

AF-KLM: greater collaboration is needed



## I Letter from the Director of Air France-KLM

**François Robardet**

Representative of the employees and former employees shareholders PS and PNC

N°816, July 12, 2021

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### *Election of the members of the supervisory boards of the Air France group employee savings plan*

Only one week left to elect the members of the supervisory boards of the Air France group's employee savings scheme, **if you hold savings in one of the Air France group's employee savings funds.**

I am once again submitting to the voters concerned the "Union-Experience with François Robardet" lists and invite you to vote for them. You will find all the necessary information in my [Flash n°86](#).

### *Editorial*

*Dear readers,*

*This week, I am offering you a few less articles than usual, without making the letter any shorter; I have chosen not to shorten the most interesting articles too much.*

*At the end of the letter, I publish the eleventh infographic on the climate impact of aviation. It shows that sustainable alternative fuels do not compete with food or nature.*



*See you soon on our lines.  
François*

## **Monday's Press Review**

### **> More collaboration within Air France-KLM necessary**

(source FD) July 9 - At a farewell reception last week, Air France-KLM CEO Benjamin Smith met with Leo van Wijk, who spearheaded the merger with Air France in 2004 on behalf of KLM. His French counterpart at the time, Jean-Cyril Spinetta, was also present.

Both were visionaries. I take my hat off to them," Smith said from his headquarters in Paris. The meeting got him thinking: what did **joining forces achieve?**

**Smith thinks it's time to show the Netherlands the benefits of the merger.** "Van Wijk and Spinetta have created a great group. Go back to 2004 and look at the growth in results, the growth in passengers. **The creation of Air France-KLM has been very good for KLM and Air France. Nobody can deny that the benefits of the group for KLM have been substantial.** "

(...)

If Van Wijk and Spinetta have successfully led the merger of the two airlines, **the combination is now considered critical.**

(...)

**Mr. Smith is going to give details to the Dutch.** As soon as he arrived, he launched a discussion on the structure of the group, during which emotions ran high. Especially when it seemed that the reappointment of Pieter Elbers as KLM president was at stake. But his attempts to do more for the cooperation between the two airlines were repeatedly met with skepticism from Amstelveen. **At KLM, there are fears that crucial decisions about the fleet, network and customer data will be transferred to Paris.**

The question is what **Smith** has been able to achieve during his "reign,"

which has also been overshadowed by the biggest crisis in aviation history. He **mentions a joint order for 160 aircraft, for which a tender was submitted to Boeing and Airbus. They are destined for Transavia in France, KLM and Transavia's Dutch fleet.**

(...)

**It is much more difficult to make rapid progress in the area of human resources and talent management.** Smith wants to create more exchanges between the two airlines. There is group cooperation in many areas, but Air France and KLM have their own employment conditions, just as France and the Netherlands have their own tax systems.

We don't have any method of managing talent as a group', says Smith. Salaries can differ, bonuses, salary increases. It's not done fairly. It's not always easy to move around the group and we employ a lot of people, which is frustrating.

Smith sees deeper cooperation as a necessary condition for reducing the gap with **IAG** (British Airways, Iberia) **and the Lufthansa Group.** These two groups **have tighter control and can react more quickly to market developments, he believes.** In 2004, Air France-KLM was the largest group in Europe, today we are number three. They work more decisively. **It is clear that we can do it too, but we have to move a little faster.** It does not say where the synergy should accelerate. 'I'm not Dutch or French, I come from outside,' Smith said. I know the sensitivities in both countries. **There are unfounded fears and it is our responsibility to allay them. '**

**Smith hopes to return to the Netherlands on a weekly basis after the Covid-19 crisis.** Because of restrictions, his last visit was a few weeks ago . The question is what more he can do, from the Communications holding company, to increase confidence in the Netherlands. Results are important, optimizing KLM's performance is also important for the group, for our shareholders and other stakeholders. It is crucial. What the Dutch citizens and the Dutch state expect from us is that we do everything we can to help KLM to be profitable, to maintain destinations around the world. That KLM can operate in the best possible way. I think at the end of the day, it's the results that count. '

As part of **Air France-KLM's support operations,** the Netherlands and France are going their own way. In April, the French presented a new support plan, converting 3 billion euros of government bonds into perpetual bonds. Unlike the Netherlands, they also participated in an equity issue.

(...)

Wouldn't it have been better if France and the Netherlands had worked together in Brussels on refinancing? Mr. Smith finds this question

difficult. I don't know if it would have made a difference. Some say it would have, some say it wouldn't have. I don't know if it would have made a difference.

And **"wouldn't it have been better for the company itself if the two countries were on the same page? Smith prefers to point to a recent strategy session, in which all major shareholders, including Delta Airlines and China Eastern, supported his plans.** I am very pleased that both countries, as well as Delta and China Eastern, recognize Schiphol's position as Europe's most efficient airport, one of the group's main assets. And that Air France serves the largest single market in Europe, that we are well positioned and adaptable in terms of costs. '

***My comment:** This is not the first time that an Air France-KLM group executive has talked about strengthening cooperation between the group's two main subsidiaries. Ben Smith's predecessors have regularly come up against the reluctance of some and others.*

*This time, it seems that the group's main shareholders have shown their willingness to move forward on this delicate issue.*

## **Gaat kerosinetaks er nu echt komen? (Will there really be a tax on kerosene?)**

(NOS source, translated with DeepL) July 6 - From 2023, kerosene should be taxed, according to the European Commission.

(...)

**The tax exemption for fuel used in aviation and shipping is outdated, according to the Commission.** According to documents seen by Financieele Dagblad, there should be a tax on kerosene and oil, and no tax on sustainable hydrogen and other renewable sources. "This is starting to become urgent with the climate plans," says Sander van Hoorn, Brussels correspondent, in NOS Radio 1 Journaal. "That means it's time to take more drastic measures."

(...)

An international aviation treaty from 1944 stipulates that aviation fuel (and ship fuel) is tax-free. These agreements were made because commercial aviation operates in multiple jurisdictions, each with its own tax regime. **The package will be announced by the European Commission on July 14.**

According to Van Hoorn, **it will be interesting to see if the 27 member states will agree on these measures**, including the per-ton tax. "It's a very sensitive issue and it's going to be difficult. **You also have to ask yourself how you are not going to disadvantage your own airlines,**

**your own carriers, when those in other parts of the world have huge advantages.** The Netherlands, for example, has major interests in the shipping sector."

**In 2019, for example, nine member states, including the Netherlands, have already called for the introduction of a European flight tax.** Ireland, for example, was not among them, due to the position of the major airline Ryanair. **As the measure did not meet with unanimous approval at the time, the Netherlands introduced its own air passenger tax of 7 euros per ticket this year.**

Aviation for Europe (A4E), which represents about 16 airlines, does not support the tax. According to the interest group, governments should invest more in new technologies in the field of sustainable fuels. And at the European level, more efficient use of airspace should be regulated, with fewer detours.

"What the rest of the world does is also important," Van Hoorn says.

"You can imagine that once bunkering of shipping oil or refueling of kerosene is also taxed in the rest of the world, the step for the European Union and the 27 member states to take will become much smaller."

**My comment:** *If kerosene is not taxed, we must not forget that there are measures to reduce emissions from air transport.*

*For example, more than 100 countries are voluntarily participating in the Carbon Offset and Reduction Scheme (CORSIA) developed by the International Civil Aviation Organization (ICAO).*

### > **Air France-KLM launches a tender to renew the KLM and Transavia fleets**

(source Reuters) July 12 - **Air France-KLM has launched a tender to renew and expand the medium-haul fleets of its Dutch arm KLM and its low-cost subsidiary Transavia,** a spokesman for the Franco-Dutch airline group said on Monday.

The daily Het Financieele Dagblad, quoting Air France-KLM CEO Ben Smith, had earlier reported that the group had contacted Airbus and Boeing for **an order of 160 aircraft.**

**My comment:** *A tender for medium-haul aircraft usually pits the Airbus A321neo against the Boeing 737 MAX.*

*The fleets involved in the tender currently represent 141 aircraft :*

- . the 51 KLM aircraft (5x737-900, 30x737-800, 16x737-700),*
- . the 42 aircraft of Transavia Netherlands (35x737-800, 7x737-700),*

. the 48 aircraft of Transavia France (48x737-800).

## **Lufthansa: 1 billion euros and A321 freighters**

(source Air Journal) July 8 - **Deutsche Lufthansa AG has (...)** **announced** on July 7, 2021, **that it has "again successfully issued" a bond with a total volume of €1 billion**, placed in two tranches with a maturity of three and eight years, respectively, and a volume of €500 million each: 2029 3.5 percent. After a similar transaction in February, the Lufthansa Group "has already secured the refinancing of all financial liabilities maturing in 2021 and has also prepaid the €1 billion loan." The long-term funds now raised will be used to further strengthen the group's liquidity.

(...)

In addition to the bond issue announced yesterday, **the Lufthansa Group "is continuing preparations for a capital increase.** The net proceeds would contribute, among other things, to the repayment of the stabilization measures of the German Economic Stabilization Fund (ESF) and the restoration of a sustainable and efficient capital structure in the long term." No further details have been provided to date.

**On the fleet side, the Star Alliance airline announces the conversion of two A321s for cargo transport**, which will be based from the beginning of 2022 at Frankfurt airport to offer its customers "additional capacity in Europe". (...) Growth in cross-border e-commerce shipments is estimated at about 20% per year over the next five years, Lufthansa said in a statement. Consumers "expect ever shorter delivery times for their ordered products. This also increases the demand for air freight connections in Europe.

(...)

## **> Night flights at Beauvais cancelled, bad news for Ryanair**

(source L'Echo Touristique) July 12 - "This is a great victory for the populations overflown," the Beauvais-Tillé airport residents' association (Adera) is pleased to report after the Council of State annulled the 2019 decree that had eased a curfew obtained in 2002.

On July 9, **the administrative judge found that this exemption allowing for three years some aircraft, mainly those of Ryanair, to land between 11 pm and 5 am, was an environmental regression.** The 2019 decree contributes to weaken the fight against noise. And this while the right of everyone to live in a healthy environment has been raised to the rank of constitutional right. **The Beauvais airport is therefore forced to return to its original curfew of midnight to 5**

**hours.**

(...) Today,

neither the Beauvais-Tillé airport nor Ryanair have reacted yet.

Eight airlines operate regular flights **from Beauvais-Tillé airport.**

**Ryanair**, of course, which **accounts for 72% of traffic** and which opened a base in December after investing 170 million euros. But also Wizz Air, Blue Air, Air Moldova, Laudamotion, Volotea, Skyup, Hisky.

***My comment:** At most French airports, night rotations are mainly due to cargo flights. Beauvais was one of the main exceptions.*

### > **Boeing: the 737 MAX soon back in the Chinese sky?**

(source Capital) July 10 - After the United States and Europe, **will the 737 MAX make its return to Chinese skies?** The question arises as, according to a Bloomberg report, Beijing has said it is open to a return to its airspace of the twin-engine plane, blamed for two fatal crashes in 2018 and 2019 and grounded for more than two years. **The plane could soon resume test flights in the Middle Kingdom**, while the MAX is now recertified in most of the world, after modifications to its MCAS anti-stall system, implicated in the Lion Air and Ethiopian Airlines tragedies.

(...)

**The return to the runway of Boeing's former star aircraft could also depend on the trade war between the two countries**, as the 737 MAX could be used as a bargaining chip in Sino-American negotiations around the strategic aviation sector. The return of the twin-engine aircraft to Chinese skies is also highly strategic for Boeing, which relies on the return of its aircraft to try to repay the huge debt incurred in the last two years, estimated at 64 billion dollars, 54 billion euros.

(...)

For the moment, **Boeing did not wish to comment on the information of Bloomberg.**

***My comment:** More than 170 countries have already authorized the return to service of the Boeing 737 MAX.*

*To date, airlines have not reported any reluctance from passengers to fly the aircraft.*

### **Council of the EU gives its green light to sign EU-Qatar air transport agreement**

(European Commission source, translated with DeepL) July 9 - **The Council (27 EU ministries) gave the green light to the signing of a**

## **controversial agreement with Qatar to open up air transport traffic on June 28.**

The agreement was negotiated by the European Commission on behalf of EU member states, and has been available for internal signatures since March 4, 2019. The agreement is expected to be signed in September and then ratified by each EU member state, the European Commission and Qatar.

The agreement phases out all frequency/capacity limitations between Qatar and EU countries over the next 5 years, except for domestic routes.

A fifth freedom is granted for cargo flights, but limited to 7 weekly frequencies per EU country (e.g. 7 weekly cargo flights between France and the Americas are granted to Qatari carriers).

Countries agree to avoid "unfair practices" and "not to grant or permit subsidies to airlines if such subsidies would undermine fairness and equal opportunity for airlines of other parties", with the exception of a few very narrow specific cases.

***My comment:*** In 2016, France and Germany, under strong Qatari pressure to open their respective markets, decided to ask the commission to negotiate a global aviation agreement instead of bilateral discussions.

*The agreement appears to be particularly advantageous economically for Qatar Airways, as it will have access to the entire European Union market, which has a population of nearly 450 million (compared to ~3 million in Qatar for EU airlines).*

*In return, the EU defends the agreement by pointing out that it will ensure a more level playing field (e.g. agreements on subsidies) and that it contains clauses and intentions on safety, environment and social elements.*

*Europeans for Fair Competition (E4FC), a coalition of airlines (including Air France and KLM) and trade unions, is urging EU member states to postpone the agreement and reassess it, taking into account the effects of the Covid crisis.*

## **Bonus of the week**

**We must re-examine the relevance of hydrogen for**



## aviation" (Michel Wachenheim, President of the French Air and Space Academy)

(source La Tribune) July 9 -

*THE TRIBUNE - Airbus intends to launch a hydrogen aircraft by 2035. Do you think this is possible and if so, what type of aircraft could fly on hydrogen by that time?*

MICHEL WACHENHEIM\* - Airbus has already publicly presented its various projects and will certainly make further announcements when its research is more advanced. Last March, the Académie de l'Air et de l'Espace organized a symposium chaired by Violetta Bulç, former European Commissioner for Transport, to highlight the ways and means of decarbonizing air transport, without taboos or concessions, by giving a voice to outside players, young people and non-European viewpoints.

### **Technological innovation is**

obviously **an important part of the roadmap to full carbon neutrality for aviation. The experts heard unanimously consider that the use of hydrogen to propel short-haul aircraft is not out of reach, even if many difficulties remain to be solved.** What are they

? **The size and weight of the tanks:** even if its energy/mass ratio is about 3 times higher than that of kerosene, the very low density of hydrogen will require volumes 4 times larger for liquid hydrogen at -253°C, 6 times larger for compressed hydrogen at 700bars, which will make the aircraft heavier and will also lead to over-consumption;

. **The complexity of the management systems of the engine supply circuits**, of the permanent evaporation of hydrogen, of the tightness of the circuits, which will have to respect the safety standards of air transport and undoubtedly new standards which remain to be established, much more drastic than those of the space industry designed for short duration flights;

. **The availability of production and distribution infrastructures at the airports hosting these aircraft**, respecting specific environmental protection standards and coexisting for the necessary time with other means of refueling with kerosene and sustainable fuels that are currently in use or that are to be developed.

These are just the main challenges. Technological innovation will undoubtedly make it possible to overcome some of them, but the constraints of volume and weight (which are the laws of physics, valid today, in 2035 and beyond!) will be difficult to overcome, which means that **this type of propulsion can only be envisaged in the short and**

**medium term on aircraft with a range of 500 to 1,000 km for gaseous hydrogen, and up to 2,000 km for liquid hydrogen, according to the figures put forward by the experts present at the Academy's symposium last March.** So this solution, as attractive as it is, will only have a very minor impact on aviation emissions, two-thirds of which come from medium and long-haul flights.

This observation must also be assessed in the light of the airlines' fleet policy. **The coexistence of aircraft with very different technologies, while not impossible, is more difficult to manage from all points of view** (interoperability, flexibility of aircraft assignments to different routes, training of technical personnel, maintenance). The availability of hydrogen refueling will become a factor of rigidity, at least until enough airports are equipped.

*Hydrogen will therefore not be used on medium-haul aircraft, the bulk of the world's fleet, and even less on long-haul aircraft. What do you recommend to successfully decarbonize aviation?*

One of the challenges of decarbonizing air transport is the need to reduce emissions now. This was strongly emphasized by Valérie Masson-Delmotte, co-chair of Group 1 of the Intergovernmental Panel on Climate Change (IPCC) and several other speakers. **If carbon neutrality in 2050 is an important objective, the amount of greenhouse gases emitted between now and 2050 is also an important issue.** The Air and Space Academy does not believe that allocating a carbon budget prorated to current (or 2018) emissions is the right formula. The social utility of the different sectors of activity and their capacity to decarbonize quickly must be taken into account in order to optimize the distribution of efforts. But nevertheless, all measures to reduce emissions from now on and as quickly as possible must be taken. **The policy of innovation on current technologies must be continued.** Experts are talking about further reductions in consumption of up to 40%. **At the same time, there are very promising prospects for sustainable fuels,** a solution that several countries are favoring over hydrogen, for aviation of course, but hydrogen is an interesting solution for many other sectors.

The industry has already demonstrated the possibility of blending biofuels with conventional kerosene up to 50% and has undertaken to pursue this path up to 100%, without major technical difficulties. In this hypothesis, CO<sub>2</sub> emissions could be reduced by 80%, with, in addition, a 70% reduction in particulate emissions. In this case, the only obstacle to this significant reduction would be their availability, regardless of their cost, for which incentives would have to convince airlines to use them.

**Projects to develop synthetic biofuels, mainly lignocellulosic (BTL: bio to liquid), have been launched in Germany, the United Kingdom and the United States.**

**The next step will be the production of synthetic fuels from hydrogen from water electrolysis and carbon from carbon dioxide taken from the air (PTL: power to liquid).**

When this synthetic oil burns, it returns the previously captured CO<sub>2</sub> to the atmosphere. The process is currently at a pre-industrial level in the United States and Germany. A project is reportedly being prepared in France.

It is clear that this is a CO<sub>2</sub>-neutral solution, just like hydrogen, provided that in both cases the entire operation is carried out using decarbonated electricity (renewable or nuclear). The energy balance of the two solutions is comparable. The important difference is that the PTL will be usable on all aircraft, and that the development of BTLs, and then PTLs, can start now and progress according to the resources that will be devoted to them. The technological breakthroughs will be small and the distribution to airports much less complicated. In terms of costs, insofar as current technological innovations can still reduce consumption (1.5l per passenger per 100km is conceivable), the additional costs of PTL will be limited (we are talking about +10€ for a Paris-Toulouse trip, and +100€ for a Paris-New-York trip)

*Should we therefore reconsider hydrogen?*

**In light of the work it has carried out, the French Air and Space Academy recommends re-examining the relevance of the effort to be made on onboard hydrogen for aviation,**

taking into account the global potential of the PTL solution and the limits of R&D resources.

This is not to **deny the feasibility of the hydrogen solution (even if it is only partial), but rather to engage public or private decision-makers to manage priorities in a more universal way and to focus on the urgency of the decisions to be made.**

The technology has a lot of room for innovation and designers can meet many challenges.

Those who do not believe in it are mistaken, but technology is not the only dimension to consider.

*Airports, and ADP in particular, are investing heavily in hydrogen.*

It is perfectly understandable that European airports want to support the strategy of public institutions. However, this strategy may seem paradoxical when it consists of supporting technology that will be applied mainly to regional and short-haul routes, which some would like to see disappear in favor of rail transport. I have no doubt that Aéroports de Paris, a world-class airport, is similarly interested in the development of future sustainable fuels, and that its strategy will also evolve in line with developments within the aviation industry worldwide.

It is obvious that to support the development of liquid hydrogen powered aircraft, we should also support the equipment of regional and short-haul airports.

*What do you think the International Civil Aviation Organization (ICAO) should do in terms of regulation?*

**In the decarbonization of air transport, the international dimension is fundamental, because it is difficult to implement national and even regional policies for a market that is 70% international** and whose operation is based on international technical regulations and diplomatic agreements between States. The European Union found this out the hard way in 2012, when it tried to unilaterally impose emission regulations on international flights, without the agreement of the countries concerned. It had to back down, but the positive consequence was to advance the policy of the International Civil Aviation Organization (ICAO). Without European pressure, the international aviation emissions trading scheme (CORSIA) would probably not yet exist. No other industry has succeeded in setting a global emissions limitation target. But is this enough?

A considerable effort remains to be made: **limiting international aviation emissions to their 2020 level (actually 2019 given the pandemic) is a far cry from the 2050 zero emissions target** needed to keep warming within the Paris Agreement's 2°C targets. **ICAO must therefore make a "quantum leap"**. During its next Assembly in September 2022, a number of states will support the adoption of a long-term emissions target.

With regard to the distribution of the efforts to be made, the organization is the site of an ongoing debate on the modalities of their distribution among States: how to take into account both the principle of common but differentiated responsibility contained in the Kyoto Protocol (1997) and the Paris Agreement (2016), and the principle of non-discrimination at the basis of the Chicago Convention (1944) which created the ICAO. There have been exemptions to CORSIA, but they are limited. ICAO is therefore moving forward at the pace of the lowest common denominator. The needs of countries whose economies are highly dependent on air transport must be taken into account, and consequently the efforts of others must be calibrated without losing sight of the overall objective.

**The French Air and Space Academy recommends that a strong political impetus be given before the ICAO Assembly in 2022, for example by putting the ICAO climate strategy on the agenda of an international meeting (a Chicago II), knowing that France, which will hold the presidency of the European Union in the first half of 2022, could play a particular role.** The Academy also recommends that this meeting be the occasion to launch a profound reform of the organization whose cumbersome procedures slow down progress and are not adapted to the rapid adoption of new standards, including

technical ones, which are essential to the implementation of innovations. As mentioned earlier, **the use of sustainable fuels, and then PTLs at a later stage, is one of the most effective ways to act now. The market will not do it all; carriers will need to be incentivized or constrained by regulations.** Accelerated fleet renewal is also an effective short- and medium-term action. Incentives will be needed. Some operational procedures could be favored over others. It is **clear that these orientations require a review of air transport policy at the global level.** It is also one of ICAO's roles to organize this debate within the framework of the air transport conferences that bring together all States about once a decade, the last one being in 2011. The Academy recommends the organization of a 7th Air Transport Conference with the objective of adapting global air transport policy to the climate change strategy that will be defined by the 2022 Assembly. *What are your other recommendations?*

Air transport and the aviation industry are mobilizing to go all the way and approach "net zero emissions". **International air transport has met the safety challenge** (less than 1,000 deaths per year). There is **every reason to believe that it will meet the climate challenge, and that the innovations that emerge will also benefit other sectors.** However, the aviation sector is sometimes difficult to convince. Some people attribute to it a share of emissions that is far greater than it really is, while others think only of forcing it to decrease. In this context, **the Air and Space Academy considers that the question of the social utility of air transport must be addressed in a direct, but also balanced way.** It is true that 1% of the world's population emits 50% of the total CO<sub>2</sub> of air transport. Just as 1% of the population holds half of the world's wealth. This observation relates to the functioning of our societies, not to that of air transport.

**What is the purpose of air transport? What is its social utility? Could we do without it? The sociologists we have asked suggest ways of thinking about it: travel is an instrument of both individual and collective development. But the perception is different in developed countries with alternative means of transport and in landlocked countries whose economies depend on air transport. Reflections on the uses of air transport are necessary.**

The Academy recommends the creation of a forum on the uses of aviation, which could be European. This forum should bring together all stakeholders, both internal and external to the sector, citizens and public authorities, and should widely involve the younger generations. She suggests that this initiative be taken by a European institution, such as the European Parliament.

*In France, some voices advocate the decrease of air transport, what do*

*you say to them?*

That it is **easier to be an ideologue of decline than to undertake for a better life. The solutions exist, perhaps not to multiply air traffic by 4, but for a weak growth here, strong in the countries which need it strongly, and in total good for Humanity...**

Michel Wachenheim is a graduate of the Ecole Nationale de l'Aviation Civile (Toulouse). He was Director General of Civil Aviation, Director of Cabinet of the Minister of Transport Dominique Bussereau and Ambassador representing France at the ICAO where he chaired the 38th Assembly (2013). He has been President of the French Air and Space Academy since January 1, 2021.

**My comment:** *I attended the symposium organized last March by the Académie de l'Air et de l'Espace. This article is an excellent synthesis of the work done on that occasion.*

*I am participating with a group of specialists in work designed to highlight the efforts made by the air transport sector to reduce its impact on global warming. The eleven infographics published in my letter and on social networks (see below) are the result of our work.*

*We are also working on the creation of a **Sustainable Aviation Observatory**, similar to the forum on aviation practices recommended by the French Air and Space Academy.*

## **Sustainable alternative fuels do not compete with food or nature**

(source sustainableaviation) July 6 - Sustainable alternative aviation fuels (SAF) can reduce:

- the carbon footprint of aviation by 80% over its life cycle,
- the amount of contrails produced by 50 to 70%.

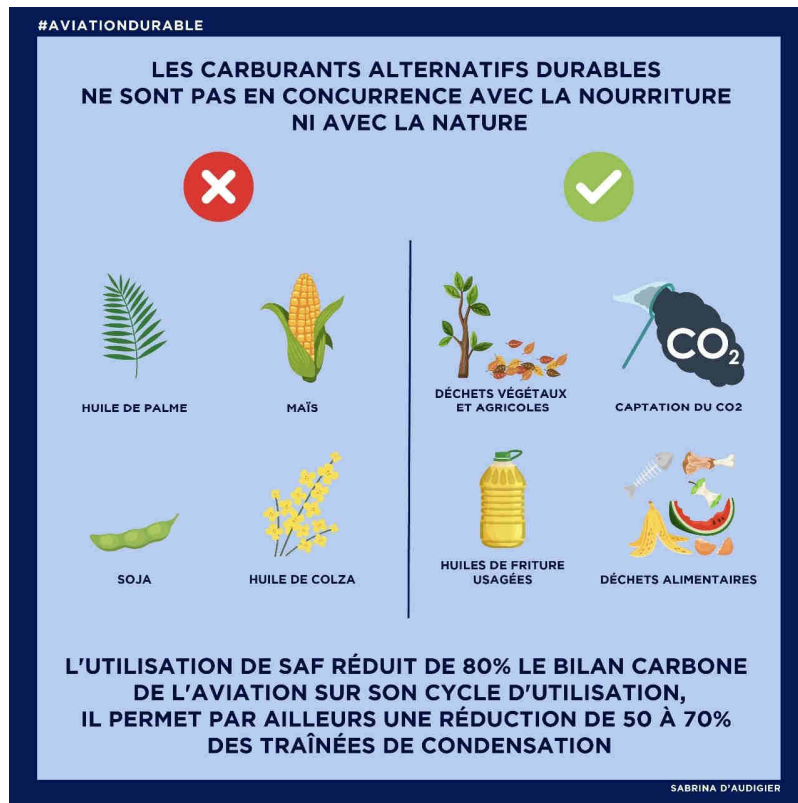
**Unlike biofuels, which can use any raw material, sustainable alternative aviation fuels are truly sustainable and do not have to compete with food** (corn, beet, soya...) **or with nature** (palm oil...).

Therefore, vegetable waste (tree leaves, grass cuttings, seaweed washed up on the beach, etc.), food or agricultural waste (used oil, sugar residues, etc.) are used.

The e-Fuels allow for the part to directly capture the atmospheric CO2

before mixing it with hydrogen, they are also part of the SAF.

The introduction of sustainable alternative aviation fuels is progressive (discussions are underway to reach 10% of European fuel by 2030), and all kerosene could eventually be SAF.

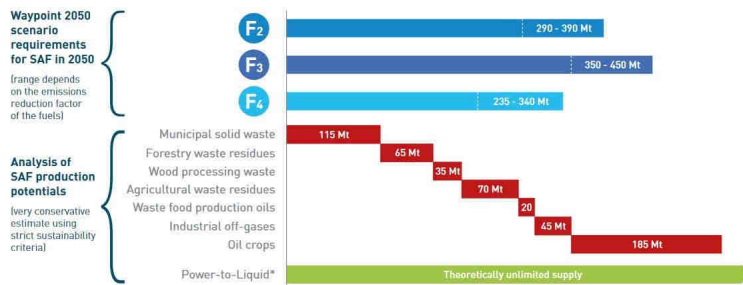


**My comment:** This infographic is the eleventh of the #SustainableAviation series. Like the previous ones, it aims to demonstrate how the air transport sector is transforming itself to reduce its impact on global warming.

How many tons of plant and food waste would be needed to provide the fuel needed for aviation?

One of the expert authors of the #SustainableAviation series (Xavier Tytelman) indicates that there are enough sustainable raw materials to meet the demand.

Analysis shows there is enough sustainable feedstock to meet demand<sup>74</sup>



\* Depends on availability and allocation of renewable energy in the grid, as well as technical potential of PTL as an option for aviation.

*Depending on the scenario, aviation would need 250 to 450 Mt of sustainable fuels (SAF) in 2050. Production capacity would be around 535 Mt. This does not include the contribution of e-fuels (or Power-to-Liquid (PTL) fuels)*

*E-fuels are produced by combining hydrogen with carbon dioxide (CO<sub>2</sub>). This hydrogen is extracted from water by electrolysis using solar and/or wind energy. This combination results in a synthetic fuel that becomes a liquid fuel after processing.*

*The production and combustion process of e-fuels is low in CO<sub>2</sub>, because the CO<sub>2</sub> that is released during combustion is used again in the production process. These e-fuels are therefore particularly environmentally friendly.*

## **End of the press review**

### **> Advice for employees and former employees who are shareholders**

You will find on my [navigaction](#) site the modalities of access to the managers' sites.

To avoid forgetting to change your contact information each time you change your postal address, **I advise you to enter a personal e-mail address**. It will be used for all correspondence with the management organizations.

Keep all the documents related to your Air France-KLM shares in one place: all the letters you receive from the different managers, Natixis, Société Générale, your personal financial institution if you bought your shares through it.



## > **My comments on the Air France-KLM share price trend**

**Air France-KLM shares** closed at **3.988 euros** on Monday 12 July. It is down sharply this week by -5.68%.

Before the coronavirus epidemic, Air France-KLM shares were at 9.93 euros.

**The average (consensus) analyst price for AF-KLM shares is 3.24 euros.** The highest price target is 5 euros, the lowest 1 euro. You can find the details of the analysts' consensus on my blog. I do not take into account the opinions of analysts prior to the beginning of the health crisis.

**The price of Brent crude oil (North Sea) is down by \$2 to \$75 per barrel.** Since a low point at the end of October 2020 (\$37) it has been rising steadily. It exceeds its pre-pandemic level. Since the end of 2014, it has only exceeded this level for a few months, in 2018.

As air traffic recovers, this high price is bad news for airlines.

**This information is not intended to be a solicitation to buy or sell Air France-KLM shares.**

You can react to this press review or send me any information or thoughts that will help me better carry out my duties as a director of the Air France-KLM group.

**You can ask me, by return, any question relating to the Air France-KLM group or to employee share ownership...**

See you soon.

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**| François Robardet**

**Director of Air France-KLM representing the employees**

**and former employees shareholders of PNC and PS.  
You can find me on my twitter account @FrRobardet**

When I was elected, I received the support of the CFDT and the UNPNCChis  
press review deals with subjects related to the Air France-KLM shareholding.

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