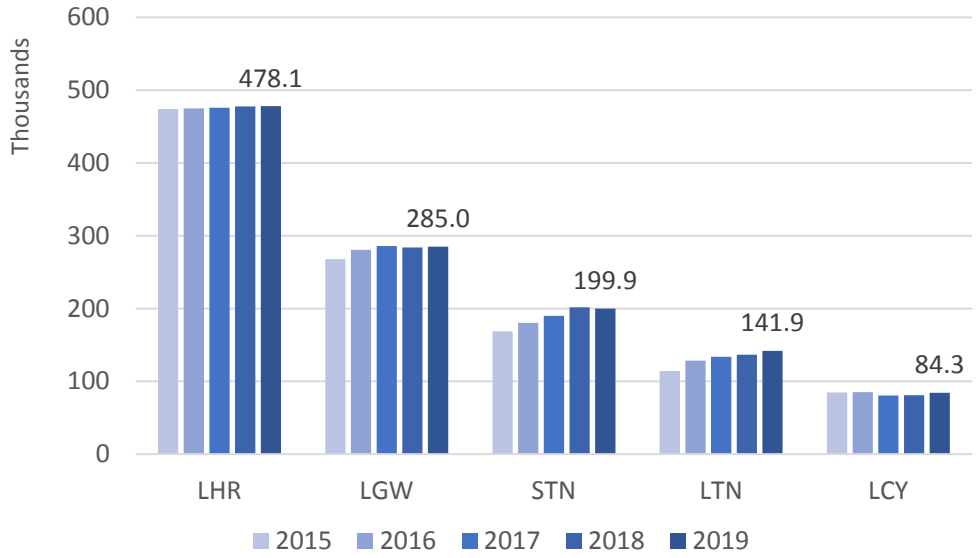
3.4 Traffic to the five main London airports has increased by 80,000 movements (7.2%) per year over this period. The largest growth was recorded at Stansted and Luton airports (Figure 3.1), as growth at Heathrow and Gatwick airports has become increasingly constrained by slot availability. Stansted airport has seen an additional 31,000 annual movements since 2015 to 200,000 in 2019, an

[37] LTMA handles arrivals and departures from Heathrow, Gatwick, Luton, Stansted, London City, Northholt, Biggin Hill, Southend, Farnborough and other minor airfields in the London area: https://www.nats.aero/ae-home/introduction-to-airspace/

[38] CAP1158: Regulatory treatment of London Approach charges in Reference period 2 (2015-2019) of the Single European Sky Performance Scheme: CAA conclusions p5: (www.caa.co.uk/cap1158)

increase of 19%. Similarly, Luton airport experienced an increase of 28,000 annual movements over this period – a 24% uplift. This compares with a 1% increase at Heathrow and 6% increase at Gatwick over the same period.

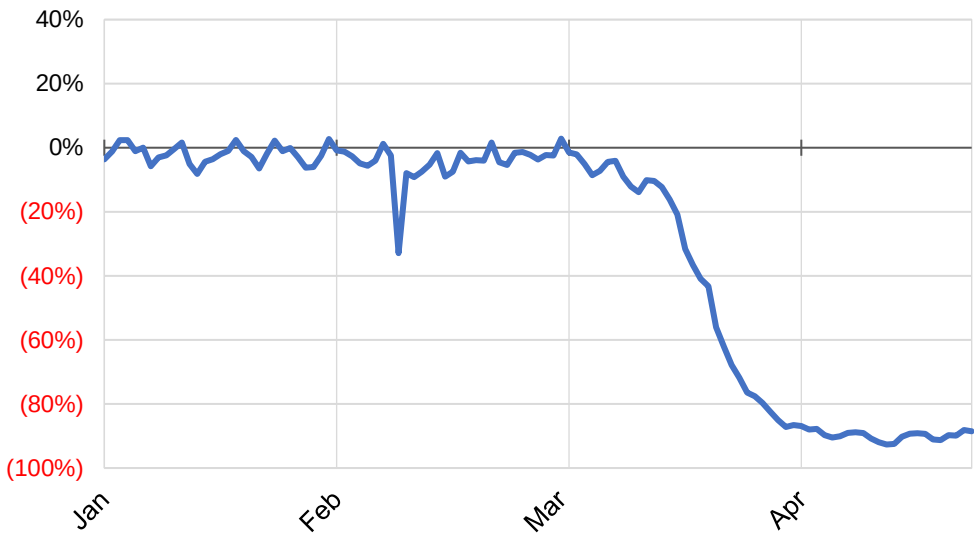
Figure 3.1: Annual Movements at the five main London airports, 2015-2019



Source: CAA Airport Statistics: https://www.caa.co.uk/data-and-analysis/uk-aviation-market/airports/datasets/uk-airport-data/

3.5 Given the recent developments associated with the Covid-19 pandemic, the future levels of traffic and traffic growth are highly uncertain. At least in the short term, traffic levels will be very significantly below 2019 levels (see Figure 3.2 below displaying a 90% reduction in flights in UK airspace in late March and April 2020 compared with the previous year). At the beginning of July 2020, there has not been any significant uptick in demand. Medium-term growth will depend on the pace of recovery from the present crisis.

Figure 3.2: YoY % change in flights in UK airspace, 2020 vs 2019 (to 23rd April)



Source: CAA internal analysis of Eurocontrol NMIR data (23 April 2020)

Key airport characteristics

3.6 Stansted and Luton are single runway airports whose operations are dominated by Low Cost Carriers ("LCCs") flying to short haul destinations, generally within Europe. LCC business models rely on high seat occupancy, aided by quick turn arounds between flights and short taxi times at airports. Runways at Stansted and Luton are not as capacity constrained as other main London airports.

3.7 Heathrow operates as a hub airport with high levels of international passengers connecting between flights. The airport is restricted to 480,000 movements per year and has been considered full for many years. Long haul flights form a significant portion of their operations, with services across the globe, many of which are transatlantic to North America. Full service carriers ("FSCs")[39] are prevalent at Heathrow. These tend to have longer turnaround times and greater buffer in their scheduling, which can facilitate better on-time performance.

3.8 Gatwick operates a diverse mix of traffic with a large proportion of LCC traffic to Europe, complemented by FSCs and fledgling low-cost, long-haul traffic. Connecting traffic is generally low at Gatwick, with the majority of passengers travelling point to point. Flights have grown rapidly since the financial crisis in

[39] FSCs typically offer all aspects of the customer experience e.g. meals, baggage, seating assignment, together as a single package.

2008 and, by 2019, Gatwick was also considered to have significant runway capacity constraints.

3.9 London City airport predominantly serves passengers travelling for business purposes to and from the City of London and Canary Wharf. This led to the airport being constrained at peak periods at the beginning and end of the working day and quieter at times in between. The airport has been operating roughly 80,000 movements per year and is mainly served by FSCs, although the lack of space at the airport often led to constrained stand availability. London City therefore often has fast turnaround times between flights.

Background to air traffic delays

3.10 Delay can be accrued in different phases of a flight:

- taxi in/out (of terminal);
- Air Traffic Flow Management ("ATFM") procedures (either en route or airport located);
- or reactionary.[40]

3.11 En route ATFM delay occurs when expected demand for air travel through a specific volume of airspace exceeds the capacity that can be handled safely by air traffic control. The focus of the investigation is en route delay, particularly the delay whose causes can be attributable to NERL (e.g. "staffing" or "ATC capacity") although it is useful to compare the delay against the wider backgrounds of all causes of delay, expressed as an average delay per flight.

3.12 The published ATFM delay codes are determined by Eurocontrol.[41] These are attributed by location of either "Airport" or "En route". Delays which occur as a result of ANSP inefficiencies (described in this document as "NERL attributable") are designated as "(ATC)" in the Eurocontrol reference document. The most common causes of ATFM delay in Europe are typically:

- ATC Capacity (C) – NERL attributable;
- ATC Staffing (S) – NERL attributable;
- Weather (W); and
- Special Events (P) – NERL attributable.

[40] Reactionary delay is incurred by the late arrival of a previous flight (can also be considered "knock on" delay as a result of delays earlier in the day). This is the most significant cause of delay and it is typically greater in airlines whose aircraft operate multiple sectors per day with short turnaround times.

[41] https://ansperformance.eu/definition/atfm-delay-codes/

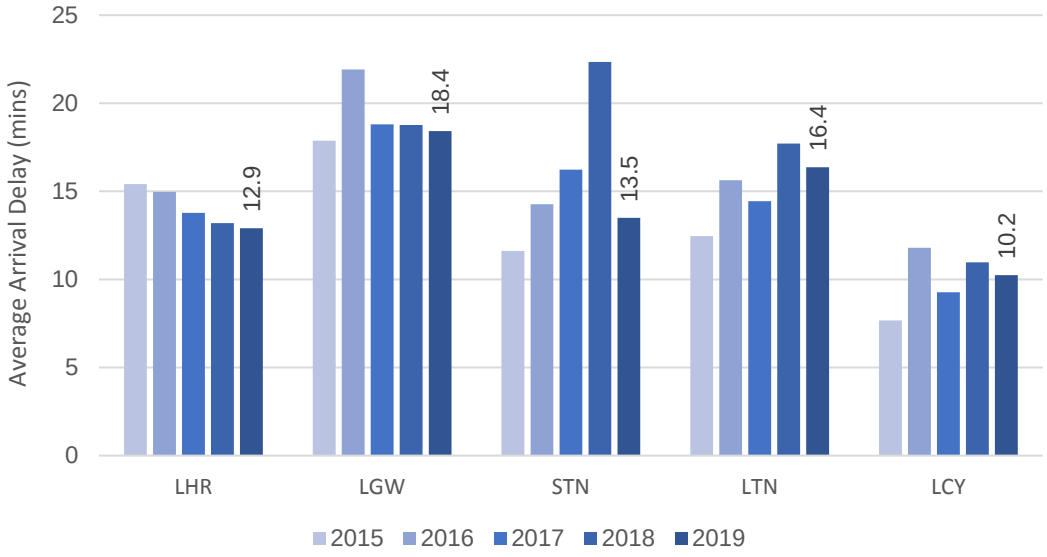
3.13 An ANSP typically applies a "regulation" to manage the flow of traffic through the airspace facing excess demand. Generally, departures are delayed on the ground at the origin airport, leading to ATFM delay. Regulations are applied in conjunction with the Network Manager ("NM") and only apply to flights departing from airports within the Eurocontrol area. Airports such as Heathrow, which have a high proportion of arrivals originating outside the Eurocontrol area, are therefore less exposed to ATFM regulations and, accordingly, to ATFM delay.

3.14 When a flight is subject to ATFM delay, it may be because it was the object of more than one ATFM regulation. In those cases, the NM only records the *most penalising* regulation, which will include all of the delay minutes incurred due to all the regulations affecting that flight.

Average Arrival Delay (minutes) to London airports

3.15 The Palamon investigation focuses on matters affecting delays to flights arriving at the main London airports. Figure 3.4 shows the difference between the scheduled and actual arrival time at the gate and can be considered to reflect "*all causes*" of delay.

Figure 3.4: Average Delay on Arrival (mins) at the five main London Airports, 2015-2019



Source: CAA Punctuality Statistics, available at https://www.caa.co.uk/data-and-analysis/uk-aviation-market/airports/datasets/uk-airport-data/

3.16 In 2015, all the main London airports, except for London City, were recording broadly similar levels of arrival delay, within the 12-18 minutes range.

3.17 While arrival delays at Heathrow have steadily declined and Gatwick has shown relatively consistent levels, Stansted, Luton and London City have all seen increases in arrival delays. This is particularly apparent at Stansted, where in 2018 there was an average arrival delay of 22 minutes per flight, a sharp

increase from the average of 12 minutes in 2015. Luton and London City have also followed a similar upward trend.

3.18 In 2019, punctuality improved at Stansted, to an average of 14 minutes arrival delay, lower than levels seen in 2016 and 2017. Delays also fell for Luton in 2019 but not by such a margin.

3.19 The Palamon complaint relates to only a portion of the delay potentially experienced by a flight, namely en route ATFM delay in the LAS and, particularly, delays attributable to NERL. When viewed on an overall per flight basis, en route ATFM delays are relatively small compared to the average flight delay (an average of 40 seconds per arrival in 2018 at Stansted).[42] However, the ATFM delay experienced by the *delayed* flights can be significant (with some flights delayed by more than one hour).

Comparison to other airports across Europe

3.20 Stansted experienced particularly bad delays in 2018, when looking across all causes of flight delay. Across Europe, Stansted ranked worst for arrival and departure delays in Q2 and Q3 2018.[43] Eurocontrol data for Q3 2018 across Europe is displayed in Figure 3.5 below.

Figure 3.5: Top 10 arrival delayed airports Q3 2018, Eurocontrol zone

Rank	Arrival Airport	ICAO Code	Average delay per arrival (mins)	Delay Change	Average delay per delay arrival (mins)	Percentage delayed arrivals	Average Reactionary delay per arrival (mins)
1	London/Stansted	EGSS	31.4	67%	51.0	61.6%	19.7
2	Cologne-Bonn	EDDK	30.1	67%	51.1	58.9%	18.5
3	Barcelona	LEBL	27.8	58%	48.0	57.5%	16.5
4	Porto	LPPR	24.7	51%	42.3	58.4%	12.7
5	London/Gatwick	EGKK	24.6	2%	41.9	58.7%	14
6	Lisbon	LPPT	24.5	23%	37.6	65.2%	13.8
7	Tel Aviv/Ben Gurion	LLBG	23.8	41%	36.4	56.5%	8.8
8	Bristol	EGGD	22.2	17%	39.2	55.3%	13.1
9	Heraklion	LGIR	22.0	35%	39.9	55.3%	7.8
10	Prague	LKPR	21.2	50%	39.6	53.6%	13.2

Source: Eurocontrol CODA digest, Q3 2018

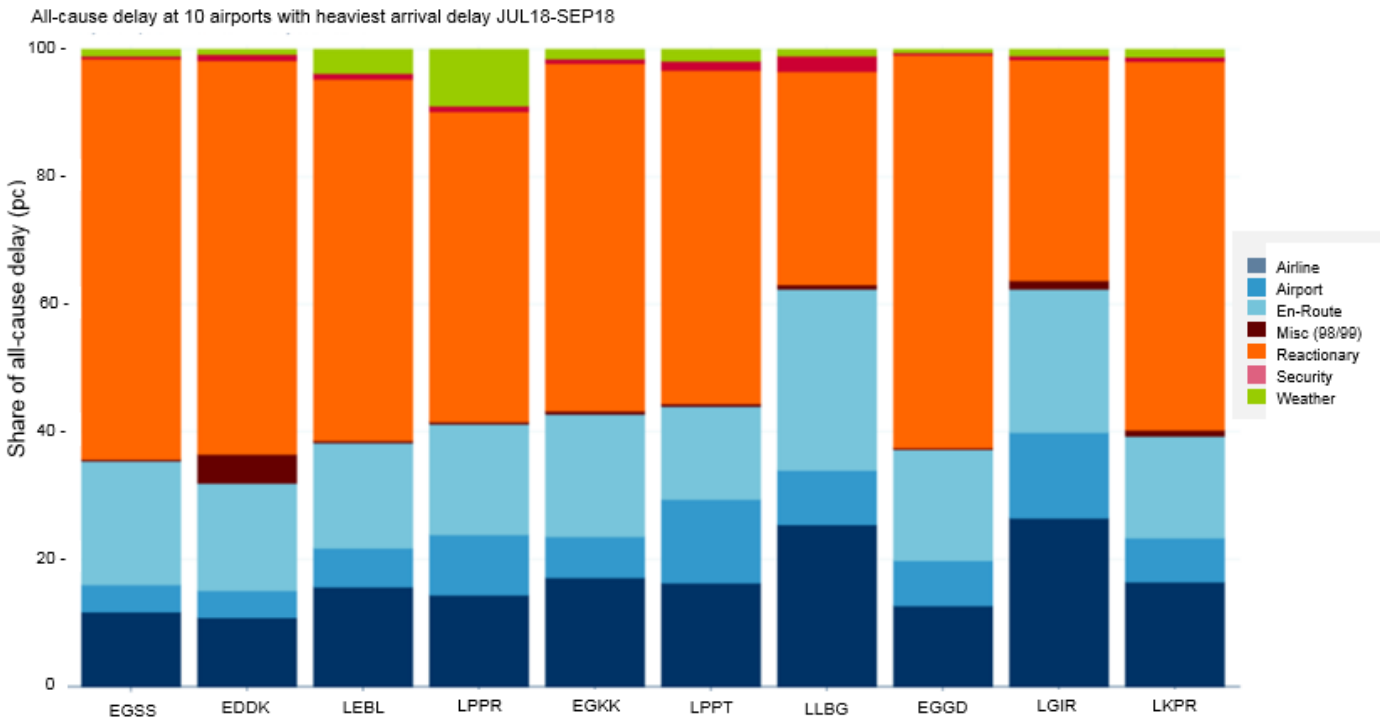
[42] Oberon Indicators Q4 2019, KDN05

[43] See https://www.eurocontrol.int/sites/default/files/publication/files/coda-digest-q2-2018.pdf?update2112 and https://www.eurocontrol.int/sites/default/files/publication/files/coda-digest-q3-2018.pdf

3.21 As shown in Figure 3.6 below, en route ATFM delays made up approximately 20% of the total delay incurred by Stansted arrivals in Q3 2018 – see the light blue entry in the first column for Stansted (EGSS) – which is broadly in line with other European airports recording high arrival delay. NERL attributable ATFM delays, the basis of the Palamon complaint, constitute a sub-part of these en route ATFM delays.

3.22 Stansted also showed high levels of reactionary delay compared to other airports, which were recorded because of the knock-on effect from delays occurring earlier in the day.

Figure 3.6: Share of all cause delay at the Top 10 affected arrival airports Q3 2018



Source: Eurocontrol CODA Digest, Q3 2018

Recent ATFM delay performance

3.24 En route ATFM delays in UK airspace between 2015-2019 are displayed below in Figure 3.7.

3.25 Total ATFM delay in UK airspace has increased markedly since 2015. Multiple delay causes have seen significant increases in delay since the base year including ATC capacity, ATC staffing and Weather. Furthermore, delays due to "Special Events" also increased in 2016 and 2018 due to the introduction of a

new electronic flight strip system ("ExCDS"), which led to 204,000 minutes of delay in 2018.[44]

3.26 The total NERL attributable delay has also increased significantly since 2015. Capacity delays increased from 34,000 minutes in 2015 to 268,000 in 2018, however 2019 saw a sharp decrease. Additionally, staffing delays increased from 51,000 minutes in 2015 to a high of 210,000 in 2019 (the highest single cause of delay).

Figure 3.7: En route ATFM delay in UK airspace by reason 2015-19 (mins)

Year	Capacity (ATC)	Staffing (ATC)	Disruptions (ATC)	Special Events	Total ATC Attributable	Other	Weather	Total
2015	34,455	50,741	7,432	-	92,628	1,979	95,189	189,796
2016	178,747	135,334	5,551	170,271	489,903	29,269	185,704	704,876
2017	160,509	73,900	-	21,810	256,219	11,944	149,924	418,087
2018	268,435	55,400	-	203,601	527,436	14,394	188,356	730,186
2019	131,288	209,908	-	159	341,355	25,807	191,764	558,926

Source: Eurocontrol PRU En route IFR Flights and ATFM Delay Statistics for NATS (Continental): Accessed at: https://ansperformance.eu/data/

3.27 The average en route delay per flight in the UK (including overflights) is shown below in Figure 3.8. In 2019, NERL attributable ATFM delay per flight was 8.1 seconds, the highest level since 2015 when excluding Special Events. This was driven by an increase in staffing delay from previous years (5.0s in 2019), outweighing a corresponding reduction in capacity delay. However, overall delay in 2019 fell to 13.2s (from 17.4s in 2018), primarily due to the absence of delay attributed to special events.

[44] The introduction of ExCDS appears to have led to safety, capacity and cost benefits to NERL and airspace users. See NERL CMA Statement of Case 28 November 2019, p155, available at: https://assets.publishing.service.gov.uk/media/5de4db5ded915d015c54830c/NATS_CAA_-_Statement_of_Case2.pdf

Figure 3.8 En route ATFM delay per flight (inc. overflights) in UK airspace 2015-2019 (seconds)

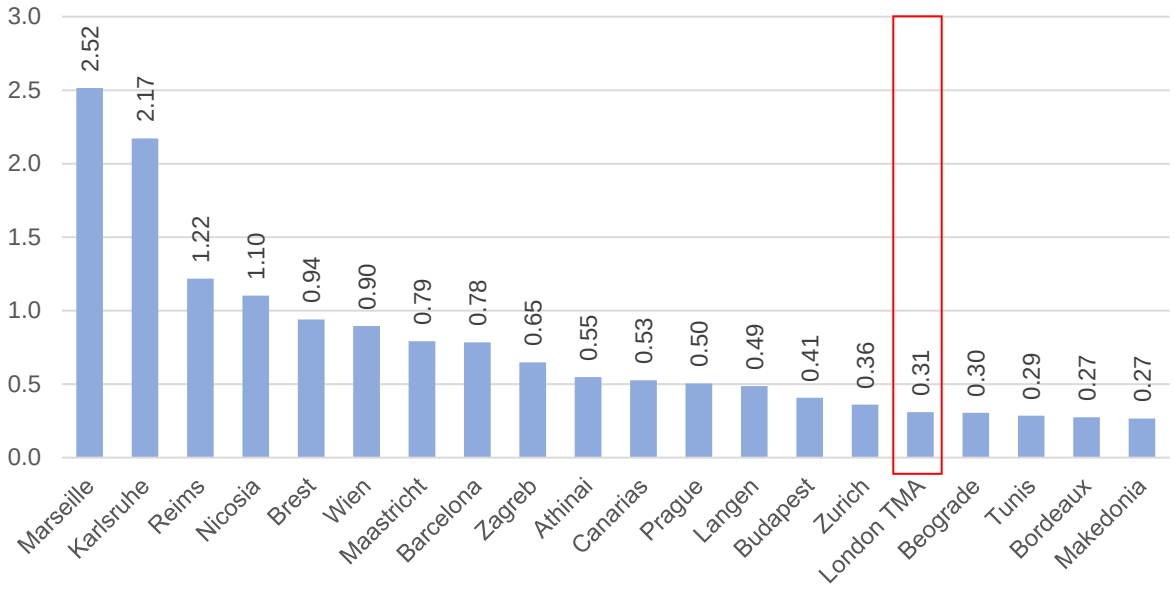
Year	Capacity (ATC)	Staffing (ATC)	Disruptions (ATC)	Special Events	Total ATC Attributable	Other	Weather	Total
2015	0.9	1.3	0.2	0.0	2.4	0.1	2.5	5.0
2016	4.5	3.4	0.1	4.3	12.2	0.7	4.6	17.6
2017	3.9	1.8	0.0	0.5	6.2	0.3	3.6	10.1
2018	6.4	1.3	0.0	4.9	12.6	0.3	4.5	17.4
2019	3.1	5.0	0.0	0.0	8.1	0.6	4.5	13.2

Source: Eurocontrol PRU En route IFR Flights and ATFM Delay Statistics for NATS (Continental): Accessed at: https://ansperformance.eu/data/

3.28 There are 81 Area Control Centres ("ACCs") of varying complexity in the Eurocontrol area, of which NERL operates three: the LTCC – which manages the LAS and the LTMA airspace more broadly; and the London and Prestwick ACCs, which manage other UK controlled airspace.

3.29 On a per flight basis, ATFM delay in the LTMA during 2018 was the 16th highest in the Eurocontrol zone at 0.31mins per flight (Figure 3.10). This is significantly better than the worst performing Marseille ACC, which recorded 2.52mins delay per flight. The London ACC was 36th highest in the Eurocontrol area with 0.11mins of delay per flight, whilst Prestwick ACC was 39th with 0.06mins of delay.

Figure 3.10 Highest average ATFM delay per flight 2018, Top 20 ACCs (minutes)

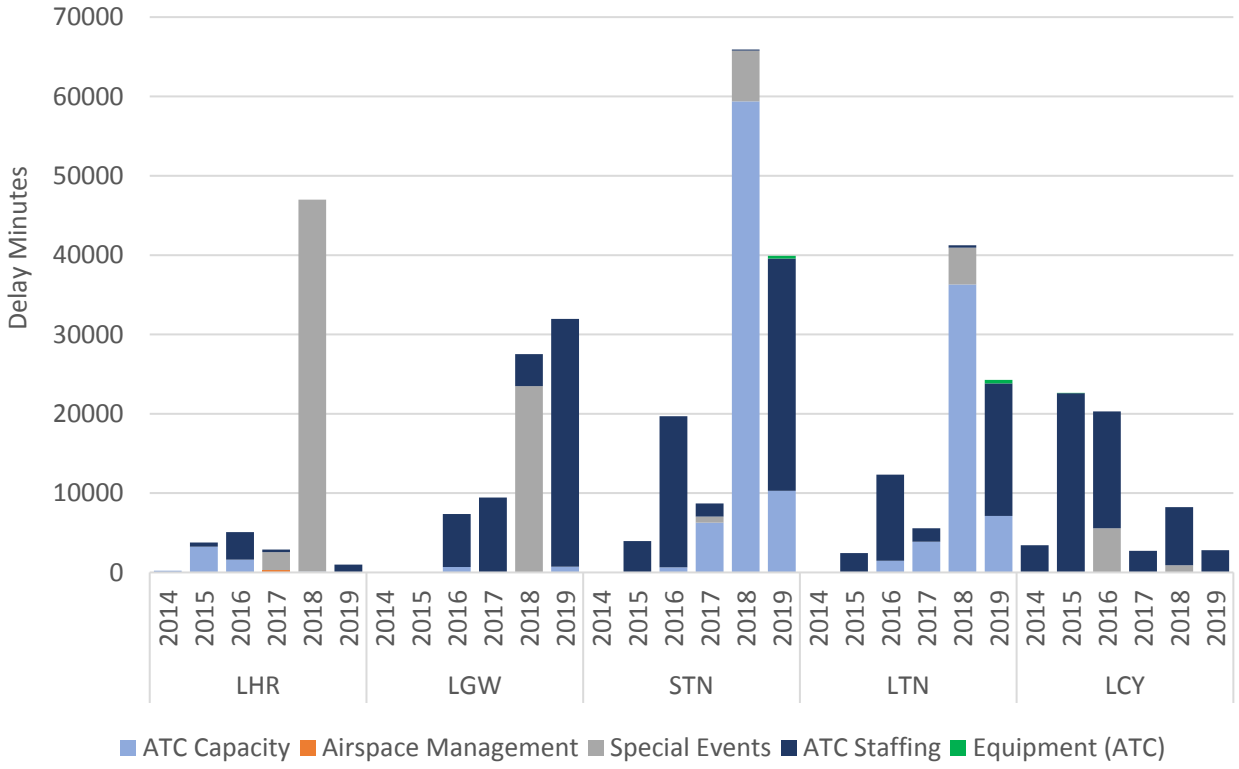


Source: Eurocontrol AFTM Statistics Portal: https://ext.eurocontrol.int/analytics/saw.dll?bieehome

Recent ATFM delay performance in the LAS

3.30 The CAA's final Oberon Report[45] in 2016 recommended that NERL publish the LAS ATFM delay (accrued within the LTMA) broken down by approach function (airport) and delay cause. The data has been published in CAP1613.[46] Latest data covers the calendar years between 2014 and 2019 (and the first quarter of 2020). The delay minutes *attributable to NERL in the LAS* only are displayed in Figure 3.11 and Figure 3.12. Flights may also be subject to ATFM delay outside the LTMA either in the UK (other NERL sectors) or in locations handled by other European ANSPs.

Figure 3.11: NERL London Approach ATFM delay minutes, split by approach function and delay cause 2014-2019



Source: NERL[47]

3.31 We have observed a large increase in NERL attributable ATFM delay on the LAS in 2018 and 2019 after a relatively good year for such delays in 2017 as well as 2014 and 2015.

[45] CAP1578, available at: https://www.caa.co.uk/CAP1578
[46] CAP1613, available at: www.caa.co.uk/CAP1613
[47] Oberon Indicators Q4 2019, KDN05

3.32 At Stansted and Luton, we observed high levels of ATC staffing delay in 2016 (19,045 and 10,857 minutes respectively) which prompted the initial Oberon complaint. Staffing delays subsequently declined in 2017.

3.33 High levels of ATC capacity delay then emerged in 2018 at both airports (59,377 and 36,304 minutes respectively), prompting the current investigation.

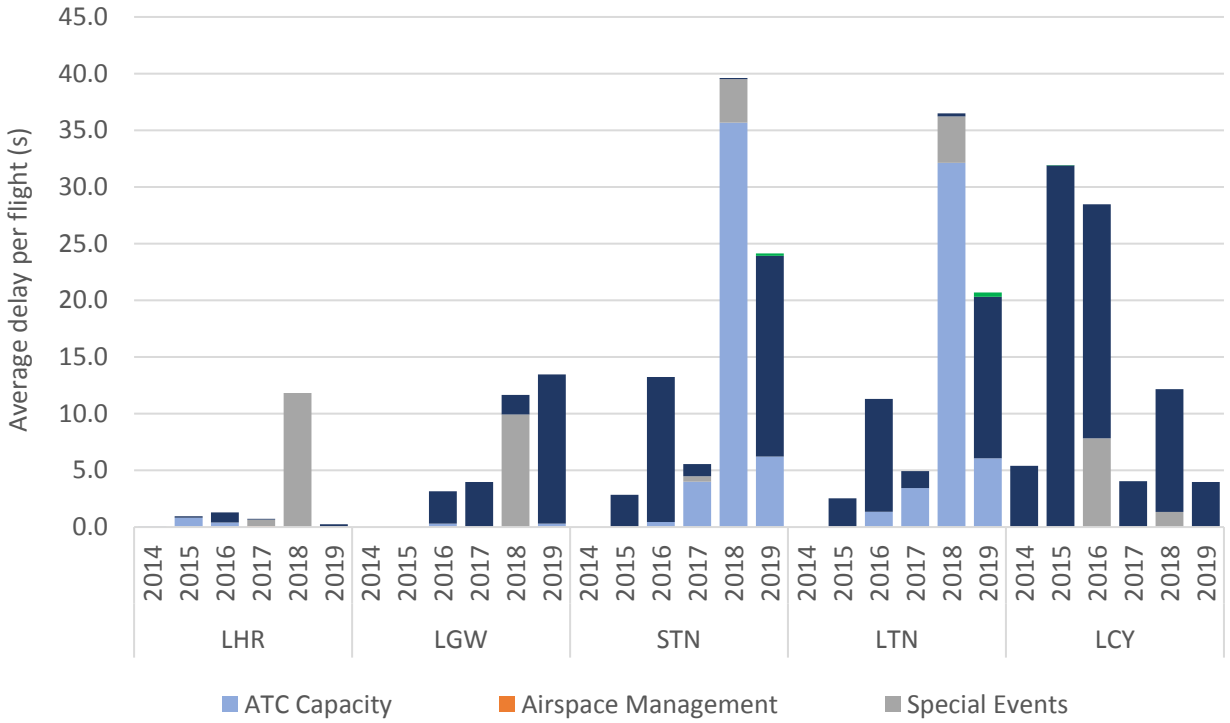
3.34 ATC capacity delays have since fallen in 2019 at both airports. However, high amounts of staffing delay have since been recorded during 2019 again at both airports (29,281 at Stansted and 16,719 minutes Luton), exceeding the levels of staffing delays recorded in 2016 by a significant margin.

3.35 At Heathrow and Gatwick, there were 46,887 and 23,488 minutes attributed to the introduction of a new electronic flight strip system (ExCDS) in 2018, coded as “Special Events”. Aside from this, very few ATFM delays were recorded at Heathrow across the time period. However, ATC staffing delays have also affected Gatwick in 2019, with 31,237 minutes in excess of that recorded at Stansted.

3.36 On a per flight basis, NERL attributable ATFM delay in the LAS peaked at approximately 40 seconds for Stansted arrivals in 2018, largely as a result of the high capacity delays (Figure 3.12), as noted previously. In 2019, total NERL attributable delay per Stansted arrival fell to 24.14 seconds.

3.37 In 2019, staffing delay in the LAS per Stansted arrival was 17.71 seconds, ahead of Luton (14.25s) and Gatwick (13.16s). These delays are longer than the delays experienced at Stansted in 2016 (12.80s), which prompted the Oberon complaint.

Figure 3.12 Average NERL attributable London Approach ATFM delay per arrival, split by approach function and delay cause 2014-2019



Source: NERL[48]

3.38 Recent data for the first quarter of 2020, shows that staffing delays on the Stansted and Luton approaches were persisting in what is normally a more favourable quarter for delays – there were no such delays in the first quarter of 2019.[49]

Estimated cost of NERL attributable delays on airlines and consumers

3.39 In this section, we estimate the cost of NERL attributable delays to users of Stansted and Luton airports. We focus on the direct and indirect impacts to airlines and consumers, but do not seek to quantify those impacts on other operators of the air transport system, such as airport operators and groundhandlers.

3.40 We limit the quantification to delays that:

- have been coded as NERL attributable;
- accrued inside the LAS only (i.e. excluding aerodrome locations and en route in the UK outside of LAS);

[48] Oberon Indicators Q4 2019, KDN05

[49] Oberon indicators 2020 Q1, KDN06; and Oberon Indicators 2019 Q1, KDN07

- had a primary cause identified (i.e. we do not attempt to take account of reactionary delays, as a result this could be considered a conservative estimate).

3.41 Figure 3.13 was generated using the delay minutes in the published Q4 2019 Oberon Indicators. It shows the estimated costs incurred by airlines and passengers resulting from all NERL attributable delays in the LAS.

Figure 3.13: NERL attributable ATFM delays in the LAS to users of Stansted and Luton and their estimated costs[50]

Year	Delay minutes	Cost to airlines £m	Cost to passengers £m	Total Cost £m
2016	32,032	2.79	3.20	5.99
2017	14,271	1.24	1.43	2.67
2018	107,158	9.32	10.72	20.03
2019	64,183	5.58	6.42	12.00
Total	**217,644**	**18.93**	**21.76**	**40.69**

Source: Oberon Indicators (Q4 2019) and CAA Analysis

3.42 This analysis suggests that NERL attributable delays (capacity, staffing and special events) may have caused around £41 million of detriment to airlines and consumers at Stansted and Luton, with about £20 million of this arising in 2018.

3.43 The analysis was repeated for ATC staffing delays (a subset of the above) and the results are outlined in Figure 3.14 below.

[50] Key assumptions were sourced or informed by the Eurocontrol Standard Inputs for Cost-Benefit Analysis: https://www.eurocontrol.int/sites/default/files/publication/files/standard-input-for-eurocontrol-cost-benefit-analyses-2018-edition-8-version-2.6.pdf;

(1) Every ATFM delay minute generates 100€ cost to airlines and £50/hour to passengers. To note that the value of time while experiencing disruption is likely to be at the top end of estimates of value of time spent travelling.

(2) Assumed exchange rate of £1.00:1.15€.

(3) Average passengers per flight = 120 (Eurocontrol reference value p9-10). This is likely an underestimate in the relevant airspace as CAA data suggests an average load of 150.

Figure 3.14: NERL attributable staffing ATFM delays in the LAS to users of Stansted and Luton and their estimated costs

Year	Delay minutes	Cost to airlines £m	Cost to passengers £m	Total Cost £m
2016	29,902	2.60	2.99	5.59
2017	3,359	0.29	0.34	0.63
2018	450	0.04	0.05	0.08
2019	46,000	4.00	4.60	8.60
Total	**79,711**	**6.93**	**7.97**	**14.90**

Source: Oberon Indicators (Q4 2019) and CAA Analysis

3.44 We previously noted that NERL attributable delays in the LAS for *all* Stansted and Luton arrivals (i.e. averaged across all flights) are relatively modest. Nonetheless to illustrate the magnitude of NERL delays on the *affected* flights we have calculated the ATFM delay minutes per delayed flight over the last four years using Eurocontrol data (see Figure 3.15).[51]

3.45 In 2019, ATC staffing delays equate to an average 26 minutes delay per delayed arrival. Capacity delays had a smaller impact at an average 7.5 minutes delay per flight. The average ATC staffing delay per arrival peaked at about 38 minutes in 2017, but relatively few flights were affected.

Figure 3.15: Average delay per delayed arrival to Stansted/Luton due to regulations on the LAS (mins) 2016-2019

Year	C - ATC Capacity	P - Special Event	S - ATC Staffing	E - Aerodrome Services	G - Aerodrome Capacity	O - Other
2016	6.4	-	18.6	-	-	-
2017	8.0	-	38.1	-	-	8.4
2018	10.3	8.2	7.9	21.2	10.9	14.4
2019	7.5	-	26.0	-	-	13.1

Source: Eurocontrol NMIR database (Accessed Mar 2020)

[51] Data extracted from Eurocontrol NMIR Regulation dashboard (available to industry stakeholders): https://ext.eurocontrol.int/analytics/saw.dll?dashboard&PortalPath=%2Fshared%2FNM%20Dashboards%2F_portal%2FNMIR%20-%20Regulation.
The average delay per flight is calculated from the total ATFM delay minutes for regulations applied on the following Traffic Volumes: EGTTESX, EGGWTCE, EGGWTCSE, EGGWTCPE, EGSSTCE, EGSSTCSE, EGSSTCPE and the number of flights where these represent the Most Penalising (MP) regulations applied.

Summary

3.46 The information set out in this chapter suggests the following:

- across the five main London airports, growth in air transport movements has been fastest at Stansted and Luton with growth of 19% and 24% respectively over the 5-year period 2015 to 2019, compared with a 1% increase seen at Heathrow and 6% increase at Gatwick. This is unsurprising – Stansted and Luton airports typically serve LCCs that can quickly switch aircraft between markets and expand rapidly. The two busiest London airports, Heathrow and Gatwick, were also experiencing constraints on runway capacity during 2015 to 2019;
- as traffic increased at Stansted and Luton airports, the overall flight punctuality (i.e. total delays to flights of which air traffic delays form only part) at these airports has worsened – in 2018, on average, arrivals were delayed by 22 minutes at Stansted and 18 minutes at Luton – resulting in some of the highest average delays in Europe;
- Eurocontrol provides data on the causes of delay, where approximately 20% of delay in 2018 occurred in en route locations, whilst the majority of overall delay is categorised as being caused by delays to earlier flights, or "reactionary". Nonetheless, the complaints relate to the services provided by NERL (specifically the LAS), which typically contributes only a small proportion of total delays experienced by flights;
- NERL's overall delay statistics are comparable with other European ANSPs and there are a number of ANSPs in Europe that perform significantly worse;
- across all UK airspace, the average en route delay is low, at 5-18 seconds per flight over the period 2015 to 2019. On the LAS, delays attributable to NERL are typically in the 10-30 seconds range, with those due to staffing reasons, which are central to the complaints, contributing most of these delays;
- the LAS performance at Stansted and Luton has been significantly worse than the London average between 2016 and 2019 – with NERL attributable delays in the 12 to 40 seconds per flight range in 2016, 2018 and 2019;
- when flights are delayed due to the imposition of ATFM regulations, however, the impact is much more material than the overall averages (which include many flights subject to no delay). For example, when a staffing shortage necessitated ATFM regulations in 2019 this caused an average delay on arrival of 26 minutes for the flights concerned across Stansted and Luton airports; and

- we estimate a potential cost of the delays that have been attributed to NERL's staff shortages to be approximately £5 million to £9 million per year for airlines and consumers across both Stansted and Luton, in the years that have seen significant staffing delays.

Chapter 4

Oberon Recommendations

Introduction

4.1 This chapter summarises the Oberon Report and outlines NERL's implementation of recommendations following the Oberon report in July 2017.

4.2 This chapter is structured as follows:

- Summary of Oberon's findings;
- Oberon recommendations
- NERL's Action Plan
- CAA's oversight of NERL; and
- Provisional conclusions on NERL's implementation of the recommendations

Summary of Oberon's findings

4.3 In the Oberon Report, we concluded that NERL had not failed to meet its duties under TA00 or to comply with the conditions of its Licence. However, this finding was described as a "*finely balanced decision*" and the investigation highlighted several areas where NERL needed to improve. We said that NERL needed to deliver on a series of remedial actions to improve resilience levels in its operations. Furthermore, we said that we would take such actions into account in coming to a view on what would be considered reasonable in any potential future allegation of a breach of its Licence or TA00.[52]

4.4 In reaching the above decision, we took into account the fact that although delays in the LAS increased in 2016 due to too few operational staff available to provide a service with normal resilience levels, this was caused by a number of events which occurred in combination. We found that, based on the information available at the time, NERL's decisions in relation to the events were reasonable. The combination of circumstances went beyond what NERL could reasonably have planned for.

[52] CAP1578: Investigation under section 34 of the Transport Act 2002: Project Oberon Final Report - Non-Confidential August 2017, paragraph 1.14 www.caa.co.uk/CAP1578 Unredacted version, KDN01

4.5 The CAA concluded that NERL had not failed, or was not failing, nor was likely to fail to meet its obligations to not unduly discriminate against or give preferential treatment to any person or class of persons.[53]

4.6 In reaching its conclusion on whether NERL had failed to meet demand through the provision of sufficient or reasonable resources, we took into account the actions that NERL had taken, and planned to take in the future,[54] to tackle incidents of delays and staff shortages and to improve the resilience of its operations since then, with particular focus on the LAS.

4.7 In reaching this view, we expected that NERL would implement those actions as planned to improve its delay performance and resilience for summer 2017 and the remainder of RP2.[55] We expected the NERL Board to assure itself that this would be the case and said we would closely monitor the implementation and efficacy of NERL's actions. We cautioned that should NERL fail to implement those actions, we might revisit the Oberon decision or take other action as appropriate.[56]

4.8 The Oberon recommendations and NERL's action plan were designed to deal with resilience issues, and are therefore relevant to the aspects of the Palamon investigation that relate to considerations as to whether NERL has failed to meet demand through provision of sufficient or reasonable resources.

Oberon recommendations

4.9 As part of the Oberon Report, we made six recommendations to NERL which it should report progress to us on. We set these recommendations out below, together with an overview of the steps that NERL has taken to implement them:

- NERL was to keep its Board informed of its progress against our recommendations and its own actions to improve service delivery for 2017 and the rest of RP2. This included developing new actions where existing ones proved to be inadequate.[57]

Implementation - NERL sent us extracts from its Board minutes[58] and copies of monthly reports to its Board[59] showing how it has kept its Board informed of progress against the recommendations and its action plan. NERL also sent us a

[53] CAP1578, paragraphs 6.5 and 6.6.

[54] CAP1578, paragraph 4.58 of and letter from CAA to NERL on 11 September 2017, KDN08

[55] RP2 is the reference period which ran from 2015 to 2019 of the Single European Sky Performance Scheme, an EU initiative to improve the performance of air navigation services.

[56] CAP1578, paragraph 6.4

[57] CAP1578, paragraphs 6.4 and 6.11. Also letter from NERL to CAA on 29 September 2017, KDN09

[58] Extracts from NERL Board minutes, KDN10, KDN11, KDN12, KDN13, KDN14 and KDN15

[59] NERL corporate reports, KDN16, KDN17, KDN18, KDN19, KDN20, KDN21, KDN22, KDN23, KDN24, KDN25, KDN26 and KDN27

Strategic Resourcing paper[60] including resourcing of its London Approach Service, which was discussed by its Board in January 2018.

- NERL to keep us informed of progress and to notify us if it is aware of performance issues in specific areas of its operation.[61]

Implementation - NERL provided us with monthly reports from September 2017 to May 2018,[62] that set out the progress it had made in addressing the recommendations in the Oberon Report, and in implementing its action plan to improve Stansted Approach delay performance and resilience. When it submitted its May 2018 report NERL informed us that it had addressed all the recommendations and actions and would no longer be submitting monthly reports. We replied that not all the actions had been fully completed, as there were no Service Delivery Plans in place for Luton and London City airports. We asked NERL to keep us informed of progress on these Service Delivery Plans but agreed that NERL no longer had to send monthly reports on the other recommendations and actions.

NERL has also provided data to us and airlines on its performance on a quarterly basis since the third quarter of 2017. It provides this data both in its quarterly performance reports that are shared with airlines and other stakeholders, as well as in a standalone report provided to us ("the Oberon indicators"). We publish the Oberon indicators on our website and inform stakeholders when new reports are available. However, NERL has not always directly made us aware of all performance areas in specific areas of its operation, for example it did not specifically inform us of the increases in staffing delay it has seen affecting the Stansted approach service in 2019.

- NERL to enhance systems and processes so it can:
    i. Forecast shortfalls at a more granular level, i.e. down to the approach at particular airports; and
    ii. Capture the effect on service resilience of availability and flexibility of operational staff with certain skills and validations.[63]

Implementation - NERL has changed its systems and processes for staff planning by introducing a new tool which has been used for operational manpower planning since September 2017. NERL also implemented a new rostering tool and common processes at its Swanwick and Prestwick centres from April 2018 to cover its operational requirements during the Summer 2018

[60] NERL Board paper, June 2018, KDN28
[61] CAP1578, paragraphs 6.10 and 6.11
[62] Project Oberon: monthly progress report for March 2018, KDN29
[63] CAP1578, paragraph 6.12

peak. In its last monthly report (May 2018), NERL told us it planned to roll out this tool across its business in stages.

- NERL to carry out sensitivity analysis on its forecasts such as traffic, short term sickness, overtime take up, industrial relations risk and key enablers for its business plan.[64]

Implementation – NERL produced a holistic model (in beta mode) by the end of March 2018 to carry out sensitivity analysis on its forecasts of traffic, short-term sickness, overtime take up, industrial relations risk and key enablers for its Business Plan. NERL presented some results of this analysis at a Manpower Planning Workshop as part of its RP3 customer consultation process in August 2018.

- NERL to provide a breakdown of NERL staffing delays by London Approach Service under Condition 11 of its Licence.[65]

Implementation - NERL has provided us with a breakdown of NERL delays, including staffing delays, by London Approach service on a quarterly basis from the 3rd quarter of 2017. We have placed this data on our website and informed stakeholders of it on a regular basis since. Initially this data only showed NERL attributable delay, however, from September 2018 onwards NERL has also included graphs showing all causes of delay, including non-NERL attributable delay. NERL also provides this information on its quarterly performance reports for users on its customer website. This has been formalised by the inclusion of the data provision in NERL's Service Standards Statement produced under Condition 11 of its licence.

- NERL to be more proactive on creating service delivery plans for all London airports.[66]

Implementation - NERL had Service Delivery Plans agreed with the airport operator for Heathrow and Gatwick airports prior to the Oberon investigation, and agreed a Service Delivery Plan in April 2017 (during the Oberon investigation) for Stansted. In April 2018, NERL agreed a Service Delivery Plan for Luton. NERL has engaged with London City about providing a Service Delivery Plan, but at present the airport has not agreed to having a plan produced.

NERL's Action Plan

4.10 During the Oberon investigation, NERL provided a list of actions it was undertaking to improve its delay performance and resilience in Summer 2017 and the remainder of RP2. NERL produced its action plan before the CAA made

[64] CAP1578, paragraph 6.12
[65] CAP1578, paragraph 6.16
[66] CAP1578, paragraph 6.15

its recommendations in the Oberon Report. As the recommendations and action plan both address the issue of delay and resilience, they do overlap. However, there is no one-to-one mapping. The actions included:

- establishing a Strategic Resourcing Board to provide senior manager oversight and review of NERL's resourcing and manpower plans;
- implementing a new rostering tool;
- forming a Service Delivery Improvement Group to focus on NERL achieving its RP2 performance targets;
- appointing a Service Delivery Manager to focus on balancing performance across the network;
- recruiting network management specialists to provide network advice in Terminal Control;
- agreeing a new overtime deal with unions for both Terminal Control and Prestwick; and
- providing an Operational Customer Information Gateway to provide a twenty-four-hour single point of contact for information regarding the live service.

4.11 A full list of items in the action plan is in Appendix D.

NERL's implementation of action plan

4.12 NERL has reported to the CAA that its action plan has been completed. In particular, NERL has:

- Established a Strategic Resourcing Board;
- Implemented a new rostering tool which it started rolling out in April 2018;
- Set up a Service Delivery Improvement Group;
- Appointed a Service Delivery Manager;
- Recruited three additional staff to extend network management specialist support in Terminal Control;
- Agreed a new deal for voluntary additional overtime in Terminal Control and the Prestwick centre; and
- Provided an Operational Customer Information Gateway from April 2017.

4.13 NERL has taken action on all of the 23 items in its action plan. Some of the items will take a while to be fully implemented, for example the London City Airport Service Delivery Plan is not yet in place (as mentioned above), the Service Delivery Manager had not been formally appointed and the new rostering tool

had not been fully rolled out. Also, the results of some of the actions will take a while to affect operations, for example, as it takes up to three years to train new ATCOs, shortfalls in staff with the correct validations identified by improved planning cannot be rectified in the short-term.

4.14 Notwithstanding those delays, we consider that overall NERL has implemented its action plan.

CAA's oversight of NERL

4.15 In the Oberon Report we said that we would consider the appropriate level of oversight we should exercise over NERL, in particular in relation to NERL's regulatory requirements.[67]

4.16 Since the Oberon Report we have modified NERL's licence to require it to produce a Resilience Plan that sets out the principles, policies and processes by which NERL complies with its obligations to develop and maintain its assets, personnel and systems to comply with the service provision obligations in Condition 2 of its licence. NERL's Board is required to take full ownership of the Plan and submit a certificate to us confirming that the Plan is fit for purpose and meets its licence obligations. NERL has to review the Plan at least every two years, or when we direct it to, and, if necessary after consultation with users, revise the Plan or confirm to us in writing that no revision is required. Following each review NERL has to provide us with a new certificate.

4.17 NERL produced its first Resilience Plan[68] in March 2019. We have reviewed the Plan and found that NERL had put considerable effort into developing the Plan, with its policies and processes having been developed and certified in accordance with established best practice. We appointed Steer (a consultancy firm) as the Independent Reviewer of the Plan, to obtain an expert independent opinion on its likely effectiveness to produce a resilient service. Steer made some recommendations for improvements in further iterations of the Plan, but we did not consider these sufficient to prevent us from approving the Plan. We approved the form, scope and level of detail of the Plan in May 2020. In our approval letter we said we would work with NERL to agree mechanisms and parameters for regular reporting which could be incorporated into the Plan as it is applied in practice.

4.18 As mentioned in paragraph 4.9 we require NERL to report to us and users on its LAS performance. NERL is required to include the performance data in the

[67] CAP1578, paragraph 6.9
[68] NATS Resilience Plan 2019, KDN30

quarterly Service Standards Statements it produces under Condition 11 of its licence.

4.19 In the Oberon Report, we said we would review and as appropriate amend the following Licence conditions to better reflect the different services provided by NERL.[69]

- Condition 5 – to provide greater transparency over the operation of different licensed services.
- Condition 11 – to provide greater clarity over performance of different licensed services.

4.20 We said that any changes would be the subject of further consultation with NERL and other interested parties in due course, possibly as part of the RP3 regulatory process.[70]

4.21 We have not reviewed the annual certificate of adequate operational resources that NERL is required to produce each year under Condition 5(5), as other RP3 work and licence modifications have been a greater priority. However, we will consider requiring NERL to report on the adequacy of its operational resources to carry on the LAS separately to its reporting in respect of its other licensed activities if its future performance causes concerns.

4.22 We have required NERL to provide quarterly LAS performance data without needing to amend Condition 11.

Provisional conclusions on NERL's implementation of the recommendations

4.23 We have considered the evidence available on the extent to which NERL has acted upon the Oberon recommendations and action plan. The overall conclusions are that NERL:

- has implemented all 23 items on its action plan; and
- has followed all of the Oberon recommendations.

4.24 Nonetheless, it is apparent that the actions taken by NERL to date have not been sufficient to either prevent further material issues arising regarding NERL's performance and resourcing. We address these matters further in the remaining chapters of this document.

[69] CAP1578, paragraph 6.18
[70] CAP1578, paragraph 6.19

4.25 As such, we are minded to continue requiring that NERL should publish data on its performance as required by the data provision in NERL's Service Standards Statement produced under Condition 11 of its licence, which includes data published in the Oberon Indicators, over the RP3 period so that performance can continue to be monitored. If confirmed in our final decision, the publication of the standalone Oberon Indicators report could then cease, as it largely duplicates information provided in NERL's Operational Performance Reports that are available to all interested stakeholders.

Chapter 5

Coding of ATFM delays

Introduction

5.1 In this chapter we consider the coding of delays in the LAS, in particular whether there is evidence that the coding of delays was wrong or misleading, and whether improvements to the coding process in terms of accuracy and transparency are warranted.

5.2 To aid with the assessment of coding of delays we engaged the ECTL-PRU for their expert advice and access to relevant data sources. A substantial part of our conclusions and recommendations for improvements in NERL's coding practices follow from the ECTL-PRU final report.[71] We have also carried out further analysis of delays and coding as set out in Appendix E.

5.3 We note that the coding of ATFM delays is not always clear cut. There can be multiple reasons why a regulation was imposed to manage air traffic, but regulations are typically coded to a single reason. Furthermore, recording of ATFM regulations normally attributes all the delay minutes to the most penalising regulation.

5.4 It is therefore possible that the coding of a delay does not fully describe the complex factors that led to the imposition of an ATFM regulation. Nevertheless, a robust and transparent process for coding of regulations is an important part of a well-functioning air transport sector and of an effective regulatory regime for ANSPs.

5.5 ATFM delays can be coded to reflect a reason or cause that:

- is not considered to be within an ANSP's control, such as Weather, or
- is said to be ANSP attributable, such as ATC Capacity, ATC Staffing or Special Events.

5.6 In the context of this investigation, we focused on delays that may be NERL attributable, as this was the focus of the complaint we received. We therefore did not focus on ATFM delays imposed at an aerodrome location or on non-ATFM delays, such as flight delays caused by airline, airport or groundhandling performance.

[71] PRU assessment of NERL delays in the London Approach service (ECTL-PRU), 26 June 2019, KDN02

5.7 The rest of this chapter is structured as follows:

- summary of allegations;
- the ECTL-PRU report on the coding of delays;
- assessment of NERL's coding guidance and delays;
- further CAA analysis on coding of relevant ATFM delays; and
- provisional conclusions and draft recommendations.

Summary of allegations

5.8 In their complaint, Ryanair explained that it was concerned that the reasons reported by NERL for delays may not accurately convey the underlying cause of the delay, particularly where the ANSP had the option to choose between a number of parallel indicators. For instance, it was concerned that staffing issues might be being concealed by attribution of the underlying reason to simultaneous capacity constraints or extraneous weather considerations rather than to any internal issues relating to NERL's performance.[72]

5.9 STAL noted that one of the chief focuses of the Oberon Report was staffing related delays and lack of contingencies made for short and long-term controller absences and that the latest statistics show a shift in the reason of delay. STAL therefore noted that it would welcome a detailed audit of the reasons for delay.[73]

The ECTL-PRU report on the coding of delays

5.10 At the CAA's request, ECTL-PRU undertook a detailed investigation into the air traffic management and ATFM delays on the LAS, in the five years to the end of 2018. ECTL-PRU was asked to provide factual analysis and their own expert judgement from which they produced a comprehensive report.[74] This was completed as part of Eurocontrol's support to member states programme.

5.11 As the central Network Manager ("NM") for 41 European states, Eurocontrol is able to combine and interpret ANSP data from across Europe, understand operational technicalities and provide expert assessment.

5.12 ECTL-PRU considered in its report ATFM regulations applied at en route locations in the LTMA between 2014 and 2018. The PRU used data published in the Eurocontrol Network Strategic Tool ("NEST"), which provides historical ATC sector configurations, ATFM regulations with geographical locations and delay cause attribution provided by the ANSPs. Further information was sourced from the Pan European Repository of Information Supporting the Management of

[72] Letter from Ryanair to CAA, 7 September 2018, KDN03
[73] Letter from STAL to CAA, 14 January 2019, KDN04
[74] PRU assessment of NERL delays in the London Approach service (ECTL-PRU) 26 June 2019, KDN02

EATM (“PRISME”) database, providing delay minutes per ATFM regulation, reason attributed and the geographical location. This allowed examination of ATFM delay by airspace sector, Traffic Volume (“TV”) and the declared and regulated capacities in the LTMA.

5.13 ECTL-PRU found that the practice by which NERL attributes and codes ATFM delays is consistent with the current guidelines in the ATFCM manual[75] and has been observed at many other ANSPs across the network. However, it noted that in 2017 the Provisional Council of Eurocontrol, noting the concerns and recommendations of the Eurocontrol Performance Review Commission (“PRC”)[76], recommended that “The Director General [of EUROCONTROL] and the Member States [should] strengthen the ATFCM process by developing and adopting strict procedures for attributing ATFM delay causes, instead of the current guidelines that lead to inconsistencies and opacity in monitoring capacity performance.” It is worth noting, however, that these principles are not currently mandatory.

The PRC Principles

5.14 According to the PRC, the ATFM delay attribution process should be based on the following principles:

- The primary focus for mitigating or resolving capacity constraints should be on identifying any ANSP-internal constraints that prevent the deployment of maximum declared capacity (e.g. ATC staffing, equipment or airspace management);
- Attribution of delays to external causes (e.g. weather or 3rd party strike) should only be used in cases where no ANSP-internal capacity constraints prevent the deployment of maximum capacity;
- Attribution of delays to ATC capacity should not be used for collapsed sectors or when the regulated capacity is less than the maximum declared capacity of the sector.

[75] Available at https://www.eurocontrol.int/publication/atfcm-operations-manual

[76] The Performance Review Commission (PRC) was established in 1998 by the Permanent Commission of Eurocontrol. It provides objective information and independent advice to Eurocontrol’s Governing Bodies on European Air Traffic Management Performance, based on extensive research, data analysis and consultation with stakeholders. Its purpose is “to ensure the effective management of the European Air Traffic Management System through a strong, transparent and independent performance review”.

Circumstances and performance of the LTCC

5.15 According to ECTL-PRU:

- The LTCC shows a relatively good capacity performance compared with other ACCs that handle similar amounts of traffic (as outlined in Chapter 3).
- NERL is also able to manage capacity and traffic at local level using traffic regulation techniques such as minimum departure interval ("MDI")[77] and other Short-term Air Traffic Flow and Capacity Management Measures ("STAMs").[78] In general, such targeted measures are considered as being more effective since they reduce the number of ATFM regulations required and they support a better use of airport/departure sector capacity (in the case of MDI) and sector to sector capacity (in the case of STAMs).
- Arrangements between NERL and Eurocontrol (as Network Manager) work very well for real-time operations. Nonetheless, as explained below, NERL does not provide Eurocontrol with certain information and this does reduce the transparency of its operations and the effectiveness of Eurocontrol's oversight. As noted below in the summary of actions from the ECTL-PRU report, NERL should improve its practices with respect to transparency and the provision of information.

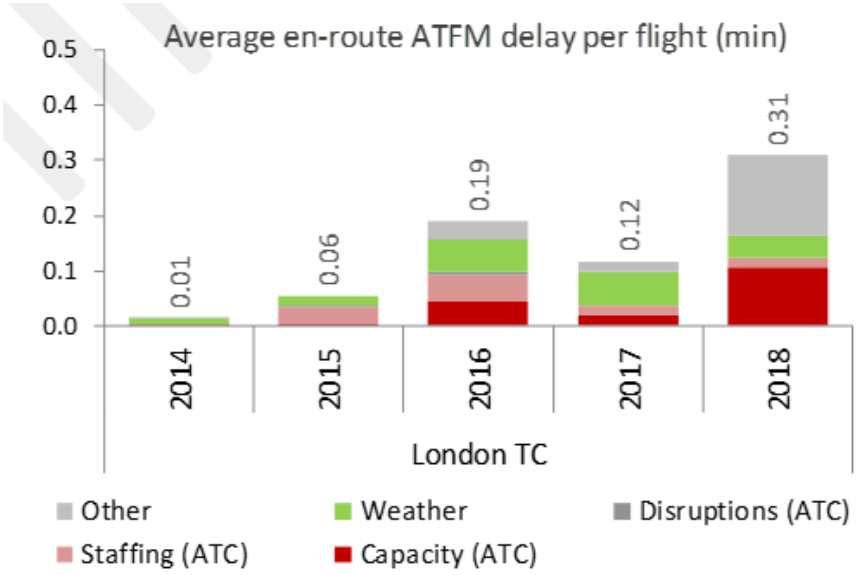
ECTL-PRU's analysis of ATFM delays in the LTMA

5.16 The ECTL-PRU report includes analysis of en route AFTM delay per flight in the LTMA as summarised in the figure below. The ECTL-PRU report did not cover 2019 when there were significant ATC staffing delays but a reduction in capacity, other (special event), and overall delay. However, the coding of ATC Staffing delays is not in dispute by the complainants.

[77] A Minimum Time Interval is the minimum time required between successive departures on the same Standard Instrument Departure (SID) route.

[78] STAMs may be applied by local ANSPs to reduce traffic peaks through short-term application of minor ground delays, appropriate flight level capping and small re-routeings to a limited number of flights.

Figure 5.1: Average en route ATFM delay per flight London TMA (2014-2018)



Source: ECTL-PRU report, 26 June 2019, p15

5.17 ECTL-PRU found some instances of regulations which did not readily adhere to the PRC principles outlined above. For example, it found instances when:

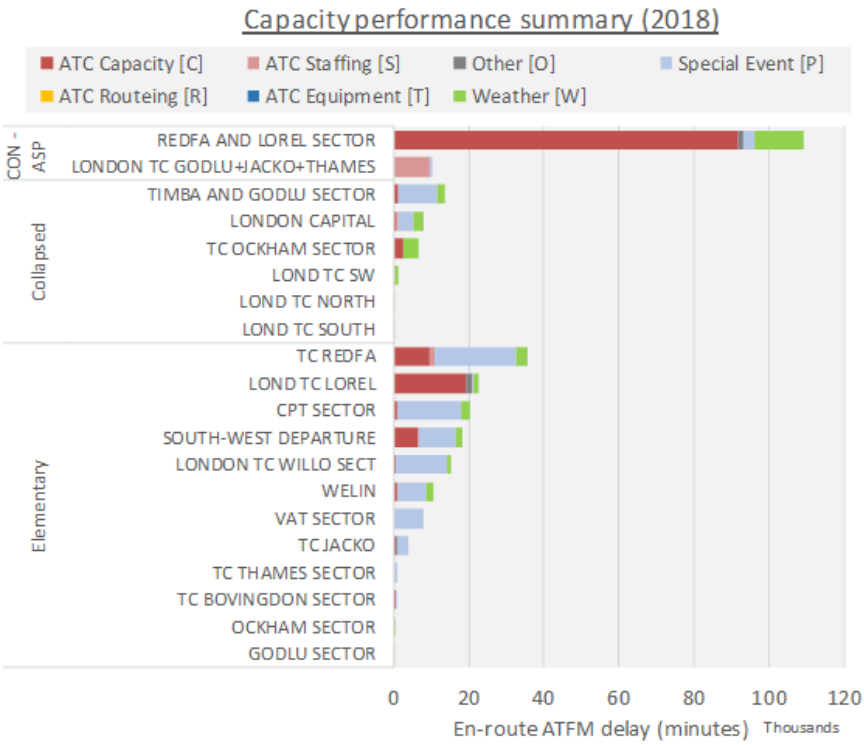
- regulations were applied to Traffic Volumes in elementary sectors with maximum flow rates above the declared capacity, indicating the potential for increasing the declared capacity;
- ATC sectors were being regulated below the level of declared capacity but the reason for the additional capacity constraint was not evident since the delay cause was attributed to ATC capacity;
- regulations for collapsed sectors were attributed to ATC capacity, despite the collapsing of the sector (possibly due to unavailability of staffing) causing the initial capacity constraint;
- regulations were applied in collapsed sectors and delays were attributed to adverse weather, although collapsing of sector had caused the initial capacity constraint.

5.18 We do not consider that the above had a material effect on the reporting of NERL performance in 2018. In fact, one of the most challenging aspects regarding the coding of delays affecting users of Stansted and Luton relates to the attribution of ATC capacity delays to regulations seen in the “conjoint” (but not collapsed) REDFA and LOREL sector. The ECTL-PRU report shows total en

route delay in the London TMA by airspace sector (described as elementary, collapsed or conjoint) between 2014 and 2018.[79]

5.19 In 2018, en route ATFM delay in the LTMA rose sharply from the previous year. Whilst a sizeable portion of the increase can be attributed to the introduction of ExCDS (Special Events) that summer, Figure 5.2 below shows over 100,000 minutes of delay recorded in the "conjoint" REDFA and LOREL sectors. ECTL-PRU were unable to verify the sector configuration at the time of the regulations due to the lack of data, highlighting the need for NERL to provide sector opening times which, in ECTL-PRU's view, would increase transparency of their operations.

Figure 5.2: En route ATFM delay (mins) in LTMA 2018



Source: ECTL-PRU report, 26 June 2019, p18

5.20 Conjoint sectors represent a NERL-specific practice where the traffic flow in adjacent airspace sectors is managed simultaneously in periods of high demand. ECTL-PRU found this to be an acceptable operational practice. However, these sectors are described by Eurocontrol as "collapsed" in its Network Manager systems, which, combined with the absence of sector configuration data from NERL, makes NM post-operational analysis more challenging. Issues around collapsed and conjoint airspace are discussed in more detail in the section below and further explained in Appendix F.

[79] PRU assessment of NERL delays in the London Approach service (ECTL-PRU) 26 June 2019, figures 4-3 to 4-7, KDN02

5.21 Nonetheless, ECTL-PRU found that the practices by which NERL attributes and codes ATFM delays is consistent with the current guidelines in the Air Traffic Flow and Capacity Management ("ATFCM") manual (which is used by many other ANSPs across the network).

5.22 ECTL-PRU also investigated the evolution of the cause of delay in their report.[80] It found that generally good practice was being adhered to, however in the LTMA there was:

- evidence of (small) amounts of en route delay due to ATC capacity causes in collapsed sectors; and
- approximately 4000 minutes per year of adverse weather attributable delay in collapsed sectors.

5.23 ECTL-PRU noted that these instances may not be inconsistent with NERL's internal delay coding guidance and do not contravene regulations. That said, the PRU reiterated that *"…the primary focus for mitigating or resolving the capacity constraints should be on identifying any ANSP-internal constraints that prevent the deployment of maximum declared capacity..."* and *"…noted that adverse weather could potentially be mitigated by opening additional sectors*."

Collapsed sectors and Conjoint airspace

5.24 The NEST repository categorises airspace sectors as either "elementary" or "collapsed." Elementary airspace sectors cannot be subdivided further and are managed by a single ATCO. A collapsed sector is a combination of elementary sectors which can be operated by a single ATCO. These configurations are commonly utilised to reduce the number of operating ATCOs during periods of low demand e.g. during night time.

5.25 In early drafts of the ECTL-PRU report, significant amounts of ATC capacity delay were identified in the following sectors, which were designated as "collapsed";

- "REDFA & LOREL" and;
- "LONDON TC GODLU+JACKO+THAMES".

5.26 By definition, collapsed sectors are operated with a reduced staffing complement, suggesting a lack of available staff if regulations are imposed in that configuration. ECTL-PRU initially concluded that this would not be in accordance with PRC principles by which any internal ANSP constraints should be identified first before attributing delay to ATC capacity reasons.[81]

[80] PRU assessment of NERL delays in the London Approach service (ECTL-PRU) 26 June 2019, Section 4.8, KDN02
[81] PRU assessment of NERL delays in the London Approach service (ECTL-PRU) 26 June 2019, p14, KDN02

5.27 Having been given the opportunity to comment on those conclusions, NERL explained its approach further. This led ECTL-PRU to conclude that NERL was operating these sectors in a "conjoint" fashion; *"Discussions with the Network Manager have confirmed that considering separate sectors as "conjoint airspace" is "an acceptable operational practice…"*[82] Furthermore, NERL indicated to ECTL-PRU that the REDFA and LOREL (ESSEX) sector is described as "collapsed" due to limitations with the NM system and this best describes the traffic flow. This subsequently led to ECTL-PRU re-designating the TC ESSEX airspace throughout their report as conjoint in the final version of report to the CAA.

5.28 NERL has explained the status of the TC ESSEX sector, highlighting that, in this context, NERL referred to the traffic volume and not the airspace; "*...the TC Essex sector (traffic volume) was re-defined following experience of LAMP1A airspace changes to ensure that the traffic volume was capturing the correct traffic flows"* and *"…the TC Essex sector (traffic volume) now uses both the LOREL fix and the REDFA fix (these are both fixes and not the REDFA and LOREL sectors of airspace)."*[83] Therefore this traffic volume should be considered as an elementary sector.

5.29 Internal CAA airspace experts corroborated NERL's definition of the TC ESSEX traffic volume. We have provided further background on sector definitions, including conjoint airspace, in Appendix F. ECTL-PRU also accept NERL's explanation, however reiterated that the data stored by the NM system refers to TC ESSEX as a collapsed sector and that a traffic volume (TV) with two reference locations is contrary to the definition outlined in the NM ATCFM manual.[84]

5.30 The ECTL-PRU report also states that NERL do not supply Eurocontrol, as Network Manager, with the opening and closing times of individual ATC sectors (Figure 4-1, ECTL-PRU report) – instead there is a local agreement between NERL and Eurocontrol that all the sectors in the LTMA are considered permanently open.

5.31 These practices enable NERL to operate more independently and to respond faster and more flexibly to variations in airspace demand. However, the lack of detailed information provided to Eurocontrol via the NM system regarding the operational details of NERL ATFM regulations reduces transparency and makes Eurocontrol's post-operation analysis more difficult.

[82] PRU assessment of NERL delays in the London Approach service (ECTL-PRU) 26 June 2019, p12, KDN02

[83] NERL response to Revised Draft ECTL-PRU Report 26 July 2019, KDN31

[84] Comment Response Document on PRU Assessment of NERL delays in the London Approach service, Eurocontrol, 06 Sept 2019, KDN32

Analysis of ATFM regulation applied on the TC ESSEX (EGTTESX) Traffic Volume

5.32 The ECTL-PRU investigated ATFM regulations applied to the EGTTESX TV – the arrivals TV for Stansted, Luton and Cambridge airports. Their analysis is summarised in Figure 4-4 of the ECTL-PRU report.

5.33 The analysis covered ATFM regulations applied between 2016 and 2018 for either ATC capacity and ATC staffing reasons. ECTL-PRU found examples of regulations:

- attributed to ATC staffing where the regulated capacity of the TV is below the declaration (e.g. 31 March 2016,16 April 2016, 26 March 2018) – this would be expected during staff shortages.
- where the regulated capacity of the TV is above the declaration (e.g. 28 June 2018), suggesting there is scope to increase the declared flow rate and the overall capacity of the sector.
- where the arrival flow was regulated below the declared capacity, yet the cause attributed is ATC capacity (highlighted in red, e.g. 26 September 2017, 18 February 2018, 18 March 2018).

5.34 NERL has stated that "*delay is recorded as being due to staffing if it is unable to meet its planned sector openings as submitted to the NM shown in its PSS (Planning Staffing Schedule)."*[85] Additionally NERL commented; *"If the PSS is delivered but demand exceeds capacity, the delay cause is attributed to capacity."*

5.35 The accuracy of the NERL ATFM delay statistics appears to be reliant on the accuracy of the PSS, a view which is supported by ECTL-PRU; "*Basing the sector opening scheme, and the number of available ATCOs, on what has been previously declared in a plan, instead of basing it on traffic demand means that the available capacity is highly dependent on the accuracy of the plan.*" Additionally, we can then infer that in instances where capacity is artificially reduced e.g. during staff training, yet the PSS is met, NERL policy could lead to delay being wrongly attributed to capacity reasons.

5.36 While the above is not evidence of systematic miscoding, it indicates situations where PRC coding principles are not being applied and/or there is not sufficient transparency of sector opening times of NERL to ECTL-PRU and other stakeholders.

[85] NERL feedback on draft ECTL-PRU report, 15 May 2019 KDN33

Actions suggested by ECTL-PRU in its report

Sector opening times

5.37 NERL currently manages capacity and demand autonomously and does not provide dynamic sector opening times to Eurocontrol, as the Network Manager. While this practice may be permissible under the existing ATFCM practices, it reduces transparency regarding NERL's actual operational practice in its service provision. It would improve transparency to external stakeholders and better demonstrate compliance with Regulation (EU) No 2019/123[86], which replaced EU Regulation No 677/2011 with effect from 1 January 2020, if NERL would provide the Network Manager with sector opening times and a dynamic update of the actual sector configurations that it has deployed.[87] This does not need to affect current operational arrangements or responsibilities.

Attribution of delays

5.38 ECTL-PRU reiterated that the ATFM delay attribution process should be based on the PRC principles as per paragraph 5.14 above.

5.39 ECTL-PRU recommended that these principles should be implemented consistently and that an independent verification process is established to monitor the attribution of delay. ECTL-PRU further recommended that NERL should strengthen the ATFCM process by developing and adopting strict procedures for attributing ATFM delay causes, instead of the current guidelines that may lead to inconsistencies and reduce transparency.

Performance improvement also needs action from airports and airlines

5.40 ECTL-PRU acknowledged that NERL, like any other ANSP, should provide the capacity required for the provision of air traffic services to satisfy peak demand. However, the expectations on the ANSP and action to be taken cannot exist in isolation. It needs to be properly balanced with the resources available at the airport, both airside and landside, and the constraints within airspace user operations.

Improved scheduling at Stansted

5.41 The recurrence of airport arrival ATFM regulations at specific times at Stansted suggests the need for improved scheduling through coordination between the involved parties on the operation at that airport (NERL, airlines and STAL), which might help reduce the ATFM delay.

[86] Commission Implementing Regulation (EU) 2019/123 of 24 January 2019 laying down detailed rules for the implementation of air traffic management (ATM) network functions

[87] See the information requirements in Annex VI to Regulation (EU) No 2019/123.

Assessment and NERL's internal coding guidance

5.42 ECTL-PRU were provided with a NERL internal document,[88] which was made available for review, outlining the difference between ATC capacity and ATC staffing delay causes and the attribution principles used by NERL. NERL's internal guidance distinguishes between ATC Capacity and Staffing delay as follows:

- *"**Capacity** – the number of controllers available for use on a specific sector matches the declaration in the Planning Staffing Schedule ("PSS"). These controllers must be available to be used on the regulation sector regardless of where they may be rostered on the daily sheet. Regulation is attributable to capacity."*
- *"**Staffing** – the number of controllers available for use on a specific sector is below the declared PSS. ATFM Regulation is attributable to staffing."*

5.43 In their final report, ECTL-PRU commented on these guidelines in the following terms; "*Basing the sector opening scheme, and the number of available ATCOs, on what has been previously declared in a plan, instead of basing it on traffic demand means that the available capacity is highly dependent on the accuracy of the plan."* Furthermore, PRU reiterated; "*...the primary focus for mitigating or resolving the capacity constraints should be on identifying any ANSP-internal constraints that prevent the deployment of maximum declared capacity rather than referring to planned capacity.*"

5.44 This suggests to us that the approach used by NERL to distinguish capacity and staffing delays may not always produce the most appropriate coding since it refers to their planned capacity rather than actual demand.

Further CAA analysis on coding of relevant ATFM delays

5.45 To complement the information provided in the ECTL-PRU report, we conducted some further analysis presented in Appendix E in which we analysed:

- ATFM regulation data used by ECTL-PRU in their report. It encompasses all en route regulations applied in the LTMA between 2014 and 2018.
- ATFM regulations using data from Eurocontrol,[89] available to industry stakeholders.

[88] *Service Performance Improvement Process*, NERL internal document, April 2017, KDN34

[89] Eurocontrol NMIR dashboard data accessed from OneSkyOnline portal: https://ext.eurocontrol.int

- ATCO staffing data from NERL who supplied average rostered staff and the accrued delay minutes by LTMA airport by month for 2017 and 2018, as well as detailed shift-level data for a four-month period (June to September 2018).
- other air traffic data available to the CAA.

5.46 In Appendix E we have observed:

- a regular pattern of capacity-related delays at peak times in the peak season within the LTMA together with staffing delays being more sporadic and spread out across the day. The patterns observed were consistent with those that would normally be associated with such types of delay in 2016, 2018 and 2019 (in 2017 there were fewer delays).
- no obvious correlation between high ATC capacity delays and rostered staffing at Stansted and Luton in 2018, which suggests that lack of staffing might not be a reason for the observed ATC capacity delays in that year.

5.47 While not being conclusive, this analysis does not provide compelling evidence of wholesale miscoding of delay in a way that would misrepresent NERL's performance. In fact, there appears to be some evidence that most capacity delays during 2018 were coded in periods where available airspace capacity was scarce.

Provisional conclusions and draft recommendations

5.48 The ECTL-PRU report found NERL's coding of delays was consistent with current guidelines and not dissimilar to practices adopted by other ANSPs in Europe.

5.49 Nonetheless:

- current coding guidelines are not very prescriptive, and the PRC found that they can lead to inconsistences and difficulties in monitoring ANSPs' performance. The PRC has recommended that the ATFCM process be strengthened using a set of principles for delay coding as endorsed by ECTL's Provisional Council in 2017.
- NERL's policy of attributing staffing delay to shortages against its PSS rather than actual demand does not appear consistent with best practice and PRC coding principles. Additionally, the way that NERL currently attributes staffing delay is highly dependent on the accuracy of the forecast plan.

5.50 We have seen no evidence, from the ECTL-PRU report nor from our own analysis presented in Appendix E, that NERL coding of delays in 2018 or 2019

was intentionally wrong or misleading in a material manner. Furthermore, in 2018, we have observed a regular pattern of capacity-related delays at peak times in the peak season within the LTMA together with more sporadic staffing delays. The patterns observed were consistent with those that would normally be associated with such types of delay. This suggests that the capacity delays coded in 2018 (including those in conjoint sectors) were not miscoded. In 2019, we observed a large increase in staffing delay reported in the LTMA for arrivals to Stansted and Luton. A pattern of regulations consistent with staffing shortages is also observed in the data. We have seen no evidence of deliberate or wholesale attribution of delay to weather causes to misrepresent NERL's performance.

5.51 However, we note that NERL does not supply sector opening and closing times to the Network Manager dynamically. This leads to a lack of transparency. The confusion surrounding NERL working practices in the ECTL-PRU report (TC ESSEX airspace designation) is an illustration of this.

5.52 To remedy these issues, we recommend that NERL adopts the PRC best practice coding principles unless they can demonstrate to the CAA an important operational reason not to adopt the PRC best practice principles. This recommendation may mean NERL reports differently to other European ANSPs until other member states adopt these changes.

5.53 ECTL-PRU have also recommended that NERL provides dynamic Sector Opening Times to the ECTL Network Manager (NM). We endorse this recommendation and note that this better demonstrates compliance with the requirements imposed by Regulation (EU) No 2019/123. Doing this would not necessarily change NERL's operational practices but would improve transparency and make it easier for Eurocontrol to review NERL's performance. We recommend that NERL continues providing Sector Opening Times information manually, while a system to provide dynamic sector opening times is developed. NERL should also update the CAA and stakeholders on progress and on when it expects a system to provide dynamic sector opening times to be operational. We recommend that NERL engages with Eurocontrol, as NM, to ensure there is greater clarity on how NERL operates and that the data it submits to the NM is clear and accessible.

Chapter 6

Staffing Resilience

Introduction

6.1 This chapter considers whether the operational staff made available by NERL for ATC in the LAS was sufficient to ensure appropriate levels of resilience in 2018, 2019 and Q1 2020.

6.2 In the Oberon investigation, we found that delays in the LAS increased in 2016 as a result of a lower resilience within the staffing of that service. Put simply, there were too few operational staff available to provide normal resilience levels. We identified that this was caused by a number of events which occurred in combination:

- NERL made significant cuts to its operational staffing in the run up to the RP2 regulatory period (January 2015 to December 2019);
- NERL was unable to implement a number of initiatives that it had identified to reduce the number of operational controllers it required while maintaining normal resilience levels); and
- NERL had a higher than expected rate of short-term sickness, unplanned retirements among controllers, and a lack of take-up of voluntary overtime as a result of an unfavourable industrial relations climate, which all led to a lowering of resilience levels.[90]

6.3 In this investigation, we have assessed the evidence available on whether NERL has taken, or is taking, all appropriate steps to ensure it has sufficient staff to provide the LAS, and in particular to meet the reasonable demands of aircraft using Essex airspace.

6.4 The remainder of this chapter is structured as follows:

- Background;
- Oberon conclusions on ATC staffing;
- latest allegations;
- evolution of delays (including 2019);

[90] CAP 1578, paragraph 1.8

- key areas of investigation:
  - evolution of valid staff numbers
  - overtime
  - NERL's business and operational planning
  - analysis of NERL staff rostering data, and
  - training and other recent NERL initiatives; and
- summary and provisional conclusions.

Background

6.5 Operational staff generally refers to ATCOs. ATCOs coordinate the movement of aircraft to maintain safe distances between them. They work in control towers, approach control facilities, or ACCs.

6.6 An ATC unit must direct aircraft efficiently to minimise flight delays in a way that does not undermine the primary objective of maintaining a high standard of safety. ATCOs manage the flow of aircraft into and out of the airport airspace, guide pilots during take-off and landing, and monitor aircraft as they travel through the skies.

6.7 Each ATCO must hold an ATCO licence in accordance with Commission Regulation (EU) 2015/340,[91] as well as any specific ratings and rating endorsements relevant to any specialist tasks. This requires successful completion of initial training at an initial training organisation followed by unit training under supervision.

6.8 ATCOs can only operate in sectors of airspace for which they hold a current validation in their licence. Typically, they will initially train on one sector and then progress over time to holding multiple validations – for 2 or 3 sectors – as this increases the flexibility of their deployment and improves operational and rostering efficiency. Nonetheless, the system of licensing ATCOs to work in specific airspace sectors has limited flexibility as there are specific requirements as to how many hours per month they must continue to operate in each sector for which they are validated.

Overview of staffing structure and functions in the LTMA

6.9 The LTMA operation comprises a total of 49 operational positions which are active at any point in time - 17 are airport approach sectors (Stansted and Luton

[91] Commission Regulation (EU) 2015/340 of 20 February 2015 laying down technical requirements and administrative procedures relating to air traffic controllers' licences and certificates pursuant to Regulation (EC) No 216/2008

being examples), 28 are TMA sectors (those other sectors of airspace within the boundary of the LTMA), and four supervisors.

6.10 Based on information provided by NERL regarding its staffing operational functions and the structure of the LAS,[92] NERL has a pool of controllers and supervisors operating the LTMA who hold multiple validations serving TMA sectors, and Heathrow, Stansted, Luton, Gatwick and London City airport approach sectors. Each ATCO normally holds a validation for a TMA sector, Heathrow or two other airports. This increases flexibility and enables the total number of ATCOs to be reduced. Nonetheless, newly validated controllers will only hold one validation while they consolidate their training and experience. NERL says it puts significant management effort into ensuring that controllers hold multiple validations to provide flexibility and resilience to its operation.

6.11 The number of ATCOs required on any day is determined by the number of positions required to provide a service to the LTMA and the need to provide cover for breaks, absences and sickness for each shift.

6.12 NERL says it rosters more ATCOs in the operations room than the number of required positions to allow for breaks. For each watch, it rosters a mixed level of validations, flexible workers, and part-time employees. Therefore, the combination of validations available on any given day varies. A key responsibility for NERL's supervisors on the day of operations is to deploy the validations in the most effective way to meet the traffic demand and ensure an efficient and expeditious flow of traffic across the UK airspace network as a whole.

6.13 Figure 6.1 shows the structure and the ATCO requirements that NERL has adopted for the approach positions into the main London airports. NERL notes that the size and complexity of the Heathrow operation, with two runways, requires more positions to deliver the service than other Airport Approach functions, and therefore there is naturally a larger pool of controllers validated on the Heathrow sector. There are five control positions on the Heathrow sector, three for Gatwick, and three for Stansted/Luton (shared between them).

[92] NERL submission to Q3.1 dated 22 February 2019 (Strategic Resource Board – Extracts for TC Approach – September 2017), KDN35; and NERL submission dated 12 July 2019 (NERL response informal information request June final), KDN36

Figure 6.1: Structure and ATCO requirements for the approach positions into the main London airports

Airport	Runway configuration	Number of holding stacks	Number of positions	Minimum number of controllers rostered per shift[1]
Heathrow	Dual runway	4	5 radar positions: - 2 intermediate approach - 2 support - 1 final approach	[redacted]
Stansted	Single runway	2 (shared with Luton due to proximity of locations) Responsibility for holds rests with Stansted ATCOs	3 radar positions: - 1 intermediate approach - 1 support - 1 final approach	
Luton	Single runway	2 (shared with Stansted due to proximity of locations) Responsibility for holds rests with Stansted ATCOs	2 radar positions: - 1 intermediate approach - 1 final approach	
Gatwick	Single runway	2	3 radar positions: - 1 intermediate approach - 1 support - 1 final approach	
Thames	London City – single runway	0 (point merge)	4 radar positions: - 1 Thames radar - 1 support - 1 final approach (London City, Biggin Hill, Southend) - Special VFR (provides service for helicopters, pleasure flights etc. over London)	

Source: NERL[93]

[93] NERL response to CAA's Project Palamon information request, 22 February 2019, page 7-8, KDN37

Oberon conclusions on ATC staffing

6.14 In the Oberon final report,[94] ("the Oberon Report") the CAA did not find that NERL had breached its obligations under TA00 and its licence. However, that was a "*finely balanced decision*" as the Oberon investigation highlighted a number of areas where NERL needed to improve, and where the CAA needed to review its oversight of NERL. The Oberon Report stated (emphasis added):

- *"CAA's view is that delays in the London Approach Service increased in 2016 as a result of a lower resilience within the staffing of that service, put simply, there were too few operational staff available to provide normal resilience levels. This was caused by a number of events which occurred in combination. First, NERL made significant cuts to its operational staffing in the run up to the current regulatory period. Second, NERL was unable to implement a number of initiatives that it had identified to reduce the number of operational controllers it required (i.e. to maintain normal resilience levels). Third, a higher than expected rate of short-term sickness, unplanned retirements among controllers, and a lack of take-up of voluntary overtime as a result of an unfavourable industrial relations climate, all led to a lowering of resilience levels."*[95]
- *"The CAA finds that, based on the information available to NERL at the time, NERL's decisions in relation to these events were reasonable. The combination of circumstances in such a short period of time went beyond those that NERL could reasonably have been expected to plan for. Further, NERL acted reasonably in how it identified and implemented the remedial measures designed to combat the lower resilience in the service."*[96]
- *"The CAA has taken into account that NERL needs flexibility to determine how best to manage the operation of the airspace of a day-to-day basis and it is not part of the CAA's role to intervene at such a granular level. […]"*[97]

[94] CAP1578: Investigation under section 34 of the Transport Act 2002: Project Oberon Final Report, August 2017 – Non-Confidential version, available at www.caa.co.uk/CAP1578; Unredacted version, KDN01

[95] CAP 1578, paragraph 1.8

[96] CAP 1578, paragraph 1.9

[97] CAP 1578, paragraph 1.10

- *"In reaching its conclusion [of NERL not failing to meet demand through provision of sufficient or reasonable resources], the CAA has taken into account the actions that NERL has taken, and plans to take in the future, to tackle incidence of delays and staff shortages and to improve the resilience of its operations going forward, with particular focus on the London Approach Service. In reaching this view, the CAA expects that NERL will implement these actions as planned to improve its delay performance and resilience for this summer and the remainder of RP2. The CAA expects the NERL Board to assure itself that this is the case. The CAA will closely monitor the implementation and efficacy of NERL's actions. Should NERL fail to implement these actions, the CAA may revisit this decision or take other action as appropriate."*[98]
- *"[…] if NERL anticipates that its action plans may no longer be sufficient or appropriate for tackling the incidence of delays or staff shortages or ensuring operational resilience, the CAA expects NERL to develop, and advise the CAA of, new action plans in a timely and effective manner."*[99]

Latest allegations

6.15 Regarding staffing issues, Ryanair in its letter to NERL dated 7 September 2018[100] complained that:

- NERL has not improved the resilience of its operations. For instance, on 3 September 2018, the sickness of a single air traffic controller resulted in NERL closing the entire Essex airspace for nearly 3 hours; and
- NERL has not provided staffing data to Ryanair for it to assess whether NERL has complied with the CAA's Oberon recommendations.

6.16 Regarding staffing Issues, STAL, in its letter dated 14 January 2019,[101] noted:

- *"…, on three separate occasions during 2018, Stansted Airport, being the fourth largest airport in the country, was required to close its runway for periods overnight due to the short-notice sickness of a single employee at NERL."*

[98] CAP 1578, paragraph 6.4
[99] CAP 1578, paragraph 6.11
[100] Letter from Ryanair to CAA, 7 September 2018, KDN03
[101] Letter from STAL to CAA, 14 January 2019, KDN04

- *"the Oberon Report provided actions for NERL to implement to improve staffing and resilience in the LAS. STAL has no clear evidence or comfort that such steps have been taken, or that they are having the desired impact. In light of the deteriorating performance of the LAS, it should now be considered what progress has been made with implementing these measures, what further steps will be taken (and when) and what impact those measures are having."*
- *"The significant ATC Capacity delays now being experienced at Stansted Airport may be caused by traffic forecasting and planning (that were highlighted in the Oberon Report) i.e. the lack of provision of sufficient resources over a long period of time has also led to the ATC Capacity delays that have been experienced more recently."*
- *"The ATC Capacity delays now being experienced are likely to be symptomatic of the resourcing and management shortcomings that the CAA noted in the Oberon Report."*

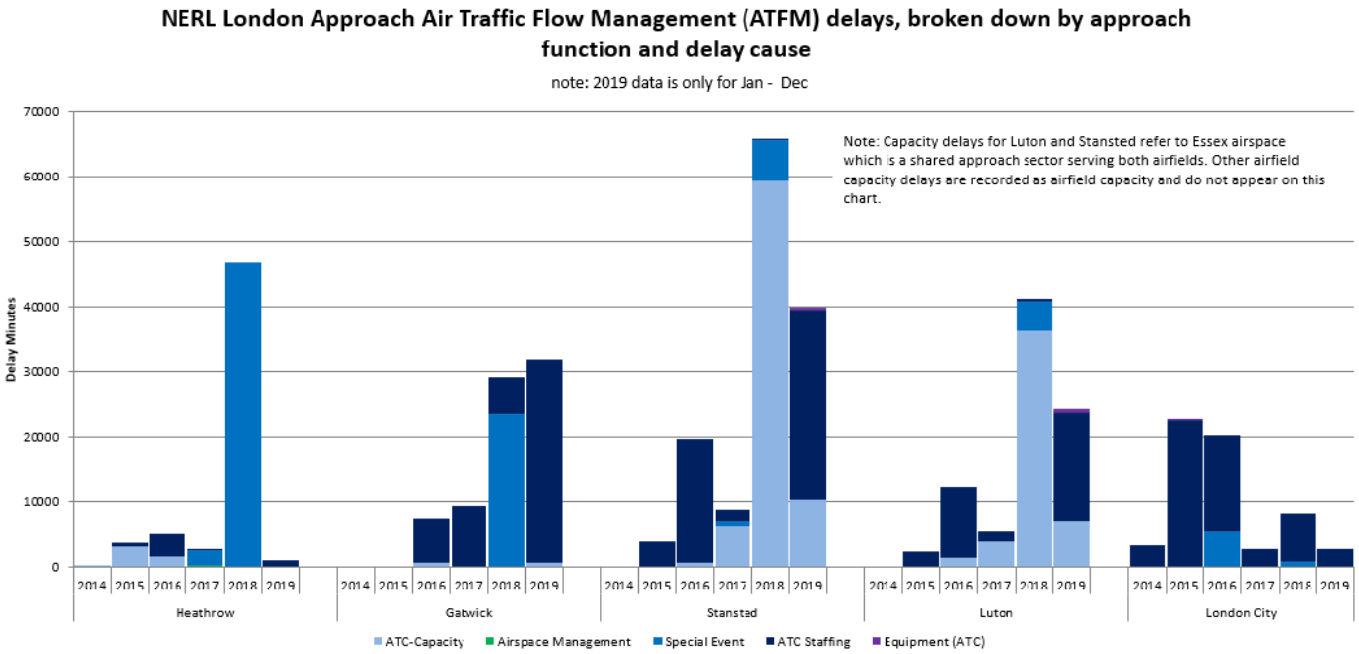
Evolution of delays (including 2019)

6.17 Figure 6.2 shows that NERL attributable delays in the LAS to users of Stansted and Luton improved in 2017 but delays in 2018 and 2019 were significantly above those experienced in 2016 (the year scrutinised in the Oberon investigation). In 2018, these delays were attributed primarily to ATC capacity and to special events (the implementation of ExCDS). However, in 2019, NERL attributable delays were principally attributed to ATC staffing.

6.18 Recent data for the first quarter of 2020, shows that staffing delays on the Stansted and Luton approaches were persisting despite the first quarter normally being more favourable for delays – there were no such delays in the first quarter of 2019.[102]

[102] Oberon indicators 2020 Q1, KDN06; and Oberon Indicators 2019 Q1, KDN07.

Figure 6.2: NERL attributable delays in the LAS by airport by reason



Source: NERL[103]

NERL's explanation for 2019 staffing delays

6.19 We have asked NERL to explain the reoccurrence of staffing delays in the summer 2019. NERL responded in a letter of 06 November 2019[104] saying:

- *"Traffic has grown more than anticipated throughout RP2. We have seen significantly higher than forecast traffic using Gatwick (10% growth), Stansted (31% growth) and Luton (36% growth) airports since the start of RP2. This places increasing pressure on the airspace and, in particular on Essex which handles the traffic for both Stansted and Luton. Following the implementation of ExCDS the Essex airspace monitor value was increased from 38 to 40 flights per hour, however the traffic demand has regularly continued to be above capacity. The relationship between growth and delay is not linear and in 2019 to date Luton has experienced growth of 4.4%, putting further pressure on Essex. As we have previously explained in the letter of 3 June 2019, the Swanwick Airspace Improvement Project (SAIP) AD 6 will improve capacity in the area."*

[103] Oberon Indicators, 2019 Q4, KDN05

[104] Letter from NERL to CAA on 06 November 2019, KDN38

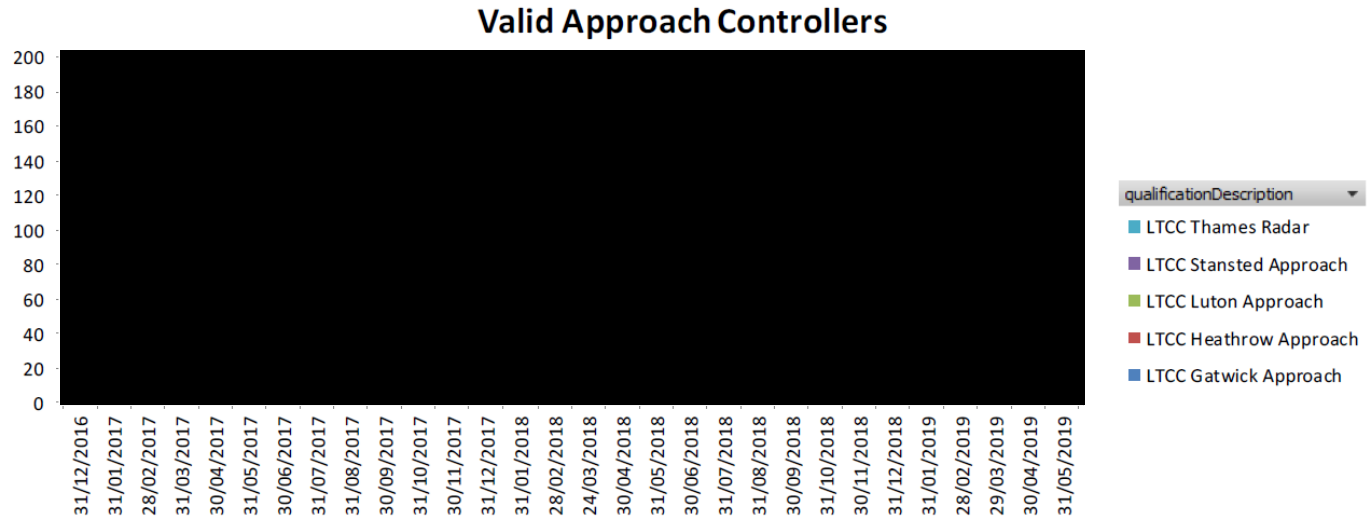
- "The number of qualified controllers decreased in 2019 compared to 2018 and, in addition, the number of non-Heathrow approach controllers absent with long term health conditions has increased in 2019 to 7.7% of the workforce (4.8% in summer 2018). We continue to be susceptible to short notice sickness and, as the traffic increases, the impact of short term sickness also increases the amount of delay that results from the absence of a single controller. Also, our newly trained controllers initially hold a single validation whereas those leaving on retirement (who they are replacing) normally hold two or three skills. *Changes in pension and taxation legislation have resulted in lowering our average retirement age assumption by 2 years from what was the RP2 planning assumption (reported through project Oberon). This took 6 additional controllers from the Terminal Control (TC) resource pool. A recent review of the retirement profile indicates that planning on the basis of this lower average retirement age 6 continues to be appropriate.*"

Key areas of investigation

Evolution of valid staff numbers

6.20 Figure 6.3 below shows the total number of validations per function based on month end figures from 31 December 2016. This chart shows that the number of valid traffic controllers for Stansted and Luton has decreased by over 15% between the end of 2016 and the end of 2018. In the first few months of 2019, valid approach controllers available for the Stansted and Luton approaches fell further (20% compared with the end of 2016), which is consistent with NERL's admission (see the previous paragraph) that, in 2019, the number of valid approach controllers has been lower than in 2018. This is likely to have contributed to the deterioration of ATC staffing delays seen during 2019.

Figure 6.3 Valid approach controllers for the approaches of London airports



Source: NERL[105]

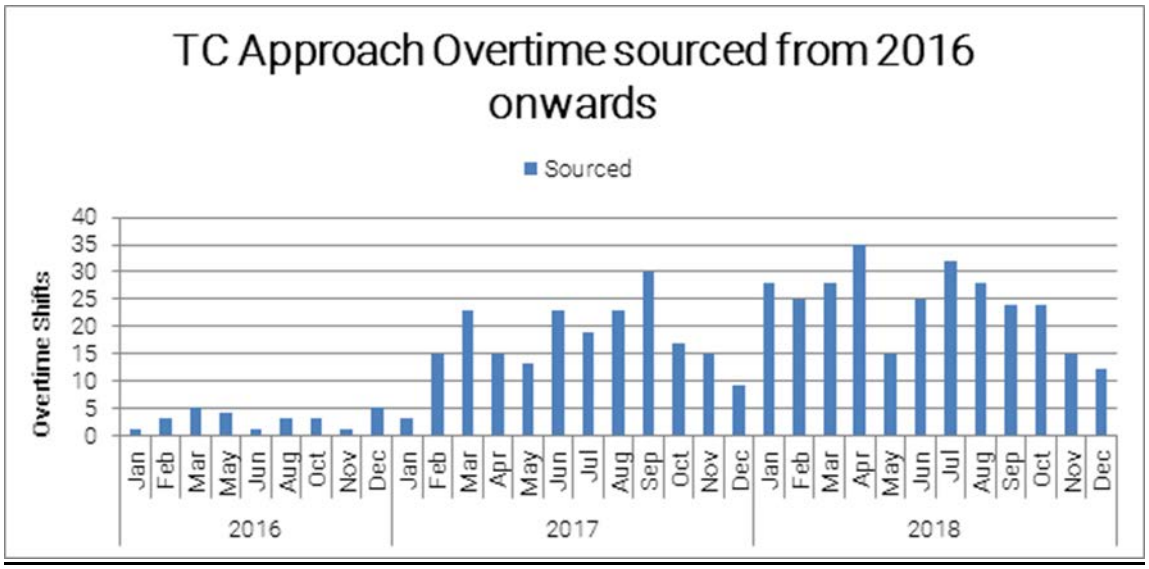
6.21 NERL has known about potential staff resilience risks in non-Heathrow London approach functions for some time and it has faced a number of challenges in increasing its rosterable supply of ATCOs for non-Heathrow approach functions. NERL has explained that it takes approximately 3 years to train an ATCO, which requires highly specialised training, and it is difficult to shorten or make more efficient beyond a certain point. It takes a further 2 years for that controller to obtain an additional validation. ATCOs who leave the business typically hold multiple (two or more) validations. Therefore, it takes time to recover from the loss of more experienced staff. NERL has also explained that there are also restrictions on how many ATCOs can validate due to ATCOs having to train in the live environment, which has limited capacity to accommodate new trainees.[106]

Overtime

6.22 NERL identified that in 2016 there was a reduced uptake of voluntary overtime. Since then, NERL has secured a revised overtime agreement with the trade unions, and in addition for the period of the transition of the ExCDS system into service NERL created a temporary enhanced overtime agreement. Figure 6.4 below shows that NERL's use of overtime increased from relatively low levels in 2016 to a higher level in 2017 and 2018.

[105] NERL submission dated 12 July 2019 (NERL response informal information request June final), page 4, KDN36
[106] NERL response to CAA's Project Palamon information request, 22 February 2019, page 13, KDN37

Figure 6.4: London Approach Overtime by ATCOs from 2016



Source: NERL[107]

6.23 NERL says that one of the benefits of voluntary overtime is that additional ATCOs can be targeted at the periods of time and parts of the operation where the need is greatest. The use of voluntary overtime will have contributed to lower ATC staffing delays in 2017 and 2018. We do not have information from NERL on overtime for 2019, but it is clear that, whatever the pattern of overtime working in 2019, the staffing delays increased markedly in that year compared to 2017 and 2018.[108]

NERL's business and operational planning

NERL's ATCO forecasts for the LAS

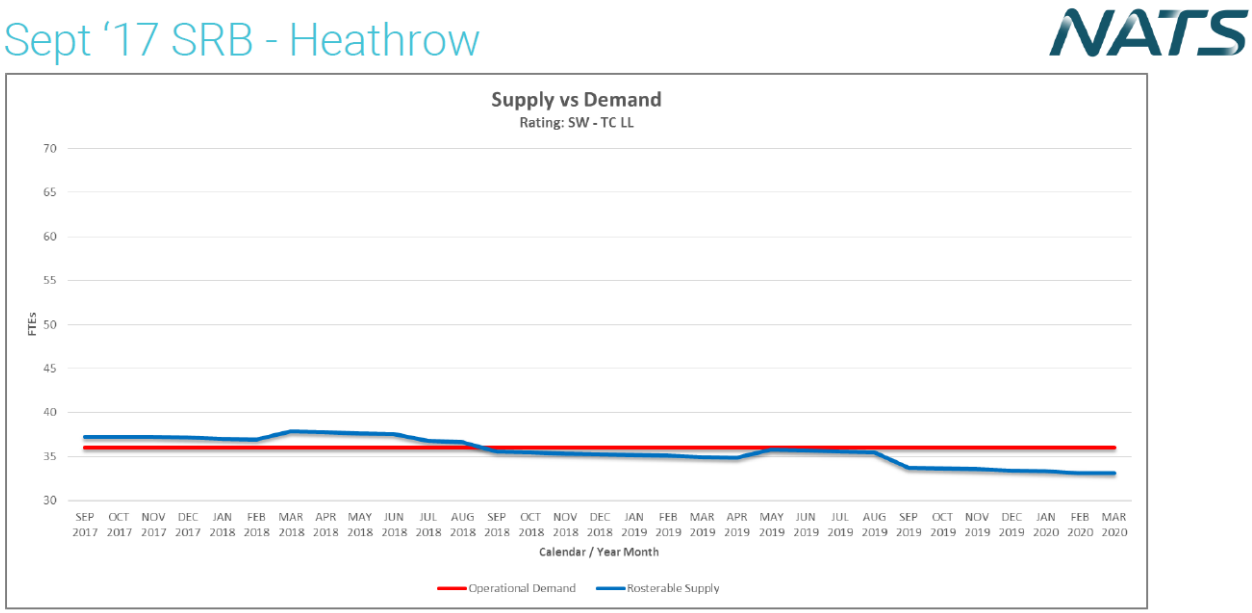
6.24 NERL's manpower planning processes produce resource planning forecasts for both the mid-term (4-18 months) and strategic (1-7 year) timescales. NERL says that it has put significant effort into developing the mid-term planning processes since the Oberon Report was published.

6.25 The strategic forecasts are produced monthly and are reviewed by NERL's Strategic Resourcing Board (SRB) and its Service Delivery Improvement Group (SDIG). These forecasts are made for the terminal control (TC) operation as a whole and are disaggregated to consider the terminal manoeuvring area (TMA), Heathrow approach and "other approach" functions (i.e. Gatwick, London City, Luton and Stansted approaches combined) separately.[109]

[107] NERL Response to Questions (26 Apr) and Info after State of Play, 03 June 2019, KDN39
[108] NERL response to CAA's Project Palamon information request, 22 February 2019, page 13, KDN37
[109] NERL response to CAA's Project Palamon information request, 22 February 2019, page 13, KDN37

6.26 An extract from NERL's SRB papers[110] for September 2017, shows in Figure 6.5 and Figure 6.6, the ATCO forecasts for Heathrow approach and other approach functions from September 2017 to March 2020. The red line shows forecast operational demand and the blue line shows forecast rosterable supply.

Figure 6.5: ATCO forecasts from Sept 2017 - Heathrow approach function

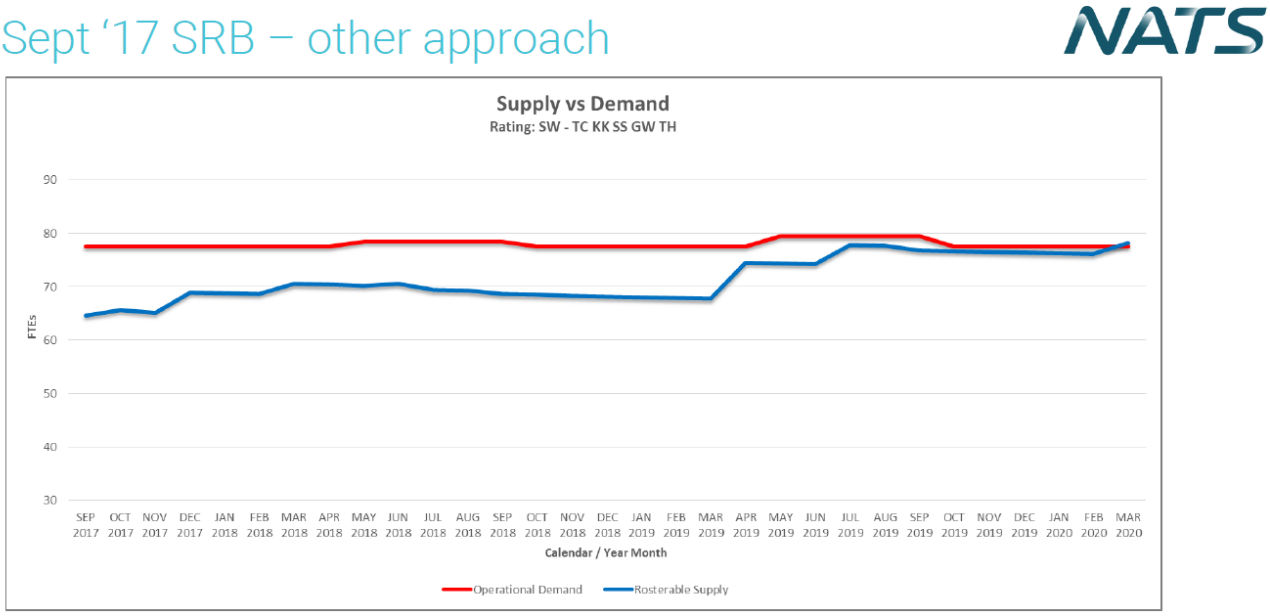


Source: NERL[111]

[110] Strategic Resource Board – Extracts for TC Approach – September 2017, KDN35

[111] Strategic Resource Board – Extracts for TC Approach – September 2017, KDN35

Figure 6.6: ATCO forecasts from Sept 2017 on non-Heathrow London approach function



Source: NERL[112]

6.27 In September 2017 these showed that for the period 2017 to 2020:

- staffing levels for the non-Heathrow approach sectors were significantly lower than the forecast demand, but that recovery would start to take place from early 2019; and
- the forecast for the Heathrow approach showed supply and demand for operational staff to be broadly in balance between 2017 and mid-2019, but with supply then falling slightly below demand.

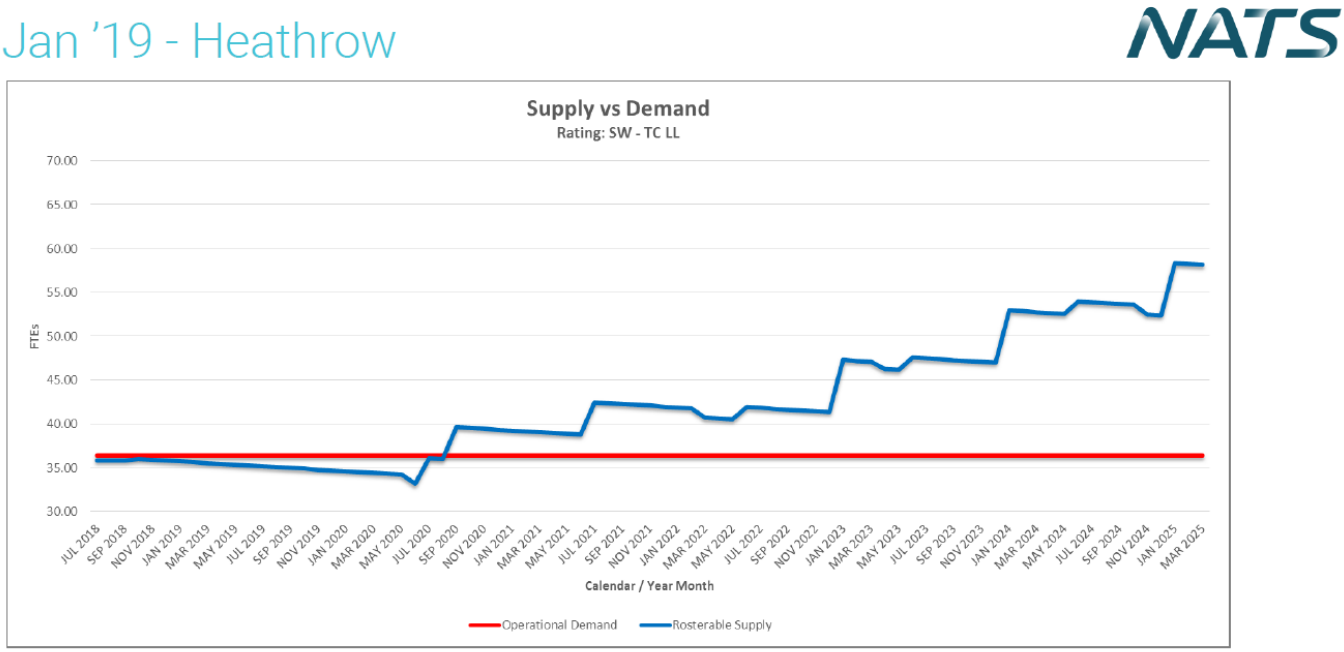
6.28 According to NERL, the reasons why the supply of ATCOs was lower than demand for non-Heathrow approaches included:

- the reduced headcount across NERL's business in response to the RP2 settlement; and
- more ATCOs left the business due to unforeseen changes in pension tax legislation leading to a reduction in the average age of retirements.

6.29 In January 2019, the planning horizon was extended to 2025. These revised forecasts are shown in Figure 6.7 and Figure 6.8 below (as above the red line shows forecast operational demand, the blue line shows forecast rosterable supply).

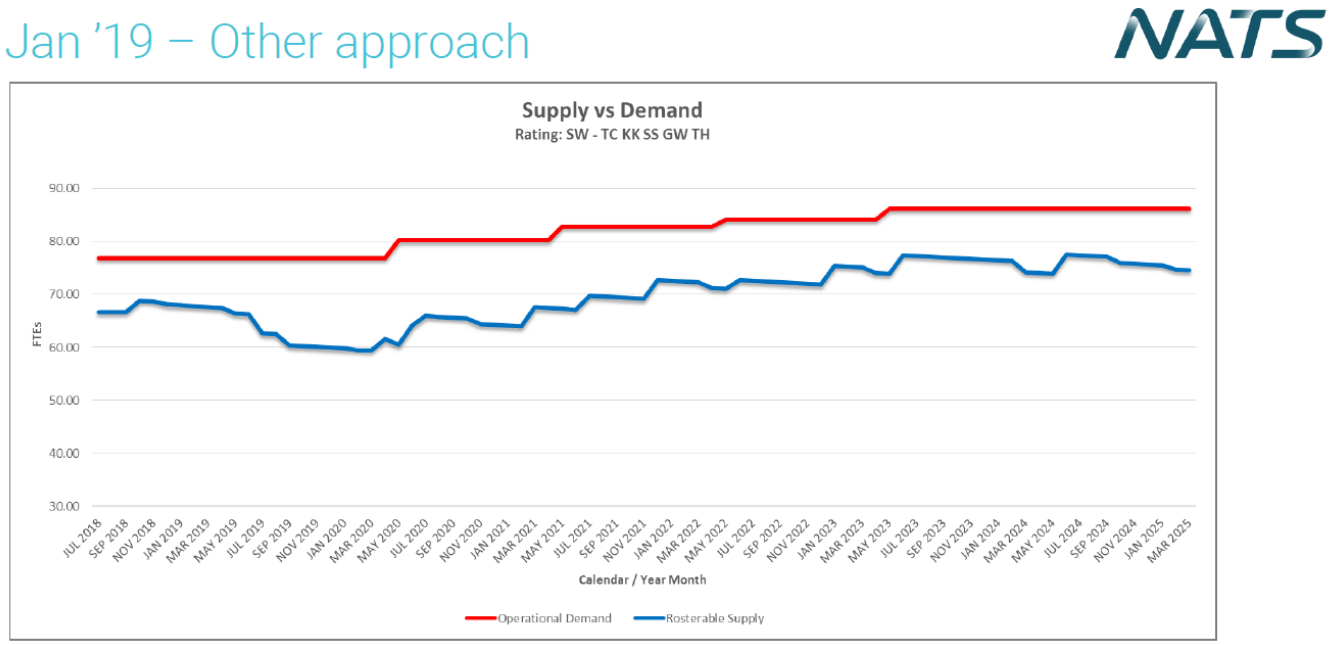
[112] Strategic Resource Board – Extracts for TC Approach – September 2017, KDN35

Figure 6.7: ATCO forecasts from Jan 2019 - Other approach functions



Source: NERL[113]

Figure 6.8: ATCO forecasts from Jan 2019 - Other approach functions



Source: NERL[114]

6.30 The January 2019 ATCO forecasts showed a different recovery picture from that forecast in 2017. Supply for operational staff at the Heathrow approach drops below demand in the period up to mid-2020 but then reverses with strong

[113] Strategic Resource Board – Extracts for TC Approach – January 2019, KDN35
[114] Strategic Resource Board – Extracts for TC Approach – January 2019, KDN35

increases in the supply of operational staff which exceed demand by a considerable margin. We note that plans for capacity expansion at Heathrow and development of the third runway were live in early 2019 and the differential may be due to planning for the new runway expansion. However, the planned opening for the new runway was postponed in December 2019 and the whole project was then placed on hold in March 2020 following a court decision which is now the subject of an appeal. Nonetheless, we consider that it was reasonable for NERL to take account of capacity expansion at Heathrow in its January 2019 plans.

6.31 In contrast, NERL's plans for the other airport approaches show a different picture. A significant shortfall between supply and demand was predicted to continue without any anticipated recovery even by 2025.

6.32 NERL said the Jan 2019 ATCO forecasts reflect:

- that recovery for the other approach functions would start in 2020 with a slower pace than originally envisaged;
- staffing constraints that had since become known and limitations on training capacity in the live operational environment following an increase in the number of trainees; and
- the Heathrow approach forecast reflected the need to increase supply in preparation for Heathrow's 3rd runway in RP4.

February 2020 forecasts

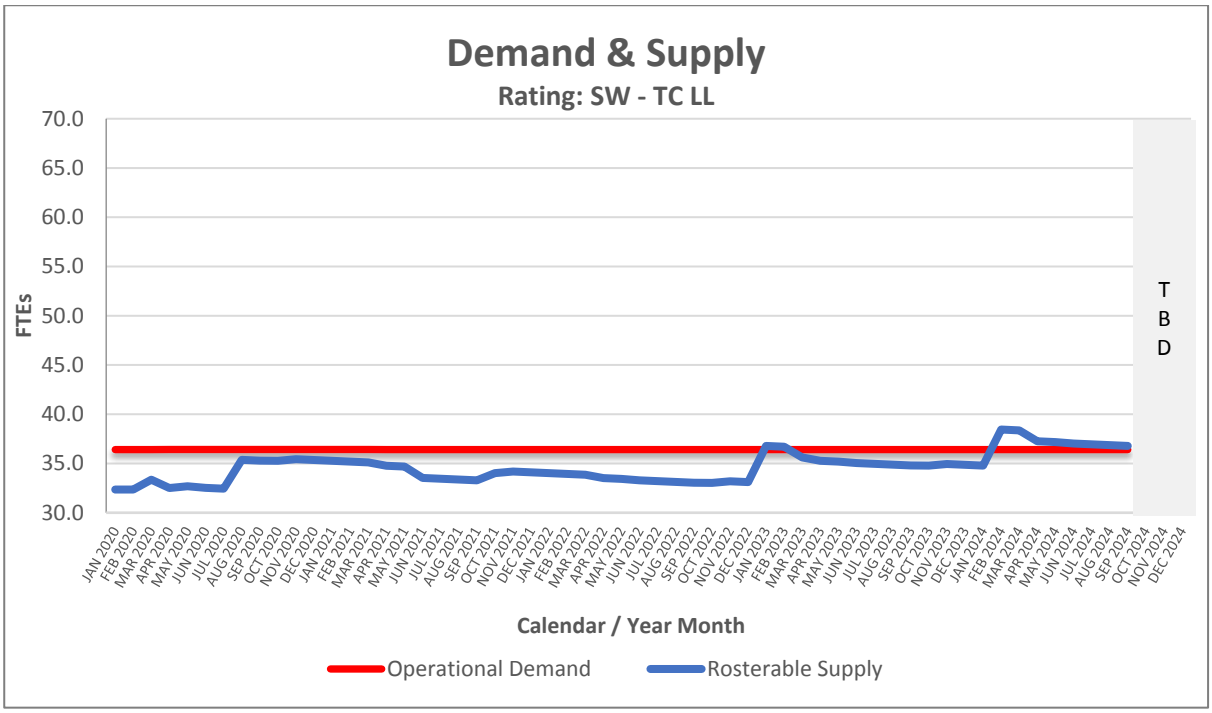
6.33 In February 2020, NERL provided a further update to the Supply and Demand charts above.[115] This is shown in Figure 6.9 and Figure 6.10 below.

6.34 These once again showed significant changes in NERL's forecast of operational staff. For the Heathrow approach, operational staffing remains somewhat below demand until early 2023 when supply and demand are forecast to be broadly balanced.

6.35 On non-Heathrow airport approaches, staffing levels continued to be running at approximately the level forecast in 2019, approximately 60 full-time equivalent ("FTE") ATCOs. However, the "requirement" line for approaches other than Heathrow has been reduced. It now displays a more seasonal pattern (with lower resources required during winter months). Furthermore, where previously NERL estimated requiring 80 FTE ATCOs in Summer 2020 and 82 FTEs in Summer 2021, now they estimate requiring 74 FTEs during summer 2020 and 68 FTEs during winter months to serve the other London approaches. NERL is still forecasting to fall short of requirements in Summer 2020, Summer 2021, Summer 2022 and, more marginally, in Summer 2023.

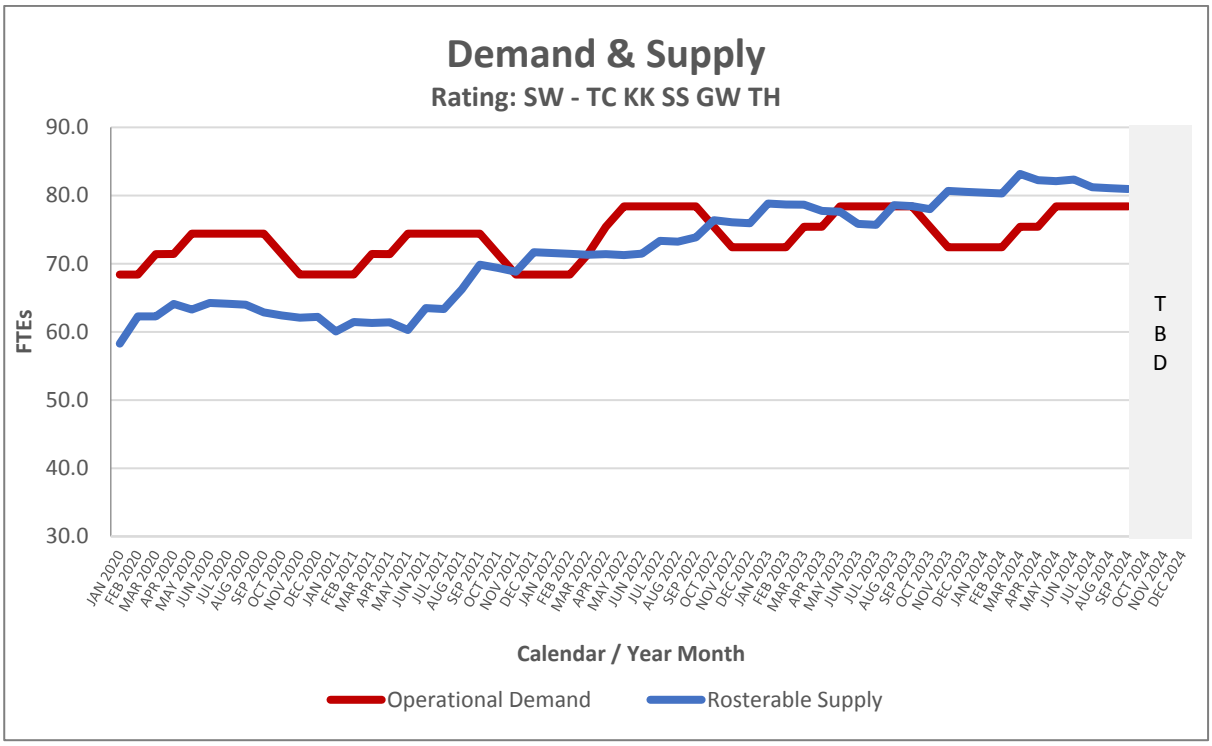
[115] NERL TC Demand Supply Charts and Dataset, 20 February 2020, KDN40

Figure 6.9: ATCO forecasts from Jan 2020 on the Heathrow Approach function



Source: NERL[116] (Vertical axis' scale adapted for comparison with Figures 6.5 to 6.8)

Figure 6.10: ATCO forecasts from Jan 2020 - Other approach functions



Source: NERL[117] (Vertical axis' scale adapted for comparison with Figures 6.5 to 6.8)

[116] NERL TC Demand Supply Charts and Dataset, 20 February 2020, KDN40
[117] NERL TC Demand Supply Charts and Dataset, 20 February 2020, KDN40

6.36 The fact that capacity expansion at Heathrow has been placed on hold and the impact of Covid-19 means that NERL will need to revisit these forecasts and the future pattern of demand and supply of staff may be very different. Nonetheless, the relatively low level of staffing for the non-Heathrow approach functions is a consistent feature of the historical data, including NERL forecasts for its future operations over the next 3 years and the current situation as a result of the above factors may present an opportunity to strengthen the resilience of the approach service provided to all LAS airports.

RP3 plans for increased ATCO numbers and training

6.37 In October 2018 NERL provided its revised business plan as part of the RP3 price control review process.[118] Figure 6.11 below shows that across NERL's business the number of FTE ATCOs fell from 950 in 2015 to a forecast of 868 in 2019, with the forecast level then set to increase to over 1000 in 2023. The number of trainee ATCOs increased from 31 in 2015 to a forecast of 323 in 2020, before falling back between 2020 and 2024. We note that the date shown as actuals for 2015 to 2017 shows a fourfold increase in the number of trainee ATCOs from 31 to 116.

6.38 NERL has said that it has taken into careful consideration, in the planning for RP3, the views expressed by the CAA in its conclusions on the Project Oberon investigation, particularly in relation to any measures impacting on service quality and operational capacity.[119]

Figure 6.11: NERL past and planned headcount across its business

Total NERL headcount

Total NERL headcount FTEs	2015 Actuals	2016 Actuals	2017 Actuals	2018 Forecast	2019 Forecast	2020 Plan	2021 Plan	2022 Plan	2023 Plan	2024 Plan
Operations - Operational Air Traffic Controllers	950	938	915	889	868	906	953	999	1,017	1,018
Operations - Trainee Air Traffic Controllers	31	62	116	201	305	323	266	221	203	195
Operations - Support	822	821	845	935	970	965	963	958	938	928
Technical Services	979	985	1,028	1,076	1,033	1,017	997	946	872	839
Other Support Staff	373	389	396	401	402	438	451	456	456	456
Total	3,155	3,196	3,300	3,503	3,578	3,649	3,630	3,581	3,486	3,435

Source: Appendix K of NERL business plan[120]

[118] This is available at: https://www.caa.co.uk/uploadedFiles/CAA/Content/Accordion/Standard_Content/Commercial/Airspace/Air_Traffic_Control/NERL%20RP3%20business%20plan%20261018.pdf with appendices at: https://www.caa.co.uk/uploadedFiles/CAA/Content/Accordion/Standard_Content/Commercial/Airspace/Air_Traffic_Control/NERL%20RP3%20business%20plan%20261018.pdf

[119] See paragraph 118 of NERL Statement of Case to the RP3 CAA reference to CMA, available at https://assets.publishing.service.gov.uk/media/5de4db5ded915d015c54830c/NATS_CAA_-_Statement_of_Case2.pdf

[120] Available at p51 of: https://www.caa.co.uk/uploadedFiles/CAA/Content/Accordion/Standard_Content/Commercial/Airspace/Air_Traffic_Co

Analysis of NERL staff rostering data

6.39 In August 2019[121] and September 2019,[122] we received two sets of staff rostering data from NERL. The data contained the average monthly rostered staff by London airport approach for 2017 and 2018 and more granular (shift level) data for summer 2018.

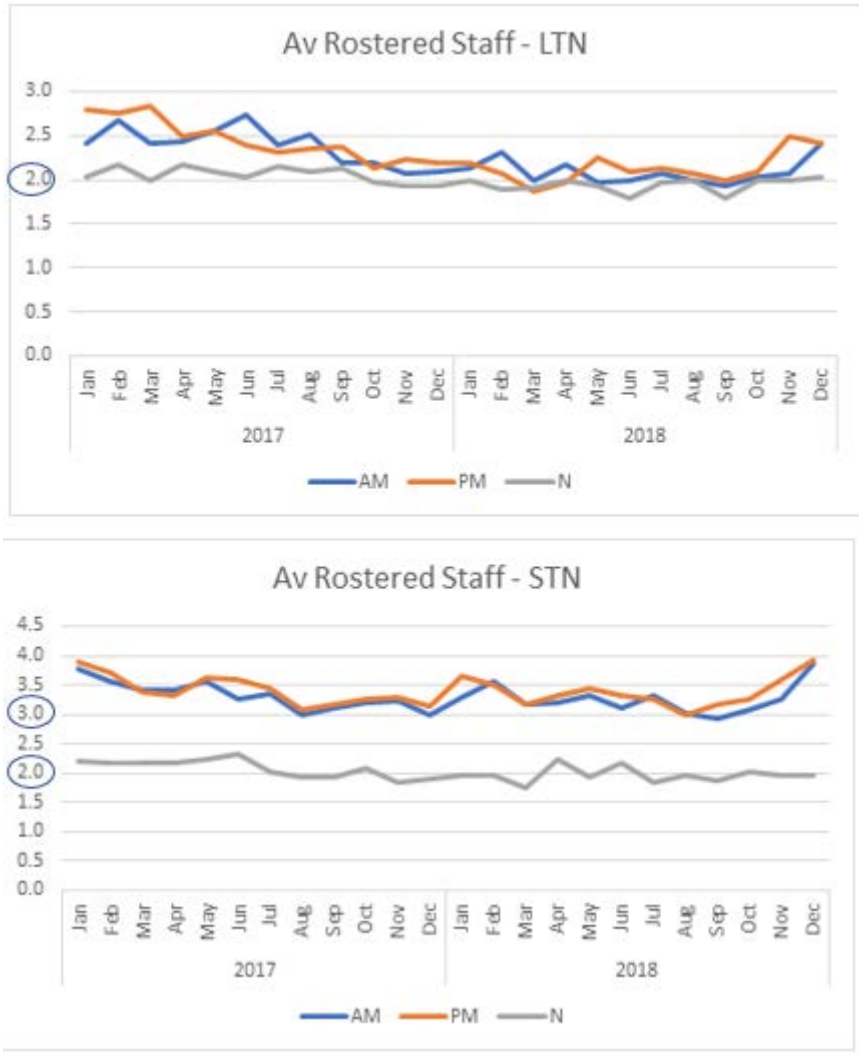
6.40 Monthly average rostered staff data provided by NERL looks stable over the relevant period for Stansted, but, for Luton, staffing levels are lower in 2018 compared with 2017. As shown in Figure 6.12, generally, average rostered staff were above or close to what NERL considered to be required for the operation of the LAS to these airports. NERL considers that shift requirements are 2 for Luton, and 3 (during AM/PM shifts) and 2 (during the night shift) for Stansted. However, monthly average rostered staff may be a poor indicator of incidences of understaffing in particular shifts.

ntrol/NERL%20RP3%20business%20plan%20appendices%20REDACTED%20261018.pdf

[121] NERL Staffing and Delay Data, 30 August 2019 KDN41

[122] NERL Additional Staffing and Delay Data, 24 September 2019 KDN42

Figure 6.12: Average Monthly Rostered Staff at Stansted and Luton



Source: CAA analysis of NERL data[123]

Note: Requirements by shift are: For LTN – 2; For STN – 3 (AM/PM) and 2 (N - night).

6.41 We also asked NERL to provide staffing numbers at shift level for each airport for the months of June, July, August and September 2018.Using that, we computed the number of shifts that were rostered under the required level for the period June-September 2018 (see Figure 6.13 below). This shows that NERL did not meet its staffing requirements for a significant number of its shifts at Stansted (more than 10% and twice that observed at Heathrow and three times the number of understaffed shifts at Gatwick). There was also significant understaffing at Luton. The impact of understaffed shifts may have been felt more strongly in Luton and Stansted in any event, as these positions normally only require two or three members of staff rather than 4-6 at Heathrow and London

[123] NERL Staffing and Delay Data, 30 August 2019 KDN41

City so there is less resilience and the absence or sickness of an ATCO is more likely to result in NERL attributable staffing delay.

Figure 6.13: Understaffed LAS shifts in June-Sept 2018 by London airport

	Understaffed shifts	Total shifts	% Red Shifts
Heathrow	18	366	4.9%
Gatwick	13	366	3.6%
Stansted	39	366	10.7%
Luton	21	366	5.7%
London City	31	244	12.7%

Source: CAA analysis of NERL data[124]

6.42 We do not have rostering data for 2019.

Training and other recent NERL initiatives

6.43 NERL said in February 2019[125] that training is being maximised across the Approach sectors in Terminal Control – both new controllers, and additional skills for experienced controllers.

6.44 NERL also said that there are only a finite number of people who can be trained at any one time. The reasons for this are various and include:

- number of radar positions available for training;
- number of instructors;
- requirement for instructors to have solo radar time every month;
- requirement for cross training ATCOs to maintain currency on the sector that they hold a validation; and
- limited resilience, meaning that those who are training on a sector which will become their second skill are often needed on their primary sector.

6.45 In its letter of 06 November 2019 to the CAA[126] (in response to a CAA request) NERL said:

- *"Tactical resourcing actions are being carried out on a daily basis to ensure the resilience of the operation. Such actions include:*

[124] NERL Additional Staffing and Delay Data, 24 September 2019 KDN42
[125] NERL response to CAA's Project Palamon information request, 22 February 2019, page 37, KDN37
[126] Letter from NERL to CAA on 06 November 2019, KDN38

- *Best use of available validations to aid flexibility;*
- *Voluntary overtime requests to manage short term and late notice sickness;*
- *Staff flexibility in swapping shifts at short notice to cover late notice sickness;*
- *Use of office based staff who hold a validation to assist when necessary; and*
- *Voluntary shift extensions by staff."*

- "As indicated in our RP3 Revised Business Plan, NERL is committed to improving staffing resilience and in addition the following medium term actions are underway:

  *a) **Increased recruitment and capacity of the Air Traffic Control (ATC) college**: As previously reported through project Palamon, NERL has increased the capacity of the ATC college, including the use of third-party ATC colleges. This allows us to recruit and train more student controllers (TATCs). The Unit Training plan utilises every available training opportunity to maximise throughput and reduce time to validation.*

  *b) **On-the-job training (OJT)**: There are 13 TATCs currently progressing through their on-the-job training on the non-Heathrow approach positions, 10 of whom are expected to validate over winter 2019/2020. A further 9 TATCs have already completed their rating training and are holding, waiting to commence their OJT as soon as a training position becomes available following a validation.*

  *c) **Extension training**: Alongside the TATC training programme we are also undertaking extension training. This gives existing controllers additional sector validations so that we can deploy them more flexibly. Of the 9 extensions planned for summer 2019 for non-Heathrow approach controllers, 3 have so far validated and a further 5 are expected by the end of March 2020.*

*d) **Swanwick Training & Resourcing Governance Board**: We have built the Swanwick Training and Resourcing Governance Board which provides oversight on the training and staffing of the Swanwick operation in order to ensure the correct number of operational staff (with the right skills) is used to meet operational and other business objectives (i.e. projects). This includes reviewing the past performance of the training and resourcing system, understanding the current position and providing challenge or endorsement of forecasts and plans for the future.*

*e) **Training Transformation Programme**: We have established an Operations-wide Training Transformation Programme which is tasked with improving operational training delivery, through a combination of improving success rates and reducing time to validate. It is also focused on reducing the training burden on the live operation by reducing the dependence on the involvement of operational controllers in developing and delivering training."*

- *"In addition to the training and staffing actions above, and in line with our normal service improvement activities during winter, we will complete the activity of reviewing summer 2019 performance and sector monitor values and refining our plan for summer 2020. We will also continue to work closely with the Network Manager to ensure we are coordinated in terms of the plans to manage delay in the wider European Network."*

Summary and provisional conclusions

6.46 The Oberon decision found that the NERL attributable delays in the LAS to Stansted and Luton increased in 2016 as a result of inadequate staffing resilience. It did not find NERL to be in breach of its TA00 and licence obligations, although it was a finely balanced decision. We expected NERL to take steps without delay that addressed performance issues, failing which, it faced the risk of future regulatory intervention under the TA00 or its Licence.

6.47 We note that NERL has continued to face difficulties with its staffing resilience. The number of validated ATCOs decreased in 2019 compared to 2018 and the number of non-Heathrow approach ATCOs absent with long term health conditions increased in 2019 to 7.7% of the workforce (compared to 4.8% in summer 2018). NERL said its delay performance continues to be vulnerable to short notice sickness and other factors, such as retirement profiles.

6.48 It is also clear from the evidence that we have reviewed that NERL has been taking steps to try and address staffing issues and shortages, including:

- as noted in Chapter 4, it has delivered on the Oberon investigation recommendations;

- increasing the number of trainee ATCOs;
- greater use of overtime in 2017 and 2018;
- greater emphasis on training in 2019;
- increased operational flexibility and focus on staffing; and
- new and improved management information.

6.49 Nonetheless:

- NERL has continued to face challenges in maintaining an appropriate number of validated ATCOs for the Stansted and Luton approaches, which remain below NERL's optimum and below 2016 levels (that were already inadequate to meet the lower levels of demand at that time);
- staffing delays at Stansted fell from an aggregate of 17,041 minutes in 2016 to 34 minutes in 2017 and 124 minutes in 2018. NERL said this reduction was due to increased take-up of voluntary overtime by its staff, compared with 2016, when there was a less favourable industrial relations climate;
- in 2019, while NERL's performance improved with reduced NERL attributable delays overall compared with 2018, there were significant increases in staffing delay to a total of 29,281 minutes at Stansted (and 16,719 minutes Luton) which was much higher than 2016. This suggests that NERL's actions have not been successful in improving ATCO resilience and service performance for users of Stansted and Luton. We consider that significant spikes in staffing delays for two out of four years is difficult to justify and demonstrates that NERL's actions have failed to improve its resilience on a consistent and sustained basis;
- NERL's own forecasts of staffing for the non-Heathrow approaches consistently show the demand for operational staff exceeding supply and, in the absence of the Covid-19 crisis, anticipated that such shortfalls would continue until 2023; and
- as noted in Chapter 3 while (until very recently) there has been robust growth in demand at Luton and Stansted airports this is not particularly surprising given capacity constraints at other London airports.

6.50 The existence of staffing delays by itself does not necessarily indicate a contravention of NERL's statutory and licence obligations. Nonetheless, the following factors are important considerations in assessing NERL's compliance with its obligations:

- delays in the Stansted airspace have previously been the subject of the CAA's Oberon investigation that concluded with a finely balanced decision, particularly on staffing resources, that there was no breach but found that NERL needed to take specific steps to improve delay performance and staffing resilience for the Stansted and Luton approaches;
- although NERL has taken a range of steps post-Oberon designed to improve resilience, these did not deliver the desired outcomes in 2019 and early 2020, with ATCO numbers remaining below the levels which NERL appears to consider necessary to provide a resilient service;
- a number of the underlying issues identified by NERL including short-term illness, early retirements, challenges and limitations of on-the-job training appear relatively long-standing and reasonably foreseeable issues that should be built into effective resource planning including some margin for error yet NERL has thus far failed to find solutions to properly address them; and
- NERL has not presented to us a recovery plan that, absent Covid-19, credibly demonstrated it could have closed the gap on supply of ATCOs meeting demand for non-Heathrow London airports in the near future.

57. These matters (including the significant increase in ATC staffing delays in 2019, the persistent lack of staffing resilience on the LAS to Stansted and Luton airports over time and the failure to implement adequate and timely steps to resolve these issues) lead us to conclude that, from January 2019 until March 2020 (the "Relevant Period"), NERL contravened its obligations under section 8(1)(c) and 8(1)(d) of the TA00 and 5.2 of the Licence. That is because, based on the evidence made available to us:

- NERL did not take all reasonable steps, in accordance with s.8(1)(c) of TA00 to secure that demand for air traffic services was met during the relevant period in respect of Stansted and Luton airports;
- NERL did not have proper regard, in accordance with s.8(1)(d) of TA00, in providing, developing and maintaining its ATC system, to the likely future demands for operational staff to support services to Stansted and Luton airports; and

- NERL did not at all time act in a manner calculated to secure, in accordance with Condition 5.2 of the Licence, that it had sufficient staffing resources available to ensure it could carry out its Permitted Purpose[127] activities and to comply with its s.8 obligations to meet current and future demand for air traffic services in respect of Stansted and Luton airports.

6.51 This finding does not mean that all future instances of significant delay in a segment of UK airspace would be likely to constitute a contravention of NERL's relevant obligations. Some level of delay is to be expected in normal operations, as would be some variation in performance across different parts of the network. It is the particular circumstances of the evidence relating to Essex airspace that have led to the CAA's provisional finding. This includes the fact that the shortcomings identified in NERL's performance have been sustained over a considerable period of time and are material. It also follows a previous formal investigation (Oberon) that concluded it was a "finely balanced decision" that NERL did not breach its licence obligations with respect to staffing resilience in the same segment of airspace.

6.52 While the situation with respect to overall demand has changed radically with the development of the Covid-19 pandemic, which means that the demand NERL is currently required to meet under its statutory duties and licence obligations is much lower than usual, the evidence points to persistent and significant failings in NERL's historical performance with respect to staffing resilience for the Stansted and Luton approaches. Absent the pandemic, the evidence points towards a situation where that shortfall would have continued without effective measures to address it until at least 2023, which would have indicated a likely future contravention of its obligations.

6.53 Bearing in mind the impact of the pandemic, the future pattern of demand remains uncertain, but as traffic recovers it will be necessary for NERL to plan and operate its staffing arrangements in a way which avoids the repeated spikes in staffing related delays that have characterised its historical performance in relation to the Luton and Stansted approaches.

6.54 We also note that Ryanair has on numerous occasions sought to obtain relevant staffing and operational information from NERL on its operation of the LAS to users of Stansted and Luton but NERL has not provided the data and assurance to Ryanair's satisfaction. Although not a contravention of the TA00 or its licence, we consider that, given the importance of Ryanair and other airlines and airports

[127] Permitted Purpose is set out in Condition 1 of the Licence. It means the purpose of all or any of the following (a) the En route (UK) Business, the En route (Oceanic) Business or any business or activity within the limits of condition 5.9 to 5.12; (b) without prejudice to the generality of paragraph (a), any payment or transaction lawfully made or undertaken by the Licensee for a purpose within sub-paragraphs (i) to (vii) of paragraph 19(b) of condition 5. The En route (UK) business is the focus of this investigation defined as the Licensee's business which consists of the provision by the Licensee of the UK En route Air Traffic Control Service, the Advisory Control Service, the London Approach Service and the Specified Services.

as customers and their dependency on NERL as users of its ATC services, NERL should do more to engage with its customers in a positive and constructive manner.

Chapter 7

ATC Capacity Issues

Introduction

7.1 In this chapter, we consider the evidence that is available on whether NERL has taken, or is taking, all reasonable steps to ensure sufficient capacity is provided to meet reasonable demand for the provision of the LAS to users of Stansted and Luton.

7.2 As noted in Chapter 3, delay statistics provided by NERL (the "Oberon Indicators") show a significant increase in ATC Capacity delays affecting the LAS to users of Stansted and Luton airports in 2018. More recent data relating to Summer 2019 shows much lower ATC Capacity delays compared with 2018.

7.3 The rest of this chapter is structured as follows:

- summary of allegations;
- views from NERL regarding 2018 capacity delays;
- history of airspace changes initiatives relevant to Essex airspace;
- traffic forecasts;
- findings from the ECTL-PRU report;
- scheduling, Airport Capacity Declaration and disrupting events; and
- conclusions and recommendations.

Summary of allegations

7.4 Ryanair has said (in response to the CAA's information requests) that NERL should have taken a number of reasonable measures in order to ensure that it had the capacity to meet reasonable demand for approach services,[128] including by:

- Reacting to the increasing delays at Stansted in a timely manner;
- Initiating a redesign of the airspace in order to reduce sector complexity and resolving the alleged capacity issues;
- Prioritising the growth of capacity at Stansted; and

[128] Question 4 to Ryanair Response to Information Request, 25 January 2017, KDN43

- Making urgent airspace changes to alleviate the traffic problems, in a manner similar to those adopted during the London 2012 Olympics to manage the increased traffic.

7.5 In its complaint letter of 14 January 2019, STAL considered that "*the sharp increase in ATC Capacity delays suggests that NERL has failed*" to "*proactively manage the airspace itself to ensure it is able to meet the future demand.*" [129]

7.6 STAL considered that the "*same deficiencies in forecasting and planning identified by the CAA in the Oberon Report are now manifesting themselves in the ATC Capacity delays experienced at Stansted*".[130]

7.7 In its complaint letter, STAL also noted that it was not until 2017 that it was made aware of the pending significant capacity constraint, by which point such ATC Capacity delays had already begun to occur. This was "*despite the fact that, since MAG's purchase of STAL in 2013, each year STAL has seen significant growth of which the CAA and NERL are aware and which STAL projected, with long-term growth plans being shared with NERL on an annual basis from at least 2015 (and possibly earlier).*" [131]

7.8 STAL also stated that "*it is only recently that NERL have taken steps to identify a proposed solution in the form of the Swanwick Airspace Improvement Programme module AD6 Level 1 airspace change (which in any case only serve as a medium-term solution as it would not be implemented until around 2020)*".[132]

Views of NERL regarding 2018 capacity delays

7.9 In a **letter to the CAA in 2 November 2018,**[133] NERL explained the increase in NERL-attributable delay for Stansted in the first half of 2018 to have been caused by "*significant unforecast growth in traffic at Stansted airport (6.5% average annual growth compared to forecast growth of 3.33% average annual growth over the same period, based on the STATFOR Feb-14 base case forecast)*".

7.10 NERL further explained "*For example, the maximum capacity of Essex airspace is 38 arrivals per hour, and due to traffic growth we are now regularly seeing demand at 48 arrivals per hour, or higher. We first started to see demand exceeding capacity during peak hours (predominately late afternoon/early*

[129] Paragraph 24 and 25 of letter from STAL to CAA, 14 January 2019, KDN04
[130] Paragraph 28 of letter from STAL to CAA, 14 January 2019, KDN04
[131] Paragraph 25 of letter from STAL to CAA, 14 January 2019, KDN04
[132] Paragraph 26 of letter from STAL to CAA, 14 January 2019, KDN04
[133] NERL, letter from NERL to CAA, 02 November 2018, KDN44

evening) in 2017. As traffic growth continues, we are seeing it more frequently and for longer periods of time. To safely manage this, we need to regulate the flow of traffic by applying ATC capacity regulations."

7.11 NERL expressed the view that "*Airspace Modernisation is required to resolve the capacity bottleneck*". It also said:

- *"Until airspace modernisation can be achieved in RP3, a proposal for low level airspace change which will help alleviate the bottleneck in Essex airspace by segregating traffic arriving into Stansted airport and Luton airport has been submitted to the CAA in October. This will be dealt with through the CAA's airspace change process (CAP 1616) which can take up to 24 months. It includes a number of consultation steps, in which we have invited Ryanair to participate. Our proposal will only be effective if Stansted and Luton airports commit to modifying their approach routes. Therefore, we request that the CAA encourages airports and airlines to support our proposals, and to consider any opportunities to expedite the process."*

History of airspace change initiatives relevant to Essex airspace

7.12 There is a history of challenges in redesigning the complex airspace in the southeast of the England. Below we note some initiatives that NERL reported to us in its response to our information request.[134]

TC North project (2006 – 2010)

7.13 According to NERL, one of the main elements of TC North project was a re-design of the Essex airspace adding more capacity for Stansted and Luton approach.

7.14 NERL reported that the "*dialogue with STAL and other stakeholders on the need to modernise the airspace in TC North to deal with increasing demand has been extensive starting in circa 2006 with engagement on the TC North project.*" NERL stated that in July 2010, in the lead-up to consultation on the proposed TC North design, "*Stansted airport advised NATS that they and their airlines could not support the proposed designs due to increased track miles on some routes and potential changes to Noise Preferential Routes, despite being advised on a number of occasions that without modernisation, delays would increase significantly.*"

[134] NERL, Response to CAA information request, 22 February 2019, KDN37

7.15 NERL also reported: "*Given this feedback we were unable to continue with TC North design and in light of the traffic downturn, in September 2010 the TC North project was stopped.*"

LAMP Phase 2 and AD6

7.16 On LAMP Phase 2, NERL said:

- *"Throughout 2018, the NATS Airspace and Flight Efficiency Partnership briefed airlines on LAMP and the SAIP (Swanwick Airspace Improvement Project) changes, including Airspace Deployment 6 (AD6) which will implement changes to Stansted airport and Luton airport. Stansted airport were fully briefed on the proposals for AD6 and were advised that it is needed to increase Essex capacity. However, in January 2019, Stansted advised us that it would not seek to make changes to their routes below 7,000 feet at the same time that we plan to implement AD6. Although AD6 is going ahead with support from Luton airport, the lack of support from Stansted reduces the benefits and capacity that can be delivered."*

7.17 NERL noted that:

- *"Despite this, Stansted have advised that they plan to increase scheduled movements from 50 per hour to 53 per hour in* [redacted] *and 55 per hour from* [redacted] *.* [redacted] *"*
- *"We have planned an Airspace Change Process – known as Swanwick Airspace Improvement Project Airspace Deployment 6 (SAIP AD6) – which will allow de-confliction of the Stansted and Luton arrival flows. AD6 uses Required Navigation Performance (RNP) transitions at the later stages of the approach phase which will significantly reduce controller workload (thereby increasing capacity). This change is expected to enable a significant reduction in delay with early indications showing that there could be up to an 80% improvement against current constraints within the Essex airspace when implemented in 2021."*
- *"The CAA has been presented with a joint NERL/Luton/Stansted statement of need (DAP1916). However, we have recently been advised by Stansted airport that it will not seek to make changes to their routes below 7,000 feet at the same time that we plan to implement AD6. Without Stansted involvement through the implementation of required navigation performance (RNP) routes into Stansted airport, the capacity improvements described above cannot be fully delivered."*

7.18 NERL also noted that it discussed AD6 with Ryanair in November 2018 and that Ryanair was broadly supportive of the changes in principle. NERL also noted

that the operator of Luton Airport was also supportive of the changes, but STAL advised NERL in late 2018 that it would no longer participate and "*would prefer to wait for larger scale changes to airspace driven by Future Airspace Strategy Implementation South (FASI-S) and LAMP which is scheduled to deliver change towards the end of RP3.*"

7.19 STAL disagrees with certain key elements of NERL's narrative above on airspace change and the reasoning as to why it did not progress. Also, the CAA has not sought nor formed detailed views on the full historic facts on each airspace change project relevant to Essex airspace.

7.20 On AD6, STAL has noted in their complaint that "*It is only relatively recently that NERL have taken steps to identify a proposed solution in the form of the Swanwick Airspace Improvement Programme module AD6 Level 1 airspace change (which will in any case only serve as a medium-term solution as it would not be implemented until around 2020).*"[135]

7.21 In a letter to NERL in January 2019, STAL confirmed its support for the AD6 initiative and that it did not seek to delay its progression in any way.[136] However, STAL added:

- *"The approach that we are taking to airspace modernisation, including the timing of our change proposal is defined by the necessary consultation with stakeholders, rather than by the NERL timetable. We believe it is preferable for us to deliver the lower level changes that are our part of the airspace modernisation programme as a single global project that will enable our local communities in particular to understand the full extent of any changes. We will, of course endeavour to deliver this project in a coordinated way and I can confirm that we have already submitted a statement of need to the CAA, to formally commence the process."*
- *"Of course, while STAL continues its consultation with stakeholders, NERL is not prevented from continuing to progress the design and preparation of the higher altitude changes which do not require wider consultation and are critical to delivering the benefits of AD6."*

7.22 Meanwhile, the AD6 airspace change has been progressing with NERL and Luton Airport as co-sponsors of this proposal. According to the latest timetable in this proposal,[137] this airspace change has an expected implementation (AIRAC) date of February 2022. Our understanding is that the delivery of the AD6 project is important and capable of delivering a significant increase in ATC Capacity

[135] Paragraph 26 of letter from STAL to CAA, 14 January 2019, KDN04
[136] Letter from STAL to NERL on 16 January 2019, KDN45
[137] Available at: https://airspacechange.caa.co.uk/umbraco/Surface/PublicSurface/DownloadDocument/1945.

which, in time, will enable the provision of the LAS to users of Stansted and Luton to be improved.

Wider initiatives supporting airspace change

7.23 In December 2018, as part of the DfT's Aviation Strategy, the Government consulted on new proposed powers to facilitate the delivery of airspace modernisation.[138] Following that, the Government introduced the Air Traffic Management and Unmanned Aircraft Bill to "provide for the effective and efficient management of the United Kingdom's airspace". One of the main objectives of this bill is to "confer new government powers to direct an airport or other relevant body to prepare and submit a proposal to the Civil Aviation Authority (CAA) to change the design of airspace".[139] This bill was reintroduced following the 2019 general election[140]. If the bill becomes law, the government only expects the powers to be used where voluntary participation has been unsuccessful and following discussion with the parties involved.

7.24 In December 2018, the CAA published its airspace Modernisation Strategy.[141] This sets out the detailed initiatives that industry must deliver to achieve the objectives envisaged by government policy regarding airspace modernisation. To be successful, the CAA said: "Airspace modernisation will need to be delivered and funded by a range of aviation organisations, and a wide range of stakeholders will need to be engaged throughout its delivery".

7.25 It is expected that up to 16 airports in the South of the UK, and NERL, will bring forward airspace changes in the near future. Airspace change sponsors (usually airports or ANSPs) often need to develop their Airspace Change Proposals in close collaboration with each other and ensure that they develop and consult on these in a coordinated way. In order to help airspace change sponsors overcome these coordination challenges, the DfT and CAA asked NERL to set up a new body, the Airspace Change Organising Group ("ACOG") to coordinate airspace change. NERL has completed the establishment of ACOG and NERL's role on airspace, including ACOG, has been set out in a new Licence condition that has been agreed between NERL and the CAA.

Recent increases in airspace capacity

7.26 Up until August 2018, the monitoring value[142] of the Essex airspace (used for Luton and Stansted approaches) was 38 aircraft per hour. However, NERL has

[138] DfT, Consultation Response on Legislation for Enforcing the Development of Airspace Change Proposals, October 2019, available at https://www.gov.uk/government/consultations/aviation-2050-the-future-of-uk-aviation

[139] https://researchbriefings.parliament.uk/ResearchBriefing/Summary/LLN-2020-0019

[140] https://services.parliament.uk/Bills/2019-20/airtrafficmanagementandunmannedaircraft.html

[141] CAP1711

[142] Monitoring values can be seen as an indicator of levels of traffic that may be able to be normally accommodated in the

since revised that Monitoring Value upwards to 40 aircraft per hour. NERL said that this revision was possible because of the improvements made for controllers in workload and situational awareness resulting from the implementation of ExCDS.[143] This may explain why there were fewer ATC capacity delays in the second half of 2018, following the introduction of ExCDS, compared with the first half and why there were fewer ATC capacity delays in 2019.

7.27 NERL noted, however, that further increases in capacity (monitoring values) to be highly unlikely within current airspace design.[144]

Traffic forecasts

7.28 Traffic growth has been constrained at some airports (Heathrow and increasingly Gatwick) due to runway constraints. NERL has said that traffic growth at both Stansted and Luton airports has been substantially higher than forecast over recent years. Figure 7.1 (provided by NERL) shows that there has been total combined (scheduled and non-scheduled) growth of over 76,000 movements between 2014 and 2018.[145] That is about 41,000 movements more than the STRATFOR base case forecast.

Figure 7.1: Forecast vs actual growth in ATMs

	RP2 Forecast Growth 2018 vs 2014		Actual Growth 2018 vs 2014	
	Growth	ATMs	Growth	ATMs
UK flights	7.9%	176000	12.7%	285748
Luton	14.8%	14708	31.1%	32139
Stansted	14.1%	20640	28.4%	44139
London City	-0.4%	-308	6.5%	4905

Source: NERL[146] (using STATFOR Feb-14 base case forecast)

7.29 Figure 7.2 below shows UK movements (including overflights) from 2005-2018 and a comparison to the STATFOR forecast from 2013 (which was used for planning in RP2). This shows that flights have exceeded the "base" case and have been in line with the "high" forecast scenario.

relevant airspace.

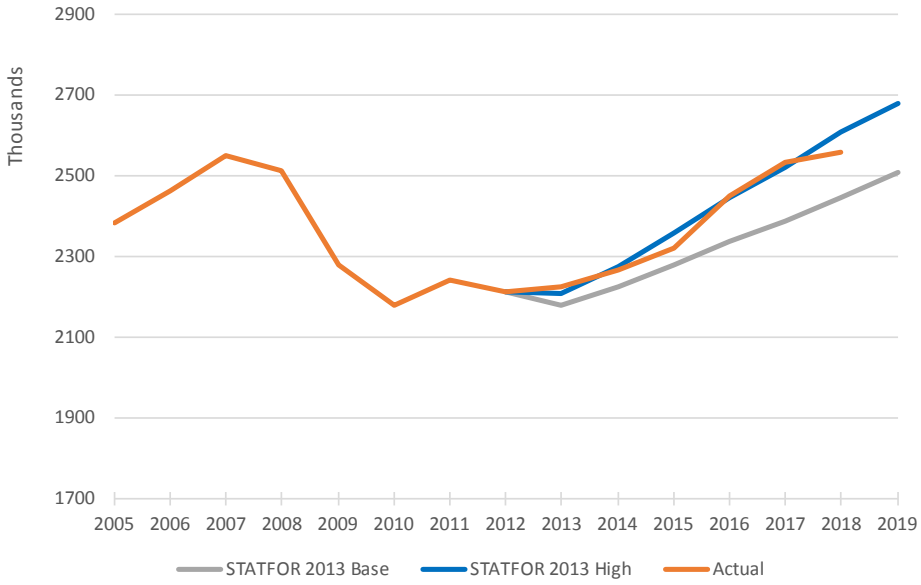
[143] NERL response to Information request, 22 February 2019, page 46, KDN37

[144] NERL response to Information request, 22 February 2019, page 46, KDN37

[145] NERL response to CAA's information request, 22 February 2019, Q5.2, KDN37

[146] NERL response to CAA's information request, 22 February 2019, page 23, KDN37

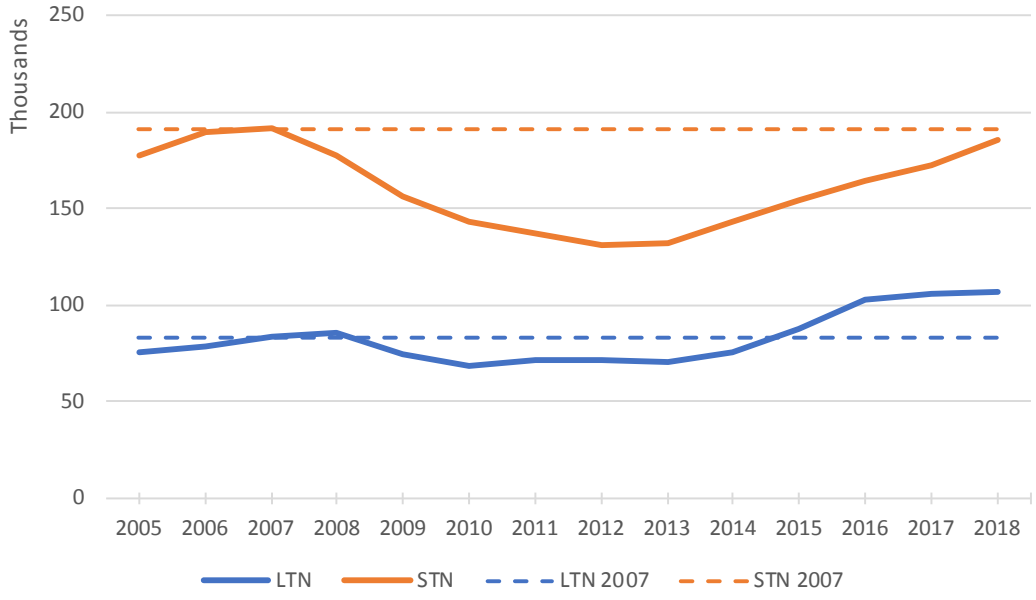
Figure 7.2: UK IFR Movements (inc. overflights) Actual vs STATFOR forecast 2013 (000's)



Source: CAA Analysis of STATFOR forecasts

7.30 Stansted and Luton experienced rapid growth in air transport movements after a sharp decline following the global financial crisis of 2008, as shown in Figure 7.4 below. Luton exceeded 2007 traffic levels by 2015, whilst Stansted attained this in 2018.

Figure 7.4: Stansted & Luton movements 2005-2018 (inc. 2007 total) (000's)



Source: CAA Analysis of CAA Airport Statistics

7.31 It was not unexpected that Stansted and Luton traffic would eventually recover to 2018 levels. Also, traffic levels in 2018 at Stansted and Luton combined were similar to the traffic levels seen in 2007, before the economic downturn. Traffic at Stansted and Luton was more affected by the economic downturn, but when economic growth resumed, traffic at Stansted and Luton rebounded more quickly.

7.32 It is very difficult at present to predict how quickly traffic will recover from the impact of the Covid-19 pandemic to levels in 2019. The CAA expects that in the medium to long term the current airspace serving Stansted and Luton airports will be, without wholesale change, inadequate to deal with demand.

Findings from the Eurocontrol-PRU report

7.33 The ECTL-PRU report[147] commissioned by the CAA in support of this investigation largely focused on the coding of delays. Nonetheless, it also included insights into airspace capacity issues. For instance:

- *"It is acknowledged that NERL, like any other ANSP, should provide the capacity required for the provision of air traffic services to satisfy peak demand. However, the action on the ANSP does not live in isolation. It needs to be properly balanced with the resources on the airport side, both airside and landside, and the airspace user operations."*
- *"This report highlighted the interplay between the ANS, airports, and airspace users, and how the efficient use of resources is a shared responsibility amongst all parties. The assessment of the impact on airspace users shows that ANS is not the sole factor to be addressed."*
- *"The observations point at a general requirement to minimise the need for ATFM measures to be put in place, to ensure the safe and efficient flow of air traffic. The ultimate goal is better modulation of the air traffic demand in light of the available resources across the involved stakeholders."*
- *"Recurrent congestion at specific times at Stansted suggests that a collaborative process between the parties involved (i.e. ANSP, airspace user, airports) can help to mitigate the effect and reduce the need to modulate the air traffic through ATFM delay or additional time in the terminal airspace."*
- *"It is recommended to initiate a wider collaborative process to balance the interests of ANSP, airspace user, and the airport operator."*

[147] PRU assessment of NERL delays in the London Approach service (ECTL-PRU) 26 June 2019, KDN02

Scheduling, Airport capacity declaration and disrupting events

7.34 NERL explained"[148] that:

- *"Airport schedules are set by the airport authority prior to each summer and winter season. At Stansted aircraft are scheduled to depart from early morning and rotate to and from European destinations throughout the day, and there is therefore a high risk of schedule shift due to rotational delay. This will result in higher than expected demand and bunching towards the later rotations of the day."*
- *"It is important to note that actual operations in the tactical phase are subject to many variables, including significant factors outside of NERL control such as airline rotational delay, weather, airline technical, European restrictions and local airport issues which do not allow adherence to schedule and are not related to any airspace constraints. As a result, ATM operations can be reactive to circumstances occurring outside of NERL control."*
- *"Essex airspace capacity is often exceeded, leading to capacity delays. Such delays are particularly encountered when the normal schedule is disrupted by for example rotational delays due to European or airline delays leading to peaks with very high hourly demand in excess of the airspace capacity."*
- *"Expected levels of traffic are informed by the Airport Capacity Declaration which takes place twice a year. The published runway schedules consist simply of the expected number of movements per day, with no further detail to indicate highly loaded hours or the routeings/direction of flights. This information only becomes fully available when airlines file flight plans (which can be finalised as late as one hour before the flight time)."*
- *"The daily movements flown from any airport on a given day can vary considerably from the original published schedule for a variety of reasons, such as, European regulations caused by industrial action, weather and airline delay or airport release of opportunity slots for business aviation and non-scheduled flights."*

[148] NERL Response to CAA information request, 22 February 2019, KDN37

- *"The runway scheduling process does not take into account airspace. The current airport scheduling process allows individual airports to perform their seasonal scheduling process in isolation from each other. Although the airport scheduling process takes into account the capacity of the runway(s), airport slots are not constrained by direction of arrival or departure, or aircraft type. There would be significant benefits to the network if airports were required to work collaboratively to take account of airspace capacity, in addition to runway capacity, in the scheduling process."*

Conclusions and recommendations

7.35 From the analysis above we provisionally find that:

- there is a history of challenges in redesigning the complex airspace in the Southeast of England. Previous initiatives to bring forward airspace change have not always been fully supported by all parties. In these circumstances it is not necessarily or reasonable to hold NERL solely responsible for delays in making progress with respect to airspace change;
- nonetheless, following the TC North project being abandoned in 2010, the next major airspace changes that NERL brought forward that would have addressed issues in Essex airspace were LAMP Phase 2 and AD6, with NERL highlighting its discussions with airlines on these matters during 2018; and
- over the period 2015 to 2019 traffic growth was stronger than the STATFOR base forecast but in line with the STRATFOR high case. Therefore, we consider it is difficult to argue that growth at Stansted and Luton was unexpected, particularly given that traffic essentially rebounded to the peak levels previously seen in 2007. On balance, the evidence suggests that NERL did not reasonably anticipate demand growth or put in place timely capacity enhancing plans early enough.

7.36 We note that ATC Capacity delays can arise more frequently because of wider disruptions to the aviation network, including delays caused by airlines, airports, groundhandlers and ANSPs in the UK and abroad. If overall punctuality performance is not good, it is more likely that traffic bunches-up creating abnormal peaks of demand which are also more difficult to forecast and address. The year of 2018 was one where overall punctuality performance was relatively poor at Stansted for reasons that, in the main, were not due to NERL's

performance. We also note that in 2017 and 2019, when overall punctuality better, ATC capacity delays were not as prevalent.

7.37 Also, more recently, NERL has been working on AD6, a project that should be able to significantly address capacity issues by the time demand rebounds to 2019 levels. It has also made efforts to make incremental increases in airspace capacity in the LAS to users of Stansted and Luton. For example, monitoring values in Essex airspace have been reviewed upwards following ExCDS implementation.

7.38 We also note that work on airspace modernisation more widely is now being undertaken through the Airspace Modernisation Strategy, the Government's legislative programme and the establishment of the Airspace Change Organising Group ("ACOG") within NERL. The role of NERL and ACOG and certain deliverables are also being included in a new Licence condition that has been agreed between the CAA and NERL. We appreciate the work that NERL has undertaken to date in supporting these changes and the leadership role it has taken on with respect to airspace modernisation. We also strongly encourage all parties to continue to contribute to this work and to help drive forward airspace modernisation so that it delivers the efficiency and environmental benefits necessary to support the operation of the sector in the future.

7.39 While we consider the AD6 proposed change could have been initiated in a timelier manner, we note that a single lapse by NERL does not necessarily indicate a contravention of its statutory or licence duties. Taking all the above matters into account, particularly the significant progress that has been made in recent years in relation to airspace modernisation, with respect to the development of airspace capacity, we conclude that:

- regarding its Licence Condition 2.1(a) NERL has not failed, is not failing nor is likely to fail, to make available its core services so as to be capable of meeting on a continuing basis any reasonable level of overall demand for such services;
- regarding its s.8(1)(c) TA00 duty NERL has not failed, is not failing nor is likely to fail, to take all reasonable steps to secure demand is met; and
- regarding its s.8(1)(d) TA00 duty NERL has not failed, is not failing nor is likely to fail, to have regard, in providing, developing and maintaining the system, to the demands which are likely to be placed on it in the future.

7.40 In reaching this conclusion we note the multilateral nature of airspace change, particularly with regard to fundamental redesign of airspace and the significant time it takes to develop and implement complex airspace change proposals. We further note the significant progress made in recent years to develop and deliver on the Airspace Modernisation Strategy with NERL playing a central role in planning and delivering reform alongside a number of other stakeholders

including airports, the CAA and the Department for Transport. While we note the complaints refer to alleged inaction by NERL dating back more than ten years, we have to be mindful of the temporal scope of this investigation and the nature and purpose of the enforcement regime under TA00.

7.41 We also conclude that airport capacity declarations by Stansted and Luton and airline scheduling would benefit from taking into account airspace constraints in order to avoid delays and to make best use of limited airspace capacity. We recommend that airports and ACL, as the UK's slot coordinator, should seek timely input from NERL to feed into their capacity declaration and scheduling processes. NERL should work with all parties in this investigation and seek to improve collaboration. For example, by making the most of the work of the Industry Resilience Group (IRG) and other fora in order to improve communication on strategic operational issues.

7.42 We expect NERL to continue to take a leadership role in airspace modernisation in the UK. To the extent practicable this should be supported by other aviation stakeholders, including STAL and Ryanair. Wider cooperation should involve working constructively with each other on matters including airspace change proposals and early sharing of airline and airport scheduling and capacity declarations to ensure that (despite the constraints that may exist in the relevant airspace) delays to passengers are minimised. NERL should take advantage of the new processes for coordinating airspace change it is putting in place with the help of its ACOG team to improve the capacity available in Essex airspace, including for example by making appropriate and timely progress with the AD6 change.

Chapter 8

Undue Discrimination

Introduction

8.1 This chapter assesses the complainants' allegations that NERL has discriminated and/or shown undue preference between London airports or operators, to the detriment of Ryanair and Stansted Airport. NERL has obligations (under Conditions 2.7 and 2.8 of its licence) not to unduly prefer, discriminate against or give preferential treatment to any person or class of persons in respect of the operation of the Licensee's systems or in respect of the terms on which services are provided, to the extent that such terms have or are intended to have or are likely to have the effect of preventing, restricting or distorting competition in any market.

8.2 This chapter is structured as follows:

- Licence conditions and legal test;
- allegations in relation to discrimination and undue preference;
- relevant information provided by parties;
- CAA analysis and assessment.

Licence conditions and legal test

8.3 NERL's non-discrimination obligations under conditions 2.7 and 2.8 of the Licence are set out in Chapter 2. Whilst we note that the complainants have included reference to both conditions 2.7 and 2.8 in their complaints, we have not received from the parties any evidence to substantiate an allegation that there is undue discrimination or preference in respect of the terms on which services are provided so we have not considered Licence Condition 2.8 further. Therefore, the below analysis relates only to the alleged contravention of Licence Condition 2.7.

8.4 The prohibition of discrimination is commonly understood as meaning that comparable situations must not be treated differently and that different situations must not be treated in the same way, unless such treatment is objectively justified.[149]

[149] See e.g. Case C-220/17 *Planta Tabak-Manufaktur* at para 36 in the context of the EU general principle of non-discrimination. Whilst we are not investigating these complaints under our competition law powers we note that both Chapter II of the Competition Act 1998 and Article 102 of the TFEU prohibit discrimination in the form of "applying dissimilar

8.5 We consider that this definition also captures NERL's obligations under Condition 2.7 of the Licence not to give undue preference to any particular airport or user. Accordingly, throughout this chapter, when we refer to discrimination, this is intended to include undue preference.

8.6 In this case, the alleged discrimination relates to an alleged difference in service provision for the airspace approaches to different London airports (within the LAS).

8.7 We investigated similar allegations of discrimination in 2017 in the Oberon investigation. We found that there were objective differences between the operational requirements of Heathrow Airport and Stansted Airport and that there was no evidence of undue discrimination.[150]

Allegations in relation to discrimination and undue preference

8.8 As set out in detail in Chapter 1 and below, Ryanair and Stansted made a number of allegations of discrimination and undue preference against NERL, including that:

- NERL gives preferential treatment to air traffic at Heathrow and Gatwick airports to the detriment of customers using Stansted Airport;
- there are problems with NERL's long-term management of the LAS and the difference between NERL's focus on addressing capacity and performance issues at Heathrow compared to Stansted demonstrates undue preference towards Heathrow;
- there has been a lack of adequate strategic resource, attention and forward planning given to the LAS for Stansted Airport. NERL's neglect of the strategic development of the LAS for Stansted over the past five to ten years has led to Stansted Airport suffering disproportionate delays, compared to other London airports; and
- NERL's operations and corporate management (including the composition of the NATS Board) may not include safeguards against discrimination.

conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage". We consider this definition to be consistent with how we are assessing NERL's obligations under the Licence.

[150] CAP1578, paragraph 5.63

Relevant information provided by parties

8.9 In a letter from NERL to Stansted airport on 16 March 2018, NERL said that it was "*very keen to ensure that Terminal Control supports your operation at Stansted in an overt, meaningful, and equitable way. To that end I have asked the Airports Interface Management team to continue to help develop your Service Plan methodology*".[151]

8.10 In a letter from Stansted airport to NERL on 05 September 2018, STAL said:

- *"The figures communicated in the recent Oberon Report for Q1 of 2018 exacerbate the issue with what appears to be a clear bias towards London Stansted for ATC capacity delays. […] If capacity is an issue then it suggests that NERL have failed in meeting their obligations and means that Stansted's needs have been neglected to the betterment of other London airports who do not seem to have any issues operating a higher quantum of daily flights through London airspace than London Stansted, with no capacity delays being suffered. What is evident to us is that whilst the fees for operating in the LTMA are consistent to airlines, the service is not with our airlines being subject to airspace delays whilst other airports do not."*[152]

8.11 In a letter from NERL to Stansted of 8 September 2018, NERL said:

- *"The shortfall that affected Stansted on 03 September also affected London City airport and to a greater degree in terms of delay. To put the Stansted airport staffing delays into context, for 2017 Stansted was subject to 1673 minutes of staffing delay. In contrast, Gatwick airport had 9446 minutes of staffing delay and London City 2160 minutes. In 2018 the staffing delay to date for Stansted stands at 155 minutes compared to 4031 and 6526 minutes for Gatwick and London City respectively. I mention this not to excuse staffing delay, but to reassure you that there is no discrimination against Stansted or the airlines operating there. You will notice that I have not mentioned Heathrow in the above numbers. Heathrow does not generally see staffing delay because it does not operate a flying programme overnight."*[153]

[151] STAL response to information requests, Q.6 enclosures 19 February 2019, page 20, KDN46
[152] STAL response to information requests, Q.6 enclosures 19 February 2019, page 26, KDN46
[153] STAL response to information requests, Q.6 enclosures 19 February 2019, page 28, KDN46

8.12 In a statement on its website in response to the Ryanair complaint, NERL stated that it:

- *"wouldn't and [does not], discriminate between airlines or airports. […] Ryanair's latest complaint […] relates to the ExCDS transition [...] which, in January [2018] specifically affected the airspace around Stansted and Luton. It was the second of five planned transitions over seven months which started in November [2017] and were completed in July [2018]. […] For each transition we offered tactical re-route scenarios to help avoid the worst of the delays. Most airlines took up the opportunity […]. Those that didn't suffered comparatively poorer on-time performance as a result, and then complained after the event."*[154]

8.13 Ryanair provided evidence about the alleged discrimination to the CAA in response to an information request.[155] Ryanair said that the impact of weather on delays at Stansted and Heathrow was disproportionate. Ryanair said that "*while the weather delays at Stansted have increased by 320% from 2015 to 2018, there has actually been a decrease of over 25% in weather delays at Heathrow for the same period*."[156]

Figure 8.1: Weather Delay between 2015 and 2018 (Minutes)

	Heathrow	Stansted
2015	470,787	25,497
2016	440,471	85,197
2017	449,881	90,896
2018	347,411	107,116
Difference 2015 v 2018	-26.2%	+320%

Source: Ryanair[157]

8.14 In addition, within the same response, Ryanair said that the airspace changes made in phase 1 of the London Airspace Modernisation Project ("LAMP") in 2016 resulted in a performance increase for Heathrow at the expense of all other London airports.[158]

[154] NERL, Why Ryanair is wrong to accuse us of discrimination, available at https://nats.aero/blog/2018/09/ryanair-wrong-accuse-us-discrimination/, 4 September 2018, accessed 09 May 2019
[155] Ryanair response to information requests, Letter from Ryanair to CAA, 25 January 2019, pages 1-2, KDN43
[156] Ryanair response to information requests, Letter from Ryanair to CAA, 25 January 2019, page 1, KDN43
[157] Ryanair response to information requests, Letter from Ryanair to CAA, 25 January 2019, page 1, KDN43
[158] Ryanair response to information requests, Letter from Ryanair to CAA, 25 January 2019. page 2, KDN43

Figure 8.2: Overall Delay at London Airports 2015 to 2016 (Minutes)

	London City	Gatwick	Heathrow	Luton	Stansted
2015	65,329	157,961	529,203	26,410	40,603
2016	113,699	373,252	491,403	102,850	141,431
Difference 2015 to 2016	+48,370	+215,291	-37,800	+76,440	+100,828

Source: Ryanair[159]

8.15 Ryanair also referred to the Oberon indicators in Q3 which showed that 99.7% of the reported delays at Heathrow were due to the ExCDS implementation, compared to 10% of the delays at Stansted. Ryanair's inference here appeared to be that 99.7% of Heathrow's delays were exceptional, but that the ATC related delays at Stansted were mainly due to capacity and staffing, and therefore would continue beyond the period of the ExCDS implementation.

8.16 STAL stated, in its response[160] to the CAA's informal information request, that:

- it is *"aware of a wide-range of strategic management initiatives which NERL have undertaken with Heathrow since 2015 to improve performance during RP2, including:*
  - *the introduction of time-based separations to reduce delays / increase capacity;*
  - *the introduction of enhanced time-based separations to reduce delays / increase capacity;*
  - *the development of pair-wise aircraft separations for future implementation;*
  - *the trialling of artificial intelligence to reduce delays and increase capacity; and*
  - *cross-border trails to reduce holding times."*

[159] Ryanair response to information requests, Letter from Ryanair to CAA, 25 January 2019. page 1, KDN43
[160] STAL response to information request, 19 February 2019, KDN47

- *"We recognise that differing circumstances at Heathrow and Stansted mean that some of these innovations would not be directly applicable in the context of Stansted. However, the list of research and innovation projects at Heathrow contrasts with the lack of meaningful, regular engagement and resource from NERL to address emerging capacity issues at STAL over the same period (as further evidenced by later questions). We do not believe the difference between NERL's focus on addressing capacity and performance issues at Heathrow and Stansted can be objectively or reasonably justified and is evidence of an undue preference from NERL toward Heathrow in this respect."*[161]

8.17 In its response to the CAA's information request, STAL also stated that "*We consider that there has been a prolonged period (stretching back at least five to ten years) of Heathrow and Gatwick airports receiving a disproportionate level of strategic management focus and resource from NERL aimed at improving operational resilience, maximising capacity and minimising delay at those airports. This is in stark comparison to Stansted, which has failed to receive a similar level of focus and resource from NERL in respect of the same issues.*"[162]

CAA's Analysis and Assessment

8.18 We first consider to what extent the situations at Heathrow and Stansted are the same, or whether there are important differences in circumstances that might affect the analysis. We then consider whether there is evidence of discrimination by NERL in relation to capacity, staffing, weather and other ATM delays. Finally, we consider the question of objective justification.

How comparable are Stansted and Heathrow airports?

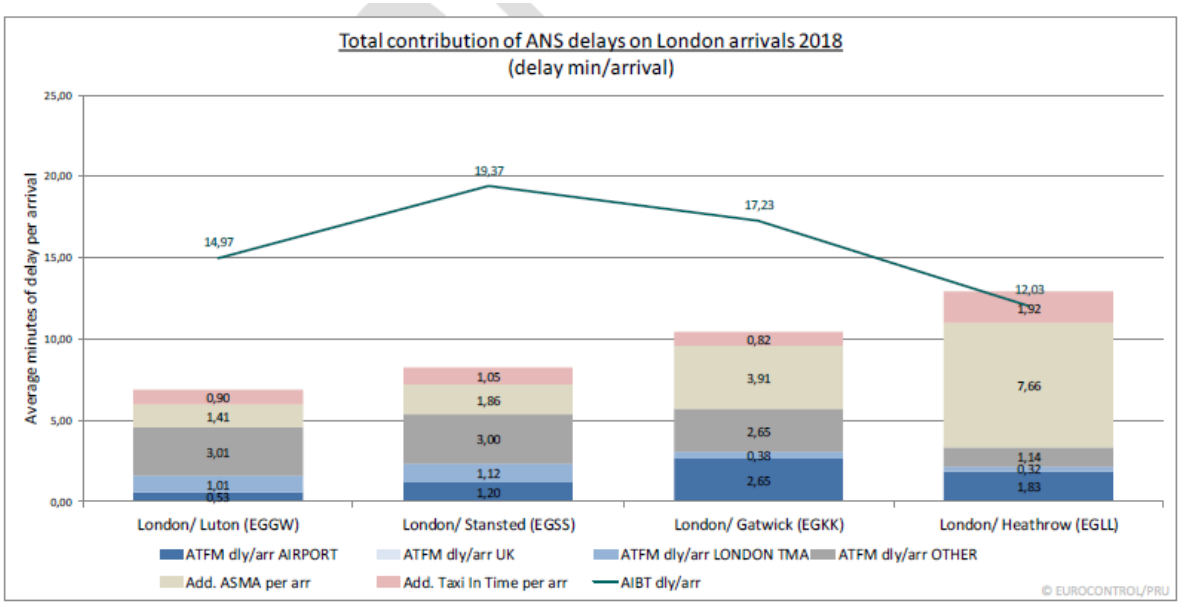
8.19 We looked primarily at Heathrow Airport and Stansted Airport which are the focus of the complaints relating to discrimination.

8.20 The ECTL-PRU report considers the respective operations at Heathrow and Stansted. Some of the key findings of that report include:

[161] STAL response to information request, 19 February 2019, KDN47
[162] STAL response to information request, 19 February 2019, p4, KDN47

- The practice of vectoring[163] or holding[164] aircraft in stacks to achieve a high runway throughput is prevalent at Heathrow (with 7.66 minutes of delay per arrival categorised as an ASMA delay[165]) and to a certain extent Gatwick (with 3.91 minutes of ASMA delay), compared to Stansted (with 1.86 minutes of ASMA delay) and Luton (with 1.41 minutes of ASMA delay).
- Consequently, AFTM delay in LAS sectors at Heathrow tends to be lower, since periods of high demand are managed through ASMA (which is not captured in the Oberon Indicators report), and regulations are only required when holding times are deemed excessive.
- High demand at Stansted and Luton is primarily managed through the use of ATFM measures, rather than ASMA, so it is not necessarily surprising that the Oberon Indicators record higher levels of ATFM delay to these airports. This broader picture is illustrated in Figure 8.3 below.

Figure 8.3 All ATM causes average delay minutes per flight, London Airports 2018



Source: Eurocontrol: *PRU assessment of NERL delays in the London Approach service,* p38, 26 June 2019

8.21 The figure above shows that average ATM delays per flight are greatest at Heathrow and Gatwick airports. Airports such as Heathrow also have a high

[163] Vectoring means the provision of navigational guidance to aircraft in the form of specific headings, based on the use of an ATS surveillance system.

[164] Holding Pattern: the usually oval course flown by aircraft awaiting further clearance; especially to land. Holding patterns are flown as a delaying tactic, keeping aircraft within a specified airspace while awaiting further clearance from air traffic control.

[165] The additional ASMA time is a proxy for the average arrival runway queuing time on the inbound traffic flow, during congestion periods at airport. For more information see https://www.eurocontrol.int/prudata/dashboard/metadata/additional-asma-time/.

proportion of arrivals originating outside the ECTL area, are therefore less exposed to ATFM regulations and, therefore, to ATFM delay.

8.22 In considering whether the operations at Stansted and Heathrow are comparable, some of the key relevant findings from the ECTL-PRU report were that:

- to maximise runway throughput, Heathrow and Gatwick arrivals are more likely to be subject to more tactical arrival management through holding and vectoring, whereas at Stansted and Luton ATFM regulations are used more frequently to balance demand and capacity;
- the traffic type varies between London airports, with Stansted and Luton having more Low Cost Carrier ("LCC") traffic to Europe destinations (with shorter turnaround times) with much of Heathrow traffic being long haul non-European and arriving from the northwest (relatively less congested airspace);
- ATFM regulations will only be initiated at Heathrow when the anticipated holding time will be excessive; and
- demand has increased at Luton and Stansted by over 39% at both Luton and Stansted between 2013 and 2018 whereas at Heathrow it has only increased by 1.3% over the same period.

8.23 The CAA accepts these findings and considers that while Heathrow and Stansted are both major airports served by the LAS, there are important differences between Heathrow and Stansted. Those differences are highly relevant to our assessment in the following sections of whether NERL has treated Stansted and Heathrow differently, and whether any such difference in treatment is objectively justified.

8.24 We note there are important differences between Heathrow and Stansted airports and, in these circumstances, different treatment by NERL in the provision of LAS services may be objectively justified. We go on to consider these issues further below in the context of the ATFM delays experienced by the five airports served by the LAS.

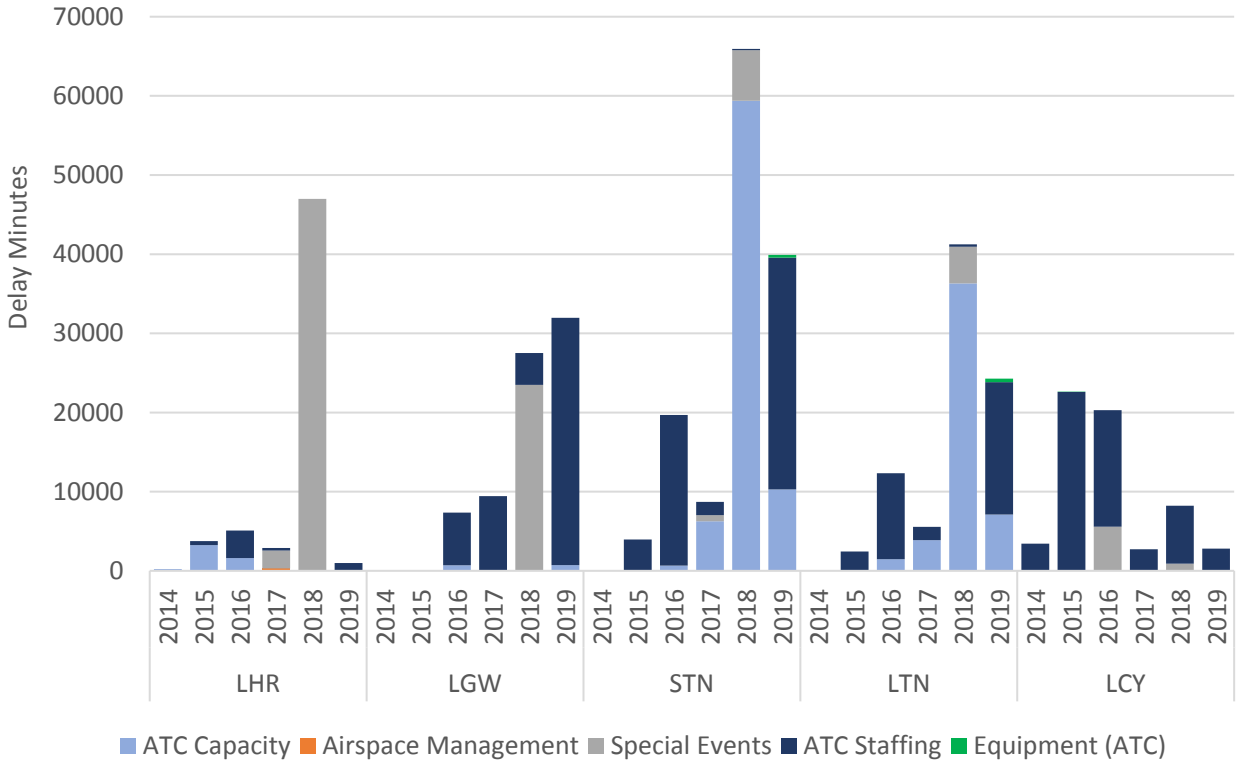
Is there evidence of difference in treatment by NERL?

8.25 In this section we assess whether there is evidence of any difference in treatment by NERL. We first consider the evidence of delays across the five main London airports. We then consider the evidence based on comparisons between different airline operators.

ATM delays for airports and operators in the LAS

8.26 The Oberon Indicators Report for the period up to and including Q4 2019[166] show the pattern of ATFM delay minutes, including capacity and staffing, for airports in the LAS as set out in Figure 8.4 below.

Figure 8.4: NERL London Approach ATFM delay minutes, split by approach function and delay cause 2014-19



Source: NERL[167]

8.27 Capacity: The majority of the delay at Stansted and Luton in 2018 was due to ATC capacity restrictions - a large increase compared to previous years. Nearly all of the delay at Heathrow was due to special events (related to EXCDS introduction), which was “one off” and not expected to reoccur. Gatwick also experienced high amounts of special events delay with moderate levels of ATC staffing constraints.

8.28 We considered airspace capacity issues in Chapter 7. We note that its size, location, pattern of traffic, capacity constraints, use of holds and (until recently) plans for a new runway at Heathrow are all factors that may explain the differences in capacity at Heathrow compared to Stansted. Stansted is significantly constrained by its airspace capacity whereas Heathrow is heavily runway constrained. Stansted has experienced significant growth over the past

[166] Oberon Indicators Report Q4 2019, KDN05
[167] Oberon Indicators Report Q4 2019, KDN05

number of years whereas Heathrow's movements have remained relatively stable (although it was planning for a new runway that would have significantly increased its capacity in the future). We identified some shortcomings in the speed with which NERL has brought forward its proposals of the AD6 airspace change for the Essex airspace but this was not the sole contributory factor for the ATC capacity delays experienced by Stansted. We note that STAL has chosen not to fully cooperate with certain airspace change initiative brought forward by NERL. Bearing all these factors in mind, NERL's inability to bring forward the AD6 airspace change at Stansted in a timely manner, does not on its own appear sufficient to support a finding that NERL has discriminated against Stansted in favour of Heathrow.

8.29 We note Ryanair's allegation that airspace changes made in phase 1 of LAMP in 2016 resulted in a performance increase for Heathrow at the expense of all other London airports; this is not borne out by the evidence. We also note that the LAMP decisions were made by the CAA, pursuant to the material factors in s.70 of TA00, and not by NERL.

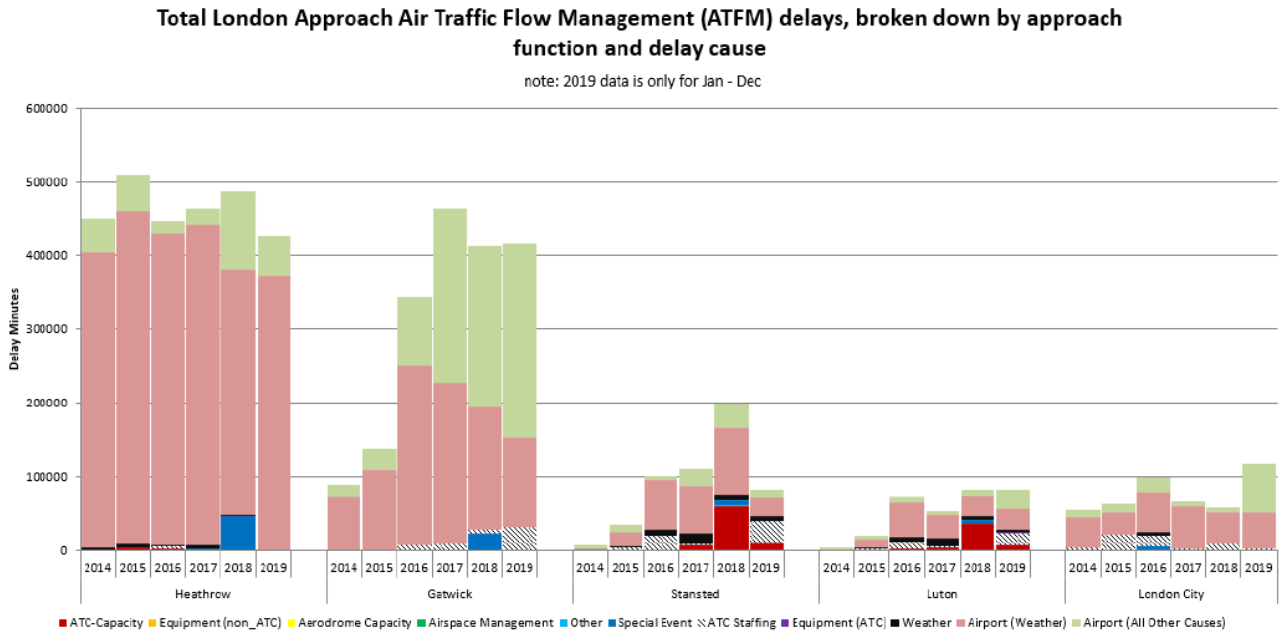
8.30 STAL's complaint notes a number of initiatives that NERL has carried out at Heathrow. As STAL notes, a number of these initiatives seek to alleviate Heathrow's runway constraints, and do not demonstrate a comparable situation where Heathrow has been allocated strategic resource to the detriment of Stansted. The evidence we have reviewed to date does not suggest a finding of discrimination and the differences between the circumstances of these two airports are sufficiently large so as not to warrant further investigation of the strategic management of capacity by NERL or particular initiatives to improve capacity at Heathrow.

8.31 Staffing: As illustrated in the figure above significant staffing delays have been experienced at four out of the five London airports. We have considered staffing issues in detail in Chapter 6 and whilst we have identified a number of shortcomings with respect to NERL's staffing of the Stansted Approach we do not consider this demonstrates discrimination against Stansted in favour of Heathrow. For instance, we note that given its greater size Heathrow airport requires a larger pool of ATCOs, who are able to obtain the relevant validation more easily and so issues such as sickness, absences or early retirement of individual ATCOs will tend to have a smaller impact. We also note that between December 2016 and May 2019 the number of validated controllers on the Stansted and Heathrow Approaches were reduced by similar amounts (17% and 14% respectively – see Figure 6.3) which does not indicate a discriminatory approach to staffing by NERL.

8.32 Weather: We note as part of Ryanair's complaint that delays due to weather have increased at Stansted and decreased at Heathrow through the period 2015 to 2018. The figure below shows the overall pattern of weather delays – which

are in fact much worse at Heathrow and Gatwick compared to Stansted. We do not consider that differences in weather delay constitute evidence of undue discrimination by NERL, including because the weather is clearly not a factor within NERL's control. The fact that, in 2019, weather delays at Stansted decreased significantly, as demonstrated in Figure 8.5 below, reinforces the CAA's view that this does not constitute discrimination.

Figure 8.5: All Cause ATFM delay minutes on LAS by airport, 2014-19



Source: NERL[168]

8.33 All of these factors are relevant to our assessment of whether NERL has discriminated against Stansted airport to the benefit of other airports and whether any such discrimination is objectively justified.

8.34 We have also considered the allegation that NERL's operation and corporate management (including the composition of the NATS Board) may not provide safeguards against discrimination. We do not consider that this allegation has been substantiated by any of the evidence we have considered including that set out above. Given the wide range of organisations represented on NATS board and the skill mix of the board members, we do not consider that this in any way increases the likelihood of NERL discriminating between users contrary to its Licence obligations.

[168] Oberon Indicators Q4 2019, KDN05

Comparison between operators

8.35 ECTL-PRU carried out a comparison of ATM delay experienced by the four largest operators[169] at London airports over 2016-2018.[170] For the purposes of determining the question of discrimination we consider the following observations made in the PRU Report to be particularly relevant:

- British Airways ("BA") experienced the highest ATM delay of the four carriers in the London TMA,[171] the majority of this being ASMA. BA average delay due to *all* ATM inefficiencies is significantly higher at Heathrow (13.34 minutes in 2018) than Ryanair at Stansted (8.81 mins);
- easyJet recorded higher total ATM delay minutes than Ryanair between 2016-2018 despite a broadly similar number of arrivals and operational model; and
- the pattern of ATM delay (and its constituent reasons) at the three London airports common to Ryanair and easyJet is very similar, with little to differentiate between the two airlines. We see both carriers consistently experiencing higher ATM delay per arrival at Gatwick than Stansted over the three years and whilst ATFM delay was greater at Stansted, ASMA delay at Gatwick outweighs this. In 2018 the average en route ATFM delay in the London TMA totalled 1.2 minutes per arrival for Ryanair and 1.1 minutes for easyJet.

8.36 For the reasons set out above, we do not consider that the evidence shows a difference in treatment as between users of Stansted and Heathrow airports.

8.37 Accordingly, it is not necessary to go on to consider whether any difference in treatment is objectively justified. Nonetheless, we consider that the differences between the operations at Stansted and Heathrow that we have identified above, including the differences in the way air traffic is managed to these airports, would in principle (and within certain limits) be capable of justifying a difference in NERL's approach to these airports. In particular, Heathrow's size, location, pattern of traffic, capacity constraints, use of holds and (until recently) plans for a new runway are all objective factors that could justify NERL taking a different approach to the strategic management and development of capacity at Heathrow compared to Stansted. As such those differences would negate any apparent difference in treatment.

8.38 On that basis, and with respect to the complaints of undue preference and discrimination, we conclude that:

[169] Ryanair, British Airways, easyJet and Wizz Air

[170] PRU assessment of NERL delays in the London Approach service (ECTL-PRU) 26 June 2019 Section 6.2, p. 39-42, KDN02

[171] PRU assessment of NERL delays in the London Approach service (ECTL-PRU) 26 June 2019 p.39 Figure 6-3, KDN02

- Regarding its Licence Condition 2.7 NERL has not failed, is not failing, nor is likely to fail, to meet its obligation to not unduly prefer or discriminate against any person or class of person in respect of the operation of its systems; and

APPENDIX A

Abbreviations

Abbreviations	
ACCs	Area Control Centres
ACOG	Airspace Change Organising Group
ANSP	Air Navigation Service Provider
ASMA	Arrival and Sequencing Metering Area
ATC	Air Traffic Control
ATCC	Air Traffic Control Centre
ATCT	Air Traffic Control Tower
ATCO	Air Traffic Control Officer
ATFM	Air Traffic Flow Management
ATFCM	Air Traffic Flow and Capacity Management
ATS	Air Traffic Service
BA	British Airways
CA98	Competition Act 1998
CAA	Civil Aviation Authority
CAA12	Civil Aviation Act 2012
ERRA13	Enterprise and Regulatory Reform Act 2013
ETCL	EUROCONTROL
ExCDS	electronic flight strip system
FIRs	Flight Information Regions
FTE	Full time equivalent
IRG	Industry Resilience Group
KDN	Key Document Number
LACC	London Area Control Centre
LAMP	London Airspace Management Programme
LAS	London Approach Service
LCCs	Low Cost Carriers
LTCC	London Terminal Control Centre
LTMA	London Terminal Manoeuvring Area
MAG	Manchester Airports Group
MDI	Minimum Departure Interval

Abbreviations	
NEST	NEST is a scenario-based modelling tool used by the EUROCONTROL Network Manager and the Air Navigation Service Providers (ANSPs) for: designing and developing the airspace structure, planning the capacity and performing related post operations analyses, organising the traffic flows in the ATFCM strategic phase, preparing scenarios to support fast and real-time simulations, and for ad-hoc studies at local and network level.
NERL	NATS En-Route PLC
NM	Network Manager
NMIR	Network Manager Interactive Reporting
PRC	Performance Review Council of Eurocontrol
PRISME	A database used to calculate performance review for both the EUROCONTROL Performance Review Framework and the Performance Review Mechanism of the Single European Sky.
PRU	EUROCONTROL's Performance Review Unit
PSS	Planning Staffing Schedule
RP2	second reference period
RP3	third reference period
Ryanair	Ryanair plc
STAL	Stansted Airport Ltd
STAM	short term traffic ATFM measures
STATFOR	The Statistics and Forecast Service, part of EUROCONTROL
TA00	Transport Act 2000
TATC	Trainee Air Traffic Controller
TFEU	Treaty on the Functioning of the European Union
TMA	Terminal Control Area
TV	Traffic Volume
UIR	Upper Information Region

APPENDIX B

Airspace basics[172]

B1 All airspace around the world is divided into Flight Information Regions ("FIRs"). Each FIR is managed by a controlling authority that has responsibility for ensuring that air traffic services are provided to the aircraft flying within it. The CAA is the controlling authority for the UK and NATS provides air traffic services for them.

B2 In some cases, FIRs are split vertically into lower and upper sections. The lower section remains referred to as a FIR, but the upper portion is referred to as an Upper Information Region (or "UIR").

B3 Airspace within a FIR (and UIR) is usually divided into pieces that vary in function, size and classification. Classifications determine the rules for flying within a piece of airspace and whether it is 'controlled' or 'uncontrolled'. Aircraft flying in controlled airspace must follow instructions from Air Traffic Controllers. Aircraft flying in uncontrolled airspace are not mandated to take air traffic control services but can call on them if and when required (e.g. flight information, alerting and distress services).

B4 UK Airspace is divided into three FIRs; London, Scottish and Shanwick Oceanic.

B5 The London FIR covers England and Wales. The Scottish FIR covers Scotland and Northern Ireland. The Shanwick Oceanic FIR covers a region of airspace totalling 700,000 square miles over the North East Atlantic.

B6 NATS manages the airspace within these FIRs from two air traffic control centres – one in Swanwick (Hampshire) and the other in Prestwick (Ayrshire).

B7 The NATS Swanwick Centre, which has been in operation since 2002, combines:

- The London Area Control Centre ("LACC") which manages en route traffic in the London Flight Information Region. This includes en route airspace over England and Wales up to the Scottish border.
- The London Terminal Control Centre ("LTCC") which handles traffic below 24,500 feet flying to or from London's airports. This area, one of the busiest in Europe, extends south and east to the borders of France and the Netherlands, west towards Bristol and north to near Birmingham.

[172] Some information from: https://www.nats.aero/ae-home/introduction-to-airspace/, accessed 06 February 2019.

- Military Air Traffic Control which provides services to military aircraft (and civil aircraft when required) operating outside of controlled airspace. They work closely with civilian controllers to ensure the safe co-ordination of traffic.

B8 Controlled airspace is provided primarily to protect its users, mostly commercial airliners, and as such, aircraft which fly in controlled airspace must be equipped to a certain standard and their pilots must hold certain flying qualifications. Pilots must obtain clearance from Air Traffic Control ("ATC") to enter such airspace and, except in an emergency, they must follow ATC instructions implicitly.

B9 Air traffic control services are broadly divided into three categories:

- En route, which controls aircraft from the completion of initial climb (from departure airport) through cruise altitude and completion of controlled descent to the initial approach fix where the service hands over to approach.
- Approach, which is a radar service generally provided from the Air Traffic Control tower at the arrival airport. It takes control of aircraft around 40 miles from the airport and sequences the aircraft before handing over to the aerodrome control. Approach also controls aircraft on departure from the airport to handover to en route.
- Aerodrome control, which is a visual control service that controls aircraft in landing and take-off at the airport. The aerodrome service also directs aircraft around the airfield.

B10 The LAS is operated remotely by NERL from Terminal Control at the Swanwick Control Centre, rather than from the individual airports.

B11 The LAS is broadly split into two services:

- Area service, which operates the general airspace within the London Terminal Control Area.
- Approach service, which operates the approach into each of the airports of the London Approach.

B12 Airspace can only be controlled by a licensed and validated ATCO. The ATCO licence is the minimum requirement but to be active on a particular airspace sector an ATCO requires the specific validation.

B13 An ATCO starts as a Trainee Air Traffic Controller ("TATC"). A TATC takes over 12 months to train. Then when deployed in a unit they can take 6 to 12 months to validate depending on the complexity of the airspace involved. However, NERL has stated that for controllers operating the London Approach Service the validation time is 18 to 24 months due to the complexity of the task.

B14 NERL impose minimum unit requirements on ATCOs working the London Approach. They must have one of the following validation sets:

- Heathrow approach validations;
- two approach validations on non-Heathrow airports; or
- two terminal manoeuvring area control validations.

APPENDIX C

Chronology of this Investigation

Date	Event
7 September 2018	Receipt of a complaint from Ryanair
22 October 2018	Investigation opened, and informal process adopted. Parties notified.
November to January 2018	Invite comments from parties on the scope of the investigation. Consult on draft first information requests Agree terms of Eurocontrol's support to the investigation under Support to States Policy
14 January 2019	Receipt of a complaint from STAL
January 2019	Issue final first information requests
11 February 2019	Incorporate STAL's complaint into investigation, and confirm scope of investigation
January and February 2019	Receive information from parties
February to April 2019	Analyse information and receive draft report from ECTL-PRU
March to April 2019	Consider whether a further round of information requests or an interim round of consultation on the ECTL-PRU's findings are required or whether to progress to the CAA's draft report.
May 2019	State of play meetings with the parties to share emerging thinking
May & June 2019	Consider comments on Draft Eurocontrol report
June & July 2019	Request further information from the parties
July 2019	Send parties the Revised Eurocontrol report
July 2019	Receive comments on Revised Eurocontrol report

Date	Event
August / September 2019	Consider parties' comments on Revised Eurocontrol report Receive additional information from parties
October / November 2019	Continue to analyse information received
November 2019	Place unredacted Oberon Report into Palamon confidentiality ring
December 2019 – June 2020	Prepare draft decision
6 July 2020	Place unredacted version of the draft decision and supporting docs into Palamon confidentiality ring and request redactions from parties to draft decision
20 July 2020	Deadline for Confidentiality representations and further disclosure requests (if any)
17 September 2020	**Share non-confidential draft decision with parties and publish on CAA's website for wider comment**
19 October 2020	*Deadline for submissions on draft decision (A precise date will be set when CAA publishes non-confidential version of the draft decision)*
Q4 2020 (expected)	*Publish final decision on CAA website*

APPENDIX D

NERL's Oberon Action Plan

1) Establish Service Delivery Improvement Group.
2) Appointment of Service Delivery Manager to focus on balancing performance across the network.
3) Recruitment of additional Network Management Specialists for Terminal Control.
4) Traffic management training – upskill/refresh Local Area and Group Supervisors.
5) Extend Met Office cover to 24 hour on site support.
6) Develop service playbook.
7) Improving information available to operation – TCIP2 project, service reporting.
8) Improved forecasting of traffic and delay.
9) Establish Strategic Resource Board.
10) Revising strategic workforce planning process – Business improvement department.
11) Development of Deploying SESAR people plan.
12) Training tiger team.
13) Swanwick resourcing improvement project.
14) EVAA deal in Terminal Control and Prestwick Centre.
15) Terminal Control resilience – on-going work to change the way in which the Terminal Control operation works to reduce demand.
16) Manpower planning tool.
17) Rostering tool.
18) Operational Partnership Agreement ("OPA") – consultation plan, Operational Customer Information Gateway brief, update on Area Control, Terminal Control, EXCDS, Prestwick Control, airport interfaces.
19) OPA hotspots – includes improved forecasting of traffic and airfield demand, weather resilience and enhanced flexible use of airspace.
20) Monthly customer calls
21) Airline bilateral meetings.
22) Operational Customer Information Gateway.

APPENDIX E

Further analysis of the coding of delays

CAA analysis of Eurocontrol regulation data

E1 The CAA received a copy of the ATFM regulation data used by ECTL-PRU in their report.[173] It encompasses all en route regulations applied in the London TMA between 2014 and 2018. The dataset contains:

- airspace ID and Traffic Volume ID;
- regulation start and end times;
- attributed delay reason code; and
- total regulated flights and delay minutes.

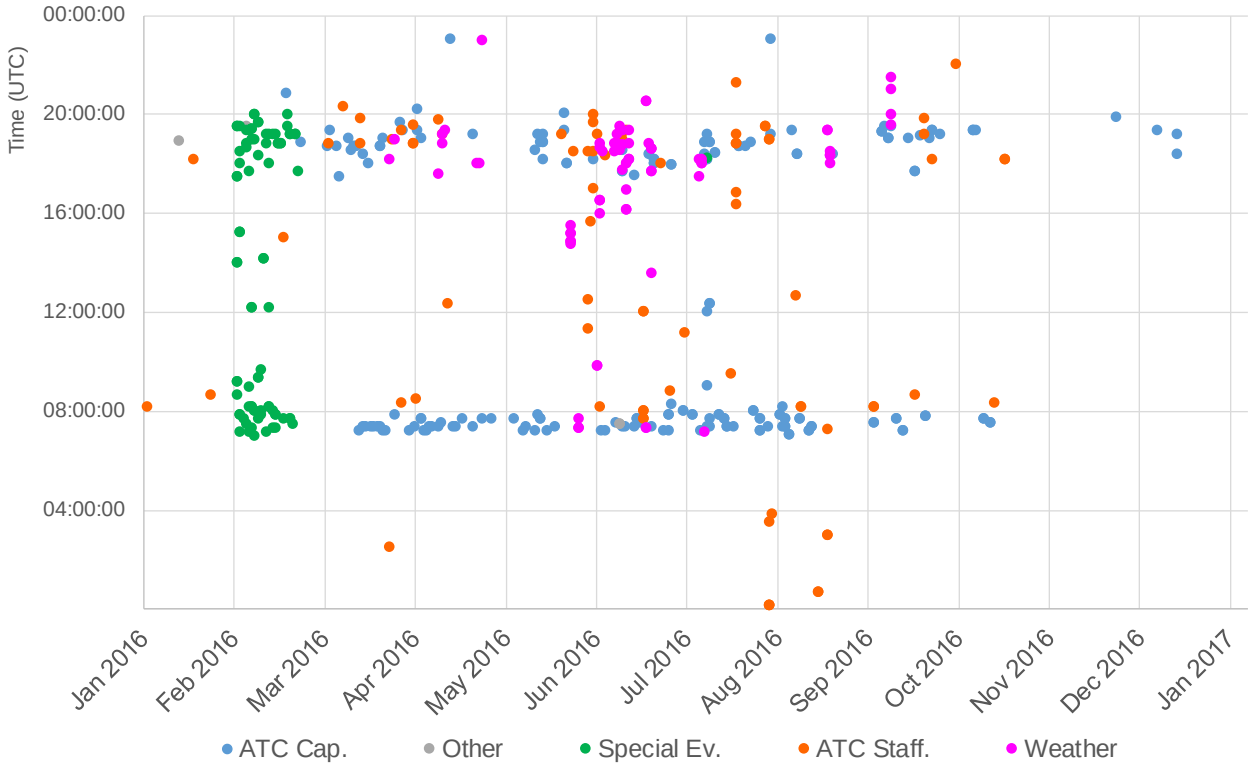
ATFM Regulations in the London TMA 2016-2018

E2 The CAA examined all the ATFM regulations implemented in 2016 – which coincided with high levels of ATC staffing delay which lead to the Oberon complaint. The date and midpoint time of each regulation was plotted on Figure E.1 below. The chart shows sporadic ATC staffing delays distributed across the time of day and year – as would be expected for ad-hoc staffing shortages. Additionally, we observed two consistent "bands" of delay assigned to ATC capacity throughout the year at approximately 0730 and 1800hrs. A high amount of "Special Event" delays are observed in February related to the implementation of the LAMP1A airspace change.[174]

[173] PRU assessment of NERL delays in the London Approach service (ECTL-PRU) 26 June 2019, KDN02

[174] LAMP 1A is a major airspace change proposal affecting airspace arrangements in south-east England, from Stansted to the Isle of Wight. More information on this is available at: https://www.caa.co.uk/Commercial-industry/Airspace/Airspace-change/Decisions/London-Airspace-Management-Programme-Phase-1A/

Figure E.1 Date/Time ATFM regulations in the London TMA by delay cause 2016



Source: CAA analysis of Eurocontrol PRU data submission

E3 In 2018 – the year of the Palamon complaint – there were fewer ATC staffing regulations, however the same sporadic pattern remains (Figure E.2). However, far fewer ATC capacity regulations are present in the "morning" band at approximately 0730hrs than in 2016, however high numbers remain in the evening period.

E4 Weather regulations are also concentrated within this time band, which appears unusual as weather is inherently unpredictable, however it also indicates a lack of resilience within the airspace system at peak times, since any (weather) event that restricts the traffic flow quickly leads to congestion and regulations to manage flights.[175]

[175] Also mentioned on page 32 of PRU assessment of NERL delays in the London Approach service (ECTL-PRU) 26 June 2019, KDN02

Figure E.2 ATFM regulations in the London TMA by delay cause 2018

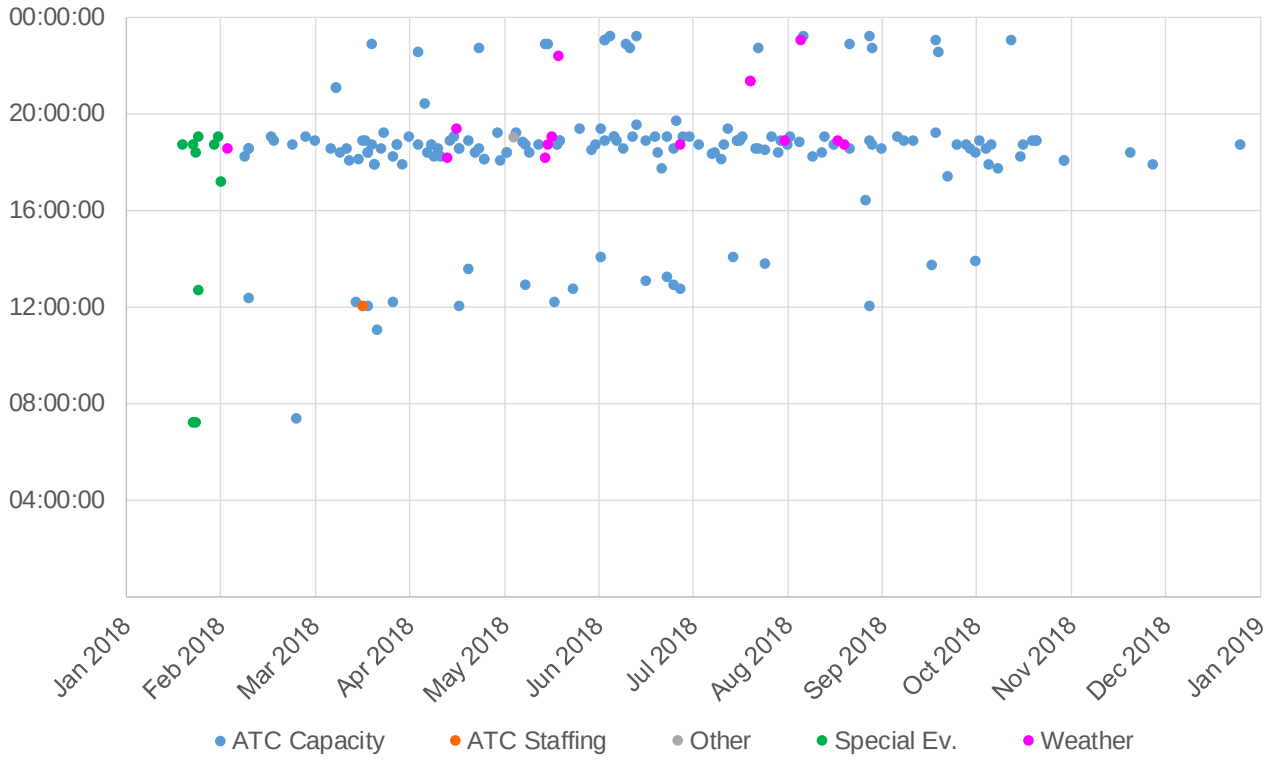
Source: CAA analysis of Eurocontrol PRU data submission

ATFM Regulation of Stansted and Luton arrivals in 2018

E5 When focusing on the regulations applied in the LTMA to Stansted and Luton arrivals (TC ESSEX TV) in 2018, we see the majority of ATC capacity delays in the 1800hrs time band (in contrast to the airport-located delays in the ECTL-PRU report[176] which mostly occur in the morning).

[176] PRU assessment of NERL delays in the London Approach service (ECTL-PRU) 26 June 2019, figures 5-7 & 5-8, KDN02

Figure E.3: ATFM regulations in the EGTTESX TV by delay cause 2018



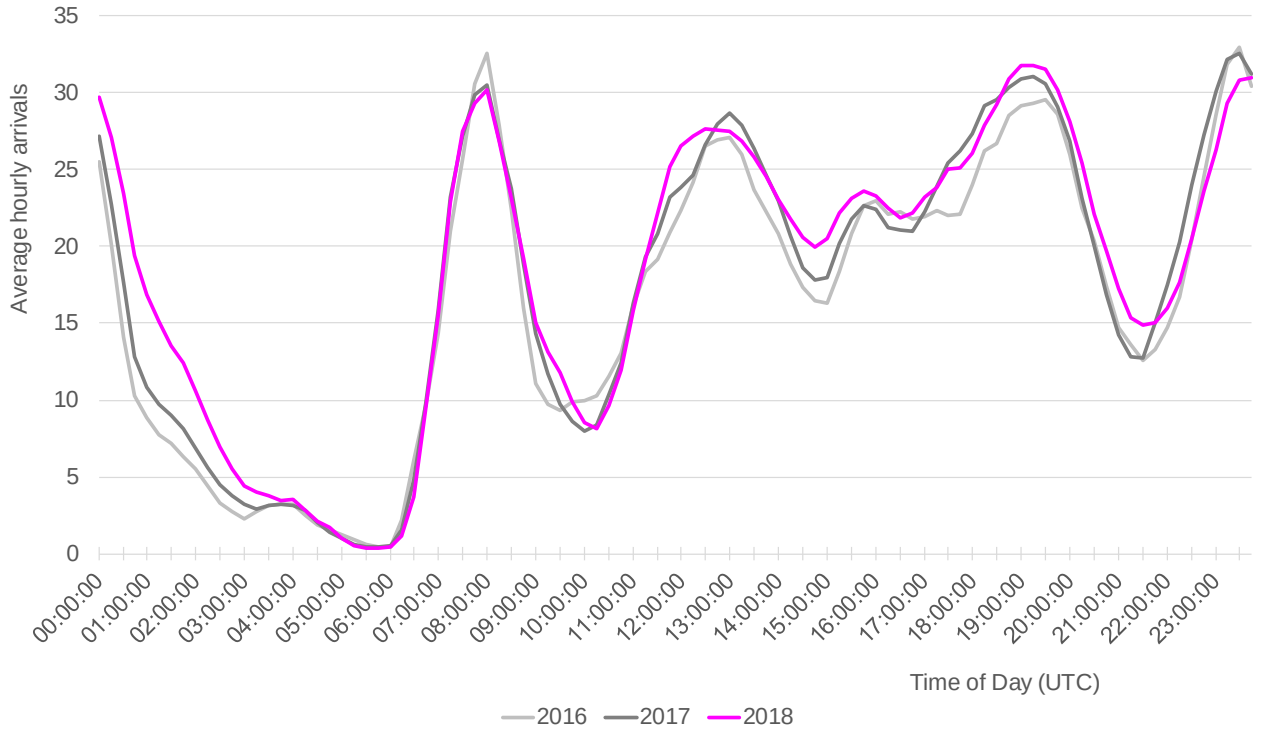
Source: CAA analysis of Eurocontrol PRU data submission

E6 Using CAA internal data,[177] we calculated the hourly average arrivals at Stansted and Luton (Figure E.4) in the peak summer (April-September) period by year for 2016 to 2018. ATC capacity regulations tend to coincide with an arrival peak around 1830-1930hrs (correlating with the ECTL-PRU report)[178]. The average number of arrivals during this period has grown steadily over the three years of the analysis. Therefore, it is not unreasonable for a high number of ATFM regulations to be implemented for ATC capacity reasons during this period.

[177] Source: CAA airport statistics. This data is supplied to the CAA by UK Airports. The data analysed represents actual arrivals at the gate by flight. Note, whilst coverage is very high, not all IFR movements are represented (business jets in particular are incomplete, whilst Cambridge airport is omitted). Additionally, this represents the actual regulated arrival throughput i.e. doesn't give an exact measure of demand, however provides a useful guide.

[178] PRU assessment of NERL delays in the London Approach service (ECTL-PRU) 26 June 2019, figures 5-10, KDN02

Figure E.4: Average hourly arrival throughput to Stansted and Luton 2016-2018



Source: CAA internal analysis

E7 To investigate further, we plotted the midpoint of each 2018 ATFM regulation against the average hourly arrival throughput (combined Stansted and Luton) during the regulation. This shows (Figure E.5) that ATC capacity regulations were typically placed in periods of high demand – typically within the 25-30 arrivals per hour range, which is above the average "daytime demand" (0700-2200hrs) of 22.5 arrivals per hour (note this is the regulated arrival throughput which gives a measure of demand and not the actual demand for this airspace). This also suggests that an ATC capacity coding might have been appropriate.

Figure E.5: Plot of 2018 EGTTESX TV regulation times and average hourly throughput

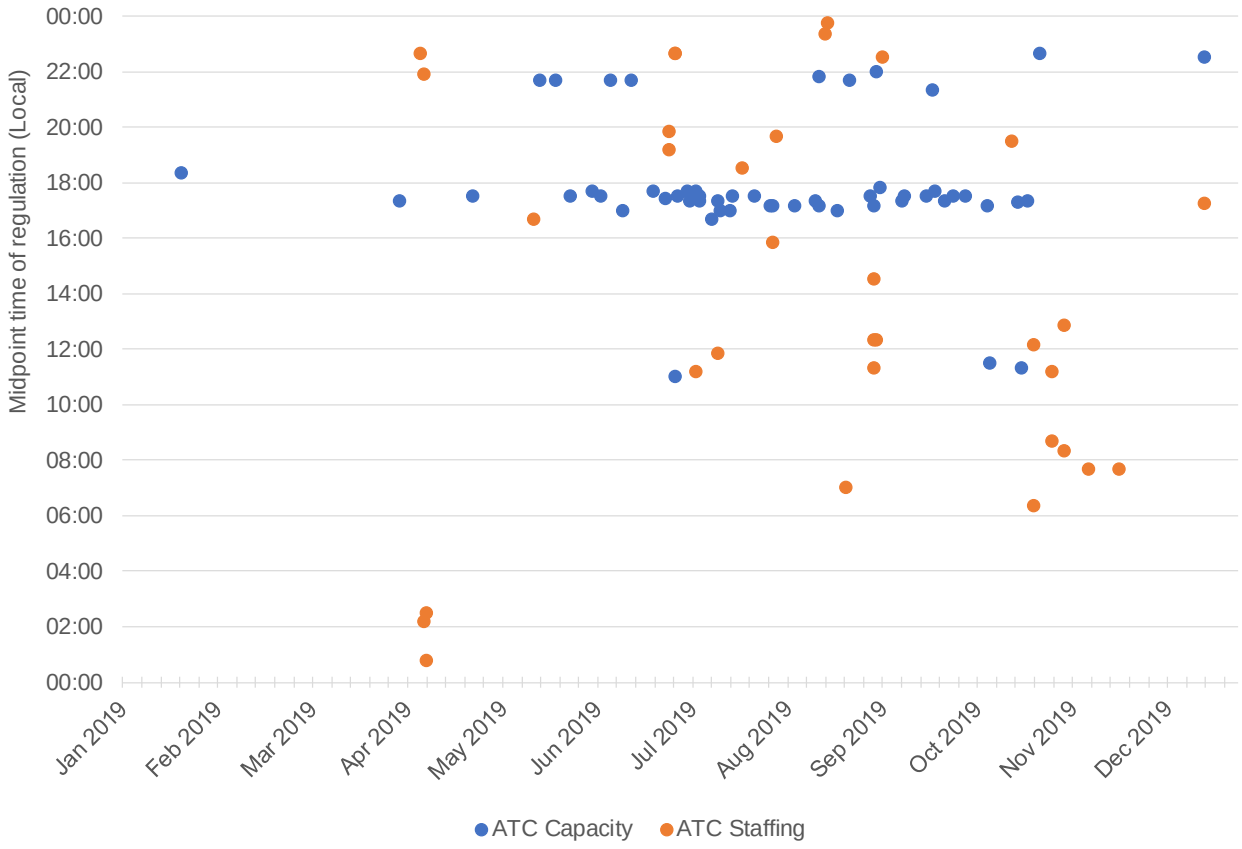
Source: CAA analysis of Eurocontrol PRU data submission and CAA internal data

ATFM regulation of Stansted and Luton arrivals in 2019

E8 The Oberon Indicators show a sharp increase in ATC staffing delay for Stansted and Luton arrivals, up from 450 minutes in 2018 to 46,000 minutes in 2019. The CAA analysed the ATFM regulations using data from Eurocontrol,[179] available to industry stakeholders, to investigate this outcome. A plot of the date and midpoint time of each regulation attributed to ATC capacity or staffing was analysed (Figure E.6 below).

[179] Eurocontrol NMIR dashboard data accessed from OneSkyOnline portal: https://ext.eurocontrol.int

Figure E.6: Date and time (local) of ATC capacity and staffing regulations on the Stansted and Luton approach 2019[180]



Source: CAA analysis of Eurocontrol NMIR data: accessed October 2019 and March 2020

E9 Figure E.6 shows a similar pattern to that observed in previous years. ATC staffing regulations are typically sporadic, spread across the day and year as expected. The majority of ATC capacity regulations are concentrated in the 1700-1800hrs time band as seen previously.

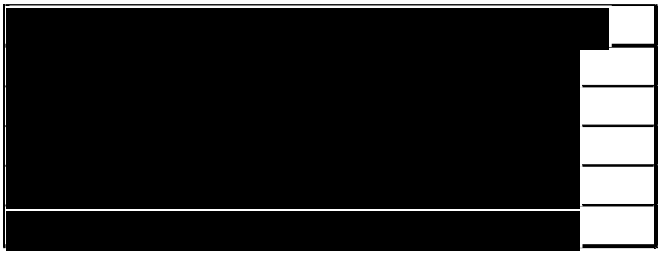
Analysis of NERL additional ATCO staffing data submission

E10 The CAA requested detailed ATCO staffing data from NERL who supplied average rostered staff and the accrued delay minutes by LTMA airport by month for 2017 and 2018. A four-month period (June to September 2018) of detailed shift-level data was also supplied. This period accounts for 44,000 mins of ATC capacity delay for Stansted and Luton arrivals (46% of the 2018 total) and 379 mins of ATC staffing delay (84% of 2018 total).

[180] Incorporates Traffic Volumes: EGTTESX, EGSSTCE, EGSSTCPE, EGSSTCSE, EGGWTCE, EGGWTCPE, EGGWTCSE as outlined in NERL email to CAA 10 February 2017, KDN48. Note in 2018, only the EGTTESX TV experienced regulations thus Figure E.3 and Figure E.5 reflect this.

E11 Figure E.7 displays NERL's minimum staffing levels for the approach service to each LTMA airport. The combined Luton and Stansted rostered staff [redacted] coordinate the TC ESSEX airspace that handles the arrivals to Stansted and Luton (and Cambridge) airports. NERL operate [redacted].

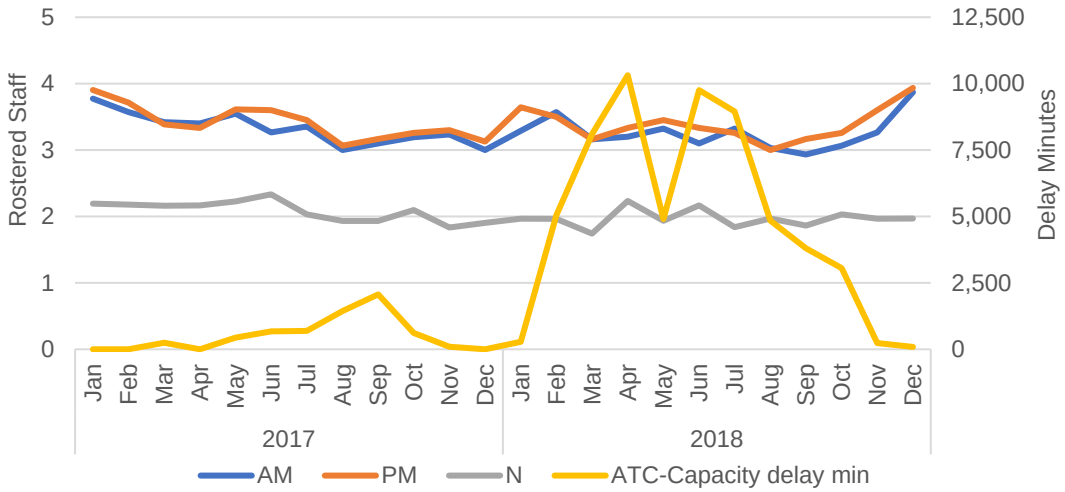
Figure E.7: NERL minimum rostered staff by TMA airport



Source: NERL[181]

E12 A plot of the monthly rostered staff data shows that staffing levels were generally in excess of the minimum requirement to provide a full service to each LTMA airport (see Figure E.8 and Figure E.9 below for Stansted and Luton, respectively). Based on this consolidated view of staffing, we observe no correlation between high ATC capacity delays and rostered staffing at Stansted and Luton in 2018, which suggests that lack of staffing might not be a reason for the observed ATC capacity delays.

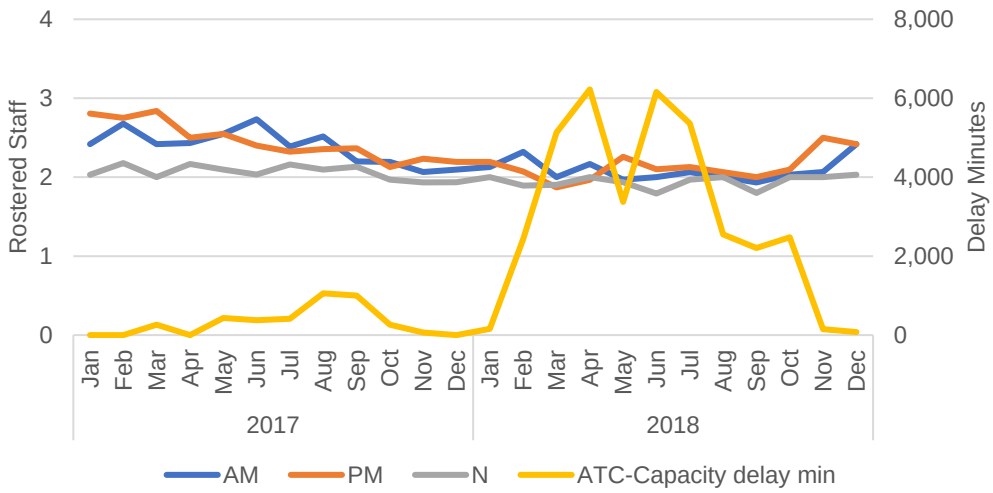
Figure E.8: Average rostered staff by shift and total AFTM delay minutes for ATC capacity causes, Stansted 2017/18



Source: CAA analysis of NERL data submission[182]

[181] NERL Additional Staffing and Delay Data, 24 September 2019 KDN42
[182] NERL Staffing and Delay Data, 30 August 2019 KDN41

Figure E.9: Average rostered staff by shift and total AFTM delay minutes for ATC capacity reasons, Luton 2017/18



Source: CAA analysis of NERL data submission[183]

E13 Nonetheless, examining the detailed shift level data for June-September 2018 shows there were instances on individual shifts where NERL did not meet its minimum staffing requirements. As an example, the figure below shows the data for September 2018.

[183] NERL Staffing and Delay Data, 30 August 2019 KDN41

Figure E.10: Daily rostered staff and delay minutes (ATC capacity and staffing attributable) September 2018

	Luton					Gatwick					London City				Heathrow					Stansted				
	Staffing			Delay (mins)		Staffing			Delay (mins)		Staffin		Delay (mins)		Staffing			Delay (mins)		Staffing			Delay (mins)	
Regulation Date	AM	PM	N	ATC-Capacity	ATC Staffing	AM	PM	N	ATC-Capacity	ATC Staffing	AM	P M	ATC-Capacity	ATC Staffing	AM	PM	N	ATC-Capacity	ATC Staffing	AM	P M	N	ATC-Capacity	ATC Staffing
01/09/2018				0	0				0	0			0	0				0	0				0	0
02/09/2018				605	0				0	0			0	0				0	0				870	124
03/09/2018				548	0				0	0			0	459				0	0				1,119	0
04/09/2018				254	0				0	0			0	0				0	0				317	0
05/09/2018				0	0				0	0			0	0				0	0				0	0
06/09/2018				0	0				0	0			0	0				0	0				0	0
07/09/2018				151	0				0	0			0	0				0	0				332	0
08/09/2018				0	91				0	0			0	0				0	0				0	0
09/09/2018				0	0				0	0			0	0				0	0				0	0
10/09/2018				0	0				0	0			0	399				0	0				0	0
11/09/2018				0	0				0	0			0	0				0	0				0	0
12/09/2018				9	0				0	0			0	392				0	0				68	0
13/09/2018				0	0				0	0			0	0				0	0				0	0
14/09/2018				106	0				0	0			0	0				0	0				223	0
15/09/2018				0	0				21	0			0	0				0	0				0	0
16/09/2018				0	0				0	0			0	0				0	0				0	0
17/09/2018				108	0				0	0			0	0				0	0				177	0
18/09/2018				0	0				0	0			0	0				0	0				0	0
19/09/2018				0	0				0	0			0	0				0	0				0	0
20/09/2018				0	0				0	0			0	0				0	0				0	0
21/09/2018				0	0				0	0			0	0				0	0				0	0
22/09/2018				0	0				0	0			0	0				0	0				0	0
23/09/2018				128	0				0	0			0	0				0	0				125	0
24/09/2018				223	0				0	0			0	0				0	0				429	0
25/09/2018				71	0				0	0			0	0				0	0				80	0
26/09/2018				0	0				0	499			0	0				0	0				0	0
27/09/2018				0	0				0	0			0	0				0	0				0	0
28/09/2018				2	0				0	0			0	0				0	0				63	0
29/09/2018				0	0				0	0			0	0				0	0				0	0
30/09/2018				0	0				0	0			0	0				0	0				0	0

Source: NERL[184]

E14 Our analysis shows that, over the 4 months, there were 60 individual days where ATC capacity delay was incurred on Stansted and Luton arrivals:

- 23 coincided with a day where one or more shifts were understaffed at Stansted and Luton; and
- 37 instances of ATC capacity delay occurred when the Stansted/Luton approach was fully staffed.

E15 Further information was supplied by NERL as comments in the dataset. This enabled the CAA to conclude that of the 49 individual days where understaffing occurred on either the Stansted/Luton approach:

- on 25 days no ATC capacity or staffing delay was incurred;
- on 11 days ATC capacity regulations were implemented which coincided with a fully staffed shift and no ATC staffing delay was recorded;
- 4 days where understaffing and ATC staffing delay was recorded, albeit occasionally ATC capacity delays were also observed; and

[184] NERL Additional Staffing and Delay Data, 24 September 2019 KDN42

- on the remaining 9 days, ATC capacity regulations were implemented in situations where the shift was not fully-rostered – in these cases NERL have explained that qualified staff were deployed from elsewhere in the organisation to provide the full complement at Stansted and Luton.

APPENDIX F

Definitions of the different types of sectors

F1 The word sector is used for a collective of individual radar suites or positions. This can be:

- pieces of airspace managed by a single air traffic controller, in a band-boxed configuration when the traffic levels are low.
- the same geographical area or volume of airspace subdivided off into a number of radar suites managed by a number of air traffic controllers.

F2 This situation where a geographic area or volume is subdivided off into a number of radar suites managed by a number of air traffic controllers is when demand is higher so allowing an increase in capacity to meet that demand. For example, TC ESSEX is a collective of three radar suites, but is described as a sector. In this instance TC Essex is responsible for traffic being received from two separate TC sectors and two totally autonomous radar positions.

F3 If the traffic volume of TC Essex is applied then it will have a direct impact on traffic routing through TC North, into the LOREL hold, as well as TC EAST into the ABBOT hold.

Elementary sectors

F4 Sectors that cannot be subdivided further – i.e. be managed by more than one controller position. Allocating more staff to these sectors does not lead to increased flow or greater capacity.

Hold

F5 When aircraft are in proximity to an airport they can join a spiralling, vertical queue in airspace where they are “held” until it is their turn to be vectored to land. This is when traffic demand is high, and the runway capacity is exceeded for whatever reason. This can include prioritising departure movements to protect airlines’ punctuality or safety related issues at the airfield. Heathrow and Gatwick use a number of dedicated holds which are transited by all arrivals. If the capacity of an individual airfield is exceeded, then aircraft will be placed in a hold for a period of time before making their approach to Heathrow or Gatwick.

F6 Stansted and Luton have two holds for their arrival traffic with inbounds routing via these holds under the control of TC Essex. The same principles apply if demand for either airfield is exceeded, or a different runway priority is required by the destination aerodrome, then the arrival traffic will be placed in a hold.

F7 Therefore:

- during periods of high demand holding is to be expected.
- when demand is lower, or the priority allocated to the arrivals, traffic will route via the holds but continue to be vectored for an approach to their destination, without delay.

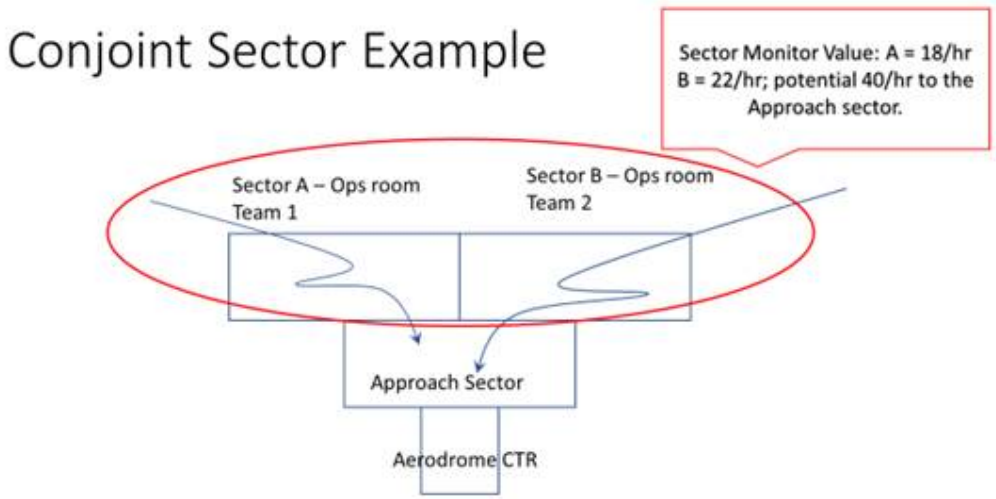
F8 If either Stansted or Luton experience a problem and require their arrival traffic to hold then it has a direct impact on the operation of TC Essex together with the other airport's arrival traffic. (This is due to an increase in the complexity of the operation with a need for the Essex controllers to closely monitor and vector the other airfield's arrivals away from the holds. Only once they are clear of the other airfield's holding traffic are they able to continue the arrival traffic's vectors and descents. It condenses the operation and reduces the availability of airspace with aircraft now holding in certain areas within the sector and radar manoeuvring area. This in turn leads to greater need for controller vigilance, an increase in frequency loading due to increased ATC instructions and pilot readback.)

Conjoined sectors

F9 Conjoined sectors describe the situation when the capacity of two sectors that tend to be next to each other in the vertical plane (i.e. above/below one another) are managed together as a volume of traffic. This refers to traffic planned and routing through separate sectors but ultimately going to the same destination point via independent holds. These holds then feed into the same airfield or an airfield collective worked by the same approach sector.

F10 Conjoint sectors may appear as collapsed in the data analysis, in reality they are not collapsible as they must be operated by separate ATCO teams as responsibility for them sits within different parts of the ops room. This could be to manage a hold when aircraft are approaching an airport. A capacity of 40 could be applied across both sectors and managed as one overall capacity, rather than a capacity of 18 and 22 in each sector.

F11 Capacity can be managed by restricting flights that will either transit a sector, in the en route phase of flight to a specific airfield, or by restricting the approach sector for the final destination(s) or for the destination aerodrome itself.



When the Approach sector has reduced capacity the traffic volume formed by Sector A+B is managed to reduce the demand into the approach sector – A+B becomes conjoined and the combined potential 40/hr will be reduced to help the Approach sector.

Bandboxed or collapsed sectors

F12 Collapsed sectors (also referred to as bandboxed sectors) are combinations of elementary sectors which can be managed by one ATCO at times of lower traffic (for example at night). These sectors are typically adjacent to each other in the horizontal or vertical plane and require the controllers to hold the appropriate endorsement qualifications for both sectors to be worked as one. Some elementary sectors can never be collapsed because they are managed under a separate group of sectors or with different controller licence ratings.