

Ministerie van Infrastructuur en Waterstaat  
Attn: [REDACTED]  
Rijnstraat 8  
2515 XP Den Haag

**Visiting address**

Mandeville Building, T19-13  
Burgemeester Oudlaan 50 | Rotterdam

**Postal address**

Erasmus Centre for Urban Port  
and Transport Economics BV  
Mandeville Building, T19-13  
P.O. Box 1738 | 3000 DR Rotterdam  
The Netherlands

**T** +31 (0)10 408 1186

**W** [www.eur.nl/en/upt](http://www.eur.nl/en/upt)

**CoC** 24369966

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**Subject** Review assumptions for fleet replacement resulting from tariff differentiation

Dear [REDACTED],

Following your request to conduct a review on assumptions for fleet replacement resulting from tariff differentiation by Schiphol, for the purpose of the Balanced Approach procedure, I herewith send my observations. This document starts with a description of the request, followed by an explanation of the complexity of airline network planning, observations, a conclusion and accountability.

**Research question and process:**

On Tuesday 26 November, the Ministry of Infrastructure and Water management (I&W) requested me to provide a review on the assumptions for fleet replacement resulting from tariff differentiation by Schiphol, effective as per 1 April 2025, in the context of the Balanced Approach procedure. The day after, on Wednesday 27<sup>th</sup> November, the Ministry shared 10 documents with background information on the expected change in airline behaviour as a result of this tariff differentiation, as calculated by Royal Schiphol Group and the Ministry. Subsequently, on Thursday 28 November, an online meeting has taken place with employees of Schiphol and the Ministry, in which the approach chosen by Schiphol was explained. Consequently, there was an opportunity to ask questions. This review document provides observations from the documents as well as information from questions and answers with Schiphol and the Ministry. This review only focuses on the behaviour of visiting airlines at Amsterdam Airport Schiphol, consequently excludes the home carriers.

**Network planning:**

Airlines apply complex network planning processes to earn maximised margins from their expensive fleet. Network planning is a complex process in which trade-offs are being made between costs, revenue and

operational aspects of their available fleet. Depending on the targeted market segments, differences in generated revenue can be observed for different fleet. For example, deployment of the latest generation aircraft may impact passengers' willingness to pay in one market, while in other markets it hardly affects willingness to pay of passengers. Also price effects resulting from different seat capacities between fleet, may affect airlines' decisions. Not only the Amsterdam market should be considered when replacing fleet, but also neighbouring markets that can benefit from that same fleet. As an airport operator or government, it is therefore very difficult to judge on the likelihood and timeliness of airlines replacing fleet.

#### **Observation 1:**

Both Schiphol and the Ministry have translated qualitative information into percentages that reflect the likelihood that specific airline segments will replace current fleet with quieter fleet within the preferred noise category (S6/S7). It is unclear to the researcher how this qualitative information was translated into quantitative numbers. Also, one should be aware of false accuracy that these numbers may suggest. It is suggested to use a bandwidth, also to allow for sensitivity analysis. Following observations aim to provide qualitative information.

#### **Observation 2:**

Given the complexity of network planning at airlines, making an educated guess of how airlines will behave, has limited value. Therefore, interviewing airlines, about their intentions regarding replacement of their fleet on Schiphol routes, is a valid method to identify which airlines will and which airlines won't replace existing fleet, on a granular (airline) level. However, airlines interviewed, learning about the proposed tariff differentiation during the interview, may have reacted by confirming the desired fleet change to decrease their cost of operation at Schiphol. Afterwards airline representatives may realise such fleet changes need to be coordinated with other network planners within the airline and traded against multiple factors. Hence social desirable answers can be expected during interviews.

#### **Observation 3:**

As it turned out during the online meeting on November 28<sup>th</sup>, an effect of airlines moving their night operations into daytime operation has not been considered by Schiphol, nor the Ministry. For this Balanced Approach input, solely the behavioural change of airlines, replacing a current aircraft type with a quieter aircraft type, has been considered. Schedule changes with more favourable arrival and departure times from noise perspective, and consequent lower cost in airports charges for the airline, have not been considered by Schiphol and Ministry. Taking such schedule changes into account may positively affect the number of aircraft movements in total, coming out of the balanced approach calculations.

#### **Observation 4:**

For the various market segments similar percentages were applied (likelihood of replacing current aircraft by quieter aircraft), while there are good reasons to believe that 'low cost airlines' as well as 'freight airlines' behave differently from 'legacy airlines' and 'easyJet'. In particular visiting low cost and full

freighter airlines are more cost sensitive and may decide to replace their aircraft sooner or leave Amsterdam Airport Schiphol and operate into other airports in northwestern Europe. It was not considered by Schiphol or Ministry that airlines may decide to discontinue operations into Amsterdam. In particular full freighter airlines, operating in a larger competitive region, may decide to do so.

#### **Observation 5:**

Schiphol has researched the ability of airlines to replace fleet. However, the timeliness of these replacements is uncertain and is dependent on multiple factors, such as how other airports in northwestern Europe will differentiate their airport charges. Allocating these intended fleet replacements to the moment of introduction of the new airport charges structure (April 1<sup>st</sup>, 2025), may overestimate the number of replaced fleet by that date. On the other hand, visiting airlines may have already introduced new quieter fleet on their routes to Schiphol. This makes it difficult to conclude cause and effect of the measure in isolation.

#### **Observation 6:**

The fleet replacement percentages, as proposed by Schiphol, originate from the interviews Schiphol held with airlines. Since fleet replacement at an airline is a process rather than sudden tipping point, and since questions during the interviews Schiphol held did not focus on timeliness, it is difficult to make an accurate statement on the accuracy of replacement likelihood numbers provided by Schiphol. However, replacement numbers provided by Schiphol seem optimistic, given that Schiphol discussed replacement during interviews without limiting replacement to a direct consequence of a new airport charges structure as per April 1<sup>st</sup> 2025. On the other hand, the proposed replacement data set of the Ministry has been defined as the likelihood of replacement resulting from the new airport charges structure only. Although the Balanced Approach procedure requires replacement as a reaction to the measure in isolation, the approach of the ministry does not include autonomous fleet renewal and is likely not realistic either.

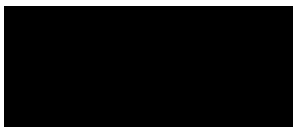
#### **Conclusion:**

Given complexity of network planning, predicting behaviour of airlines replacing fleet is extremely difficult. One-on-one interviews between Schiphol and airlines are therefore a good method to obtain a detailed view on fleet replacement. However, the documents made available for this review show a number of shortcomings. From the reviewed material it became clear that likelihood of replacement is considered the same for all traffic segments. There are good reasons to believe that some traffic segments behave different than others. Also, timeliness of fleet replacement is uncertain, since this was not discussed in detail with the airlines during the interviews Schiphol held. Finally, airlines may decide to reschedule flights outside night hours or may discontinue operations into Schiphol. This was not taken into consideration by Schiphol and Ministry, composing the likelihood figures of fleet replacement. Fleet replacement percentages provided by Schiphol seem optimistic, though the Ministry may present conservative replacement figures since they consider replacement only as a consequence of the new airport charges structure, leaving autonomous fleet renewal, on purpose, out of the equation.

**Accountability**

This document has been composed with available knowledge and expertise of the aviation sector in Erasmus UPT. Also complementing desk research has been conducted. The researchers involved are bound by the integrity policy of Erasmus University Rotterdam and the Dutch code of conduct for scientific integrity. The researchers involved exercise due care in conducting this research. However, Erasmus UPT and the researchers involved cannot provide any guarantees regarding the factual accuracy or completeness of the final product. The conclusions drawn by the researchers are a qualified judgment based on expertise and research activities.

Kind regards,



Floris de Haan MSc  
Erasmus UPT