

**Third Interim Review of the 2019 Determination
on Airport Charges at Dublin Airport**

Methodological Consultation and Issues Paper

Commission Paper 1/2022

4 February 2022

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1. Executive Summary

- 1.1 This year, we are carrying out a review of the 2019 Determination on the maximum level of Airport Charges at Dublin Airport.¹ This paper begins our formal process of engaging with stakeholders on that review.
- 1.2 The 2019 Determination, published in October 2019, set the maximum level of Airport Charges at Dublin Airport for 2020-2024. In early 2020, the COVID-19 pandemic had an unprecedented impact on the aviation industry, including Dublin Airport. Passenger numbers at Dublin have fallen by approximately 75% in 2020 and 2021, compared to 2019. This has had a severe commercial and operational impact on Dublin Airport and on other aviation stakeholders.
- 1.3 The outbreak of the pandemic led to our decision in 2020 to carry out a first Interim Review of the 2019 Determination, which sought to address the impact of the pandemic on the regulatory settlements for 2020 and 2021 in a targeted and proportionate manner. The scope of this review did not include reopening all of the underlying assumptions and forecasts to derive new base price caps.
- 1.4 In 2021, we carried out a second Interim Review which broadly carried forward this approach into 2022. In that decision, we also committed to carrying out a full review during 2022. This review would also extend the length of the regulatory period by two years. Thus, we would determine revised regulatory settlements for 2023-2026. This paper is our first major consultation on that review.
- 1.5 We are required to set the maximum level of revenue Dublin Airport can collect from Airport Charges, having regard to a range of statutory objectives and due regard factors. The core of these objectives relates to economic efficiency and seeking to maximise the value that Dublin Airport provides to current and future users. Our objectives will be amended later this year with the enactment of the Air Navigation and Transport Bill. Our economic efficiency related objectives will remain in place, with an additional focus given to promotion of sustainability and climate change related policy.
- 1.6 We use the ‘building blocks’ approach, including a regulatory asset base (RAB), to determine the maximum level of Airport Charges per passenger at Dublin Airport. This involves forecasting required aeronautical revenues per passenger by forecasting efficiently incurred operating and capital costs, commercial revenues, and passenger traffic. We then assess the financeability of the resulting regulatory settlements, adjusting them if required. We also implement a system of rebates relating to service quality, to incentivise the provision of an appropriate standard of service to airport users (passengers and airlines).
- 1.7 Uncertainty will be a key feature of this review, and we need to address our collective expectations on the ability of the regulatory settlement to deal with downside scenarios. We are confident that a settlement can be arrived at in 2022 which is fit for purpose in a reasonable range of downside and upside outcomes in the period 2023 to 2026. While mechanisms to deal with more extreme scenarios can be considered, it

¹ Where we refer to ‘Dublin Airport’, we are referring to the economically regulated entity within daa group.

does not appear that an 'automatic' provision would be workable. However, we are interested in views on the level of downsides the regulatory settlement should be able to deal with, without conducting an interim review.

- 1.8 To date, most of the risk of deviations from these forecasts within a regulatory period has been assigned to Dublin Airport. That is, when Dublin Airport outperforms the forecasts, it retains the benefits, and vice versa. When a full review is carried out, this risk is transferred to airport users, as the forecasts are updated for actual performance over the period. A key question for this review is the allocation of within-period risk over 2023-2026, because of the additional challenge faced in developing robust and reasonable forecasts for Passenger Forecasts, Operating Expenditure (Opex), Commercial Revenues, and Capital Expenditure (Capex).
- 1.9 Passenger forecasting is currently subject to a high degree of uncertainty, and we are considering how best to address this. Our current thinking is that the best approach may be to develop a reasonable base year with consideration of industry forecasts and any evidence that stakeholders can provide. We would then forecast from this point using, for example, a GDP elasticity. Industry forecasts will be used as a sense check for any forecasts produced. We will continue to consider the approach to forecasting over the coming months.
- 1.10 Opex has been reduced significantly in 2020/2021 compared to 2019. In 2019, we carried out a detailed bottom-up analysis of Opex, to develop forecasts for 2020-2024. However, there has been significant operational and commercial change within the business since then. Thus, we will carry out an updated bottom-up efficiency review of Opex, which may be complemented with top-down analysis.
- 1.11 For Commercial Revenue, we will need to assess the likely impact of COVID-19 on passenger behaviour, and whether the methodology previously used to forecast Commercial Revenue can be applied for this review. We will also consider whether to reimplement rolling schemes for Commercial Revenue. Our current thinking in relation to Commercial Revenue is that we should broadly continue with the econometric approach used in 2019, while updating the implementation of it. We are likely to also carry out benchmarking as a sense check for the econometric forecasts.
- 1.12 For the Cost of Capital, we will update the 2019 calculations for relevant changes that have occurred since the Determination. For certain components, we expect that this will be a more self contained update of data inputs. For others, such as the asset beta and the 'aiming up' allowance, we expect to reconsider interdependencies and/or certain elements of the methodological approach. We have engaged Swiss Economics to provide an updated version of their 2019 Cost of Capital assessment.
- 1.13 The primary consideration for Capex in this review will be the nature, quantum and timing of allowances for capital investment over the revised regulatory period. Dublin Airport will first run its consultation on the revised Capital Investment Programme (CIP) for 2023-2026 in February/March. Following this, the projects will be assessed to ensure that the allowances are efficient and that the outputs align with our statutory objectives. As part of its role as the Independent Fund Surveyor (IFS), Steer will be assessing newly proposed projects and updating project cost estimates where required.

- 1.14 A key element of the financeability assessment will be the impact of the pandemic on Dublin Airport's net debt position. We have engaged Centrus to assist in the assessment of financeability. At present, we intend to apply a similar methodology to 2019, with a forward-looking analysis over the revised regulatory period. We will seek to strike an appropriate balance between enabling the financeability of the regulatory settlements, and ensuring users do not bear unnecessary costs in the process.
- 1.15 Our current thinking is that the Quality of Service regime put in place in the 2019 Determination represents a good starting point for this review. The primary considerations for Quality of Service in this review will be to examine the elements of the scheme that may need to be adjusted, for example as a result of changes to passenger priorities or airport operations due to COVID-19. We intend to engage with the Passenger Advisory Group in relation to the current scheme, and any adjustments that may be warranted.
- 1.16 The rest of this paper is structured as follows:
- Section 2 sets out the background and introduction to the review.
 - Section 3 sets out relevant statutory factors.
 - Section 4 addresses the overall approach to regulation, including the allocation of risk.
 - Sections 5 to 9 address the building blocks in turn: Passenger Forecasts, Opex, Commercial Revenues, Cost of Capital and Capex.
 - Section 10 addresses Financial Viability and financeability.
 - Section 11 addresses Quality of Service.
- 1.17 This is a consultation document. We welcome responses on all aspects of our proposals and current thinking. Responses are due by **5PM on 7 March 2022**. See Section 2 for details on responding to this consultation.

2. Background and Introduction

- 2.1 The 2019 Determination, published in October 2019, set the maximum level of Airport Charges (price caps) at Dublin Airport for 2020-2024.
- 2.2 As part of the 2019 Determination, we engaged in a lengthy and constructive consultation process. We started our process of stakeholder engagement in April 2018 with the publication of the Issues Paper, a methodological consultation which sought comments from interested parties on how we should proceed. In October 2018 Dublin Airport issued a draft Capital Investment Programme (CIP) to airport users for stakeholder consultation, and having considered their feedback, published an updated version in February 2019.
- 2.3 A high degree of consensus was achieved on the CIP, especially regarding capacity enhancing projects. In May 2019 we published the Draft Determination, with a two-month consultation period during which we received 37 responses. In October 2019 we made our Final Determination, following a detailed review of all submissions received and ongoing discussions with stakeholders.
- 2.4 The 2019 Determination was appealed by Ryanair and Dublin Airport on a number of grounds. The Commission made some relatively small reductions to the price caps for 2022 and 2023 in response to the findings of the appeals panel in relation to one of the grounds of appeal brought by Ryanair. Table 2.1 below sets out the base price caps per passenger originally determined in October 2019, as well as the final varied price caps set pursuant to the referrals from the appeals panel in May 2020.

Table 2.1: Base Price Caps in the 2019 Final Varied Determination, February 2019 Prices

	2020	2021	2022	2023	2024	Average
October 2019 Determination	€7.50	€7.50	€7.88	€8.12	€8.32	€7.87
Final Varied Determination	€7.50	€7.50	€7.75	€8.05	€8.32	€7.82

Source: 2019 Final Varied Determination

Impact of COVID-19

- 2.5 Before the conclusion of the appeals process in relation to the original determination, the COVID-19 pandemic broke out. Over 2020 and 2021, this resulted in the most significant downturn ever experienced at Dublin Airport, with passenger traffic falling by approximately 78% relative to our 2020 forecasts and by 76% relative to the 2021 forecasts. Traffic in 2020 was 7.5m passengers, the lowest since 1994, having fallen from a high of 32.9m in 2019. Furthermore, most of this passenger traffic was in the first three months of the year.
- 2.6 By mid-2020, it was clear that the impact of the pandemic would not be short lived, and the original regulatory settlements for 2020 to 2024 were no longer fit-for-purpose. If left unchanged, these regulatory settlements would have had unintended and disproportionate effects which would run contrary to our statutory objectives.
- 2.7 Thus, in 2020, we conducted a first Interim Review². The actions taken included: the

² <https://www.aviationreg.ie/fileupload/2019%20Determination/2020%20Interim%20Review/Final%20Decision.pdf>

removal of triggers and adjustments relating to the price caps for 2020 and 2021, and the removal of the requirement for Dublin Airport to rebate airport users in respect of an overcollection of aeronautical revenues per passenger compared to the original *ex-ante* price cap in 2020. For 2021, we removed all adjustments, such as Capex delivery reprofiling triggers, service quality rebates, and the Opex passthrough mechanism, leaving just the base price cap €7.50. In 2021 we carried out a second interim Review, relating to 2022.³ As in the first review we removed most of the adjustments but reinstated a reduced form version of the Quality of Service adjustments, and an inflationary adjustment. Across both reviews, we committed to not clawing back remuneration of unspent Capital Expenditure allowances for 2020-2022 when deriving the future RAB.

- 2.8 The 2020 Interim Review allowed for an effective price cap of €9.94 per passenger for 2020, and €7.50 per passenger for 2021, in nominal prices. This resulted in aeronautical revenue of €73.4m in 2020, 39% more than if no review had occurred. Last year, we noted that if passenger numbers for 2021 were in line with 2020, this would provide an estimated €56m in aeronautical revenues (24% more than if no review had occurred).⁴
- 2.9 Furthermore, we estimated in the Interim Review that approximately €77m in Capital Costs for 2020 and 2021 would not be clawed back. Thus, adding this to the immediate price cap increases for 2020 and 2021, we estimated that the 2020 Interim Review improved the current and future value of the 2020 and 2021 regulatory settlements for Dublin Airport by approximately €108m, relative to a no intervention scenario.
- 2.10 For 2022, we have allowed for a nominal price cap of €8.11, as opposed to €6.52 had no review occurred. If passenger numbers are 21m in 2022, this will result in aeronautical revenues of €170m, an increase of €33m compared to no intervention. We also estimated that the continued suspension of the Capex clawback mechanism will have an impact of €65m to €80m. Thus, the value of the 2022 regulatory settlement will be approximately €100m to €115m higher for Dublin Airport than if there was no intervention.
- 2.11 The impact of the COVID-19 pandemic on Dublin Airport’s financial position has been significant. In 2020, in nominal terms it made an overall loss of €107m, with an EBITDA loss of €2.1m⁵. In 2021 it made an overall loss of €85.5m, with EBITDA rebounding to +€39m. The downside scenario would have been worse had it not been for cost adjustments made by Dublin Airport, the Interim Review undertaken by the Commission as described above, and government supports.
- 2.12 Significant cost savings have been made, as described in later sections of this paper. Dublin Airport also made use of various additional mechanisms to cushion the impact of the pandemic on its finances between 2020 and 2021. The Irish Government Employment Wage Subsidy Scheme (EWSS), and additional pandemic wage support schemes, contributed up to €350 per week for every eligible employee at Dublin

³ [https://www.aviationreg.ie/fileupload/Final%20Decision\(1\).pdf](https://www.aviationreg.ie/fileupload/Final%20Decision(1).pdf)

⁴ We know now that passenger numbers somewhat exceeded those expectations for 2021, with 8.5m passengers travelling through Dublin Airport, meaning the allowed aeronautical revenues were €63.4m.

⁵ <https://www.aviationreg.ie/fileupload/Regulated%20Entity%20Accounts%202020%20ABRIDGED%20%20Final%20signed%20pgs%2014%20April%202021.pdf>. Loss excluding exceptional items.

Airport, which significantly eased its salary costs. It also benefitted from a local authority rates waiver.

- 2.13 We understand that net debt is close to the level forecast in the 2019 Determination, at approximately €1.1bn, however, this level of debt was expected to result from Capex against the CIP2020-2024 as outlined above. Thus, the RAB is significantly smaller than forecast.
- 2.14 The Irish Government has also provided Dublin Airport with €97m in Exchequer support.⁶ This was provided on the basis that it be used to reduce charges paid by airlines. Thus, it is not directly benefitting the finances of Dublin Airport but will do so indirectly by stimulating traffic recovery. This reduction has already contributed to Ryanair announcing a large programme of summer flying at Dublin Airport for 2022⁷, adding to a general trend of optimism for a sustained recovery this summer and beyond.
- 2.15 In our decision on the second Interim Review, we committed to a full review which would reassess the base price caps such that efficient costs and required aeronautical revenues would be realigned from 2023. We also set out our intention to extend the current regulatory period, such that this review will establish regulatory settlements for each of the four years 2023-2026. This paper is our first major consultation on that review.

Substantial Grounds for this Review

- 2.16 Regarding the grounds for this Interim Review, we note that pursuant to Section 32(14) of the Aviation Regulation Act 2001, as amended by the State Airports Act, 2004, the Commission may carry out an interim review of the prevailing determination if it considers that there are substantial grounds for doing so. As established in the first and second reviews, the significant impact of the COVID-19 pandemic on the assumptions underpinning the regulatory settlements clearly constitutes substantial grounds for an Interim Review of the 2019 Determination.
- 2.17 The circumstances arising from the COVID-19 pandemic are exceptional by any reasonable metric, and outside the control of Dublin Airport. The regulatory settlements are no longer fit-for-purpose and, if not adjusted, are now likely to run contrary to our statutory objectives, thereby compromising the objectives of the original decision.

Timeline for this Review

- 2.18 We are allowing one month to respond to this consultation paper. In Q1 this year, Dublin Airport will consult on its draft Capital Investment Plan (CIP), while also developing its overall regulatory proposition. These documents will be published and will feed into our Draft Decision on the Interim Review, which we will publish in June. The Draft Decision will make specific proposals for the revised regulatory settlements, and also outline our consideration of responses to this paper. We will then allow stakeholders two months to respond to our draft proposals. Our responses to these

⁶ <https://www.gov.ie/en/press-release/0dd30-minister-of-state-naughton-announces-108m-in-funding-for-irish-airports/>

⁷ <https://corporate.ryanair.com/news/ryanair-announces-largest-ever-dublin-schedule/>

will then be set out together with the final reviewed regulatory settlements in the Final Decision, which will be published in November.

- 2.19 The timeline to complete this full review in time to take effect from next year is thus challenging for the Commission, for Dublin Airport, and for other stakeholders. It should be noted that this timeline will depend on the timely provision of data and deliverables from Dublin Airport.
- 2.20 This is a consultation document. We invite submissions on all aspects of our proposals, and on the issues we have identified, by **5pm, 7 March 2022**.⁸ Responses should be sent by email to: info@aviationreg.ie.
- 2.21 It should be noted that all 2021 figures for cost and revenue are draft and unaudited. All figures are in December 2021 prices, unless stated otherwise.

⁸ Respondents should be aware that we are subject to the provisions of the Freedom of Information legislation. Ordinarily we place all submissions received on our website. We may include the information contained in submissions in reports and elsewhere as required. If a submission contains confidential material, it should be clearly marked as confidential and a redacted version suitable for publication should also be provided. We do not ordinarily edit submissions. Any party making a submission has sole responsibility for its contents and indemnifies us in relation to any loss or damage of whatever nature and howsoever arising suffered by us as a result of publishing or disseminating the information contained within the submission.

3. Statutory Objectives and Remit

3.1 The statutory remit of the Commission is to specify the maximum levels of Airport Charges that may be levied by daa in respect of Dublin Airport, having regard to a range of statutory objectives and due regard factors. This can be an overall limit or limits to particular categories of charges or both. To date we have fulfilled this with a per passenger limit on Airport Charges, with the exception of 2020 when, to address the impact of the pandemic, we replaced the original *ex ante* price cap with limits on particular categories of charges.

Current Statutory Objectives

3.2 In making a determination, we currently have three statutory objectives under Section 33 of the Aviation Regulation Act of 2001 ('the 2001 Act'), as amended by the State Airports Act of 2004:⁹

- To facilitate the efficient and economic development of Dublin Airport which meets the requirements of current and prospective users of Dublin Airport.
- To protect the reasonable interests of current and prospective users of Dublin Airport in relation to Dublin Airport.
- To enable daa to operate and develop Dublin Airport in a sustainable and financially viable manner.

3.3 We consider these objectives to have equal weighting, to be read together and in light of each other. These objectives underpin the design and implementation of all aspects of the regulatory model. We have previously identified that the thrust of these objectives is economic efficiency, seeking to maximise the value that Dublin Airport provides to current and future users. This means delivering an appropriate level of service at an efficient cost.

3.4 There are also a number of issues to which we must pay due regard, also set out in Section 33 of the 2001 Act. These are criteria which we must take into account, where relevant, within our regulatory decisions on Airport Charges.

Air Navigation and Transport Bill

3.5 We are expecting our objectives to change in Q1 this year, with the passage into law of the Air Navigation and Transport Bill (ANTB).¹⁰ The ATNB provides for the merger of the aviation regulatory functions of the Irish Aviation Authority (IAA) with the aviation regulatory functions of the Commission for Aviation Regulation, into a new IAA. There are also a number of amendments related to the economic regulation of Airport Charges.

3.6 It is currently expected that this bill will be enacted before we publish the Draft Decision in June and as such, that paper and the Final Decision are likely to be

⁹ https://www.aviationreg.ie/fileupload/Image/PR_Legislation_Pub1_StateAirportsAct2004.pdf , page 24

¹⁰ https://data.oireachtas.ie/ie/oireachtas/bill/2020/72/eng/ver_a/b72a20d.pdf

published by the new IAA.

- 3.7 We need to consider the implications of the amendments to the 2001 Aviation Regulation Act. The amendment to Section 32 of the Aviation Regulation Act is particularly important for this review, as it will allow us to extend the regulatory period of a determination by up to 2 years when conducting a review of a previous determination. We intend to make use of this to extend the current period to cover 2025 and 2026.
- 3.8 The ANTB lays out new objectives for us when making a determination on the maximum level of Airport Charges. While the review for 2023-2026 is an amendment to an existing determination, it is our intention to have regard to the revised objectives in arriving at our positions for the Draft and Final Decisions.
- 3.9 Replacing the objectives set out at paragraph 3.2 above, our principal objective is expected to be to protect and promote the reasonable interests of current and prospective users of Dublin Airport. The revised Section 32 also requires us to:
- Promote safety and security at Dublin Airport
 - Facilitate the efficient and economic development and operation of Dublin Airport
 - Promote high-quality and cost-effective airport services at Dublin Airport
 - Take account of the policies of the Government on aviation, climate change and sustainable development
- 3.10 The ANTB makes one material change to the 'due regard' criteria, with the addition of criterion (i) below, while also removing one of the current criteria to avoid duplication. Thus, the revised 2001 Act is expected to state that we shall have due regard to:
- a. the restructuring including the modified functions of {daa}.
 - b. the level of investment in airport facilities at Dublin Airport, in line with safety requirements and commercial operations in order to meet the needs of current and prospective users of Dublin Airport.
 - c. the level of operational income of {daa} from Dublin Airport, and the level of income of {daa} from any arrangements entered into by it for the purposes of the restructuring under the State Airports Act 2004.
 - d. costs or liabilities for which {daa} is responsible.
 - e. policy statements, published by or on behalf of the Government or a Minister of the Government and notified to the Commission by the Minister, in relation to the economic and social development of the State.
 - f. the cost competitiveness of airport services at Dublin Airport.
 - g. imposing the minimum restrictions on {daa} consistent with the functions of the Commission.
 - h. such national and international obligations as are relevant to the functions of the Commission and {daa}, and

- i. the need to encourage competition at Dublin Airport to—
 - (i) improve capacity,
 - (ii) provide choice on routes,
 - (iii) provide choice between airlines, and
 - (iv) improve international connectivity.

Approach to Revised Objectives and Due Regard Issues

- 3.11 As noted above, we have previously interpreted our objectives as promoting economic efficiency in the operation and development of Dublin Airport through the implementation of the price cap. We consider that the revisions set out in the ANTB do not change our obligation in this regard.
- 3.12 Promoting safety and security, particularly by including required costs associated with compliance, has always been considered implicit in the interests of airport users. This has now been made explicit. Similarly, the efficient and economic development and operation of the airport such that high quality and cost-effective services are provided aligns with our current objectives. Competition at Dublin Airport will be best encouraged through efficient Airport Charges which are sufficient to enable the delivery of required capacity and the provision of an appropriate level of service quality.
- 3.13 Another change in the statutory objectives is the removal of the objective to enable daa to operate and develop Dublin Airport in a financially viable manner. While Financial Viability is no longer listed as an explicit primary objective, it remains an implicit requirement in the other objectives. As such, we will continue to assess Financial Viability as part of this review, as is discussed in more detail in Section 10.
- 3.14 The primary area where additional focus is now required relates to the promotion of sustainable development and climate change related policy, balancing this with government policy on aviation. Thus, it will be necessary to consider how the various business and investment planning elements of the determination will strike an appropriate balance between these objectives.
- 3.15 This is a question for Dublin Airport to address in the first instance in its submissions, by demonstrating how it has sought to strike a balance between these policies. In the coming months, we will also continue to consider how we can best address this new focus area, having regard to the specifics of the relevant policies and seeking to strike a balance between them in making decisions on relevant topics and building blocks.
- 3.16 We welcome views from stakeholders on our thinking in relation to the revised objectives, and what implications these changes should or should not have for our approach.

Airport Charges

- 3.17 Airport Charges are defined in the Airport Charges Directive¹¹ as “a levy collected for

¹¹ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32009L0012>

the benefit of the airport managing body and paid by the airport users for the use of facilities and services, which are exclusively provided by the airport managing body and which are related to landing, take-off, lighting and parking of aircraft, and processing of passengers and freight.”

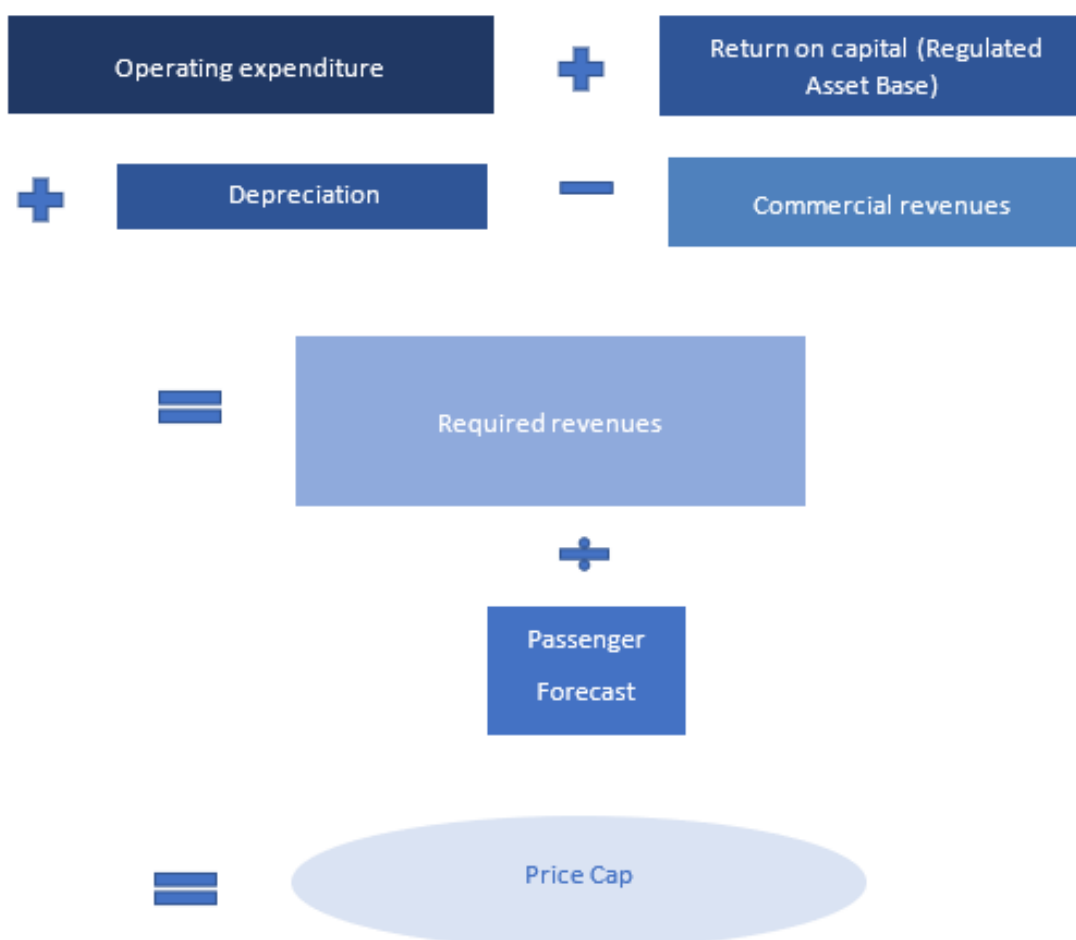
4. Approach to Regulation

4.1 This section discusses our overall approach to the Interim Review. Firstly, the high level approach is set out, followed by an overview of the approach that has been taken in the current regulatory period to date. This section considers the allocation of risk over 2023-2026, outlining the criteria that should be examined for any mechanisms that are to be considered, and describing several mechanisms that could be used in the allocation of risk. Finally, the key interdependencies and trade-offs across the building blocks are considered.

High Level Approach to Review

4.2 To date, the Commission has used a building blocks approach to calculate the price caps. This approach involves calculating targets for future Operating Expenditures, Commercial Revenues, Passenger Forecasts, and Capital Expenditure (which in turn requires an assessment of proposed capital projects). We use a single till, which means we include Commercial Revenues such as those generated from retail, car parking and food & beverage at the airport, as well as costs associated with providing these non-aeronautical services.

Chart 3.1: The building blocks approach



Source: CAR

- 4.3 We set quality standards to ensure that cost efficiencies achieved by the airport are not made at the expense of the Quality of Service delivered, incentivising it to sustain and improve its performance in the areas that are important to airport users (passengers and airlines).
- 4.4 We enable the Financial Viability of the regulatory settlements by checking that, when all the building blocks are taken together, Dublin Airport is able to raise debt at an efficient cost.
- 4.5 We implement incentive-based regulation. Where Dublin Airport outperforms our targets, it keeps the gain and vice versa. For the most part, Dublin Airport is assigned the risk within the period, and it is transferred to users at the time of the subsequent determination. This creates incentives for Dublin Airport to act as a company in a competitive market would, in responding to circumstances as they unfold. Risk allocation over 2023-2026 is discussed below.
- 4.6 We do not intend to change the overall building blocks approach as part of this review. The allocation of within-period risk is discussed below.

Approach to previous years of the period

- 4.7 As set out above, we have already carried out interim reviews for 2020-2022. This includes adjusting the price caps for those years, and a RAB adjustment which we expect will add approximately €150m to the value of the regulatory settlements over 2023-2026.
- 4.8 As described above, under price cap regimes, the default treatment of excess profits or of losses is that the airport operators are assumed to bear the traffic risk. This has been the approach to the regulation of Dublin Airport. While our adjustments to the regulatory settlements for 2020-2022 moved from this default in providing for an element of risk transfer, this did not involve the wholesale transfer of this risk to airport users.
- 4.9 The question of loss recovery thus depends on the regulatory model in place. This issue is considered in a paper which has been adopted by the Thessaloniki Forum of airport charges regulators, and which will shortly be published.¹² When loss compensation is being considered, regulators should investigate whether the financial losses resulting from a crisis will have an unacceptably negative impact on the financial sustainability of the airport. This links loss recovery from the pandemic period to future financing assessments, as is discussed in more detail in Section 10.
- 4.10 As set out in Section 10, we expect to carry out a forward looking Financeability assessment. However, should we identify that an adjustment is required, further loss recovery from 2020/2021 could be considered as one of the ways to address that requirement. This could include a backward-looking assessment of 2020/21 and could be combined with an efficiency assessment for these years.

¹² Will be published here:

<https://www.aviationreg.ie/regulation-of-airport-charges-dublin-airport/thessaloniki-forum-papers.985.html>

Length of the period

- 4.11 We intend to extend the length of the regulatory period such that this full review covers the 4-year period from 2023 to 2026. This is the maximum extension to a Determination that is provided for under the Air Navigation and Transport Bill. The extension of the regulatory period will provide short- and medium-term clarity over the price cap trajectory for stakeholders.
- 4.12 In setting the length of the regulatory period, there is a trade-off between providing medium term clarity over pricing (which also strengthens efficiency incentives), and forecasting uncertainty which tends to increase further into the future. Thus there is benefit in a shorter period (4 years) relative to the 2014 and 2019 Determinations, given the additional uncertainty under which the review is being carried out.

Dealing with Extreme Downsides

- 4.13 As discussed in Section 2, the impact of the pandemic on aviation is unprecedented and was not in the range of downside scenarios considered prior to it occurring. We responded to this extreme downside by conducting a number of interim reviews (on completion of this review there will have been three in total). To preserve the incentives in price cap regulation interim reviews are used sparingly. However, the regulatory formulae generally, and 2019 Determination specifically, are not equipped to deal with the extreme downside of the COVID-19 pandemic in a mechanistic manner.
- 4.14 As the aviation industry enters a recovery phase, we need to ask two fundamental questions in relation to our collective expectations on the ability of the regulatory model to flex for uncertain outcomes. First, how should the settlement be arrived at in this review to enable Dublin Airport to chart a path through the likely uncertainty in the years ahead. Second, should the regulatory regime be adapted to equip it to deal with extreme downside scenarios such as another pandemic.
- 4.15 We are confident that a settlement can be arrived at in 2022 which is fit for purpose in a reasonable range of downside and upside outcomes in the period 2023 to 2026. While mechanisms to deal with more extreme scenarios can be considered, it does not appear that an 'automatic' provision would be workable, i.e. in the event of another pandemic or extreme set of circumstances, further intervention by the regulator (including consultation with stakeholders) is likely to be required. However, this Issues Paper seeks discussion on this topic. We believe it is possible for the regulatory model to deal with a range of recovery/set-back scenarios, and the decision points involved are presented in this Issues Paper.
- 4.16 Mechanisms to deliver solutions to address these questions will be addressed further in the next subsection on the allocation of risk, in Section 10 on Financial Viability and Financeability and throughout as we consider the balance between headroom and ambition for efficiency in each of the building blocks.
- 4.17 We seek stakeholder views on if, and how, we should equip this decision to deal with a reasonable range of likely outcomes, and secondly, how the possibility of an extreme downside should be approached.

Allocation of Risk

4.18 Given the current uncertainty over traffic developments and forecasts, it is appropriate to consider the approach to risk allocation set out in the 2019 Determination, and whether it remains fit-for-purpose over 2023-2026.

4.19 We see four potential approaches to *ex ante* risk allocation for 2023-2026:

- Broadly retaining the current approach whereby most of the risk is assigned to Dublin Airport, while considering adjustments to the building block specific mechanisms such as the Opex passthrough or the treatment of construction price inflation.
- Introduce a Traffic Risk Sharing mechanism (TRS).
- Introduce a General Risk Sharing mechanism (GRS).
- Introduce a mechanism to facilitate Capex flexibility on the basis of deviations from forecast traffic levels.

4.20 It should be noted that these are alternatives, i.e. we could either retain the current approach, or introduce a TRS, or introduce a GRS, or link Capex to traffic levels. We would not introduce both a TRS and GRS simultaneously, for example.

4.21 In considering the selection and design of a risk sharing mechanism, we would be mindful of the following criteria:

- Likely correlated trajectories across the building blocks. For example, if traffic is below the forecasts, this is likely to reduce commercial as well as aeronautical revenues. On the other hand, it is likely to provide an opportunity for Opex savings while maintaining service standards. The inverse is the case for a traffic upside scenario.
- Effectiveness in de-risking the regulated entity. The greater the quantum of risk transfer, and the more timely the impact on the price cap(s), the more effective the mechanism could be perceived in terms of improving the credit assessments of funders.
- Minimising the dulling impact on incentives. The current approach provides strong efficiency incentives. Any move to de-risking the regulated entity may erode these incentives to a varying extent, depending on the design of the mechanism.
- Reducing or limiting the short term pro-cyclical effect. Short term increases in charges may exacerbate a downside traffic scenario.
- Stability of the regulatory regime.
- Ensuring that the mechanism is predictable, logical, and easy to implement. This would ensure it is readily understood by different stakeholders.

4.22 Clearly, there are trade-offs between these criteria. A risk sharing mechanism which is

very favourable for the airport in the context of downside risk would likely be required to have material impact on Dublin Airport's cost of or access to debt. However, such a mechanism could potentially also significantly reduce efficiency incentives.

Traffic Risk Sharing Mechanism

- 4.23 TRS mechanisms are relatively common and usually feature several bands of variance in outturn traffic performance relative to forecast traffic performance, with a specific sharing key defined for each band. Aeronautical revenues actually recovered are thus brought closer to the amount forecast, whether higher or lower.
- 4.24 We note that the CAA, in its current proposals for the H7 regulatory settlement for Heathrow Airport, has proposed the introduction of a two-band TRS.¹³ For traffic variations of less than 10%, the proposed sharing key (i.e., the amount of risk proposed to be transferred to airport users) is 40% to 60%. For variations in excess of 10% of traffic, 90% to 100% of the risk would be borne by airport users.
- 4.25 The Single European Sky (SES) performance and charging regulation, under which the Commission developed Ireland's Performance Plan for air navigation services for 2020-2024, provides for a three banded TRS.¹⁴ Variation of up to 2% is fully at the risk of the Air Navigation Service Provider (ANSP). This is termed the 'deadband'. Between 2% and 10%, the ANSP bears 30% of the risk, while airspace users bear 70%. Beyond 10%, airspace users bear the full risk, while this level of variance is also set as the threshold for reopening the existing Performance Plan.
- 4.26 It should be noted that, given the exceptional downside risk which materialised in 2020/2021, the European Commission adjusted this mechanism to spread the resulting increase in unit rates over a 5-7 year period, starting from 2023. Adjustments are usually made on a year n+2 basis.
- 4.27 Thus, the general approach to TRS mechanisms is to provide a relatively greater degree of protection against the more significant variations from the forecasts. We expect that a TRS would be symmetric, i.e., it would treat upside and downside variance in the same manner.
- 4.28 A very favourable TRS for the airport, both in relation to the bands and the sharing keys, may more effectively de-risk Dublin Airport from downside scenarios. We would also want to consider the extent to which Opex, and Commercial Revenue forecasts are sensitive to changes in traffic. For example, if we assess that Opex is relatively more sensitive to traffic levels compared to ANSPs, this would suggest that a TRS of lesser magnitude is warranted, as there is more value in preserving the incentive, while Dublin Airport should be able to improve its financial performance through Opex savings in any case. Without intending to suggest that risk allocation was the only factor impacting the response of these two regulated entities, we note that Dublin Airport reduced Opex across 2020/2021 by approximately 42% compared to 2019, the IAA ANSP, based on our latest forecast from last year, is likely to have achieved closer

¹³

[https://publicapps.caa.co.uk/docs/33/CAP2265B%20H7%20Overall%20approach%20and%20building%20blocks%20\(p\).pdf](https://publicapps.caa.co.uk/docs/33/CAP2265B%20H7%20Overall%20approach%20and%20building%20blocks%20(p).pdf)

¹⁴ See Article 27:

https://www.aviationreg.ie/fileupload/CELEX_32019R0317_EN_TXT.pdf

to 12%. It is also worth noting that IAA ANSP achieved relatively high savings compared to many other European ANSPs.

4.29 On the other hand, a reduction in passenger numbers is likely to impact not only aeronautical revenues, but also Commercial Revenues at Dublin Airport. Commercial Revenue is a larger part of Dublin Airport's revenue stream compared to ANSPs. This could suggest that a relatively more extensive TRS is warranted, to provide an equivalent level of de-risking.

4.30 Thus, before determining the bands, we would consider our findings and forecasts for the Opex and Commercial Revenue building blocks too.

4.31 The time period within which the adjustment is made is also an important consideration. The sooner the mechanism crystallises in the price cap, the more effectively it could de-risk Dublin Airport from a liquidity perspective. We see three options:

1) A mechanism which crystallises within the same year as the traffic variance. This could be assessed on the basis of an up-to-date forecast for the provisional price cap statement prior to the start of the year, and then finalised at year end. However, if traffic were to again vary from the up-to-date forecast, it may require Dublin Airport to change charges within the year, and it would be highly pro-cyclical.

2) A mechanism which crystallises on an n+2 basis, e.g., outturn traffic variance from 2023 impacts the price cap in 2025. This is the approach established under the SES regulations.

3) A mechanism which crystallises in the subsequent building block re-set. For example, outturn traffic levels across 2023-2026 would be adjusted for on a net basis over 2027-2031. This would reduce the pro-cyclical impact but would be less aggressive from the perspective of de-risking. This is the approach which the CAA has proposed for the Heathrow TRS. The CAA cites the benefits of pricing stability and limiting counter-cyclical.

4.32 We also note that option 1 would better align with the 'user pays' principle, as it would avoid intertemporal cross-subsidisation between current and future users. The other options would involve future users paying for or benefitting from outturn traffic performance in a previous year or years.

4.33 We consider that a TRS mechanism should be predictable and easy to understand. Options 2 and 3 would be easiest to understand and predict. Option 1 would also be workable but more challenging to implement due to the requirement for an up-to-date forecast, and the potential for traffic to vary further from this forecast within the year. We note that options 1 and 2 would likely be the most favourable to funders, while option 3 would likely have the least impact.

General Risk Sharing (GRS) Mechanism

4.34 We are also considering a broader form of risk sharing mechanism whereby, instead of being based on traffic variation relative to forecasts, it would be based on EBITDA

variation.¹⁵ Thus, this would directly capture the net impact of traffic variation and also Opex and Commercial Revenue variation within the regulated entity. We expect that a GRS mechanism would be considered a more aggressive form of risk sharing mechanism than a TRS, as it provides direct protection against Opex and Commercial Revenue risk too.

- 4.35 In the current circumstances, there is likely to be additional challenge in forecasting not just passenger numbers, but also Opex and Commercial Revenues. For example, we understand that central search processing times have increased over the pandemic period. It may be the case that this reduction in processing rates will not last through this year and into next year, or there may be ongoing impacts. This uncertainty is captured to a greater extent by a GRS mechanism as opposed to a TRS mechanism.
- 4.36 We note that a GRS would explicitly remove part of the incentive to outperform on Opex and Commercial Revenues. Thus, it differs from TRS where the effect would be indirect, in that it would relieve/increase pressure on this performance, while still allowing Dublin Airport to benefit from outperformance. A TRS could be set such that the banding indirectly captures the forecast sensitivity of Opex and Commercial Revenues to traffic levels, without de-risking actual Opex and Commercial Revenue performance. Thus, we expect that a GRS would have a more substantial dulling effect on incentives.
- 4.37 Similar considerations to a TRS would apply in relation to the banding, the sharing keys, symmetry, and timing of crystallisation in the price cap. We also expect that a GRS would be readily understood by stakeholders.

Capex Adjustment Mechanism

- 4.38 Finally, we could consider a traffic related mechanism which would adjust, on a sliding scale after a deadband, the quantum of Capex allowances which would be subject to clawback at the next building block review. For example, if passenger numbers were more than 5% below the forecast, the mechanism would allow for a corresponding proportion of Capex, if unspent, to not be clawed back. The sliding scale might relate traffic beyond the deadband and Capex allowances one-to-one. For example, with the 5% deadband and a 15% reduction in traffic, the quantum of allowed Capex not subject to clawback would be set at 10%. Alternatively, the sliding scale might allow for a more elastic Capex reduction response to such a traffic scenario.
- 4.39 We envisage that such a mechanism would also be symmetric. Thus, in a traffic downside scenario, Dublin Airport would not be penalised by the clawback mechanism for scaling back the quantum or timing of planned investment. In a traffic upside scenario, a portion of the additional aeronautical revenue recovered would be subject to clawback, unless invested in additional Capex. Thus, Dublin Airport would be incentivised to increase investment in the business.
- 4.40 This would be similar to the approach we took for 2020-2022, although that was a full rather than partial suspension of clawbacks. The impact of this can be significant; in 2021 we estimated the total impact of this change at approximately €150m, applicable

¹⁵ Earnings Before Interest, Taxation, Depreciation and Amortisation

over 2023-2026.

- 4.41 This approach would have the benefit of avoiding a countercyclical evolution of the price cap within the period, while still retaining regulated value in the future RAB in a downside scenario. Furthermore, the deadband and sliding scale could be set such that the high-powered incentives are preserved, potentially even to enhance the status quo by automatically flexing the Capex allowances to traffic developments as described above. However, the mechanism could likely be considered less aggressive in terms of de-risking relative to the TRS or GRS, as the timeliness element would be weaker, and the quantum of adjustment would likely be relatively smaller unless the deadband and sliding scale were set such that the efficiency incentives were undermined.

Conclusion

- 4.42 We will continue to consider this question over the coming months, in conjunction with relevant building block analysis, before making a specific proposal in the Draft Decision.
- 4.43 As set out above, to date, the risk of outturns deviating from the building block forecasts within a regulatory period has broadly been assigned to Dublin Airport. This is because Dublin Airport is considered the party best placed to control its performance and respond to unfolding circumstances. Thus, for the most part, the building block inputs are not adjusted *ex post* to compensate either Dublin Airport or airport users for outturn performance. This creates appropriate incentives for Dublin Airport to maximise its performance relative to the targets we set in relation to passenger traffic, Opex, Commercial Revenues, and Capex.
- 4.44 For example, over 2015-2019, when traffic far exceeded the forecasts, Dublin Airport earned approximately €0.5bn in additional aeronautical and Commercial Revenues above the forecast levels, which were not clawed back (it also incurred additional Opex and Capex in the period). In 2020 and 2021, it has responded to the pandemic by significantly reducing Opex as described below, and has reduced planned expenditure on the 2020-2024 CIP by almost 70%. Had a reduced risk allocation been in place, it may have been less incentivised to drive and facilitate traffic growth until 2019, and to respond to the pandemic by cutting costs.
- 4.45 As well as maintaining the incentives, this approach to risk allocation avoids procyclical adjustments within the regulatory period, i.e., the price cap rising in the event of an unexpected downturn and falling in the event of an upturn. Instead, like a company exposed to competitive pressures, Dublin Airport can benefit from an upturn through increased profit, building up financial resilience, while it must deal with a downside scenario by adjusting its planned cost base rather than through short term pricing adjustments. In many ways, this simulates the behaviour of a competitive company even though a competitive company has more control over its pricing. In a downturn scenario as severe as 2020/2021, it is questionable whether the company would be able to fully price to the higher cap in any case.
- 4.46 In 2019, as previously, both Dublin Airport and airport users were supportive of this approach to risk allocation. The impact of the reviews we then undertook in 2020 and 2021 was to partially reallocate this risk to airport users over 2020 to 2022. We

considered this limited reallocation to be proportionate, in the circumstances, given that the original 2019 regulatory settlements were not intended to be resilient to a downturn of the scale of COVID-19. We are also now undertaking a full review to realign required Opex and capital costs with revenues, two years earlier than planned.

- 4.47 We consider that the approach to risk allocation has worked well to date. One downside of this approach is increased exposure to within-period risk. This has implications for Dublin Airport’s allowed Cost of Capital.¹⁶ It may also have an impact on credit assessments of Dublin Airports by debt funders, either directly through worsened short term financial metrics in the event of a downturn, or by impacting the assessment of Dublin Airport’s Business Risk.¹⁷ Thus, an *ex-ante* risk sharing mechanism could likely improve the credit assessments of funders which may in turn improve either the cost or the attractiveness of daa’s credit to funders. On the other hand, a stable and predictable regulatory model, where the regulator does not make changes to the approach without clearly demonstrating and setting out the rationale, is in itself considered a positive from a rating perspective.
- 4.48 Thus, in the context of additional challenges for the current review in forecasting passenger numbers, Opex, and Commercial Revenues, we are carefully considering whether this approach remains appropriate specifically for the period 2023-2026. We are considering whether the potential for such a mechanism to make the determination more robust to changing circumstances, might now outweigh the incentivisation benefits of the current approach.
- 4.49 Before we would change the risk allocation approach, we would need to consider the implications on incentives and outcomes for passengers, to satisfy ourselves that the benefits of this would outweigh the costs. We would also need to consider interactions with the existing mechanisms, such as in relation to the Opex passthrough mechanism, and the Commercial Revenue rolling schemes. We have considered the potential impact with our advisors, Centrus, and will continue to engage with Centrus ahead of the Draft Decision and in light of the responses received to this consultation.
- 4.50 If we were to implement a risk sharing mechanism, we expect that it would likely follow the approach whereby relatively more protection is provided against relatively more severe downside scenarios. As discussed further in above and in Section 10, however, the best way to limit the impact of a very severe downside risk may be to reopen the determination rather than attempting to establish an *ex-ante* mechanism, given the very high level of specificity and unpredictability which is likely to come with such an event.
- 4.51 We note for example that the threshold for reopening the performance plan under the SES regulations is set at 10% of Service Units (SUs) or IFR movements. Passenger

¹⁶ See Swiss Economics 2019 report, Section 5:

<https://www.aviationreg.ie/fileupload/2019/Draft%20Determination/2020-2024%20Draft%20Efficient%20Cost%20of%20Capital%20Study.pdf>

Also see our 2021 decision on the Cost of Capital for the ANSP, Section 5:

<https://www.aviationreg.ie/fileupload/rps%20decision/Decision%20Document.pdf>

¹⁷ As defined by S&P. We note, for example, that S&P currently assess Aeroports de Paris’ Business Risk profile as ‘Excellent’. ADP is subject to favourable risk sharing mechanisms, whereas daa and most other airport operators are categorised as ‘Strong’. A risk share mechanism heavily weighted in favour of Dublin airport in a downside scenario may have a positive effect on rating assessment.

numbers are more volatile than SUs or IFR movements, primarily because they are driven not just by aircraft movements but also by load factors. Over 2015-2019, we reopened the prevailing determination to allow for more Capex, but not to adjust the price caps, in the context of passenger number outperformance over the period ultimately reaching 25%. As described above, in the context of the pandemic, we have reopened the price caps for each of the years 2020-2022.

- 4.52 Thus, a further option would be for us to provide an *ex-ante* commitment to re-open the prevailing determination if a pre-defined level of variance from the forecasts were to materialise, adapting it as appropriate to continue to meet our objectives in the context of significantly changed circumstances.
- 4.53 We are currently open minded on the approach to risk allocation for 2023-2026. We are keen to receive the views of stakeholders on their preferred approach of those listed above. Stakeholders may wish to respond either by stating or ranking their preferred approach(es), or else by ranking their priorities among the criteria set out above; for example, de-risking the regulated entity as compared to maintaining stronger efficiency incentives.

Tradeoffs and Interactions Across Building Blocks

- 4.54 In considering their positions on the approach to this review and the various building blocks, stakeholders should be mindful of tradeoffs and interdependencies. As set out above, our intention is to ensure that the regulatory settlements are internally consistent across the building blocks, while also ensuring that they are financially viable and that the allowed investment programme is financeable. This means that, for example, where we make a change between the draft and final decision, we will also consider whether we need to make any consequential changes to maintain balance or consistency.
- 4.55 There is interaction between the building blocks. It is important to consider these interactions when commenting on methodologies used in each. A forecast in one must be facilitated by an appropriate forecast in another. For example, if we are forecasting passenger numbers to reach a certain level, and setting out Quality of Service standards at a given level, then the capital allowances we make should be sufficient to facilitate this. On the other hand, the scale and timing of capital allowances should be set with regard to traffic forecasts used. Similarly, forecasts in Commercial Revenue require appropriate operating and capital costs. If a capital project should be expected to lead to Opex savings and/or generate additional Commercial Revenues, this should be reflected in the relevant forecasts.
- 4.56 When we set the Cost of Capital, we assess the risk held by the regulated entity and set an appropriate return. Therefore, changes to risk in other building blocks (for example, changes to traffic risk allocation or our approach to reconciling outturn expenditure on capital projects) would change the underlying risk profile of the regulated entity and therefore would influence the Cost of Capital building block.
- 4.57 A key strategic question for this review is the scale and timing of investment, particularly the major capacity enhancing projects which were included in the CIP2020-2024. Ideally, infrastructure would be delivered as needed and, in line with the 'user

pays' principle, remuneration of the associated capital costs would commence at the same time. However, the timelines for delivery of major airport infrastructure projects are long. It takes years to design, obtain planning permission and deliver a significant piece of airport infrastructure. This can result in periods of time when the airport is capacity constrained, such as in 2019.

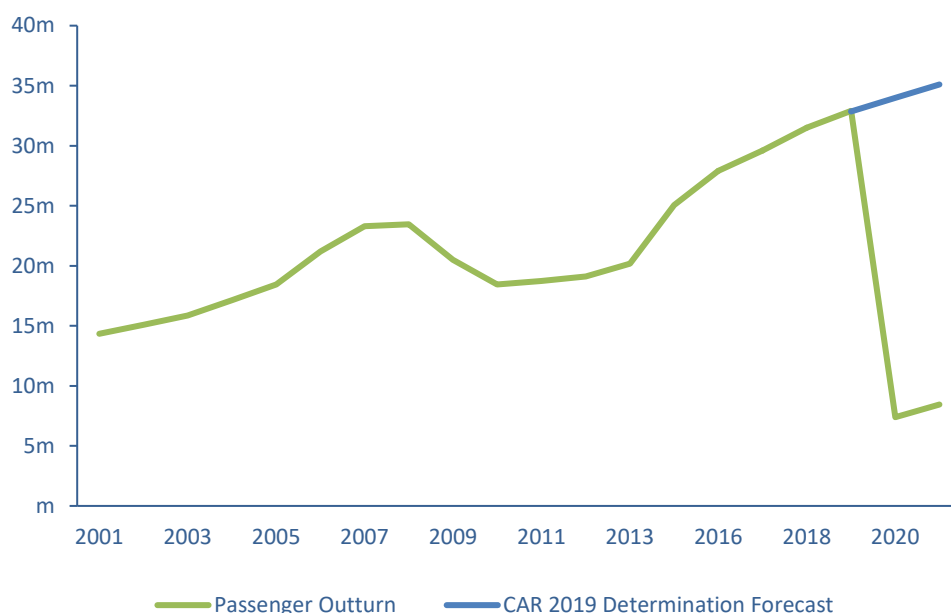
- 4.58 If infrastructure is provided sooner, the risk of being constrained is lower, but the risk of users paying for infrastructure they do not need at a particular point in time is higher. While precise 'just in time' delivery is not practical to always achieve, particularly given the current uncertainty on the profile of traffic recovery, 'just in time' remuneration is a possible option, as discussed in Section 9.
- 4.59 The ability of Dublin Airport to fund an investment programme will also be reduced relative to 2019. As described in Section 10, we considered it proportionate to make a significant Financial Viability adjustment in 2019, intended to provide a level of comfort over Dublin Airport's ability to raise the debt required to fund over €400m per year in Capex. As stated above, we understand that Dublin Airport's net debt is now approximately €1.1bn, as opposed to €600m at the start of 2020. Thus, all else equal, a larger Financial Viability adjustment and/or a less conservative approach to the financial ratios would be required.
- 4.60 We welcome views from stakeholders on the above topics and, in particular, how we should prioritise these outcomes where we observe a trade-off.

5. Passenger Forecasts

5.1 In this section, we discuss the Passenger Forecasts building block. We first outline the approach to Passenger Forecasts that was taken in the 2019 Determination, including an overview of the many forecast methodologies that were tested as part of this process. The key questions that we have identified for Passenger Forecasts in this review are discussed, as well as potential approaches to develop the forecast. Finally, other relevant considerations are detailed as well as our proposed approach to this building block. In the appendix, we provide an overview of the forecasting methodologies utilised by others.

5.2 Passenger Forecasts are a central building block in a determination, as they are the denominator in the price cap calculation. They also have a direct impact on other building blocks. Chart 5.1 shows the impact of COVID-19 on passenger numbers in 2020 and 2021, compared to the 2019 forecasts.

Chart 5.1: Traffic Levels at Dublin Airport 2001-2021, CAR forecast 2019-2021



Source: 2019 Determination, Dublin Airport

2019 Determination

5.3 In the 2019 Determination, we estimated the passenger growth over the regulatory period using Irish GDP as the driver. The Passenger Forecast was calculated for each year, using our latest estimate of 2019 passengers based on outturns up to September 2019, and a growth rate derived from the elasticity and IMF’s GDP forecast for Ireland, as the base year. We then multiplied each year’s GDP growth forecast by the elasticity to calculate a forecast passenger growth rate.

5.4 This approach was accurate for the end of 2019 and beginning of 2020, with the outturns matching our forecast quite closely, as can be seen in Chart 5.1. We forecast total passengers of 32.85m for 2019; the actual passenger outturn for 2019 was 32.9m.

- 5.5 As part of the 2019 Determination, we carried out several tests of alternative methods based on feedback from stakeholders. Dublin Airport commissioned a report by Mott McDonald on our forecast methodology which suggested four alternatives: a log-log regression of total passengers with dummy variables from 2006 to 2009, an unconstrained forecast based on key markets, a forecast based on runway and stand constraints, and a forecast with night restrictions, and runway and stand constraints.
- 5.6 The use of dummy variables improved the fit of our model for historic data, but as we cannot predict when outlier years will occur, they were not considered useful for improving the forecast of future outturns. The unconstrained forecast on key markets led to a passenger level lower than our forecast but it used a growth rate for the transfer market that was significantly lower than the actual growth rate for the transfer market, and when adjusted for this it resulted in a higher forecast than our forecast passenger numbers.
- 5.7 As detailed in the 2019 Determination, we also tested several other variations to our forecast methodology based on feedback from stakeholders. We investigated the impact on the Passenger Forecast of using a national product measure, as opposed to a domestic measure. For this, we used GNP data and ran a log-log regression. The use of GNP resulted in a slightly higher forecast with passenger numbers reaching 38.2m in 2024, compared to 38.1 in the forecast using GDP. We also tested the forecast with a blend of GDP forecasts for Ireland and other key markets and forecast transfer passengers separately. We regressed total passengers (except for transfer) using a GDP blend of 50% Ireland and 50% Europe, North America, and the UK, and then added Dublin Airport's transfer forecast. This also resulted in a higher Passenger Forecast over the period with passenger numbers reaching 39.4m by 2024.
- 5.8 We considered forecasts with additional cost variables, running a log-log regression of passenger numbers on Irish GDP, oil price per barrel, and the sum of Airport Charges and the travel tax, from 1997-2018. However, we noted that including additional cost variables in the model adds the inherent error of each forecast to the Passenger Forecast. It is also difficult to disentangle the negative effect on passenger numbers of increased Airport Charges and tax from the economic crisis that started in 2008. Airfares are a more accurate measure of travel costs than Airport Charges but there is no historical data publicly available.
- 5.9 Finally, we experimented with using log-log and levels regressions which generally yielded similar results. There was some variation when the regressions were carried out by market, with the log-log forecasting passengers above our Passenger Forecast target and the levels being in line with our forecast.
- 5.10 Ultimately, we decided to continue using a forecast based on only Irish GDP forecasts. While the model did not predict the level of growth that was experienced in the previous regulatory period, this was largely due to the difference between actual and forecast GDP itself.¹⁸ The model is simple and transparent with all parameters and variables in the public domain. We were not convinced by the previously described tests that any of the alternative approaches proposed would reliably lead to a material improvement in the model's predictive power, particularly over the medium and

¹⁸ See page 21: <https://www.aviationreg.ie/fileupload/2019%20Determination/2018-04-30%20CP7%20Issues%20Paper.pdf>

longer term.

Forecast Methodologies

- 5.11 The key question in relation to passenger forecasting for this review is: ‘What methodology and data sources should we use to forecast passenger numbers?’ Firstly, this will involve considering how to estimate a reasonable centreline traffic forecast, given the impact of COVID-19 on the previous methodology, which is the focus of this section. Secondly, we will need to be cognisant that the scope for variance from forecasts is likely to remain higher than prior to COVID-19, regardless of the methodology that is ultimately chosen. We are considering the second issue as an aspect of risk allocation, and as such it is discussed in detail in Section 4.
- 5.12 The primary difficulty is that it remains unclear what path the recovery of traffic will take. It is unlikely that traffic will grow in a predictable manner from one year to the next if in one year there are travel restrictions in place and the following year there are not. While there has always been uncertainty over traffic growth, the scale of this uncertainty, at least for now, exceeds any previous regulatory determination for Dublin Airport.
- 5.13 Some of the potential approaches to forecasting that we are considering are:
- A forecast with GDP as the driver as in the 2019 Determination
 - A multivariate causal forecast
 - Disaggregated forecasts by region
 - A judgement-based forecast
 - A long-term trend forecast
 - Using industry forecast(s)
 - A combination of forecast methodologies
- 5.14 There are two main aspects to the development of the forecast, which are discussed in turn below:
- Determining the baseline
 - Forecasting from the baseline

Determining the Baseline

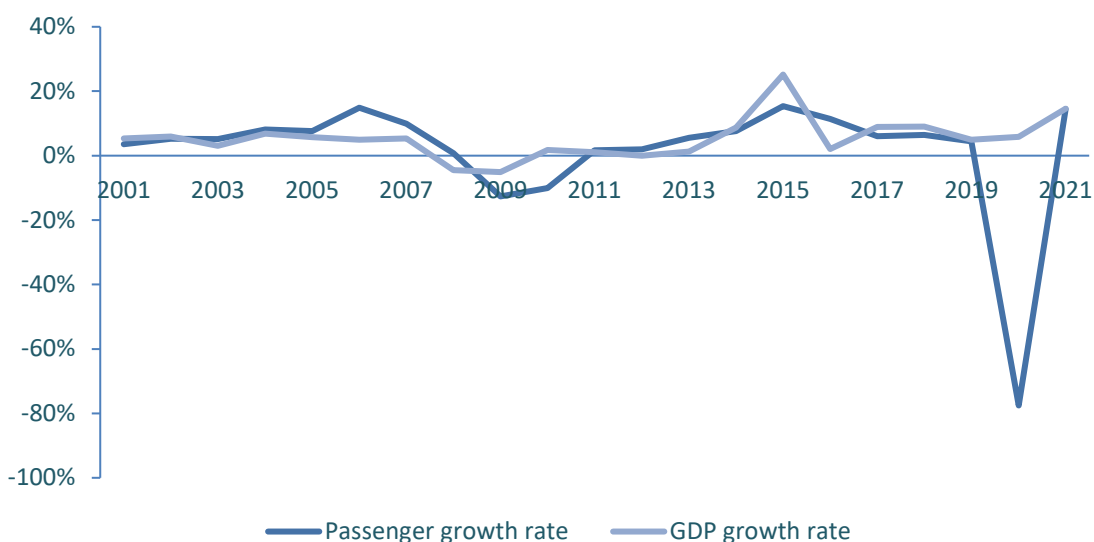
- 5.15 We must decide on an appropriate starting point. We could follow the approach taken in the 2019 Determination and forecast from the most up to date data available from 2022. There may be challenges with this approach depending on how the outlook regarding COVID-19 develops this year.
- 5.16 An alternative to this is to build our own ‘base year’ for 2022 or 2023 from airport and airline data, as Dublin Airport have done in the forecast discussed previously. This

approach could also be applied using 2021 as the base year, but we would likely have to make an adjustment or step change to take account of the removal of severe restrictions on travel which have been in place for most of the year. There may also be other issues with this methodology such as whether we can access such data, and the transparency of such an approach.

Forecasting from the baseline

- 5.17 Once the baseline is defined, forecasts to the end of the period can be developed. We could continue with the forecast methodology used in the 2019 Determination. However, the link between the growth of GDP and the growth of passenger numbers has been severed for 2020 and 2021, as a result of the specific impact of travel restrictions on aviation. This can be observed for 2020 in the chart below, notwithstanding that it has, likely spuriously, been re-established in 2021.

Chart 5.2: Passenger Growth Rate and GDP Growth Rate (Forecast for 2021), 2000-2021



Source: Dublin Airport Regulatory and Management Accounts, the CSO, European Commission European Economic Forecast Autumn 2021.

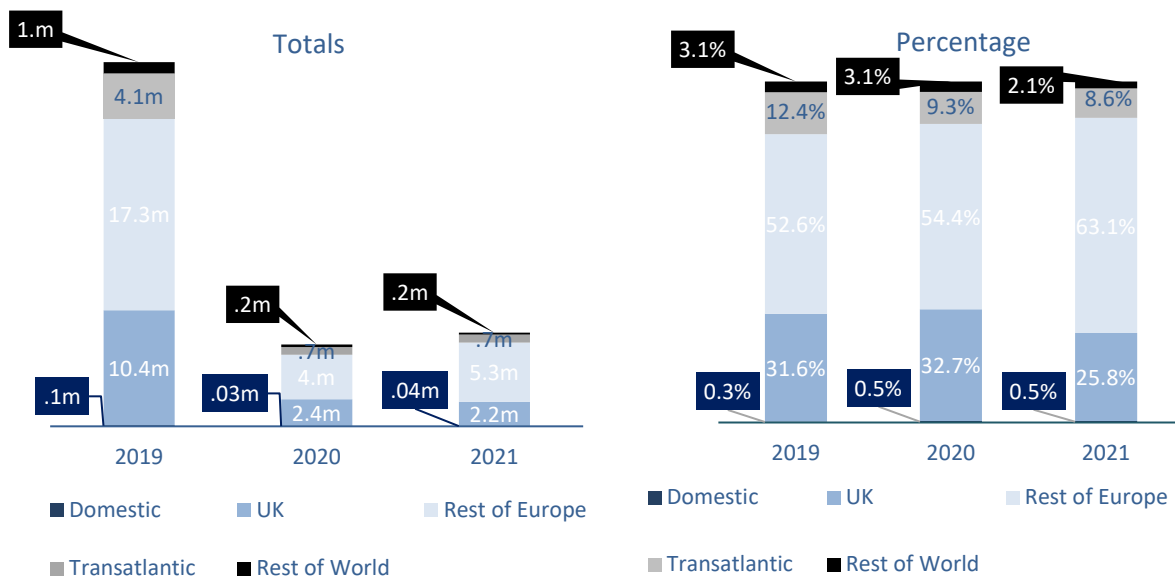
- 5.18 The nature and timing of the re-establishment of a reliable link between GDP and passenger growth remains unclear at present. A future estimation of the elasticity may take account of 2020 and 2021 being potential outliers by, for example, including dummy variable for those years. This would address the exceptional nature of the relationship between GDP and passenger traffic in 2020/2021, due to the primary driver of traffic being the travel restrictions.
- 5.19 It is difficult to state with certainty at this point, but it is possible that a more reliable link between GDP and passenger growth may be re-established in 2022, increasing in reliability over time. Forecasting with GDP as the main driver would assume that severe travel restrictions as a public health measure are not reintroduced. We should have a clearer perspective of this later in the year as we observe the level of traffic and/or potential restrictions in 2022.
- 5.20 As discussed previously, the use of dummy variables to enhance model fit is only useful for increasing the goodness of fit for past events and cannot improve a model's ability

to predict future outliers. Thus, this approach would not aid in the prediction of irregularities in traffic growth over 2023-2026. It would be based on the rationale that a pandemic level event would likely lead to a requirement to review an extant price control, and thus should not be built into a forecast intended for a ‘business as usual’ scenario.

5.21 Alternatively, a multivariate causal forecast may allow us to adapt the previously used methodology to account for some of the other factors likely to drive passenger traffic over 2023-2026. The inclusion of a greater number of variables can improve the goodness of fit but may also increase the level of potential errors in the model, as you add the uncertainty associated with forecasts of each additional variable. If we take this approach, we will need to consider what variables to use, and what data is available to us.

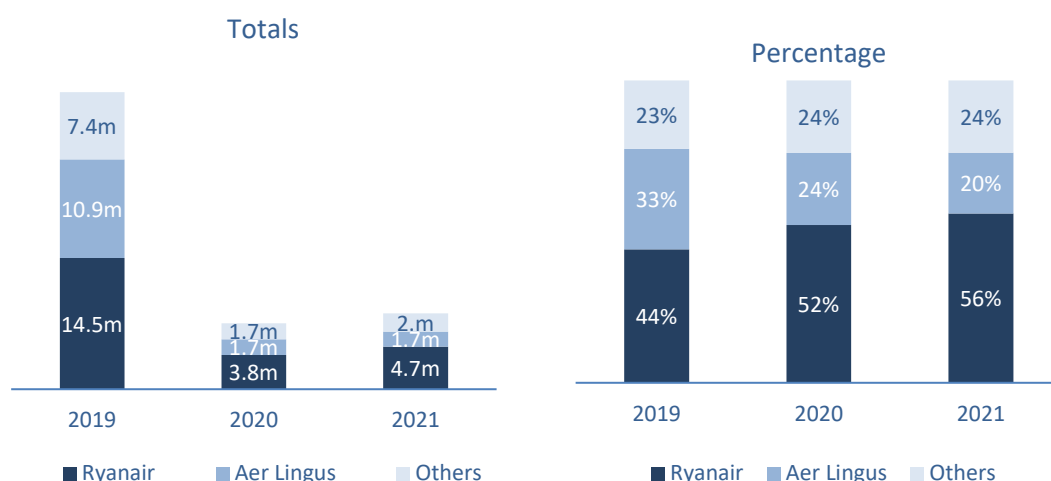
5.22 We could consider forecasting for different categories of passengers, rather than an overall forecast which is the approach we have taken in the past. We could consider the breakdown of traffic in our forecasts, due to the varying recovery rates for European traffic versus worldwide, due to varying travel restrictions. Chart 5.3 demonstrates that transatlantic traffic has not yet begun to recover from the effects of COVID-19, with traffic remaining at approximately 0.7m in both 2020 and 2021.

Chart 5.3: Composition of Traffic by Region, 2019-2021



Source: Dublin Airport, CAR Calculations

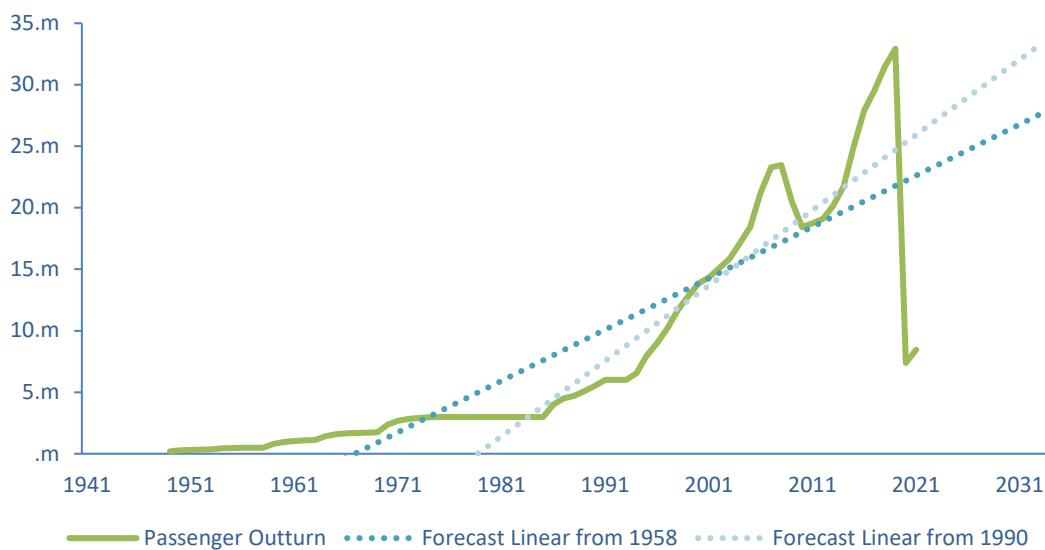
Chart 5.4: Share of Traffic by Airline, 2019-2021



Source: Dublin Airport, CAR Calculations

- 5.23 Judgement based forecasts may be an option worth considering, given the challenges associated with the more objective approaches in the current circumstances. However, it is difficult to achieve transparency with such forecasts, and many of the judgements involved in such a forecast would involve an element of subjectivity which would be open to challenge. This approach would likely require that stakeholders would be willing to cooperate and provide the information required to create the forecast. It may be valuable to use this approach in combination with another forecasting method; the forecast could be generated with another methodology, but then cross-checked and adapted if necessary, based on information gathered.
- 5.24 Forecasting passenger traffic based on a long-term trend is a possible option as it may balance out the short-term and medium-term fluctuations which have long been observed in aviation. In the long run, these should net off. However, based on an initial test of this method, which can be seen in Chart 5.5, it results in an assumption of rapid recovery from the pandemic followed by a return to a historically slower growth pattern, with passenger numbers not reaching 32.9m until 2033. The trend also varies depending on the start point selected. Chart 5.5 shows outturn traffic volume at Dublin Airport between 1940 and 2021, as well as long term forecasts to 2033. As an example of a long-term forecast, we have calculated 2 linear forecasts, with the use of different starting points (1958, and 1990).

Chart 5.5: Examples of Linear Long-term Forecasts Using Different Starting Points



Source: Dublin Airport Regulatory Accounts, CAR calculations

- 5.25 The use of such a forecast would likely require a commitment to this method for a longer period of time so that all stakeholders see the benefit of such smoothing (i.e., at present airlines would benefit from the lower price as there is unlikely to actually be the forecast level of passengers but in later years of the decade when traffic has recovered the airport will benefit from a higher charge for a greater than forecast number of passengers). In considering the effect of such a forecast on all the building blocks however, it would likely not result in optimal outcomes for Capital Expenditure, Operating Expenditure, or Financial Viability. A more accurate short and medium term forecast is required to provide a basis to plan appropriate expenditure in these areas for the regulatory period.
- 5.26 We follow the forecasts and methodologies developed by those within the industry. This includes forecasts from industry bodies such as IATA and ACI, Dublin Airport, and airlines operating at Dublin. We would welcome any forecasts which stakeholders are willing to provide as part of this review process. Such forecasts can provide a valuable insight into the industry perspective on the expected growth over the regulatory period. However, short term forecasts for 2022/2023 would also be useful in the development of a starting point for forecasting. We will also consider other forecasts such as those by Eurocontrol. Regardless of whether they are used directly in the forecasting methodology, industry forecasts provide a sense check for any forecast we develop.
- 5.27 Using a mixture of forecast methodologies may be an appropriate approach to forecasting under such uncertainty. This could involve any combination of the methods previously discussed.

Pros and Cons of Proposed Methodologies

- 5.28 One of the key considerations when choosing a forecasting methodology is the forecasting power the short (1-2 years), medium (2-4 years) and long term (5 years plus). For this review, the short and medium term forecasting power will be of more

importance due to the time period of 4 years covered by this review, and we will need to consider the balance between forecasting well in the short term versus the medium term as certain methods are strongest in one of these time periods.

- 5.29 Another consideration in the selection of an appropriate forecasting methodology is the trade-off between the transparency of the model and the accuracy. Some methods may allow us to develop a more accurate model but may be based on data that is not publicly available and therefore we sacrifice some transparency for this potential gain in accuracy. This could include market data from airlines and their plans for route development and capacity that would impact the traffic at Dublin Airport, if this were provided. However, it is also important to note that in addition to the loss of transparency, the use of such data may not result in a significant improvement in accuracy. This is particularly true in the current circumstances, as airlines and airports are likely updating their plans regularly as the situation surrounding COVID-19 evolves.
- 5.30 We will need to consider whether the forecasting power added by any adjustments is likely proportionate to any additional complexity leading to a loss of clarity, or loss of transparency. In previous determinations, we have seen relatively little evidence that the use of more complex forecasts have, over the medium term in particular, proven reliably more accurate than a simpler univariate forecast. For example, in the 2014 Determination, all forecasts failed to predict the extent of traffic growth, but the more complex methodology underpredicted the traffic to a larger extent than the simple univariate model.
- 5.31 Another important consideration is the time and resources required to develop the model. The returns in accuracy for additional resources required are something that will factor into the choice of forecasting methodology.
- 5.32 The table below provides a summary of how the previously discussed methodologies perform relative to the criteria discussed. The green symbol (✓) implies that the method performs well on these criteria, the amber (~) implies an average or uncertain performance for the criteria, and red (X) implies that the method does not meet the criteria.

Table 5.1: Comparison of Central Forecast Methodologies- Initial thinking

	Long Term Trend	Univariate Causal (GDP)	Multivariate Causal
Long term forecasting power	✓	✓	✓
Medium term forecasting power	X	~	~
Short term forecasting power	X	~	~
Clarity	✓	✓	~
Transparency	✓	✓	✓
Resources required	✓	✓	~

- 5.33 In the appendix, we have provided an overview of traffic forecasts which are produced by industry and other bodies.

Further Considerations

- 5.34 There are several other issues that may be relevant when deciding on the appropriate forecasting methodology. These issues are outlined below.

Industry Forecasting Incentives

- 5.35 It will be important to remain cognisant of the fact that there are likely to be mixed incentives for stakeholders in relation to traffic forecasts. For example, Dublin Airport may wish to understate expected traffic growth, as this would, all else equal, lead to a higher price cap. However, it is also possible that it may wish to set out ambitious forecasts so that it may seek higher allowances in relation to Capex and Opex. On the other hand, airlines may have an incentive to present high traffic forecasts in an effort to reduce the per passenger price cap. On the other hand, it may be argued that seeking a lower forecast would reduce cost allowances overall which may also be in the interest of airlines.

State Funding

- 5.36 In late 2021, the Irish government announced funding of approximately €97 million for Dublin Airport¹⁹ as part of a broader scheme to support state airports. The funding received by Dublin Airport is to be used to provide traffic incentive schemes to airlines and support the growth of connectivity at the airport. This is not something that has occurred previously. As such, we may need to consider the impact of the State funded reductions in charges at Dublin Airport, and the effects that this will have on traffic in 2022 and beyond. Ryanair has already announced that it will operate the largest schedule it has ever had at Dublin Airport.²⁰ This was announced as being partially due to the government funded incentive schemes.

Proposed Approach

- 5.37 We welcome all opinions and feedback on potential forecast methodologies, factors to consider, and appropriate causal drivers. We also remain open to considering alternative options that we may have overlooked in this overview. The Passenger Forecast building block will be particularly challenging, and as such, we are very open to considering different approaches.
- 5.38 Dublin Airport will be providing forecasts to us in its regulatory proposition, as well as in other submissions. We would also welcome forecasts from other parties such as airlines or airlines associations, in relation to their own short/medium/longer term forecasts. More weight will be given to forecasts where the basis of forecasting and underlying data is provided to the Commission and/or made clear.
- 5.39 We will continue to consider the optimal approach over the coming months. Our current thinking is to establish a baseline considering any industry-based data or

¹⁹ <https://www.gov.ie/en/press-release/0dd30-minister-of-state-naughton-announces-108m-in-funding-for-irish-airports/>

²⁰ <https://www.rte.ie/news/business/2022/0120/1274790-new-ryanair-dublin-routes/>

evidence which is provided to us, and taking account of any relevant up-to-date data and forecasts from industry bodies and Eurocontrol. This baseline could be 2022 or 2023.

- 5.40 We would then develop forecasts for 2023 (or 2024) to 2026 using a causal forecast approach. We would consider the latest traffic data, industry forecasts provided in submissions, other forecasts identified above, as well as latest available information from other sources as a cross-check for the resulting forecast. We would consider whether it is necessary to make any adjustments or overlays to the causal forecast. For example, it may be the case that a causal forecast does not adequately capture growth from 2022 to 2023, if this is considered likely to be impacted by a recovery in the propensity to travel to close to pre-pandemic levels.

6. Operating Expenditure

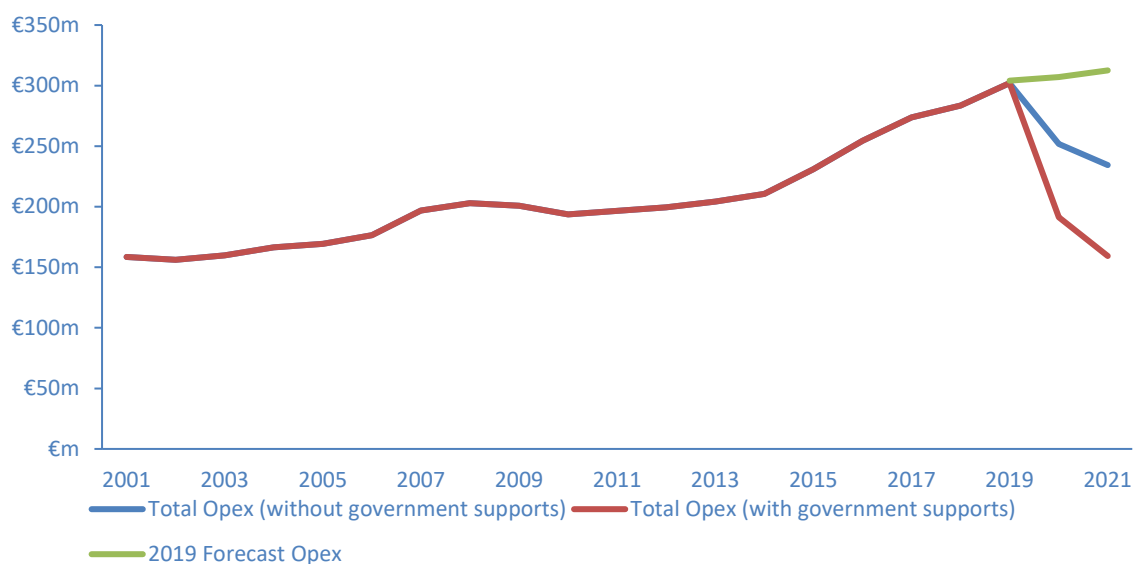
6.1 In this section, we consider options on how to revise the Opex allowances. We first describe the Opex outturns for 2020-2021 in comparison to the forecasts, followed by an outline of the approach to Opex in the 2019 Determination. The main considerations for this building block as well as potential approaches to setting allowances are detailed. Finally, we examine a number of other issues that may affect Opex in this review, and set out our proposal for this building block.

Forecasts and Outturns

6.2 Chart 6.1 shows the Opex outturns from 2001-2021, and the forecast Opex for 2020-2021 from the 2019 Determination. Dublin Airport has been receiving government support in the form of the temporary COVID-19 wage subsidy scheme (TWSS) in 2020, and the employment wage subsidy scheme (EWSS), and a rates waiver from Fingal County Council in 2020 and 2021. This amounted to a total of €62.2m and €72.9m in 2020 and 2021 respectively. As such, Chart 6.1 shows outturn Opex, both with and without government supports.

6.3 Forecast Opex was very close to outturn in 2019, with outturn being 1% less than the forecast. However, Opex has fallen significantly below forecast levels since 2019. In real terms, and including government and local authority supports, Opex has fallen by 47% in 2021 compared to 2019. Excluding government supports, it has fallen by 22%.

Chart 6.1: Opex Outturns 2001-2021, and 2019 Determination Forecast

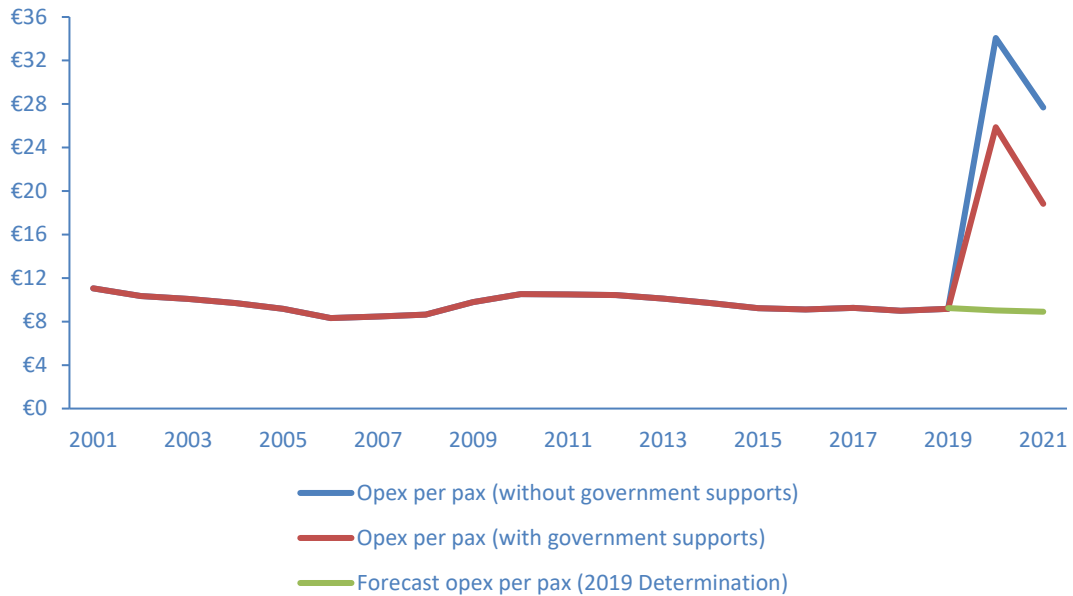


Source: 2019 Determination, Dublin Airport Regulatory Accounts, Dublin Airport, CAR Calculations

6.4 In contrast to this, Opex per passenger has risen considerably since 2019, due to the fall in passenger numbers outweighing the cost reductions. This can be seen below in Chart 6.2. The forecast Opex per passenger was €9.03 for 2020 and €8.90 for 2021, compared to outturn Opex per passenger of €34 in 2020, and €28 in 2021. If we account for government supports, Opex per passenger drops to €26 in 2020, and €19

in 2021.

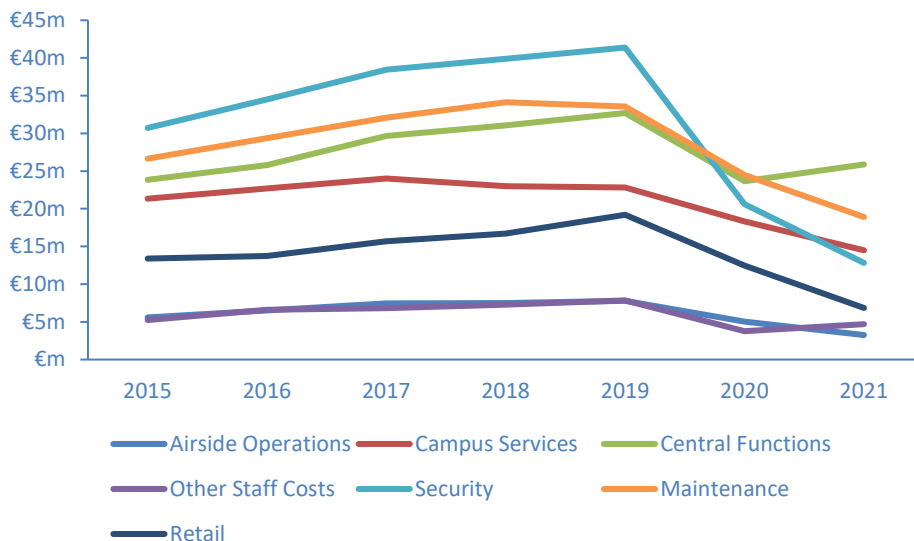
Chart 6.2: Opex per Passenger Outturns 2001-2021, and 2019 Determination Forecast



Source: 2019 Determination, Dublin Airport Regulatory Accounts, Dublin Airport, CAR Calculations

6.5 In the charts below, we can see the evolution of the different cost categories over time, inclusive of government supports for 2020 and 2021. All cost categories saw considerable decreases in 2020, with the smallest reductions being 10% for consultancy services. Many of the costs continued to decrease into 2021, with some beginning to increase again at this point. Costs associated with campus services, security, maintenance, and airside operations have fallen continuously since 2019. Other staff costs, and central functions costs fell in 2020 but have begun to increase slightly in 2021. Security staffing costs have reduced significantly, with decreases of 50% and 69%, relative to 2019, in 2020 and 2021 respectively. Retail costs also fell significantly with a decrease of 35% in 2020 and a further 45% in 2021.

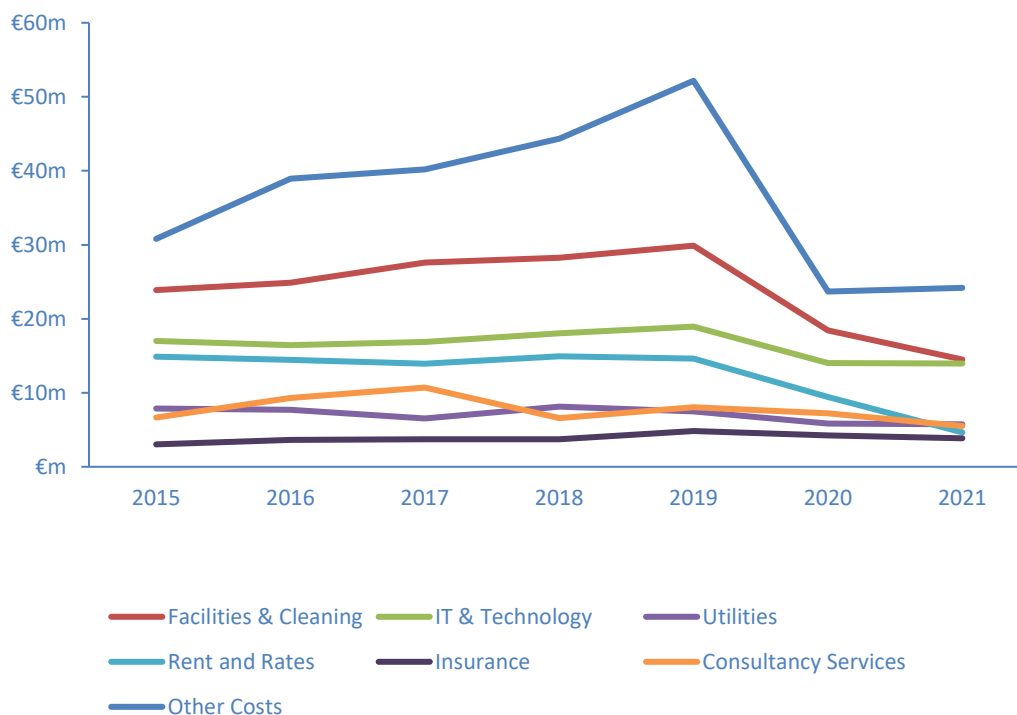
Chart 6.3: Main Staff Opex Categories, Outturn 2015-2021



Source: Dublin Airport, 2019 Determination, CAR Calculations.

6.6 Opex related to retail, facilities and cleaning, consultancy services, utilities, insurance and car parks have all fallen in both 2020 and 2021 relative to 2019, while IT & technology costs, PRM costs, and capital costs decreased in 2020 but have begun to increase in 2021.

Chart 6.4: Other Opex Categories, Outturn 2015-2021



Source: Dublin Airport, 2019 Determination, CAR Calculations. Other Costs includes PRM, marketing and related costs, car parks, capital project costs and Other Opex costs.

2019 Determination

6.7 In developing the Opex allowances for the 2019 Determination, we first sought to assess the efficiency of Dublin Airport and whether there was scope for improvement in this area. We commissioned CEPA to carry out a bottom-up cost efficiency assessment.

6.8 The CEPA analysis was both forward and backward looking, in that it considered the efficiency of the Opex response by Dublin Airport to higher than forecast traffic levels over the 2015-2019 period, and then sought to develop forecasts based on an efficient starting point. We used the report and model provided by CEPA to derive the Opex targets for each year. We implemented a glidepath to allow Dublin Airport more time to achieve the efficient level of Opex. The length of the glidepath was originally four years, but we reduced it to two years following the referral from the Appeals Panel.

Key Considerations for 2022 Review

6.9 The key questions that we will be seeking to address as part of the review are:

- What is an appropriate baseline to use for the revised Opex forecast?

- How should Opex evolve from this baseline over the regulatory period?
- 6.10 Opex at Dublin Airport has fallen dramatically since 2019 due to COVID-19. Therefore, it will be necessary to consider the impact of COVID-19 on Dublin Airport's cost base, and to evaluate the structural changes which have been implemented. This will include:
- assessing how these changes might reasonably be expected to reduce costs relative to pre-COVID levels on an ongoing basis, as traffic recovers.
 - where cost escalation is likely to be required.
 - where further efficiencies should be achievable.
- 6.11 There are a number of possible approaches to setting the baseline from which to forecast for 2023 and beyond. We could use a derived efficient baseline value, or we could use the actual Opex from 2021 or a latest forecast for 2022. To derive an efficient baseline value, we would first assess how well Dublin Airport has adapted costs in response to COVID-19, and the efficiency of the current cost base. Based on this analysis, we would define a 2022 baseline based on what Opex would have been if Dublin Airport responded to COVID-19 efficiently in 2022. This approach is likely to be challenging from a technical perspective. If this approach is used, we will also need to consider whether it is appropriate to apply a 'glidepath' in a similar way to the one used in the 2019 Determination. Alternatively, we could take actual Opex from 2021 or 2022 as a baseline and forecast from this point without any adjustments based on prior performance.
- 6.12 In assessing how an efficient level of Opex should develop, the scope for Dublin Airport to move closer to the efficiency frontier should be a primary consideration. Additionally, the level of Opex is significantly driven by the level of passenger traffic, which poses a challenge due to the current uncertainty regarding passenger traffic. This is a factor that will need to be considered for many of the building blocks, and as such, we have discussed the risks associated with this and our proposals in more detail in Section 4.
- 6.13 We will also need to consider the overlaps and dependencies between Opex and Capex. The nature and timing of the capital investment plan will likely have implications for the level of Opex, and vice versa.
- 6.14 The Quality of Service regime will also be an important factor for the Opex allowances. This is necessary to ensure that the allowed costs are consistent with achieving the targets set for service quality.

Possible Approaches to Setting the Allowances

- 6.15 There are several methodological approaches that we might use to answer these questions. In previous determinations, we have generally used a bottom-up approach, albeit it to varied levels of granularity, complementing this with analysis of some top-down metrics.

Bottom-Up Approach

- 6.16 A bottom-up assessment involves breaking down Opex into its component categories and carrying out a detailed assessment of all costs within that category. The efficient level of each cost item is then determined through methods such as benchmarking or process analysis. This methodology allows for a very detailed analysis, providing a deep understanding of the specific nature of costs at Dublin Airport.
- 6.17 Using a bottom-up approach to set Opex allowances would be in line with our approach to Opex in the past, including for the 2019 Determination.

Top-Down Approach

- 6.18 In a top-down analysis, Opex is assessed at a macro level, rather than as individual cost lines. Opex can be compared to other airports or similar comparators, in the industry or in other industries. This is achieved using benchmarking or econometric analysis.
- 6.19 However, this approach may overlook firm-specific factors which are difficult to capture and adjust for in full. The extent to which this issue undermines the top-down approach varies across companies and industries. There are some industries in which the services provided are relatively more homogenous than others, for example, regulated water companies may be considered to provide more homogenous services compared to regulated airports. Among regulated airports there are often significant differences in business models, with certain airports running ancillary businesses such as groundhandling services or hotels on campus, as well as providing the core services, which also vary by airport. Dublin Airport, for example, operates a US Preclearance facility which is unique among its likely comparator airports.
- 6.20 There can also be differences in the volume of cargo processed by different airports. In the 2019 Determination, we examined a benchmarking approach used by Dublin Airport which compared Opex per passenger at different airports, finding that Opex per passenger was 5% higher at Dublin relative to Oslo, Stansted and Copenhagen. However, this did not consider the varying cargo processing levels at each airport, resulting in an underestimation of the difference in costs of 4%, which is approximately €10m in annual Opex, when compared with the industry standard measure, work load unit (WLU). This example highlights that an apparently minor point which may be overlooked can have significant consequences for the Opex allowances.
- 6.21 Nevertheless, benchmarking can provide useful insights into how costs compare on a broader scale. It may be best considered as a tool to be used in combination with a bottom-up assessment, as a sense-check for the results.

Other Issues in Opex

Opex Passthrough Mechanism

- 6.22 In the 2019 Determination, an Opex passthrough term was included to allow for the remuneration of uncertain or unanticipated costs which were largely outside the control of Dublin Airport. This was limited to Local Authority Rates applicable to the regulated entity, and direct charges set out in new or amended primary or secondary

legislation, which are outside the control of Dublin Airport, which exceed €0.5m per annum and relate to activity undertaken by the regulated entity. Dublin Airport was required to demonstrate that it had taken all reasonable measures to achieve the best value possible for stakeholders before such costs would be passed through.

- 6.23 This mechanism was removed for 2020-2022 due to the high level of volatility in passenger numbers. The low level of passengers would have created much greater volatility in the price cap than had been anticipated in 2019. We will now need to consider the reimplementing of this mechanism, and whether there are any changes warranted to the conditions, included costs, or application of the mechanism.
- 6.24 Our current thinking is that such a mechanism should be reinstated from 2023 as part of this review.

Remuneration of the Voluntary Severance Scheme

- 6.25 In 2020, in response to the fall in traffic, Dublin Airport implemented a Voluntary Severance Scheme (VSS) to reduce staff costs. Total restructuring costs, including the VSS and other measures, was €87.6m in nominal terms. We understand that approximately 750 staff chose to leave the business through the VSS. In setting the Opex allowances for the remainder of the regulatory period, we will also need to consider if it is appropriate to remunerate some of all of the cost of the VSS.
- 6.26 In the 2019 Determination, we set out how we would account for a VSS to ensure that Dublin Airport is appropriately remunerated. The VSS scheme envisaged at that time was intended to address the disparity between pre-2010 and post-2010 contracted staff. We stated that in the following Determination, if the VSS costs (including a return on the VSS 'investment') had not been fully offset by payroll savings, any outstanding amount would be rolled forward into the next determination. We also stated that the payback period should be such that all remuneration is completed by the end of 2027.
- 6.27 As this review will now look at the period 2023-2026, we intend to consider the appropriate treatment of the VSS which was implemented. We see three possible approaches to this:
- Firstly, the VSS could be remunerated directly over a given time period. This approach would transfer some volume risk away from Dublin Airport. The airport has benefitted from savings over 2020-2022, and therefore, adding remuneration of the full costs of the scheme would also likely result in some level of double remuneration. This may or may not include an ex-post efficiency assessment of the VSS terms, to assess whether it should be remunerated in full or in part.
 - Secondly, we could adopt the approach laid out in the 2019 Determination for a VSS. In this case, we would assess the savings achieved by 2023 due to the VSS investment, and if they are less than the cost, we can allow for the remainder of the costs to be remunerated in future years. This would result in the implementation of the scheme being NPV neutral to Dublin Airport, relative to not implementing the scheme. Similarly, this might or might not include an efficiency assessment.

- Thirdly, we may consider not adding any explicit remuneration of the VSS. Dublin Airport was assigned the volume risk for 2020-2022, except where stated otherwise. This means that Dublin Airport is expected to respond to traffic levels by making changes to its cost base. The implementation of the VSS was an element of its response to COVID-19. Ex-post adjustments for outturn costs are not normally made unless explicitly provided for on an ex-ante basis.

6.28 Our current thinking is that the second option is the appropriate treatment of the VSS. We consider that whether or not an efficiency assessment should be carried out is linked to the question of the forecasting baseline. Thus, we will consider this as part of the Opex building block forecasting over the coming months.

6.29 In the case that we take either of the first two approaches, we will also need to consider the appropriate time period for the remuneration to occur over.

Environment and Sustainability

6.30 We may need to consider Opex that is intended to address environmental issues such as energy use, emissions, or noise. This may be in response to EU or national regulations, government policy, or general policy at the airport. As detailed in Section 3, we will have a new objective related to sustainability with the introduction of the ANTB. This objective requires us to consider the relevant Government policies on climate change and sustainability when carrying out a determination. This may be relevant in the consideration of such cost lines.

6.31 It is also likely that there will be some interaction with other building blocks. For example, there are Capex projects that may have the potential to reduce Opex. Thus, many environmental projects and costs will need to be considered both in reference to the building block that they are directly related to and their interdependencies with any other building blocks.

Proposed Approach

6.32 We believe that the key questions set out in this section are best addressed as part of a bottom-up assessment, similar to that carried out for the 2019 Determination. As such, we will carry out an updated bottom-up assessment. This may include analysis of some top-down metrics to complement the core analysis.

6.33 We welcome all feedback from stakeholders in relation to what the primary considerations should be for the revised assessment.

7. Commercial Revenues

7.1 This section discusses the Commercial Revenues building block. It begins by laying out the performance in the regulatory period 2014-19 and in 2020/2021, before then outlining the Commercial Revenue forecasting methodology used in the previous determination and explaining our intended methodology for the forthcoming determination. This section also examines key issues related to this building block as well as any other relevant considerations.

7.2 Key questions informing this section are:

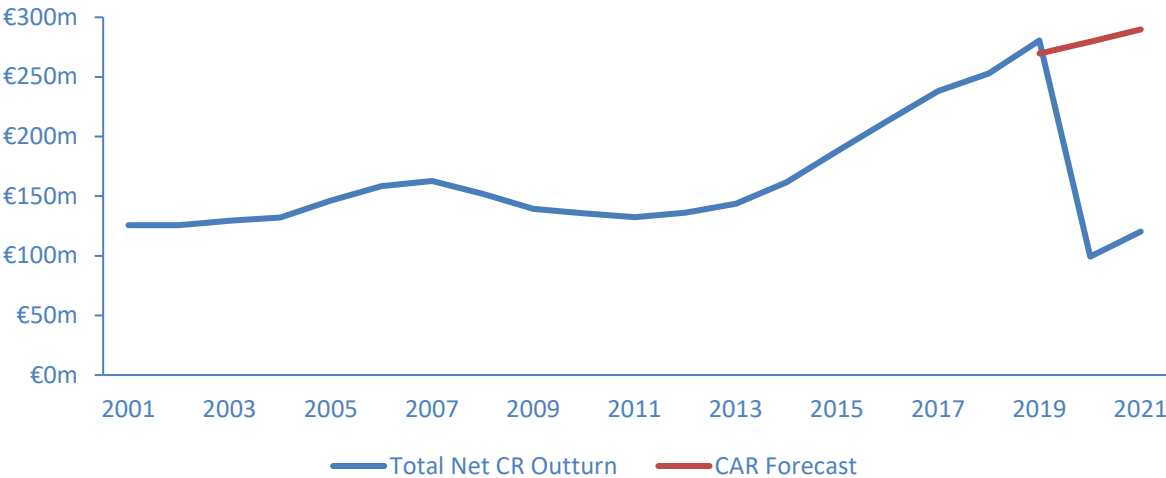
- What has been the impact of COVID-19 on passenger behaviour, and are these changes likely to be temporary or permanent?
- Can the methodology previously used by the Commission to forecast Commercial Revenue be applied for this review, given the impact of COVID-19 on passenger behaviour?
- Should the Commission elect to change methodology, what changes should it make?

Forecasts and Outturns

7.3 Commercial Revenues at Dublin Airport increased significantly across the regulatory period 2015-2019, with total net Commercial Revenues rising from €161.6m in 2014 to €280.5m in 2019, an increase of 72%. Commercial Revenue outturn was also 37% higher across the regulatory period than had been forecast in 2014.

7.4 In contrast, Commercial Revenues were far lower for the years 2020 and 2021 than had been forecast, with a shortfall of 64% in 2020 and 59% in 2021. This fall was primarily due to the COVID-19 pandemic. The trend in Commercial Revenues between 2001 and 2021 is presented in Chart 7.1 below.

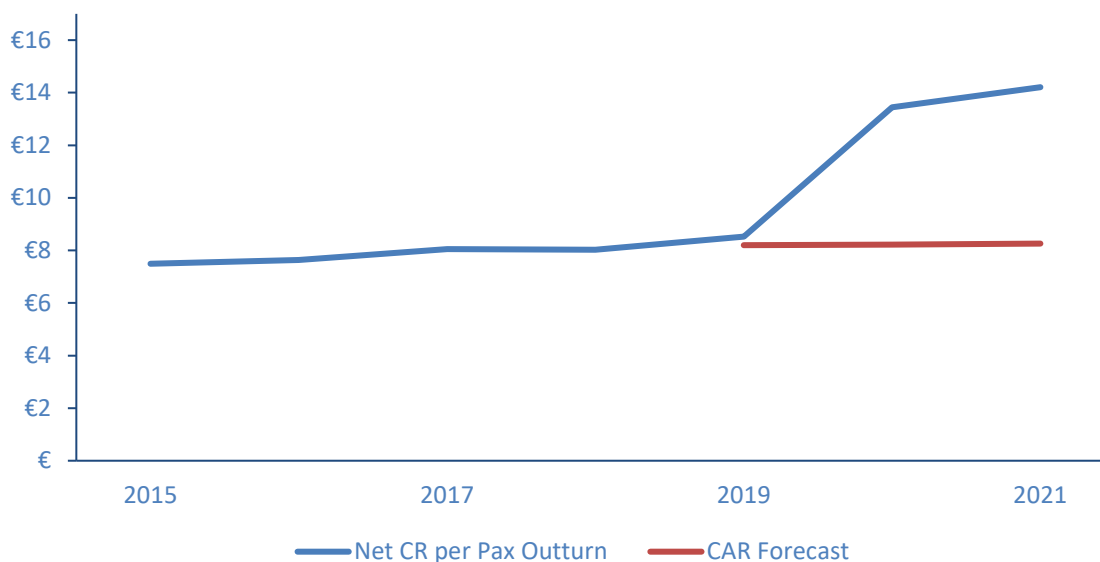
Chart 7.1: Commercial Revenue Outturns 2001-2021, and 2019 Determination Forecast



Source: Dublin Airport, 2019 Determination, CAR Calculations

7.5 While overall Commercial Revenue dropped significantly for 2020 and 2021, this was not reflected at a per passenger level, with Commercial Revenues rising from €8.52 per passenger in 2019 to €13.44 in 2020 and €14.21 in 2021. The trend in per passenger Commercial Revenues between 2001 and 2021 is presented in Chart 7.2 below.

Chart 7.2: Commercial Revenue per Passenger Outturns 2001-2021, and 2019 Determination Forecast



Source: Dublin Airport, 2019 Determination, CAR Calculations

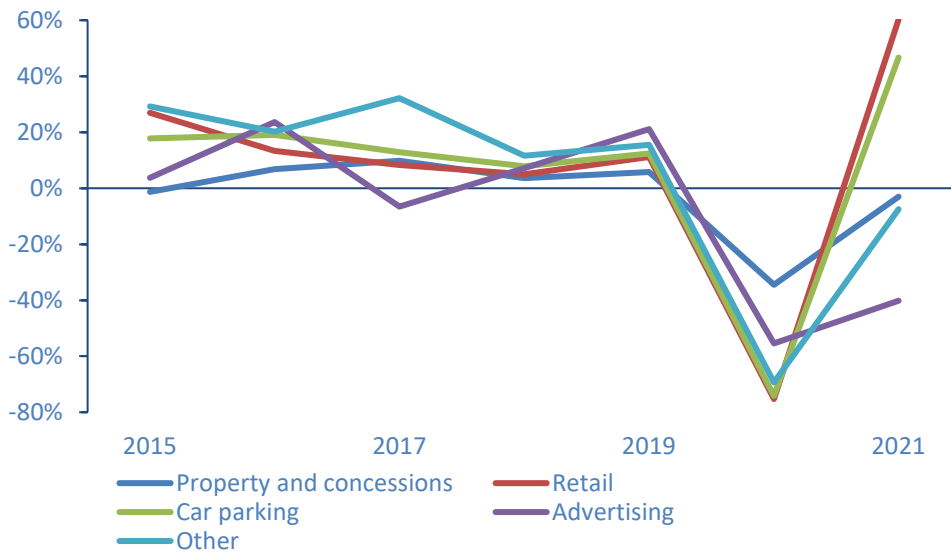
Outturns by Category

7.6 Chart 7.3 below shows the year-on-year revenue change in the Commercial Revenue categories, between the years 2015 and 2021. While there was strong variation in the annual level of change in each category between 2015 and 2019, this change was exclusively positive in each year.

7.7 However, following the onset of COVID-19, Commercial Revenue dropped significantly (by approximately 70% in three of the categories) as fewer passengers travelled through Dublin Airport. Both Car parking and Retail rebounded relatively strongly in 2021, growing by 60% and 47% respectively from their 2020 position, while Other revenues fell by a further 7%. Other revenues here include Lounges, Fast Track & Platinum Services, US Preclearance, and other smaller revenue streams. It is likely that there is counterbalancing growth and reductions across revenue streams within this category. Property and advertising revenue also declined significantly, although to a lesser extent than the other three categories.

7.8 It should be noted that the growth in 2021 was from a very low base in 2020.

Chart 7.3: Year-on-Year Change in Commercial Revenue categories

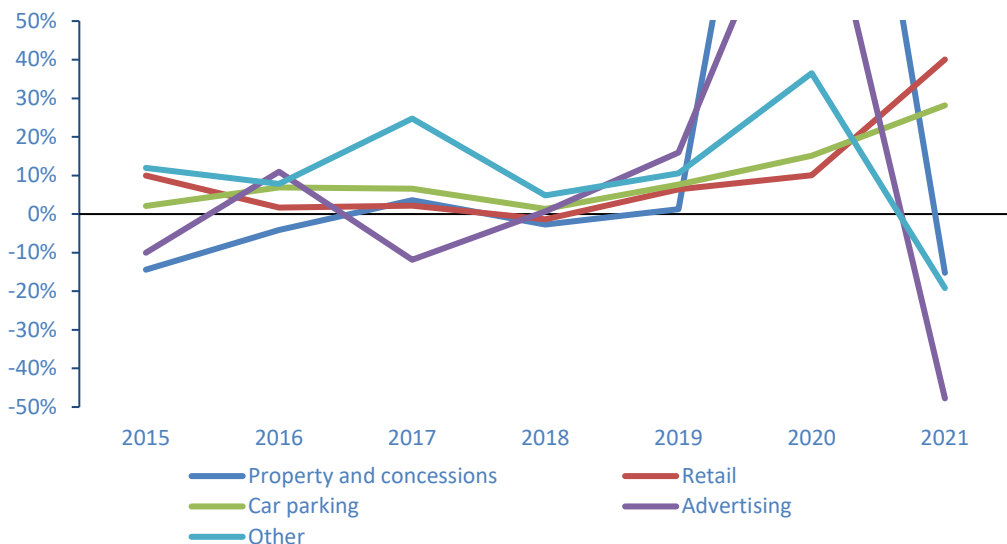


Source: Dublin Airport, CAR Calculations

7.9 The Commercial Revenue performance at a per passenger level is shown in Chart 7.4 below. The fall in traffic due to the COVID-19 pandemic led to an increase, at a per passenger level, in all Commercial Revenue categories in 2020, and further increases in Retail and Car Parking in 2021.

7.10 The cause of these changes is not clear from the data. We will need to consider this further ahead of our Draft Decision. However, it is likely that the increase in car parking was due to passengers attempting to avoid using public transport on the way to the airport. The increase in Other revenues may similarly be due to passengers attempting to avoid crowded spaces in the airport. The growth per passenger may be due to the inclusion in this trend of retail concessions contracts that include minimum payments to Dublin Airport, and/or potentially earlier passenger show-ups leading to more time being spent in departure lounges or other dwell spaces.

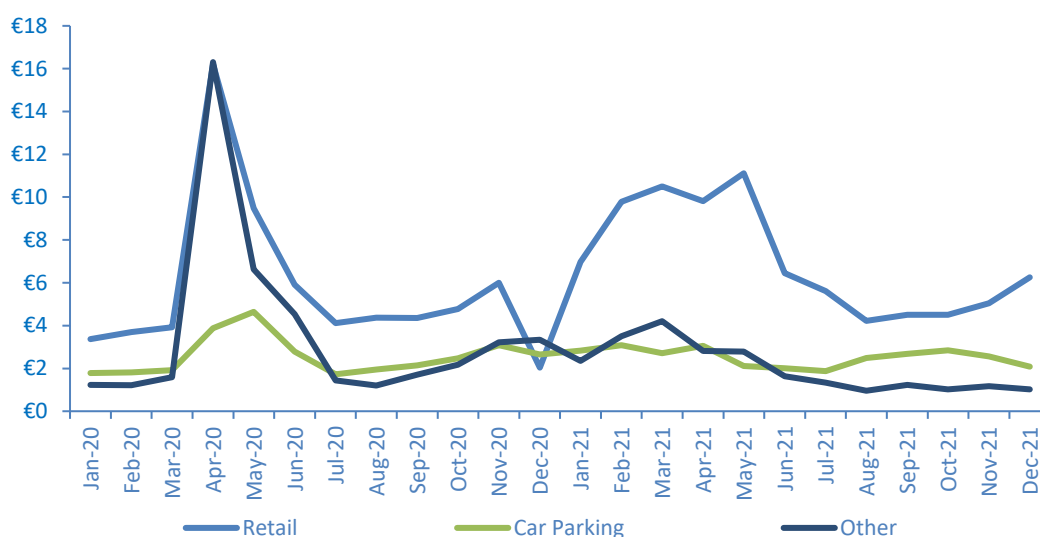
Chart 7.4: Year-on-Year change per passenger, 2015-2021



Source: Dublin Airport, CAR Calculations

- 7.11 The average Per Passenger spend on the three categories of Commercial Revenue most related to passenger numbers differed considerably across 2020 and 2021, as shown in Chart 7.5. The greatest change was in Retail which grew significantly at a per passenger level compared to the average spend at the beginning of 2020 and remained at a high level (relative to the start of 2020) until Q3 2021 (as noted above this may be due to minimum payments requirements in retail concessions contracts).
- 7.12 A similar pattern can be seen in the Other Revenues and Car parking categories (although to a smaller degree). All three categories showed movement towards pre-COVID-19 levels in the latter portion of 2021, however, some volatility remained, and it may be too early to tell if per-passenger revenues are on course to revert to the long run trend.

Chart 7.5: Monthly trend in the per passenger categories, 2020 and 2021



Source: Dublin Airport, CAR Calculations

2019 Determination

- 7.13 Our core methodology for the 2019 Determination used an aggregate of forecasts across the eight categories of Commercial Revenue. Each category forecast was based on one unique elasticity estimate, and the relationship between driver and category was established using econometric modelling.
- 7.14 The core methodology involved three steps:
- First, we used outturn data from 2001 to August 2018 to estimate the elasticity of each category to its associated drivers. The elasticity measured how the category varied due to changes in its driver.
 - Second, we selected the most appropriate driver based on the robustness of the results. For commercial property this driver was Irish GDP. For US Preclearance revenue, we used our forecast of US Preclearance passengers at Dublin Airport. The driver selected for the remaining six categories was our forecast of total

passengers at Dublin Airport.

- Third, we used outturn revenue from January to August 2019 to set a 2019 baseline, then applied the estimated elasticity to the forecasts of the selected driver to arrive at the target for each revenue category.

7.15 We then included revenue uplifts to the forecasts for advertising and for lounges, fast track and platinum services categories to account for the assessed impacts of certain capital projects, and subtracted revenue associated with the displacement of certain commercial property due to the planned developments in the north and south aprons.

7.16 In 2014, we introduced rolling schemes for all categories of Commercial Revenues. The motivation for rolling over outperformance as adjustments on future targets is to ensure Dublin Airport faces an equal incentive to maximise its Commercial Revenues at every point in time during the regulatory period. This scheme was partially continued in the 2019 determination. The merits of continuing this scheme further will be discussed later in this section.

Forecast Methodologies for Review

7.17 Our goal in 2022 is to forecast Commercial Revenues for 2023 to 2026, however, there will be a number of challenges in achieving this. We will need to take a practical approach which overall produces reasonable centreline forecasts.

7.18 COVID-19 has led to a significant change in passenger behaviour; the extent to which this will endure is not yet known but it is clear from the 2020 per passenger Commercial Revenues that changes have occurred in at least some of the categories, as the per passenger metric was far higher for 2020 than in previous years. If passenger behaviour has changed across all or most categories and the monthly data does not show significant movement back towards the long-term trend then it may not be appropriate to replicate our previous methodology, as the elasticities will no longer be relevant.

7.19 However, if passenger behaviour is now beginning to return to the long-term trend, it may be possible to use the pre-pandemic elasticities. Some of the variance observed in 2020 and 2021 is likely to also be related to more fixed elements of revenue within the categories. Thus, as passenger traffic recovers, these elements should reduce as a proportion of the total revenues, bringing revenue per passenger closer to the pre-pandemic levels. We will need to keep a close eye on this trend throughout 2022.

7.20 A further concern is Passenger Forecasts themselves; this was the key driver behind six of the eight categories of Commercial Revenue in 2019 but, as discussed in Section 5, due to the uncertainty caused by the COVID-19 pandemic it may be more difficult to forecast passenger levels for 2023 and beyond with a reasonable degree of accuracy.

7.21 The correct starting point for our forecasts will also need to be considered carefully. Our previous approach used the last year for which data was available as the base year and projected forward from this point. That approach alone may no longer be sufficient as the most recent year for which data is available will have been impacted

by the pandemic to a degree that future years may not.

Proposed Approach

- 7.22 Our current expectation, subject to the caveats above, is that we will maintain an econometric approach. If we decide to broadly retain an econometric approach based to forecasting the individual categories, we will need to 1) determine the baseline year, and 2) determine elasticities with respect to the key driver or drivers.
- 7.23 Our first step in creating new forecasts would be determining the baseline year. We are proposing to use information available in 2022 to estimate a base year, together with any relevant data from previous years which may be required to address the issues outlined above.
- 7.24 Our next step would then be to calculate the elasticities of the Commercial Revenue categories to changes in their key drivers. In determining elasticities, we are proposing to base our elasticities on the pre-pandemic levels. However, we will consider making adjustments for any changes in passenger behaviour, or other Commercial Revenue drivers, that we believe will remain present over the period 2023-2026.
- 7.25 Our current expectation is that we would use the same key drivers as in previous determinations. We previously based the relevant Commercial Revenue categories on our best estimate of Passenger Forecasts and on GDP forecasts. The key advantage of this approach lies in its simplicity and transparency and helps ensure the consistency in our approach.

Potential use of benchmarking

- 7.26 A potentially useful option would be to use benchmarking techniques to consider the scope for efficiency gains, either for some or all of the Commercial Revenue categories. This was considered as part of the 2019 Determination; benchmarking was used as a sense check against our econometric forecasts. In practice, most of the approaches outlined above build upon some existing level of observed revenues.
- 7.27 In the context of Commercial Revenue, scope for efficiency gains may encompass suboptimal pricing schemes, inefficient allocation of resources (e.g., not enough retail space), or unexplored opportunities for revenue generation. Benchmarking can help identify scope for efficiencies by comparing performance indicators across various airports. The choice of performance indicators depends on the nature of the efficiency that one wishes to explore, the choice of comparator airports and on the data availability.
- 7.28 We propose to once again use benchmarking as a sense check against our forecasts for both the base year and the rest of the period. This may include benchmarking against other airports and/or benchmarking against Dublin Airport's own performance over time, for example in the previous regulatory period.

Specific Considerations for 2022 Review

- 7.29 Below we address a number of specific considerations for the review.

Interactions with other building blocks

- 7.30 The interactions between Commercial Revenues and other building blocks needs to be considered as part of the 2022 Interim Review. Specifically, the Opex and Capex allowances must be consistent with the Commercial Revenue targets. How this will be precisely accounted for will depend on the approach we take to forecast Commercial Revenues.
- 7.31 If we adopt an econometric approach consistent with our previous methodology, then accounting for interactions between Commercial Revenues and other building blocks will be simpler, as we can adjust our estimated elasticities to account for these, or potentially add an overlay adjustment after calculating the core elasticity-based forecasts. The impact of relevant capital projects was similarly accounted for in the 2019 determination. However, if we use an alternative approach, such as benchmarking, this will likely be more difficult to accomplish.

Including new lines of Commercial Revenue

- 7.32 We will also need to consider how to include new sources of Commercial Revenue that are likely to emerge between 2023 and 2026. One example might be the potential passenger set-down charges which Dublin Airport is considering introducing. These charges would apply to anyone collecting or dropping off passengers by car at the terminal buildings.

Aeronautical Revenues or Commercial revenues

- 7.33 Airport Charges, from which Dublin Airport collects aeronautical revenues, are defined in line with the definition of Airport Charges in the Airport Charges Directive.²¹ Airport charges are levies collected for the benefit of the airport managing body and paid by the airport users for the use of facilities and services, which are exclusively provided by the airport managing body and which are related to landing, take-off, lighting and parking of aircraft, and processing of passengers and freight.
- 7.34 The Commission takes into consideration the level of what is defined in the 2001 Act as *operational income* of daa from Dublin Airport, which includes airport charges and commercial revenues associated with the operation of Dublin Airport. All revenues accruing to daa at Dublin Airport fall within the single till and must be reported as either commercial or aeronautical revenues, unless they are associated with Dublin Airport City which has been till-exited. Central costs associated with both the Dublin Airport regulated entity but also till exited infrastructure or daa group functions, must be appropriately apportioned such that the regulated entity does not pay more than its fair share.
- 7.35 In most cases, the distinction between aeronautical and Commercial Revenue generating charges is clear, but in some cases, this is more debateable. For example, US Preclearance and FastTrack services have been the subject of disagreement. Other potential areas of uncertainty, which may be relevant for this review, include de-icing

²¹ <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:070:0011:0016:EN:PDF>

charges or the aforementioned passenger set-down charges.

- 7.36 We welcome views on the appropriate regulatory treatment of these charges, or any others that respondents may wish to draw our attention to.

The reintroduction of the Rolling schemes

- 7.37 We will consider the reintroduction of Commercial Revenue rolling schemes. In 2014, we introduced rolling schemes for all Commercial Revenue categories. The purpose of these schemes was to ensure Dublin Airport faced an equal incentive to maximise its Commercial Revenues at every point in time during the regulatory period. The reset of the Commercial Revenue building block is de-coupled from the regulatory period, so that Dublin Airport benefits from outperformance for a five-year period regardless of the timing of that outperformance within the regulatory cycle.
- 7.38 The continued usefulness of rolling schemes was questioned during the 2019 Determination, but the schemes were ultimately deemed to have incentivised Dublin Airport to act commercially across the 2014-2019 period. Rolling scheme incentives were therefore included for four categories (Retail, Car Parking, advertising, and Lounges, FastTrack & Platinum Services). The schemes were intended to apply to any outperformance in the specified categories during 2021-2023, set on a per passenger basis. However, due to the high level of volatility in performance relative to the targets resulting from COVID-19, we determined that the schemes were not fit for purpose and chose to suspend them for 2021 and 2022.
- 7.39 A question we are now considering is whether to reinstate them for the revised regulatory period. While we previously determined that the schemes had incentivised Dublin Airport to act commercially across the period, the situation has changed considerably since then. An important new element is that we are considering the introduction of a risk sharing mechanism for the upcoming period. Depending on the form this mechanism takes, the incentives resulting from a rolling scheme may be dulled.

8. Cost of Capital

- 8.1 In this section, we discuss the Cost of Capital building block. The approach taken in the 2019 Determination is described in detail. This section also discusses the key considerations going into this review including the beta and the aiming up allowance. Lastly, we outline our proposed methodological approach to updating the Cost of Capital.
- 8.2 The Cost of Capital that is allowed in the price cap calculations should enable Dublin Airport to remunerate shareholders and holders of debt, for the required capital to enable the development of efficient infrastructure and operations at the airport. The Cost of Capital must balance rewarding existing investors appropriately, enabling appropriate future infrastructure development and protecting the interests of passengers.

2019 Determination

- 8.3 In 2019, we commissioned Swiss Economics to assess an appropriate Cost of Capital for Dublin Airport. In all aspects of the decision on Cost of Capital, we were guided by the recommendations on how to estimate the Cost of Capital for an airport published by the Thessaloniki Forum of Airport Charges Regulators in 2016.²²
- 8.4 As in previous determinations, the appropriate rate of return for Dublin Airport was estimated using the Weighted Average Cost of Capital (WACC) approach. The pre-tax WACC is estimated using the following formula:

$$\text{WACC (pre-tax)} = g \times r_d + 1/(1 - t) \times r_e \times (1 - g);$$

where:

g = total debt/(total debt + total equity) or 'gearing';

r_d = pre-tax cost of debt;

r_e = post-tax cost of equity;

t = corporate tax rate;

- 8.5 The cost of equity and cost of debt are estimated separately and weighted using the efficient level of gearing. A range was estimated for each component of the WACC. The midpoint of each range was taken and an aiming up allowance added on to reach the final allowed pre-tax Cost of Capital, 4.22%.

Cost of Equity

- 8.6 The cost of equity was estimated using the Capital Assets Pricing Model (CAPM), which is given by the following formula.

$$r_e = r_f + \beta_e \times (\text{TMR} - r_f)$$

²² <https://www.aviationreg.ie/fileupload/Thessaloniki%20Forum%20WACC%20Dec%202016.pdf>

where:

r_e = post-tax cost of equity;

r_f = risk-free rate;

β_e = equity beta;

TMR = total market returns

- 8.7 The risk-free rate was derived from 10-year Irish and German bond yields and market expectations on future yields and inflation. German bonds are considered close to risk free and because Dublin Airport raises funds outside of Ireland it is also appropriate to look beyond Irish bonds. An uplift was applied to the risk-free rate range based on market expectations on future yields which were estimated from forward rates of Euro area government bonds. This resulted in an estimated risk-free rate of -0.6%.
- 8.8 The equity beta is derived directly from the asset beta, which was estimated based on comparator airports' stock price movements and Betas from comparable regulatory entities. The evidence from these comparators was weighted based on similarities to Dublin Airport in terms of regulatory environment, demand structure and business structure. This resulted in an estimated asset beta of 0.5. The asset beta was relevered using the notional gearing rate and effective tax rate, providing an equity beta estimate of 0.94.
- 8.9 Total market returns (TMR) were based on a combination of Dimson, Marsh and Staunton's historical data from 1900 to the present for Ireland and forward-looking evidence from the Dividend Discount Model to reach a final estimate of 6.4% for the TMR.
- 8.10 Using these components, the cost of equity was estimated at 6.0% after tax.

Cost of Debt

- 8.11 The cost of debt was derived using weighted estimates of the cost of embedded and new debt. Embedded debt refers to debt interest payments related to financing from pre-2020. New debt is debt that was forecast to be raised over the 2020-2024 period. The transactions costs, cost of raising new debt, and a minor premium for the observed difference between Irish and European bonds were also included.
- 8.12 Embedded debt was assumed to decrease over the regulatory period due to loans maturing, and expiring debt being replaced with new debt. The cost of embedded debt was estimated to be between 0.14% and 0.96%. This was based on current interest payments by the airport with adjustments made for expected changes in future payments for debt with floating interest rates, such as the EIB loan.
- 8.13 The cost of new debt was estimated to be between 0.74% and 1.06%, based on a bond index for European non-financial corporations with a BBB credit rating. An uplift is allowed for transaction costs of 0.1%, which is in line with regulatory precedent in Ireland and the UK. We adjusted the cost of debt in line with a credit rating of BBB+. This was to ensure consistency with our approach to Financial Viability.
- 8.14 An appropriate weighting for the embedded and new debt was derived with

consideration of daa’s plans for future debt raises, and regulatory precedent. The final estimate of the pre-tax cost of debt was 0.6%.

Gearing

- 8.15 The cost of debt and cost of equity were weighted based on a notional capital structure of 50% gearing. We used a notional capital structure which is a theoretical value, rather than the actual financial structure of Dublin Airport. This is so that the gearing reflects the structure that would be chosen by an efficient airport to minimise the Cost of Capital.
- 8.16 In Swiss Economics’ review of gearing, it considered both the conceptual purpose of gearing, the approach used by other regulators, and CAR’s regulatory precedent. In the past, we have applied a gearing rate of 50% and Swiss concluded that there was no convincing argument for changing it at this time.

Aiming Up Allowance

- 8.17 The WACC calculation in 2019 included an aiming up allowance of 0.5%. This reflected the new investments planned by Dublin Airport in the CIP, and regulatory precedent in Ireland. An aiming up allowance was included to reduce the risk of an under-estimation of the true Cost of Capital. While over-estimating the true Cost of Capital can lead to higher Airport Charges in the short term, an under-estimated true Cost of Capital could result in insufficient investment capability which may have more long-term impacts for passengers. These risks were considered to be asymmetric with regard to our statutory objectives, warranting aiming at the top of the range of the likely true Cost of Capital.

Table 8.1: WACC Components from the 2019 Determination

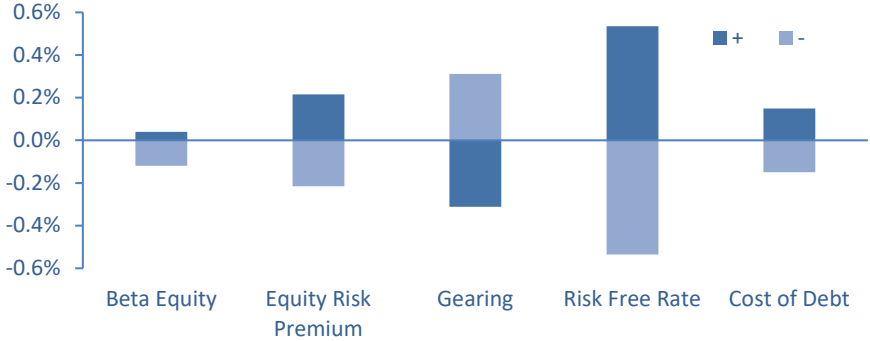
Component	2019	
	Range	Estimate
Gearing	45% - 55%	50%
Risk Free Rate	-1.1% - -0.1%	-0.6%
Total Market Returns	6.0% - 6.8%	6.4%
Equity Risk Premium	6.6% - 7.4%	7.0%
Asset Beta	0.48 – 0.51	0.5
Equity Beta	0.91 – 0.95	0.94
Cost of Equity (after tax)	5.3% - 6.5%	6.0%
Cost of Debt	0.3% - 0.9%	0.6%
Pre-tax WACC (pre aiming up)	3% - 4.3%	3.72%
Aiming up		0.50%
Pre-tax WACC		4.22%

Source: 2019 Determination

Sensitivity of the Cost of Capital

8.18 In the chart below we demonstrate the sensitivity of the current WACC to changes to the components. We test this by assessing, for each component, the impact on the Cost of Capital if that component is instead set at the top or the bottom of its range as defined in Table 8.1. Chart 8.1 thus shows the percentage change in the WACC when each component moves from the point estimate to the top/bottom of the range. These are the ranges as estimated by Swiss Economics in 2019.

Chart 8.1: Percentage change in Cost of Capital due to components moving across their range*



Source: 2019 Determination, CAR Calculations. *Range defined in Table 8.1

8.19 Across those ranges, the Cost of Capital is most sensitive to the changes in the risk free rate and the gearing. Changes in the beta equity and cost of debt have a smaller impact on the Cost of Capital. It should be noted that our use of the ranges identified for the 2019 calculation is for illustrative purposes does not imply that point estimates will necessarily remain within these ranges following this review.

Specific Considerations for this Review

Beta

8.20 In updating the Beta, we expect to consider whether technical elements of the calculation may need to change. This would involve looking at evidence of how COVID-19 affected airports, and if there are any factors that may have been associated with greater impacts. This can then be reflected in the weighting scheme for comparator betas. We can also consider if there are amendments that could be applied to the methodology that would allow it to better capture the effect of COVID-19 on airport equity.

8.21 We also expect to consider how the regulatory response to COVID-19 may have impacted the systematic risk profile of the airport. As described above, this review is the third COVID-19 related review of the 2019 Determination. This means that for each of the five years, the full impact of the unprecedented downside risk which has materialised has not been borne by Dublin Airport.

8.22 It is likely that we will examine the interaction with other building blocks, and whether there may be adjustments that could impact the risk profile of the airport. For example, a change in the allocation of volume risk as discussed in Section 4, or de-risking Dublin Airport for construction price inflation as discussed in Section 9. Both of these changes have the potential to impact the level of risk that Dublin Airport is

exposed to in the coming years.

Aiming Up Allowance

- 8.23 The inclusion of an aiming up allowance in the past has also been linked to decisions in other building blocks, including Capex and Financeability. In 2019, we included an aiming up allowance of 0.5% on top of the 3.72% centreline estimate of the true WACC, to give the allowed WACC of 4.22%.
- 8.24 An aiming up allowance can be used to ensure that the WACC is at the right level to enable or incentivise investment. The possible effects of underestimating the WACC can be considered worse than overestimating it, as the long-term effects of underinvestment are likely to have a greater overall impact on passengers. The scale and timing of the upcoming CIP is therefore something we will likely need to consider in relation to the decision on an aiming up allowance.
- 8.25 An aiming up allowance may also be used as a buffer to reassure a regulator that, if the regulated entity were to perform poorly relative to the building block targets, the impact will be on the profit margin rather than its ability to operate or fund its costs.
- 8.26 In our final decision on the Irish Performance Plan for RP3, we removed the aiming up allowance in the Cost of Capital for the IAA ANSP. However, we note that Dublin Airport is a more capital intensive operator than the IAA ANSP.
- 8.27 Furthermore, there may be a need to increase Dublin Airport's regulated revenue stream to enable financing. There are several ways that this can be achieved, as discussed in Section 10. In 2019, the effect of the aiming up allowance was therefore not to increase charges in the short term, but rather to reduce the amount of depreciation which we needed to accelerate. This significantly reduced the downside of including the aiming up allowance.
- 8.28 It should also be noted that the majority of responses to the regulatory process in 2019 were strongly supportive of the delivery of the investment plan in a timely manner and encouraged us to ensure this would be enabled as the first priority. However, this was in the context of what was already a significant year-on-year fall in the price cap.
- 8.29 It is thus important for stakeholders to clearly lay out their priorities to us, so that we can take account of them when reaching decisions on elements of the review such as aiming up and Financial Viability.

Corporate Tax Rate

- 8.30 There will be a new corporate tax rate introduced in Ireland in 2023. This will see the current rate of 12.5% rise to 15%. However, it is only applicable for companies with revenues of more than €750 million.²³ We will consider any implications of this change ahead of the Draft Decision.

²³ <https://www.gov.ie/en/speech/615f7-statement-by-minister-donohoe-on-decision-for-ireland-join-oecd-international-tax-agreement/>

Proposed Approach

- 8.31 We have engaged Swiss Economics to update the Cost of Capital report that they produced for the 2019 Determination. The update will consider relevant changes since 2019.
- 8.32 As outlined above, a significant amount of work was done on the methodology in 2019, and all appeals related to this were dismissed by the appeals panel. As such, we do not intend to develop a new methodology. Rather, we believe that the most appropriate approach is to update the existing methodology for relevant changes that have occurred since 2019.
- 8.33 We expect that this will involve an update of the analysis regarding the risk-free rate, total market return, and debt premium with more recent market data. We also expect to consider the specific issues identified above for this review.
- 8.34 We welcome all input on the components of the WACC that may require updates, and detail on what approach should be taken in updating these components.

9. Capital Expenditure

- 9.1 This section discusses Dublin Airport’s Capital Expenditure, beginning with an overview of the Commission’s Capex decisions from the 2019 Determination. The trends in Capex from 2001 to 2021 are then laid out, followed by our proposed approach for the upcoming review of the 2019 Determination. This section also considers a number of specific key issues related to this building block.
- 9.2 It is the responsibility of the Commission to determine the efficient level of Capex allowances for Dublin Airport in each determination period. In a competitive environment, an airport would be incentivised to deliver the required capital projects in a timely manner and at efficient cost, as not doing so would result in a competitive disadvantage. We aim to replicate these incentives when setting Capex allowances by only providing allowances for projects which meet the needs of current and future users, and by providing efficient allowances.
- 9.3 We aim to provide Dublin Airport with the flexibility to adjust Capex in response to changing circumstances or changing needs of users. There must also be sufficient regulatory certainty for Dublin Airport regarding remuneration of efficient costs.
- 9.4 As part of the 2022 review of the 2019 Determination, we intend to consider allowances in relation to the updated Capital Investment Plan (CIP) that Dublin Airport is currently developing. We will also reconcile expenditure and allowances from the first three years of the 2019 Determination to determine the opening Regulatory Asset Base (RAB) for 2023.

Our approach to the 2019 Determination

- 9.5 In 2019 we provided for Capex allowances (depreciation and return on capital) which were significantly higher than the previous period. Capex was set to increase from €135m spent in 2019 on the CIP2015- 2019, to €447m in 2020 against the CIP2020-2024.
- 9.6 However, the COVID-19 pandemic impacted significantly on the planned programme of new investments and led to far lower Capex for 2020 and 2021 than had been planned.

Table 9.1: Expenditure on CIP 2020-2024, compared to Allowances

	2020	2021
Total Capex Allowances	€447m	€447m
Total Capex Outturn	€132m	€126m

Source: Dublin Airport and the 2019 Varied Determination.

Note: These figures are in real prices and relate specifically to Capex spending on the 2020-2024 CIP, they exclude spending on the North Runway and PACE projects.

- 9.7 As part of the 2019 Determination, we engaged Helios to run simulation modelling of both the airfield²⁴ and terminal buildings²⁵. Helios simulated the operation of a busy day under a 40 mppa (million passengers per annum) traffic scenario. The overall goal

²⁴<https://www.aviationreg.ie/fileupload/2019/Draft%20Determination/2020-2024%20Draft%20CIP%20Airfield%20Modelling.pdf>
²⁵<https://www.aviationreg.ie/fileupload/2019/Draft%20Determination/2020-2024%20Draft%20CIP%20Terminal%20Modelling.pdf>

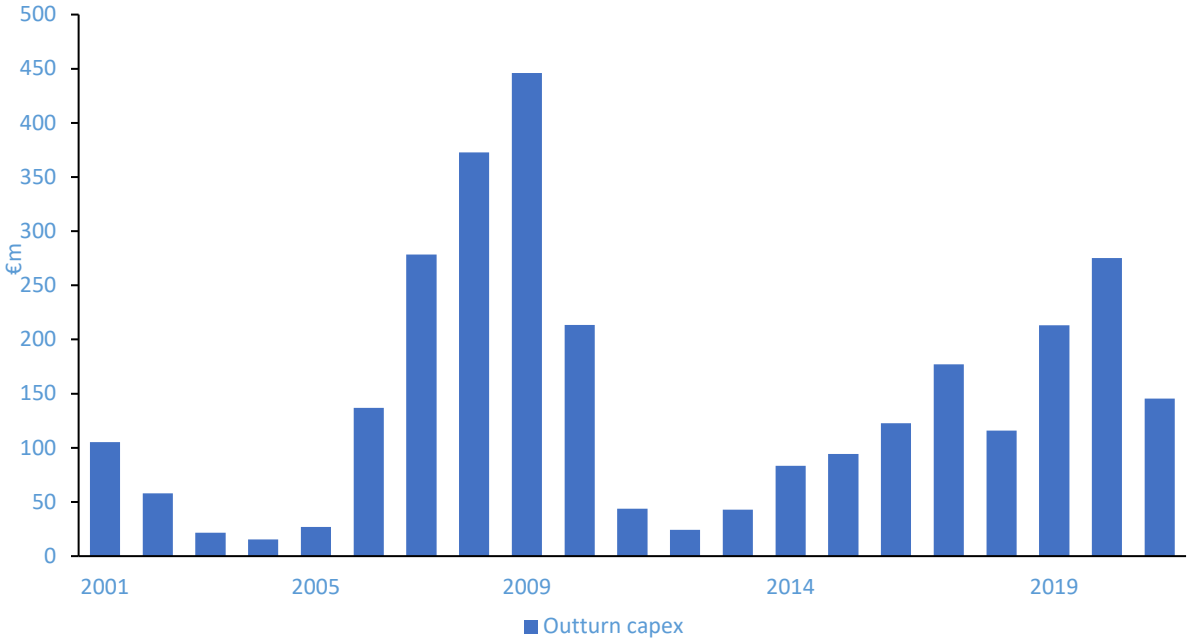
was to assess whether the airport system, on completion of the proposed investment programme, would have the processing capacity to deliver 40 mppa at an appropriate level of service, which was the stated goal of Dublin Airport. The results indicated that the airport system would allow for 40 mppa, and that most of the key processors were appropriately sized.

- 9.8 To the extent that the project outputs in the updated CIP remain in line with the original 2020-2024 CIP, the results of this modelling exercise remain instructive. However, the date at which passenger numbers are expected to reach 40 mppa is now later than originally envisaged. We also note that some of the capacity analysis may have been impacted by changes in processor transaction times, due to COVID-19 related capacity impacts or otherwise. This is something we will need to consider, and stakeholders should be mindful of.
- 9.9 It should be noted that there was broad support for the Capital Investment Programme when it was developed in 2019, particularly for the proposed capacity projects. The Commission noted in 2019 that the overall level of support for the CIP from airlines exceeded support for any previous investment programme. However, in 2019, a number of key processors were already capacity constrained, with further growth in demand expected over the subsequent years.

Overview of Outturn Capex

- 9.10 The chart below provides an overview of Capex spending between 2001 and 2021. It shows the inconsistent or 'lumpy' nature of airport Capex across this period. Following the completion of Terminal 2 a steep fall in expenditure is observed over the 2009-2012 period. Since 2014, expenditure has begun to rise again. It should be noted that this figure shows all Capex, thus for 2020 and 2021 it also includes expenditure related to PACE and the North Runway.

Chart 9.1: 2001-2021 Capex at Dublin Airport



Source: Dublin Airport, CAR Calculations

- 9.11 Interim Reviews related to Capex were a feature of both the 2015-2019 regulatory period and the period since. In 2017, we redefined the trigger related to the North Runway project, in order to better align remuneration for the project with the timeline for delivery. We did not amend the quantum of the allowance (€246.7m in nominal prices), or the 50/50 risk sharing mechanism for cost deviations from that allowance.
- 9.12 In 2016, we published a decision on a process for providing a supplementary Capex allowance within a determination period. Dublin Airport made use of this process in in 2018 in relation to a supplementary investment plan of €269.3m (in nominal prices), referred to as the Programme of Airport Campus Enhancement (PACE).
- 9.13 As part of the 2020 and 2021 interim reviews of the 2019 Determination, it was decided that no adjustments would be made in future years in relation to 2020-2022, meaning that there would be no clawback of unspent Capex. We also introduced a consultation process for substantial Capex projects (projects over €4m) which Dublin Airport might want to progress between 2020 and 2022. This process is intended to protect the interests of future users from the potential for capacity overprovision and associated diminished value in Airport Charges.
- 9.14 Due to impact of the COVID-19 pandemic, many planned Capex projects have been postponed. For example, the new Pier 5 and the West apron vehicle underpass were both scheduled to have already begun construction, but the timelines have since been adjusted for both. The combined cost of these two projects alone account for approximately 28% of the 2020-2024 CIP.
- 9.15 While the pandemic impacted significantly on Capex delivery, several major capital projects have nonetheless been completed since the start of the determination period. The CIP projects that have been completed include Terminal 2 HBS Standard 3 at a cost

of €39.7m²⁶, and Gate post 9 at a cost of €8.5m. The major Programme of Airport Campus Enhancement (PACE) projects that have been completed include the T1 and T2 Immigration Facilities and the Hangar 1 & 2 stands.

- 9.16 The costliest projects which have been progressed, with significant expenditure in 2020 and 2021, are the HBS3 installation in Terminal 1 and the North Runway, which are anticipated to cost approximately €500m between them. Construction on the North Runway is ongoing and it is due to become operational in Summer 2022. These two projects are the main reason why, despite scaling back relative to the planned programme, Capex in 2020 and 2021 has remained at a high level relative to 2015-2019, as can be seen in Chart 9.1.

Masterplan

- 9.17 Dublin Airport's various Capex programmes are currently underpinned by and in line with a rolling Masterplan. The programmes should continue to be guided by and in line with this plan as this will ensure that the airport is developed in a coherent and structured way, avoiding nugatory expenditure. The Masterplan was developed as part of the 2019 Determination, and it should continue to form the basis for Dublin Airport's Capex delivery program.

Proposed approach to the 2023 Opening Regulatory Asset Base (RAB)

- 9.18 The RAB is the set of capital investment costs for which we intend to make ongoing provision in determinations. We do this by depreciating the RAB according to the depreciation profile of the various Capex allowances included in it. The allowed WACC is applied to the average RAB each year to calculate the annual allowed return on capital. The RAB thus forms the basis of the building block for capital costs, in the form of depreciation and a return on capital.
- 9.19 Over the next few months, we will draw together and update various elements of Capex, in line with our previous decisions and commitments, to derive the 2023 opening RAB for the draft decision. What follows is an overview of how we intend to treat the various elements of the 2023 opening RAB.
- 9.20 As set out in the 2019 Determination, the 2015-2019 Capex allowances were reconciled at a group level in accordance with the RAB roll forward principles. In the case of each Capex grouping we:
- revised the allowance downward for any Deliverables which had not been delivered;
 - compared outturn expenditure on projects which would come under that grouping, with the allowance;
 - and (in instances where Dublin Airport could not demonstrate substantial user support for the overspend, or that the overspend was outside its control) added whichever of these 2 figures was lower to the 2020 opening RAB.

²⁶ Project costs are given in nominal prices.

- 9.21 We do not intend to re-open the reconciliation of 2015-2019 expenditure as part of this review.
- 9.22 In the 2020 and 2021 Interim Reviews of the 2019 Determination, we committed to a RAB adjustment for the years 2020-2022. Our approach was to forego clawbacks of unspent Capex allowances for those years which would have otherwise been clawed back, as described above. It is important to stress that this unspent Capex does not enter the RAB for ongoing remuneration in 2023 and beyond, i.e., this relief was applied for 2020-2022 only rather than the full lifetime of the assets.
- 9.23 We expect that, over 2020-2022, Dublin Airport has likely underspent the grouped allowances provided for the CIP 2020-2024 projects, so, provided it has adhered to the requirement to consult with stakeholders on progressing all projects over €4m, the Capex that was spent will be allowable for remuneration. For such projects which are complete, we propose to add the associated expenditure to the 2023 opening RAB. Where such a project is ongoing, we expect to retain the allowance alongside the CIP 2023-2026 projects.
- 9.24 Regarding StageGate projects which have been progressed since 2019, these are separate from the grouped allowances. We intend to use the most up-to-date information from this process in determining the relevant Capex allowances to include. Similarly, if we complete, we expect to add the allowed expenditure to the opening RAB. If ongoing, we expect to retain the allowance alongside the CIP 2023-2026 projects.
- 9.25 We do not propose any changes to the treatment of North Runway as set out in the 2017 decision paper where we determined how the runway would be remunerated. We split remuneration into three tranches, each entering the price cap when a certain milestone event is achieved.
- 9.26 Finally, we propose no changes to the methodological treatment of PACE projects from 2019, however we will update the application of this treatment for developments since 2019. Allowed expenditure associated with completed projects will be added to the 2023 opening RAB. The remaining costs of PACE projects that are unfinished at the end of 2022, will be added to the Capex allowances from 2023. PACE projects that are no longer progressing, such as the Level 15 Bus Gates, will continue to be excluded. Where a PACE project has now been subsumed by a StageGate project, we will avoid double counting these by removing them from the PACE category.

CIP 2023-2026

- 9.27 The key Capex question for this review is the nature, quantum and timing of allowances for further capital investment over the revised regulatory period. There are a number of elements to this:
- Dublin Airport led consultation on the revised CIP 2023-2026.
 - Determining efficient allowances for projects which are in the interests of airport users.
 - Regulatory treatment for future reconciliation.

- Depreciation, time profiling, and pre-funding.

Dublin Airport led Consultation

- 9.28 The formal Capex consultation process by Dublin Airport is due to commence shortly, with Dublin Airport scheduled to issue its consultation document in February. It is crucial that this process ensures that proposed projects meet the requirements of an appropriately broad range of current and future users. That being said, we understand that different airport users have different priorities and infrastructural/service level requirements, meaning that achieving full consensus on any investment programme is challenging.
- 9.29 The final investment plan should show how consultation feedback has been taken into account and explain why particular feedback was or was not reflected in the final plan. Where there is disagreement, the Commission must ultimately assess the strength of competing arguments and make a decision which best balances its statutory objectives.
- 9.30 The timeline for the revised CIP will also need to be realistic. The proposed timeline should take account of the issues which have delayed projects in recent years, such as most of the PACE apron/airfield projects.
- 9.31 As part of the 2019 Determination process, we set out detailed consultation and reporting requirements for Dublin Airport. These are shown in chart 9.2 below. Our view is that these requirements have previously been effective and should be retained.

Chart 9.2: Capex Consultation and Reporting Requirements

<p>The process for Dublin Airport is as follows:</p> <ul style="list-style-type: none"> - In advance of making a submission to the Commission, Dublin Airport shall consult with users on the following: <ul style="list-style-type: none"> ▪ the need/merit of the project; ▪ details on delivery of proposed project; and ▪ timelines for the delivery of the proposed project. - Proposed projects to deliver additional capacity must be underpinned by a capacity assessment showing that existing infrastructure is being maximised. This assessment can be conducted by Dublin Airport or a third party. - Detailed business cases and cost information must be provided to users. Costs must be worked up comprehensively to allow an assessment by users of the costs and benefits of projects. - Where appropriate, Dublin Airport should present the costs and benefits of a number of options for addressing a need. - Detailed timelines and milestones for projects should be consulted on. <p>The Commission will:</p> <ul style="list-style-type: none"> - require Dublin Airport to develop and implement specific reporting requirements for approved projects; and - require Dublin Airport to develop a timeline for the project (in consultation with users and with the agreement of the Commission) and to report regularly against this timeline
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Source: 2019 Determination

- 9.32 We intend to continue to require Dublin Airport to report regularly on the delivery of projects against the updated CIP timelines and we will continue to publish this report each quarter. Where Dublin Airport makes use of any Capex flexibility by postponing, adding, or dropping projects over the course of a Capital Investment Programme, this should be explained as part of the regular reporting.

Efficient allowances for projects which are in the interests of users

- 9.33 Our intention is to make provision for efficient allowances for 2023-2026 for projects which are in the interests of current and future airport users. By an efficient allowance, we mean the minimum cost of delivering a required or desirable project outcome. This implies delivering projects to the optimal cost/quality balance which maximises the value the project provides for current and future airport users, at the appropriate time. Achieving this outcome, particularly given current levels of uncertainty, is a challenge for the Commission and for all stakeholders.
- 9.34 In 2019, Steer carried out an efficiency assessment of Dublin Airport's proposed Capex. As part of this assessment Steer determined whether the projects were scoped efficiently (i.e., whether the cost assumptions were correct and that no extraneous line items were included which were not required to deliver the required outcome). Then, having implemented any such scope adjustments, Steer applied benchmarked rates for all scope efficient line items (or otherwise assessing their efficiency). This assessment showed a nominal overall cost reduction challenge of €146.7m (7.4%) relative to the Dublin Airport costings.
- 9.35 As part of its role as the Independent Fund Surveyor (IFS) for Dublin Airport Capex, Steer will be building on this analysis for the 2022 Interim Review to assess newly proposed projects and to update project allowances where relevant. We will also consider the best approaches to assessing the submitted projects. This will depend on the level of design development of the projects and on how Dublin Airport has updated the programme.
- 9.36 For example, certain categories of project, such as IT or asset care, may be best considered at a group level, potentially involving benchmarking against comparators or Dublin Airport itself over time. As was the case in 2019, we expect that the level of design development will vary across projects, and so this analysis will be tailored accordingly.
- 9.37 The Commission will address the question of the need for or desirability of the projects, including the timing of the requirement. As set out above, where there is consensus, we expect to give effect to this consensus. Where there is disagreement, we will consider the weight of opposing arguments with regard to our objectives, in particular our objective to further the interests of current and future passengers.
- 9.38 It is also important that airlines provide their views on the updated CIP, both in terms of the projects themselves and the timing of their delivery, directly to Dublin Airport in the consultation that is taking place early this year. It is also important that views are provided in a consistent manner; for example, that views provided in operational fora are consistent with views provided in commercial fora.

Grouped Allowances and Deliverables

- 9.39 The review will define how we will treat expenditure against the CIP 2023-2026 allowances. This is an important part of the regulatory contract for both Dublin Airport and airport users, as it ensures that all parties are aware of the rules on an *ex-ante* basis.
- 9.40 In the 2009, 2014 and 2019 determinations we chose to group project allowances under various headings such as maintenance, business development and Commercial Revenue. At the end of the period, grouped allowances were then reconciled together, meaning that Dublin Airport has the flexibility to reallocate expenditure to other projects within that same group. Allowances may be reallocated to projects which have not received an allowance at all, or to projects which have received an allowance, but which Dublin Airport wishes to spend more on. One exception to this is 'Deliverables', which are projects which must be delivered as per the investment plan or the grouped allowance is reduced downward by the associated amount. A further exception is StageGate projects, which are not included in the grouped allowances, but rather are reconciled individually based on the outcome of the StageGate process.
- 9.41 The 2019 Determination provided for a significant level of Capex flexibility relative to previous determinations with 9% of total value of allowances considered 'Deliverables', 23% considered Flexible, and 68% included in the StageGate process. The introduction of the StageGate process meant that the quantum of allowances could be adjusted without the requirement for an Interim Review.
- 9.42 Within the grouped allowances, we have not previously applied strict rules regarding which projects are classified as Deliverables. Rather, we have assessed projects on a case-by-case basis. A non-exhaustive list of factors which would weigh in favour of classifying a project as Deliverable are presented below:
- Projects with a very specific output that cannot be substituted by a different project.
 - A project where the output is necessary to fulfil legal or regulatory requirements.
 - A large-scale project.
 - A project with potential or actual regulatory compliance issues (e.g., a complex safety case) raising uncertainty about its feasibility.
 - Projects which span regulatory periods.
 - A project which has previously received an allowance but was then deferred or dropped.
- 9.43 This approach to grouping allowances strikes a balance between incentivising Dublin Airport to seek efficiencies and providing business flexibility and regulatory certainty. We propose to retain it as part of the 2022 Interim Review.
- 9.44 Regarding the appropriate approach to reconciling the 2023-2026 Capex allowances at the end of the determination period, we are proposing to follow the same approach

as outlined in the 2019 Determination. As such, non-StageGate Capex allowances are to be reconciled at a group level in accordance with the RAB roll forward principles, which are set out in Table 9.2 below.

Table 9.2: RAB Roll Forward Principles for Non-StageGate Projects

Scenario	Treatment
Investment delivers expected output at lower cost than allowed for.	The lower cost enters the RAB. Dublin Airport benefits from the saving within the determination period only, as the additional Capex allowance earned over that time is not clawed back.
Investment delivers expected output at higher cost than allowed for.	The overspend will not enter the RAB, unless Dublin Airport can demonstrate substantial user support for the overspend or that the overspend was outside its control.
Investment does not take place, output is not delivered.	The RAB is revised down accordingly. The associated Capex allowance is clawed back.
Investment delivers different output to that initially envisaged.	The RAB is revised down accordingly and the associated Capex allowance is clawed back, unless Dublin Airport can show that the changed scope was due to user requirements.
Existing asset in RAB has become obsolete or needs to be removed for other development.	No effect on the RAB.
Existing asset in RAB has been sold.	The RAB is revised down by the amount for which the asset was sold (provided that this was at or close to market price).

Source: CAR

- 9.45 How we view ‘expected output’ depends on the classification of the allowance. In the case of Deliverable or Trigger projects, the expected output is the specific project for which the allowance was afforded. Where an allowance is flexible, the expected output is expenditure on projects which would fall within the same grouping for which the allowance was afforded.

Risk sharing mechanism

- 9.46 In the 2014 Determination we introduced a 50/50 risk sharing mechanism, as a modification to the RAB roll forward principles, for certain projects of significant scale. Through this mechanism, 50% of deviations from the cost allowance are passed on to users, whether positive or negative. This mechanism was applied to the reconciliation of outturn expenditure on Terminal 2 and to the North Runway. It was not continued for any further projects in the 2019 Determination. We do not propose to extend this approach to new projects in the 2022 Interim Review.

Depreciation Profiles, Time Profiling and Prefunding

- 9.47 In the 2022 Interim Review, we will define depreciation profiles of allowed Capex and the timing of remuneration, both for triggered and non-triggered Capex allowances.
- 9.48 Depreciation is governed by the asset life and the depreciation profile. We generally adopt the asset life proposed by Dublin Airport, unless it is unreasonable given the expected useful life. In recent determinations, we have chosen to depreciate the RAB by means of annuities, rather than straight-line depreciation. The depreciation profile is scaled such that when combined with the allowed return on capital, the capital cost allowance for Dublin Airport is the same for each year of the asset life of a given

project. The corollary of this is that all else being equal, users pay the same amount in each year until the project is asset life expired.

- 9.49 If we were to use straight-line depreciation, the depreciation allowance would itself be the same for each year; consequently, the return on capital would decrease over time due to a declining principal. For that reason, our view is that an annuity-based approach is superior to straight-line depreciation, and we therefore propose to continue this approach as part of the 2022 Interim Review.
- 9.50 We have previously taken the view that in general, infrastructure should not be significantly prefunded, with remuneration instead being linked to project delivery. This means that the bulk of the costs of a project are remunerated by users that enjoy the benefits of the project. This is not an absolute rule; projects are assessed on a case-by-case basis to ensure that we strike a balance between our statutory objectives, for example, we allowed for 10% of the North Runway Capex to enter the price cap on the commencement of the main works. We are not proposing to change this approach for the 2022 Interim Review.

StageGate

- 9.51 As part of the 2019 Determination, we introduced the StageGate process, which is intended to improve the regulatory model by allowing for ongoing flexibility of the scope and/or cost of certain projects to evolve throughout the regulatory period, rather than being firmly set in advance. The process involves Dublin Airport, airport users, the Commission, and an Independent Fund Surveyor (IFS) to continue to assess cost developments of the projects across their development and construction phases. The output from the process then feeds through to the Commission's final decision on cost allowances for the projects, which will be made after they are complete.
- 9.52 We consider that StageGate has been successful so far. We have not run the process on a quarterly basis as was originally planned but rather whenever Dublin Airport has proposed projects. This approach has worked well as each round tends to have its own specific issues, some projects are more complex than others, and because the IFS time required to report on a project has varied. Furthermore, the stream of projects has been much less than anticipated, as of 2022 only two cycles have taken place so far with a third IFS assessment currently underway. We propose to continue this approach into the next determination period, nonetheless, we welcome any suggestions stakeholders may have in relation to the process.

Other Issues and Considerations

- 9.53 Thus, we are not proposing any major methodological changes to Capex remuneration relative to the original 2019 Determination. The main questions, which are discussed below, relate to the application of our approach to the updated investment programme, in the context of additional cost and traffic growth uncertainty and Dublin Airports environmental and sustainability obligations.

Construction price inflation

- 9.54 We are once again considering the appropriate price index to use when reconciling

outturn expenditure with initial allowances. As there is time lag between setting the allowances and expenditure, the selection of price index can be a significant factor. The question we are considering is whether we should adjust capital allowances using a construction inflation index instead of applying the CSO consumer price index (CPI) adjustment, which is currently applied to the overall price caps, when reconciling expenditure.

9.55 We have previously used the CPI, but specific construction price indices can vary significantly from general price indices. It could be argued that these would provide a better estimate of the evolution of the efficient costs from the time the allowance was set until the expenditure was actually incurred.

9.56 There are two possible approaches:

- de-risk Dublin Airport for construction inflation entirely by performing an ex-ante adjustment for cost inflation observed in tender returns compared to forecasts, or alternatively;
- indexing the escalation element of the allowance to a construction inflation index.

9.57 The latter would retain a stronger incentive to minimise the impact of cost inflation on project costs. We would, however, need to ensure that there is no double counting between project escalation allowances and inflation adjustments. We would also need to be confident that there is a relevant index available which is calculated in a sufficiently robust manner, which is unlikely to be discontinued.

9.58 We believe that such a mechanism could add value to the regulatory model in the current circumstances. We welcome views from stakeholders on the potential use of alternative inflation measures, and any comments on the specific design of such a mechanism.

Triggered Projects

9.59 These allowances enter the price cap during a regulatory period, in a manner which is predetermined in the regulatory formulae, on the occurrence of a given event or events. As part of the assessment of the 2023-2026 CIP, we will consider under what circumstances, if any, should we add triggers to the regulatory formulae. In recent determinations, we have set out a number of triggered allowances tied to specific projects.

9.60 There are two potential types of triggers:

- Demand or outcome-based triggers.
- Profiling/Reprofiling triggers.

9.61 Demand or outcome-based triggers are useful where the requirement for (or timing of requirement for) a project is uncertain, and so the project should only be allowed if the trigger event occurs. Examples of potential trigger events include reaching a pre-determined passenger threshold, or the agreement of airlines. The triggers can either increase a price cap within the period or can provide certainty over our allowing a

project in the next period. For example, the North Runway triggers from the 2014 determination remain live and that mechanism will be carried forward to this review.

- 9.62 Profiling/Reprofiling triggers seek to ensure that the remuneration for allowed projects remains broadly in line with the timeline for delivery, thus avoiding significant levels of prefunding and clawbacks in the next period. In the 2019 Determination, we implemented a number of reprofiling triggers to address our concern that the CIP 2020-2024 programme schedule was ambitious, and there was a significant risk that the programme would not be delivered to that schedule.
- 9.63 Profiling triggers may be particularly relevant for the 2022 review as it is a potential option for managing a more ambitious investment programme with significant risks to programme. However, demand-based triggers have historically proven less useful as they can be difficult to define appropriately. This is because either the defined scope of the project or expectations regarding the trigger event can prove to be wrong over the course of a regulatory period.
- 9.64 We welcome stakeholder views on whether to include Capex triggers in the 2022 Interim Review, and if so, what criteria should we use to assess whether a triggered approach is warranted?

Environmental Sustainability

- 9.65 As described in Section 3, once the Air Navigation and Transport Bill is enacted we will likely have a responsibility to “take account of the policies of the Government on aviation, climate change and sustainable development.”²⁷ This change means that we will be required to address these policies more extensively when implementing economic oversight, seeking to strike an optimal balance between them in making decisions. Dublin Airport’s environmental objectives include a commitment to achieving net zero for carbon emissions from its operations by 2050 at the latest.²⁸
- 9.66 To achieve these goals, Dublin Airport plans to reduce its carbon emissions by 30% by 2030 compared to 2019 levels. It has outlined several objectives towards achieving this, including setting minimum carbon performance requirements for its capital investment plan. These include the requirement that its buildings meet a minimum Building Energy Rating (BER) B3 rating, and that sustainable construction techniques and practices are implemented which minimise emissions through material choices and transport/logistics.²⁹
- 9.67 We also expect Dublin Airport to include new projects in the updated CIP that are specifically designed to contribute to these goals. It will be important for Dublin Airport to demonstrate what impacts these projects are expected to have. It will also be important to consider the impact of projects such as these on other building blocks, such as Opex and Commercial Revenues.
- 9.68 More broadly, Dublin Airport’s business and investment plans will need to set out how they strike an appropriate balance between the relevant government policies on

²⁷ https://data.oireachtas.ie/ie/oireachtas/bill/2020/72/eng/ver_a/b72a20d.pdf

²⁸ <https://www.daa.ie/wp-content/uploads/2020/10/Dublin-Airport-Sustainability-Report-Final.pdf>

²⁹ https://www.dublinairport.com/docs/default-source/corporate/carbon-reduction-strategy-daa.pdf?sfvrsn=a5ffaf22_2

aviation, climate change and sustainable development, particularly where there are trade-offs within these policies. The Commission will consider this balance when making decisions in this review.

10. Financing and Financial Viability

- 10.1 This section examines Dublin Airport’s Financing and Financial Viability as a component of the review. Financial viability relates to the ability to meet all its financial obligations as they fall due, whereas financeability is related to raising capital. The regulatory settlements should not only enable the Financial Viability of the regulated entity, but they should also enable the regulated entity to raise the required level of debt, at reasonable cost, to fund the allowed Capex.
- 10.2 If the regulatory settlement appeared to not be financeable, based on the building block outcome, we would need to make adjustments to enhance Financeability. Those adjustments may change the price cap or could reduce the level of investment forecast, and/or adjust the profile of expenditure.
- 10.3 Financeability matters to both the airport and its current and future users, as a high level of risk could result in the airport operator becoming unable to raise the debt necessary for Dublin Airport to invest in its Capex plans, or worse, to not be able to continue operating the airport. This would imply that the regulatory settlement is not deliverable in the form envisaged, which is not in the interests of any stakeholders. Furthermore, increased risk may mean that a higher Cost of Capital is passed on to users through Airport Charges.
- 10.4 In 2022 we aim to determine a revised set of regulatory settlements which strike a balance between:
- Enabling Dublin Airport to generate timely cash flows from Airport Charges and to raise investment grade debt to maintain and develop the airport infrastructure in an efficient manner; and
 - Protecting users against increases in the price cap in a way which, all else being equal, would unnecessarily shield investors in Dublin Airport from general business risk or that serve to cross-subsidise the financial risk of the daa group as a whole.

Statutory Objectives

- 10.5 As discussed in Section 3, since 2004, we have had as a primary statutory objective to enable daa to operate and develop Dublin Airport in a sustainable and financially viable manner. For 2023 and beyond we are likely to have a single overarching objective which is *‘protecting the interests of current and future passengers’*. However, we do not propose to change our plans to conduct a Financeability assessment as a result. A Financeable and financially viable regulatory settlement is implicit in protecting passengers, as well as in achieving the Commission’s secondary objectives, and other relevant statutory requirements.
- 10.6 We aim to enable Financeability by checking that, when all the building blocks are taken together, debt can be raised at an investment grade credit rating. Prior to 2014 we conducted this analysis on the entire daa group. For both 2014 and 2019 we changed our focus to Dublin Airport only instead of daa group in order to avoid cross-subsidisation between the regulated entity and the rest of daa group in the Financeability assessment. We propose to continue this approach in the 2022 Interim

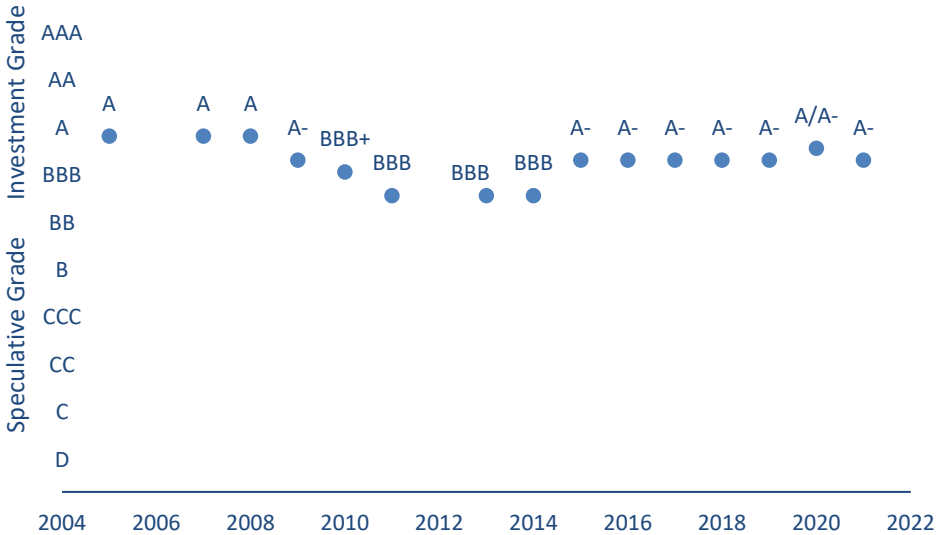
Review. Thus, we will enable the Financeability of the Dublin Airport regulated entity.

Assessment of Financeability

10.7 In previous determinations, we have enabled Financeability by forecasting key financial metrics and ensuring that they meet or exceed a minimum threshold. Prior to 2019, we set these minimum thresholds consistent with maintaining an investment grade credit rating.³⁰ As set out below, in the Final Determination in 2019, we ultimately targeted thresholds consistent with a BBB+ rating.

10.8 Chart 10.1 displays the S&P credit ratings for daa group for 2005-2021. Since 2005, daa group has been able to maintain a minimum credit rating of at least BBB, despite significant changes in the economic environment and the industry’s performance. Since 2015, daa has achieved a credit rating of at least A-. In 2020, daa’s credit rating was increased to A, however, this was brought back down to A- shortly after as a result of the impact of the COVID-19 pandemic.

Chart 10.1: 2005-2021 S&P daa Ratings



Source: S&P
 Note: For 2020, the rating was A until July, at which point it fell to A-

10.9 It should be noted that the trend in Dublin Airports credit rating has closely followed the trend in Ireland’s sovereign rating. Thus, the fall in daa’s credit rating over 2010-2014 was closely linked to the fall in the sovereign rating during the financial crisis of the same period.

2019 Financeability Assessment

10.10 Prior to 2019, the main focus had been on achieving a Funds From Operations (FFO)/Debt ratio which did not fall below 13%, which is the minimum required for the rating agency guidance with respect to ‘Intermediate’ as set out in Table 10.1. This was also true in 2019, but the specific challenge under the particular circumstances of 2019

³⁰ For further details, see: <https://www.spglobal.com/ratings/en/about/intro-to-credit-ratings>

related to the Debt/EBITDA metric.

- 10.11 We commissioned Centrus to advise in relation to the Financeability of the proposed regulatory settlements. They noted that S&P does not provide a credit rating specific to the Dublin Airport regulated entity, but instead for daa group as a whole. However, by considering the components of its ratings methodology for business risk profile, it is reasonable that its business risk profile may be assessed as ‘strong’, provided that the regulatory regime remained stable and predictable.
- 10.12 We decided, based on advice from Centrus, to protect against reasonable downside risks by aiming for a Net Debt/EBITDA ratio of less than 5x in all years. This also had the benefit of an FFO/DEBT ratio remaining above 18% in all years. These ratios were consistent with a rating of BBB+.
- 10.13 The primary reason for this approach was to provide an additional level of comfort on the ability of Dublin Airport to fund the largest ever investment programme over a five-year period, as described in Section 9, at reasonable cost. The approach was consistent with the majority of views we received from stakeholders, including most airlines, who were supportive of the delivery of the investment programme as a primary priority.

Table 10.1: S&P Coverage Ratios used in the 2019 Determination

	FFO/debt (%)	Debt/EBITDA (x)	FFO/cash interest (x)	EBITDA/interest (x)
Minimal	35+	Less than 2	More than 8	More than 13
Modest	23-35	2-3	5-8	7-13
Intermediate	13-23	3-4	3-5	4-7
Significant	9-13	4-5	2-3	2.5-4
Aggressive	6-9	5-6	1.5-2	1.5-2.5
Highly leveraged	Less than 6	Greater than 6	Less than 1.5	Less than 1.5

Source: S&P, 2019 Determination

- 10.14 There were a number of options available to improve the Debt/EBITDA ratio. We decided that reprofiling depreciation was the option most aligned with our statutory objectives. We brought forward €109m of depreciation into the period to improve the forecast financial ratios. We also used this reprofiling to increase the base price cap to achieve a particular price path, €7.50 in 2020 and 2021, increasing in the following years.

Financeability When Circumstances Change during a Determination Period

- 10.15 For Dublin Airport to achieve the financial performance suggested by our regulatory settlements under the core scenario, it needs to achieve the targets we set for the passenger traffic, Opex, Capex, and Commercial Revenue building blocks, albeit on a net basis; for example, outperformance in relation to Commercial Revenues could be used to fund underperformance in Opex, and vice versa. Overall, we look to set challenging but achievable targets, with Financeability in mind.

- 10.16 In 2014 and 2019, we ran stress tests to assess the sensitivity of our analysis to reasonable downside deviations from the building block forecasts. The objective was to check whether the regulatory settlements are Financeable, even if performance in some of the building blocks were to differ from our forecasts at the time of the determination.
- 10.17 Within a determination period, Dublin Airport is expected to adjust according to the evolution of the economic environment, responding optimally to unfolding events. We have observed such adjustment on various occasions in the past. Most recently, for example, following the onset of the COVID-19 pandemic in 2020, Dublin Airport significantly reduced Opex and planned Capex, as set out above. On the other hand, over 2015-2019, it used the higher revenues than forecast to fund additional Opex and Capex associated with the increased traffic levels.
- 10.18 As discussed in Section 4, should passenger numbers deviate so substantially from expectations again in the future, it may be the case that the prevailing determination will need to be reopened again. Rather than an *ex-ante* mechanism, such scenarios may be best addressed within the period to allow for a targeted and timely response.

What to do if we identify a Financeability Issue?

- 10.19 Under certain circumstances the price cap derived from the building blocks may not be sufficient to enable delivery of the regulatory settlement. For example, there may be a mismatch in the short term between cash flow and the expectations of investors. There are two main reasons for this in relation to Dublin Airport. First, airport investment can be lumpy in nature, so there are peaks and troughs in the debt requirements, whereby, during an expansionary phase there may be a short or medium term impact on the financial metrics. Second, Dublin Airport cannot make a call on equity due to its ownership structure and must rely on retained earnings and debt to fund investments. The result is that the actual gearing may be higher than the optimal gearing at times.
- 10.20 In circumstances where the price cap is not sufficient there are a number of options available to improve the financial ratios. The most obvious is to cut the debt requirement by cutting or re-profiling forward the capital investment plan. This may or may not be in the interest of airport users. Other remedies fall into two categories:
- First, those which increase the price cap at no cost to the airport including; adjusting the WACC (by for example increasing the 'aiming up' allowance), or providing for an allowance for lost revenue due to the pandemic, etc.
 - Second, reprofiling revenues from future periods into the current period, for example by reprofiling/accelerating depreciation or adjusting asset lives of investments. These adjustments are net present value neutral.
- 10.21 We would also consider the possibility to de-risk the regulated entity through, for example, the risk sharing mechanism discussed in Section 4 or the construction inflation mechanism discussed in Section 9.

Proposed approach to Financeability assessment in the Interim Review

- 10.22 We note that the financial impact of the pandemic over 2020-2022, described in Section 2, will impact Dublin Airport's net debt position for this review. This is a key element of the Financeability assessment. Thus, this impact may be built implicitly into the revised regulatory settlements. Similarly, the financial outperformance over 2015-2019 reduced the extent of the Financeability intervention required in 2019.
- 10.23 As set out above, the adjustments we have already committed to relating to the regulatory settlements for 2020-2022 will have improved Dublin Airport's finances by approximately €205m to €225m.³¹
- 10.24 Our current thinking is that the Financeability analysis should again be forward looking rather than explicitly backward looking. We will again work with Centrus in relation to financing and the approach to Financeability.
- 10.25 It should be noted that the decisions in 2019 were specific to the situation at that time, as well as the relative priorities of stakeholders. At that time, the overriding concern of many stakeholders was future capacity at Dublin Airport and as such the timely delivery of the capacity infrastructure was a key priority. Consequently, the Commission's decision regarding Financeability was ultimately more conservative than in previous determinations.
- 10.26 While we intend to apply a similar methodology to 2019, the specifics of its application will need to take account of the other building blocks and the views of stakeholders. We seek views from stakeholders on the appropriate balance between enabling Financeability, while ensuring that users do not pay more than is necessary to reasonably enable Financeability.

³¹ Estimate in real prices.

11. Quality of Service

- 11.1 In this section, we discuss the Quality of Service (QoS) regime that was put in place in the 2019 Determination, as well as Dublin Airport's performance in 2020/2021. We discuss the key issues for QoS for this review, and we provide an overview of our proposed approach to QoS.
- 11.2 The QoS regime is in place to ensure that there is a balance between providing airport services at an efficient cost and meeting a suitable service quality for airport users. In this review, we will need to determine whether the current QoS scheme is fit for purpose, and what changes may be appropriate following the effects of COVID-19.

2019 Determination

- 11.3 A QoS regime at Dublin Airport was first implemented in 2009 to ensure that any cost efficiencies at the airport are not made at the expense of the service standards experienced by airport users (airlines and passengers). The QoS regime incentivises Dublin Airport to maintain and improve its performance in relation to metrics which are important to airport users, through both financial and reputational incentives. A set of 12 measures were defined along with the level of allowed revenue at risk for each measure, with performance reports published quarterly.
- 11.4 As part of the 2019 Determination, we reviewed these measures to ensure that they were still in line with passenger requirements. This led to a number of changes to the existing regime.
- 11.5 The general approach to the development of a QoS regime in 2019 was to first define a set of desired outcomes, and then use this to specify appropriate measures. Identifying the outcomes at the outset aided us in selecting appropriate and sufficient measures to fulfil those outcomes. Measures were then proposed which took account of the Passenger Forecast, the capital investment plan, targets at peer airports, whether variation should be allowed across terminals, the trade-off between cost and QoS, types of incentives, the appropriate financial incentive for different measures, and finally, the overall revenue at risk.
- 11.6 A key development in our approach to QoS for the 2019 Determination was the establishment of the Passenger Advisory Group in 2018, which is composed of organisations representing the diversity of passengers at Dublin Airport.³² The Group consisted of 13 organisations that represented leisure passengers, older passengers, passengers with disabilities or reduced mobility and business passengers. The Group was asked to provide their views on QoS at the airport, allowing us to gain a better understanding of passenger experiences and priorities. The feedback provided resulted in changes to most of the measures in place as well as the introduction of 10 new measures.
- 11.7 We thus set a range of 22 targets in the 2019 Determination with associated penalties for each target. These measures covered various elements of the airport experience.

³² <https://www.aviationreg.ie/regulation-of-airport-charges-dublin-airport/passenger-advisory-group.874.html>

Security Queue Times

- 11.8 A number of targets were defined in relation to security queue times. These targets set out that all passengers should queue for less than 30 minutes, and for less than 20 minutes at least 70% of the time, with further penalties applying if passengers waited for more than 45 minutes. Security queue times have a significant impact on the passenger experience at the airport.
- 11.9 To measure the security queue times at Dublin Airport, passenger devices (e.g. mobile phones) are tracked by sensors, through Bluetooth or Wi-Fi, as they are processed through security. This process has the potential for measurement error due to the technical capabilities of the sensors, and/or the passengers' devices, or passenger behaviour. The system has filters in place which are designed to filter out spurious readings. The first is a route filter, which removes invalid observations from individuals who have not followed the route. The other is a three-stage filter which omits inactive queuing. Finally, a median filter is used which assumes that, in a given sample, any observations above the median (50%) are considered as outliers. This data is then used to assess compliance against the security queue targets.

Table 11.1: Maximum Security Queue Time Targets as per 2019 Determination

Final Target	Price Cap at risk
Breach if the security queue is:	Daily
less than 20 minutes for less than 70% of the time but less than 30 minutes 100% of the time	-€0.005
equal to or greater than 30 minutes but less than 45 minutes , at any time	-€0.01
equal to or greater than 45 minutes , at any time	-€0.02

Source: CAR Final Determination 2019

- 11.10 In 2016-2017, we carried out an audit of the security queue time measurement system. This involved a walk-through test to check the suitability of the filters and the collection of manual queue times to test the appropriateness of the median filter. This audit highlighted the inherent difficulty in accurately establishing maximum queue times, and the necessity of the filters to remove inaccurate queue time observations due to measurement error. The overall conclusion was that the methods used produce reasonable estimates of passenger queue times.
- 11.11 Further detail on this audit can be found in Appendix 4 of the 2018 Issues Paper.³³ The recommendation of the audit was that the detail of the measurement system and any costs associated with changing it should be made aware to stakeholders during consultations on QoS, so that they may have the appropriate information to decide whether they are satisfied with the current system.

Passengers with Reduced Mobility (PRMs)

- 11.12 A number of targets were introduced in relation to the experience of passengers with reduced mobility who avail of additional assistance from the airport. This includes a

³³ <https://www.aviationreg.ie/fileupload/2019%20Determination/2018-04-30%20CP7%20Issues%20Paper.pdf>

target that all passengers who have pre-advised the airport of the assistance they will require are assisted from the terminal reception point within 20 minutes of their arrival. Similarly, targets were introduced to incentivise the airport to ensure that all pre-advised arriving passengers are assisted from the airplane within 15 minutes of their arrival. New targets relating to the facilities available for passengers requiring additional assistance were also added to the suite of passenger satisfaction measures.

Table 11.2: Maximum wait time for assistance – departing and arriving passengers

Final Target	Pre-advised	Non pre-advised	Price cap at risk
Breach if the percentage of passengers in a day that are assisted from the terminal reception point is lower than the targets	95% within 15 min 100% within 20 min	98% within 20 min 100% within 30 min	Annually
Breach if the percentage of passengers in a day that are assisted from aircraft to terminal holding point onwards is lower than the targets	93% within 10 min 100% within 15 min	93% within 15 min 100% within 20 min	-€0.01

Source: CAR Final Determination 2019

Passenger Satisfaction Measures

11.13 The other passenger satisfaction measures cover departing, arriving and transfer passengers. The measures cover elements of the passenger experience at the airport including walking distance, availability of trolleys, the helpfulness of security staff, helpfulness of airport staff, cleanliness of terminals, cleanliness of toilets, overall satisfaction, departure gates, finding your way around, flight information screens and Wi-Fi.

Table 11.3: Passenger Satisfaction Measures

Passenger care	Departing	Departing with Assistance	Arriving	Transfer	Target
9. Additional Assistance		✓			9.0
10. Helpfulness of security staff	✓	✓			8.5
11. Helpfulness of airport staff	✓	✓			8.5
12. Cleanliness of terminal	✓	✓	✓		8.5
13. Overall satisfaction	✓	✓	✓	✓	8.5
14. Cleanliness of toilets	✓	✓	✓		8.0
15. Departure gates	✓	✓			8.0
16. Walking distance	✓	✓	✓		7.5
Passenger information					
17. Finding your way around	✓	✓	✓	✓	8.5
18. Flight information screens	✓	✓		✓	8.5
19. Ground transport information on arrival			✓		2020-21 - 8.0 2022-24 – 8.5
Passenger facilities and services					
20. Facilities for Passengers who require additional assistance		✓			9.0
21. Availability of trolleys	✓	✓	✓		8.5
22. Satisfaction with Wi-Fi	✓	✓	✓		8.5

Source: CAR Final Determination 2019

11.14 These survey-based measures are an important element of the QoS regime as they allow us to benchmark the performance of Dublin Airport against comparator airports in Europe. They are also the only part of the QoS regime that is based on direct feedback from passengers.

Baggage

11.15 Targets were set such that before the Hold Baggage Screening Standard 3 project (HBS3) was completed, outbound and inbound baggage belts in each terminal should be available 100% of the time within 30 minutes of an airline’s request. After HBS3 is complete, the outcome of delivering arriving and departing bags should be available within 30 minutes of an airline’s request. The targets in this area are important due to their impact on On Time Performance (OTP) and thus satisfaction levels of departing and transfer passengers at the airport.

Table 11.4: Availability of Baggage Belt and IT Systems

Baggage	Target	Price cap at risk
3.Outbound	(Before the system has implemented HBS3) belts: available within 30 minutes of request	Per event -€0.01
	Outcome of delivering departing bags: available within 30 minutes of request	
4. Inbound	(Before the system has implemented HBS3) belts: available within 30 minutes of request	Per event -€0.01
	Outcome of delivering arriving bags: available within 30 minutes of request	

Source: CAR Final Determination 2019

Asset Availability

11.16 Targets were also introduced in relation to asset availability. Self-service check-in kiosks and bag drop machines were required to be available, on average across units, 99% of the time on a quarterly basis. From 2021, passenger-facing lifts, escalators and travellers were to be available, on average across units, 98% quarterly (99% from 2022). The availability of this equipment is key to a good passenger experience, especially for passengers with reduced mobility.

11.17 From 2021, Fixed Electric Ground Power (FEGP) and Advanced Visual Guidance System (AVDGS) were required to be available, on average across units, 99% of time on a monthly basis (and 93.5% for new units). Targets were introduced for the availability of FEGP as it was expected to provide significant environmental benefits including lower carbon dioxide emissions and lower ground noise. The availability of AVDGS was introduced as a metric as it contributes to better OTP, enhanced operational performance,³⁴ enhanced apron safety, and lower carbon emissions, among other benefits.

Table 11.5: Availability of Airfield and Terminal Equipment

Availability of:	Target	Price cap at risk
5. Fixed Electric Ground Power (FEGP)	From 2021, for new units, 93.5% available on average in the first year and 99% thereafter.	Monthly -€0.01 From 2021
6. Advanced Docking Guidance System (AVDGS)		
7. Passenger-facing escalators, travellers and lifts in T2	In 2021: 98% available, on average across units. From 2022: 99%	Quarterly -€0.01 From 2021
8. Self-service check-in kiosks and bag drop machines	99% available on average across units.	Quarterly -€0.01

Source: CAR Final Determination 2019

³⁴ For example, through facilitating Airport Collaborative Decision Making (A-CDM).

Suspension of penalties following COVID-19 impact

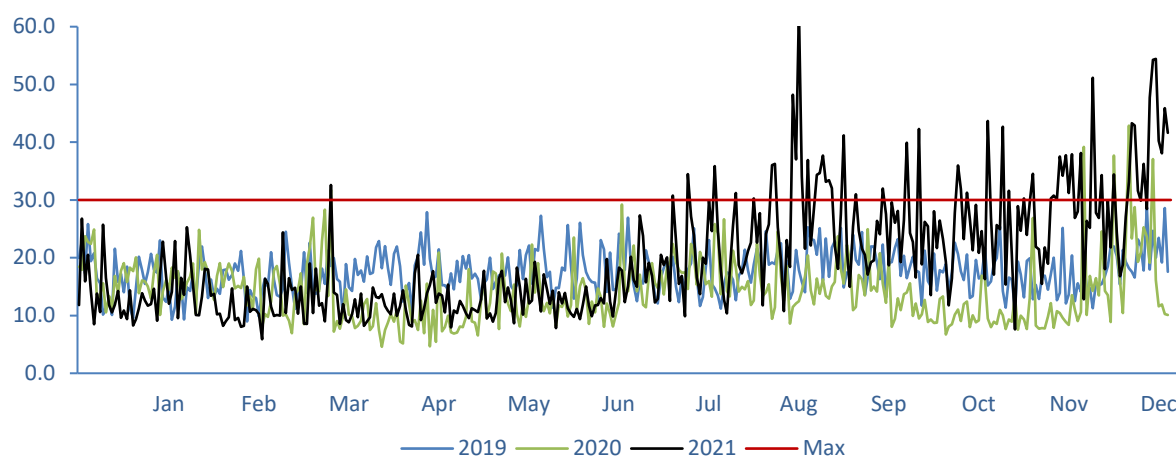
11.18 In March 2020, we confirmed that there would be a suspension of financial penalties associated with service quality breaches. We determined that the effects of COVID-19 met the requirements for extenuating circumstances and as such, financial penalties would not apply. Dublin Airport was required to continue reporting on QoS where possible and to provide explanations for all breaches of targets. This decision was extended to include all of 2020 and 2021 in the Decision on an Interim Review of the 2019 Determination in relation to 2020 and 2021. We have continued to monitor and report on security queue times, availability of baggage and IT systems, availability of self-service kiosks and check-in machines, and wait times for assistance to PRMs.

11.19 In the Interim Review of the 2019 Determination in relation to 2022, we decided to reimplement a limited scope financial penalty system. This included the reintroduction of penalties associated with security queue times and the wait times for passengers with reduced mobility. The penalties associated with security queue time targets were reduced by half and the maximum price cap at risk for these QoS targets was also reduced by half, to €0.11.

Overview of Recent Performance

11.20 The security queue times for 2019-2021 can be seen in charts 11.1 and 11.2. Dublin Airport performed well compared to the 30 minute target for most of 2019 and 2020. However, with the growth in traffic in the second half of 2021, there has been a significant increase in the number of breaches of the security queue time targets, particularly in Terminal 1. This worsened in late 2021, with the Omicron variant causing high absence rates within Dublin Airport’s security business unit.

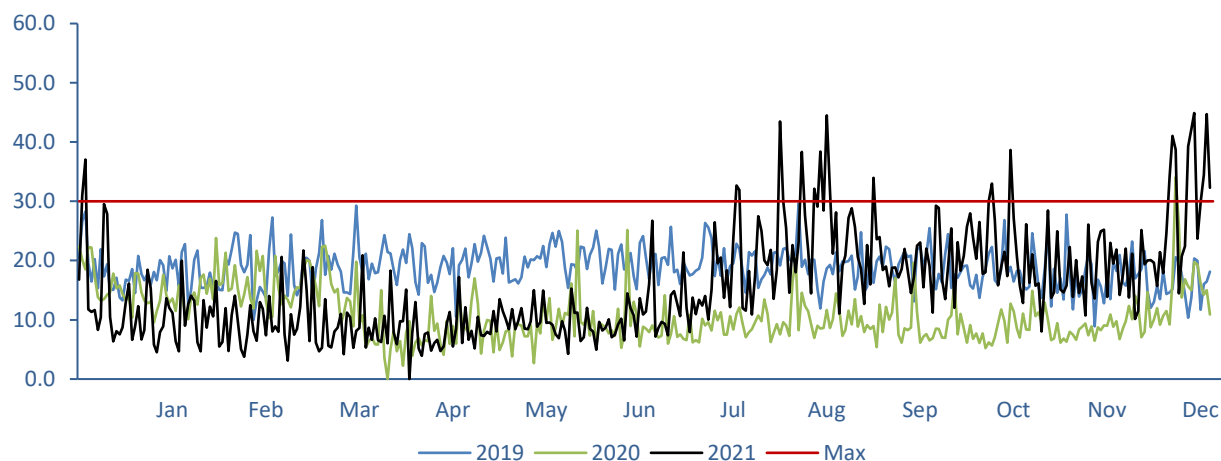
Chart 11.1: 2019-2021 Maximum Daily Security Queue Times in Terminal 1, minutes



Source: Dublin Airport, CAR Calculations

11.21 The financial penalties associated with security queue time targets have now been reimplemented for 2022, but as was the case in the 2019 Determination, Dublin Airport may present evidence to us that a particular breach was due to force majeure circumstances which Dublin Airport could not have reasonably avoided. In the case that we agree that it is a force majeure occurrence, a measurement issue or irregularity, we may waive the individual revenue adjustment.

Chart 11.2: 2019-2021 Maximum Daily Security Queue Times in Terminal 2, minutes



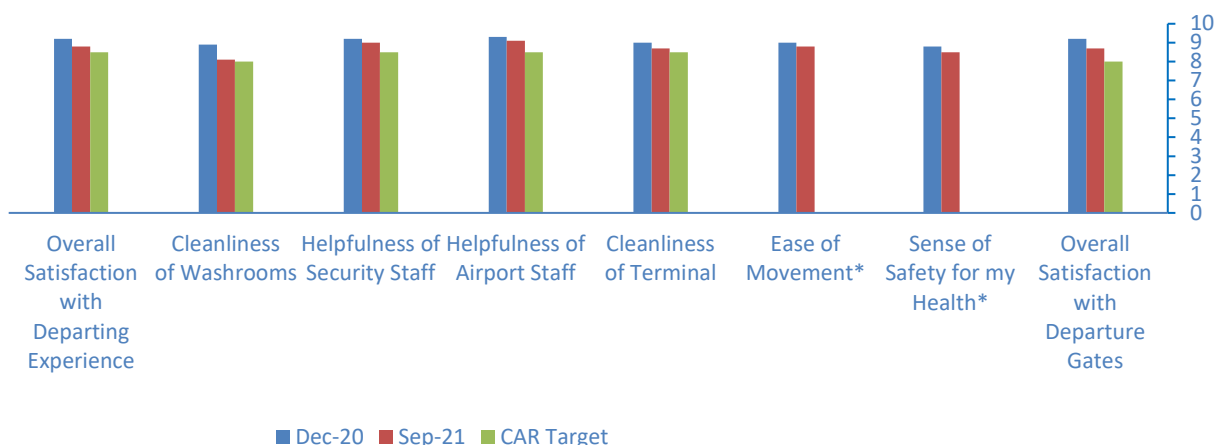
Source: Dublin Airport, CAR Calculations

11.22 In 2020, Dublin Airport did not meet the targets for wait times for departing PRMs. We have decided to reintroduce the penalties associated with breaching these targets from 2022. It came to our attention during the appeals of the 2019 Determination that the targets which we set out for wait times for PRMs were no longer in line with the revised service level agreement (SLA) that Dublin Airport has in place with the service provider. As such, it was decided in the second Interim Review of the 2019 Determination that these targets would be revised to match the SLA.

11.23 Dublin Airport has met all targets for the availability of baggage handling, IT systems, and self-service check in kiosks and bag drop machines in 2020-2021. Several of the new measures for airport assets to be implemented in 2021 were delayed and have not yet been fully implemented. It is currently expected that system to measure the availability of Fixed Electric Ground Power and Advanced Docking Guidance Systems will be in place by Summer 2022. The measurement of the availability of Passenger-facing escalators, travellators, and lifts in T2 began in late 2021, and will be monitored and reported going forward.

11.24 For the majority of 2020 and 2021, it was not possible for Dublin Airport to carry out face-to-face surveys for the subjective QoS measures due to social distancing requirements. However, the airport did carry out two small-scale studies to assess passenger experiences. In December 2020, a reduced survey was conducted among departing passengers. The results of this can be seen in Chart 11.3.

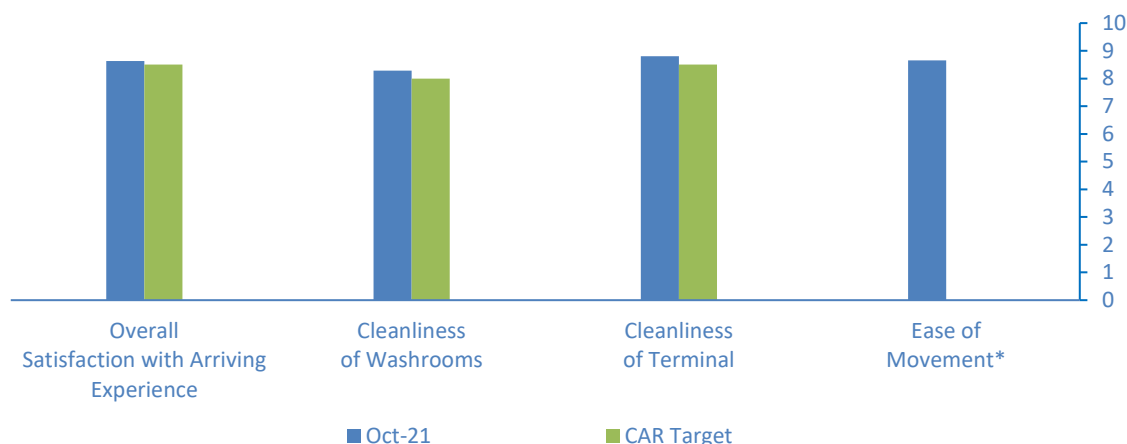
Chart 11.3: Performance of Dublin Airport in Q4 2020 and Q3 2021 Compared to Targets, Departing Passengers



Source: Dublin Airport. *This metric does not have a target in the 2019 Determination as it was introduced post-COVID-19.

11.25 Dublin Airport performed well against the targets set out in 2019. In September 2021, 309 surveys were completed with departing passengers over a two-week period. Following this, a small-scale survey was conducted among arriving passengers in October 2021. Both surveys demonstrate strong performance against the targets.

Chart 11.4: Performance of Dublin Airport in Q4 2021 Compared to Targets, Arriving Passengers



Source: Dublin Airport. *This metric did not have a target set in the 2019 Determination.

Specific Considerations for Review

11.26 The primary consideration for this review is the reinstatement of a broader scheme which captures as many of the elements of the airport experience which are important to passengers as possible.

11.27 We welcome opinions on the extent to which the scheme outlined in the 2019 Determination remains fit for purpose, and what changes may be appropriate given the impact of COVID-19. Passenger priorities may have changed, as well as the practicality of certain measures or targets. The cost/benefit trade-off of achieving target performance levels may also need to be re-evaluated. We will need to consider the reimplementation of penalties associated with many of the targets, and whether the revenue at risk is appropriate going forward. The interdependency between QoS

and the other building blocks, in particular Opex, will also need to be addressed.

- 11.28 Given that COVID-19 and associated safety measures have resulted in a very different experience at the airport than in 2019, we intend to engage with the Passenger Advisory Group again. This will assist us in considering how passenger priorities may (or may not) have changed.

Nature of Incentives

- 11.29 For both potential new measures and existing measures, we will need to consider the appropriate types of incentives. This can include penalties, bonuses, or non-financial incentives. In 2019, we relied on the use of penalties to incentivise strong performance. However, we did consider the introduction of a form of bonus in the Draft Determination. We proposed the introduction of positive incentives for security queue wait times and passenger satisfaction measures. This included the waiving of the highest breach if the performance was significantly above the target at other times.
- 11.30 For example, it was proposed that if average queue time performance was less than 10 minutes 80% of the time in every month, the highest breach of the daily security queue target would be waived. It was decided not to go ahead with these incentives at the time, but similar incentives could be considered for implementation as part of this review.
- 11.31 The decisions related to penalties or bonuses for QoS are linked to Opex for some of the measures. From a modelling perspective, it is simpler to forecast costs required to meet the target service standard, and then have a penalty that reduces the allowance if Dublin Airport does not meet the target. Bonuses can achieve a similar outcome. The Opex allowance is set at a lower level, but the airport receives bonuses that bring it to the level required for the target service standard. However, it is more challenging to estimate this lower level of Opex than to assess the interdependency based on observed actual simultaneous Opex and QoS performance.

Exemptions

- 11.32 In 2019, we noted that if Dublin Airport fails to meet any targets, we would consider any evidence of extenuating circumstances that the airport may provide. There was also a non-exhaustive list of potential extenuating circumstances due to scheduled maintenance. This included the option for Dublin Airport to consult with users in advance of works, such as maintenance, mandatory inspections, removal of equipment from service due to major adjoining works, and replacement or refurbishment of the asset(s), to agree the time frame for the related exemption.
- 11.33 There were a number of other potential exemptions set out, including delays in immigration and severe disruptions due to weather. It is likely that these exemptions will remain in place where they relate to metrics that are retained. Stakeholders should consider if there are any additional exemptions that should be included in light of the COVID-19 pandemic. Stakeholders that wish to suggest new measures might also provide detail on what they would consider to be valid exemptions.

Within Control of Dublin Airport

11.34 All QoS measures included in the 2019 Determination can be defined as, in most circumstances, being within the control of Dublin Airport. By this, we mean that all targets relate to an element of the airport user experience over which Dublin Airport has a reasonable level of control, and is related to appropriate planning with regard to resources and/or staffing.

11.35 For example, while immigration queue times are an important part of the arriving passenger experience, this processor is staffed by the Irish Naturalisation and Immigration Service (INIS) rather than Dublin Airport. Thus, we would not implement a financial penalty for Dublin Airport relating to immigration queue times.

Proposed Approach

11.36 We are of the view that a broader QoS scheme should be reinstated at Dublin Airport from 2023, and that the scheme outlined in the 2019 Determination represents a good starting point. We will consider what adjustments may be warranted, based on our own analysis and views expressed by stakeholders.

11.37 We also intend to engage with the PAG on the 2019 scheme and to gather any suggestions for adjustments or new measures.

11.38 We invite feedback from stakeholders on any adjustments that should be made to the 2019 scheme. This includes comments on the set of metrics, the nature of incentives, the measurement of performance, and the targets.

12. Appendix: Overview of Traffic Forecasts

12.1 This appendix provides an overview of potentially useful forecasts developed by others. As noted above, these forecasts may be useful either to underpin our forecast for the determination, or as a cross-check to our own methodology.

Dublin Airport

12.2 Dublin Airport will be providing Passenger Forecasts as part of this interim review.

12.3 Dublin Airport develops a short-term forecast based on bottom-up assessments of information and data from airlines on capacity, growth and planned routes. This is built up with reference to the most recent actual data on market and passenger segmentation, and schedules, as well as the current economic outlook in Ireland.

12.4 The medium-term forecast is based on regressions of passenger numbers by different markets and economic variables in the relevant markets, including GDP, CPI, unemployment rates and population. The resulting forecasts are then adjusted based on market intelligence. The transfer market growth is based on fleet plans of relevant airlines.

12.5 We have also reviewed more recent forecasts produced by Dublin Airport. The first of these was submitted to the Aircraft Noise Competent Authority (ANCA) as part of a process associated with the North Runway. The forecast that Dublin Airport presented to ANCA in May 2021 can be seen in the table below. This forecast produced a low growth, centreline and high growth case. The high growth case experiences higher load factors and new services, as well as increased growth of GDP in the medium term, with the low growth case experiencing the downside of these impacts. Secondly, we have also included in the table below a forecast provided by Dublin Airport as part of a CIP update in January 2022. This is the latest medium-term forecast we have from Dublin Airport, developed in Q3 2021.

Table 12.1: Recent Dublin Airport Passenger Forecasts

	2022	2023	2024	2025	2026
Submission to ANCA – May 2021	21.0m	26.7m	30.8m	32.0m	-
CIP Update – Q3 2021	21.0m	26.0m	31.0m	33.0m	34.5m

Source: Dublin Airport Submission to ANCA on Operating Restrictions – Centreline Unconstrained Forecast, CIP Update Presentation to CAR

12.6 As can be seen in table 12.1, Dublin Airport’s forecasts have trended upwards over 2021. The most recent forecast provided to us by Dublin Airport as part of CIP update appears to broadly in line with other industry forecasts from 2021 in that the recovery in passenger numbers to 2019 levels is expected by 2025.

Eurocontrol

12.7 Eurocontrol publishes 7-year forecasts of air traffic, twice annually. Although, following the initial impacts of COVID-19 on traffic, they published a number of 5 year forecasts in 2020 and 2021 including the May 2021 forecast which is shown in Table

12.2. They produce a high growth, low growth, and baseline scenario. In the most recent forecast, which was released in October 2021, the three scenarios vary based on different GDP growth expectations, and the pace of the COVID-19 recovery. The low scenario assumes high inflation, low uptake of vaccines, need to update vaccines and regular lockdowns and mask mandates. The baseline scenario takes a mid-point between the other GDP scenarios and assumes that the uptake of vaccines in Europe allows us to reach herd immunity, the vaccines work well against variants, and effective test-trace-isolate programmes are in place. The high scenario assumes that there is a consumer boom which creates a quick consumer driven rebound in the economy, vaccine rollout is efficiently implemented worldwide, as well as the COVID-19 related assumptions in place for the baseline scenario.

12.8 Eurocontrol does not produce forecasts of passengers, but rather forecasts of IFR aircraft movements and service units per traffic zone. In the table below, we have included the baseline scenario forecasts from Eurocontrol for terminal service units in Ireland. The terminal service units forecast is for all three state airports in Ireland, so is not directly comparable to traffic forecasts for Dublin. However, Dublin Airport makes up the majority of the terminal traffic in Ireland so it is still a useful guide to how we may expect traffic to grow.

12.9 The forecasts are based on a combination of flight statistics, economic growth and industry drivers such as costs, airport capacity, passengers, load factors and aircraft size.

Table 12.2: Eurocontrol Terminal Service Units Forecast for Ireland, May and October 2021, 000's

	2019A	2022	2023	2024	2025	2026
May 2021	188	136	163	188	-	-
October 2021	188	166	175	183	187	188

Source: EUROCONTROL

12.10 The October forecast predicts a much quicker rebound of traffic in 2022 and 2023 than previously considered likely. This is consistent with the generally increased optimism regarding the recovery trajectory for 2022 and 2023, which can also be seen in the forecasts by Dublin Airport in Table 12.1.

The CAA and Heathrow Airport

12.11 The CAA are currently in the process of reviewing Heathrow Airport’s (HAL) economic licence and price control for the period 2022-2026. While this review began prior to the impact of COVID-19, it was later adapted to reassess all of the key aspects of the price control in light of COVID-19.

12.12 The forecasting method used by Heathrow Airport in the H7 process³⁵ under the UK CAA consists of four models: a travel restrictions model, an econometric model, a capacity supply model, and a Monte Carlo method. The travel restrictions model uses data on the demand at different COVID-19 restriction levels to build a model around each stage of the recovery and forecast passengers for each stage, beginning with

³⁵ <https://www.caa.co.uk/commercial-industry/airports/economic-regulation/h7/>

stage 0: no or very limited flights to stage 4: open travel. This is modelled for 40 geographic markets.

- 12.13 The econometric model consists of both a model that assesses the total demand available at Heathrow, and a supply model accounting for capacity changes. The capacity supply model is built based on assumptions on movements, seats per movement, load factor, and transfer share for nine airline groups and eight geographical markets. The CAA has made several adjustments to the assumptions used for this model including the removal of a cap on supply based on the ability of airlines to adapt quickly to the return of traffic for some scenarios, and the retirement or reduction of certain aircraft.
- 12.14 The Monte Carlo method is used to develop probability distributions of the key variables. The models are run multiple times, applying the distributions of the variables. This creates a wide range of scenarios, which are then combined into a low, mid and high case based on a weighting of the probabilistic outputs. This approach was varied slightly by the CAA to account for asymmetric distribution bias, on the basis that the HAL method appeared to introduce a downside bias into the forecasts. The CAA is still reviewing the weighting method applied by HAL to be certain that it does not skew the forecasts.
- 12.15 The model also accounts for market shocks through the application of a shock adjustment to all scenarios. This accounts for asymmetric non-economic downside risks that may not be predictable, but which have a sufficiently high probability of occurring within the regulatory period that their inclusion improves forecasting accuracy. HAL initially suggested the inclusion of pandemic shocks also, but the CAA has removed this due to the exceptional nature of such events.

Airbus

- 12.16 Airbus has recently published its Global Market Forecast for 2021-2040.³⁶ This provides a forecast of air traffic growth, aircraft demand and services for the next 20 years. The forecasting methodology used takes account of demographic and economic development, tourism trends, air cargo trends, aircraft efficiency, sustainability, energy prices and airline network development.
- 12.17 The report highlights that GDP is still the fundamental long-term driver for traffic. The forecast suggests a recovery of traffic levels, measures in revenue passenger kilometres (RPKs) to 2019 levels at some point between 2023 and 2025.

Boeing

- 12.18 Boeing produces an annual report on Commercial Market Outlook³⁷ which provides a 20 year, long-term forecast of commercial air traffic and airplane demand. In developing this forecast, Boeing consider three key fundamentals: economic activity, ease of travel and local market factors. Despite the significant impact of COVID-19 on traffic, Boeing states that it does not believe the fundamentals of the air travel market have been changed by this and as such, Boeing has used 2019 as the baseline in the

³⁶ <https://www.airbus.com/en/products-services/commercial-aircraft/market/global-market-forecast>

³⁷ <https://www.boeing.com/commercial/market/commercial-market-outlook/>

most recent Commercial Market Outlook in 2021.

- 12.19 It is assumed that short-haul and domestic flights will continue to grow as there are lesser restrictions for this type of travel, and that low-cost carriers specifically will lead the recovery as this has been the case for previous economic downturns. The forecasts predict an annual global passenger traffic growth rate of 4%, and a growth rate of 3.1% for Europe specifically for the period 2020-2030.