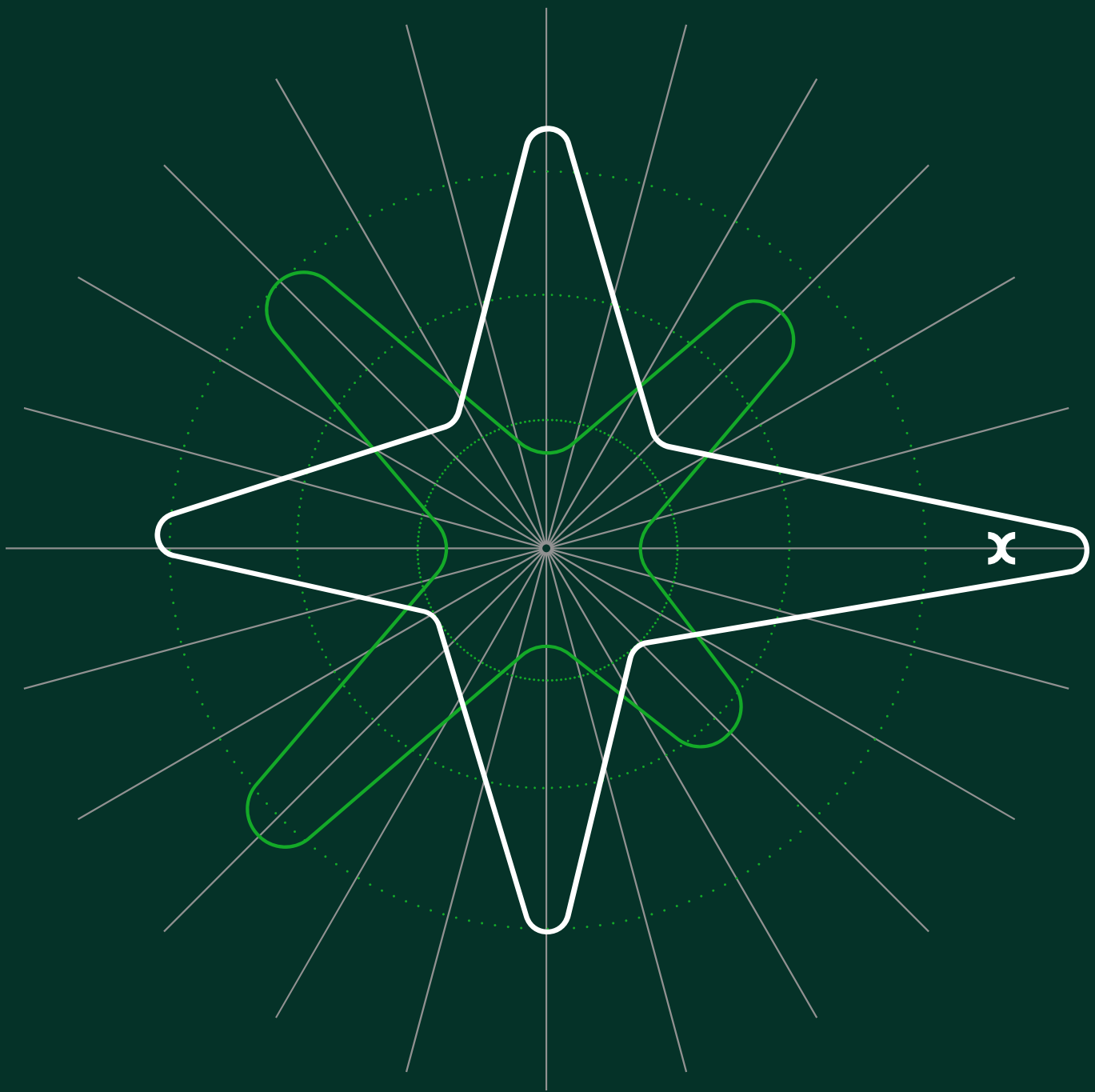
Evaluation of the reinstatement of EGNOS

1 September 2026



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Contents

Executive summary 1

1 Introduction 3

2 Methodology 6
2.2 Benefits 6
2.3 Costs 14
2.4 Sensitivities 14
2.5 Scope and limitations 15

3 Results 16

4 Conclusions 18

Figures and Tables

Executive summary

The UK's participation in the European Geostationary Navigation Overlay Service (EGNOS) ended as of 25 June 2021 as a result of Brexit. This led to a withdrawal of legal indemnity for the use of EGNOS, such that UK airspace users are no longer able to benefit from improved ability to make approaches in fog, low cloud, or low visibility. Passengers at airports—which tend to be smaller regional airports, and/or those serving remote parts of the UK—that lack the financial means of investing in the ground-based Instrument Landing System (ILS) alternative now suffer flight delays and cancellations as a result. One airport expects that 25% of flights that would otherwise have used EGNOS are now cancelled, diverted to another airport, or substantially delayed.

This report compares the annual costs and benefits of reintroducing access to EGNOS. We have drawn on the Department for Transport's Analysis Guidance (TAG), where possible, to provide a framework and some key assumptions for this report, but the benefits we discuss here lie somewhat outside TAG's usual scope. We have, therefore, gathered a range of evidence to support quantification where appropriate, as a means of illustrating the effects that lack of access to EGNOS is having on those relying on air to provide essential services.

However, the quantification does not cover, for example, the frustration and difficulties involved in missing an important hospital appointment due to a flight that would have taken the individual to the mainland for treatment being cancelled. Our analysis suggests this happens around 2,500 times per year since loss of access to EGNOS.

Returning to the quantification, the main cost of reintroducing EGNOS is associated with access to the programme itself. While this would need to be renegotiated, we have assumed it to be similar to the previous cost. While a substantial set of procedures are expected, such that reintroducing access would take several years, these would largely be provided by existing APDO resources under CAA regulation.

We capture benefits according to four categories: time saved by passengers (reduced delays, cancellations, and diversions to alternative airports); cost savings to airlines due to less disruption; cost savings to the NHS from fewer lost appointments; and reduced safety risk.

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Our analysis shows that reinstating EGNOS would deliver £2.63 of benefit for every £1 spent, representing a clear, high-value return in the case of reinstatement.

Benefits	**£m**
Passenger time savings	7.87
Cost savings for airlines	40.98
Health benefits and NHS cost savings	19.81
Reduced risk of Controlled Flight Into Terrain	4.56
Total annual benefits	73.22
Costs	
Total annual costs	27.84
Benefit-cost ratio	**2.63**

Source: Oxera analysis.

Across all sensitivities tested, the benefit-cost ratio remains above 1, meaning that the estimated benefits of reinstating EGNOS continue to exceed the estimated costs in every scenario considered. This indicates that the finding that EGNOS delivers positive net value is robust to the range of assumptions tested.

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1 Introduction

1.1 Background

EGNOS is a Satellite-based Augmentation System (SBAS) that improves the precision and integrity of global positioning systems (GPS).[1] Its Safety-of-Life (SoL) service underpins safety-critical applications across a range of sectors, most notably aviation, where it enables Localiser Performance with Vertical Guidance (LPV) approach procedures. These procedures provide pilots with precise three-dimensional guidance to the runway, significantly lowering the 'decision height' at which a missed approach must be initiated and thereby reducing the frequency of delays, diversions, and cancellations in poor weather.

The UK's participation in the EGNOS Programme ended on 25 June 2021 as a consequence of the UK's departure from the EU.[2] This led to a withdrawal of legal indemnity for the use of EGNOS, meaning that UK airspace users are no longer able to use the EGNOS SoL service even though the signal itself remains technically accessible. The loss of EGNOS has had the greatest impact on smaller regional airports that lack the financial means to invest in the ground-based alternative, the Instrument Landing System (ILS).

At the time of losing EGNOS access, a UK alternative SBAS was understood to be in the early stages of development. Five years on, no temporary reinstatement of EGNOS has been secured and the UK SBAS alternative is not expected to arrive imminently. The UK thus remains the only G20 nation without usable access to a precision satellite-based navigation system, while comparable jurisdictions continue to develop and expand their own SBAS capabilities.

1.2 Purpose and scope of this report

In June 2022, Oxera was commissioned by the All Party Parliamentary General Aviation Group to assess the business case for a temporary reinstatement of EGNOS. That report concluded that, based on aviation-sector impacts alone and assessed conservatively, EGNOS would deliver high value for money, with a benefit-cost ratio of 2.6: that is, for every £1

[1] ESUPA (2026) 'EGNOS', 26 April, https://www.euspa.europa.eu/eu-space-programme/egnos
[2] House of Lords Library (2025), 'Reinstating the UK's membership of the European Geostationary Navigation Overlay Service (EGNOS)', 05 June, https://lordslibrary.parliament.uk/reinstating-the-uks-membership-of-the-european-geostationary-navigation-overlay-service-egnos/

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of annual government expenditure, £2.60 of benefit would be delivered to the UK public. Annual monetised net benefits were estimated at approximately £46 million, comprising passenger time savings, airline cost savings, reduced risk of Controlled Flight into Terrain (CFIT), health benefits, and NHS cost savings from fewer missed medical appointments. A range of further non-monetised benefits were also identified, including improved resilience for airports with ILS, the restoration of competitive flight training programmes, and enhanced reliability of helicopter emergency medical services and search and rescue operations.

The 2022 report did not assess the value for money of a UK SBAS alternative, focusing instead on whether temporarily reinstating EGNOS would constitute a sound use of public funds while a domestic alternative is developed. The same scope applies to this updated report. The case for a UK-developed SBAS involves a range of policy, technical, and commercial uncertainties that lie beyond the current evidence base and are therefore not addressed here.

This report's purpose is to reassess the evidence five years after the loss of EGNOS access, in light of new data and a changed operating environment, and to re-evaluate the case for reinstating EGNOS. The fundamental picture established in 2022 has not changed: smaller airports that invested in EGNOS infrastructure prior to June 2021 continue to operate without any high-precision navigation alternative, and the communities they serve continue to bear the consequences in the form of delays, cancellations, and compromised access to essential services. However, five years of further operational experience now provides a richer and more robust evidence base on which to update the analysis.

In particular, we aim to incorporate new Loganair data that details historical flight information across Loganair operations as well as new data on weather-related disruption at Highlands and Islands, Land's End airports. Findings from this data reinforce the conclusion that weather-related vulnerability at airports remains material. This report also incorporates updated NHS appointment data and revised passenger traffic figures where available.

We note that our analysis is primarily concerned with reductions in delays, cancellations and diversions, which are not necessarily captured by standard transport appraisal guidance. The impacts on passengers from the loss of EGNOS, and the benefits its reinstatement would bring, are therefore difficult to capture fully within a TAG-based framework.

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Given these challenges, we present a series of sensitivities around our central estimate.

1.3 Structure

The remainder of this report is structured as follows.

- Section 2 sets out the updated methodology used to carry out a monetised assessment of the costs and benefits of EGNOS, including the refinements made since 2022.
- Section 3 details the updated results.
- Section 4 presents our overarching conclusions.

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2 Methodology

2.1 Overview of approach

The analysis monetises four categories of benefit: passenger time savings from avoided delays, diversions, and cancellations; cost savings to airlines from avoided disruption; health benefits and NHS cost savings from fewer missed medical appointments; and reduced risk of controlled flight into terrain (CFIT). As in 2022, these are assessed on an annual basis for airports that have previously invested in EGNOS approaches, but do not have ILS available as an alternative. This approach broadly mirrors the analysis undertaken in 2022 but with updates for more recent data where available.

The analysis presented here is estimating a counterfactual: rather than observing and quantifying benefits from direct operational data, we are estimating the benefits that would have arisen had EGNOS been reinstated. As we are dealing primarily with delays and cancellations, our analysis therefore draws on a distribution of possible outcomes, including tail events such as extended delays and outright cancellations. The disutility that passengers associate with these more severe outcomes may not be captured effectively in traditional TAG metrics, and while we have sought to use the best evidence available, it is our judgement that estimates of impacts on passengers in particular could be under-estimated.

We provide an explanation of each element of the methodology below.

2.2 Benefits

2.2.1 Passenger time savings

The monetised analysis focuses on airports that invested in EGNOS approaches prior to 2021, but do not have a functioning ILS as an alternative precision approach. The airport list follows that used in the 2022 report: Barra, Campbeltown, Dundee, Islay, Kirkwall, Land's End, Sumburgh, Tiree, and Wick. Sumburgh is treated separately, as its main runway has ILS capability, whilst the cross runway does not. We therefore apply a partial benefit assumption for Sumburgh.[3]

[3] Vatsim UK (2026), 'GEN Sumburgh (EGPB)', https://docs.vatsim.uk/Aerodrome/EGPB%20%28Sumburgh%29/2-GEN/#altimeter-setting-procedures

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Total passenger volumes at these airports in 2025 stood at approximately 619,000, based on CAA data. In 2022, the central estimate of the proportion of passengers who would benefit from EGNOS was 22%, based on Land's End Airport's record of EGNOS usage during 2020, the only full year in which the airport had operated with EGNOS fully enabled. That estimate represented flights which, in the airport's judgement, would not have been possible without EGNOS.

Loganair has provided data on the number of diversions on routes serving Benbecula, Barra, Campbeltown, Islay, Sumburgh, and Tiree over the twelve months from November 2024 to October 2025. Over this period, 71 diversions were recorded out of a total of 5,446 flights on those routes, implying a diversion rate of approximately 0.5%. Loganair estimates that 37% of those diversions could have been avoided had EGNOS been available, consistent with the proportion of diversions attributable to weather-related precision approach constraints.

We have undertaken a separate analysis of scheduled and cancelled air movements at the same airports. Using Loganair data for 2025, we estimate that approximately 9.5% of all scheduled flights were subject to delays or cancellations attributable to weather-related causes. We apply an assumption from a previous EGNOS evaluation study by LEK, which finds that 48.5% of delays and cancellations could have been avoided with EGNOS, the proportion of flights that would have been enabled by EGNOS is estimated at approximately 4.6%.[4] Combining the Loganair diversion rate with this delay and cancellation rate, we produce an estimate that approximately 5.1% of total scheduled passenger journeys at the affected airports would benefit from the reinstatement of EGNOS in terms of avoided disruption.

We have also analysed METAR weather records for Land's End in May 2026, which indicate that approximately 9% of Skybus flights faced severe weather conditions likely to cause disruption, and a further 35% faced moderate conditions with a meaningful risk of delay. The worst-affected periods were 22-23 May, when persistent fog extended through the morning and afternoon, and 20-21 May, when dense early-morning fog lifted only by mid-morning. These findings indicate that weather-related vulnerability at these airports remains material and ongoing, and there can be periods when the proportion of flights disrupted can be considerably higher than the averages in the Loganair data.

[4] L.E.K (2009), 'EGNOS Cost Benefit Analysis in Aviation', 27th July

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Our estimation of the percentage of flights that faced delays, cancellations and diversions that would otherwise not have done if EGNOS were in place is based on the midpoint between the Loganair data and the 2022 report which yields a value of 13.6%. This is lower than the 22% figure used in 2022, and reflects both the change in data source and the difference in methodology: the 2020 Land's End data captured actual EGNOS usage, whereas the updated estimate is drawn from a broader sample and approximates a counterfactual (i.e. an assumption about hypothetical EGNOS usage). We have also received data from HIAL airports. Among those that responded to the question "How many flights arriving at your airport were cancelled, diverted to an alternate, or significantly delayed due to weather conditions that an EGNOS/LPV approach would have been sufficient to overcome for each year since 2021?)?', a range of 5–25% was provided. This corroborates our 13.6% estimate, given its position near the middle of the range, but also demonstrates that the usefulness of EGNOS varies depending on the airport in question.

We also consider that the METAR data from the Skybus schedule reinforces the use of 13.6% as a central estimate, given that adverse weather can be a frequent cause of flight disruption. We treat the 22.1% figure as an upper-bound sensitivity and 5.1% as a lower bound, while 13.6% is carried forward as the central case. This reflects the range of potential disruptions that EGNOS could potential alleviate. Land's End Airport is a singular case study, and its data may reflect a unique local situation, while the Loganair data, though broader in airport scope, is subject to concerns around the accuracy of assumptions regarding potential EGNOS usage (which could be considerably higher) and economies of scale. Loganair operates a much larger and geographically diverse network than Skybus, affording greater operational resilience: aircraft can be redeployed, schedules are more flexibly managed, and not all routes share the same weather exposure profile. As a result, the estimated disruption rate for Loganair flights is likely to be lower than that implied by the Land's End data alone.

The updated central estimate is applied to 2025 passenger volumes to give approximately 67,000 passengers affected per year that would otherwise have not been if EGNOS were in place.

2.2.2 Value of time

The 2022 report applied a passenger value of time of £23.61 per hour, drawn from a survey of academic and regulatory literature on regional

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aviation passenger values.[5] We have decided to retain this figure for our analysis, while uplifting for inflation to give a new VoT of £29.3 per hour (CPI 2025 prices). We have also looked into the TAG values updated to 2025 prices, applying the average value of non-working time by journey purpose.[6] This gives a central estimate of £11.98 per hour in 2025 prices, which is below the 2022 figure, but does not reflect the composition of passengers on the routes in question. Nevertheless, we use this as a lower bound sensitivity.

2.2.3 Duration of disruption

The 2022 report assumed that passengers suffered four hours of lost time in the case of both delays and cancellations, based on CAA disruption survey data from 2014.[7] The same assumption is retained in the 2026 analysis as the central estimate, given that no more recent comparable survey data is available. We also test a sensitivity using 13 hours of lost time for cancellations (the upper estimate from CAA data). It is naturally difficult to approximate a duration of disruption given the distribution of outcomes that can occur especially considering flights into and out of remote airports.

2.2.4 Airline cost savings

When a flight is delayed, diverted, or cancelled, airlines incur direct operating costs that would have been avoided had the flight operated as scheduled. These include fuel, crew, maintenance, and passenger care costs, as well as reactionary delays that have impacts through the network. The 2022 report estimated airline cost savings using cost reference values for an ATR42-300 aircraft, yielding a cost of £1,429 per hour of delay excluding reactionary effects. The 2026 analysis updates this using fleet-level operating cost data drawn from regional operating data and industry consultation, applying an estimated direct operating cost of £1,948 per hour.

The number of affected flights is derived from the estimated number of affected passengers (approximately 16,400) divided by the average load factor of 16.6 passengers per aircraft, consistent with the CAA air movements data for these airports. This gives an estimated 991 flights per year that would no longer face disruption as a result of the

[5] Based on a variety of aviation studies see Transport & Environment (2022), 'Assessment of carbon leakage potential for European Aviation, January, https://uploads.transportenvironment.org/production/files/TandE_Assessment_of_carbon_leakage_Jan_2022.pdf for detail on studies.
[6] Department for Transport (2026), 'Transport Analysis Guidance', https://www.gov.uk/guidance/transport-analysis-guidance
[7] CAA (2015), 'Passenger experiences during flight disruption: Consumer research report ', January, https://www.caa.co.uk/publication/download/15054

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reinstatement of EGNOS, with total airline cost savings estimated at approximately £7.7 million per year.

We assume 0% cost pass-through to fares, such that the estimated benefit from reintroducing EGNOS is retained exclusively as producer surplus to airlines. We do not consider any consumer (passenger) surplus arising from potential fare reductions linked to airline cost savings. As a result, the airline cost saving estimated in this section and the passenger time saving estimated in Section 3.2 are treated as separate and additive benefits. The former reflects a reduction in the airline's direct operating costs; the latter reflects a reduction in passenger waiting and disruption time, which is not compensated through the fare. As no assumption is made about the pass-through of airline cost savings into lower fares, the two estimates do not overlap, and no adjustment for double-counting is required.

2.2.5 Health benefits and NHS cost savings

The 2022 report estimated the health benefit of reinstating EGNOS using data from Land's End Airport on the number of NHS Transport bookings carried by Skybus. For the 2026 update, Loganair has provided a comparable dataset covering NHS-booked passenger journeys on its routes serving the affected Scottish island airports from 2022 to 2025.

Over the period from 2022 to 2025, Loganair carried a total of approximately 56,000 NHS-booked passenger journeys across these routes. Annual volumes have been broadly stable at around 13,000-15,000 journeys per year, with 2025 data showing approximately 13,600 NHS journeys. We focus on routes from the data with non-ILS capabilities, which include Barra to Glasgow, Islay to Glasgow, and Tiree to Glasgow. A passenger journey corresponds to one leg of a return trip to a medical appointment; a complete appointment (one return trip) therefore corresponds to two booked journeys. Accordingly, the 2025 NHS data implies that approximately 6,800 medical appointments were facilitated by air travel on these routes during that year. Of these, we focus exclusively on flights to and from non-ILS-capable airports, which account for approximately 2,076 appointments.

Applying the same rates of delay, diversion, and cancellation as those used in the passenger time saving analysis, we find that a further 141 appointments from this cohort of 1,038[8] could have been enabled had

[8] We have made an additional assumption that only 50% of NHS appointments affected by delays, cancellations or diversions are treated as 'relevant' for the purposes of our QALY analysis, in the sense that a missed appointment could plausibly result in a QALY loss. This assumption is applied to avoid overstating the health benefits attributable to this channel. Not all NHS appointments carry

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EGNOS been in place. To extrapolate this estimate to the broader population, we calculate the proportion of additional appointments relative to total passengers on the selected routes, and then apply this proportion to total passengers across all airports under consideration. This yields an approximation of the additional number of NHS appointments that could be facilitated were EGNOS to be reinstated, or 2,468.

The value placed on a reduction in waiting time is based on research by the National Institute for Health and Care Research (NIHR), which finds that patients value a one-month reduction in waiting times at 0.68 quality-adjusted life years (QALYs). Applying a QALY value of £20,000 (the threshold used in the National Institute for Health and Care Excellence, NICE, cost-effectiveness assessments) implies a value of £13,600 per patient per month of waiting time avoided.[9] We apply a weighted average wait time, based on the probabilities of having an appointment within two weeks and within a month, to derive the weighted average QALYs lost due to missed appointments, which we estimate at approximately 7,950.[10] For our estimated number of additional appointments, this therefore represents a monetised cost of approximately £19.67m. We further assume that each appointment carries its own direct cost to the NHS. A variety of estimates exist for the cost of a GP appointment ranging from £37 per appointment to just below £200, we apply the lower bound to find an additional cost of missed appointments of approximately £183,000.[11] This yields a combined NHS cost saving were EGNOS to be reinstated, of approximately £19.81m per year.

This estimate is higher than the £16.3 million figure in the 2022 report, and should be considered more representative, drawing on direct evidence from a broader set of routes.

the same clinical significance. Appointments vary considerably in severity and urgency, ranging from routine reviews and monitoring visits, through to time-sensitive consultations linked to acute conditions, urgent referrals or ongoing treatment of serious illness. If an appointment is missed, delayed or diverted, the health consequence will depend heavily on which of these categories it falls into. A delay to a low-acuity or an administrative appointment is unlikely to have a material impact on health outcomes, whereas a delay to an urgent or time-critical appointment could plausibly result in a measurable loss of health-related quality of life. We consider 50% a reasonable, judgement-based mid-point in the absence of any evidence to anchor against and view this as an appropriately conservative assumption given its resulting impact on the benefit estimate.

[9] NICE (2025), 'Changes to NICE's cost-effectiveness thresholds confirmed', December, https://www.nice.org.uk/news/articles/changes-to-nice-s-cost-effectiveness-thresholds-confirmed

[10] https://njl-admin.nihr.ac.uk/document/download/2026834

[11] The King's Fund (2026), 'Key facts and figures about the NHS', 11 August, https://www.kingsfund.org.uk/insight-and-analysis/data-and-charts/key-facts-figures-nhs

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2.2.6 Reduced risk of controlled flight into terrain

The risk of CFIT is reduced substantially when precision vertical guidance is available to pilots. ICAO studies have shown that the introduction of approach procedures with vertical guidance, such as the LPV approaches enabled by EGNOS, reduces the risk of CFIT by a factor of eight relative to non-precision approaches.[12] The CAA has similarly identified CFIT as one of its 'Significant Seven' safety risks and has recommended the introduction of EGNOS-enabled precision approaches as part of its safety strategy.[13]

The CFIT benefit is estimated following the approach set out in the 2022 report and the underlying 2009 LEK/European Commission study.[14] The EU-wide value of CFIT risk reduction in 2009 prices was estimated at EUR 21.8 million at 2016 traffic levels. This is uprated to reflect 2025 UK conditions as follows.

- Traffic growth from 2016 to 2025 is accounted for using a growth index consistent with traffic data.
- The 2009 EU value is adjusted to 2025 CPI prices
- The EUR/GBP exchange rate is applied using the average sterling exchange rate for 2025
- UK landings as a proportion of EU landings are held at 16% based on CAA and wider European data.

The resulting CFIT benefit for the UK in 2025 prices is estimated at approximately £4.56 million per year, consistent with the range produced in the 2022 analysis after accounting for price level changes.

2.2.7 Benefits to Airports

The analysis described above monetises the benefits that accrue to passengers, airlines, the NHS and from reductions in CFIT risk. It however does not place any value on the cost that the loss of EGNOS imposes directly on the airports themselves. This was a gap identified from the 2022 report, and we are unfortunately unable to incorporate a quantitative assessment due to the limitations in data. However, we have been provided with airport-level data from HIAL airports covering 11 airports from 2024. We are therefore able to provide a qualitative

[12] International Civil Aviation Organization (2007), 'Assembly – 37th Session. Technical Commission. Performance-based navigation – the implementation challenge', https://www.icao.int/sites/default/files/Meetings/AMC/ArchivedAssembly/en/A37/Working%20Papers/wp-131-160/wp148_en.pdf

[13] Civil Aviation Authority (2011), 'CAA "Significant Seven" Task Force Reports', https://www.caa.co.uk/data-and-publications/publications/documents/content/caa-paper-201103/

[14] L.E.K (2009), 'EGNOS Cost Benefit Analysis in Aviation', 27th July

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view of the potential benefits that could accrue to airports, based on the data we have received. This will provide some insight into the potential benefits to airports, though we do not include it in the estimated BCR.

There are tangible operating burdens associated with the absence of EGNOS. Where ground-based ILS have been installed, they carry material and recurring costs, with annual maintenance running to between roughly £10,000 and £50,000 per system, plus hourly operating costs of several hundred pounds to around £2,000. ILS continue to experience meaningful downtime of up to 20 hours per year even once installed. For smaller airports, this level of annual expenditure is likely not feasible, and ILS therefore remains an unviable option. Airports without this infrastructure, or with systems still under development years after EGNOS was withdrawn, report average delay impacts per disruption event ranging from under an hour to around four hours, with diversions and cancellations frequently lasting longer, in some cases extending to a full working day's disruption in the most severe weather.

Airports were also asked to estimate, for each of the three years prior to EGNOS's withdrawal in June 2021, the percentage of occasions on which pilots chose to fly an EGNOS-supported approach rather than using another available landing aid (the approach's system minima corresponded to a Minimum Descent Height, or MDH, of 200 feet). Reported usage varied markedly across the network with larger airports, which typically had an operational alternative such as an ILS in place, reporting very limited EGNOS usage over this period, whereas smaller airports without such an alternative report consistently higher usage, with at least one airport reporting 100% usage in each of the three years. This pattern is unsurprising given the breadth of HIAL's airport portfolio, which spans larger, better-equipped airports such as Inverness through to small island airports such as Barra, each with different operational capability, and different weather exposure.

This evidence also lends support to several of the modelling assumptions already built into the report's methodology. The clustering of reported delay impacts around two to four hours, with a small number of airports reporting disruption extending towards a full working day in the most severe cases, is consistent with the report's retention of a four-hour central assumption for lost passenger time per disrupted journey, and its use of a 13-hour upper-bound sensitivity drawn from CAA disruption survey data. This is further reinforced by the data received, which consistently report longer disruption durations for diversions and cancellations than for delays alone, lending additional weight to our use of a higher upper-bound sensitivity. It similarly

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supports our decision to treat the proportion of flights that would be enabled by a reinstated EGNOS as the midpoint of between the Land's End data and the new Loganair data given the variety and range seen in the airport data for EGNOS usage pre-2021.

Were EGNOS to be reinstated, the resulting benefits would also flow directly to airports themselves, through a reduced need to fund and maintain costly ground-based infrastructure, a lower ongoing operational burden associated with managing disruption, and a stronger ability to sustain essential and emergency-service connectivity for the communities they serve.

2.3 Costs

The cost of UK participation in EGNOS is taken from the Parliamentary answer provided by the Department for Business, Energy and Industrial Strategy, which cited a range of EUR 30–35 million per year.[15] We convert this to sterling at the average 2025 exchange rate and take the mid-point which suggests a per annum figure of £27.84m. No new evidence has emerged to suggest that this range has changed materially.[16] We understand based on discussions with industry experts that the incremental costs for implementation at each individual airport remains negligible. While it is likely to be several years before Required Navigation Performance (RNP) procedures have been updated to incorporate EGNOS again, these can start to be planned in by airports that would benefit from its reintroduction, once there has been a clear commitment to regaining access.

2.4 Sensitivities

A range of sensitivity analysis is carried out to test the robustness of the central results. These include

- a lower-bound estimate of the value of time, using the DfT's TAG market price value of £11.98 (uprated to 2025 prices)[17], combined with a low disruption rate of 5.1% based on Loganair data;

[15] UK Parliament (2022), 'EGNOS: Finance Question for Department for Business, Energy and Industrial Strategy', 13 January, https://questions-statements.parliament.uk/written-questions/detail/2022-01-13/HL5379

[16] We have not uplifted this cost value for inflation, as 2025 parliamentary proceedings indicate no new developments that would warrant a revision: House of Lords Library (2025), 'Reinstating the UK's membership of the European Geostationary Navigation Overlay Service (EGNOS)', 05 June, https://lordslibrary.parliament.uk/reinstating-the-uks-membership-of-the-european-geostationary-navigation-overlay-service-egnos/

[17] We take market price values for non-working time across 'commuting' and 'other' from DfT's TAG

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- the central value of time estimate combined with the low disruption rate (5.1%);
- the previous report's disruption rate (22%) combined with a low value of time (£11.98);
- the previous report's disruption rate (22%) combined with the central value of time estimate; and
- the central estimate varied using a higher disruption duration of 13 hours.

These sensitivities are designed to capture the potential for both under- and overestimation of the central benefit estimate. They are presented alongside the central results in Section 3 and are used to establish the range of the benefit-cost ratio. Unsurprisingly, the proportion of disrupted flights has the greatest impact on the overall results.

2.5 Scope and limitations

The monetised assessment is intentionally conservative in several respects. We have excluded a number of additional benefits that are likely material, but where there are data limitations. We have not assessed the costs that airports face as a result of the lack of EGNOS, given that the data provided is rather patchy (despite best efforts on behalf of those responsible). In addition, we recognise that EGNOS has use cases beyond aviation, which we have not accounted for within this report, owing to data limitations and the lack of clarity over the impact EGNOS would have in these areas. These potential benefit areas include the following:

- Helicopter emergency services;
- Agriculture (a cheaper solution for precision agriculture);
- Flight training (the impact on the skills of new pilots, and the cost of travelling to the continent for relevant training);
- Maritime use (harbour approach);
- Applications for individual handsets and mobile phones (location-based services);
- Road transport;
- Rail transport;
- Civil protection and goods transportation;
- Timing and synchronisation; and
- Mapping and surveying.

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3 Results

3.1 Central estimate

This section presents the results of our cost-benefit analysis and tests the sensitivity of those results by varying some of the assumptions explained in section 3.

Our monetised assessment demonstrates that the case for reinstating EGNOS is supported across a wide range of assumptions. The central estimates puts the annual monetised benefits at approximately £73.22, against an annual cost of approximately £27.84m, with an implied benefit-cost ratio of £2.63 for every £1 spent. This breaks down as follows across the benefit categories:

Table 3.1 Central estimate benefit–cost ratio

Benefits	**£m**
Passenger time savings	7.87
Savings for airlines	40.98
Health benefits and NHS cost savings	19.81
Reduced risk of CFIT	4.56
Total annual benefits	73.22
Costs	
Total annual costs	27.84
Benefit-cost ratio	**2.63**

Source: Oxera analysis.

3.2 Sensitivities

We have applied a range of sensitivity tests as a robustness check against key assumptions applied to produce the central estimate. The table below presents the BCRs under each sensitivity, and demonstrates that the benefits of EGNOS reintroduction continue to exceed the costs.

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Table 3.2 Sensitivities

Sensitivity	BCR
Central estimate	2.63
Low value of time, low disruption rate (Loganair data estimate of 5.1%)	1.03
Central VoT, low disruption rate (5.1%)	1.09
High disruption estimate, low VoT	3.89
High disruption rate, high VoT	4.17
Extended disruption duration (13 hours)	6.58

Source: Oxera analysis.

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4 Conclusions

A central BCR of 2.63 suggests that the reinstatement of EGNOS would deliver considerable benefits. The updated BCR is marginally higher than the 2.6 finding of the 2022 report, and the strength of the case for reinstating EGNOS remains materially unchanged five years on. This stability in the headline result is notable given that several of the underlying inputs have been substantively revised: the analysis now draws on a broader, multi-route dataset from Loganair covering its network, rather than extrapolating from Land's End Airport alone; passenger values of time now reflect the Department for Transport's TAG rather than the academic literature survey used in 2022; and airline cost savings are based on current fleet-level operating cost data rather than 2015 reference values.

As in 2022, this assessment should be regarded as a conservative estimate of the true value-for-money case for reinstating EGNOS. It excludes a number of additional benefit categories that are likely to be material but cannot currently be monetised owing to data limitations, including airport-level disruption costs, helicopter emergency medical services, and flight training—let alone agriculture and maritime applications. Were these benefits captured, the true benefit-cost ratio would be expected to exceed the 2.63 central estimate reported here, unless there are material additional costs associated with using renewed EGNOS access in those sectors.

Five years after the loss of EGNOS access, and with a newly updated evidence base, the fundamental conclusion of the 2022 report is reaffirmed: a temporary reinstatement of EGNOS would deliver high value for money to the UK public. With a benefit-cost ratio of 2.63, driven by reduced airline disruption costs, avoided passenger delay, improved flight safety through reduced CFIT risk, and improved patient access to NHS care, the economic case for reinstatement remains robust. With a UK alternative system appearing unlikely to be progressing or expected for many years, the case for reinstating EGNOS remains solid.

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