Malaysian
Aviation Commission
Suruhanjaya Penerbangan Malaysia

Regulation of Aviation Service Charges – First Consultation Paper

August 2022

Malaysian Aviation Commission
Suruhanjaya Penerbangan Malaysia
MAVCOM

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GLOSSARY

Abbreviations	
ACC	Airport Consultative Committee
Act 771	Malaysian Aviation Commission Act 2015 [*Act 771*]
AFRS	Airport Fire Rescue Service
AGL	Airfield Ground Lighting
AICC	Assets in the course of construction
Airport REIT	Airport Real Estate Investment Trust
ASQ	Airport Service Quality
AVSEC	Aviation Security
bbl	barrel
BHS	Baggage Handling System
BIMP-EAGA	Brunei, Indonesia, Malaysia, the Philippines & Timor Leste – East ASEAN Growth Area
BP	Business Plan
capex	Capital expenditure
CAGR	Compounded Annual Growth Rate
CAPM	Capital Asset Pricing Model
CCR	Constant Current Regulator
CCTV	Closed Circuit Television
CP	Contact Pier
CIP	Capital Investment Plan
Commission	Malaysian Aviation Commission
EPS	Electrical Power Systems
F&B	Food & beverages
FIDS	Flight Information Display System
FTE	Full time employee
GAS	Gate Allocation System
GDC	Gas District Cooling
GDP	Gross domestic product
GLC	Government-linked company
GoM	Government of Malaysia
GPU	Ground Power Unit
HQ	Headquarters

Abbreviations

ICAO	International Civil Aviation Organisation
ILHBS	In-line Hold Baggage Handling System
IMT-GT	Indonesia-Malaysia-Thailand Growth Triangle
KUL	Kuala Lumpur International Airport
LOS	Level of Service
MA	Management Agreement
MA Sepang	Malaysia Airports (Sepang) Sdn Bhd
MA (Niaga)	Malaysia Airports (Niaga) Sdn Bhd
MAHB	Malaysia Airports Holdings Berhad
MASB	Malaysia Airports Sdn Bhd
MAVCOM	Malaysian Aviation Commission
MGP	Minimum Guaranteed Payment
MGS	Malaysian Government Securities
Minor Repex	Minor repair expenditure
MoT	Ministry of Transport
mppa	Million passengers per annum
MTB	Main Terminal Building
NAP	National Aviation Policy
NPV	Net present value
OA	Operating Agreement
Opex	Operating Expenditure
PBB	Passenger boarding bridge
pax	Passenger
PCA	Preconditioned Air Unit
Peninsular	Peninsular Malaysia
pph	Passengers per peak hour
PSC	Passenger Service Charge
PSSC	Passenger Security Service Charge
QoS	Quality of Service
R&M	Repairs and Maintenance
RAB	Regulated Asset Base
Repex	Repair expenditure
RET	Rapid Exit Taxiway
RM	Ringgit Malaysia

Abbreviations	
RP1	First regulatory period
RP2	Second regulatory period
SATS	Senai Airport Terminal Services Sdn Bhd
SITC	Supply Installation Testing Commissioning
STOLports	Short Take-off and Landing Ports
TMDSB	Tanjung Manis Development Sdn Bhd
TTS	Track Transit System
UOP	Unit of Production
USD	United States Dollar
User-pay principle	A framework where the user pays for airport infrastructure
WACC	Weighted average cost of capital
VDGS	Visual Docking Guidance System
YoY	Year-on-Year

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AIRPORT CODES

No.	Airport code	Airport name	No.	Airport code	Airport name
1	AOR	Sultan Abdul Halim Airport, Alor Setar	14	LDU	Lahad Datu Airport
2	BKI	Kota Kinabalu International Airport	15	LGK	Langkawi International Airport
3	BTU	Bintulu Airport	16	LMN	Limbang Airport
4	IPH	Sultan Azlan Shah Airport, Ipoh	17	MKZ	Melaka Airport
5	JHB	Senai International Airport	18	MYY	Miri Airport
6	KBR	Sultan Ismail Petra Airport, Kota Bharu	19	MZV	Mulu Airport
7	KCH	Kuching International Airport	20	PEN	Penang International Airport
8	KTE	Kertih Airport	21	SBW	Sibu Airport
9	KUA	Sultan Ahmad Shah Airport, Kuantan	22	SDK	Sandakan Airport
10	KUL	Kuala Lumpur International Airport	23	SZB	Skypark Terminal Sultan Abdul Aziz Shah Airport, Subang
11	KUL-T1	Kuala Lumpur International Airport Terminal 1	24	TGG	Sultan Mahmud Airport, Kuala Terengganu
12	KUL-T2	Kuala Lumpur International Airport Terminal 2	25	TWU	Tawau Airport
13	LBU	Labuan Airport			

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FIGURES

1.0 INTRODUCTION

Under section 46 of the Malaysian Aviation Commission Act 2015 (Act 771), the Malaysian Aviation Commission (the Commission) is responsible for the economic regulation of aviation service charges in Malaysia, which includes the power to set airport[1] aeronautical charges[2] such as the passenger service charge (PSC)[3], landing fees and aircraft parking fees.

The Commission is developing a framework to set aviation services charges at airports in Malaysia. The COVID-19 pandemic, and government health orders and policies responding to it, have had an unprecedented negative impact on the numbers of people flying. While there are signs of recovery, forecasting exactly when, and if, demand for air travel will return to pre-pandemic levels is challenging.

Under business-as-usual conditions, price controls tend to be focused on promoting efficiency. However, in the current situation, the Commission considers that managing uncertainty is likely to be more important. Demand is extremely difficult to forecast and the aviation sector will continue to face a slow and uneasy recovery. The Commission considers that traditional cost-based approaches to setting prices are not suitable nor practical at present. With low levels of demand, average costs could rise significantly and to levels that the market will likely not be able to bear, further exacerbating the issue.

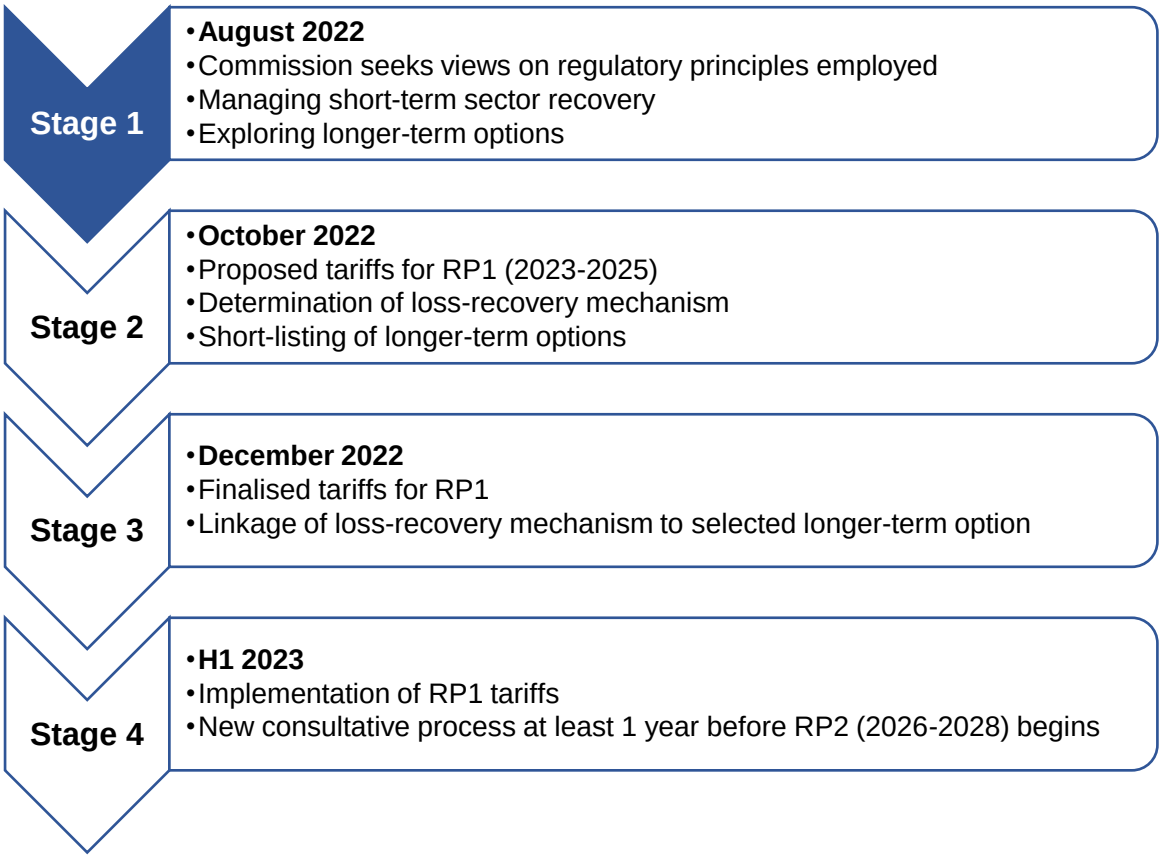
The Commission has endeavoured to strike a balance between these competing objectives. In the short term, the Commission is proposing that the regulatory framework focus on encouraging air travel and supporting the recovery of the aviation sector from the COVID-19 pandemic. In the medium to long term, the Commission considers that the regulatory framework should encourage efficient airport investment and operation, allow the airport to recover its prudent and efficient cost, and allow the airport to remain financeable.

The purpose of this Consultation Paper is to set out the principles that the Commission must take into account when determining aviation services charges at airports in Malaysia. The Consultation Paper also sets out how the Commission is proposing to apply these principles to determine aviation services charges that will support the recovery of the aviation sector from the COVID-19 pandemic, and to determine the form of regulatory control that will apply to aviation services charges once air traffic has substantially recovered from the pandemic.

The Commission is inviting comments within 3 weeks of publication of this Consultation Paper; to be received by **5pm on Tuesday, 30 August 2022**.

[1] Airport refers to the definition of “aerodrome” as provided for in Act 771.
[2] Airport aeronautical charges refers to a category of charges within the “aviation services charges” as provided for in Act 771.
[3] Cited together with passenger security service charge (PSSC).

Consultative Journey



The Commission intends to extensively engage with stakeholders and to obtain as wide a view as possible. This is in reflection of the important nature of regulating the nation's airports and to ensure that the chosen method(s) are robust and equitable not just for the airport operator but for the airport users as well.

The Commission will also provide ample notice for future consultative sessions as well as sufficient time for submitting any responses, as detailed in this, and future documents.

2.0 BACKGROUND AND CONTEXT

Statutory basis

Section 46 of Act 771 states that the Commission shall have the power to do the following:

a) set charges, including maximum charges, or establishing the method for determination of such charges for aviation services;
b) carry out reviews of PSC, aircraft landing and parking fees, third party ground handling charges and other aviation charges at such intervals as the Commission decides; and
c) following such reviews, revise any charges set or method established as the Commission decides.

In exercising this function, the Commission must have regard to a number of factors, including:[4]

a) the costs of supplying aviation services;
b) the need to promote competitive charges;
c) any relevant international benchmarks for prices, cost and return on assets in comparable industries;
d) the financial implications which may arise from the determination of the Commission;
e) the consumer and investor interests; and
f) the return on assets for the licensees or permit holder.

The Commission shall also publish all the charges it determines in the gazette, as per section 46(4) of Act 771.

Context

Malaysia is one of several countries in the world which has an airport network structure, where one company operates and manages most of the commercial airports within a single ownership and control structure. The entity, Malaysia Airports Holdings Berhad (MAHB), manages and operates 39 out of the 42 commercial airports in Malaysia, including 18 STOLports. The remaining commercial airports are operated by SATS in Senai, Johor and Kerteh, Terengganu; and TMDSB in Tanjung Manis, Sarawak.

The capital expenditure (capex) responsibility under the Operating Agreement (OA) signed in 2009 is shared between the Government of Malaysia (GoM) and MAHB's two subsidiaries, MA Sepang and MASB. The split capex responsibilities between the GoM and MAHB is a unique arrangement. The GoM's default funding responsibility for airport development as stated in the OA has resulted in most of Malaysia's airport infrastructure being paid out of general GoM taxation revenues. Moreover, MAHB is required to obtain the approval of GoM

[4] Section 46(3) of Act 771.

for expansion or upgrade works at any particular airport before proceeding with the tender and award of projects.

The current OA also details a compensatory mechanism for MAHB called marginal cost support (MARCS). In accordance with the OA between the GoM and MAHB, the GoM compensates MAHB via the MARCS PSC scheme, which is a GoM restitution to MAHB for any difference between the actual PSC and the determined Benchmark PSC. The setting of PSC rates that are closer to the Benchmark PSC will reduce MARCS PSC payments and is also more in line with the GoM's intention of moving towards a user-pay mechanism.

For reference, the current Benchmark PSC[5] is as follows:

Airport / Terminal	Domestic	International
KUL-T2	8	40
All other airports/terminals	11	80

The benchmark PSC is increased every 5 years at the rate of CPI minus 0.1%[6].

The Commission takes note that the GoM has indicated it will sign a new OA with MAHB which would extend MAHB's operation for GoM-owned airport assets in Malaysia until 2069. The details of the OA, including the arrangements for funding capex and the possible elimination of the MARCS PSC mechanism, are still being determined.

Current aviation service charges

The domestic and international PSC was set at RM5 and RM40 respectively in 1998. The PSC underwent a few revisions, one of which was associated with the opening of a new terminal (LCCT in 2006). The latest revisions were affected in 2017 and 2018 when the ASEAN PSC was introduced at a rate of RM35. Meanwhile, the Beyond ASEAN and domestic PSC were set at RM73 and RM11 respectively. For landing and parking fees, these were raised in stages over a 3-year period commencing 2012. Those fees had not been reviewed for a total of 17 years prior to that.

All tariffs have been implemented on a uniform basis (with the exception of departures from secondary domestic airports to ASEAN destinations or to points in BIMP-EAGA and IMT-GT in the past). Routes operated under the Public Service Obligation (PSO) are exempt from PSC if it departs from a STOLport and operated with Twin Otter aircraft or similar.

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[5] MIDF Research, Malaysia Airports Holdings Berhad – 2QFY19 Results Review, 3 Sept 2019, p.2 (https://www.bursamarketplace.com/mkt/tools/research/ch=research&pg=research&ac=825811&bb=840827)

[6] Affin Hwang Capital, Malaysia Airports, 9 January 2020, p.3 (https://www.bursamarketplace.com/mkt/tools/research/ch=research&pg=research&ac=911894&bb=928324)

PSC Charge	Domestic	ASEAN	Beyond ASEAN
All Airports	11	35	73

Table 1 – Current PSC (RM) in Malaysia

MTOW (kg)	Fixed minimum charge	Subsequent 500kg
0 – 5,000	-	3.90
5,001 – 45,000	39	5.20
45,001 – 90,000	455	6.10
90,001 – 135,000	1,004	6.90
Above 135,000	1,625	7.40

Table 2 – Current landing fees (RM) in Malaysia

Description	Rate
For each period of 12 hours or any part of 12 hours and for the space occupied 10 square meters or part of 10 square meters	1.00
For the space occupied 10 square meters or part of 10 square meters	0.81

Table 3 – Current parking fees (RM) in Malaysia

It should be noted that the revision to PSC charges track closely to that of the 5-year periodical revisions to the Benchmark PSC rates which are stipulated in the OA between the GoM and MAHB. The last revision to the Benchmark PSC rates became effective on 12 February 2019[7]. As such, should the existing OA continue, the next revision should be effective on or before 12 February 2024.

[7] MAHB Annual Report 2021 Financial Statements, Note 2.4(z)(iv), pg. 55

International comparison of aviation service charges

In spite of periodic revisions, PSC in Malaysia for both domestic and international destinations still remain amongst the lowest regionally and globally. For instance, in comparison with other airports in ASEAN, the Malaysian domestic PSC of RM11 remains amongst the lowest compared to other ASEAN airports such as Jakarta, Bali, Bangkok, Manila, and Phnom Penh, with the only 3 airports with lower domestic PSC being Yangon, Haneda, and Vientiane. The equalisation of Beyond ASEAN PSC between KUL-T1 and KUL-T2 at RM73 took place in 2018. After the equalisation, Malaysia's international PSC of RM73 is still lower compared to Singapore and most major airports outside of ASEAN such as London, Dubai, Paris and Seoul.

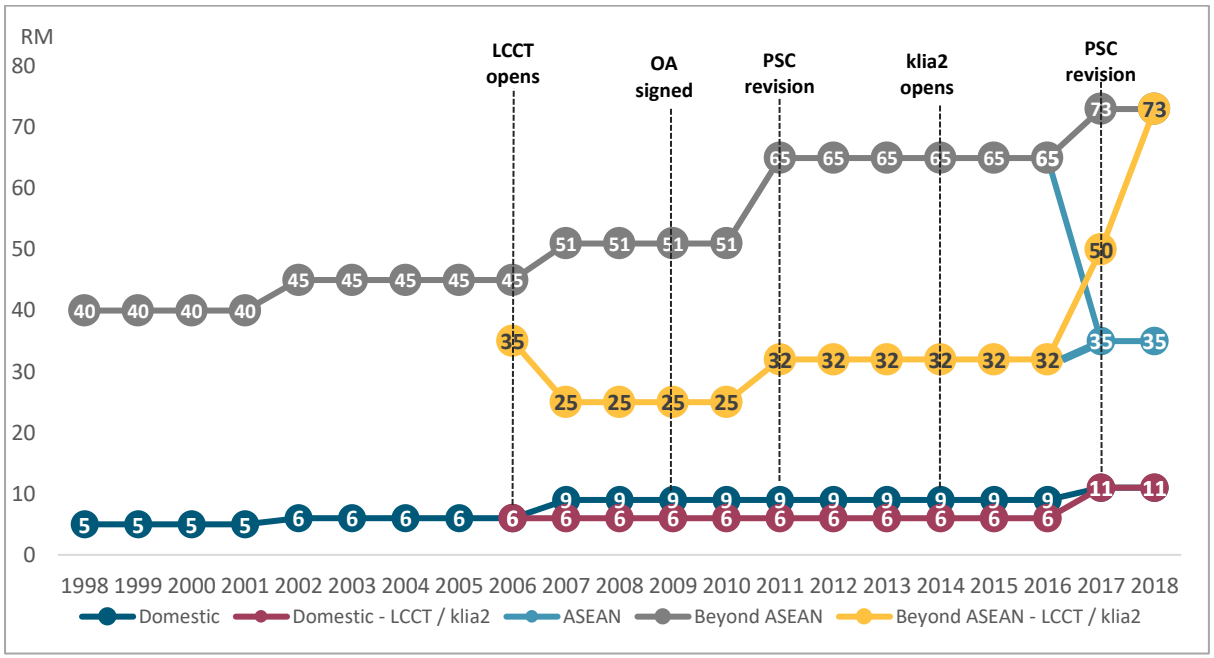

Figure 1 – Historical PSC in Malaysia
Source: MAVCOM

The Commission had also undertaken a comparison of charges on the basis of aircraft turnaround costs, which takes into consideration the PSC, landing and parking fees at airports regionally. The analysis was done based on A320 and A330 aircraft, as depicted in the figure below. It can be seen that KUL turnaround costs remain amongst the lowest in the region.

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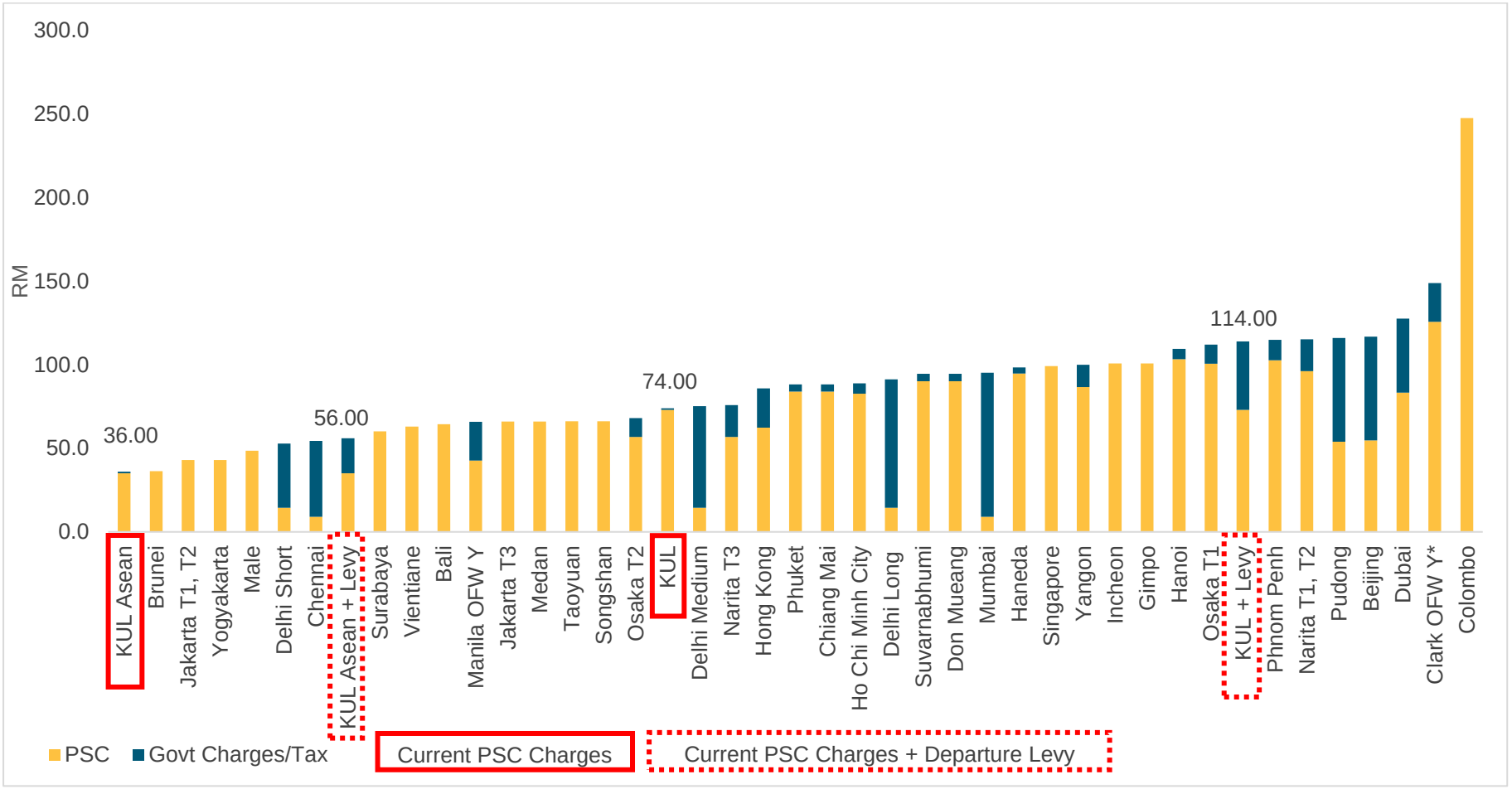

Figure 2 – International PSC benchmarking – Global as at 31 March 2019

Source: MAVCOM, airport websites

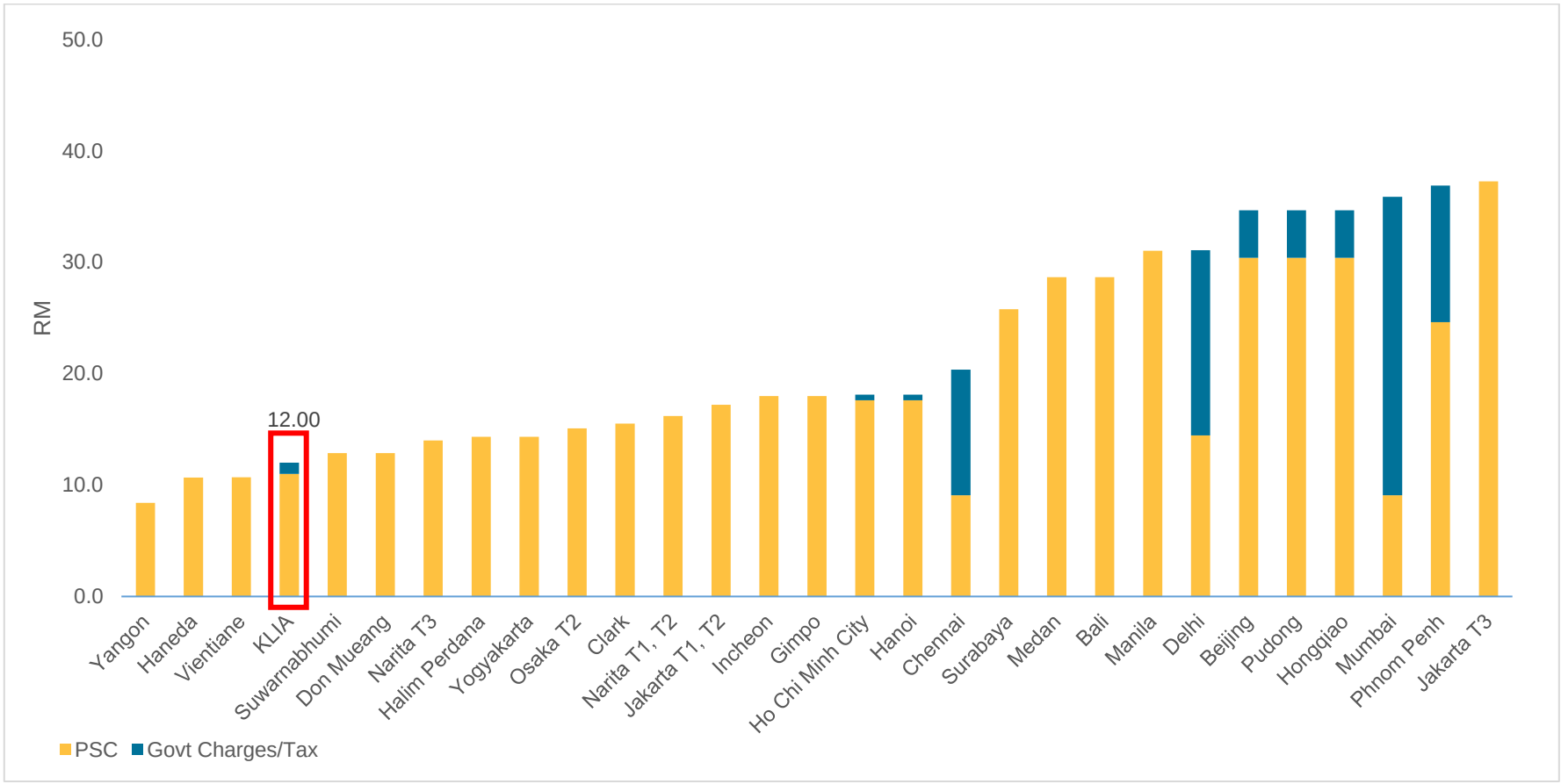

Figure 3 – Domestic PSC benchmarking – Global as at 31 March 2019
Source: MAVCOM, airport websites

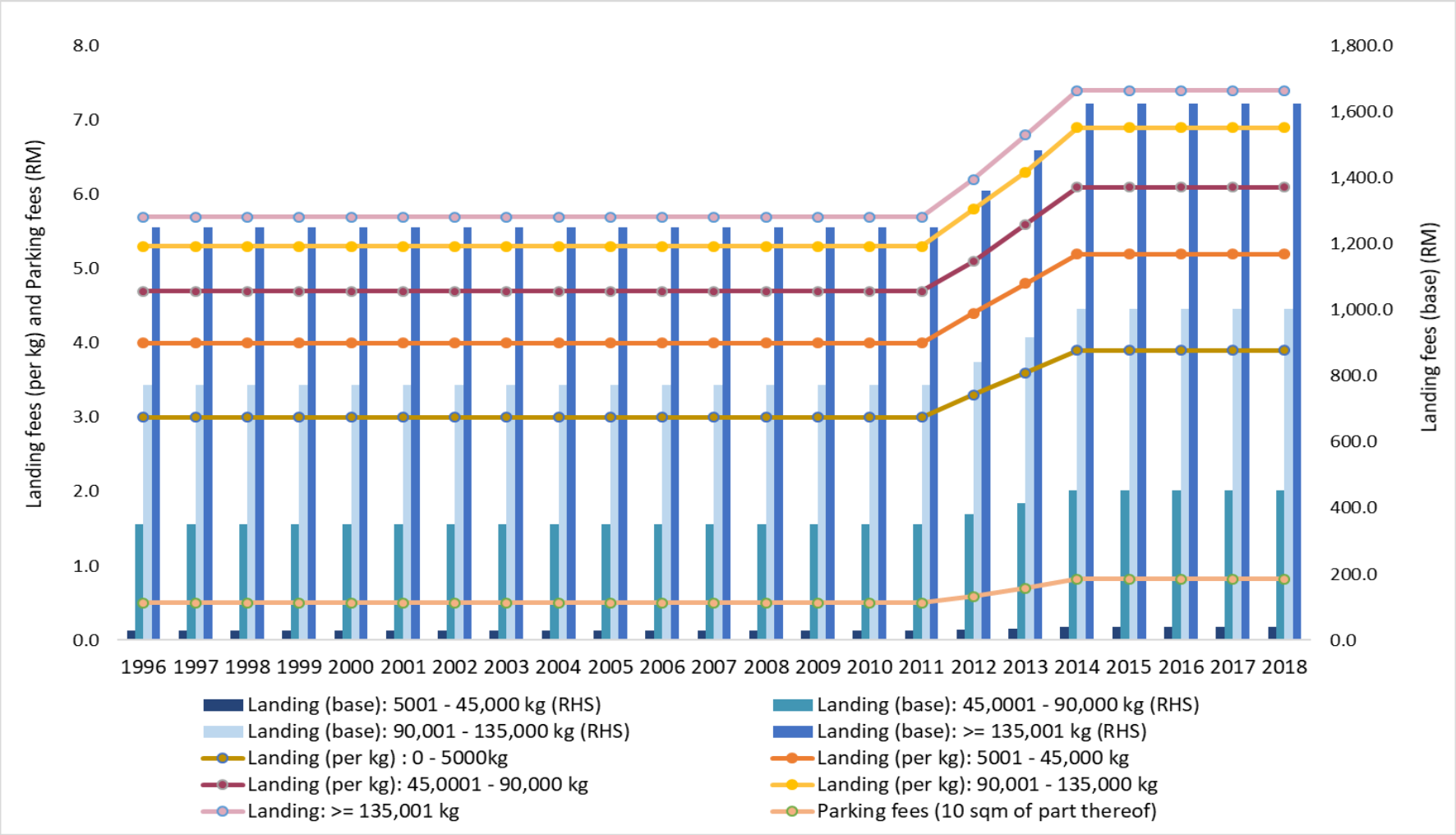

Figure 4 – Historical landing and parking fees in Malaysia

Source: MAVCOM

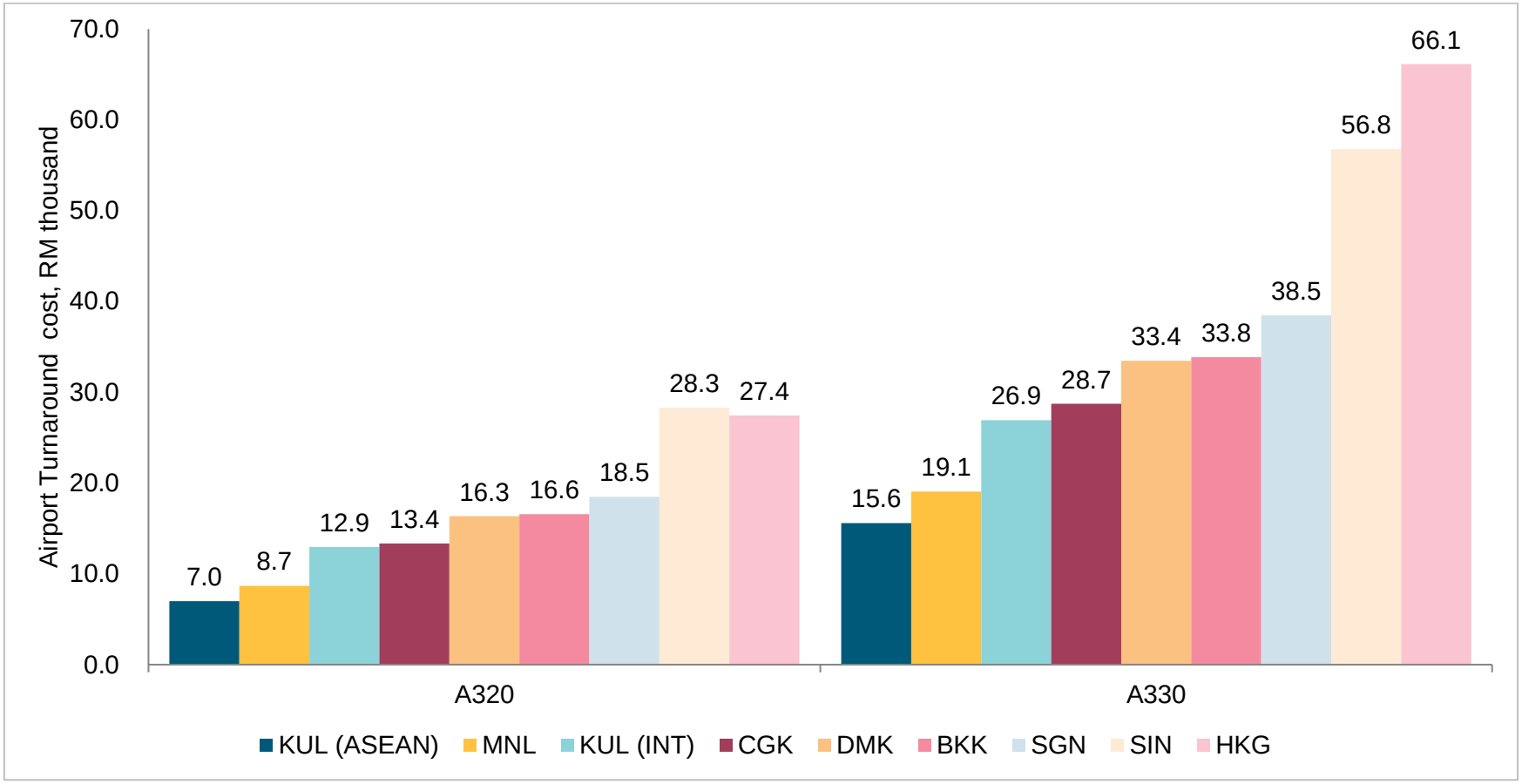

Figure 5 – Benchmark analysis on turnaround costs regionally

Source: MAVCOM, IATA Charges manual

3.0 REGULATORY PRINCIPLES

Functions of the Commission

In developing the regulatory framework for airports that operate in Malaysia, the Commission has had regard to the functions set out in section 17 of Act 771. This requires the Commission to regulate economic matters relating to the civil aviation industry:

- to improve **connectivity**, both globally and locally, so as to promote economic ties, integration and growth, and trade, investment and tourism. Connectivity is the ability and ease with which passengers can move from their origin to their destination by air. There are many factors that affect connectivity, and not all of these are regulated by MAVCOM. For current purposes, connectivity can be improved by incentivizing prudent and efficient investment in airport infrastructure and ensuring that airlines pay no more than the efficient cost for access to airport services;

- to encourage **effective competition** within the civil aviation industry by promoting an economic environment which allows Malaysian carriers to maintain their ability to compete effectively in the civil aviation market in a sustainably profitable, efficient and fair manner – The Commission interprets this clause to mean ensuring regulation does not unduly prevent efficient airline competition. This can be achieved by ensuring that airports provide aviation services at minimum cost (productive efficiency), provide the services that customers require and are willing to pay for (allocative efficiency), and adapts to change (dynamic efficiency). This function also suggests a need to undertake economic benchmarking to promote the 'hub' status of certain airports;

- to promote the **efficient, economic and profitable operation** of aerodromes and ground handling services, and to promote timely investments in the civil aviation industry to meet Malaysia's evolving demand and development needs – these functions are intrinsically linked and discussed further below; and

- to maximise the **economic value of any financial support** granted by the Federal Government to the civil aviation industry and to seek and promote ways to reduce any such financial support over time – The Commission interprets this clause to mean that any financial support provided by the government is invested prudently and efficiently. The regulatory framework should also ensure that airports (either individually or in aggregate) are financially sustainable over time to reduce the need for government support in the future.

How does the Commission define economic efficiency?

The primary objective of an airport price regulatory regime should be to prevent the airport from exploiting its market power in order to promote economic efficiency. The regulatory framework should ensure that:

- Airports produce services at the efficient long run cost, using optimal proportions of inputs such as capital and labour (**productive efficiency**). This can be achieved by ensuring that an airport invests in and operates its aviation services efficiently such that the average total service cost is minimized.

- Airports provide the right services to consumers at the right price (**allocative efficiency**). This can be achieved by ensuring that:

    - Over time an airport‘s prices should equate to the efficient costs of providing aviation services (both in overall level and in structure).

    - An airport‘s prices should lead to the efficient use of and investment in capacity over time. A price path that replicates competitive market outcomes would achieve this.

    - The airport delivers services that customers value at the right quality and price.

- Airports invest efficiently in the long term to improve its service and reduce its costs over time (**dynamic efficiency**). This can be achieved by ensuring that, over time, an airport‘s operating efficiency and the quality of the services it provides improves as a result of investment and innovation.

Broader principles of good regulation

In addition to these functions, the Commission considers that economic regulation should also meet broader principles of good regulation:

- **Proportionate** – The benefits of regulation (avoided efficiency loss) exceed the costs (regulatory burden and administrative costs).

- **Accountable** – Regulation should be independent, and decisions should be made transparently.

- **Focused** – Regulation should concentrate on protecting the interest of end users rather than specified inputs.

- **Predictable** – Regulation should be predictable, stable and objective; meeting these objectives will encourage appropriate investment.

- **Coherent** – Regulation should be consistent with policy.

- **Adaptable** – Regulation needs to be able to adapt to changing circumstance to remains relevant and effective over time.

The COVID-19 pandemic, and government public health orders and policies responding to it, have had an unprecedented negative impact on the numbers of people flying. While there are signs of recovery, forecasting exactly when, and if, aviation demand will return to 2019 pre-pandemic levels is challenging.

In addressing this, the Commission is mindful that the regulatory framework should be flexible in the face of significant uncertainty brought about by COVID-19 and give a reasonable degree of certainty to airport operators and airlines to help the sector's recovery. Malaysian airports compete (to varying degrees) with airports in other jurisdictions to attract airlines and passengers. Tariffs are an important factor for international airlines when deciding which routes to operate. Therefore, ideally tariffs would be as competitive as possible to boost the attractiveness of Malaysian airports in order to help support the recovery. However, the Commission must also ensure that airport operators remain financially sustainable. Operators should not find it unduly difficult to finance itself and to access cost-effective investment grade debt finance so that over the longer term it continues to make the right investments at the right time with efficient financing costs.

The Commission has referred to these principles in developing its recommendations for the regulatory framework to apply to Malaysian airports in the future.

Input Received to Date

The Commission has received the following policy parameters, among others, from the GoM up to October 2021, for its consideration in developing the long-term regulatory framework:

a) No equalisation of PSC rates between all airports under MAHB's purview in Malaysia;

b) PSC rates are to be determined based on market-based mechanisms; and

c) PSC rates are to be reviewed every three (3) years, taking into account market conditions, actual airport operating costs and MAHB's financial performance

The Commission seeks stakeholder feedback on the above policy parameters, and if they are appropriate to be incorporated into the long-term regulatory framework. Subject to stakeholder feedback, the Commission may use the policy parameters as side constraints to undertake adjustments required to conform to those parameters.

Question 1: What is your view of the GoM's suggested policy parameters for the Commission's consideration in developing its long-term regulatory framework? Are there any particular issues that may arise should they be incorporated? Are there any other parameters that the Commission should consider?

4.0 AVIATION SERVICES CHARGES FOR RP1 (2023 – 2025)

Introduction

In view of the next Benchmark PSC revision which would be effective on or before 12 February 2024 should the existing OA continue, the Commission would need to prepare for a revision in overall tariffs in the near term. The Commission thus proposes to have the first Regulatory Period (RP1) to take place from 2023 to 2025, subject to stakeholder feedback on the regulatory process and overall progress in developing the long-term regulatory framework.

In this section, the Commission describes its proposed approach to setting tariffs for RP1. This includes describing:

- **The Commission's view, which is that cost-based approaches to setting tariffs would be impractical for RP1**: The Commission considers that traditional cost-based approaches to setting tariffs are not suitable nor practical when demand is low and very uncertain – which is likely to be the case during RP1 as the sector continues its slow, unpredictable and uneasy recovery from the COVID-19 pandemic.

- **The Commission's proposal, which is to keep overall tariff levels for RP1 the same in real terms** as current levels in order to promote stability and support the sector's recovery from COVID-19.

- **Supporting mechanisms** that may be required.

    - Under the proposed RP1 approach it is likely (but not certain) that costs will be greater than revenues, and therefore a supporting **loss capitalisation mechanism** could help ensure that costs can be recovered over the longer term and that airport operators remains financeable;

    - The Commission is also interested in exploring with stakeholders whether there is appetite for an **ex-post review** of MAHB's expenditure during RP1 and/or a more flexible approach to **capex governance**. This would be to ensure that airport operators face strong efficiency incentives during RP1 whilst also ensuring that any necessary capital investment is not unduly delayed and is appropriately funded.

- Possible **options for restructuring charges:** the Commission has proposed some relatively minor restructuring of airport charges for RP1 based on feedback received from stakeholders.

Cost-based approaches to setting tariffs would be problematic

The key issue at the heart of RP1 is COVID-19. The pandemic has had an unprecedented impact on the Malaysian airport sector – and globally too. As shown below, total passenger volumes across MAHB airports fell from just over 100 million passengers in 2019 to around 10 million passengers in 2021, and the future is extremely uncertain. While MAHB has

produced a passenger forecast out to 2031, these forecasts need to be viewed with considerable caution.

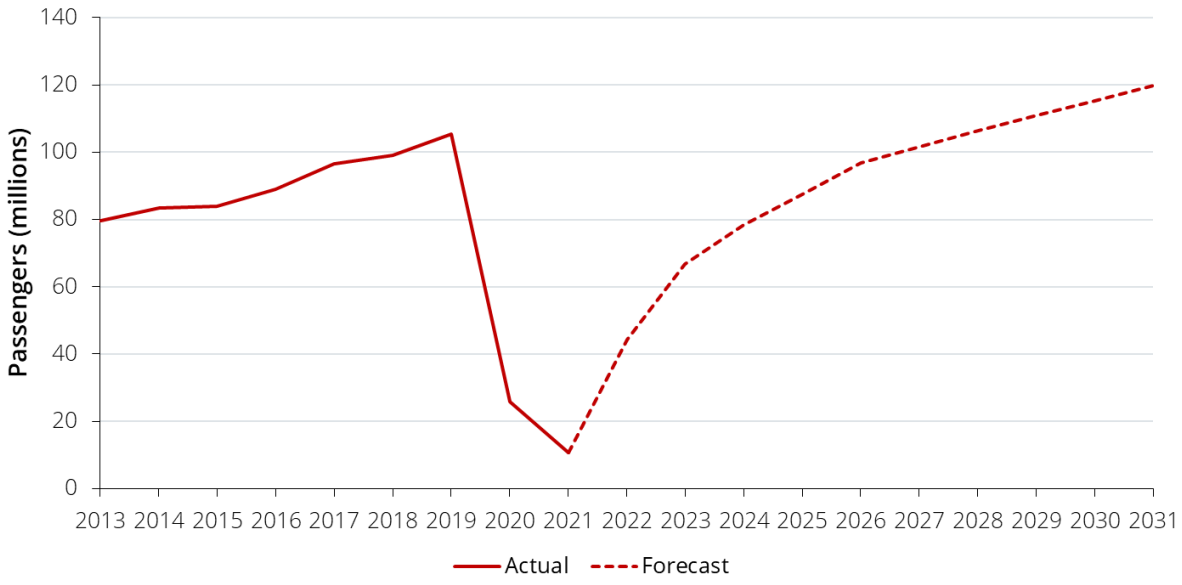

Figure 6 – Passenger forecast

Source: MAHB

Forecasting passenger volumes is challenging at the best of times, but with COVID-19 the task is orders of magnitude more difficult. Given this uncertainty, the Commission considers that it cannot forecast the outlook for the sector over the next 3 years with any real degree of confidence or robustness.

This puts significant pressure on commonly applied cost-based approaches to setting prices:

- **Forecasts:** A traditional 'building blocks' approach to regulation requires various forecasts to be produced. This starts with passenger and movement forecasts which then links to opex, capex, and commercial revenues. However, uncertainty around these forecasts has never been higher. Because of the uncertainty around new COVID-19 variants, it is not unreasonable to believe that over the coming years passenger volumes might end up being +/-50% of MAHB's forecasts presented above. Any forecast almost certainly will prove to be incorrect, possibly by a large margin, but the Commission cannot know today whether it will be too high or too low. Under such conditions, there is a significant risk of understating or overstating MAHB's average costs.

- **Rising average costs:** Even if the Commission could produce accurate forecasts, a cost-based approach to regulation would likely result in a significant increase in tariffs. Airports with spare capacity generally tend to enjoy economies of scale which means that average costs decrease as passenger volumes increase. However, with COVID-19, it is likely (although not certain) that demand over the course of RP1 will continue to be below pre-pandemic trends and quite possibly below pre-pandemic levels, meaning that average costs will likely be higher than those seen prior to the pandemic. Therefore, a cost-based

approach to setting tariffs could very well result in a significant increase in tariffs. While this may be cost-reflective, the Commission does not believe this would be desirable. The sector continues its slow and uneasy recovery from the pandemic, and a sharp rise in airport charges would only exacerbate the issue, further dampening demand and stifling the sector's recovery.

As a result, the Commission considers that it should be pragmatic and recognise that traditional cost-based approaches to setting prices are not suitable nor practical for RP1.

By way of precedent, the Civil Aviation Authority (CAA) in the UK is currently in the process of setting airport charges at Heathrow Airport for the period 2022-2026[8]. For its Initial Proposals, the CAA estimated that if charges were set based on a traditional cost-based 'building blocks' approach, airport charges at Heathrow could potentially increase by around 150%, from around £20 per passenger in 2021 (around RM107 per passenger) to over £50 per passenger in 2022 (around RM267 per passenger).[9] Ultimately, this was driven by low forecast passenger volumes and rising average costs. This is shown below.

The UK CAA has forecast a large increase in average costs at Heathrow for 2022

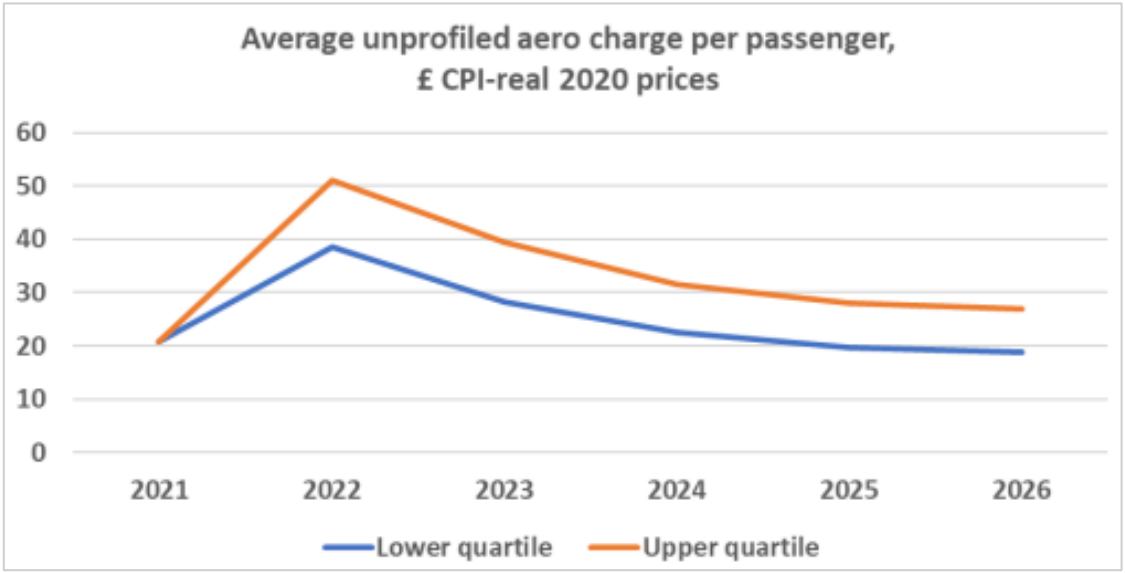

Figure 7 – Unprofiled charges

Source: CAA Initial Proposals for H7. Figure 11.1

While, strictly speaking, this might represent a cost-reflective charge, the CAA noted that this was not in the interest of airlines and passengers: "*It is difficult to reconcile this level of increase as being consistent with the interests of consumers as airlines would likely fund this through higher ticket prices… large increases in airport charges in 2022 could constrain the recovery in services at Heathrow… during this critical year in the recovery of the sector.*" And ultimately, it is proposed to smooth prices over the period 2022-26, keeping prices artificially

[8] Economic regulation of Heathrow Airport Limited: H7 Initial Proposals – Summary
https://publicapps.caa.co.uk/docs/33/CAP2265A%20H7%20Summary%20(p).pdf
[9] Assuming an exchange rate of 1 pound sterling to 5.35 Malaysian ringgit.

below cost in the earlier years before increasing prices above cost in the later years when passenger volumes hopefully return back to 'normal' levels.

The Commission has undertaken a high level and illustrative analysis to compare PSC under a RAB framework with current PSC in RP1. The Commission computed the average PSC that would arise if a cost-based RAB framework was implemented in RP1. This analysis was based on inputs from the Commission's previous Aeronautical Charges Framework Review of June 2019. The Commission recognizes that this data is out-of-date but submits that it is sufficient for the purposes of this illustrative analysis. The Commission then compared this against a passenger weighted average of current PSC, where the weights were based on passenger forecasts provided by MAHB. The analysis indicates that the average PSC under a RAB framework is likely to be 2 to 3 times higher than current PSC.

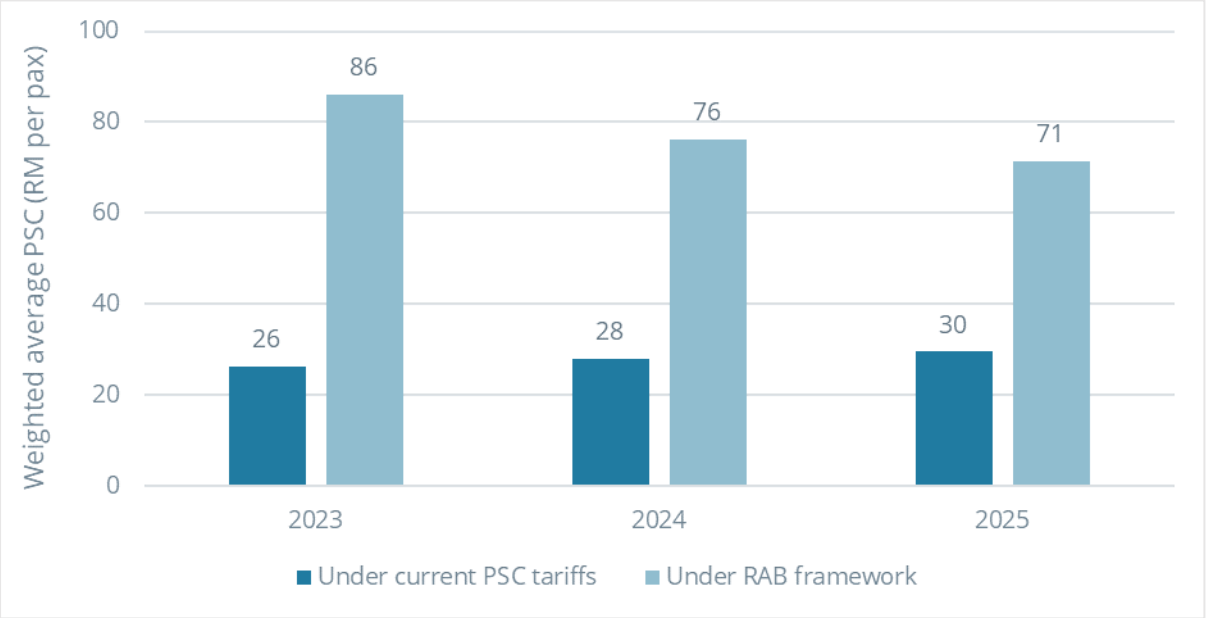

Figure 8 – Illustrative example of PSC under a RAB approach in RP1
Source: MAVCOM

Therefore, in the case of MAHB, the Commission considers that it needs a flexible approach which strikes a balance between competing objectives – of ensuring stable, predictable and competitive charges in order to help support the sector's recovery, whilst ensuring that MAHB does not find it unduly difficult to finance itself.

Question 2: In your opinion, should the Commission adopt a cost-based approach to setting tariffs for RP1? If so, please provide your views on how the Commission can best address the challenges it has identified with respect to applying a cost-based approach to setting tariffs for RP1.

Setting tariffs to support the recovery of the aviation sector

As noted above, the Commission believes that traditional cost-based approaches to setting tariffs are not suitable nor practical while the sector continues its slow, unpredictable and uneasy recovery from the pandemic. Therefore, the Commission proposes that **tariffs for RP1 are not linked to average costs**, and are set based on an alternative approach which meets the regulatory principles and objectives.

If prices do not need to be cost-reflective, there are various options the Commission could use to set prices:

- **Option 1: Keep current tariffs unchanged** – One approach to the current uncertainty is to keep airport charges unchanged from current levels. Clearly, this approach is simple, and does not require knowledge of future demand. It also gives certainty for airport users and avoids price volatility.

- **Option 2: Use benchmarking** – Prices could be set with reference to the level and/or movement of charges at comparator airports. In effect, such an approach would alter MAHB's charges (up or down) in line with the movement in charges at competitor airports. Whereas many regulatory benchmarking studies tend to be focused on assessing the efficiency of the airport(s) in question, in this instance, the primary purpose would be to assess the competitiveness of airport charges and to help identify a level of charges that could be considered competitive in the market. These are separate points: an airport can be competitive internationally but not necessarily efficient, and vice versa.[10]

Ultimately, the Commission believes Option 1 is preferable, and is proposing to **keep tariffs for RP1 the same as the tariffs for 2021, held constant in real terms by inflating charges each year using CPI**. (However, as set out at the end of this section, the Commission is also seeking feedback from stakeholders on potentially introducing some relatively minor restructuring of charges based on preliminary feedback received from airport operators). This approach is pragmatic and performs well against the Commission's objectives described above. However, as described in the rest of this section, some additional measures will be required to ensure that MAHB's activities are checked, faces appropriate incentives and remains financeable.

The Commission considers that there are significant benefits to this approach which link back to the Commission's principles and objectives for RP1, most notably:

- **Promote efficiency:** By itself, the Commission considers that keeping tariffs for RP1 unchanged is unlikely to promote efficient outcomes. This is because the current tariffs are not linked to the efficient costs that are incurred by the airports to provide aviation services. However, the Commission considers that when this approach is combined with a

[10] The Civil Aviation Authority of Singapore applies a benchmarking approach to determine regulated tariffs for Changi Airport – see Appendix 2 for further information.

supporting mechanism, such as a loss capitalisation mechanism (which is discussed in further detail below), then it can promote efficiency incentives.

- **Simplicity:** The approach is very simple and easy to understand. Compared to other approaches, it should not require significant resource for MAHB or airlines to engage with.

- **Manage uncertainty:** The approach does not require any assumptions to be made about future passenger volumes. (However, as set out further below, a supporting adjustment mechanism will be needed to ensure that efficient costs incurred in RP1 will be recovered).

- **Promote stability:** Airport charges will be held constant in real terms, avoiding any sharp step changes in the level of charges. Having a clear line of sight over airport charges will give greater certainty to airlines as they go about deciding which routes to operate and how many seats to fly.

- **Maintain competitiveness:** As set out in section 2.0, airport charges in Malaysia tend to be competitive relative to those at other airports in the region. Maintaining tariffs would likely help boost the attractiveness of Malaysian airports and help support the recovery – albeit the Commission cannot say for sure how charges at other airports will change over the coming years.

An alternative to retaining current tariffs for RP1 is to set tariffs with reference to the level and/or movement of charges at comparator airports. The Commission considers that such a benchmarking approach can be very process focused, and raises a number of methodological issues (see box 1) for which there is no single right answer.

Box 1: Methodological issues with benchmarking

- **Sample of airports:** What is an appropriate sample of comparator airports for MAHB? This is complicated by the fact that MAHB is a group of airports made up of a range of larger and smaller airports.

- **Unit of measure:** What precisely is the Commission benchmarking? There are various options:

    - individual airport charges (e.g., PSCs);
    - average airport charges per passenger / per movement for representative movements (e.g., the average cost for a typical short haul low-cost carrier);
    - average aeronautical revenue per passenger; or
    - 'total system prices' which take into account airport charges plus taxes.

    The Commission could also compare charges in absolute terms, or as a percentage of ticket prices, or as percentage changes over time for each airport. The Commission would also need to apply exchange rate adjustments. The Commission could compare purchasing power parity (PPP)-adjusted prices in an attempt to

express prices in more local terms, or simply use unadjusted exchange rates which may be more relevant from the perspective of airlines, which operate internationally and for whom PPP in foreign countries may be largely irrelevant. In principle, the Commission would also need to control for differences in quality of service between comparator airports, which is not without issue.

- **Time period:** Over which period would the benchmarking be carried out? The Commission is still in a "with Covid" world, and many airports are in a state of flux in terms of airport charges. In principle, the Commission could consider pre-pandemic levels, 2020, 2021, and/or 2022. Pre-pandemic levels represent a 'normal' state of the world not distorted by COVID-19. However, COVID-19 has happened, and 2019 is arguably an unrealistic ideal that fails to recognise the new reality. Charges for 2020, 2021 and 2022 likely reflect an in-between state where airports were dealing with the effects of the pandemic, but might still have been using charges based on pre-pandemic assumptions. And airports may have received different levels of financial support from government, so it is unclear what the benchmarking would actually be comparing.

- **Technique:** In the Commission's view, an econometrics approach (e.g., regression analysis) would be more relevant if the Commission were concerned with assessing efficiency – e.g., what are the drivers of cost, and how do Malaysian airports perform given those drivers. However, if the Commission is interested in identifying the relative competitiveness of airport charges in Malaysia versus those at other airports, then a simple comparison of average charges or revenue per passenger is arguably more relevant. Airlines are more likely to be interested in the airport charges themselves, rather than whether they are efficient, especially given that airports do compete with each other to varying extents.

- **Outputs:** How does the Commission interpret the results? Suppose the Commission identifies that airport charges in Malaysia are lower than the average or lower than the lower quartile of charges at a sample of comparator airports. What does the Commission do with this information? First, when carrying out benchmarking analysis, it is challenging to ensure that the Commission is making like-for-like comparisons. For instance, MAHB is partly funded by the Malaysian government, which may not apply at other airports, or may apply to different extents.

For the reasons set out above, the Commission believes benchmarking would be fraught with technical issues. As a result, it would be difficult to use benchmarking, in this context, to come up with an uncontroversial set of charges. The Commission notes that these issues can be avoided by keeping tariffs constant in real terms for RP1.

Question 3: Do you agree with the Commission's view that keeping tariffs constant in real terms for RP1 would be the best approach to addressing the uncertain recovery of the Malaysian aviation sector from the COVID-19 pandemic? Please justify your response.

Ensuring long term cost recovery and financeability

As highlighted above, if tariffs are maintained it is likely (although not certain) that average efficient costs will be greater than average revenue over RP1, meaning MAHB will incur significant losses. While this would help support the sector's recovery over RP1, it would go against the Commission's objective of ensuring that MAHB does not find it unduly difficult to finance itself, jeopardising the sustainability of the sector in the longer term.

Therefore, **the Commission is considering whether to introduce a loss capitalisation mechanism** which keeps track of the efficient losses made during RP1 and enables that loss (or a proportion of that loss) to be recovered through prices in the future. The Commission notes that, if MAHB were allowed to recover all losses over RP1, it would have limited incentive to spend efficiently and reduce costs which the Commission believes would be to the detriment of airlines and passengers in the medium to long-term. Therefore, while protecting the financeability of MAHB, the Commission also needs to promote the right efficiency incentives when designing the mechanism.

The details of the Commission's proposed approach are as follows:

- **How long will this mechanism be in place for?** In practice, the mechanism will be split into two distinct phases, the 'loss accumulation' phase during RP1 and the 'loss recovery' / 'payback' phase starting in RP2:

    - RP1: the **'**loss accumulation' phase: The Commission proposes that the mechanism keeps track of the financial losses made by MAHB over the course of RP1 in full. This will give certainty to MAHB and airlines over the treatment of costs and revenues over the full regulatory period.

    - RP2 and beyond: the 'loss recovery' / 'payback' phase: At the start of RP2, the mechanism will stop keeping track of MAHB's financial losses, and the Commission will move to the payback phase. This is where MAHB will start to recover the losses made during RP1 (subject to the sharing rates described below). The Commission proposes that the losses are recovered over a period of 10 years starting in Year 1 of RP2.

    However, the Commission will review at the start of RP2 whether the Commission believes there are merits to extend the loss accumulation phase to also cover RP2, and to delay the loss recovery phase to a later period. This will depend on how the sector recovers over the next 3 years. If the sector continues to be in a world of low passenger volumes and significant uncertainty, then the Commission would examine the merits in extending the mechanism during RP2 as well as RP1.

- ***Ex-ante* or *ex-post*?** The Commission believes it is preferable to implement an *ex-ante* approach which clearly sets out *in advance* of RP1 how the mechanism will work and then commits to implementing that specific approach. This will give stakeholders certainty on precisely how the mechanism will work, which will help it to plan for the future. The alternate, an *ex-post* approach, would involve assessing MAHB's losses at the end of RP1 and then determining how much of that loss should be recovered. However, this runs the risk that the Commission penalises MAHB by retrospectively assessing efficiency with the 'benefit of hindsight'. This would limit MAHB's ability to plan for RP1 if the extent of the recovery of the loss is uncertain, and it would undermine trust in the regulatory model.

- **How is the loss defined?** First, the Commission will estimate the loss in each year of RP1 individually, before then considering the cumulative losses over the whole period.

  The loss in a given year (t) will be defined as follows:

  $$Loss_t = (Operating\ costs + depreciation + allowed\ return)_t - Total\ revenue_t$$

  - Operating costs, depreciation, and revenue will be based on MAHB's annual financial statements. Total revenue will include both aeronautical revenue and non-aeronautical revenue (e.g., including retail), which therefore effectively amounts to implementing a 'single till' approach.[11]

  - As highlighted above, the approach also requires an estimate of an **'allowed return'**. This captures that if MAHB were to simply recover its operating costs and depreciation only, it would in effect earn no return on capital. Given that airports require a significant amount of capital investment and MAHB needs to be able to raise cost-effective finance from investors, the Commission believes it is appropriate for the loss recovery mechanism to make an allowance for a reasonable level of economic profit. In principle, this could be estimated in different ways and the Commission is seeking views from stakeholders:

    - Cost of capital x book value: One approach is that the Commission estimates the cost of capital (i.e., a reasonable rate of return necessarily to attract capital investment from investors) for RP1 and then apply this to MAHB's book value in each year of RP1.

    - Cost of capital x determined cost base: As set out in more detail in Section 5.0, the Commission is proposing to introduce a more traditional cost-based approach to regulation for RP2 (although the Commission may revisit this approach if the

[11] This recognises that non-aeronautical revenue (e.g., retail) is a by-product of the aeronautical business. Based on economic theory, in a competitive market we would expect airports to make normal economic profit overall, where any profit from the non-aeronautical business is effectively used to reduce the revenue requirement from aeronautical charges. Also, a single till approach does not require a distinction / cost allocation between the two businesses, which significantly reduces complexity.

Commission believes the sector has not recovered from COVID-19 to a sufficient degree by then). This will involve determining the opening cost base [12] for RP2 and estimating a cost of capital. At RP2, the Commission could retrospectively estimate the cost of capital for RP1 based on information available at the start of RP1, and then apply that figure to an estimate of the cost base 'backcasted' to the start of RP1.

- Retail margin: Alternatively, the Commission could estimate the allowed return as a percentage of total revenue. This could be based on benchmarking analysis of the financial performance of a sample of airports (pre-Covid) to determine a reasonable level of profit at comparator airports (i.e., total revenue minus operating costs plus depreciation).

The Commission notes that it is plausible that the loss in a given year (and over RP1 as a whole) could actually be negative – i.e., if MAHB were to earn a profit over the period. As discussed in more detail below, the Commission is proposing that the loss capitalisation mechanism is **'symmetrical'**, meaning if MAHB actually earns a profit over RP1 this is also effectively shared with consumers over the longer term, just as how losses would be shared with consumers too.

Having calculated the loss in each individual year, at the start of RP2 the Commission would then calculate the **cumulative loss** over the whole of RP1. (As noted, this figure could be negative if MAHB were to earn a profit over the period.) The Commission also believes it is appropriate to apply a discount rate to the losses made earlier in the period to capture the time value of money.

$$\begin{aligned} &Cumulative\ loss \\ &= [\ Loss_{\ Year\ 1}\ \times (1 + discount\ rate)^3] \\ &+\ [Loss_{\ Year\ 2}\ \times (1 + discount\ rate)^2] \\ &+\ [Loss_{\ Year\ 3}\ \times (1 + discount\ rate)] \end{aligned}$$

This discount rate could be based on an estimate of the cost of debt – i.e., the rate that MAHB would pay on its debt to debtholders and creditors.

- **What proportion of the losses will MAHB be allowed to recover?** The Commission is proposing to apply a **'sharing rate' of 90%** to the cumulative loss figure described above – i.e., MAHB will bear 10% of the loss, and it will be able to recover 90% of the loss over time starting from Year 1 of RP2 (see below). The Commission believes this will provide strong financial protection to MAHB whilst also ensuring that it will always have an incentive to reduce costs. As set out in more detail below, there are also strong parallels

[12] The determined cost base is effectively a financial record which keeps track of the capital value invested in the regulated business over time minus depreciation. The opening cost base in one year is equal to the opening cost base in the previous year plus any capex made in the previous year minus depreciation in the previous year.

between the Commission's approach and that being proposed by the UK CAA as part of its regulation at Heathrow.

As noted, the Commission proposes that this is a symmetric sharing ratio – i.e., if MAHB actually records a profit over RP1 based on the approach described above, MAHB would retain 10% of the profit, and 90% would effectively be returned back to consumers in the form of lower airport charges in the future.

- **How will the losses be recovered? A cost base adjustment at RP2:** As set out in more detail in Section 5.0, the Commission is proposing to introduce a more traditional cost-based approach to regulation for RP2. This will involve implementing a cost-based model to fund capital investment.

  The Commission proposes that 90% of the cumulative loss (or profit) is added to (or subtracted from) the determined cost base at RP2. Then, over the course of RP2 and beyond, this amount is effectively depreciated over time and recovered through tariffs. As MAHB would also earn a return on the determined cost base, it would also effectively earn a return on this loss too.

  The Commission proposes that this loss is recovered over a 10-year period starting from Year 1 of RP2. However, the Commission may revisit this time horizon depending on how the sector recovers over RP1. Ideally, the loss would be recovered when passenger volumes are higher to ensure that the cost per passenger is relatively lower, or it could be spread out over a greater number of years to reduce the average cost to airport users in any given year.

The Commission recognises that this approach is novel. However, the Commission believes it is pragmatic and strikes a balance between ensuring MAHB is financeable whilst also keeping tariffs stable and predictable for RP1. There are some precedents of similar approaches being used in other regulated sectors, including the UK CAA (see Appendix 1). Therefore, the Commission considers that its proposed approach is supported by regulatory precedent.

Question 4: In your view, in the absence of transitioning to a cost-based framework in RP1, is the Commission's proposed loss capitalisation mechanism the best approach to ensuring the recovery of prudent and efficient costs by MAHB? Are there alternative mechanisms that the Commission should consider to incentivise MAHB to spend efficiently and prudently over RP1? Please justify your response.

Role of ex-post reviews

In addition to the *ex-ante* loss capitalisation mechanism described above, the Commission is also considering whether there are merits to introducing an *ex-post* review of MAHB's efficiency during RP1. As noted earlier, the Commission is very wary of the issues with *ex-post* reviews. If the scope of the review is not well-defined in advance, they run the risk of not providing MAHB with regulatory certainty, which may undermine its ability to attract cost

effective finance. And there is a risk that MAHB's decisions are unfairly scrutinised with the benefit of hindsight.

However, the Commission is keen to explore with stakeholders whether they could be used under specific conditions to help promote better outcomes. In particular, the Commission see some benefits to carrying out an *ex-post* review in the specific context of capex. This would ensure that MAHB is only funded for *efficiently* incurred capital investment. At a high level, this would involve reviewing the delivery of MAHB's capex plan over RP1 and identifying whether it was wasteful or inefficient, and if so, disallowing a proportion of that inefficiently incurred capex from the determined cost base at RP2. This would ensure that airlines and passengers would not end up paying for inefficiently incurred capex.

Clearly, for this approach to be successful and to overcome the 'benefit of hindsight' issue described above, the Commission needs a clear and common understanding of the definition of inefficiency. By way of precedent, in the UK, regulatory authorities have implemented the "Demonstrably Inefficient or Wasteful Expenditure" (DIWE) test.[13] The DIWE test has been described as follows:

> *"[DIWE] means expenditure which the [regulator] has… determined to be demonstrably inefficient and/or wasteful, given the information reasonably available to the [operator] at the time that the [operator] made the relevant decision about that expenditure. For the avoidance of doubt, no expenditure is Demonstrably Inefficient or Wasteful Expenditure simply by virtue of a statistical or quantitative analysis that compares very aggregated measures of the [operator]'s costs with the costs of other companies… The use of the word 'Demonstrably' serves to reverse the normal burden of proof and places the onus on the [regulator] to demonstrate that [the operator] has been inefficient in its expenditure… The starting point is, therefore, that expenditure which is potentially subject to DIWE is presumed efficient, unless and until [the regulator can] establish that it is not. This approach provides some mitigation to the risk that [the regulator] might unduly penalise [the operator] for decisions made at the time, but with the benefit of hindsight turn out not to be efficient."*

In practical terms, at a high level, this would involve MAHB providing regular updates to airlines and the Commission on its capex plan throughout RP1. It would be required to provide information on how it has developed its plan, why it believes its plan is optimal, and how the delivery of the plan is proceeding. The Commission would then come to a view, based on the information provided at the time, whether there are elements of the plan that are demonstrably inefficient or wasteful. If this is the case, the Commission would subsequently disallow a proportion of the capex from the determined cost base at RP2. However, by having discussions throughout RP1 the Commission would be able to give MAHB feedback on its approach in-period and notify MAHB in advance whether there is a material risk of a disallowance, giving it time to take corrective action.

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[13] For instance, see paragraph 40 onwards https://assets.publishing.service.gov.uk/media/5f192629e90e074567f1f7fb/Summary_of_final_report.pdf

The Commission is seeking views from stakeholders on whether such an approach could be implemented for RP1. This would ensure that MAHB has a strong incentive to ensure that capex is delivered efficiently.

Question 5: In your opinion, are there merits to introducing an ex-post review of capital expenditure at the end of RP1? Please justify your response.

Role of capex governance

The Commission's loss capitalisation mechanism described above provides a strong incentive for MAHB to reduce costs. However, the Commission wants to ensure that this does not promote a perverse incentive for MAHB to unduly reduce or postpone its capex plan, which could be to the detriment of consumers in the medium term. As a general principle, the Commission wants to ensure that if a particular capital investment is genuinely needed during RP1, then this investment should go ahead, and the increase in cost should not necessarily be viewed as inefficiency.

While MAHB may be able to defer some relatively low priority investments over the coming years, it is still plausible that it may see an increase in capital expenditure over RP1 compared to recent years. For instance, this would be the case if MAHB has already delayed some investments since the start of COVID-19 and is now 'catching up' and delivering the backlog during RP1, or if there happens to be some high priority 'lumpy' investments needed in the coming years.

The Commission is keen to explore with stakeholders whether there is appetite for a more flexible approach to capex governance, whereby if MAHB and airlines agree that a new lumpy capex project should go ahead then this should be funded and should not unduly penalise MAHB through the Commission's loss capitalisation mechanism. For instance, if there is agreement between MAHB and airlines that this capex should go ahead (with the Commission acting as a mediator), the Commission could agree to defer the depreciation of those assets and potentially the associated operating expenditure (opex) until RP2 and remove the cost from the Commission's loss capitalisation mechanism.

Question 6: In your opinion, are there merits to introducing a more flexible approach to capex governance in RP1? If so, please explain any capex governance arrangements that the Commission should take into account.

Restructuring of aviation services charges

While the Commission is proposing to keep tariffs maintained at current levels in real terms, it has received feedback from airport operators on the potential for introducing some relatively minor restructuring of aviation services charges. The Commission is open to restructuring aviation services charges for RP1, subject to the caveat that this restructuring should be revenue neutral for airport operators overall. The Commission is seeking feedback from

stakeholders on whether the restructuring of aviation services charges is consistent with the regulatory principles identified above.

The changes that have been proposed by airport operators to the structure of aviation services charges are summarised below. In considering these proposals, stakeholders should take note of the following:

- The proposals primarily relate to restructuring the PSC. The Commission notes that the PSC currently accounts for the bulk of airport operators' revenue. While the Commission is keen to receive stakeholder views on proposed changes to the structure of the PSC, it is also interested on hearing stakeholder opinions on potential changes to the structure of other charges, i.e., landing and parking.

- At this stage, the Commission is seeking feedback on whether the changes proposed below (or other structural changes proposed by stakeholders) will lead to a set of tariffs that are more in line with the regulatory objectives set out above. The Commission has not estimated the level of charges under these proposals. If the Commission takes the view that a proposal should be adopted because it better contributes to the achievement of its regulatory objectives, the level of tariffs will be estimated to keep airport operators' revenue neutral (i.e., so that the total revenue incurred by an airport operator over RP1 would be unchanged under the current tariffs or under the revised tariff structure).

The changes that have been proposed by airport operators to the structure of aviation services charges are as follows:

- **Equalise ASEAN and Non-ASEAN PSCs:** Currently, the PSC for passengers departing to ASEAN destinations is lower than that for passengers departing to non-ASEAN destinations. Malaysian airports are the only airports in the ASEAN region to make this distinction, and therefore this could reduce the attractiveness of Malaysian airports to airlines wishing to fly on non-ASEAN routes. This differentiation could be removed and the charges equalised. In practice, this will involve an increase in the PSC for ASEAN destinations and a decrease in the PSC for non-ASEAN destinations.

- **Rebalance domestic and international PSCs:** Currently, the PSC for domestic passengers is around two thirds lower than that for ASEAN passengers, and more than 80% lower than that for non-ASEAN passengers. As the sector recovers, the Commission is expecting domestic traffic to represent a higher share of traffic overall / international traffic to represent a lower share overall. To overcome this relative shortfall in international traffic, the domestic PSC could be adjusted relative to the international PSC. This will help support MAHB's cost recovery overall, and help to stimulate demand on international routes and hasten the restoration of international connectivity.

- **Introduce a transfer PSC for domestic and international services:** Currently, there is no PSC for passengers *connecting* at Malaysian airports. For instance, for a passenger flying from Penang to Kuala Lumpur and then on to London, passengers currently pay an international PSC at Penang and then no charge at Kuala Lumpur. This is not in line with

the general approach at other airports where passengers would typically pay a domestic PSC on the first leg (i.e., for the Penang to Kuala Lumpur segment) and then an international PSC on the second leg (i.e., for the Kuala Lumpur to London segment). (There may also be a lower 'transfer PSC' for transfer passenger connecting at the hub relative to the charge for passengers originating at the hub). The Commission is proposing to bring the charging structure with respect to connecting passengers at Malaysian airports in line with that in other jurisdictions. This will involve levying a domestic PSC for feeder traffic within Malaysia (e.g., Penang to Kuala Lumpur in the example above), and then a separate charge for transfer passengers connecting at Malaysian airports (e.g., Penang to London in the example above).

The Commission may explore adjusting other regulated charges in RP1, such as landing and parking charges. As mentioned in Section 2, landing and parking charges have not been revised since 2014. Therefore, to reduce headline impact of a PSC adjustment, a revision to landing and parking charges may then reduce the overall impact in PSC. However, it is unclear how changes to landing and parking charges will affect the ability of an airport operator to recover its efficient costs. This is because airlines may benefit from rebates or other financial incentives from the airport operator, as well as enjoy economies of scale in their operations by using larger aircraft, which means that the revenue earned from landing and parking charges is subject to a higher degree of uncertainty (as compared to passenger charges). PSC on the other hand, is imposed on passengers and not the airlines and as such is a direct cost pass-through and thus has no effect on the overall airline's costs.

Question 7: Please provide your views on whether the specific changes to the structure of the PSC For RP1 as set out by the Commission will result in tariffs that are more in line with the Commission's regulatory objectives? Are there other revenue neutral changes that the Commission should consider in its assessment of tariffs for RP1, whether to the PSC or to landing or parking charges? How will these alternative proposals contribute to the achievement of the Commission's regulatory objectives?

Summary of consultation questions

Question 1: What is your view of the GoM's suggested policy parameters for the Commission's consideration in developing its long-term regulatory framework? Are there any particular issues that may arise should they be incorporated? Are there any other parameters that the Commission should consider?

Question 2: In your opinion, should the Commission adopt a cost-based approach to setting tariffs for RP1? If so, please provide your views on how the Commission can best address the challenges it has identified with respect to applying a cost-based approach to setting tariffs for RP1.

Question 3: Do you agree with the Commission's view that keeping tariffs constant in real terms for RP1 would be the best approach to addressing the uncertain recovery of the Malaysian aviation sector from the COVID-19 pandemic Please justify your response.

Question 4: In your view, in the absence of transitioning to a cost-based framework in RP1, is the Commission's proposed loss capitalisation mechanism the best approach to ensuring the recovery of prudent and efficient costs by MAHB? Are there alternative mechanisms that the Commission should consider to incentivise MAHB to spend efficiently and prudently over RP1? Please justify your response.

Question 5: In your opinion, are there merits to introducing an ex-post review of capital expenditure at the end of RP1? Please justify your response.

Question 6: In your opinion, are there merits to introducing a more flexible approach to capex governance in RP1? If so, please explain any capex governance arrangements that the Commission should take into account.

Question 7: Please provide your views on whether the specific changes to the structure of the PSC For RP1 as set out by the Commission will result in tariffs that are more in line with the Commission's regulatory objectives? Are there other revenue neutral changes that the Commission should consider in its assessment of tariffs for RP1, whether to the PSC or to landing or parking charges? How will these alternative proposals contribute to the achievement of the Commission's regulatory objectives?

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5.0 LONG TERM FRAMEWORK FOR SETTING TARIFFS

Implementing a Cost-Based Approach

Many airports have strong natural monopoly characteristics due to their high infrastructure costs which impose significant barriers to entry. This is especially true when airports in a given country are operated by a single economic entity, such as the airport network operated by MAHB. If an airport operator has substantial market power, it may abuse this power by raising prices above, or reducing the quality of service below, the level that would have resulted from an environment of effective competition. These outcomes will lead to a loss of welfare for airport users. In these circumstances, regulatory intervention is designed to create a system of incentives and penalties that replicate the outcomes of competition in terms of consumer prices, quality and investment and leads to outcomes that are in the long-term interests of consumers.

There are different forms of economic regulation. The choice of which approach to apply will be influenced by a range of factors including the extent of market power, the size of regulatory costs, and any legislative obligations. There are typically two forms of regulation, which are:

a) **Cost-based regulation** (e.g., price or revenue caps), which typically involve setting prices with respect to a cost base approved by the regulator; and

b) **Light-handed regulation** (e.g., price monitoring, negotiate-arbitrate models), which typically do not involve the regulator directly setting prices or revenues.

The Commission's interpretation of section 46 of Act 771 has led it to conclude that it is unable to impose light-handed regulation. This is because the Commission is required to determine the method of determining the charges for aviation services at airports. Therefore, any charges agreed solely between the airport operator and airport users without the regulator's input run contrary to the Commission's functions under Act 771.

This means that the Commission is required to consider forms of cost-based regulation. Under a cost-based approach, the Commission would determine the maximum revenue that airport operators are permitted to earn from the provision of aviation services, having regard to projections of efficient capital and operating costs of providing those services, including a reasonable return on efficient capital invested in the business. Depending on the particular form of cost-based regulation that is applied, the Commission may also determine prices, or average prices, that airport operators are permitted to charge to recover allowed revenues.

A major advantage of cost-based regulation is that there is a direct link between efficient and prudent expenditure by airport operators, and the level of charges levied on users. Prior to the start of a regulatory period, airport operators would be expected to consult with their users (i.e., airlines, ground handlers) to determine a reasonable amount of investment for the next regulatory period. This is to ensure that capital is appropriate, timely and efficiently procured. The Commission will make a determination on the relevant cost base for the airport operator, incorporating the views of all stakeholders, and use this cost base to determine the relevant revenue or price caps that will apply over the regulatory period. At the end of each period, the regulator will review and analyse the airport operator's performance over the period and may

take expenditure and service outcomes into account in determining the revenue or price caps for the next regulatory period.

Cost-based regulation is applied at other international airports

In the **United Kingdom**, Heathrow Airport's airport charges are regulated by the CAA via periodic reviews, with the current review (H7) covering the period 2022 to 2026. Charges are designed to be cost reflective, with the CAA first forecasting the demand that Heathrow is expected to serve over the period, and then forecasting the efficient level of cost to serve this demand (covering opex, capex, return on capital, etc.), with charges then set equal to the average cost per passenger. Heathrow is regulated under a single till approach, meaning that the CAA also forecasts an efficient level of commercial revenue over the period, which it then subtracts from its estimate of total costs.

Spanish airport operator AENA is regulated by the Dirección General de Aviación Civil (DGAC) under a cost-based regulatory framework. The DGAC adopts a dual till mechanism approach that is based on AENA's RAB. Under the dual till mechanism, an airport separates its cost base into aeronautical and non-aeronautical activities. Regulated tariffs are set with respective to the aeronautical cost base, without applying cross-subsidies for commercial services (which are not subject to tariff regulations). The current regulatory period covers the 2022 to 2026 period.[14]

In **Ireland**, Dublin Airport is regulated by the Commission for Aviation Regulation (CAR) through a series of periodic reviews. The approach is broadly similar to that used by the CAA in regulating airport charges at Heathrow. The CAR adopts a single-till approach, where it forecasts total passengers over the period, and forecasts the efficient level of cost to serve this demand (less commercial revenue). The current regulatory period covers the period 2020-2024.

In **Netherlands**, the Netherlands Authority for Consumers and Markets (ACM) regulates airport charges for Amsterdam Schiphol airport. Tariffs are based on a cost allocation system whereby the airport is only able to pass on costs related to aviation and security to the airlines. Each regulatory period covers three years, and the current regulatory period is due to end in 2024.[15]

Prior to COVID-19, charges at a number of other European airports were typically set according to a cost-based model, using forecasts of an airport's costs and traffic over a defined regulatory period (usually five years). This includes **France** (Aéroports de Paris), **Belgium** (Brussels Airport), **Germany** (Frankfurt), and **Italy** (Aeroporti di Roma).

Managing the transition to a cost-based framework

The transition from the current schedule of fixed prices method to a cost-based method will cause some disruption to the industry, but will entail long-term benefits.

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[14] AENA, https://www.aena.es/en/shareholders-and-investors/financial-and-economical-information/regulation.html
[15] ACM, https://www.acm.nl/en/publications/consultation-schiphols-cost-allocation-system-2022-2024

One way of mitigating that disruption is to ensure that the airport operator is able to undertake prudent and efficient capex in the interim. The Commission believes that the proposed loss capitalisation mechanism detailed in Section 4 will allow the airport operator to undertake required capex, while also shielding airport users from inefficient expenditure. As noted above, the Commission is also seeking stakeholder views on the merits of introducing an ex-post review of expenditure during RP1. To prevent a large change in prices for RP2, the quantum of investments and losses incurred in RP1 is to be spread over a proposed period of 10 years beginning from the start of RP2.

The Commission recognises that other transitional measures may be required. Further details on the proposed method of price controls for the longer term would be discussed in upcoming consultation documents.

Question 8: In your opinion, should the Commission transition to a cost-based form of regulation for RP2? Should the Commission consider other forms of airport regulation? If so, please provide examples or precedents of where this is applied elsewhere.

Regulation of other airport operators

In the Commission's previous Aeronautical Charges Framework Review of June 2019, the Commission had proposed categorising JHB, KTE and TGC as non-regulated airports and excluding them from the building block model. This view was based on a market power study undertaken by the Commission at the time which found that the operators of these airports, SATS and TMDSB, either did not have market power or did not have the ability to exercise market power. In lieu of applying a cost-based approach, the Commission had proposed requiring SATS and TMDSB to submit their proposed charges to the Commission for approval.

Ideally, the Commission would undertake another market power assessment to determine whether factors have changed which alter the ability and willingness of airports to exercise market power. However, in the intervening time, the COVID-19 pandemic has significantly disrupted air traffic and airport operations. The Commission considers that an assessment of market power at this time is unlikely to give an accurate picture of market power in the long run. Despite this, the Commission is not aware of any changes that have occurred in either the use or operation of these airports which would substantially alter its assessment of market power.

In view of this, the Commission is proposing to adopt the same approach it had put forward under its previous Aeronautical Charges Framework Review of June 2019. Specifically, JHB, KTE and TGC will be allowed to propose tariffs for the Commission's consideration and approval. The Commission will undertake another review of airport market power prior to the second regulatory period, or at such time when air travel has returned to pre-COVID-19 levels.

Question 9: Do you agree with the Commission's view that JHB, KTE and TGC should be excluded from the building block model, and be allowed to propose their own tariffs for the Commission's approval? Please explain your answer.

Summary of consultation questions

Question 8: In your opinion, should the Commission transition to a cost-based form of regulation for RP2? Should the Commission consider other forms of airport regulation? If so, please provide examples or precedents of where this is applied elsewhere.

Question 9: Do you agree with the Commission's view that JHB, KTE and TGC should be excluded from the building block model, and be allowed to propose their own tariffs for the Commission's approval? Please explain your answer.

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6.0 NEXT STEPS

Details of the consultation

The Commission is inviting comments within 3 weeks of publication of this consultation paper (**Tuesday, 30 August 2022 at 5pm**).

All comments on the document must be in writing and are to be delivered via email to airport.charges@mavcom.my or by post to the following address:

Malaysian Aviation Commission
Level 19, Menara 1 Sentrum
201, Jalan Tun Sambanthan
50470 Kuala Lumpur, Malaysia
Attn: Mr. Leong Chuo Sheng

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APPENDIX 1: The UK CAA's traffic risk sharing mechanism

The UK CAA is currently in the process of setting airport charges at Heathrow for the period 2022-26. For its Initial Proposals, the CAA estimated that if charges were set based on a traditional cost-based approach, airport charges at Heathrow could potentially increase by around 150%, from around £20 per passenger in 2021 (around RM 114 per passenger) to over £50 per passenger in 2022 (around RM 285 per passenger). To avoid this sharp increase in price, the CAA proposed to smooth prices over the 5-year period, keeping prices artificially below cost in the early years before increasing prices above cost in later years when passenger volumes hopefully return back to 'normal' levels. In effect, this is also a form of intertemporal loss capitalisation and recovery.

Also, the CAA proposed to introduce a traffic risk sharing (TRS) mechanism into Heathrow's regulation for the period 2022-26.[16] This is to help manage the risk that outturn passenger volumes differ significantly to the CAA's passenger forecast, which could result in Heathrow significantly under-recovering its costs. The approach – illustrated below – also uses sharing rates and it is also administered as an adjustment to the RAB at the subsequent price control:

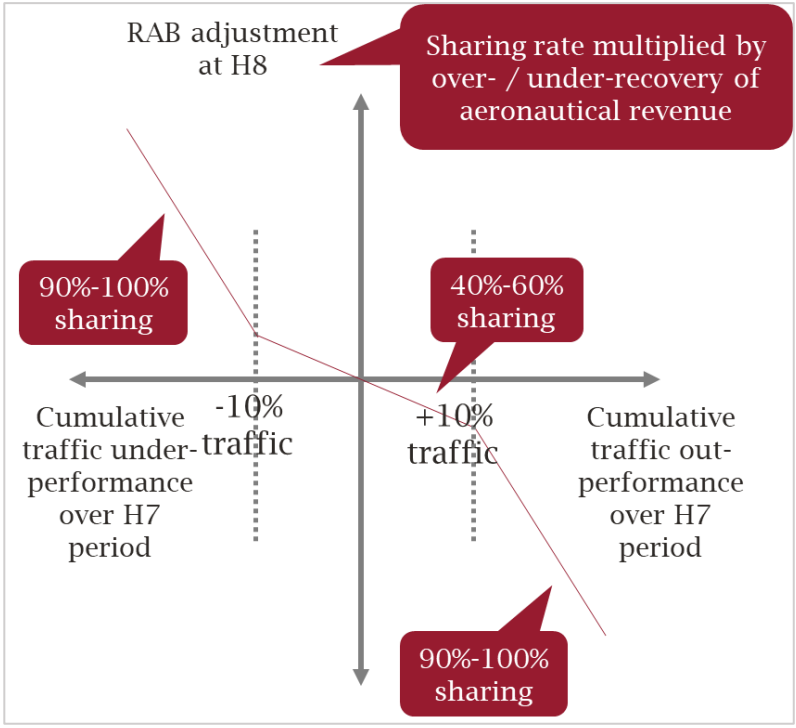

Figure 9 - Traffic risk sharing (TRS) mechanism

Source: CAA

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

This adjustment works as follows:

- The CAA will monitor the cumulative difference between outturn passenger volumes and forecast passenger volumes over the period 2022-26.

- If the difference lies within +/-10% of the CAA's forecast (the approach is symmetrical), the CAA will estimate the over/under-recovered aeronautical revenue and apply a sharing rate of between "40%-60%" (i.e., it has not yet decided on the final figure). This amount will then be added to / subtracted from the RAB at the next price control period.

- If the difference lies beyond +/-10% of the CAA's forecast, the CAA first estimates the sharing up to the +/-10% threshold, as described above. For the remainder of the difference beyond the +/-10% threshold, the CAA applies a sharing rate of between "90%-100%". The sum of these two amounts will then be added to / subtracted from the RAB at the next price control period.

For simplicity, rather than adopting a 'kinked' approach (as the CAA is proposing), the Commission is proposing a simpler single sharing rate of 90%. The Commission is keen to understand stakeholders' views on whether there is appetite for a kinked approach.

There is also precedent from this approach in the UK water and energy sectors[17]: In the UK, regulators in the water sector and the electricity and gas transmission and distribution sectors allow regulated companies to take a flexible approach over the distinction between operating costs and capital costs, as well as the level of depreciation each year:

- Opex v capex: In order to keep tariffs down in the short run, companies have some flexibility to capitalise a proportion of their operating costs and recover it over a longer period of time through the RAB rather than in-period, and vice versa.

- Depreciation: Companies also have some flexibility in deciding the level of depreciation each year.

Combined, these two approaches give flexibility to the regulated companies to decide on whether to front-load cost recovery or to defer cost recovery, which can help manage affordability constraints. In effect, this is the same as allowing regulated prices to be de-linked from cost, with costs eventually recovered over a long time period. However, while these are useful precedents, they were not specifically designed with COVID-19 in mind. Clearly COVID-19 is a significant outlier – albeit the principles still apply.

[17] For instance, see Section 5: https://www.ofwat.gov.uk/wp-content/uploads/2019/01/Technical-appendix-3-Aligning-risk-and-return-final.pdf

APPENDIX 2: Summary of regulatory models adopted elsewhere

Heathrow Airport

Airport charges at **Heathrow** are regulated by the UK Civil Aviation Authority ("**CAA**") through a series of 5-year periodic reviews. The current control period 'H7' runs from 2022-2026. The CAA adopts a 'building blocks' approach to regulating charges. At a high level, this is split out into three main parts:

- Demand forecast: First, the CAA forecasts the volume of passengers that Heathrow is expected to serve in each year of the control period.

- Cost forecast: The CAA then forecasts an efficient level of cost to serve this demand each year. This involves forecasting an efficient level of opex, deprecation and an allowed return on capital (the 'building blocks'). The CAA implements a 'single till' approach, meaning that it also produces a forecast for commercial revenue for each year of the control period and subtracts this from its forecast of Heathrow's total costs. This means that the CAA's forecast of commercial revenue is effectively treated as a negative cost item and is used to subsidise airport charges.

- Average cost per passenger: The CAA then divides its forecast of total costs each year (opex + depreciation + allowed return – commercial revenue) by its passenger forecast in each year to produce an average cost per passenger figure. This becomes Heathrow's maximum allowable yield per passenger that it is allowed to charge airlines.

In practice, Heathrow then has some flexibility about how it structures it charges (e.g., how much to recover from movement-based charges versus passenger-based charges, and it can also modulate charges – e.g., it has lower charges for short haul passengers and higher charges for long haul passengers) as long as it does not exceed the maximum allowable yield per passenger on average. It is also subject to competition law more generally.

In parallel, to ensure that Heathrow does not unduly cut costs at the expense of service quality, the CAA also sets targets for various measures of service quality – e.g., length of security queues, cleanliness, wayfinding, etc. If Heathrow does not meet its targets, it incurs a financial penalty which is paid back to airlines by lowering airport charges the following year.

We note that a broadly similar approach is used at many other airports in Europe including Dublin Airport where the Commission for Aviation Regulation (CAR) carries out a periodic review every 5 years, implementing a building blocks approach, and under a single till regime. At Amsterdam Schiphol Airport the approach is also similar. However, a 'hybrid till' approach is used. This means that rather than subtracting all commercial revenues from its allowed revenue requirement, a proportion is subtracted.[18]

[18] When implementing a hybrid till approach, the key issue for regulators in determining whether a particular revenue stream (or a proportion of that revenue stream) should be subtracted from the revenue requirement for airport charges is often the extent to which that revenue stream is a clear by-product of the airport business. Generally, the clearer the relationship between passenger volumes and the revenue stream, the greater the case to include it within the regulatory till.

Changi Airport Singapore

Airport charges at Changi Airport Singapore are regulated by the Civil Aviation Authority of Singapore ("**CAAS**"). Compared to the more hands-on approach implemented at Heathrow and Dublin, the approach at Changi is much more light-touch. The CAAS carries out a high-level benchmarking exercise where it compares airport charges at Changi with those at comparator airports in the region:

- *Sample*: The CAAS is not transparent about how it constructed its sample of airports. However, it generally contains other medium-to-large airports in Southeast Asia.

- *Representative airline operations*: First, the CAAS defines a set of representative aircraft turnarounds. This involves assuming a particular model of aircraft, with a certain number of passengers, and various other operating assumptions such as the number of minutes of aircraft parking, etc. It defines a set of different operating assumptions – e.g., a short haul LCC turnaround, a short haul network carrier turnaround, a long-haul network carrier turnaround etc.

- *Airport charges*: It then estimates how much it would cost for an airline to operate that particular turnaround at each of the airports in its sample based on the airports' publicly available tariff books. (We note that that in practice, airlines often negotiate discounts with airports on their list prices, and some airports do not update their published tariff books regularly. This means we cannot be certain we are making a meaningful comparison.)

- *'Effective system prices' (ESP)*: The CAAS also estimates the taxes that would be paid by airlines too and adds this on top of its estimate of airport charges to estimate the 'all-in' ESP paid by the airlines. It then compares the ESP per passenger for each of the representative aircraft turnarounds at Changi with those at the other airports in the sample. Local currencies are converted using exchange rates, meaning in principle the results are sensitive to the timing of exchange rates and any volatility, and they are not adjusted for purchasing power parity. The CAAS will intervene if Changi's ESP is in the upper quartile of the sample. (Since this model of regulation has been in operation, Changi has not appeared in the upper quartile of the sample, meaning that the CAAS has not yet intervened. It is not clear precisely how the CAAS would intervene if this did happen.)

We note that including taxes within the benchmarking is an interesting policy decision. Aviation taxes are typically not controllable by airports and tend to be set by governments. Therefore, comparing ESPs at different airport is strictly speaking not comparing the efficiency of those airports, but rather the competitiveness / attractiveness of using the airport. Efficiency and competitiveness are not the same thing: an airport can have very competitive prices when compared to others in the region but it still might be inefficient.

To some extent the regulatory model is therefore less focused on promoting efficiency at Changi and instead is more focused on understanding how much tax the Singaporean government can place on aviation whilst ensuring that charges at Changi remains competitive. The CAAS' approach does not take service quality into account.

Electricity and gas networks in Malaysia

Suruhanjaya Tenaga ("**ST**") is responsible for determining the revenues and tariffs for certain regulated services in the electricity and gas sector in Peninsular Malaysia. In the electricity sector, ST regulates five business entities within Tenaga Nasional Berhad – Single Buyer (Operations), the Grid System Operator, Transmission, Distribution, and Customer Services. In the gas sector, ST regulates the regas terminals and the gas transmission network which are owned by Petronas, and the gas distribution network which is owned by Gas Malaysia.

These entities are regulated under a system of incentive-based regulation. In each case, ST applies a building block approach to estimate the revenue requirement for each regulated entity, having regard to a set of guiding regulatory principles and objectives. The key revenue building blocks include allowances for operating expenditure, working capital allowance, return on capital, depreciation, corporate tax and zakat. ST also applies certain incentive schemes which are designed to reward or penalise the regulated business for achieving cost efficiencies and service improvements beyond the targets set by the regulator in its determination.

The key form of control applied by ST is an average allowed tariff. In general terms, the average allowed tariff is calculated by dividing the annual revenue requirement determined by ST by a forecast of demand (e.g., electricity gas, reserved capacity in gas pipelines, etc). Each regulated business is permitted to propose its own set of tariffs, subject to the requirement that it shall earn no more than the average allowed tariff.

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