

Appendix O: Benchmarking

This appendix presents evidence on how our performance over time to deliver a cost efficient and effective service compares with that of the four larger European Air Navigation Service Providers (ANSPs) with which NERL is most comparable; this comparator set is often referred to as the 'big 5', comprising DFS (Germany), DSNA (France), ENAIRE (Spain), ENAV (Italy) and NATS/NERL (UK).

In 2019, the most recent Eurocontrol ATM Cost Effectiveness (ACE) report, NERL performed well against its comparators, and had one of the best performances among the 'big 5' for three key indicators: financial cost effectiveness, ATCOs in ops employment cost per composite flight-hour, and ATCO productivity (ATCO hour per composite flight). This is a notable achievement considering that NERL manages some of the most complex airspace in Europe. A summary of our 2019 performance is shown in the table below.

Performance area	Metric	2019 performance relative to 'big 5' ANSPs	
		Rank	Cost vs 'big 5' average (100%)
Financial cost effectiveness	ATM/CNS cost per composite flight-hour (gate-to-gate)	2nd	95%
Financial cost effectiveness	ATM/CNS cost per flight-hour (en route)	3rd	98%
Economic cost effectiveness (includes costs of delays)	ATM/CNS plus ATFM delay cost per composite flight-hour (gate-to-gate)	3rd	87%
ATCOs in ops employment cost	ATCOs in ops employment cost per ATCO-hour in ops (gate-to-gate)	3rd	89%
ATCOs in ops employment cost	ATCOs in ops employment cost per composite flight-hour	1st	86%
Support costs	Gate-to-gate support cost per composite flight-hour	3rd	106%
			Productivity vs 'big 5' average (100%)
ATCO productivity	Composite Flight-Hours per ATCO-Hour in Ops	2nd	116%

Summary of NATS performance in 2019 Eurocontrol ACE benchmarking report, relative to other 'big 5' ANSPs

The expected publication of the 2020 ACE report in May 2022 provides an opportunity to provide an updated analysis over summer 2022 if this is considered beneficial for the CAA in its review.

ACE benchmarking

Benchmark analysis is widely used in regulated sectors across the UK, such as electricity and water, where multiple regional businesses exist. For air navigation services, however, no direct competitors exist within the national context and therefore cross border analysis is required. This brings additional

challenges in identifying appropriate comparisons, but by selecting those ANSPs that are closest to NERL in terms of scale and complexity of operations, we can benchmark our performance over time. This gives customers and regulators a means of verifying the efficiency and effectiveness of the services we provide.

To compare cost efficiency performance against the other 'big 5' ANSPs, we use Eurocontrol's ACE benchmarking report. This data source is both credible and robust, with significant validation carried out by Eurocontrol's performance review unit to ensure that the data are accurate and consistent. The analysis covers 38 ANSPs, and data in the ACE report are largely aggregated for both en route and approach services. These data comprise both NERL and NATS Services Ltd (NSL) costs and other elements. It is not possible to isolate NERL's contribution to the NATS' performance metrics. Nevertheless, the relative position of NATS within its comparator group and movements over time relative to the group provide useful information about NERL's cost effectiveness, given the overall comparability and NSL's relatively smaller size. For ease of presentation, we refer to NERL primarily throughout this appendix.

The analysis presented focuses primarily on data up to and including 2019, which is the latest available report. We also draw on preliminary high-level data for 2020 from the report. However, we note that while some data is available for 2020-22, it is significantly influenced by the economic impact of the pandemic. This complicates comparisons given the different approaches taken by ANSPs to mitigate the financial impact and the different levels of governmental support across the region.

Complexity, size and comparator group

As highlighted in the ACE report¹, there are many factors which contribute to observed differences in ANSPs' performance. Over the years, the Eurocontrol Performance Review Unit has developed a framework showing which internal and external factors can influence ANSPs' cost-effectiveness.

In this framework, external factors have been classified into two main areas:

- > Legal and socio-economic conditions (eg taxation policy), and operational conditions (eg the traffic patterns an ANSP has to manage)
- > Institutional and governance arrangements such as international requirements imposed by the Single European Sky

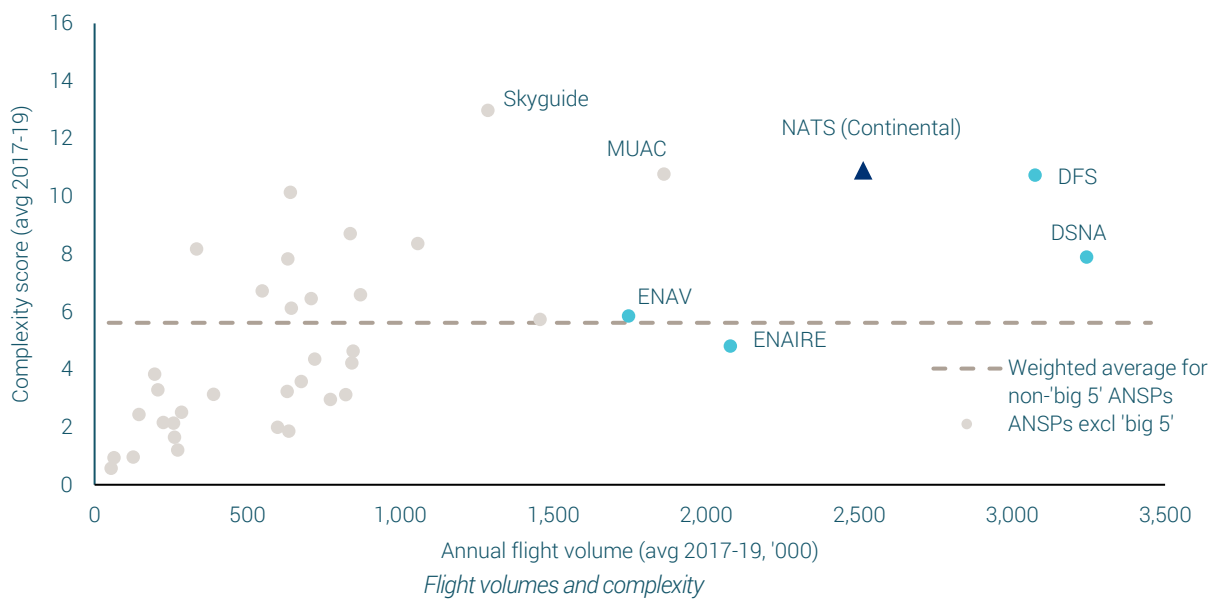
Internal factors are classified into three main groups:

- > Organisational factors such as structure
- > Managerial and financial aspects
- > Operational and technical structure

¹ ATM Cost-Effectiveness (ACE) 2019 Benchmarking Report, section 2.2

By choosing a comparator group for benchmark analysis with similar external factors, it is possible to draw valid comparisons about operational performance. In this context, we follow Eurocontrol in basing our benchmark analysis on a 'big 5' group of large ANSPs which have similar levels of output and complexity of operations. These are the five largest ANSPs in Europe, which also operate within broadly comparable western European economies and with similar costs of living when measured on a purchasing power parity basis, as illustrated by Eurocontrol's 2019 ACE Report².

These five are also similar in terms of the complexity of airspace which they manage. It is important to consider this complexity when benchmarking, as it has an impact on cost effectiveness and productivity metrics; a more complex airspace requires better trained controllers and/or more resources to deal with a given volume of traffic and to manage risks which may emerge with more complexity. As illustrated below, four of the 'big 5' have higher than average complexity scores, and NERL has the highest complexity score among the 'big 5'³. These data for ANSPs at the national level average out area and terminal controls of differing complexity at the sub-national level.

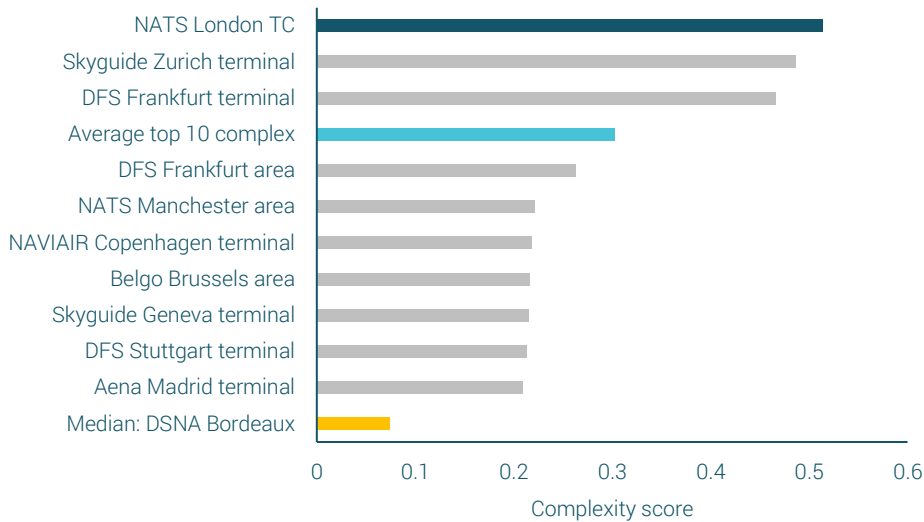


NERL manages the most complex area in Europe in the London Terminal Control, which is seven times more complex than the median area, and 1.7 times more complex than the average for the ten most complex sub-national area or terminal control areas⁴, as shown below.

² ATM Cost-Effectiveness (ACE) 2019 Benchmarking Report, figure 2.2

³ Eurocontrol, Traffic Complexity Scores 2017-19, 2020

⁴ Eurocontrol, Complexity Metrics for ANSP Benchmarking Analysis, Prepared by the ACE Working Group on Complexity, April 2006



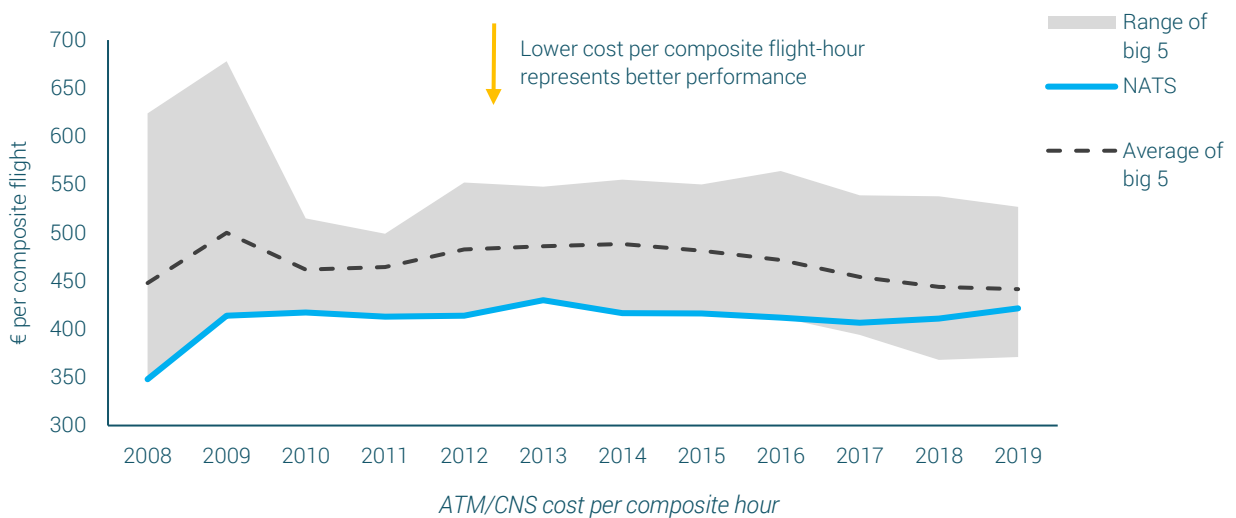
Most complex area and terminal controls

Performance summary

Between 2008 and 2019, NERL consistently performed better than average for six out of seven metrics, and close to the best performance among the 'big 5' for the three key indicators: financial cost effectiveness, ATCOs in ops employment cost per composite flight-hour, and ATCO productivity (ATCO hour per composite flight). Each of the performance indicators are described in more detail below.

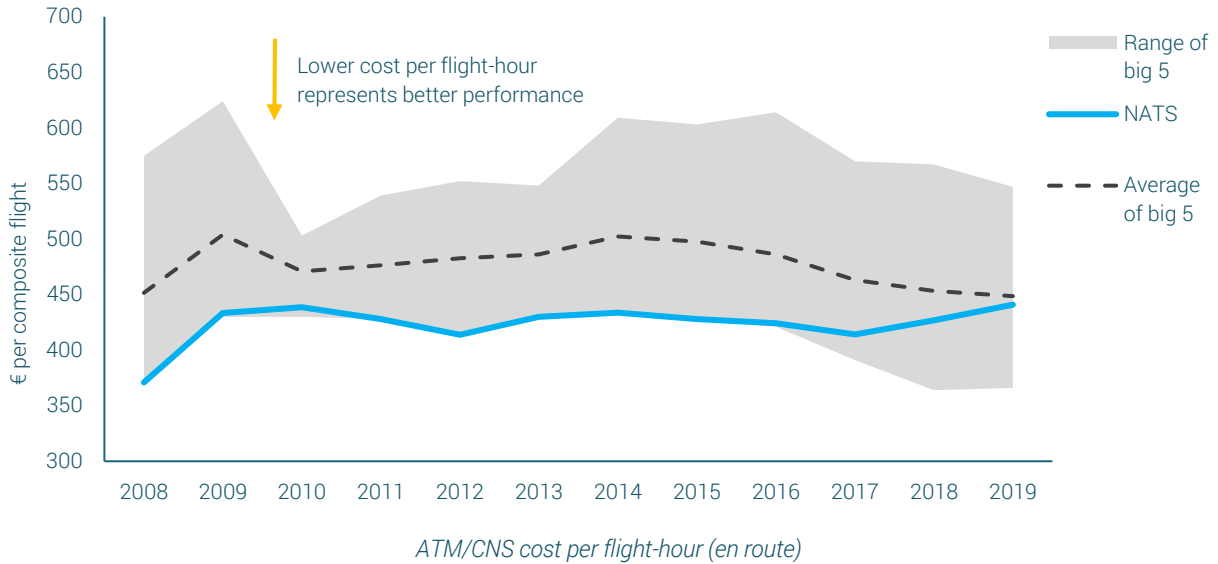
Financial cost effectiveness – gate-to-gate

NERL has delivered a consistently cost effective service, by comparison with its peer group, and has been at or very close to the lowest cost ANSP among the 'big 5' over the whole 12-year period. In the pre-pandemic regulatory period, RP2, NERL delivered declining cost per output in nominal terms.



Financial cost effectiveness – en route

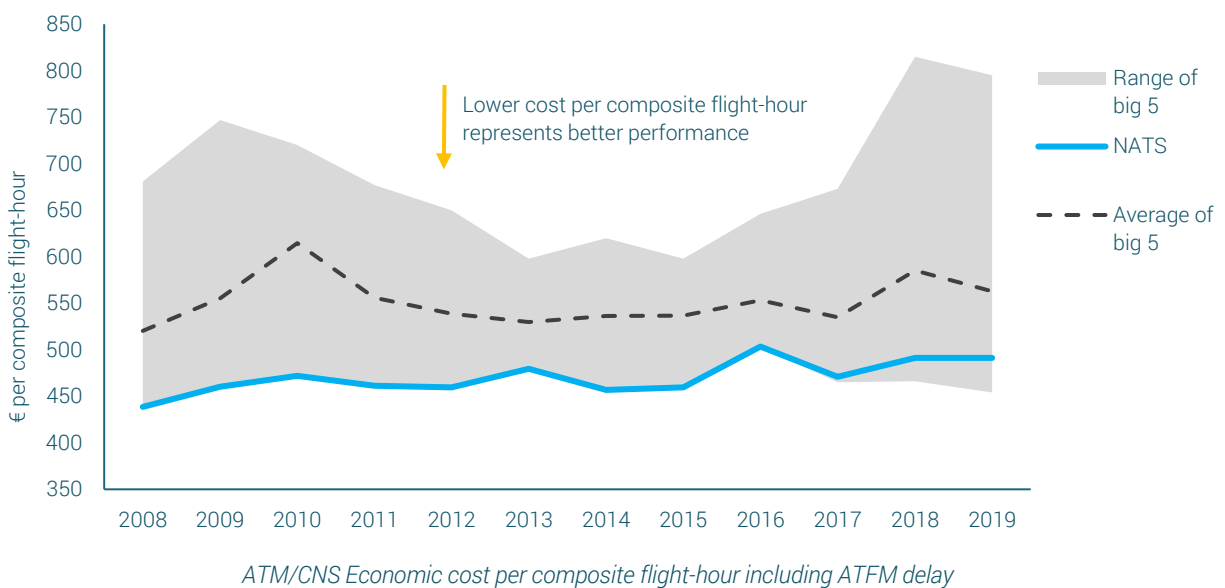
A similar performance trend is apparent in the data on en route cost effectiveness. NERL has been the lowest cost ANSP among the 'big 5' for the majority of the period, and has only in recent years moved away from best but remains better than average.



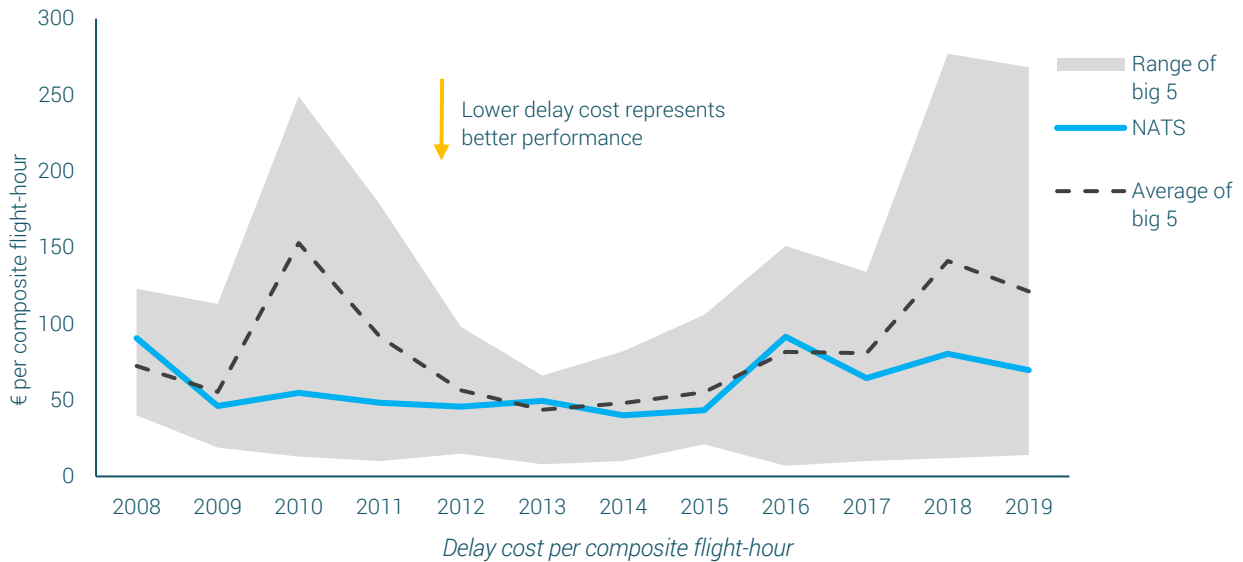
Economic cost effectiveness

Airlines bear the costs of air navigation services both through the charges they pay and the delays they experience which are attributable to ANSPs. Across the Eurocontrol area, these delays are material, representing some 22% of the total economic cost (charges plus delays) of air navigation services to airlines. Within the 'big 5', delay costs vary, from over 50% for DFS down to 20% for ENAV and ENAIRE – NERL is close to the European average at 26%.

With this more comprehensive measure of cost impact on airlines, NERL again shows leading performance for most of the period, and remains well below the 'big 5' average in the most recent years.



The cost of delay to airlines arising from ANSPs' actions is highlighted below. Apart from average performance in 2013 and 2016, NERL has shown consistently better than average delay performance (when measured in cost per composite hour) for the past decade, and has achieved declining delay costs in the period of strong traffic growth since 2016 compared to a rising trend for the other 'big 5' ANSPs.



Drivers of cost effectiveness

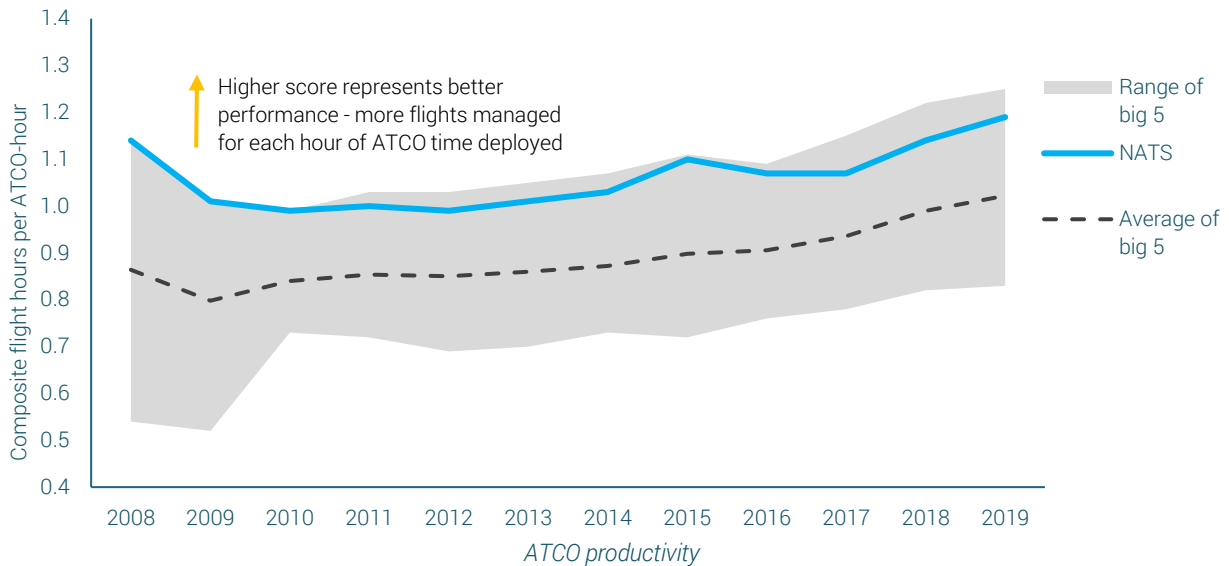
The headline indicator of financial cost effectiveness, measured as ATM/CNS costs per composite flight hour, is driven by three primary factors:

- > ATCO hour productivity: the number of composite hours' service delivered for each ATCO operational hour deployed
- > ATCO employment costs per ATCO hour: combining wage and other costs associated with each staff member, along with the hours deployed to the operations
- > Support costs per unit output

NERL's strength in delivering cost effective service, compared with its 'big 5' benchmark group, is primarily driven by its consistently excellent ATCO productivity, supported by ATCO employment costs better than the average of its peers.

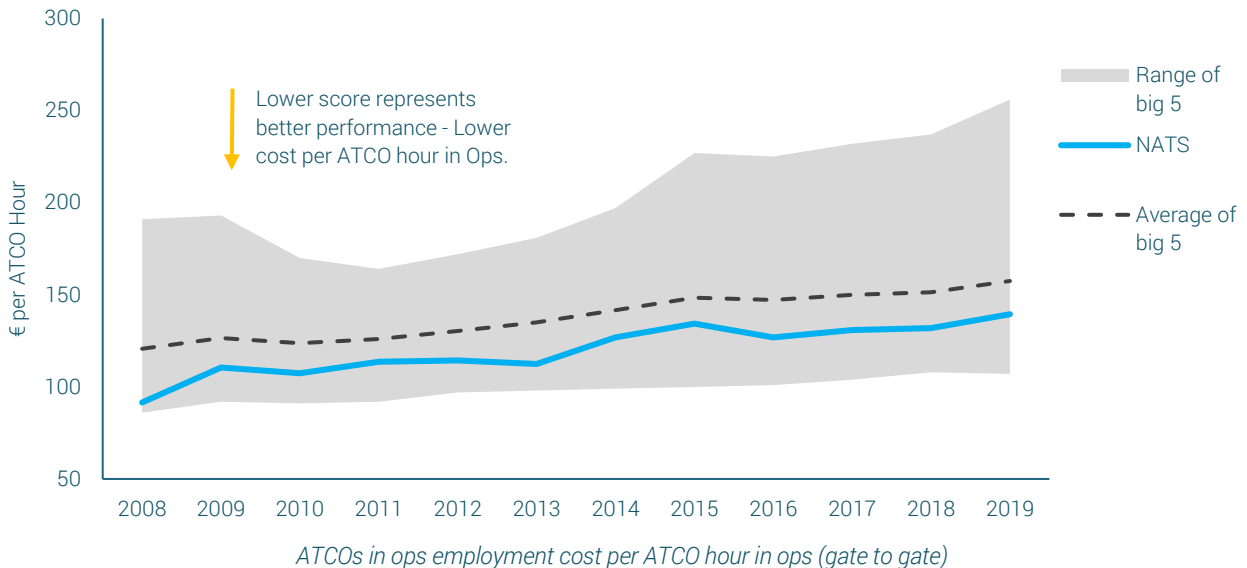
ATCO productivity

NERL's ATCO productivity has been trending upwards in the decade since 2010, when traffic started to recover from the global financial crisis of 2008-10. This was broadly matched by productivity growth among the other 'big 5' ANSPs. NERL's performance is very close to best in the group, just behind DFS, despite both ANSPs operating in more significantly more complex airspace than the other three large ANSPs.

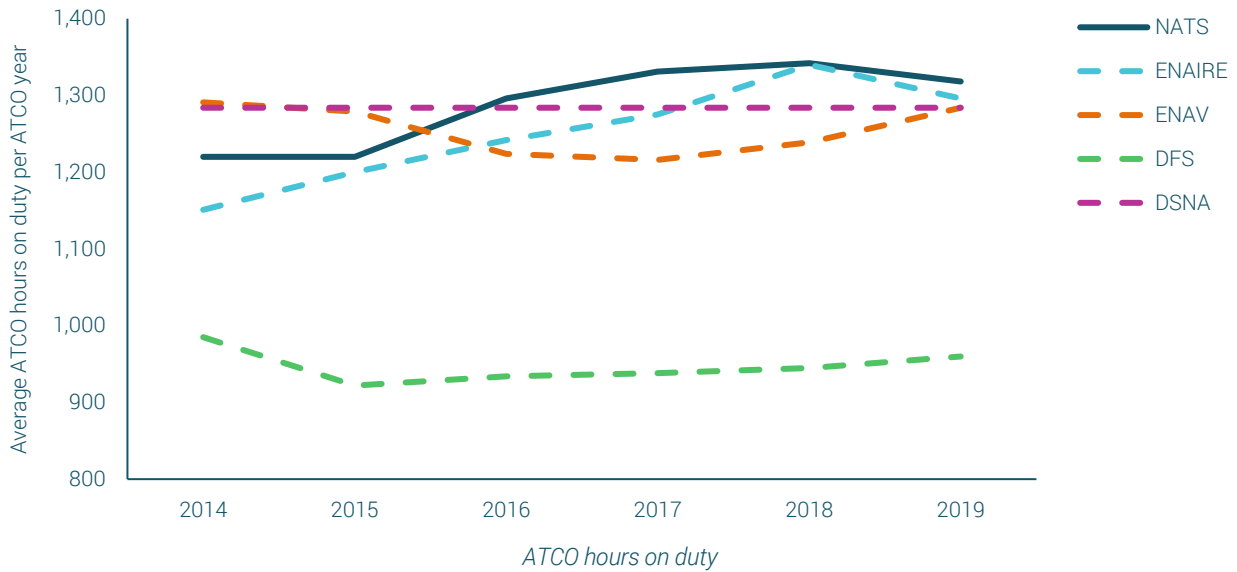


ATCO cost efficiency

The metric of ATCO (in operations) employment cost per ATCO hour in operations measures the effective cost of trained staff deployed to the operation. It balances the overall wage, pension and other costs of each ATCO with the efficiency with which staff are rostered and deployed to meet demand. NERL has been consistently better than the 'big 5' average on this measure over the past decade (apart from one year, 2015), as shown below, and is currently about twice as cost effective than the least efficient of its peers.

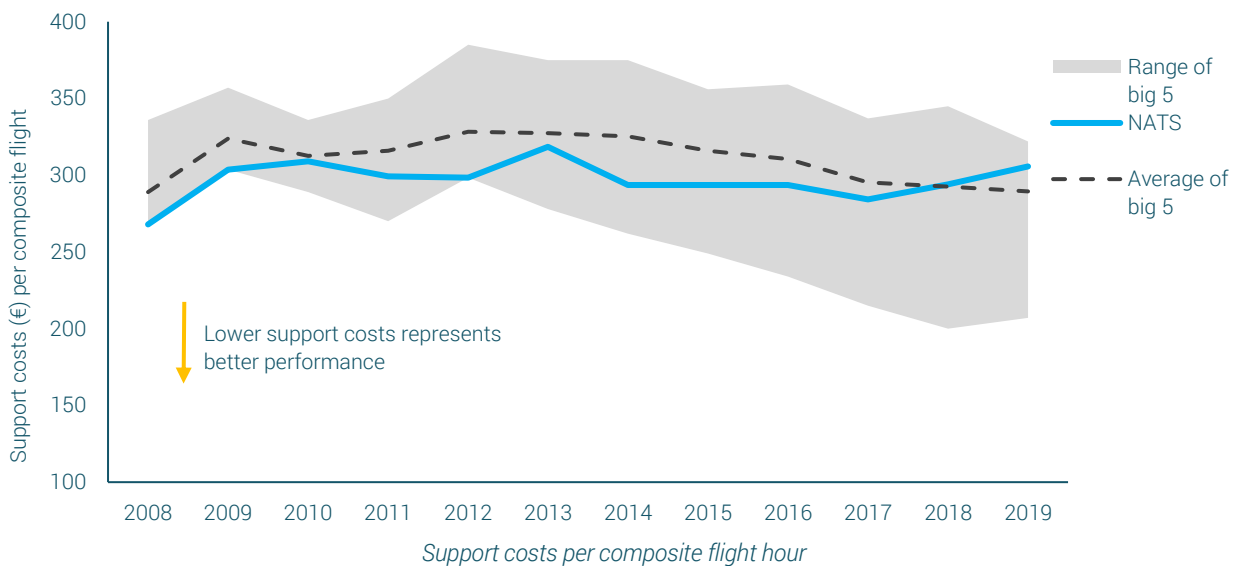


ATCO-hour productivity and employment costs per ATCO-hour combine to give ATCO employment costs per composite flight-hour. NERL has consistently outperformed its caparator group when measured against this indicator. This cost effective performance is a result of NERL's ability to deploy ATCO's into the operation in a safe and efficient manner, and by its ability to recruit and retain staff at a competitive wage rate given the UK labour market. The first of these factors is highlighted below, which shows the duty hours achieved on average for each ATCO each year. NERL performs at the top end of the 'big 5' group, in which the top 4 have largely converged in recent years on around 1,300 hours per year, with DFS an outlier at just under 1,000 hours.



Support costs

In the ACE analysis, Eurocontrol classifies all costs that are not ATCO related as support costs. The support costs per composite flight-hour are shown below. Our support unit cost has tended to be lower than the average of the 'big 5' benchmark group, apart from the most recent year. The lower range of support costs is driven by ENAIRE, which can access relatively low cost non-specialist staff in the Spanish labour market.



European ANSPs' responses to the pandemic

This section summarises analysis of the latest available data from Eurocontrol's Central Route Charges Office (CRCO) on each ANSP's cost response to the drop in demand caused by the pandemic in 2020 and 2021.

CRCO definitions

The CRCO analysis of unit rates and the Eurocontrol analysis of unit costs use slightly different definitions of the service and cost categories, as summarised in the table below.

	Unit rates (CRCO)	Unit cost (ACE)
Service	En route only (comparing terminal unit rates between States/ANSPs is difficult)	Gate-to-gate – to avoid cost allocation issues between en route and terminal, although high level unit cost figures are available for these two types of service
Entity	State level only for pre-2012; ANSP unit rates available since 2012 for States participating in EC Performance Scheme	ANSP level and (since 2012) FAB level
Cost categories	State level unit rates for pre-2012 include costs outside ANSP controls airspace planning; for post- 2012, even with ANSP unit rates available, differences remain regarding which entity bears certain costs eg safety regulation, Met costs	ANSP en route and airport ATM/CNS costs. Some costs that are included in unit rates (eg regulation, external Met costs) are excluded from the ACE analysis.
Accounting basis	UK unit rate reflects cash pension costs and regulatory depreciation	Costs on IFRS basis as per statutory accounts

CRCO definitions vs ACE definitions

Cost response to pandemic: NERL performs well against major European peers

NERL has performed well in controlling overall costs following the pandemic, compared to all European ANSPs, and particularly so when compared to 'big 5'. NERL performs better than the European median and better than all other 'big 5' ANSPs.

NERL's cost control performance has been slightly better than the only publicly-listed ANSP (ENAV), which is likely to face similar incentives from its private investors to save costs.



Total costs (reduction relative to 2019), 2020-24 average

This analysis uses the November 21 (accessed 20 December 2021) CRCO returns for European ANSPs that follow a Determined Costs regulatory system (ie EU-27, Norway, Switzerland). All figures

are in 2020 real terms. For NERL, we use the 2019 and 2020 actual costs at the total NERL level, with 2021-2024 data consistent with the NR23 Business Plan. We compare actuals and updated forecasts/plans for each ANSP with 2019 actuals.

It is important to note that:

- > We do not use CRCO returns for NERL as the estimates from 2021 onwards in this source do not reflect our NR23 business plan, unlike for the other European states where revised plans have been submitted. For consistency, instead of using NERL CRCO returns for 2019 and 2020, and then NERL’s own figures from 2021 onwards, we use NERL’s figures throughout the analysis
- > CRCO returns provide pension costs only for RP3 (from 2020), and not for RP2 (up to 2019), which means that to estimate staff costs exclusive of pensions for 2019, we need to assume a level of pension spending that year. We assume that for each ANSP, pension costs as a proportion of total staff costs are the same in 2019 as in 2020
- > From 2020 onwards, we use the pension costs as submitted by the ANSPs. For NERL we include all types of pension costs (ie Defined Benefit, Defined Contribution and Pension Cash Alternative). The total cost analysis includes pension costs, while the staff costs and Opex analysis exclude pension costs

Focusing analysis on the ‘big 5’ ANSPs and different components of total cost:

- > At a headline level, NERL’s total cost reductions versus 2019 are much larger than other ‘big 5’, and it has relatively slow return of costs in 2023 and 2024
- > NERL has best opex performance, due to its voluntary redundancy programme and other cost containment measures which are sustained across the period
- > NERL’s non-staff cost-cutting measures are substantial compared to its peers, and are also sustained across the entire period

