

# 10 PM-7 AM Night Curfew at Brussels National

## A full evaluation of the economic impact

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### Executive Summary

All major airports in Germany, Luxemburg, and Switzerland already have a strict night curfew.

The true story at Zaventem :

- very few planes land from 6 AM to 7 AM.
- 7 AM to 8 AM departures are only 30% of the hour before.
- There are 25% less afternoon flights (12 AM – 5 PM) than at other similar airports.

Impact on cargo business :

- DHL main night cargo hubs operate 100+ km away from major capitals such as Berlin and London.
- Long haul cargo operations are compatible with a night curfew (Francfort is a good example).
- Transportation companies may lose 3.6 % of business at Zaventem but will regain it elsewhere.

Impact on passenger business :

- Low-cost carriers can fully operate with a night curfew, Eindhoven is the perfect example.
- 2/3 of Brussels Airlines planes spend the night away, the company may benefit from the curfew.
- Other major airlines will have no trouble to adapt to the night curfew.
- Passengers who connect to a foreign hub will have more incentive to use Brussels as a true hub.

The reduction in operating hours:

- will reduce the amount of night work and will slightly increase the overall employment.
- may require to recycle 25 jobs currently spent on standard night maintenance.
- may increase the duty free shop business and will be positive for the hospitality and tourism industry.
- will reduce the night hours paid by Belgocontrol, customs, fire brigades and other administrations.

Impact on Belgian businesses :

- The European Community and Nato will not suffer, 75% of early morning flights are leisure flights.
- Enterprises in Belgium will not suffer, including the pharmaceutical industry.

Impact on the Brussels National shareholders :

- Cargo revenues may decline by 3.6 %.
- Passenger traffic may decline by 1.4 %
- Parking, commercial, and real-estate revenues will not be impacted.
- Investing in a second low-cost & cargo facility will boost long-term shareholder value

Impact on the population around Brussels :

- The reduction of nuisances and ultra-fine particles may save 100 M€/year in health costs alone.

### Introduction

Many large airports in neighbouring countries have set-up a full night curfew :

- in Belgium : Anvers (10:30 PM to 6:30 AM)
- in France : Lille, Paris-Orly, Paris-Beauvais, Strasbourg
- in Germany : Berlin Tegel, Düsseldorf, Frankfurt, Hamburg, and Munich
- in Luxemburg : Findel (11 PM to 6 AM)
- in Switzerland : Basel, Geneva, Zürich
- in The Netherlands : Eindhoven (10 PM to 7 AM for commercial flights)

It is therefore useful to understand the economic impact of a similar curfew on the Belgian economy.

A full night curfew from 10 PM to 7AM will protect family lives around Brussels and have multiple impacts :

- scheduling and economical impacts on several kinds of flights : hub cargo, night cargo, low-cost flights, and major airlines flights.
- economical impacts on multiple stakeholders : staff working shifts at the airport, duty-free shops, Brussels National shareholders, Belgocontrol, customs and police administration, aircraft maintenance companies, transportation agents, transportation companies, various airport suppliers, as well as hotels within the Brussels area.

We shall successively analyze the impact of the night curfew on each of these stakeholders, as well as on the Belgian economy and Brussels population in general.

### **Hub cargo**

Night cargo flights from hub platforms (such as TNT in Liège, DHL in Leipzig or Bonn) will not be able to operate from Zaventem anymore. Several options for a new DHL hub in Belgium are analyzed in a specific document : [www.coeur-europe.be/images/Comparatif/DHLOptionsInBelgium.pdf](http://www.coeur-europe.be/images/Comparatif/DHLOptionsInBelgium.pdf)

While the purpose of this study is not to help DHL select the right platform in Belgium, we should be aware that DHL hubs are generally set-up along a freeway in the countryside, 80 to 150 km away from their customer base : Frankfurt-Hahn is 100 km away from Frankfurt, Leipzig-Halle is 120 km away from Berlin, British Midland Airport is 140 km away from London.

Further away from Brussels DHL shall be able to source manpower and other resources at a more competitive cost. This will help the company grow faster in Belgium.

### **Night cargo**

Pure cargo international flights for which Brussels is only one of their many destinations shall be able to adapt easily to a new schedule :

The example of Frankfurt shows that night curfew imposed at the end of 2011 had a limited impact on the overall cargo business, which dipped 6.7% from 2011 to 2012 before rebounding by 1.4 % in 2013 and 1.7 % in 2014. Frankfurt remains by a wide margin the largest cargo airport in Europe.

### **Low-cost airlines**

At Brussels National, Low-cost airlines represent 60% of take-offs from 6 AM to 7 AM and 60% of landings after 10 PM. Low-cost airlines have no take-offs after 10 PM and no landings before 7 AM.

A shorter working day at Brussels National will push these airlines to use other destinations for their last leg of the day. They will stop in Zaventem earlier in the day and depart later in the day, a move which shall be beneficial to the Brussels Airport users.

Such scheduling changes will not be detrimental to the airlines : Ryan Air for exemple services 3 times more destinations from Eindhoven than it does from Brussels.

Such scheduling changes will not be detrimental to Brussels Airport either, as the airport has a lot of open capacity between 11:30 AM and 5:00 PM and will be able to better balance its workload.\*

*\*: for the 5 1/2 hours from 6 AM to 11:30 AM, the airport had on June 3<sup>rd</sup> from 6:00 AM 17% less movements than for the period from 11:30 AM to 5:00 PM.*

### **Major Airline flights**

We analyze successively the morning and evening time periods, separately for arrival and departure flights.

## 1. Morning arrivals

At Brussels National, the number of arrivals between 6 AM and 7 AM is small and consist of a few transcontinental flights from North-America and Africa (long haul flights). Asian flights may also develop overtime.

Existing Mumbai and Dehli flights are currently scheduled at 7:50 and 7:55 AM. A one hour shift in the arrival schedule of other transcontinental flights will not be a significant issue.

## 2. Morning departures

The flights from major airlines (not low-cost) which take-off from 6 AM to 7 AM represent only 40% of all departures within this time slot.

As the total number of flights which take-off from 7 AM to 8 AM is only 30% of the amount of the 6 AM-7 AM hour, the airport will have no problem to reschedule 40% of the 6 AM-7AM flights one hour later, and could also reschedule half of the early low-cost flights (we assume that the other half will reorganize their rotation schedules to land in Brussels in the mid-day hours)

## 3. Evening departures

At Brussels National, no flights from major airlines do depart after 10 PM, except for delayed flights and a single Aeroflot flight to Moscow which could adapt its schedule.

## 4. Evening arrivals

Many flights from major airlines do arrive after 10 AM at Zaventem : while about 25 such flights arrive from 7 PM to 8 PM and 20 from 8 PM to 9 PM, about 6-9 more planes land during each of the following three hours.

4.1 A detailed analysis which includes flight delays shows that almost 50% (11 of 23) of the major airline flights landing after 9 PM are Brussels Airlines flights. If the airport opens one hour later and closes one hour earlier than today, these 11 aircrafts will not be able to maintain their rotation schedules.

Brussels Airlines already has 25 flights which depart from Brussels National after 8 PM and will therefore not spend the night in Brussels. Therefore, Brussels Airlines will have the choice between four options to cope with a 22 PM – 7 AM night curfew :

- a. Slightly reduce the rotation time at each of the airports its planes stop at during the day in order to maintain the same amount of rotations. This is probably feasible for half of the 11 aircrafts : for exemple the Hannover SN2640 flight scheduled with a 7:45 AM arrival has its next departure as SN2633 only at 9:15 AM, a 90 minutes overlay when Ryan Air takes 55 minutes.
- b. Lobby to allow aircrafts returning to their home-base to land a bit later, such as 10:30 PM. Such regulation has been implemented at the München airport.
- c. Modify its timetable to have a larger percentage of its aircrafts spend the night out of Brussels.
- d. Modify its timetable to have some aircraft flight a shorter distance in order to finish their day earlier in Brussels.

We estimate that the right combination of these four options will greatly minimize the revenue impact of Brussels Airlines : if 4 aircrafts out of the 46 aircrafts which the company operates need to shorten by one leg out of 6 their daily schedule, the potential revenue loss for the company will be about 1.4 %.

At the same time the company may face a decreased competition of low-cost airlines at Zaventem, which will help boost its occupancy rate : The overall impact of the night curfew may even be positive on Brussels Airlines.

4.2 All other major airlines with a flight landing after 9 PM in Brussels National have only one aircraft spending the night in Brussels, except for Lufthansa which may have two aircrafts.

It will therefore be relatively easy for these airlines to rearrange their flight timetables to cope with a night curfew in Zaventem.

## **Staff working shifts at the airport**

Reducing operating hours from 7 AM to 10 PM at the airport will make life easier for all types of workers working shifts :

- The amount of night work will be greatly reduced , early morning shifts will be able to start one hour later and evening shifts will be able to finish one hour earlier : The life of airport workers will be significantly improved.
- Because the airport will operate at higher throughput during the day, the reduction in operating hours will have a slight positive impact on employment.
- It should be noted that such employment increase will not degrade profitability – quite the opposite - as the share of expensive night labor will be reduced.

## **Duty free shops**

Passengers taking-off in the early hours of the day or landing late in the evening are in no mood to conduct any significant shopping at the airport. We therefore believe that the night curfew will have a positive impact on the overall shopping expenditures at the airport.

## **Brussels National shareholders**

An airport has several sources of revenues :

- landing fees, largely based on the amount of passengers and cargo weight,
- real-estate & commercial fees from duty free shops and office space,
- parking fees.
- revenues from other airport stakes

### 1. Impact on passenger revenues

Early morning and late evening flights represent 25% of the flights of low-cost airlines at Brussels National, which represent about 25% of the total passenger flights. If we assume that low-cost airlines may reschedule half their morning and evening flights to other airports, the potential loss of passenger flights for the airport is  $\frac{1}{2} \times 25\% \times 25\% = 3.1\%$ .

As early morning and late evening flights are less attractive to customers than the mid-day flights the occupancy rate for these flights is estimated to be at least 30% lower than the average. Low-cost flights are also operated with smaller planes than large transcontinental flights. As the percentage of such flights is still low at Zaventem, we shall take a conservative 85% aircraft size for low-cost aircrafts versus the average.

Therefore, the potential passenger loss before switching effects is equal to  $3,1\% \times (1 - 30\%) \times 85\% = 1.8\%$ .

We estimate that at least 1/4 of these passengers will prefer to switch to another aircraft during the day rather than move to another airport further away. This effect will be a significant boost for Brussels Airlines and will help reduce the passenger loss to less than 1.4%.

### 2. Impact on cargo revenues

Data from Francfort shows that after 3 years of night curfew, cargo revenues have only declined by 3.6%.

### 3. Impact on real-estate and commercial revenues

No negative, maybe a slight positive impact. These revenues are a major source of growth for large airports.

### 4. Impact on parking fees

Business passengers leaving their car at the main airport parking tend to be single travelers. They do not take the early morning low-cost flights to the southern Europe destinations. We therefore believe that the night curfew will have no negative impact on parking revenues.

## 5. Revenues from other airport stakes

The night curfew represents a business opportunity for Brussels National : Just like Frankfurt Airport also operates the Frankfurt-Hahn low-cost airport, we believe a similar set-up should/will prevail in Belgium.

The net present value of such opportunity is quite significant.

Overall, we estimate that the introduction of the night curfew and the restructuring of the Belgian airline industry will have a positive effect for Brussels National Shareholders.

### **Belgocontrol**

While Belgocontrol will have to better schedule a larger amount of flights within a shorter operating window, such task is well within its technical abilities.

At the same time, Belgocontrol employees will be able to benefit from a reduced amount of night working hours.

### **Customs, police, security, and fire brigade**

The staff will be able to benefit from a reduced amount of night working hours, which will help improve the administration budgets.

### **Aircraft maintenance companies**

As the number of aircrafts spending the night in Zaventem will decrease with the night curfew, the number of standard maintenance operations performed each night will decrease as well.

These standard maintenance operations are quite short, except when an unexpected problem is discovered, which rarely happens. The average time spent per aircraft is under 3 working hours per night.

Overall, if about 20 low-cost, 10 major airlines, and 5 Brussels National planes do not spend the night in Brussels any more, about 750 maintenance hours may be lost per week.

This amount of work represents a maximum of 25 qualified workers.

### **Transportation agents and transportation companies**

Shipping agents as well as last mile transportation companies may loose an average of 3.6 % of cargo business in Zaventem over three years.

But these companies are generally also active at other airports in Belgium (Liège-Bierset in particular). Therefore, if night cargo activities are transferred to Liège or another facility, they will not loose any business.

Such limited restructuring of the Belgian cargo activities will indeed have a positive effect on the overall business potential, and will nurture further growth.

### **Other airport suppliers**

Most small airport suppliers will not be affected negatively by the night curfew. If a new cargo and low-cost platform is developed in Flanders, they will even enjoy a high-growth period.

Large suppliers are often international companies which will remain unaffected by any shift in flight schedule or location.

### **Travel industry and hotels in Belgium**

The night curfew shall have some specific side effects on the tourism industry.

- Visitors brought to Belgium by late evening flights or leaving in early morning today will have more time to travel to/from hotels further which they will be able to choose further away from Zaventem. This will benefit to hotels located in Anvers, Mechelen, Gent, or Leuven.

- A similar mechanism will allow the Brussels National airport to attract new visitors whose final destination is not Brussels.

- Many visitors based in Brussels hotels will not need to depart as early in the morning : If 20% of the 3,000 passengers who currently take-off between 6 AM and 7 AM stay at Brussels hotels, this means night staff will have to perform early checkouts for 600 fewer people daily.

## **European Community and Nato**

Any assumption that wider operating hours may benefit the EC and Nato is just fake : almost 75 % of all 6 AM – 7 AM departing flights are made to vacation cities in the south of Europe. Other destination cities are Amsterdam, Copenhagen, Berlin, Francfort, München, Lyon, Bordeaux and Geneva.

## **Belgian enterprises and businessmen in Belgium**

### **1. Cargo business**

The German industry is doing quite well while most German airports support a night curfew and while most of its industrial towns are at least 100 km away from the closest night cargo hub.

The Swiss pharmaceutical industry is also doing quite well while its three main airports (Zürich, Geneva and Basel) are closed at night.

### **2. Passenger traffic**

Early morning business travel is split in two parts :

- connecting flights to the hubs of Amsterdam, Copenhagen, Francfort, and München
- flights to Berlin, Lyon, Bordeaux and Geneva.

Connecting flights to third party hubs do not benefit much to the Belgian economy, and most foreign destinations may be alternatively adressed through rail connections to Schiphol or Paris-CDG if they are not directly accessible from Zaventem. It is in the best interest of Zaventem to establish direct hub connections with as large a number of cities as possible, in particular in Asia.

Early morning flights to Berlin, Lyon, Bordeaux and Geneva do not allow local meetings to start at 8 PM. Shifting departure times to the 7:00 AM to 7:30 AM time slots will still allow to conduct late morning meetings, an acceptable option for businessmen not ready to leave the evening before.

## **Economic impact on local populations**

A 2002 statistical analysis conducted by the John Hopkins University in Baltimore shows a strong correlation between higher mortality rates and ultra-fine particles pollution levels.

In addition to a shorter lifespan, there is little doubt that ultra-fine particle pollution around the airport increases both i) health costs and ii) the amount of lost working days for the population nearby.

A 10% increase in health costs alone for 250,000 people around the airport does cost about 100 M€ per year to our social security system. Such cost does not include the windfall of lost working days nor does it quantify the business disruptions that come along with long term health problems.

## **Conclusion**

While the implementation of a strict 10 PM – 7 AM night curfew at Brussels National will have at most a very limited impact on its profitability and the profitability of other stakeholders, it should be understood by all parties that the coupling of such curfew with a set of structural decisions aimed at creating an effective night cargo and low-cost flight platform in a less populated area will have both a very positive effect on the growth of our airline industry and a positive effect on the overall health of the Belgian population.