



PA CONSULTING

REVIEW OF CEPA/ TAYLOR AIREY REVIEW OF H7 OPEX AND COMMERCIAL REVENUES

15 DECEMBER 2021



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Sensitive items and figures have been redacted in this report and replaced with →.

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1. Executive Summary

Background

The CAA sought an independent view of Heathrow Airport Limited's (HAL) Opex and Commercial Revenue projections in its June 2021 Revised Business Plan – Update 1 (RBP) from its jointly appointed advisors CEPA and Taylor Airey (CEPA / TA). The output of this review is within a report dated 13/10/2021, (CAP2266A) (referred to in this document as the CEPA / TA report) and has been used as a basis for informing the CAA's H7 Initial Proposals as contained in its summary document on Economic Regulation of Heathrow Airport Limited: Interim Proposal (CAP2265A) and supporting documents.

PA Nyras (PA) was previously engaged by the London Heathrow Airports Committee (LACC) to support the airline community during the H7 Constructive Engagement (CE) process with HAL during Q3 2020. Following the CE process, PA developed a paper that set out an independent forecast along with fundamental concerns with HAL's proposed Opex forecasting methodology, predominately that it does not adequately capture known Opex improvement initiatives or the full extent of improvements arising from the significant capital programme.

Our Brief

PA Consulting (PA) was asked by the airline community as represented by LACC to review the CEPA / TA report and provide its comments where appropriate on the assumptions used by HAL and CEPA/ TA (as the CAA's advisors) and assess the reasonableness of the conclusions reached.

Our Approach

PA has completed this review without any further consultation with HAL, the CAA, or its advisors. We have drawn on our previous detailed analysis and review of HAL's Opex for LACC in October 2020, which was undertaken as part of the earlier H7 CE process. In addition, we have drawn on our knowledge and experience of working with airline, airport, and other aviation sector clients as aviation industry specific advisors and on several post Covid airport related assignments.

In principle we have approached the review by applying a reasonableness test. While our Opex review has been informed by a detailed study completed in October 2020 for LACC, our review of Commercial Revenues has been primarily based on the subject matter expertise of specialists within our airports and transaction team. In our commentary on key assumptions made by HAL and CEPA/ TA, based on our past airport experience and analysis, we have commented on certain observations and trends. However, unlike on Opex we have not undertaken any detailed forecasting or modelling of commercial revenues for H7. Our conclusions therefore on the latter are not based on quantitative analysis but instead on the basis of whether we considered, based on the evidence presented in the CEPA / TA report, that the assumptions were reasonable or not.

HAL's Forecasting Methodology

As part of our October 2020 review of HAL's Business Plan, PA critiqued HAL's forecasting methodology for Opex and was critical of the very high level, simplistic, 'elasticity based' approach used on an inappropriate 2020 baseline year. PA suggested that a more bottom-up approach would deliver a more accurate outcome, however, both time and access to the requisite level of granularity would not allow this. We therefore adopted at the time a top-down approach using 2019 actual performance as the baseline year with overlays informed by our historical analysis and consultation with the airlines and HAL during the CE process. We note that CEPA / TA appear to have adopted a similar approach in its analysis and that HAL has, in its June 2021 RBP, adopted a similar approach for both Opex and Commercial Revenues. The focus for our review of the CEPA / TA report has therefore been to assess whether PA is broadly in agreement with the respective forecasts, overlays and assumptions that underpin them.

Opex Summary Conclusions

PA has illustrated that HAL is one of the highest cost airports with unit cost per passenger (pax) benchmarks against its European peers and is not, as HAL has stated, at the forefront of cost efficiency. That said, HAL did make progress during Q6 in reducing Opex per pax in real terms and PA is of the view that sufficient initiatives have been identified and/or are underway for HAL to emerge from the pandemic towards the end of H7 having made further progress in this respect. However, continuous Opex improvement is not included within HAL's business plan nor indeed the CAA proposals. HAL's 2026 passenger forecast of 72.1m (versus 80.9m in 2021) results in total Opex being almost flat, with unit Opex per passenger increasing to £14.50 compared to £14.50 in 2019, a ca. 0% increase.

Both CEPA / TA and PA forecasts adjusted for the higher CAA passenger forecast (82.0m) suggests that ca. £14.50 per passenger by 2026 would be a more reasonable outcome for HAL to maintain the progress achieved during Q6 to become an increasingly efficient business. HAL's assumptions for H7 of much lower passengers and higher Opex are conservative and run a material risk that allowed Opex will be much higher than the actual Opex incurred.

For context in October 2020, PA undertook its own detailed analysis for the Heathrow Airline Community (LACC) and in summary reached very similar conclusions to CEPA / TA on the expected profile of cost efficiency for the

various components of staff and non-staff costs. Following a detailed review and validation of the CEPA / TA assumptions and forecast we identified some minor differences that result in PA's forecast being £47m lower (see Opex section for a full explanation). PA has therefore discussed each of the drivers with LACC and concluded the following: the → Opex benefits of £→m, as advised by the airlines, is now understood to be mostly related to working capital and therefore can be reduced to ca. £→m p.a.; while we had not seen any evidence that there will be incremental costs related to surface access initiatives, we now understand that the airlines have accepted that ca. £→m p.a. will be required for this; the residual differences amount to ca. £→m of Opex for which PA still sees no justification. In conclusion PA now accepts that an additional ca. £28m could justifiably be added to our Opex forecast.

PA nevertheless confirms that we materially support the CEPA / TA Opex forecast and recommend that the CAA aligns its final proposal to its own advisors' projections.

Revenue Summary Conclusions

HAL is a commercially astute airport operator and in 2019 was at the frontier in many areas of commercial revenue such as retail and duty free, however, there remained opportunities for improvement on the 2019 baseline in areas such as car parking and food and beverage where other UK competitors have been more successful.

We acknowledge that there are many items that will impact HAL's commercial revenues, both positively and negatively, however, there are a few notable drivers moving forward as follows:

1. **Duty changes** – eligibility of passengers travelling to EU countries to buy alcohol and tobacco products at considerably reduced duty free prices is expected to significantly increase sales.
2. **Tax changes** – notably the removal of airside VAT free and the negative impact this has on retail income.
3. **Passenger mix effect** – Reduction of "high spend passengers" until 2024, thereafter returns to 2019 levels
4. **Contract transformation** – changes to property, retail, advertising agreements as a result of the pandemic

In terms of overall approach, CEPA / TA's forecasting methodology for commercial revenues appears sound to PA and the CAA's advisors have certainly had access to a large amount of information and explanations, including from HAL to inform and support the conclusions reached. PA has also observed that retail spend per passenger has increased during the pandemic, that retailers are not leaving Heathrow as expected and that historically HAL has tended to overperform in terms of delivering commercial revenues. Hence, while a →% reduction in retail revenues could appear to be very challenging in a much changed airport environment post-pandemic, a combination of HAL's previous performance, the fact that Heathrow remains a premium global airport and the likelihood that the negative passenger mix effect will not materialise in the extreme way that HAL predicts (the -£→m overlay throughout H7 appears overly pessimistic for passenger behaviour), leads us to believe that the CEPA / TA report is potentially realisable.

In conclusion, and for the reasons highlighted above, if we had more time, we would seek further clarification and comfort on the management stretch assumptions, in particular with respect to retail revenues. Nevertheless, PA finds the CEPA / TA approach credible and would encourage the CAA to take the commercial revenues forecast of its own advisors very seriously when reaching its final decision.

Overall Conclusions

We note that the CAA's Interim Proposal (CAP2265A) has set the forecast range of both Opex and Commercial Revenues, more or less at a mid-point between HAL's and CEPA's and TA's respective projections. For Opex, the CAA approach is to develop ranges based on two scenarios:

- Opex ceiling using HAL's updated RBP scaled to the CAA's (higher) mid case traffic forecasts; and
- Opex floor using CEPA / TA's mid case scenario, again using the CAA's mid case traffic forecasts.

The CAA's range for consultation has been set at an upper quartile at 25% below the Opex ceiling and lower quartile at 25% above the Opex floor. However, it is unclear why the CAA has consulted on the particular range:

- CEPA / TA mid case is used as the Opex floor – if a floor is to be used, we would expect the CEPA / TA forecast to be an appropriate floor rather than the CAA's 25% premium on the CEPA / TA forecast
- HAL RBP is used as the Opex ceiling – this clearly indicates that the HAL Opex forecast is too high and should not be used as the ceiling despite the subsequent 25% reduction by the CAA to determine the upper quartile forecast.
- The CAA notes that HAL is incentivised to "operate the airport incurring less Opex than this amount then it is able to retain the difference... Conversely, if HAL incurs more Opex than our allowance, it must fund the shortfall".
- This risk / reward mechanism inevitably results in HAL proposing a substantially higher Opex forecast (and lower passenger forecast) which is seen in the RBP. PA does not believe that the CAA should be giving equal weight to the significantly higher HAL Opex forecasts as it does for its own consultant's much lower forecast. Such an approach inevitably leads to higher Opex, which is not in the interests of users of air transport service.

- The CEPA/ TA independent forecast approach is broadly aligned with the independent PA approach with the forecasts and Opex per passenger also similar.

The CAA has, however, been presented with a report by its own independent advisors (CEPA / TA) that clearly lays out a view, derived from detailed analysis and an evidence-based approach that the Opex projections of its own advisors takes a more realistic and balanced view than HAL.

For Commercial Revenues, the CAA approach is to develop ranges based on two scenarios:

- Commercial Revenues ceiling using the CETA / TA forecast scaled for the CAA's mid case traffic forecasts.
- Commercial Revenues floor using HAL forecast scaled for the CAA's mid case traffic forecasts.

Similar to Opex, the CAA's range for consultation has been set at an upper quartile at 25% below the Commercial Revenues ceiling and lower quartile at 25% above the floor. Again, it is unclear why the CAA has consulted on the particular range.

For Commercial Revenues, PA finds the CEPA / TA methodology and approach reasonable and concludes that the overall forecast is potentially realisable.

In conclusion, and following our independent review, PA is of the view that the CAA should take the Opex and Commercial Revenues forecast put forward by its own advisors very seriously and consider revising its final decision to more closely reflect their views.

Note that all revenues and costs in this report and comparison to HAL and CEPA / TA figures are in 2018 prices unless otherwise stated.

2. Review of HAL's overall forecasting approach

HAL's approach to the June 2021 RBP is broadly the same as the approach followed in the HAL forecast and supporting detail reviewed by PA in 2020. The forecast methodology in HAL's June 2021 RBP is also largely unchanged:

1. 2019 is adopted as the baseline
2. Adjusts for overlays including Covid-19 impacts and enhanced service proposals
3. Applies high level elasticity trends to individual cost categories
4. Applies differential inflation assumptions which typically use RPI as the index.

As pointed out in the 2020 PA Opex review, a number of material issues remain with the HAL forecast methodology. The largely top-down elasticity driven forecast methodology was not appropriate for the H7 period which will see large year on year changes in passenger volumes as traffic recovers to pre-pandemic levels. A more robust approach is required to forecast the main cost categories at a more detailed bottom-up level which then can be overlaid with estimates for the following:

- Continuation of Q6 initiatives that have successfully delivered cost efficiencies including migration from legacy to market-based employment contracts.
- Pandemic related cost reduction actions already taken by HAL on organisational restructuring;
- Supplier contract renegotiations including material benefits from already achieved savings; and
- Opex benefits from capital investments either already agreed with airlines (e.g. Magenta) or mandatory security equipment upgrades included in the capex plan.

PA Forecast Adjusted for HAL 2026 Pax			PA	CEPA/TA	HAL
<i>2018 prices</i>		2019	2026	2026	2026
Total	£m	1,173	910	957	→
Total per passenger	£	14.50	→	→	→
Passengers	mppa	80.9	→	→	→

Source: HAL, CEPA/ TA, PA analysis

Interestingly, we note that the CEPA / TA approach adopts a similar combination of bottom up (e.g. security staff analysis) and top down forecast methodology as PA to forecast Opex by 2026 of £→, Opex per passenger of £→ for the HAL passenger forecast (72.1m), ca. 8% lower than 2019. The CEPA / TA forecast is largely supported by reasonable assumptions for the various components of staff and non-staff costs. This is much closer to PA's adjusted forecast for HAL's passengers of £910m in 2026, £12.62 per passenger ca. 13% lower than 2019.

HAL's 2026 passengers of 72.1m (versus 80.9m in 2021) results in total Opex being almost flat and unit Opex per passenger increasing to £→ compared to £14.50 in 2019, ca. 12% increase. When adjusted for the higher CAA 2026 mid case passengers (82.0m), CEPA / TA's Opex per passenger reduces to £12.13, ca. 16% lower than 2019. The PA Opex adjusted for CAA passengers reduces to £11.39 per passenger, ca. 21% lower than 2019.

PA Forecast Adjusted for CAA 2026 Pax			PA	CEPA/TA
<i>2018 prices</i>		2019	2026	2026
Total	£m	1,173	934	995
Total per passenger	£	14.50	11.39	12.13
Passengers	mppa	80.9	82.0	82.0

Source: CAA, CEPA/ TA, PA analysis

PA comments on the main CEPA/ TA forecast conclusions are as follows and discussed further in later sections:

Cost inflation: CEPA/ TA considers costs will be driven by CPI rather than the higher RPI. This is in line with the PA assumption that CPI is a better inflation index adjustment and note that RPI in 2013 lost its status as a

National Statistic. The Office for National Statistics goes further to state “*Our position on the RPI is clear: we do not think it is a good measure of inflation and discourage its use*”¹.

2019 being at the frontier of efficiency. CEPA/ TA do not share HAL’s view that 2019 Opex was at the frontier of efficiency. This is in line with the PA analysis which clearly illustrated that despite improvement over Q6, HAL’s Opex per passenger remained higher than other European airports. This analysis aligns with HAL’s own consultant’s view that “despite these reductions over Q6, Heathrow costs per passenger remain high compared to other benchmark airports.”²

Elasticity assumptions. CEPA/ TA apply their own specific elasticities for operational and non-operational costs where the HAL proposed elasticities are not supported by the evidence provided. The use of independently validated elasticity assumptions for each component of Opex is in line with the PA analysis.

Frontier shift should not be only linked to additional capex. HAL's position that 2019 Opex was at the frontier of efficiency leads to the RBP assumption that any material improvement in efficiency is only linked to additional capex – HAL assumes a $\rightarrow\%$ underlying productivity improvement increasing to $\rightarrow\%$ with higher capex (£ \rightarrow capex vs. £ \rightarrow for the lower productivity assumption). We agree with CEPA/ TA’s objection to the HAL assumption on ‘capital substitution’ as the only way to achieve continued Q6 efficiency improvements in H7. CEPA/ TA assumption of a 1% p.a. efficiency frontier to all cost categories except for rates, electricity distribution contract, and the new cost overlays introduced for H7 (e.g. Opex related to terminal drop off charge, Covid 19 overlay etc) is higher than the PA 0.5% assumption for ongoing efficiency. With the combination of slightly different assumptions for other aspects of the forecast combined with the 0.5% efficiency shift, the CEPA/ TA and PA forecasts are very similar which provides a good level of confidence that the forecasts are reasonable and realistic.

Security transformation. HAL's forecast assumes that security process related Opex efficiency is only linked to additional capex. CEPA/ TA’s forecast is more robust than the HAL assumption and includes security transformation linked to the mandatory upgrade of passenger security equipment which many airports expect will lead to higher levels of passenger processing capacity and lower Opex. The PA forecast includes similar security Opex efficiency linked to next generation equipment based on work with other airports which view the upgrades as a step change opportunity on security process and efficiency. As such, the CEPA/ TA security transformation forecast is both reasonable and a realistic target that the CAA should include in the H7 allowed Opex.

The CEPA/ TA forecasts are positioned as being “a balanced set of forecasts that avoids overly conservative or overly optimistic assumptions”. We would agree that the CEPA/ TA forecasts are a reasonable basis for the CAA’s determination and provide a realistic target for HAL to become increasingly efficient during H7.

To support lower Opex across H7, much of the lower Opex in the CEPA/ TA and PA forecasts are related to initiatives either not reflected or materially reduced in the HAL methodology, principally:

- Ongoing efficiency measures – HAL assumes very low ($\rightarrow\%$) efficiency gains despite the Q6 improvements.
- Organisational restructuring benefits – HAL assumes limited benefits in H7.
- Security staff efficiency from the mandatory upgrades of passenger security equipment and processes to the next generation equipment – HAL does not include any opex benefit whereas many airports are using the mandatory upgrades as an opportunity to improve processes and staff efficiency.
- Known cost efficiency projects e.g. Project \rightarrow investment in a replacement ERP system – HAL assumes \rightarrow Opex saving.
- Procurement savings – e.g. baggage contract, NATS, and UK Power Network contracts.

In addition, HAL assumes additional H7 costs related to Covid:

- Covid Overlay – HAL assumes some Covid related costs e.g., higher cleaning standards will continue throughout H7 at a constant level without any mitigation which appears conservative.

The next section reviews the main areas of the CEPA/ TA and HAL forecasts and contrasts with the PA forecast adjusted for HAL and CAA passengers to ensure all comparisons are on a like for like basis.

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<https://www.ons.gov.uk/economy/inflationandpriceindices/articles/shortcomingsoftheretailpricesindexasameasureofinflation/2018-03-08>

² Steer (2019) Operating Cost Benchmarking Study

3. Opex forecasts

4.1 2019 Baseline Efficiency

Both HAL and CEPA/ TA adopt 2019 as the baseline year for Opex with some adjustments. We agree this is a reasonable position to provide a realistic comparison for post-pandemic performance.

The main issue with HAL's approach is that 2019 performance for Opex is assumed to be efficient, as such the forecast includes limited efficiency adjustments. Both CEPA/ TA and PA view this as an unrealistic starting position.

Q6 Opex performance improved, however it is a considerable leap to assume that efficient levels have been achieved. The PA report noted that reduction in unit costs was achieved by a combination of passenger growth impact and a mix of cost reduction initiatives across all staff and non-staff cost categories including:

- Migration of staff from higher cost legacy contracts to new lower cost contracts.
- Structural changes to final salary pensions to reduce ongoing cost.
- Renegotiated supplier contracts including NATS and UK Power Network.

The fact that savings were made across all major cost categories clearly indicates that further cost performance improvements should be expected in H7.

HAL uses benchmarking to assert that performance is at the efficiency frontier, whereas the PA analysis clearly shows that whilst HAL has improved Opex per passenger during Q6, it remained the highest cost large airport in Europe.

To support PA's view that HAL has not yet reached an efficient level, HAL's own independent benchmarking exercises carried out in 2019 concluded that "*despite these reductions over Q6, Heathrow costs per passenger remain high compared to other benchmark airports.*"³

The RBP (p.21) includes references to HAL's 2019 Opex per passenger (stated as £14.20) and includes costs for Frankfurt (£19.10) and AdP (£18.60) to illustrate HAL's comparative cost efficiency. Unfortunately, the comparisons are incorrect with the correct figure for Frankfurt being £10.77 (HAL erroneously included ground handling costs which are not applicable) and £14.77 for AdP. We assume HAL was not using the correct entity (AdP S.A.) for its analysis of the airport operating company Opex cost.

The efficiency potential across H7 is discussed later in the frontier shift sub-section.

2019 Baseline Adjustments

2019 Opex increased by ca. 6% (+£62m, 2018p) vs. 2018 and ca. 5% increase in Opex per passenger. HAL has not provided clear reasons for the increase, particularly when traffic was broadly flat (80.1m vs, 80.9m, 1.0% growth).

CEPA/ TA adjusted HAL's 2019 Opex upwards by ca. £6m (2018p) for (i) removal of expansion costs and (ii) additional staff cost for implementation of the London Living Wage.

In the context of the large cost increase in 2019 versus 2018, contrary to CEPA/ TA and HAL, we do not share the view that any upwards cost adjustment is required in 2019 with potential to reset the 2019 cost a lower level to reverse some of the unexplained cost increases in 2019.

Actions Since 2019

HAL views the staff reorganisations to lower costs in 2020 and 2021 to mitigate some of the COVID passenger reductions as a temporary measure which will be largely reversed when all of the terminals reopen and traffic increases, despite not reaching 2019 levels in the HAL forecast.

We agree with the CEPA/ TA view that a reasonable proportion (£25m) of the reorganisation cost reductions should be sustainable. This is further discussed in the people sub-section, along with an example from Aeroports de Paris of sustainable staff reduction.

³ Steer (2019) Operating Cost Benchmarking Study

4.2 Elasticities HAL's approach is to apply a high level $\rightarrow x$ elasticity to passenger growth for staff costs, utilities (excluding electricity distribution contract), and general expenses cost categories. As pointed out in the PA 2020 report, elasticity assumptions are of benefit in a period of normalised passenger growth with material distortionary results in periods of erratic traffic annual changes.

CEPA/ TA notes that HAL's generalised elasticity approach is applied to a number of cost categories (e.g., marketing, professional services, etc.) which are either not linked or loosely linked to passenger volume changes. CEPA/ TA and PA both observed that HAL should be able to break out specific cost categories and their specific drivers to apply specific elasticities rather than an overarching common elasticity to passenger growth to all main categories. As HAL has access to the detailed data, we would expect the RBP to set out each cost category driver e.g. passenger volume, terminal space growth, contract conditions, etc. to clearly articulate the forecast cost path for each category.

CEPA/ TA Approach

CEPA/ TA's forecast approach is to apply specific elasticities to individual cost categories aggregate to an overall elasticity of 0.4x passenger volume change.

- For categories of Opex where CEPA/ TA have been able to derive a specific elasticity with respect to passenger numbers (operational security staff), elasticity of 0.4x has been applied.
- For categories of Opex that are clearly unrelated to passenger numbers, elasticity of 0x has been applied.
- For the remaining categories, CEPA/ TA applied various elasticities to achieve an overall elasticity is 0.4x.

As pointed out in the PA report, elasticity assumptions are of benefit in a period of normalised passenger growth, with material distortionary results in periods of erratic traffic annual changes.

The PA forecast approach is broadly in line with the CEPA/ TA approach. However, as passenger volumes by 2026 in the HAL RBP (72.1m) do not fully reach the 2019 level (80.9m), the specific initiatives have been used as the main forecast drivers with elasticates used to support underlying costs regarded as variable to passenger volume change.

4.3 People

The CEPA/ TA forecast for people costs by 2026 is very similar to the PA forecast (£233m versus £236m) and materially ca. £ \rightarrow m lower than HAL's proposed people cost (£ \rightarrow m).

PA Forecast Adjusted for HAL 2026 Pax			PA	CEPA/ TA	HAL
<i>2018 prices</i>		2019	2026	2026	2026
People	£m	379	236	233	\rightarrow
Passengers	mppa	80.9	72.1	72.1	72.1

Source: HAL, CEPA/ TA, PA analysis

Whilst there are some small differences in assumptions, the CEPA/ TA and PA assumptions are closely aligned and follow the specific known initiatives including:

- Cost of change programme
- Covid-19 organisational reset
- Terminal reopening
- Security transformation
- Underlying cost profile as passenger volumes increase

Cost of Change Programme

The Cost of Change programme was running prior to the Covid-19 pandemic focussed on changes to staff legacy terms and conditions. HAL states that it has made £ \rightarrow m (nominal) permanent savings at 2019 passenger levels.

CEPA/ TA view that £ \rightarrow m savings p.a. should be applied as an overlay to the H7 forecasts which is in line with the PA assumption on underlying staff cost efficiency.

Covid-19 Organisational Reset

Like other airports, HAL reacted to the Covid-19 pandemic by making a range of staff cost reductions. We would expect some of the organisational restructuring staff cost reset to be permanent and reflected in the H7 forecast. The RBP does not appear to include any material permanent savings which contrasts with the outlook at other large European airports which have used the pandemic as an opportunity to streamline the business. For example:

In December 2020, Aéroports de Paris SA agreed with unions to reduce staff numbers through a collective mutually agreed termination agreement. The agreement sets the maximum number of voluntary departures at 1,150, with 700 not to be replaced. The first departures have occurred at the end of March 2021, and at the end of June 2021 around 900 employees have left the company. At the end of December 2021, the maximum number of departures will be reached. They will have for Aéroports de Paris SA a structural effect of reduced group expenses estimated at €35m in 2021 and €60m on a full year basis.⁴

It is recognised that staff costs will increase as traffic returns and terminals fully reopen (see below), however it would be unusual to suggest as assumed in the RBP that some level of lower costs cannot be retained through H7.

The CEPA/ TA forecast includes a Covid-19 staff cost reset reduction of £25m p.a. which is in line with the PA assumption of a permanent cost base reset.

Terminal Reopening

Similarly to other airports, HAL closed terminals in 2020 and 2021 to mitigate costs. T2 and T5 were operational along with T4 later opened for arrivals from 'red list' countries. The RBP assumes assumptions for terminal usage in H7 are T3 fully operational throughout H7 and T4 reopening in 2023.

CEPA/ TA noted that HAL has provided limited information on the cost of red list operations. However, CEPA/ TA agrees with HAL's approach of ramping up costs in the 3 months prior to the full opening of T4 but notes the proposed cost ramp up profile (25%, 50%, 75%) and use of terminal space as the people cost driver results in 100% of T4 people cost returns on the day that T4 reopens which is excessive.

CEPA/ TA forecast reflects staff can be gradually increased in line with demand leading to a £1m saving in 2023 compared to the HAL forecast.

PA forecast also assumed a progressive ramp up of terminal costs in line with reopening and traffic growth. However, this is not a material area of cost focus when the business recovers to move towards normalised levels of passenger throughput.

Security Transformation

There is a mandatory requirement for HAL to introduce next generation full body scanning and X ray screening equipment for passengers and bags. Significant benefits of the new equipment include faster passenger throughput and provides the opportunity to re-engineer security processes and improve cost efficiency.

HAL takes the position that Opex savings can only be achieved through → investment of £→m on new technology that delivers a faster, more efficient security experience. This position contrasts with a number of airports which see the new equipment as an opportunity to both improve security process rates and lower security Opex through process improvements.

As CEPA/ TA notes, the RBP contrasts with previous HAL investment case information which outlined a ca. →% increase in passenger process rates per security lane and a large annual Opex reduction. It is unclear why the RBP reverses its position on security upgrade benefits, particularly as trials have been run at Heathrow which means that data should be available.

In contrast with the HAL approach, Gatwick Airport is a good example of an airport that has transformed its security operation in recent years with the implementation of "Generation II" equipment and process re-engineering resulting in throughput per lane significantly above the HAL figures. This was achieved without a material increase in capital investment which contradicts the HAL view that security efficiency can only be achieved through further significant capital investment.

⁴ Groupe ADP 2021 half-year results

We fully agree with CEPA/ TA conclusions that Opex benefits should arise from improving security efficiency through people and process change, regardless of the level of capital investment in security. Benefits should be modelled directly in the People cost category rather than as capital substitution effects.

CEPA/ TA modelling results in a security staff cost elasticity of 0.48x to 0.65x for all security staff which is in line with the PA assumption of 0.5x.

Underlying Cost Profile

People or staff costs can be split into underlying staff costs with overlays for Covid-19 staff restructuring, and mandatory security equipment upgrades which are due to be implemented by 1st June 2024.

HAL's view is that ca. →% of Opex is either fixed or semi-fixed. HAL's staff costs can be categorised as:

- Staff functions which would be expected to be variable in line with passenger volume and/or terminal space or other volume driver. The main variable staff functions are Security (largest staff category) and Other Operational.
- Staff functions which are either less or not variable and are typically driven by passenger volume or terminal space. The main less variable non-operational functions include head office functions, support functions, etc. with a number of functions expected to be largely fixed.

With the large fluctuations in forecast H7 traffic, HAL's use of a single elasticity to volume (→x) for all staff costs is not appropriate to forecast H7.

The CEPA/ TA operational staff cost forecast (excl. security costs addressed separately) is aligned with HAL's cost elasticity of →x with separate real wage impacts (see later) and no other efficiency measures assumed. However, CEPA/ TA's non-operational staff costs have been adjusted for the level of staff cost capitalisation with future staffing levels estimated using an elasticity of 0.0x as these costs would not be expected to be driven by passenger numbers, particularly as 2026 passengers are forecast to be just above 2019 level (CAA mid case forecast). Separately real wage impacts (see later) and no other efficiency measures are assumed.

The PA forecast for underlying staff cost growth is slightly different from the CEPA/ TA assumptions with 0.5x elasticity for operational functions and passenger security with 0.0x for fixed security posts and non-operational staff. At the overall people cost level, the various PA and CEPA/ TA assumptions result in very aligned forecasts for total people costs and should be used for the H7 determination.

4.4 Other Initiatives

The PA forecast includes Opex benefits from Project → which are not included in either the HAL or CEPA/ TA forecasts. We would expect some → Opex benefit to be reflected in the H7 forecast despite the investment occurring before H7 commences.

However, the PA forecast does not include any of the proposed HAL service overlays due to the lack of definition of what is proposed and how the cost has been assessed. CEPA/ TA includes an allowance for the service overlays but states that these appear to overlap with business-as-usual activities (e.g., passenger assistance, passenger sensitive equipment maintenance, etc.) and applies a lower allowance compared to HAL.

PA Forecast Adjusted for HAL 2026 Pax			PA	CEPA/ TA	HAL
2018 prices		2019	2026	2026	2026
→ overlay	£m	0	→	0	0
Other overlays	£m	0	0	7	→
Passengers	mppa	80.9	72.1	72.1	72.1

Source: HAL, CEPA/ TA, PA analysis

Unless more detail of the other overlays is provided, its inclusion in the allowed H7 Opex should be reviewed.

Project →

Project → was understood by PA, as advised by the airlines, to be an investment to optimise finance process areas, the people lifecycle, asset management, and business intelligence. → is not included in the H7 capex as investment will be completed prior to the start of H7. CEPA/ TA do not specifically include → Opex benefits in the H7 forecast which aligns with the RBP assumption that staff cost benefits from fewer back-office functions have been realised in the organisational change actions taken in 2020 and 2021.

We now understand that the airlines were misinformed at the capital stage of the nature of the Opex savings, and it has now been clarified and we understand that the majority of the saving is non-Opex.

PA forecast includes → Opex saving of £→m in 2026 as despite the investment being incurred before the start of H7, the Opex benefit was not included in the 2019 baseline and should therefore be included in H7 forecasts. PA now understand that the Opex benefit has now reduced to ca. £→m p.a.

Enhanced Service Cost Overlay

The RBP Full Adjustment case includes a significant Opex increase to provide an enhanced service for:

- → of passengers requiring support who choose not to use “our dedicated assistance service”.
- Additional maintenance to ensure resilience of passenger sensitive equipment (PSE) that has suffered under investment in 2020 and 2021 and cannot be replaced under the current capital programme;
- Digital services bridging a customer services gap; and
- New automated, touchless parts of the passenger journey.

The RBP Low Adjustment case is described as being a “safety only” investment case which does not include the enhanced service overlay.

The CEPA/ TA analysis of the need for enhanced service overlay appears to cover or overlap with business-as-usual activities accounted for elsewhere in the RBP. However, the CEPA/ TA forecast includes an allowance for enhanced services from 2022 adjusted for efficiencies going forward.

The PA forecast does not include an enhanced service cost overlay. Unless more detail of the other overlays is provided and justified, its inclusion in the allowed H7 Opex should be reviewed.

a. Operational Costs (incl. insurance)

Operational Costs includes insurance, retail costs, NATS, police, staff catering, bus shuttle, and other operational costs. The individual cost categories are not broken out in the RBP which appears to forecast fixed costs based on individual contracts and applies an elasticity to other operational costs.

PA Forecast Adjusted for HAL 2026 Pax			PA	CEPA/ TA	HAL
<i>2018 prices</i>		2019	2026	2026	2026
Operational excl. Insurance	£m	→	233	→	→
Insurance	£m	→	→	→	→
Operational Costs Total	£m	→	→	→	→
Passengers	mppa	80.9	72.1	72.1	72.1

Source: HAL, CEPA/ TA, PA analysis

Operational Excluding Insurance

In the absence of further detail, CEPA/ TA applies the average 0.4x elasticity which is in line with PA assumptions. The table illustrates that the PA and CEPA/ TA forecasts are closely aligned whereas the HAL forecast has costs above the 2019 level despite the RBP traffic being ca. 10% lower which is difficult to reconcile.

Insurance Costs

HAL’s approach to forecasting insurance costs is to apply a →% p.a. increase which they see as conservative based on market conditions citing recent data from Marsh Global Analytics and HAL’s assumptions on future aviation sector performance, COVID 19 impacts on insurance markets, and future insurance market performance.

The RBP states that the renewal process for 2021 has been completed with a large premium reduction compared with the RBP. However, HAL maintains that the $\rightarrow\%$ p.a. increase remains appropriate along with inflation effects and an additional cost overlay (not detailed). The effect is for insurance cost by 2026 to be almost double the 2019 level.

CEPA/ TA agree with HAL that insurance costs are unlikely to be driven by a passenger elasticity but the RBP forecast approach and outcome is conservative. CEPA/ TA assume insurance will increase by 5% p.a. in nominal terms and apply a 1% efficiency frontier assumption which leaves total cost by 2026 around the 2019 level.

PA assumes there will be some costs pressures in the insurance market with forecast cost above the CEPA/ TA flat real cost assumption but not as conservative as HAL which forecasts a material increase in future cost.

4.5 Facilities and Maintenance

Facilities and Maintenance costs split down into three main sub-categories of maintenance, contract costs (incl, baggage contract), and cleaning (only category with costs provided).

PA Forecast Adjusted for HAL 2026 Pax			PA	CEPA/ TA	HAL
<i>2018 prices</i>		2019	2026	2026	2026
Facilities and maintenance	£m	\rightarrow	133	\rightarrow	\rightarrow
Passengers	mppa	80.9	72.1	72.1	72.1

Source: HAL, CEPA/ TA, PA analysis

HAL's H7 procurement strategy targets annual savings from renegotiation of baggage operations and maintenance contract. However, the RBP assumes the majority of other Covid-19 related contract savings cannot be retained.

CEPA/ TA forecast assumes the baggage contract savings are applied as a H7 overlay in line with the RBP forecast. It is difficult to understand how some of the other contract savings related to COVID-19 renegotiations cannot be retained during H7. The opportunity to retain some of the COVID related savings supports a higher efficiency frontier shift than the $\rightarrow\%$ assumed in the RBP. Cleaning costs were ca. $\rightarrow\%$ of total Facilities and Maintenance costs in 2019 (£ \rightarrow m 2018) with costs in real prices remaining steady over Q6. Whilst 2020 costs were ca. £ \rightarrow m lower in 2020, this was a combination of terminal closures and additional COVID related cleaning costs.

The H7 forecast will be driven by terminal reopening, traffic recovery profile, and additional costs related to post-COVID higher cleaning costs. The RBP includes a constant overlay for higher cleaning costs from 2023 to 2026 which appears conservative. CEPA/ TA notes that the lack of detail provided by HAL in the RBP makes it difficult to assess if these are really additional cleaning costs or are included in the overall Facilities and Maintenance cost forecast. CEPA/ TA's view that 2020 actual costs are likely to be abnormally high and not a reasonable estimate for H7 as any additional cleaning measures should be more economic to procure in a normal post-COVID market environment. CEPA/ TA's proposed overlay reduces to zero by 2026.

PA forecast assumes cleaning costs are profiled to reflect phased terminal reopening, relatively high passenger elasticity, and a COVID additional cost overlay with the cost broadly in line with the CEPA/ TA forecast.

3.6 Rates, Utilities and Distribution Contract

PA Forecast Adjusted for HAL 2026 Pax			PA	CEPA/ TA	HAL
<i>2018 prices</i>		2019	2026	2026	2026
Rates	£m	\rightarrow	\rightarrow	\rightarrow	\rightarrow
Utilities excl. distribution	£m	\rightarrow	\rightarrow	\rightarrow	\rightarrow
Distribution contract	£m	\rightarrow	\rightarrow	\rightarrow	\rightarrow
Total	£m	\rightarrow	\rightarrow	\rightarrow	\rightarrow
Passengers	mppa	80.9	72.1	72.1	72.1

Source: HAL, CEPA/ TA, PA analysis

Business Rates

Rates are a material cost, the RBP states the 2019 rates bill was £→. The RBP proposes to make Rates an ORC in H7, ensuring 100% sharing of any savings (or liabilities) with consumers. CEPA/ TA adopted HAL's forecasts for rates but index at CPI rather than RPI in line with the 2017 UK Budget that confirmed future adjustments will be based on CPI rather than RPI which results in lower Rates costs compared to HAL.

PA forecast is in line with the CEPA/ TA approach to apply CPI indexation rather than RPI.

Utilities

CEPA/ TA referenced Steer data which outlined that electricity consumption decreased by 15% from 2014 to 2018 with gas consumption increasing by 4%. The lower Q6 electricity consumption was impacted by closure of T1 in 2015/16.

CEPA/ TA view that utilities usage should continue to decline during H7 with energy demand management projects (combination of capex and process improvement). CEPA/ TA adopts HAL's assumptions on electricity reductions from terminal closures with lower CEPA/ TA forecast driven by a 1% efficiency p.a. compared to HAL's →% assumption. However, both forecasts are similar by 2026 and higher than 2019 in real terms which appears conservative.

The PA forecast is lower than the HAL and CEPA/ TA forecasts, assuming continued efforts to reduce utilities consumption seen in Q6 as well as lower energy consumption being a feature of HAL's carbon neutrality strategy.

Electricity Distribution Contract

Both HAL and CEPA/ TA assume the UK Power Networks electricity distribution contract cost is in line with the contract with no lower space benefit from terminal closures and no efficiency frontier adjustment.

The PA forecast is in line with the distribution contract price profile in the HAL and CEPA/ TA forecasts.

4.7 General Expenses

PA Forecast Adjusted for HAL 2026 Pax			PA	CEPA/ TA	HAL
<i>2018 prices</i>		2019	2026	2026	2026
General expenses	£m	→	→	→	→
Passengers	mppa	80.9	72.1	72.1	72.1

Source: HAL, CEPA/ TA, PA analysis

Despite being a relatively large cost category, the RBP includes limited detail of the General Expenses cost category, and the H7 forecast profile which includes consultancy and marketing costs, other general expenses, and intercompany costs.

This category would be expected to have some elasticity to traffic recovery along with flexibility to manage costs during the H7 traffic recovery. CEPA/ TA applies a 1% efficiency frontier.

PA forecast assumes a 0.0x elasticity with a lower 0.5% efficiency frontier driving Opex between CEPA/ TA and HAL. Whilst there will be opportunity to reduce general expenses as reflected in the PA forecast and, to a lesser extent, the HAL forecasts, the CEPA/ TA assumption on lower cost appears a stretch.

4.8 Surface access initiatives

PA Forecast Adjusted for HAL 2026 Pax			PA	CEPA/ TA	HAL
<i>2018 prices</i>		2019	2026	2026	2026
Surface access initiatives	£m	0	0	10	→
Passengers	mppa	80.9	72.1	72.1	72.1

Source: HAL, CEPA/ TA, PA analysis

Terminal drop off charge costs is a new charge linked to the introduction of drop off charging from November 2021. The RBP assumes costs at \rightarrow of revenues which appears high for a remote operation with users paying online which is assumed to be outsourced to a service provider. The other surface access strategy costs are related to sustainable travel initiatives.

CEPA/ TA is unclear how much of the Opex associated with terminal drop off charging is additional. There is existing Opex associated with staff marshalling traffic on the terminal forecourts. CEPA/ TA adopt lower Opex than the RBP with the added caveat that further analysis is carried out to determine whether the HAL costs are efficient and fully incremental.

In the absence of cost detail from HAL, the PA forecast does not include the drop off cost. The CEPA/ TA forecast is a reasonable view of potential additional costs linked to the increased revenue stream.

4.9 Frontier shift and input price inflation

Input Price Inflation

CEPA/ TA sets out how the RBP uses different price indices to deflate/inflate historic costs to its 2018 price base, and to project the growth of different cost categories in nominal terms. HAL uses four core price indices comprising RPI, wages, materials, and power.

- Wages: \rightarrow % to \rightarrow % (nominal) p.a. (based on an OBR forecast).
- Materials: \rightarrow % (nominal) p.a.
- Power: \rightarrow % to \rightarrow % (nominal) p.a. (based on a BEIS forecast).

Each cost category uses a blended rate depending on HAL's view of the proportion of costs driven by labour (wages), materials, power costs, or general price inflation.

CEPA/ TA's view is that the cumulative impact of the separate indices results in a material increase compared to costs applying inflation only which are already higher than expected as HAL uses RPI versus the lower CPI index.

CEPA/ TA identified a number of material issues with HAL's approach which is consistent with issues raised by PA in the 2020 review.

- Use of RPI is inappropriate (view supported by OBR).
- CPI is a more appropriate index.
- HAL's RBP is cautious with limited consideration of categories which may see lower price changes than the general price inflation.
- No real evidence to suggest that materials inflation across H7 will be consistently higher than CPI.

CEPA/ TA forecast included bespoke price series for the following cost categories using CPI as the index:

- People costs: CEPA/ TA follows the same methodology as HAL and use the same OBR source but assume wages stay constant in nominal terms in 2020 and 2021, consistent with the pay constraint implemented by HAL.
- Utilities: CEPA/ TA follows the same methodology as HAL and use the same BEIS source, but as the BEIS forecasts are presented in real terms, we apply them to our CPI series (to get a nominal forecast) rather than HAL's RPI series.
- Facilities and Maintenance: CEPA/ TA use a blended rate half driven by CPI and half driven by OBR's wage forecasts.

PA view the CEPA/ TA inflation assumptions as being reasonable and in line with the PA forecast which also uses CPI as the main inflation index. The use of CPI should be adopted by the CAA for the H7 and future Opex determinations.

Frontier Shift

HAL's Low Adjustment case (similar to CAA's £300m RAB adjustment) includes a very low efficiency factor of \rightarrow % p.a. applied to all cost categories except Rates and the Electricity Distribution Contract. A further % p.a. capex benefit is contingent on HAL's proposed £ \rightarrow capital plan with the additional investment required to deliver increased Opex efficiency are not included in lower cost capex plans.

CEPA/ TA's frontier shift is consistent with the RBP approach to apply to all cost categories except for rates, electricity distribution contract, and the new cost overlays introduced for H7 (e.g., Opex related to the terminal drop-off charge, Covid-19 overlay etc).

CEPA/ TA do not agree with the HAL assertion that support the approach taken by HAL to calculate potential 'capital substitution' effect, with HAL's calculation of $\rightarrow\%$ p.a. in the RBP and conditionality on particular projects being included in H7 is not supported by precedent or the evidence provided.

CEPA/ TA reference recent price determinations (e.g., RIIO-2, PR19) which considered frontier shift estimates of $>1\%$ as a basis for an overall efficiency frontier shift estimate of 1% p.a. supported by performance over several price controls, specific cost efficiency overlays, with the frontier shift estimate not linked to the capital plan size.

PA's 2020 forecast was based on Bank of England data and assumes a lower 0.5% efficiency frontier which is between HAL $\rightarrow\%$ and CEPA/ TA 1.0% assumptions. If there is sufficient evidence for the 1.0% frontier proposed by CEPA/ TA, this should be used by the CAA to further incentivise HAL to focus on the efficiency trend from Q6 into H7.

4.10 Capital investment

The RBP includes two different capital plans, a 'Safety Only' plan (£ \rightarrow) and an 'Optimal Plan' (£ \rightarrow). Opex efficiency benefits are only linked to the Security Transformation and Efficient Airport Programme included in the Optimal plan. HAL argues that higher charges from the higher Optimal plan would be offset by the higher Opex efficiency ($\rightarrow\%$ p.a.) as well as delivering higher commercial revenues.

CEPA/ TA's view is there should be operating cost benefits in the Safety Only plan with benefits likely to be delivered across a number of programmes:

- Asset replacement (£ \rightarrow);
- T2 Baggage (£ \rightarrow);
- Regulated Compliance (£ \rightarrow); and
- Avoid material Opex increases (£ \rightarrow)

PA agree with CEPA/ TA that the HAL's assumption of no Opex efficiency benefits result from the Safety Only plan is overly simplistic. The replacement of time expired assets with modern equipment would be expected to result in lower maintenance and utility consumption costs. The Safety Only capex plan should contribute to lower Opex costs which further supports a higher efficiency frontier than the very low $\rightarrow\%$ p.a. assumption in the RBP.

4.10 Overall results

As outlined, PA reviewed HAL's forecast operating costs during the 2020 constructive engagement process. In the interim, HAL has issued two business plans, the RBP in December 2020 and the RBP – Update 1 in June 2021. In real terms (2018p), HAL's projections for total regulated operating costs are forecast to marginally decline from £1,173m in 2019 to £ \rightarrow in 2026 ($\rightarrow\%$) despite passengers forecast to be 72.1m versus 80.9m in 2019 (-10.9%).

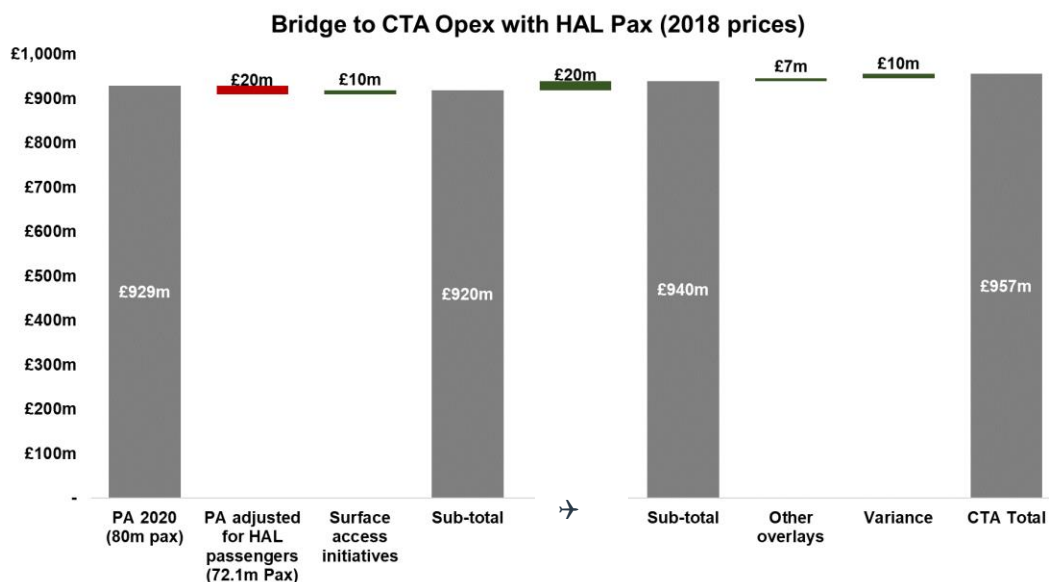
In contrast, CEPA/ TA forecast total Opex of £957m in 2026 for HAL's 72.1m passengers compares to PA's forecast of £910m when adjusted for the lower HAL passenger forecast.

PA 2020 Forecast Adjusted for HAL 2026 Pax		PA	CEPA/ TA	HAL
<i>2018 prices</i>		2026	2026	2026
People	£m	→	233	→
Operational excl. Insurance	£m	→	237	→
Insurance	£m	→	→	→
Facilities and maintenance	£m	→	152	→
Rates	£m	→	109	→
Utilities excl. distribution	£m	→	61	→
Distribution contract	£m	→	→	→
General expenses	£m	→	105	→
Surface access initiatives	£m	→	10	→
Magenta overlay	£m	→	0	→
Other overlays	£m	→	7	→
Total	£m	910	957	1,168
Total per passenger	£	12.62	13.28	→
Passengers	mppa	72.1	72.1	72.1

Source: HAL, CEPA/ TA, PA analysis

The resulting 2026 Opex per passenger change versus 2019 (£→) is £→ for HAL, £13.28 for CEPA/ TA and £12.62 for PA. The main differences between the PA and CEPA/ TA forecasts for 2026 (using HAL's traffic) are as follows:

- : PA forecast includes a £→m benefit from → in line with the business case presented to the airlines. As the Magenta improvements occurred after 2019, we assume the full impact should be included in the 2026 forecast. HAL's RBP assumes no Opex benefit from → which has been adopted by CEPA/ TA. We now understand that the benefit is mostly working capital related and therefore reduces from £→m to £→m.
- Surface access initiatives (+£10m): PA forecast did not include specific costs linked to the terminal drop off charges, however, now understand that this has been accepted by the airlines and should be added to the 2026 total.
- Other overlays (£7m): PA forecast did not include overlays for enhanced service overlays for additional passenger support and improved resilience of passenger sensitive equipment due to lower maintenance spend in 2020 and 2021. CEPA/ TA included an allowance lower than HAL as there was insufficient information to articulate why this would be a higher cost than the business-as-usual cost by 2026.
- Variance (£10m): the residual amount required to align with the CEPA/ TA forecast.



Source: HAL, CEPA/ TA, PA analysis

On the basis of information in the RBP and CEPA/ TA's analysis, the adjusted PA total Opex in 2016 should be ca. £920m (£12.76 per passenger) comprising £910m adjusted for HAL passengers including the £20m →Magenta benefit plus £10m for the surface access overlay, or ca. £940m (£13.04 per passenger) excluding the £20m Magenta benefit.

The CEPA/ TA forecast approach is reasonable as it adopts a similar combination of bottom up (e.g., security staff analysis) and top down forecasts which reflects a similar methodology used by PA. Adjusting the PA Opex forecast to the HAL passengers in 2026 results in the PA and CEPA/ TA total cost being very similar, depending on whether → (-£20m in PA forecast) and surface access (£10m) and other initiatives (£7m) are included.

The detailed analysis of the RBP and CEPA/ TA forecasts indicates that the following issues remain:

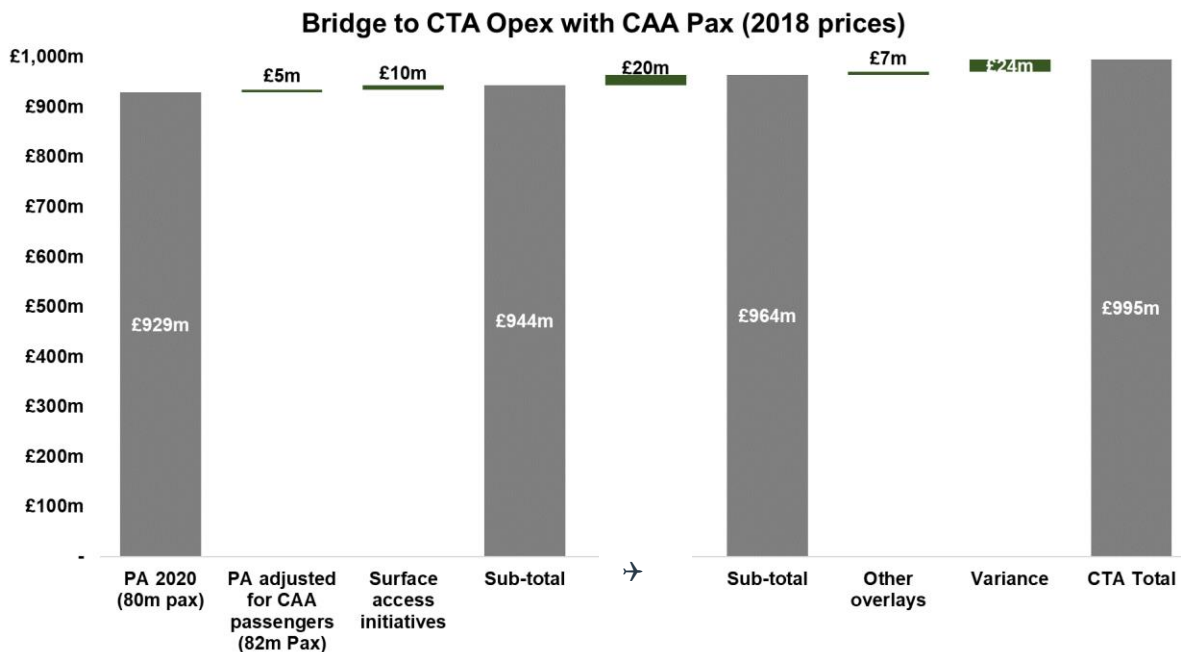
- 2019 is an appropriate baseline cost base but needs to be adjusted to reflect a lower starting point to reflect the unexplained higher cost in 2019 vs. 2018 along with structural cost adjustments outlined in this report.
- 2019 does not represent an efficient frontier with further efficiencies (above the RBP →% p.a. assumption) required. The proposed CEPA/ TA 1.0% p.a. should reflect the ambition to move Heathrow Airport towards being a truly efficient airport.
- Covid-19 sustainable cost efficiencies must be identified and included in the H7 forecast.
- Cost of Change benefits in H7 must be identified.
- Security transformation staff cost efficiency benefits must be separately identified.
- Other Opex reduction opportunities must not be linked, as HAL assumes, to higher capex spend.

When adjusted for the higher CAA 2026 mid case passengers (82.0m), CEPA/ TA's Opex per passenger reduces to £12.13, ca. 13% lower than 2019. The PA Opex adjusted for CAA passengers reduces to £11.39 per passenger, ca. 21% lower than 2019.

PA 2020 Forecast with CAA 2026 Pax			PA	CEPA/ TA
2018 prices		2019	2026	2026
Total	£m	1,173	934	995
Total per passenger	£	14.50	11.39	12.13
Passengers	mppa	80.9	82.0	82.0

Source: CAA, CEPA/ TA, PA analysis

The bridge chart illustrates the differences between the PA and CEPA/ TA forecasts.



Source: HAL, CEPA/ TA, PA analysis

The CEPA / TA and PA forecasts adjusted for the higher CAA passenger forecast suggests that ca. £12 per passenger by 2026 would be a more reasonable outcome for HAL to maintain the progress achieved during Q6 to become an increasingly efficient business. HAL’s assumptions for H7 of much lower passengers and higher Opex are conservative and run a material risk that allowed Opex will be much higher than the actual Opex incurred.

4. Commercial revenue forecasts

5.1 Efficiency of 2019 figures as a baseline

Both HAL and CEPA/ TA adopt 2019 as the baseline year for Commercial Revenues with some adjustments. We agree this is a reasonable position to provide a realistic comparison for post-pandemic performance.

The main challenge with HAL’s approach is that 2019 performance for Commercial Revenue is assumed to be efficient, as such the forecast includes limited efficiency adjustments, which both CEPA/ TA and PA view as unrealistic. Commercial Revenue performance appears more fragmented than HAL Opex performance with a mixture of extremely strong performance in some areas partnered with under performance in other areas.

Overall, HAL’s 2019 commercial revenue performance outperformed its competitor UK airports in relation to total airport revenues.

PA analysis suggests that HAL outperforms other UK airports in terms of duty free and retail – and is one of the best performing airports in the UK for shopping - however it does under-perform for food and beverage and parking compared to other competitor airports.

PA analysis demonstrates that HAL drives extremely high revenues per passenger compared to other European airports and performs well globally too. Revenue growth in other airports is driven by traffic, large space provision, different business management models and (in some cases) the introduction of large arrivals stores, however HAL is considered at the frontier in terms of retail revenues per passenger.

In 2018 and 2019 commercial revenue and revenue per passenger plateaued for HAL. In the absence of any insight into the driving factors behind this, we agree in principle with CEPA / TA that no further efficiency adjustments are required.

5.2 Elasticities

In general, in absence of developing our own forecasts, we agree with most of CEPA/ TA’s elasticity profile, however, we would seek further clarification in the following areas:

The → elasticity applied to Bureaux income. HAL does not assume any elasticity for Forex/Bureau which is typical within an airport environment, as revenues are usually driven by gross sales with concession fees overlaid due to the various products sold (mixes of products differ, buy and sell rates differ, as do other products available). We recommend an analysis is completed on the impact of CEPA/ TA’s proposal to extend the retail elasticity of → to cover bureaux income as applying a passenger overlay could have a significant impact in this area.

1. The OBR “used price elasticity of demand estimates ranging from → and → when estimating the impact of the tax changes” and CEPA/ TA recognise this as a “key area of uncertainty”. As a result, CEPA/ TA proposed a “mid-way estimate [price elasticity] of →”. The impact of CEPA/TA’s decision to use a price elasticity of -1.25 instead of HAL’s -→ is significant, especially considering the % of retail revenue affected for Airside tax free for Non-UK and non-EEA sales. See below:

		% of retail revenue affected ¹	Implied price change ²	Impact on revenues ³
Airside tax free	Non-UK and non-EEA sales	70.6%	20%	-25%
Excise	EEA alcohol sales	2.8%	-60%	75%
	EEA tobacco sales	1.8%	-75%	94%
VAT refunds	Other retail revenue	4.4%	N/A	-100%
Weighted average impact on all retail revenues (excl. Bureaux)				-13.5%

Source: Extract from CEPA / TA report (page 151)

The below table demonstrates the impact of variations in price elasticity for Airside tax free for Non-UK and non-EEA sales:

Airside Tax-Free sales 2019: £ →m		
Price elasticity	Impact on revenues - %	Impact on revenues - £ m
-1.25 (CEPA)	-25%	→
-1.50	-30%	→
-1.75	-35%	→
-2.00	-40%	→
-2.25	-45%	→
-2.50	-50%	→
-2.63*	-57%	→

*(HAL average between World Duty Free Shops -2.47 and specialist shops -2.80)

Source: PA Analysis

As the table highlights, with every -0.25 difference in price elasticity, there is a significant financial impact of -£→m. We support CEPA/TA's view that the justification for HAL's estimate of → is unclear however do not have sufficient evidence to endorse CEPA/TA's "middle of the road" choice of -1.25 as between OBR's range of -0.50 to -2.00. As noted in the CEPA/TA report, we recognise this is a key area of uncertainty and would welcome any evidence from HAL that supports a different elasticity assumption."

2. We would also welcome a better understanding of the →% "management challenge" which CEPA/ TA state is based on "HAL's historical performance in terms of increasing revenues above passenger growth." We understand that CEPA/ TA's rationale for the →% adjustment is to mitigate the downsides and to capture returns from recent capital investments aimed at increasing revenue generation, however the pandemic will have significantly impacted returns compared to historical performance.

Given the difficulties of extrapolating historical performance to forecast forward, we would welcome deeper qualification or evidencing of the drivers (internal/ external) of HAL's historical performance to better understand the achievability of the management stretch.

While PA agrees with CEPA/ TA's elasticity approach in general, we would need to seek further clarification and qualification on the elasticities applied to Bureaux income, Airside Tax free and CEPA/TA's Management challenge of →% before reaching the same conclusion. Relatively speaking HAL's elasticity assumption on Airside tax free sales drives a materially different forecast and yet would also appear to lack conclusive supporting evidence.

5.3 Retail

Airside Tax Free Pricing

HAL claims that the removal of the Airside-VAT free (tax free sales at UK airports were withdrawn for all outbound passengers from 1 January 2021 on goods other than liquor & tobacco) will result in a revenue loss of £→million as a result of the additional →% VAT charge either discouraging international buyers from buying at the Airport, reducing merchants' margins or combination of both. HAL's revenue loss estimations equate to an annual percentage reduction in revenue for VAT absorption as →% pa.

However, whilst legally, there is a removal of tax-free sales, it is likely that discounted products and pricing campaigns will still exist to stimulate spending but with a reduced margin for airports and retailers

It is common for airport contracts to include deals with retailers that will allow 'tax free prices to continue' to exist so the customer is not aware of the regime changes. This will impact the cost for retail operators/ reduced concession fees payable to the airport but allow the continuation of discounted products with little contract administration/ renegotiation. When VAT and excise-duty free was abolished for travellers within the EU on 1 July 1999, "tax-free prices" did not continue afterwards. The tactic deployed by airports and retailers was to keep prices of intra-EU

(now VAT-paid, previously VAT-free) products the same as before 1 July 1999, except for excise duty products alcohol and tobacco. Airports and retailers negotiated to absorb the VAT internally, so margins were reduced significantly. It did mean that “passengers were not confronted with confusing pricing differences” intra-EU and extra-EU. Retrospectively, this was a good move, the public went on buying (as airport retail is highly emotional, the “perception of having a good deal” makes pax spend irrationally) and the impact of the abolition of VAT-free shopping intra-EU was mitigated a bit. But still had a serious margin-lowering effect on airports and retailers.

PA agrees with CEPA/ TA that there will be less retail concession income from retailers who choose to absorb the additional VAT in return for lower concession rates.

Store Closures

Based on PA’s experience, it would seem reasonable to assume that it is unlikely that store closures will result in a long-term reduction in retail outlets at HAL given its importance within Top 10 airports worldwide. Coming out of COVID, smaller airports will be impacted quite significantly but brands that will leave will be the ones who are too small to future proof themselves vs. the demands of airport landlords. The pandemic has led to a large number of closures of stores (short, medium and long term) and indeed to terminal closures such as Gatwick South – but we expect that retail business will return alongside traffic numbers. At a recent the Travel Retail Consumer Forum (Sep 2021), HAL announced a number of new retail and food and beverage openings in 2021. Although, we understand that HAL is still seen as an exciting opportunity for retailers, it would be reasonable to assume that there could be a small impact and could result in a smaller number of short term store closures,

As a result, we agree with CEPA that HAL’s reduction in retail revenues is less than forecast and would be interested to quantify the total impact of store closures for retail revenues.

Excise Duty re-instated and the removal of the VAT Res Scheme

Regarding the extension of excise duty free on liquor and tobacco to travellers to the EU, dependent upon airport, through our work with other airports we have seen some positive trends of higher sales within the liquor and tobacco categories. However, forecasts cannot be made purely on the EU travel numbers as pre pandemic, many passengers were travelling on business within EU did not buy. A number of UK airports are benefitting from duty free sales to UK leisure passengers who are travelling to EU (albeit small numbers). We may see an uplift in leisure profiles within the traffic mix which inflates sales in this area, but unlikely to be significant at this stage.

Recent experience with airports similar to Heathrow has identified c. 2-3% increase in total duty-free sales (which if overlaid onto HALs total sales could deliver approximately £→-£→m) in 2022 alone.

A potential downside to sales moving forward could be potential tobacco country bans (reflective of the New Zealand’s government policy) which could focus on airports in the future as a focus on wellness continues. We do not foresee that these should be forecasted into revenue projections at this stage however this trend and similar should be monitored closely.

We agree with HAL’s forecast of lost income to the processor of VAT refunds (based on the passengers’ sales off airport). It has been argued that the overall effect is that less retail tourists will come to UK (and more likely to shop in Paris or Milan) but is too early to make these remarks with any authority.

We also agree with CEPA/ TA that an indirect loss in revenue from retail sales that are made by passengers using the cash they receive from VAT refunds is possible however without having an insight to VAT refund totals at the airport and the number of passengers using this service, it is impossible to ascertain the overall affect. We would also seek further clarification on what research has been carried out to ascertain how many passengers will spend the refund (based on UK downtown purchases) in the airside location.

PA agrees with CEPTA/ TA that there may be lost concession income and an indirect loss in revenue from retail sales however need more qualification on the detail behind an increase in duty free income as a result of the extension of excise duty free relief to alcohol and tobacco sales to EU destinations.

Advertising

Advertising revenue, in our experience, is generally driven by the amount of space allocated to this purpose and the achieved yields per sqm or other relevant metric to be related to the type of traffic served. Following the pandemic, there has been a dramatic shift in airport advertising including changes such as no more minimum annual guarantees, longer contract periods, a move towards joint ventures instead of concession contracts, a shift in advertising budgets of luxury brands towards China/Asia and out of Europe, and in demands from brands that the airport/JCDecaux (HAL’s advertising partner) provide proof that the airport is being sustainable/ environmentally focused before advertising contracts are agreed. However, despite significant changes in the

market, the top 10 airports in the world are targeted by the large advertising companies as absolutely key to their businesses. The rationale is that a high proportion of airport travellers are ABC1s⁵ (ONS socio-economic classification) and therefore are more likely to have a higher propensity to spend. Moreover, the majority of air travellers have more time to read advertising messages at the airport and thus absorb advertising content (PA Analysis).

Whilst it is unlikely that advertising revenue will drop significantly due to the significance of Heathrow, contractual changes, no more minimum annual guarantees, and a shift of budgets out of Europe means that it could be challenging for HAL to achieve the →% stretch target. However, the investment into digital screens could result in better targeting of passengers and brands for HAL which could help to generate/ boost revenues.

PA would welcome evidence to better understand CEPA's application of "a →% management challenge adjustment each year from 2020" as in the remaining years of HAL's (revised and extended) advertising contract with JCDecaux. Based on our experience we believe it would be a challenge for HAL to achieve a →% improvement every year.

Passenger profiles

We agree with CEPA that no detail has been provided around the projected £→m loss in sales due to changes in passenger behaviour and the overlays alongside removal of airside VAT present a risk of double counting.

We know that, in the last year, there have been some substantial increases in the average transaction values spent by the traveller – in some UK airports, these are around 21-25%⁶ above 2019. These increases are being experienced across the world in many large airports. Qualitative research suggests that higher ATVs are as a result of pent-up demand, highlighting the influence and speed of external factors on spending behaviour.

This reinforces the requirement for a clear brand strategy at airports which is key to mitigating such peaks and troughs in spending. New brands, experiential retail, traditional retail, promotional retail, digital engagement is critical to customer engagement and spending. We don't have an insight into HAL's brand strategy management and whether it is robust enough to drive and in turn mitigate spending, where required.

We also agree with CEP/TA analysis that the various destinations and nationalities do contribute to higher spends (ATVs) at the airport –passengers travelling to Asia and the Middle East – and in essence those passengers will continue to spend at the higher levels (based on airport insights). HAL assumes that changes in the passenger mix will lead to a →% decline in revenue (relative to 2019) in 2022 and a →% decline in 2023, before returning to normal. It is not clear, however as to why HAL continues to project losses of £→m each year to 2026 when the traffic will have nearly returned to normal by 2023. We need clarity of what detail is behind the £→m impactor 'passenger behaviour' as it constitutes 16% of the overall HAL forecasted impact.

We note specifically that travel mix does not impact all retail activities. Food and beverage sales, one of the three main contributors to airport retail sales, are mainly driven by the time of the day -breakfast, lunch, and dinner timings and basic needs rather than by the type of traffic at the airport. One should expect that the impact of changes in traffic mix to be limited to specialised retail and Duty- Free stores.

Like CEPA/ TA, we accept the logic that changes in the passenger mix could affect retail concession income during the coming years post pandemic, however, we do not see HAL's £→m loss against the baseline year evidenced or substantiated especially considering HAL ascertains that traffic returns to "normal" by 2024.

5.4 Surface Access (Car parking and car rental)

The latest financial numbers published by HAL corresponding to Q3 2020 show that car parking and car rental numbers have been more resilient than passenger numbers. Comparing the first nine months of 2021 in relation to equal period of 2019, passenger numbers have dropped by 83.3% while car parking and car rental revenue has declined by only →% indicating an implicit elasticity of →between both variables.

The resilience of car parking and car rental is even higher as the analysis is restrained to comparing the first 9 months of 2021 in relation to the same period of 2020, both periods affected by the impact of covid restrictions. While passenger volumes further reduced from → million in 2020 to 10 million in 2021 representing a 46% decline, in the same period, car parking and car rental only declined by 32% suggesting an implicit elasticity of →.

⁵ [Social Grade A, B, C1, C2, D, E - UK Geographics](#)

⁶ PA Analysis

We also believe that Car parking and car rental is one of the areas where companies with strong commercial acumen can add value. Yield management and customised premium products are commonly deployed across leading airports and we understand that HAL has recently invested in upgrades in this area,⁷ Through the utilisation of technology, booking software and sensors, airports optimize their pricing structure to maximize yields and occupancy rates – this insight will prove invaluable to counteract lower demand in 2022- 2023 period.

Customised premium products oriented to passengers willing to pay more for a better experience, like “Meet and Greet, fast tracking and VIP solutions, are high margin products for airports offering the best yield even after deducting the additional operational costs. These products also help to better manage the most attractive parking areas as valet parked cars can be placed in further out locations meanwhile passengers are travelling.

CEPA/ TA makes a good case in their thinking about how HAL has used various assumptions to overlay onto model which can create double counting on assumptions. CEPA/TA question why park and ride volumes experience a substantial reduction in 2021, not experienced by other similar modes such as Kiss & Fly – for clarity, Park and Ride is either used as a valet service and is a form of leisure long stay efficient parking or fast track for business passengers – neither of which has generated many revenues during the pandemic vs. Kiss & Fly drop off solution.

Whilst we understand CEPA/TA’s theoretical approach to modal splits – we are compelled to agree with the splits that HAL have produced. This is based on the post pandemic attitude of travellers at some of the other UK airports – the theme is overwhelmingly not using public transport (apart from direct rail) and using more taxis and drop offs to protect travellers. As a result, Park and Fly propositions have been impacted as passengers want to limit contamination and contact.

Based on the last data available for HAL, PA believes that an elasticity of 0.9 between car parking and car rental and passenger volumes is more appropriate value than the → value suggested by HAL due to the opportunity to drive up yield capitalise on the pandemic effect in the early years.

5.4 Surface Access (Rail)

HAL has proposed an elasticity of 1.0 with respect to HEX passengers. As the impact on yields as a result of COVID-19 and the introduction of Crossrail services is dealt with separately, CEPA/ TA accepted HAL’s elasticity proposal for the forecasts.

HAL is suggesting applying two overlay adjustments. One to account for the structural changes triggered by Covid - according to HAL, and the second one to reflect the impacts of Crossrail commencing operations.

HAL claims that Covid has affected its ability to generate revenue from HEX in twofold. First, it has affected HEX volumes, through a lower modal share as several passengers have switched from public transport options to private or rental car options. Second, to prevent further passenger declines, HAL has reduced its HEX tariffs leading to a yield reduction of →%. HAL claims that the mode share changes triggered by COVID will have a long-term impact and its revenue optimising strategy is to keep the fare discounts applied through the pandemic.

We share CEPA/TA’s view that there is no evidence to support HAL’s claims that the lower tariff scheme constitutes a revenue maximising strategy. HEX services cater to passengers who are either time-sensitive e.g., business travellers- or prefer a more comfortable journey to central London e.g., affluent tourists and residents rather than budget-cautious travellers. We also believe that HAL’s modal share assumptions are pessimistic in nature and the temporarily changes in travelling preferences should vanish faster than assumed by HAL.

We endorse CEPA/ TA’s estimations for HEX modal shares and view that no yield reduction should be applied to model the long-standing impacts of Covid on HEX.

Crossrail has been running services between HAL and Paddington since 2018. In 2020, the rolling stock used to provide this service was upgraded with the incorporation of the new Class 345 rail. The network is expected to be fully integrated connecting the west and east ends of the line through central London in the second half of 2022, if no further delays are incurred.

HAL states that when Crossrail becomes fully operational this will lead to a decline in passenger volumes of approximately →% and →% in average yields resulting a revenue loss of 29%.

We agree with CEPA/ TA’s view that the reduction in revenue should be only applied to the train operations and hence revenue from track access charges should be excluded from the calculations.

⁷ [APT Skidata upgrades entire parking system at Heathrow Airport - Passenger Terminal Today](#)

We would invite the CAA to factor-in the revenue projections for HEX the following elements:

- The probability of new delays in the beginning of Crossrail's operations through central London.
- The existence of a learning curve – also referred as ramp-up period- through which passengers progressively transfer from one transport mode to another. This process generally takes between 1 and 2 years and implicates that traffic volumes are between 10% and 30% lower than a normal year of operations.
- Crossrail payments -if any- to HAL for using HEX tracks.

The factors listed above are likely to mitigate some the negative impacts on HEX from Crossrail competition.

We agree with CEP/TA that it is reasonable to assume an elasticity 1.0 between HEX and traffic volumes as proposed by HAL. However, like CEPA, we dissent with the magnitude of the overlay adjustments proposed by HAL.

5.4 Surface Access (Drop-off charges)

HAL has announced the implementation of drop-off charge on private car (“kiss and fly”) and taxi trips to the airport from Q3 2021. The drop-off charge is planned to cost £5 until 2026 when it will be increased to £7. HAL is projecting to collect 2018 £ 7 million over H7 from this initiative.

CEPA has recreated HAL's calculations using information disclosed by HAL and publicly available estimating the expected revenue potential for the new drop-off charge at 2018 £ 7m. CEPA's estimation is almost 25% higher than HAL's numbers.

There are several airports in the UK like Luton, Stansted, Manchester, and Gatwick which have implemented drop-off charges. Luton implemented its drop-off charges for first time in 2009 with a symbolic charge of £1 which is now priced at £5 for the first 10 minutes with an additional £1 per minute thereafter. Stansted launched its scheme in 2012 charging £2 per vehicle which has experienced a material increment to date with the latest tariffs at £7 for the first 15 minutes and £25 for longer stays. Gatwick has only started this operation.

Based on other UK airports' evidence, we believe that the CEPA's estimation for the new drop-off charges represent a more accurate representation for its revenue potential than HAL's projections.

5.5 Property

HAL has proposed an elasticity of 0.25 for property revenue with respect to utilised terminal space. This is not supported by any evidence in the RBP. CEPA/ TA use an alternate elasticity estimate of 0.25, based on data on the number of contracts in which we have not had insight. HAL has with different types of property customers and CEPA have made assumptions on the types of contracts that are likely to be driven by terminal usage and derive our estimate accordingly.

Property revenue is generally driven by the amount of space available for commercialisation. According to the information provided by HAL to CEPA, the type of rental space offered at Heathrow airport includes Business centres, office space for airlines, operational centres for ground handling activities, lounge space, among others. Contractual agreements are predominately structured around fixed amounts subject to a pre-established indexation mechanism, generally a proxy to inflation. Some contractual agreements are partially linked to operational volumes like check-in desks or lounge services, but these offers account for a relatively small amount of all property revenue.

One of the effects of the pandemic was to make every operator at an airport reconsider their space requirements:

- Actual physical space required vs historical space used and the capability of working virtually
- Cost of space (when a space cannot be used) focuses business on becoming smarter about their working processes
- Location of space – remain on or move off-airport
- Rental value of that space and likelihood of others wanting to take over the areas

We agree with CEPA that HAL has not shared details of how they believe the tenant's space requirement will change and also agree with the fact that the pandemic clearly impacts in the short term.

Property revenue should not be materially different across the later years of H7 than in the previous price control period even when traffic volumes may be lower. PA considers CEPA/ TA's recommendation to restrict the impact of changes in the occupancy rates for the terminal on property revenue projections to an elasticity factor 0.25 to be appropriate.

5.6 Other non-aeronautical revenues

HAL has proposed an elasticity of \rightarrow with respect to passenger numbers. CEPA/ TA identify a number of reasons why this may be an overestimate (e.g. fuel sales are unlikely to be affected on a one for- one basis by passenger volumes) and so, we have used an elasticity of 0.8 for the purposes of our forecasts.

It is difficult to indicate the most suitable metric to forecast *Other service revenue* without having the specific breakdown across different products and services. To increase forecast accuracy, a specific driver would be allocated to each product and service component.

The revenue streams managed under this category include jet fuel, VIP services and fast track.

For fuel sales, we understand that the number of aircraft movements is a better indicator of aircraft fuel consumption needs than passenger numbers, the implicit metric behind HAL's numbers. Aircraft movements have resisted better than passenger volumes and hence we would have expected that fuel sale volumes to be also more resilient to passenger fluctuations. Using passenger volumes instead of aircraft movement may lead to an underestimation of this revenue line.

For VIP and fast track services, these should be driven by passenger numbers, but they are limited in a % of passengers who will partake of these services and upgrades.

Given the limited information at our disposal to conduct a more detailed assessment, we feel that CEPA's suggestion to use an elasticity to passenger volumes of 0.8 rather than \rightarrow as proposed HAL, is reasonable.

5.7 Cargo revenues

HAL has estimated its cargo projections assuming a negative elasticity between cargo volumes and passenger volume of \rightarrow . CEPA/ TA suggests that this forecast approach is not fit for purpose. Cargo volumes are correlated with the number of cargo specialised flights. Industry standards suggest a ratio of about 0.3 to 0.5 tonnes per flight.

CEPA/ TA has adopted a different set of assumptions – still using elasticities- which leads to materially higher projections. Furthermore, HAL projections substantially underestimated its cargo revenue receipts for 2021 and 2022. While it projected revenue of 2019 £ \rightarrow million for both years, HAL effectively collected 2019 £ \rightarrow and 2019 £ \rightarrow million from its cargo operations.

As traffic volumes pick up, the number of slots available for specialised cargo flights will progressively decline. This will lead to a reduction in HAL's ability to generate cargo revenue but remain considerably above the pre-pandemic level.

We believe that the projections prepared by CEPA/TA are a closer representation to HAL's capacity to generate cargo revenue throughout H7 than HAL's own forecast.

5.9 Overall results

HAL is recognised as a commercially astute airport operator. In 2019, HAL was at the frontier, in some areas of commercial revenue e.g., in retail and duty free but with opportunities for improvement on the 2019 baseline in areas such as parking, food and beverage where other UK competitors were more successful (PA analysis).

We acknowledge that there are many items that will impact HAL's commercial revenues in addition to a few key drivers that will have a material impact on HAL's commercial revenues moving forward These are;

1. **Duty changes** – eligibility of passengers travelling to EU countries to buy alcohol and tobacco products at considerably reduced duty free prices which is expected to significantly increase sales.
2. **Tax changes** – notably the removal of airside VAT free and the negative impact this has on retail income
3. **Passenger mix effect** – Reduction of "high spend passengers" until 2024, when HAL estimated traffic returns to 2019 levels
4. **Contract transformation** – changes to property, retail, advertising agreements as a result of the pandemic which may impact revenue generation compared to a 2019 baseline

In the absence of the time required to complete comprehensive review on this occasion, we have approached the commercial revenue reviews with a test of reasonableness, identifying items where we strongly agree with CEPA/ TA's approach and areas which we believe require further investigation before fully endorsing. We were limited to

the information provided in the HAL RBP Update 1 and CEPA/ TA report and are aware that some of the items in our report may have been considered and dismissed at an earlier stage for various reasons, undisclosed in the final CEPA/ TA report.

We have commented on all of the commercial revenue drivers presented in the report however would note that there are a few areas of revenue generation which have not been made explicit in the report. These include:

1. Arrivals shops – the UK industry is lobbying for the introduction of duty-free arrival stores (excludes domestic flights) – there is a positive mood in the industry that this will be accepted
2. Monetisation of audience and digital engagement – a revenue stream that other UK airports are considering supplementing retail
3. Online transactions – HAL offer a few services in this regard but could generate more revenues through a seamless digital engagement of the passenger journey

These drivers have the ability to disrupt the airport retail industry of today and are likely to evolve in some shape or form within the H7 period. It is our belief that HAL should see to leverage digital transactions to mitigate proposed revenue losses.

In terms of overall approach, CEPA / TA's forecasting methodology for commercial revenues appears sound to PA and the CAA's advisors' have certainly had access to a large amount of information and explanations, including from HAL to inform and support the conclusions reached. PA has also observed that retail spend per passenger has increased during the pandemic, that retailers are not leaving Heathrow as expected and that historically HAL has tended to overperform in terms of delivering commercial revenues. Hence, while a $\rightarrow\rightarrow\%$ reduction in retail revenues could appear to be very challenging in a much changed airport environment post-pandemic, a combination of HAL's previous performance, the fact that Heathrow remains a premium global airport and the likelihood that the negative passenger mix effect will not materialise in the extreme way that HAL predicts (the $-\text{£}\rightarrow\text{m}$ overlay throughout H7 appears overly pessimistic for passenger behaviour), leads us to believe that the CEPA / TA report is potentially realisable.

In conclusion, and for the reasons highlighted above, if we had more time, we would seek further clarification and comfort on the management stretch assumptions, in particular with respect to retail revenues. Nevertheless, PA finds the CEPA / TA approach credible and would encourage the CAA to take the commercial revenues forecast of its own advisors very seriously when reaching its final decision.