CHRISTCHURCH INTERNATIONAL AIRPORT LIMITED

Disclosure Relating to the Reset of Aeronautical Prices for the Period 1 July 2022 to 30 June 2027

18 August 2022

CHRISTCHURCH AIRPORT

CONTENTS

PART A: INTRODUCTION

1 On 23 June 2022, Christchurch International Airport Limited (**CIAL**) set its prices for the period 1 July 2022 to 30 June 2027 (**PSE4**). Customers were notified of CIAL's final decision on 23 June 2022 and prices came into effect from 1 July 2022.

2 This document discloses CIAL's PSE4 prices and related information. Prices for PSE4 are set out at Part B.

A1: Price setting process

3 CIAL's PSE4 pricing decision is the outcome of six months of consultation with CIAL's substantial customers which has included multiple rounds of customer feedback and the opportunity for customers to ask specific questions. A full outline of the consultation process is set out at Appendix A.

4 In setting its prices, CIAL has had regard to:

4.1 the *Airport Services Input Methodologies Determination 2010* (the **IMs**);

4.2 the *Airport Services Information Disclosure Determination 2010* (the **ID Determination**); and

4.3 the Commerce Commission's (the **Commission's**) *Final Report on the Review of CIAL's Pricing Decisions and Expected Performance (July 2017 – June 2022)* published on 1 November 2018 and related submissions and correspondence.

A2: Disclosure obligations

5 In accordance with the requirements of public disclosure, this disclosure and its related attachments:

5.1 were preceded by the following notice in the *Gazette* on 16 August 2022: https://gazette.govt.nz/notice/pdf/2022-gs3457;

5.2 are available on CIAL's website: www.christchurchairport.co.nz/about-us/who-we-are/financial-reports/regulatory-disclosures;

5.3 are available for inspection at CIAL's offices between 8.30am to 5:00pm, Monday to Friday:

Christchurch International Airport Limited
4th Floor Carpark Building
30 Durey Road
Christchurch, New Zealand

5.4 will be provided to the Commission by 25 August 2022; and

5.5 will be provided to any person by post or for collection from CIAL's offices within 10 working days of a request.

6 CIAL will retain and continue to publicly disclose the information contained within for at least seven years from 18 August 2022, in accordance with paragraph 2.8 of the Determination.

PART B: PSE4 PRICES[1]

B1: Summary of PSE4 prices

7 CIAL's prices for PSE4 are as follows:

Table 1: Summary of prices

Price	Method of pricing	FY23	FY24	FY25	FY26	FY27
Airfield prices ($)						
Airfield price – passenger aircraft	Per arriving or departing passenger, except for transferring passengers	5.37	5.49	5.61	5.72	5.83
Airfield price – non-passenger aircraft	Per arriving or departing MCTOW $/tonne	9.20	9.42	9.62	9.81	10.01
Terminal prices ($)						
Terminal price	Per arriving or departing passenger, except for transferring passengers	8.52	8.72	8.90	9.08	9.26
Terminal price – regional services[2]	Per arriving or departing passenger, except for transferring passengers	4.05	4.14	4.23	4.31	4.40
Check-in prices ($)						
Check-in hall price	Per departing passenger, except for transferring passengers	0.70	0.71	0.73	0.74	0.76
Check-in counter price	Per departing passenger,[3] except for transferring passengers	0.70	0.72	0.73	0.75	0.76

All prices apply to aircraft operators, not passengers themselves.

8 The PSE4 prices are fixed in nominal terms. They are calculated for each year following FY23 using an inflation forecast calculated using the Commission's preferred method.

B2: Price structure

9 CIAL's primary goal is increasing the productivity and efficient use of its existing assets. On this basis and supported by economic cross-checks, in PSE3, CIAL proposed a material change to its pricing structure with a move to setting prices on a per passenger basis including a single price for airfield and non-regional terminal services, to apply to both domestic and international passengers.

10 Per passenger prices allow CIAL to increase and incentivise flexible and efficient use of its airfield and terminal assets. They also increase simplicity of prices and align CIAL's and airlines' interests. In particular CIAL's per passenger pricing structure:

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1 Note: in this part and throughout the document, all figures are expressed in nominal/outturn New Zealand Dollars, except where specified otherwise.

2 This price is for the services provided by CIAL's ITB to those passengers. An additional charge will also be payable for use of the Regional Lounge itself. Airline customers wishing to use the Regional Lounge should discuss access and charging arrangements with CIAL.

3 Excluding passengers checked in using different, separately agreed check-in facilities.

10.1 does not send perverse signals about which types of aircraft airlines should use on CIAL's airfield, with airlines free to innovate in choosing and changing their fleets; and

10.2 a single per passenger terminal price meets the appropriate economic tests, ensuring passengers are paying for the forward-looking efficient costs they use, whilst leaving CIAL neutral as to where a passenger is travelling to or from, avoiding arbitrary distinctions between passengers.

11 CIAL's approach for setting prices in PSE4 has aimed to achieve continuity, predictability and transparency. Consequently, CIAL has not proposed any material changes to its pricing structure or methodology for PSE4, which is described more fully in CIAL's PSE3 disclosure. The only minor change is described in section B5 below.

Terminal access charges

12 CIAL's Regional Lounge facility is subject to commercial arrangements with Air New Zealand (**Air NZ**). Accordingly, in both PSE3 and PSE4 CIAL set a standalone terminal price for regional services, as contemplated by those arrangements.

B3: Method applied to calculate prices

13 This section explains how CIAL calculated its prices set out above.

Airfield prices

14 CIAL applied the following process to derive its airfield prices from the airfield portion of CIAL's allowable revenue:

14.1 First, the annual airfield allowable revenue was allocated between passenger aircraft and non-passenger aircraft on the basis of the share that each contributes to the aggregate annual maximum certified take-off weight (**MCTOW**) at Christchurch International Airport (the **Airport**).

14.2 Second, the "airfield price - passenger aircraft" was calculated by deriving the CPI-indexed price per passenger that would generate a present value of revenue equal to the revenue requirement, given the forecast of passengers over PSE4. Note that passenger forecasts in this context refers to the chargeable units, and so excludes the legs of transferring passengers that will not be liable for a charge.

14.3 Third, the "airfield price - non-passenger aircraft" was calculated by finding the CPI-linked price per MCTOW (landing and taking-off) that would generate a present value of revenue equal to the revenue requirement, given the forecast of non-passenger MCTOW over PSE4.

15 This method implicitly assumes that all movements are paid for at the posted prices.

Terminal prices

16 CIAL set two prices in relation to terminal services (excluding check-in), these being:

16.1 the price for the use of the integrated terminal building (**ITB**), spanning both domestic and international movements; and

16.2 a charge for the passengers in respect of the regional terminal, which recovers the share of costs allocated to those customers of the wider terminal assets and costs (such as the integrated baggage system, the common areas within the terminal

outside of departure lounges and the share of common costs that are allocated to the terminals).[4]

17 To calculate the two terminal charges, CIAL applied the following sequence:

17.1 First, the terminal-related costs and assets that are attributable to the priced services (i.e., excluding the elements associated with non-priced services and non-disclosure activities) are classified as those that are either directly associated with the integrated terminal departure lounges or the Regional Lounge (excluding the costs recovered under the lease) or those that are common to all users of the terminal (this latter category comprises costs and assets associated with common areas in the terminal that are attributable to priced services, as well as the allocation of shared costs – like corporate costs and campus-wide infrastructure – from outside of the terminal).

17.2 Second, the common costs are divided between the two charges based on the forecast of the relative passenger numbers using each service over PSE4. This means that all passengers make the same contribution to the common costs.

17.3 Third, as with the airfield charge, the two prices are calculated by deriving the CPI-indexed price per passenger that would generate a present value of revenue equal to the revenue requirement (comprising the direct and share of common cost revenue requirements), given the forecast of passengers over PSE4. Note that passenger forecasts in this context refers to the chargeable units, and so excludes the legs of transfer passengers that CIAL has proposed not to be liable for a charge.

Check-in prices

18 CIAL set two prices in relation to its check-in assets, these being:

18.1 a *check-in hall price* that reflects a contribution from all customers for the provision of the check-in area (that is, the relevant part of the terminal building and an allocation of the associated plant infrastructure); and

18.2 a *check-in counter price* for customers who use CIAL's check-in facilities, which recovers the cost of CIAL's dedicated check-in assets (such as the counters and baggage injection belts).

19 As with CIAL's other prices, these check-in prices have been derived such that an inflation-indexed price is forecast to deliver the same revenue (in present value terms) as the revenue requirement for the services in question, given forecast demand (which, in the case of check-in prices, is demand for departing passengers only). Implicit in the calculation of check-in prices is the assumption that all demand is paid for at the posted price.

20 Note that the passenger number used in this calculation account for the following: only departing passengers are liable for check in charges; counter charges are not applied where an airline has a separate, specific arrangement; and transferring passengers are not liable for any check-in charges.

B4: Relationship between quality and prices

21 CIAL takes into account consumer demand and ASQ Survey feedback when developing its long-term master plans are resulting three-year rolling annual business plan which provides the base level inputs used to set prices. In doing so, CIAL targets a high level of customer satisfaction as reported in our annual ID templates. CIAL's average passenger survey ratings

[4] The cost of the Regional Lounge itself is recovered via a separate lease with Air NZ and is therefore excluded from this calculation.

historically are the highest ratings of the regulated New Zealand airports. CIAL does not provide a differentiated service level based on what service is provided.

22 In April 2013, CIAL opened its integrated terminal which is an efficient terminal that places service-quality and customer experience at its centre. The Airport includes an integrated terminal, with an integrated check-in hall, integrated baggage system, and swing gates and lounges able to switch between domestic and international services.

B5: Transferring passengers

23 CIAL will now only charge for one leg (i.e., either the arriving or departing leg) where passengers transfer via the Airport terminal.

24 "Transferring Passenger" is defined as:

24.1 a passenger who arrives at the Airport, changes planes and departs on a connecting flight to a different final destination;

24.2 the arriving and departing flights are on the same itinerary; and

24.3 the passenger has a less than 24-hour stopover at the Airport.

25 This applies irrespective of whether the connecting flight is operated by the same airline or a different airline via a codeshare arrangement.

26 Under the new pricing structure:

26.1 where there is an international leg, the charges will be those applicable to international passengers, and will be paid by the international carrier; and

26.2 otherwise, the airfield charge and the terminal charge will be set at the higher of the charges normally applicable for the arriving and departing legs and will be payable by the operator of the higher-charge leg (or, if the ordinary charges for the arriving and departing legs are the same, the airline responsible for the arriving leg is liable for the charge).

27 This is a refinement to the pricing structure applied in PSE3. This modification is in response to feedback from some of CIAL's customers and will mirror the practices of many airports overseas. In terms of CIAL's strategic objectives, it is hoped that the reduction in the charge for transferring customers will retain the existing level of transfers, and encourage new transferring arrangements, thus promoting the efficient utilisation of CIAL's assets in a way that minimises forward looking costs and ultimately reduces costs to customers.

28 No substantial customers raised concerns with this change.

B6: Deferral / Price smoothing

29 Given the uncertainty in the period in which CIAL was setting prices, customers raised the possibility of either deferring price increases for 12 months or applying a price smoothing mechanism to spread the price increases throughout PSE4. Having considered customer feedback on each of these, CIAL decided that neither of these mechanisms were necessary nor appropriate for PSE4.

Deferral

30 CIAL did not identify any grounds that justified a deferral. Despite the inherent uncertainty, CIAL is confident that the proposed PSE4 prices are the best estimate in the current circumstances. In addition, any deferral and related price freeze may result in a price shock in later years of PSE4 and this is inconsistent with the levelised price path approach that CIAL has taken in previous pricing periods.

Price smoothing

31 CIAL decided that a price smoothing mechanism was not appropriate for the following reasons:

31.1 during the previous pricing periods, CIAL committed to a consistent levelised price path. We consider this remains the appropriate approach for PSE4; and

31.2 any price increases that are delayed in the early years of PSE4 will need to be recovered in the later years of PSE4, causing significant price increases in FY26 and FY27. This would likely create a perverse outcome for PSE5 and is inconsistent with the levelised regulatory price path approach that CIAL has taken in previous pricing periods.

32 In addition, CIAL charges customers on a per passenger basis. This means that airlines are only required to pay for passengers who are actually on the aircraft, rather than a per-aircraft charge. This approach ensures that both airlines and airports share in passenger demand revenue risk and any airport charge revenue is only earned as and when airlines earn revenue.

PART C: ALIGNMENT WITH CIAL'S LONG TERM STRATEGIC OBJECTIVES

C1: Introduction

33 This Part sets out how CIAL's PSE4 prices align with its long-term strategic objectives and the long-term interests of consumers.

34 In 2017, as part of PSE3, CIAL introduced some material changes to its pricing approach. CIAL implemented a pricing structure that better aligned with its long-term objectives, which involved moving to a long term, transparent tilted annuity approach to depreciation of the terminal assets and aligning the pricing model with the Commission's IMs and ID models where possible.[5]

35 The key features of CIAL's approach to setting prices in PSE4 are continuity, predictability and transparency. CIAL did not make any material changes to its approach or methodology. The operating environment for our customers and for airports over the next five years (and beyond) is subject to some major forces driving change and innovation, including the Covid-19 pandemic, climate change and evolving regulatory requirements. CIAL's aim is to set a pricing platform that is stable, predictable and facilitates innovation by CIAL and its customers.

C2: CIAL's long term objectives

36 Consistent with PSE3, CIAL's long term objectives for the use of its assets fall into three categories:

36.1 increasing the **productive and efficient** use of CIAL's existing terminal and airfield assets;

36.2 ensuring CIAL:

(a) is **innovative** itself; and

(b) facilitates, is open to, and fully utilises others' **innovation**; and

36.3 being **transparent** through a **simple price structure**.

37 CIAL has also noted that a key medium-term objective over the PSE4 period is to actively support the recovery of the commercial aviation sector to assist with the rebuild of aeronautical activity into Christchurch.

Productivity and efficiency - airfield

38 CIAL's analysis shows that the cost difference to CIAL between different types of aircraft using CIAL's airfield is minimal. As such, any cost-reflective pricing for the airfield would not meaningfully impact airline incentives.

39 Instead, a single per passenger airfield price has significant benefits:

39.1 CIAL's interests will be aligned with airlines. Airlines and CIAL will both be directly impacted by passenger volume movements and will have equal incentives in respect of growth.

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[5] CIAL provided substantial material during the PSE3 processes in support of the changes that CIAL made to the structure of its prices in PSE3, including expert advice from Incenta. Please refer to that material for further elaboration of the arguments presented here.

39.2 CIAL's proposed prices will not:

(a) send perverse signals about which types of aircraft airlines should use on CIAL's airfield. As airlines respond to the challenges of Covid-19 and climate change they will be free to innovate in choosing and changing their fleets; or

(b) use weight breaks between different types of aircraft, where bands of prices might arbitrarily differentiate on the margins between similar aircraft. Prices that apply to passengers, rather than seats, leave airlines free to be flexible with their fleet decisions.

39.3 By charging based on the passengers that are carried, CIAL's prices will better mirror airlines' capacities to pay for the airfield services and reduce the potential inherent nature of fixed-types of airfield charges as barriers to the commencement of new services (i.e., which may start with lower utilisation levels).[6]

Productivity and efficiency - terminal

40 CIAL is focused on operating, and continuing to operate, its terminal so as to maximise the flexibility of its assets and minimise future capital requirements. CIAL will continue to look for ways it can unlock productivity and efficiency gains by increasing terminal flexibility, whilst meeting evolving regulatory health and safety and security requirements.

41 A single terminal price (aside from the arrangements in relation to the Regional Lounge) supports flexible operation of the terminal and fits with the reality that the terminal is used as one integrated asset to cater for all airlines and passengers in a dynamic and productive way. The flexible use of the terminal is also a focus when we consider capital expenditure (**capex**) and regulatory requirements, discussed later in this disclosure. In addition, as with the airfield charge, a per passenger charge is likely to better mirror airlines' capacities to pay for terminal services, and so avoid causing an artificial barrier to the commencement of new services or withdrawal of existing services.

Innovation

42 It is more important than ever that CIAL implements a price structure that facilitates innovation by CIAL and its airline customers. The per passenger price structure facilitates innovation by removing artificial price structures and aligning CIAL and its airline customers' interests on passenger growth. It creates a transparent, easily understood, level playing field upon which our customers can innovate and compete.

43 Innovation also informs our business decisions for PSE4, and our long-term planning beyond 2027. CIAL is focused on constantly improving efficiency and effectiveness and exploring options to re-think and change up the way things get done. This informs the operating and capital cost forecasts that are in CIAL's building blocks model, and ultimately the level of prices proposed for PSE4.

44 CIAL's innovation focus has two limbs:

44.1 a strong focus on facilitating innovation by airline customers, both by working with its customers on operational innovations and by setting its prices in a way that facilitates innovation; and

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[6] Similarly, a per passenger charge is less likely, compared to a fixed-type charge, to cause an airline to withdraw a service where there is a reduction in demand.

44.2 innovation informs CIAL's approach to its business decisions, with a concentration on advances in digitisation and automation.

45 Examples of CIAL's ongoing innovation over the PSE4 period include:

45.1 investigation of robotic process automation in the areas of baggage systems and airport services;

45.2 use of humanoid robots to enhance customer experience as a source of traveller information;

45.3 ongoing work to enable electric plane operators to further enhance and develop existing e-plane charging infrastructure and ultimately support the needs of our substantial airline customers;

45.4 co-investing with our outsourced cleaning provider in autonomous robotics and sensor technology across the Terminal which will help to drive further efficiencies in cleaning activities;

45.5 ongoing investigation of the potential for a large-scale renewable energy precinct at the Airport. Aviation faces a big challenge to de-carbonise and de-couple from fossil fuels, which will likely see both electric and green hydrogen-fuelled aircraft service the Airport's domestic routes in the future. This proposed precinct is well-located to provide the renewable energy required by the aviation sector in the future, whilst also providing stability and resilience to the price and supply of that renewable energy;

45.6 being the first airport in the world to undertake and be granted the highest level of decarbonisation achievement: a Level 4 Airports Council International's decarbonisation accreditation;

45.7 being the first business in the South Island to sign up to a global initiative, EV100, committing to transitioning its vehicle fleet to 100% electric by 2030;

45.8 commissioning an additional UV treatment water plant in compliance with NZ Drinking Water Standards and completing the roll-out of advanced water telemetry devices, providing for a world class water supply network across CIAL's campus; and

45.9 being a finalist:

(a) in the Climate Action Innovator and Climate Action Leader categories of the Sustainable Business Network's 2021 Sustainable Business Awards;

(b) in the 2021 Energy Excellence Awards "Low Carbon Future" category for the Airport's Ground Source Heat Pump system in its International Arrivals area; and

(c) for the Environment Award in the 2021 New Zealand Tourism Awards, for CIAL's contribution and leadership in decarbonisation and waste.

Transparency and simplicity

46 CIAL is committed to transparency and simplicity in its pricing platform. Our customers face a complex operating environment, as do we, and keeping the pricing platform transparent and simple best positions everyone to meet those challenges.

47 CIAL's emphasis on a per passenger pricing structure supports this objective by:

47.1 being easy to understand, allowing incumbent and new airlines to assess their options and plan into the future based on passenger forecasts, rather than permutations of fleet configurations;

47.2 making it simple for airlines to map the cost of landing or departing a passenger at or from the Airport, rather than incurring different prices per passenger based on the aircraft type used or the number of seats filled; and

47.3 aligning the interests of airlines and CIAL on passenger growth.

48 As noted above, CIAL adopted one refinement to its pricing structure for PSE4, which is to charge for only one leg in relation to passengers that transfer through CIAL's terminal.

49 In terms of CIAL's strategic objectives, the reduction in the charge to transferring customers is intended to retain the existing level of transfers, and encourage new transferring arrangements, thus promoting the efficient utilisation of CIAL's assets in a way that minimises forward looking costs and ultimately reduces prices to customers.

PART D: COMMERCIAL OUTCOMES

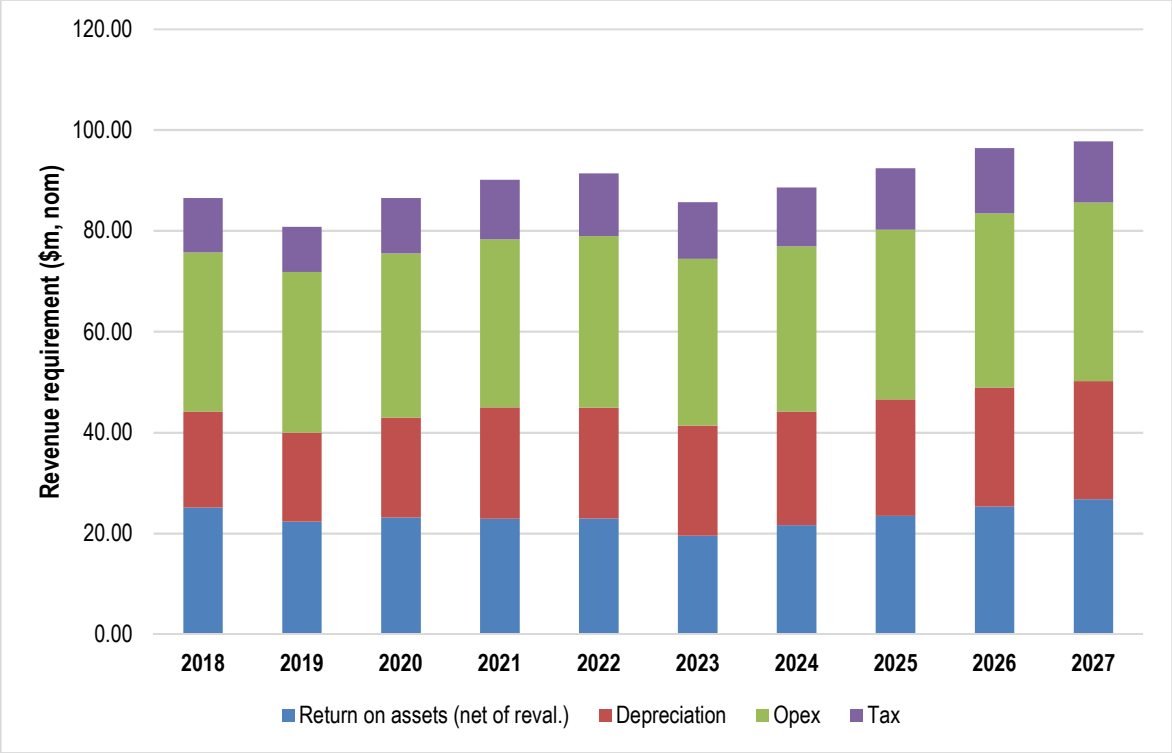
D1: CIAL's allowable revenue

50 CIAL's allowable revenue for the period 1 July 2022 to 30 June 2027 is:

Table 2: Allowable CIAL PSE4 revenue ($m)						
Service	**NPV[7]**	**FY23**	**FY24**	**FY25**	**FY26**	**FY27**
Airfield	167.98	35.68	37.83	40.47	41.84	43.08
Terminal	209.79	47.14	48.02	49.17	51.56	51.82
Check-in	12.04	2.85	2.73	2.73	3.01	2.86
Total	**389.81**	**85.67**	**88.58**	**92.37**	**96.41**	**97.76**

51 The table below shows the components of the allowable revenue for PSE4 compared to the values applied when setting prices for PSE3. All values are in nominal terms, meaning that no adjustment has been made for inflation.

Allowable revenue for PSE4 compared to PSE3 ($m, nominal)



52 The following observations may be made.

52.1 Overall, while the allowable revenue for PSE4 is forecast to follow a similar trend to PSE3 – largely following projected inflation – it is commencing at a lower level to PSE3, with the 2023 revenue requirement approximately 9 per cent lower in nominal terms than allowable revenue for the final year of PSE3.

52.2 Most of this change in the allowable revenue has arisen from CIAL applying a lower weighted average cost of capital (**WACC**) in PSE4 compared to PSE3, much of which is

[7] The NPV of the revenue requirements has been calculated on the assumption that revenue is received at the "revenue date" during the year (i.e., 148 days prior to the end of the year).

due to interest rates being lower than they were in 2017. However, the higher forecast rate of inflation for the first year of PSE4 has also reduced the revenue requirement for that year (as these forecast gains are treated as a negative cost item when calculating allowable revenue). In addition, the lower "profit" amounts in allowable revenue also translate into a lower tax allowance.

52.3 In contrast, the starting point for the forecast operating expenditure (**opex**) is lower than the forecast opex for the last year of PSE3 (3.5 per cent reduction in nominal terms). The starting depreciation amounts are similar to the forecast values for PSE3 (2023 is 1 per cent higher than 2022 in nominal terms).

53 Note, however, that these values reflect the allowable revenue used to derive CIAL's proposed prices. The prices that are derived from CIAL's allowable revenue will also depend on forecast demand, and similarly whether CIAL is able to recover its allowable revenue will be a function of how actual demand compares to the forecast. For PSE3, the Covid-19 pandemic had a material effect on CIAL's actual revenue, as well as the volumes forecast for PSE4. CIAL's demand forecasts are discussed further in Part E.

D2: IRR forecasts

54 The Commission assesses the performance of airports across a number of fronts, including forecast profitability. When assessing forecast profitability, the Commission uses a specific internal rate of return (**IRR**) calculation.

55 The tables below show the IRR results from the Commission's formula for both:[8]

55.1 priced services: the subset of regulated services that are being priced as part of the pricing consultation, and to which the pricing model applies; and

55.2 regulated services as a whole: the forecast profitability of the priced services and other regulated services combined.

Table 3: CIAL's IRR results

Pricing[9]	IRR	Opening FY23 RAB ($m)
Airfield	6.26%	269.72
Terminal	6.07%	197.03
Check-in	6.64%	12.44
Total pricing	6.19%	479.19
Non-pricing	6.57%	109.60
Total disclosure	6.26%	588.79

56 The calculated IRRs for priced services should, in principle, equate to the WACC that has been applied for price setting, which is 6.65 per cent. The difference between the IRR set out

[8] The figures reported here have been corrected for a minor error in the Commission's IRR formulae in the disclosure templates. Specifically, the opening RAB in the templates is deemed to be a cash flow with a date of 1 July 2022, which Excel interprets as the *end* of 1 July 2022, whereas the cash flow date should be deemed to be 30 June 2022, which Excel would then correctly interpret as the *start* of 1 July 2022.

[9] Aircraft parking is provided free overnight and for the first 6 hours of parking in general. CIAL is not proposing to fix a charge for aircraft parking beyond 6 hours but will instead provide prices to customers on request, similar to other non-priced airfield activities. CIAL is not in a position to forecast revenue from aircraft parking given demand is negligible, but in any event would expect resulting revenue to be *de minimis* and therefore not affect regulated prices.

in the table above and CIAL's pricing relates to the cost of airline specific incentives which are borne by CIAL (consistent with PSE3) and permitted to be included in the IRR calculations within the annual regulatory disclosures. Whilst pricing incentives are challenging to accommodate in an *ex-ante* cost-based price determination, and CIAL has faced historical resistance from substantial customers to recovering the cost of such incentives, without recognition of these costs the apparent expected return will overstate the true expected return and the incentive and ability of an airport to promote growth will diminish (refer to Part F7 for further discussion around marketing and incentive costs).

57 In relation to non-priced services, the prices charged for many of these services, provided under agreements negotiated commercially with a single customer, are set via long term contracts, and often based on market-based benchmarks (for example, $/m rates based on competitive market benchmarks).

58 It follows that the IRR for these services in any pricing period is not expected to equate to the prevailing estimate of the WACC, given these agreements do not map tidily into the five-year pricing cycles, are entered into at different times and are for different lengths of time. Hence it is more likely to fluctuate around the long-term average WACC. In PSE3, the IRR for the non-priced services was marginally above the prevailing pricing WACC, in PSE4 the IRR for these services is forecast to be slightly below the prevailing pricing WACC.

59 Across all of the regulated services, the expected IRR for PSE4 is below the prevailing pricing WACC, reflecting the fact that the IRR for both priced and non-priced services is forecast to be below the prevailing pricing WACC.

PART E: DEMAND FORECAST

E1: Overview

60 CIAL faced a number of factors which created uncertainty in estimating demand when setting prices for PSE4, including:

60.1 the developments during the Covid-19 pandemic and related government border policy and domestic responses;

60.2 airline fleet and operating constraints and responses to periods of financial challenge; and

60.3 soft economic performance in New Zealand and abroad (whether in the form of a hard landing or recession) or escalation of geo-political conflicts.

61 Given the uncertainty in forecasting demand, CIAL prepared its initial demand forecasts in January 2022. It then revised these twice, considering customer feedback and changing inputs and assumptions related to the variables noted above.

62 CIAL now considers that its demand forecast represents its best estimate of demand for PSE4.

E2: CIAL's final passenger demand forecasts

63 CIAL's final demand forecast is as follows:

Table 4: CIAL's final passenger demand forecasts

Passengers (arrivals or departures)	FY23	FY24	FY25	FY26	FY27
International	977,211	1,414,070	1,585,715	1,721,486	1,818,596
Domestic – ITB	3,306,653	3,521,984	3,629,839	3,660,342	3,687,456
Domestic – Regional Lounge	1,417,137	1,509,422	1,555,645	1,568,718	1,580,338
Total	**5,701,001**	**6,445,475**	**6,771,199**	**6,950,547**	**7,086,390**

64 Note that the demand forecast in the table above is the forecast gross passenger numbers (being the sum of arrivals and departures), including both of the legs flown by transferring passengers. As discussed earlier, however, CIAL will now only charge one leg in respect of transferring passengers, and so an adjustment to the forecast of gross numbers was applied to derive the chargeable demand units.

E3: Our methodology for forecasting passenger demand

65 Due to the level of uncertainty caused by the Covid-19 pandemic, and surrounding circumstances, CIAL initially modelled two potential recovery pathways:

65.1 a base case reflecting the current trends and border re-opening plans; and

65.2 a more conservative scenario based on further domestic travel restrictions in the short term and delayed border re-opening.

66 The demand forecast applied for pricing purposes represents a mid-point between the two modelled scenarios. CIAL considered that this would be the most probable demand forecast

for PSE4. Both the base case and the conservative scenario were re-estimated when CIAL revised its demand forecasts.

67 Historically, demand forecasts have been determined using a bottom up and top down approach, which uses filed schedules and known capacity for Years 1 and 2 and then a top down forecast based primarily on economic growth (GDP), aircraft orders, and CIAL's relative share of key markets (domestic, Tasman, international and transfer).

68 However, forecasting in the current environment was inherently more complex, as passenger numbers were constrained during PSE3 due to restrictions on movement (such as border settings, alert levels and quarantine requirements). It was difficult to predict the recovery of airline travel following these restrictions. This uncertainty was compounded by supply issues as airlines managed financial challenges and supply constraints on crew, operations and aircraft while restarting their global networks.

E4: Check-in demand

69 CIAL has two prices related to check-in: one for the use of the terminal building where the check-in facilities are located, and a second for the use of CIAL's check-in facilities. While the first of these charges is paid in respect of all departing passengers, the price for the use of CIAL's check-in facilities does not apply to the extent that previous arrangements have been made for different, separately agreed check-in facilities. In particular, Air NZ has commercially agreed exclusive check-in areas (which are not included in demand forecasts for the use of check-in facilities) but will also use CIAL's common check-in counters from time to time (which is included in CIAL's demand forecasts).

70 To calculate demand relevant to the check-in facilities charge, CIAL took total forecast check-in demand and excluded those Air NZ passengers not expected to use common check-in counters (i.e., the priced check-in counters) during the term of the current licence. In order to do so, CIAL:

70.1 calculated the approximate Air NZ passengers in PSE3 not checked in using common check-in counters;

70.2 applied that proportion to the appropriate forecast passengers for PSE4; and

70.3 excluded those PSE4 passengers not expected to use the common check-in counters from CIAL's check-in forecast demand for the purposes of pricing.

E5: Adjustment for transferring passengers

71 As discussed earlier, CIAL will only charge for one of the legs flown by transferring passengers, with the rule proposed being to charge for the international leg, or for a domestic transfer, the one that yields the greater charge to CIAL. Accordingly, the forecast of gross passenger numbers set out above needs to be decreased to derive the chargeable units (which form the input into the price calculation) to remove the transferring leg for which a charge will not apply. The method that CIAL has applied to make this adjustment is as follows:

71.1 First, CIAL has identified the proportion of the gross passenger numbers that are expected to be transfers (across both international and domestic). This has been informed by an assessment of:

(a) the historical proportion of transfers observed with specific reference to the pre-Covid-19 PSE3 period as a base starting point; and

(b) the expected additional transfers that may be encouraged by this pricing adjustment over PSE4 (noting that these additional passenger numbers have

been factored into the underlying gross passenger demand). This proportion starts from a base level of 10.5% across both domestic and international (as observed in PSE3) and increases each year to be 13% for domestic and 11.5% for international by the final year of PSE4.

71.2 Second, CIAL divided these total transfers into the following five categories across domestic and international,[10] based on the nature of transfers observed for FY19 (i.e., the last available year that has not been affected by the Covid-19 pandemic), with the proportion falling into each category as indicated:[11]

(a) Regional Lounge – ITB (domestic) (58.0% of domestic transfers);

(b) Regional Lounge – Regional Lounge (37.7% of domestic transfers);

(c) ITB (domestic) – ITB (domestic) (4.3% of domestic transfers);

(d) Regional Lounge – ITB (international) (74.2% of international transfers); and

(e) ITB (domestic) – ITB (international) (25.8% of international transfers).

71.3 Third, the chargeable demand units for the ITB charge were reduced according to the rule that:

(a) if there was a Regional Lounge leg, then a Regional Lounge leg would not be charged (and so the gross demand forecast relevant to the terminal Regional Lounge charge would be reduced by this extent); and

(b) otherwise, an ITB domestic leg would not be charged (and so the gross demand forecast relevant to the terminal ITB charge would be reduced by this extent).

E6: Non-passenger demand

72 For general aviation and military movements, CIAL set its base expected demand equal to actual movements and MCTOW as experienced over the past 12-month period. In CIAL's judgement, general aviation and military volumes are likely to remain at approximately these levels.

73 In respect to forecasting air freight, historically around 80% of freight carried into and out of the Airport travels on commercial passenger aircraft. We have assumed that every freight-carrying commercial passenger flight (aligned with our passenger demand forecast) will carry a load commensurate with its size. Given that we know that there is a similar sized volume of freight trucked to Auckland, we assume that no wide body passenger operation would fly empty of freight.

74 In respect of our freight specific customers, we set expected demand based on current levels of demand, noting these have increased by approximately 18% since the beginning of the Covid-19 pandemic. We have assumed that the fundamentals that have sustained this growth will remain unchanged during the PSE4 period.

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[10] Note that the categories refer to a transfer occurring in either direction, for example, the "Regional Lounge – domestic ITB" refers either to a Regional Lounge arrival and domestic ITB departure, or a domestic ITB arrival and a Regional Lounge departure.

[11] A sixth category that could, in theory, occur is an international to international transfer. However, none of these occurred in 2019 and none are expected for PSE4.

75 Some currently subsidised freight carrying services are assumed to be maintained into FY23 before wide-body passenger services restart and build baseline capacity, with all subsidised services ceasing from FY24 onwards.

76 CIAL set its expected non-passenger demand using actual non-passenger volumes in FY21 and FY22 to date as a base, and then adjusting for currently subsidised services expected to cease in FY23. In CIAL's judgement, non-passenger volumes over PSE4 are likely to be lower than experienced during the subsidised periods of FY21/22, but higher than pre-pandemic levels.

77 CIAL received feedback from its freight customers and other key freight partners that they do not expect to see a fall in freight tonnage as originally forecast and CIAL updated its non-passenger demand MCTOW forecast accordingly, as follows.

Table 5: CIAL non-passenger demand forecasts – averaged out over PSE4 on an annual basis

	Arriving and departing	
Demand component	**MCTOW**	**Movements**
Freight	347,922	3,750
Military	75,603	714
General aviation – light	50,999	24,515
Aircraft repositioning	43,993	676
Total	**518,517**	**29,655**

E7: Incentives and demand forecasts

78 CIAL undertakes two forms of market stimulation:

78.1 direct expenditure on general marketing activities, covering aeronautical development and marketing, including promotion of destinations and routes, and general marketing of the Airport itself; and

78.2 bilateral arrangements with airlines with agreed rebates (or similar) to encourage the establishment of new services/routes or capacity.

79 Both types of market stimulation activities are taken into account when forecasting demand. PSE4 demand forecasts are made on the basis that both of these types of market stimulation activities occur. All bottom-up forecasts are based on scheduled capacity that directly reflect such activities and arrangements.

80 CIAL's view is that the active promotion of growth in traffic through the Airport – including through the active encouragement of new services or re-building existing services – is in the long-term interests of passengers, who are CIAL's ultimate customers.

PART F: BUILDING BLOCKS METHODOLOGY

F1: Building Blocks Model

81 CIAL's approach in setting prices followed several steps:

81.1 First, CIAL calculated its efficient costs using the building blocks approach and the Commission's IMs.

81.2 Second, CIAL prepared a demand forecast for PSE4 as set out in Part D above.

81.3 Third, CIAL confirmed the base price structure introduced in PSE3 is consistent with its long-term strategy. The strategy and its implementation are explained at Part C.

81.4 Finally, CIAL applied its price structure to the results of its building blocks model and demand forecast to determine per-price units. The resulting prices are set out at Part B.

F2: Asset base

82 In line with the building blocks approach, CIAL has calculated the total value of assets it uses to provide those specified airport activities being priced through this consultation. Those activities comprise airfield activities, passenger terminal activities and the check-in of passengers (referred to throughout this part as the priced services).

83 Under the ID regime, CIAL discloses information for all specified airport activities, regardless of whether those activities are set by pricing consultation or private negotiation (e.g. leases). The assets used to provide all specified airport activities comprise CIAL's disclosure regulatory asset base (**RAB**).

84 In PSE3, CIAL undertook substantial work to align the RAB it applies when determining its prices with the disclosure RAB that it is required to apply for ID purposes.

85 Accordingly, the determination of CIAL's PSE4 pricing RAB is a straightforward exercise, as follows:

85.1 first, CIAL has taken the disclosure RAB for FY21 (determined in accordance with the IMs) as the starting point;

85.2 secondly, CIAL has then applied the extended asset allocators to separate its disclosure RAB into its pricing RAB and the RAB associated with its non-priced services (CIAL's non-pricing RAB); and

85.3 thirdly, CIAL has added on the actual adjustment assets and applied inflation indexation and depreciation to these actual adjustment values as specified in PSE3.

86 The allocation of asset values between activities that is referred to above has been undertaken based on an assessment of the use of each of the individual assets in CIAL's asset register, and with an appropriate allocator thereby derived in accordance with the principles for asset allocations set out in the IMs. The process and allocators applied are consistent with the ID Determination.

87 The Regional Lounge remains subject to a commercial lease between CIAL and Air NZ. As such, CIAL proposes excluding the Regional Lounge from the asset base (as was the case in PSE3), and recovering the asset through charges set under the lease

Projection of RAB over the PSE4 period

88 The starting RAB for PSE4 has been projected over PSE4 by:

88.1 commencing with the opening RAB values as discussed above, allocated to the relevant activities;

88.2 adding in the forecast capex (discussed in Part F3 below), again allocated to the relevant activities;

88.3 adding in a forecast of the CPI revaluation gains for the allocated assets based on the forecast of CPI (discussed in Part F5 below); and

88.4 deducting the forecast of depreciation associated with the allocated assets (discussed in Part F4 below).

Forecast revaluations

89 CIAL has applied CPI revaluations to all assets following the Commission's standard method where an indexed RAB approach is applied. Similarly, in line with the Commission's standard methods, revaluations have been treated as an offset (i.e., as income) when calculating the revenue requirement for priced services.

Forecast closing carry forward adjustment

90 CIAL's PSE3 disclosure identified an anomaly, limited to PSE2 only, related to the allocation of implied depreciation, which had the effect of depressing the pricing share of the relevant assets and raised the share of the assets that were allocated to other activities. That anomaly was explained fully in our PSE3 pricing disclosures.

91 CIAL corrected that anomaly using a carry forward adjustment, which is now reflected in our PSE4 disclosures as well. The carry-forward adjustment is treated as an asset and hence is depreciated using the same lives and method as the underlying physical assets. CIAL intends that the closing carry-forward adjustment for PSE4 (adjusted to apply actual inflation rather than forecast, consistent with physical assets) would again be treated as an asset in PSE5.

92 The forecast closing carry forward adjustment is the most appropriate method of accounting for this amount as:

92.1 it is consistent with the treatment of this adjustment in PSE3; and

92.2 it corrects for the anomaly identified in PSE2 and ensures that the pricing share of the relevant assets is appropriate.

F3: Capital expenditure

93 CIAL's final forecast capex over the PSE4 pricing period is as follows:[12]

Table 6: Forecast capex over PSE4						
Capex category	**FY23**	**FY24**	**FY25**	**FY26**	**FY27**	**Total**
Business as usual	$17.4m	$15.1m	$12.1m	$12.1m	$12.0m	$68.7m
Major projects	$2.2m	$5.3m	$0.1m	$46.1m	$22.2m	$75.9m
Minor projects	$1.7m	$2.5m	$8.1m	$2.0m	$0.3m	$14.6m
Total	**$21.3m**	**$22.9m**	**$20.3m**	**$60.2m**	**$34.5m**	**$159.2m**

N.B. This table shows forecast capex included for pricing purposes and as consulted on during PSE4 and hence will not align with total capex amounts shown in Schedule 18 of the pricing templates

94 This forecast reflects CIAL's long term business planning. CIAL proposed a number of capex projects in its initial pricing proposal. It received customer feedback that projects that were not strictly necessary during PSE4 should be deferred, given that the aeronautical sector is currently in a state of recovery from the pandemic.

95 Based on this feedback, CIAL undertook a full review of its capex projects, considering whether the timing and costs were appropriate and whether the project is necessary in PSE4. As a result of this review CIAL updated the timing of several capex projects and removed (or deferred to subsequent pricing periods) three projects. The capex projects that remained in PSE4 are projects that are either expected to maintain compliance with CIAL's regulatory obligations or to drive efficiency of operations.

96 In summary, CIAL's forecast PSE4 capex comprises the following projects.

Business as usual capex

97 Business as usual capex reflects regular infrastructure investment, maintenance and plant replacement programs on the airfield and in the terminal, including the annual Airfield Pavement Maintenance Program.

Key capex projects

98 CIAL has proposed five key capex projects in PSE4. There were a number of additional projects that CIAL initially proposed and then removed from the PSE4 capex forecasts based on customer feedback including: upgrading its international bio-security screening; Domestic Stand E conversion; the additional stages of the regional stands development; expanding width of Taxiway A; and construction of a new taxiway to link Taxiway F to Runway 1129. CIAL will reconsider these projects for PSE5. CIAL also adjusted the timing of forecast expenditure for the remaining key capex projects to reflect feedback received in consultation.

Process for determining key capex projects

99 CIAL's capex planning process is based on its long-term (20 year) airport master plan, which was last updated at the end of 2017. The airport master plan projects CIAL's capital development needs over the next 20 years for the campus as a whole. The master planning process includes subset asset plans for capital investment in:

99.1 the airfield, which principally comprises the Airfield Pavement Maintenance Programme; and

[12] For completeness, CIAL notes that the capex figures set out in the table are the amounts attributable to price (i.e., are in inflated terms). This is compared to the amount set out for specific projects below which are in constant prices as at FY22.

99.2 the terminal precinct (**Terminal Precinct Plan**), which outlines projected capital development of the terminal, ground transport and access infrastructure.

100 The asset plans (including the Terminal Precinct Plan) are live documents that are owned by a working group that meets several times a year. These asset plans are used to develop rolling three-year capex forecasts, which are annually refreshed and used to determine annual budgets within CIAL's annual business planning cycle. Capex projects included in the annual budget are supported by a business case. Budgets are approved by the board and responsibility for capex projects is delegated to relevant management.

101 There are five principal drivers of capex from a planning perspective:

101.1 regulatory requirements;

101.2 passenger demand and experience;

101.3 operational requirements with a focus on efficiency and productivity;

101.4 customer (airline) need; and

101.5 CIAL's commercial outcomes.

102 The principal driver of four of the key capex projects included in PSE4 is regulatory requirements. The fifth (regional stands development) is driven by passenger demand and customer needs.

103 The key capex projects for PSE4 are based on those major projects that are currently in the three-year rolling forecast plus additional projects in the asset plans that CIAL forecasts will be commissioned in the final two years of PSE4.

Consumer engagement undertaken

104 Consumer engagement in relation to the key capex projects included in PSE4 was via the consultation process that preceded this price-setting event. Substantial airline customers were consulted on the key capex projects. CIAL received feedback principally relating to the timing of these projects and, in response to that feedback, determined to defer a number of capex projects that were included in the initial pricing proposal.

105 In addition, CIAL engages formally and informally with airlines on an ongoing basis in order to understand their requirements. Finally, CIAL's ASQ surveys provide formal passenger feedback on the airport experience which is taken into account in the capex planning process.

106 The five key capex projects included in PSE4 (aside from the ongoing Airfield Pavement Maintenance Program which forms part of business as usual capex as discussed above) are listed below.[13]

[13] The values reported in the following text reflect the forecast cost of the projects using FY22 input prices. CIAL has then applied CPI inflation to these values. The accompanying disclosure templates show the resulting CPI-indexed cost forecasts.

Stop bars and guard lights

107 Stop bars and guard lights are part of the runway lights and control systems for take-off. PSE4 prices includes $7.0 million to upgrade the stop bars and guard lights to ensure adequate visibility on the runway. This is required both for safety reasons and to ensure continued compliance with enhanced regulatory obligations.

108 Because the project is driven by regulatory requirements, CIAL did not consider alternative projects, but has considered the timing of this project in light of feedback from airlines.

Hold-stow baggage screening

109 Government is proposing to implement regulatory changes to how baggage is screened before it is loaded onto the aircraft. CIAL will be required to move from standard 2 screening to standard 3 screening, involving CAT scan technology rather than x-ray. The upgraded scanning machines are substantially larger and heavier and therefore terminal investment is required to accommodate these larger machines. These regulatory changes are expected to come into force by 2027 and therefore PSE4 pricing includes $25.9 million for the investment required to accommodate those changes.

110 Because the project is driven by regulatory requirements, CIAL did not consider alternative projects, but has considered the timing of this project in light of feedback from airlines.

Upgraded central screening point

111 CIAL is expecting regulatory change that will require passenger screening for regional flights (currently not required). A single, central screening point is considered most appropriate as it will avoid duplication of AVSEC services, create efficiencies in screening, improve passenger access to amenities, mitigate health and safety risks from over-crowding of the regional lounge and future proof for single point screening of domestic and international passengers.

112 The principal alternative that CIAL considered was a separate screening point at the regional terminal. However, while this provides a reasonable short-term solution, in the longer term it will result in capacity constraints. PSE4 pricing includes $22 million on an upgraded central screening point.

Regional airside development

113 Moving to central screening including for regional passengers will require corresponding investment in regional airside passenger facilities. This project will involve creating an airside regional dwell/call-to-gate space, relocation and creation of new regional vertical transport and the separation of ground floor regional departures and arrival baggage reclaim. PSE4 includes $20 million in capex for this project.

114 CIAL considered a range of airside configuration options to identify the optimal solution to accommodate central screening.

Regional stands development (Stage 1)

115 This expenditure will allow for additional capacity for aircraft at regional gates and will reduce wait times for aircraft to access a gate. The project as a whole will involve several stages, only stage 1 of which is forecast in PSE4. Stage 1 involves construction of a new passenger walkway and two additional regional stands at a forecast cost of $2.2 million. As this project is customer-driven, the main alternative CIAL considered was undertaking additional development in PSE4. In response to airline feedback, CIAL has deferred subsequent stages to PSE5.

Electric charging of ground equipment

116 As the world transitions away from fossil fuels to cleaner energy, CIAL expects that it will be required to provide electrical charging facilities for ground equipment and potentially electric aircraft within the next five years. Customer demand suggests that this could be required even earlier. CIAL intends to front foot this change and begin investing in electrical charging technology during PSE4. $4.75 million is forecast for investment in electric charging

facilities.[14] This change is customer and efficiency driven and it is intended to meet CIAL's commercial objectives (in particular, sustainability).

117 As the change was driven by customer demand, efficiency and CIAL's commercial objectives (in particular, sustainability), the main alternative CIAL has considered is delaying this project. However, informal customer feedback supports the capex occurring during this period.

Fire vehicle replacement

118 CIAL has forecast capex for the replacement of fire vehicles in line with its ongoing replacement programme that is required to meet CAA and health and safety requirements. $3.2 million expenditure is forecast for PSE4.[15] Whilst this change is driven by ongoing regulatory requirements, as part of its sustainability strategy, CIAL is proposing to purchase one of the world's first electric powered fire vehicles.

119 Because the project is driven by regulatory requirements, CIAL did not consider alternative projects, but has considered the timing of this project in light of feedback from airlines.

Minor capex projects

120 In addition to the key capex projects listed above, CIAL has forecast a number of minor capex projects, including: (i) $2m to increase international arrivals processing capacity; (ii) $2.6m to increase capacity through remote stand busing (deferred until FY25); (iii) $1.9m in self-service kiosks; and (iv) $2.0m in waste management development.

Timing of inclusion in the RAB

121 In accordance with the IMs, CIAL will incorporate future capex projects into its RAB as those projects are commissioned (as opposed to when costs are paid).

122 Consistent with the Commission's standard practice:

122.1 for rate of return purposes, assets are assumed to enter the RAB at the mid-point of the year. This means that, in effect, a half year WACC is earned on assets entering the RAB during the year; and

122.2 depreciation commences from the start of the year after the asset is added to the RAB.

123 However, for pricing purposes, smoothed price paths have been proposed (i.e., constant prices in real terms that are forecast to recover the revenue requirement in net present value (**NPV**) terms), so there will be no step ups of prices in PSE4 as projects are completed and enter the RAB.

PLEXIT

124 For completeness, CIAL is in discussion with Airways New Zealand (**Airways**) in respect of the PLEXIT assets from Airways to CIAL. The specific assets under discussion are airfield approach, runway and taxiway lighting, underground cabling, data cabling, power distribution centres and lighting control systems.

125 The discussions are not sufficiently advanced to include the associated capex in CIAL's PSE4 priced. If agreement is reached with Airways and any transfer of assets has material implications for capex or opex in PSE4, CIAL may consider repricing mid-PSE4. CIAL anticipates that any repricing would be limited to addressing changes in overall expenditure occasioned by the transfer of the PLEXIT assets.

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[14] Note that CIAL has erred on the side of including this as a "key capex project" despite not meeting the $5 million threshold as set out in the ID Determination. However, this was included as a minor project during CIAL's consultation.

[15] As above, note that this does not meet the $5 million threshold set out in the ID Determination for PSE4, however, it will meet this threshold over the life of the project.

F4: Depreciation

126 In PSE3, CIAL applied a "tilted annuity" approach to depreciation, departing from the standard depreciation method set out in the IMs. In PSE4 CIAL has continued to apply the "tilted annuity" approach.

127 We note that the IMs allow a non-standard depreciation approach as long as the relevant disclosures explain:

127.1 the non-standard approach that is applied;

127.2 how the non-standard approach meets the purpose of Part 4 of the Commerce Act 1986; and

127.3 the extent of customer disagreement with the approach, and the Airport's response to any disagreement.

128 The Commission has also proposed a set of principles to be added to the IMs and ID regimes, which inform how airports should approach depreciation.

Reasons for applying the titled annuity approach

129 CIAL's reasons for applying the tilted annuity depreciation method in PSE3 were two-fold:

129.1 First, following on from the way in which prices had been set in PSE2, a depreciation method that resulted in costs being recovered more gradually over time compared to standard depreciation was considered to better promote the efficient use of CIAL's aeronautical assets, as well as being in the interests of customers. CIAL's desire to recover its costs more gradually recognised the fact that there is substantial latent capacity in CIAL's terminal and airfield assets that can be applied to serve future demand growth, and so it is reasonable to reduce cost recovery in the short term and leave more to be recovered in future periods.

129.2 Second, compared to the method of depreciation applied in PSE2 (which was to set prices with reference to a 20 year levelised price path, so that depreciation was the residual), the tilted annuity method was substantially more transparent to customers,[16] and also more compatible with the Commission's broader IM requirements.[17]

130 During the PSE3 consultations, CIAL's substantial customers were generally supportive of the switch to tilted annuity depreciation, and strongly supportive of the application of tilted annuity depreciation in preference to straight line. The Commission also endorsed CIAL's use of tilted annuity depreciation as compliant with the IMs.[18]

131 For PSE4, the drivers for the application of tilted annuity depreciation remain largely unchanged, and indeed may have strengthened. In particular:

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[16] The tilted annuity depreciation method is described more fully below. An important input for the method is a "tilt factor", and through specification of this factor the method can be used to generate recovery of capital costs that are more back-ended than under straight line depreciation or which is more front-ended. The tilt factor that CIAL adopted in PSE3 – and again for PSE4 – generates a more back-ended recovery of capital costs than under straight line depreciation.

[17] More specifically, the PSE2 depreciation method resulted in aggregate amounts of depreciation for each pricing category, but the asset allocation requirements in the IMs effectively required depreciation to be allocated to each individual asset, hence the incompatibility.

[18] Commerce Commission*, Review of Christchurch International Airport's pricing decisions and expected performance* (July 2017 – June 2022) Final report, para. B29.

131.1 there remains material capacity to serve future demand in both CIAL's terminal and airfield assets, and so reducing the recovery from current customers – so that more remains to be recovered in the future – promotes both the efficient use of assets and intergenerational equity;[19]

131.2 in the current context, switching to straight line depreciation would imply a material increase in prices compared to tilted annuity depreciation, which may slow down recovery from the pandemic; and

131.3 holding constant the depreciation method, except where there is a compelling reason for change, will improve the predictability of CIAL's pricing over the long term, which should enhance the investment environment for the airlines, and ultimately benefit passengers.

132 In CIAL's PSE4 consultation there has been no customer disagreement with the tilted annuity depreciation approach.

133 The following table illustrates the practical difference between applying standard (straight line) depreciation and tilted annuity depreciation with the inputs discussed below. This indicates that straight line depreciation would have resulted in a materially higher allowable revenue and hence prices than what CIAL has proposed.[20]

Table 7: Priced service difference between standard and tilted annuity depreciation

	NPV	FY23	FY24	FY25	FY26	FY27
Tilted annuity depreciation - priced services	99.57	22.40	23.14	23.67	24.24	24.01
Straight line depreciation - priced services	132.30	30.77	31.10	31.13	31.14	31.68

Tilted annuity method and parameters

134 At a high level, under the tilted annuity approach, the depreciation allowance for each asset is calculated such that the sum of (1) the return on assets, and (2) the depreciation allowance (collectively, the capital charge) changes over time at a pre-set rate (holding factors like the WACC constant). The rate itself is specified as an input, and so the method can be used to generate a capital charge that increases over time, or that reduces over time. In PSE3, CIAL applied the method such that the capital charge would increase over time at approximately the same rate as demand (albeit with a conservative growth assumption), so that prices would be approximately constant inflation adjusted terms over time.[21]

135 The tilted annuity depreciation formula results in assets being depreciated once over the life of the asset in question (i.e., in common with the other standard approaches to

[19] In terms of intergenerational equity, the analysis CIAL undertook for PSE3 showed that straight line depreciation was projected to create prices that commence high, and that reduce steeply in inflation adjusted terms over time as asset utilisation increases, whereas tilted annuity depreciation was projected to generate a time-path of prices that is materially more "level" in inflation adjusted terms (holding things like the WACC constant). Thus, the switch in depreciation methods was found to be likely to result in future prices being "less lower" than otherwise.

[20] The depreciation figures shown here are the results of the depreciation calculation prior to applying timing factors.

[21] The effect on overall prices is only approximate. Retired and replaced assets, taxation and trends in per unit will also affect the price, and the price will also change with adjustments to the WACC.

depreciation). This implies that the method is NPV neutral compared to alternative depreciation methods.

136 The two specific inputs required for the tilted annuity depreciation method as CIAL has applied it are:

136.1 the tilt factor, which is specified in real (inflation adjusted) terms; and

136.2 the WACC, which is also specified in real (inflation adjusted) terms.

137 In terms of the tilt factor, in PSE3 CIAL applied a tilt factor of 1.5 per cent (real), which was the result of trading off:

137.1 the objective for prices to be as constant as possible in inflation adjusted terms over time; whilst

137.2 not exposing CIAL to excessive stranded asset risk.

138 The tilt factor of 1.5 per cent was selected as a conservative view of the long-term rate of passenger growth. For PSE4, CIAL has applied the same tilt factor, noting that:

138.1 the expected long-term rate of passenger growth is largely unchanged; and

138.2 the longer-term risk of asset stranding is similar to, and possibly higher than, it was at the time of the PSE3 pricing decision, with the latter reflecting the new information on the impacts of climate change and the greater clarity on the likely measures that policy makers may take in response to climate change.

139 The inputs to the tilted annuity method are set out in Table 8 below.

Table 8: Inputs of tilted annuity method

Input	Value
Real WACC	4.37%
Real tilt factor	1.50%

F5: WACC and forecast inflation

140 CIAL's final WACC (in post-tax nominal terms) for PSE4 is 6.65%. In setting WACC for PSE4, CIAL has applied all of the Commission's inputs for WACC parameters, with the exception of cost of debt/credit rating and the tax adjusted market risk premium (**TAMRP**). This approach effectively takes the Commission's best estimate of a reasonable rate of return and then adjusts it in two cases for CIAL's specific circumstances.

141 Despite reservations as to whether it properly captures all risks that apply to airports, CIAL has applied the estimated asset beta as set out in the IMs.

Cost of debt/credit rating

142 CIAL has applied its own credit rating of BBB+ (rather that the standard assumption of A- in the IMs) when deriving the debt risk premium in its WACC calculation.

143 In CIAL's view, a BBB+ credit rating is more relevant to CIAL's specific circumstances. The Commission accepted CIAL's use of its own credit rating for this purpose in its review of CIAL's PSE3 pricing decision. As CIAL noted in the PSE3 pricing proposal, there are a number of reasons as to why CIAL is unable to maintain the credit rating assumed in the IMs even though its level of financial leverage is similar to the IMs' benchmark, which include CIAL's:

143.1 small size relative to the international sample of airports applied to derive the benchmark asset beta and leverage assumption;

143.2 exposure to leisure traffic; and

143.3 the repeated exposures to natural disasters, including the Canterbury earthquakes and now the Covid-19 pandemic, and their impact on CIAL's underlying credit metrics.

144 In relation to the debt risk premium, CIAL applied the Commission's most recent estimate of the BBB+ debt risk premium that spans the five-year period ending with 28 February 2022 as part of its price reset for the gas pipeline businesses.[22]

TAMRP

145 In setting prices for PSE4, CIAL applies the Commission's most recent estimate of the TAMRP, being 7.5%. CIAL considers this to be appropriate because:

145.1 This figure was applied in both the Fibre IMs[23] and in an amendment to the Gas IMs in the course of setting the current default price-quality path.[24] There is no reason in principle why the same TAMRP would not apply to airports.[25]

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[22] This being a more recent value than CIAL applied in its initial proposal, which spanned the five years to the end of June 2021.

[23] Commerce Commission (October 2020), Fibre Input Methodologies: Main final decision – reasons paper, at [6.535].

[24] Gas Transmission Services Input Methodologies Amendment Determination (No. 1) 2022 [2022] NZCC 6 at 2.4.2(7) (25 March 2022).

[25] The Commission said in its Reasons Paper on *Amendments to input methodologies for gas pipeline businesses related to the 2022 default price-quality paths – weighted average cost of capital* (25 March 2022) at [3.10]: "the TAMRP is an economy wide parameter and therefore should be the same across all sectors".

145.2 While the regulatory periods in these sectors are shorter (four years for gas and three years for fibre) the Commission was explicit that its new TAMRP for gas pipeline businesses was unaffected by the length of the regulatory period.[26]

145.3 The ID Determination specifically contemplates departures from the Commission's IM compliant mid-point estimate of WACC where that can be justified.[27] CIAL considers that this departure can be justified given that, for the reasons set out above, we expect the updated TAMRP of 7.5% will be used in the Commission's revised airport IMs, which are due to be finalised in December 2023. CIAL applied the Commission's most recent estimate of the TAMRP when determining its prices, which is the value of 7.5%, as applied in the IMs for the regulated fibre providers.

Forecast inflation

146 The calculation of CIAL's prices is based upon the prices over PSE4 and the RAB, incorporating a forecast inflation, with the actual RAB over the course of PSE4 to be updated for actual inflation. CIAL has, like in PSE3, applied the Commission's preferred method to forecast inflation over the course of PSE4, which is to:

146.1 apply actual CPI to the extent this exists, as published by Statistics NZ;

146.2 use the RBNZ's forecasts of CPI inflation (the headline measure) for the duration of these forecasts; and

146.3 assume a transition in CPI to the midpoint of the RBNZ's target range (being 2 per cent) in cases where the last year of forecasts produced by the RBNZ is materially different to this midpoint.

147 In addition, CIAL has also followed the Commission's standard practice of using:

147.1 the forecast of inflation over each particular year to forecast revaluation gains and in related calculations (such as the application of the tilted annuity depreciation method); and

147.2 the forecast change in the average of the four quarters of CPI in one year compared to the previous year as the basis for setting prices and for escalating expenditure forecasts.

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[26] Reasons Paper on *Amendments to input methodologies for gas pipeline businesses related to the 2022 default price-quality paths – weighted average cost of capital* (25 March 2022) at [3.19].

[27] ID Determination, clause 2.5(h) and (i).

F6: Forecast operating costs

148 CIAL forecasts the following pricing opex for each year in PSE4 ($m):[28]

Table 9 – Forecast operating costs[29]					
Opex cost components	**FY23**	**FY24**	**FY25**	**FY26**	**FY27**
Wages	13.06	13.25	13.59	13.92	14.27
Cleaning	3.07	3.04	3.13	3.23	3.32
Rates	1.33	1.37	1.44	1.51	1.59
Insurance	3.75	3.90	4.10	4.31	4.53
Electricity	1.16	1.16	1.17	1.19	1.21
Other costs	10.52	9.85	10.00	10.14	10.29
Total	**32.89**	**32.56**	**33.43**	**34.30**	**35.21**

149 CIAL forecast its PSE4 operating costs by:

149.1 starting with its budget FY23 and FY24 opex costs (these are projected at a granular level as part of CIAL's business plan); and

149.2 increasing those costs based on assumptions about how CIAL's input prices would change relative to movements in the CPI, as explained further below. CIAL assumed that it could meet cost increases associated with increasing demand through productivity improvements.

150 Moving forward, CIAL's focus remains on keeping opex growth at or below CPI where possible, whilst understanding the following three aspects of each opex category that will ultimately drive the actual cost outcomes over PSE4:

150.1 changes to underlying input costs;

150.2 changes in opex related to increased passenger and aircraft activity within the terminal/airfield; and

150.3 efficiency and productivity improvements to offset opex increases where possible.

Opex experience

151 CIAL observed during PSE3 that, up until the pandemic period, CIAL's opex was essentially as forecast, reflecting the relatively fixed nature of CIAL's opex base, incorporation of efficiencies achieved during PSE2, and major cost increases outside of CIAL's control such as rates and insurance. During the pandemic period (FY21 and 22), opex was lower than forecast, reflecting a cessation of discretionary expenditure and reduced activity at the Airport.

152 However, as we move into the first year of PSE4, CIAL expects that terminal and airfield opex will return to levels reflective of recovering passenger activity and also reflective of new focuses on health and safety requirements (and additional cleaning requirements), whilst also

[28] CIAL has applied the same method of allocating operating expenditure between its pricing and other activities, with an appropriate allocator consistent with ID requirements and as explained further in this section. Note that these figures exclude airline-specific incentives, as discussed in Part D2 above and Part F6 below.

[29] The figures used in this table are amounts that are attributable to pricing (i.e., in inflated terms).

incorporating efficiencies achieved over this period and the need to accelerate any deferred maintenance or other essential activities.

Forecast opex assumptions

153 CIAL has forecast its opex in line with the IMs, using the following assumptions:

Personnel

154 CIAL has assumed that base pay rates will increase on average between 2.0% to 2.5% per annum for FY23 to FY24 and then increase by forecast long term wage growth of 2.5% for FY25 to FY27 (noting this is lower than current Treasury forecasting based on the nature of CIAL's workforce). CIAL has applied this as an assumed real increase in wages of 0.5% per annum.

155 Whilst we would expect operational and service head count to potentially need to increase during FY25-FY27 as activity recovers to beyond pre-Covid-19 levels, we believe that operational efficiency gains will be able to offset that, so have assumed no change in head count throughout PSE4.

Contracted costs

156 Contracted costs include the following components:

156.1 *Rates:* CIAL has calculated this using current rates plus a forecast increase of 5.0% per annum from FY23 onwards, as outlined in the Christchurch City Council's latest 10-year Long Term Plan out to 2031. CIAL has applied this as an assumed real increase in rates of 3.0% per annum.

156.2 *Insurance:* CIAL has calculated this on the basis of its latest insurance renewal, increasing by 5.0% per annum each year during PSE4. This is based on indicative market analysis and feedback, which highlights premium increases of at least 5% p.a. for the aviation sector over the next five years. CIAL has applied this as an assumed real increase in rates of 3.0% per annum.

156.3 *Cleaning:* CIAL outsources its cleaning services. Under its current contracted arrangements, it has been agreed that underlying rates will increase in line with expected living wage increases over the period of PSE4. As the level of passenger activity increases in the terminal from FY23 onwards, together with the need for additional cleaning as a result of Covid-19 protocols, we would expect the level of cleaning activity to also increase. However, CIAL believes that it will be able to minimise any further cost increases through a more focused approach to cleaning and the use of better technology to offset cost increases through more efficient processes. So, overall, we are forecasting just the base cost unit increase of 3% per annum. CIAL has applied this as an assumed real increase in rates of 1.0% per annum.

156.4 *Energy:* market indicators are that wholesale power prices should remain stable over the PSE4 period. However, retail prices will likely increase to cover network costs of investment in renewable infrastructure and future proofing. Therefore, CIAL has assumed that overall electricity prices will increase in line with long term CPI of 2% on average. As the level of passenger activity increases in the terminal from FY23 onwards, CIAL expects its energy usage to remain relatively stable given the nature of the terminal and fixed energy requirements. Furthermore, CIAL will continue to focus on significant energy savings that have been made across the terminal during PSE3 and further reduce overall energy usage. This leads to a forecast overall increase of 1.5% p.a. on average across PSE4. CIAL has applied this as an assumed real decrease in energy costs of 0.5 per cent per annum.

Aeronautical development/marketing

157 CIAL's forecast general aeronautical development / marketing costs are set based on its current plans for PSE4 (and CIAL's demand forecast will take account of the same forecast marketing spend).

Other costs

158 CIAL has forecast other costs (including maintenance, corporate and administrative costs) based on current levels, increasing each year with a CPI of 2% on average. CIAL will continue to focus on efficiency gains in relation to these costs. This will lead to an overall increase of 1.5% p.a. on average across PSE4. CIAL has applied this as an assumed real decrease in energy costs of 0.5% per annum.

PLEXIT

159 As noted above, CIAL is discussing with Airways the possible transfer of power and lighting assets from Airways to CIAL. We note that if this has a significant impact on CIAL's opex, CIAL may look to reprice during PSE4.

F7: Marketing and incentives

160 CIAL undertakes two forms of market stimulation:

160.1 direct expenditure on general marketing activities, covering aeronautical development and marketing, including promotion of destinations and routes and general marketing of the Airport itself; and

160.2 bilateral arrangements with airlines that agree rebates (or similar) to encourage the establishment of new services/routes or capacity.

161 CIAL's view is that the active promotion of growth in traffic through the Airport – including through the active encouragement of new services or re-building existing services – is in the long-term interests of passengers, our ultimate customers.

162 Only the costs of the first kind of market stimulation are included in CIAL's PSE4 pricing model. This approach has been consistently applied across both PSE2 and PSE3 pricing models based on feedback from our airline customers previously.

163 CIAL's demand forecasts were made on the basis of both of these marketing stimulation activities occurring, meaning CIAL's forecast demand growth is consistent with CIAL's marketing plans.

Optional further marketing and pricing incentives

164 During PSE4, CIAL may spend additional amounts on general marketing, airline specific marketing or discounts to particular airlines – all aimed at increasing demand.

165 Decisions on this additional marketing and incentives will be made by CIAL during the pricing period and are irrelevant to CIAL's building blocks pricing model or PSE4 Information Disclosure for priced services. However, CIAL will disclose "pricing incentives" and "other incentives" each year as part of its annual disclosure. This will also be included in the Commission's IRR calculation (as required by the IMs).

166 This approach is consistent with the ID regime and the IMs. It is common practice for airports to discount within a pricing period in an attempt to increase demand. We note the Commission has previously identified that discounts to increase demand can be efficient and will benefit all airlines in the medium to long term.

167 Where pricing incentives are included in the Commission's IRR calculation, but excluded from the pricing model (as was the treatment for PSE3), then the Commission's calculated IRR will be lower than the WACC used in the pricing model. Whatever the treatment, Part D of this document shows IRR forecasts across both priced and regulated services as a whole, so any difference is transparent.[30]

[30] CIAL also disclosed to substantial customers the effect on IRRs of excluding the airline-specific incentives during consultation on the pricing proposal.

F8: Tax

168 CIAL forecast its tax allowance for PSE4 in accordance with the IMs. As such:

168.1 CIAL has forecast tax as it would apply to its full allowable revenue;

168.2 all forecast opex is assumed to be tax deductible;

168.3 CIAL has calculated tax depreciation in line with the Inland Revenue Department's rates and methods, and in accordance with the IMs; and

168.4 as CIAL has applied the post-tax version of the WACC, the tax expense is calculated without considering interest deductions (in this version of the WACC, the benefit from the tax deductibility of interest is built into the WACC, reflecting the benchmark gearing and cost of debt).

APPENDIX A: CIAL'S PSE4 CONSULTATION PROCESS

169 CIAL's consultation process with substantial customers involved the following steps:

169.1 On 24 January 2022, CIAL sent out its initial proposal and model, prepared with assistance from independent experts Incenta and Redwater Consulting Group, for substantial customers' consideration and feedback.

169.2 Substantial customers were given the opportunity to provide feedback on CIAL's proposed consultation timetable and request briefings by 31 January 2022. No substantial customers provided feedback.

169.3 CIAL's substantial customers were given until 14 February 2022 to ask specific clarification questions regarding CIAL's initial proposal.

169.4 On 15 February 2022, the Board of Airline Representatives New Zealand Inc (**BARNZ**):

(a) requested a briefing on CIAL's major capex items; and

(b) asked nine specific clarification questions regarding CIAL's model. CIAL engaged Incenta to provide written clarifications.

170 On 23 February 2022, representatives from BARNZ attended a virtual briefing regarding CIAL's major capex items at the Airport. CIAL prepared a PowerPoint presentation for this meeting, which largely reiterated the information provided in the initial proposal.

171 On 24 February 2022, Freightways asked two specific clarification questions regarding CIALs model.

172 On 4 March 2022, CIAL sent all of its substantial customers answers to the clarification questions raised by BARNZ and Freightways.

173 On 16 March 2022, representatives from Air NZ also attended a briefing regarding CIAL's major capex items.

174 In the initial proposal, CIAL's substantial customers were given until 1 April 2022 to provide substantive feedback. All substantial customers requested extensions to the deadline to provide substantive feedback, which CIAL granted.

175 CIAL received the following written feedback from substantive customers on the initial proposal:

(a) 6 April 2022: feedback from BARNZ (ten pages);

(b) 7 April 2022: feedback from Qantas (two pages);

(c) 8 April 2022: feedback from Air NZ (three pages); and

(d) 12 April 2022: feedback from Freightways (three pages).

176 On 16 May 2022, CIAL sent its revised proposal and model, prepared with assistance from Incenta for substantial customers' consideration and feedback.

177 CIAL received the following written feedback from substantial customers on its revised pricing proposal:

(a) 25 May 2022: Freightways confirmed it was comfortable with the revised pricing proposal;

(b) 6 June 2022: feedback from Qantas (one page);

(c) 8 June 2022: feedback from Air NZ (one page); and

(d) 14 June 2022: feedback from BARNZ (three pages).

178 CIAL engaged Incenta to review CIAL's model for its final decision, in response to feedback received from substantial customers.

APPENDIX B: GLOSSARY

$ means, unless otherwise specified, nominal/outturn New Zealand Dollars.

Air NZ means Air New Zealand.

Airways means Airways New Zealand.

Airport means Christchurch International Airport.

ASQ Survey is the passenger satisfaction survey undertaken by CIAL.

BARNZ means Board of Airline Representatives New Zealand Inc.

Capex means capital expenditure.

CIAL means Christchurch International Airport Limited.

Commission means the New Zealand Commerce Commission.

CPI means Consumer Price Index, which provides a measure of inflation.

Disclosure RAB means the assets used to provide all specified airport activities. This comprises a broader set of assets than the PSE4 pricing RAB.

Freightways means Freightways Group.

FY means (unless otherwise specified) CIAL's financial year, which runs from 1 July to 30 June.

Information Disclosure (or **ID**) means, depending on context:

- the information disclosure regime and requirements set out by the ID Determination; or
- disclosure of information by CIAL in accordance with the information disclosure regime.

ID Determination means the Commission's Decision 715: Airport Information Disclosure Determination 2010.

IMs means the Input Methodologies set out in the Commerce Act (Specified Airport Services Input Methodologies) Determination 2010.

Incenta means Incenta Economic Consulting.

IRR means the internal rate of return used by the Commission to assess airports' profitability, as explained in Part D.

ITB means CIAL's Integrated Terminal Building, which refers to the international and domestic non-Regional Lounge terminals.

MCTOW means, in relation to an aircraft, the maximum certified take-off weight of the aircraft and its contents, at which the aircraft may take off in New Zealand.

Non-passenger aircraft means any aircraft that is not a passenger aircraft.

NPV means net present value.

Opex means operating expenditure.

Passenger(s) means any person carried on an aircraft with the exception of:

- infants younger than two years old; and
- the flight crew and cabin staff operating the flight.

Passenger aircraft means any commercial aircraft operated for the purpose of transporting one or more passengers to or from CIAL's terminal building (including the Regional Lounge) and adjacent apron.[31] Passenger aircraft will typically exclude aircraft:

- operating for military, medical or Antarctic purposes;
- being used for general aviation (unless passengers are embarking or disembarking aircraft from the terminal building); and
- to the extent that they are only repositioning and not carrying passengers.

Non-priced services mean the activities that fall within the breadth of Information Disclosure, but are subject to individually negotiated prices, namely aircraft and freight activities, the lease for the regional terminal and the lease of other areas behind security (for example, airline lounges), and certain leases of airfield facilities (such as the land and buildings occupied by Avsec).

PLEXIT means the power and lighting assets which CIAL is discussing acquiring from Airways. The specific assets under discussion are airfield approach, and runway and taxiway lighting, underground cabling, data cabling, power distribution centres and lighting control systems.

Price setting event (or **PSE**) has the meaning set out in the ID Determination.

PSE3 means, depending on context:

- CIAL's third PSE, which set prices for the period 1 July 2017 to 30 June 2022; or
- the pricing period from 1 July 2017 to 30 June 2022.

PSE4 means, depending on context:

- CIAL's fourth PSE, which set prices for the period 1 July 2022 to 30 June 2027; or
- the pricing period from 1 July 2022 to 30 June 2027.

PSE4 pricing RAB means CIAL's RAB for pricing services for PSE4.

RAB means regulatory asset base.

Regional Lounge means the downstairs lounge at the Airport subject to a commercial lease between CIAL and Air NZ.

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[31] If you are unsure whether an aircraft (given a particular use or category or uses) will classify as a passenger aircraft, please contact CIAL.

Substantial customer means a substantial customer of CIAL as defined by section 2A of the Airport Authorities Act 1966.

TAMRP means the (tax adjusted) market risk premium, as discussed in Part F5.

Terminal price means the price (as set out in Part B) that applies to any passenger (not seat):

- arriving from, or departing to, Auckland, Wellington or any international destination; or
- boarding or disembarking any aircraft through CIAL's ITB.

Terminal price - regional services means the price that applies to passengers to whom the terminal price does not apply.

Transferring passenger means:

- a passenger who arrives at the Airport, changes planes and departs on a connecting flight;
- the arriving and departing flights are on the same itinerary; and
- the passenger has a less than 24 stopover at the Airport.

WACC means the weighted adjusted cost of capital used to calculate CIAL's allowable revenue, as discussed in Part F5.