



FLYINGGREEN

Release 2.3

Your journey manual

July 2025

Purpose

Welcome to the FlyingGreen User Manual, your comprehensive guide for navigating and utilising the innovative FlyingGreen platform. This manual is designed for all users, whether you're a new or an experienced user, and aims to provide all the necessary information to understand and operate the FlyingGreen platform effectively.

Within this document, you will find detailed instructions, guidelines, and visual aids to help you make the most of FlyingGreen's functionalities.

From data representation to practical implementation, this reference manual covers every aspect of the FlyingGreen platform, ensuring you have the knowledge required to leverage its features to their fullest potential.

Thank you for choosing FlyingGreen.

FlyingGreen in brief

Welcome to the **FlyingGreen** platform.

FlyingGreen platform, developed by EUROCONTROL's **Aviation Sustainability Unit (ASU)** in cooperation with key aviation stakeholders.

As unique one-stop-shop, FlyingGreen supports ECAC Member States and the aviation sector in their efforts toward decarbonisation and climate change adaptation. Our comprehensive toolkit includes the following pillars:

- **NetZero:** Embark on a data-driven journey toward achieving zero emissions by 2050. Explore what-if scenarios to inform strategic decisions.
- **FuellingDecarb:** Access centralised information on transitioning from fossil to sustainable aviation fuels. Utilise our 'green fuels' calculator and resource hub.
- **ClimAdapt:** Build resilience to climate change, by using our climate risk pre-screening or ECO assessment tools and repository of information on risk assessment and adaptation.
- **DecarbFin:** Facilitating access to funding and providing good practices and tools for compliance with EU sustainability regulations.

FlyingGreen functionalities

Pillars

R2.3

NetZero

- Improved traffic and emission values
 - ANSP / AUA area selections
 - Links with environmental management systems such as GreenATM, ACA.
-
- Flight Phases filter improvements
-
- Fleet Renewal & Revolution (e- and H₂) What If slider
 - Air Traffic Management and Airline Operation Improvements What if slider including detailed improvements per flight phase
-
- Log In and save-retrieve multiple projects
-
- KPI overview for ANSP and Airport views
 - Environmental costs bar chart including impact on ticket price and demand (assuming a -0.1-elasticity value which will be updated in a next release to reflect better values per market segments)

FuellingDecarb

- Estimation tool covers 2025, 2035 & 2045 in addition to existing 2030, 2040 & 2050.
-
- Select the conversion provider : TU Delft or Trinity college of Dublin
-
- Hydrogen and Electric powered aircraft, updates (new input data and formulas).
-
- Gap electricity : Infrastructures deployment costs estimation for Wind Onshore & Offshore, Solar and Nuclear.
-
- SAF Costs and prices : Estimate the SAF levelised cost and Minimum selling Price globally and per feedstock/Pathway.
-
- Display SAF and Hydrogen Costs graphical representation
-
- Electricity Share : display the electricity repartition (renewable, low-carbon, other) for “Global”, “Allowed” and “Used” electricity. Customize the repartition for each feedstock.

FlyingGreen functionalities

Pillars

R2.3

ClimAdapt

- Airport Operators, ANSPs, Airlines Climate Change Adaptation Planning Checklists

-
- Repository of Information and Guidance

DecarbFin

- Landing Page Design & Structure

-
- Funding Basket: add, select, remove and link essentials to build an EU & Private funding business case

-
- Funding Booster including Financial Instruments, Use Cases, Frameworks & Roadmaps & Trends & Metrics dashboard

FlyingGreen

Supporting a sustainable future for aviation



NETZERO Navigating Path to Sustainable Aviation

Embark on a data-driven journey toward achieving net-zero emissions by 2050. Explore what-if scenarios to inform sustainable strategic decisions. Discover comprehensive fuel burn and emission calculations utilising historical and forecasted traffic based on different growth scenarios. Leverage on what-if scenario tools, exploring how different Sustainable Aviation Fuel (SAF) blends or pathways can impact emission reduction potential.



[EXPLORE AVIATION DATA](#)



FUELLINGDECARB Gateway to Informed Green Energy Choices

Discover what is your potential and requirements for SAF, hydrogen, and renewable electricity production on this transformative journey from fossil fuels to sustainable aviation energy. Find out production gaps, calculate renewable energy needs, and explore various production pathways and feedstock options, ensuring informed decisions in the journey toward eco-friendly aviation.

[DEFINE SAF PRODUCTION](#)



CLIMADAPT Navigating the Climate Adaptation Challenge

ClimAdapt is your portal to information on climate change impacts and adaptation measures for your organisation. Find out how the climate will change around the European region. Initiate a location and organisation-based assessment of your understanding of the climate effects and impacts you may experience to support the initiation of a full climate risk assessment.

[SEE CLIMATE RISKS](#)



DECARBFIN Fostering aviation access to sustainable finance

As financing aviation decarbonisation proves challenging, due to limited access to sustainable finance and evolving regulatory landscape, DecarbFin will provide you with tools and information necessary to facilitate your access to public and private funding opportunities. Check out also a guidebook for enhanced ESG reporting and compliance with the EU Taxonomy and CSRD to help you in navigating complex regulatory and reporting landscape.

[FIND A FUND](#)

FlyingGreen

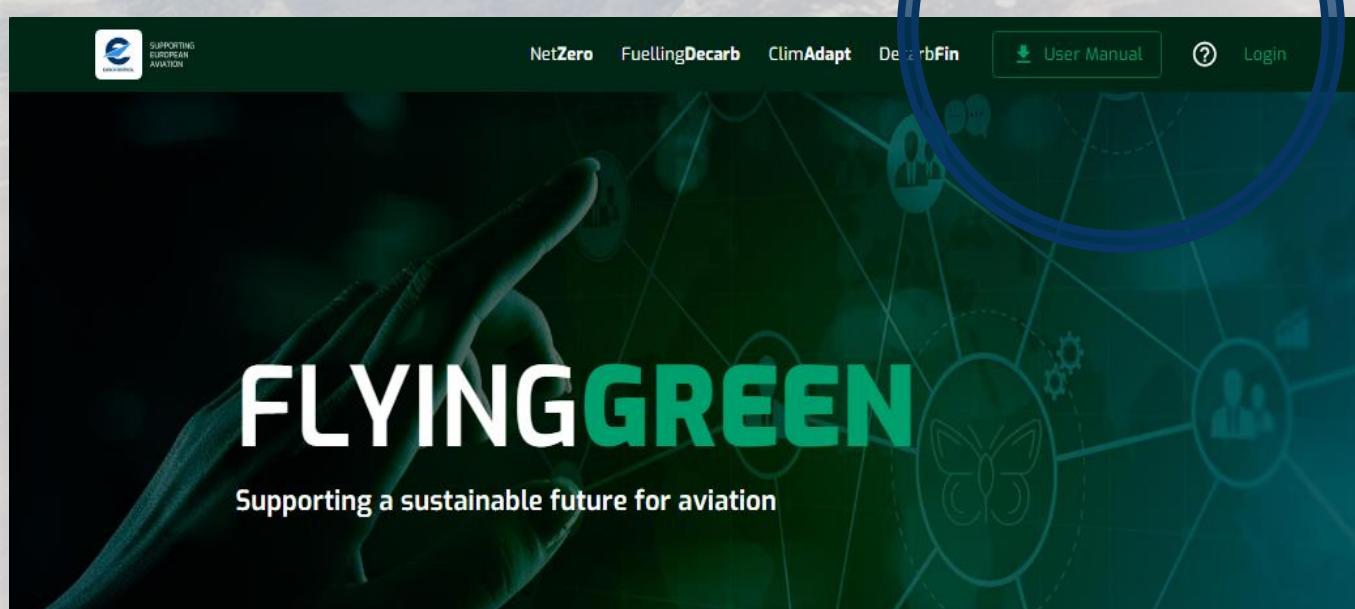
Pillars common features

1 User Manual Download

2 Version number

3 Login

Enabling saving/retrieving project data

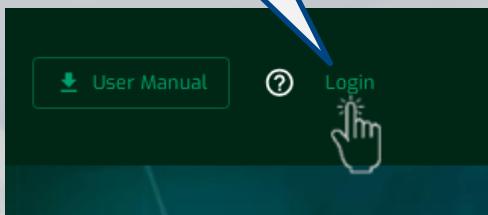


FlyingGreen

Pillars common features/Login

1

Login



2

You Already Have
an Account

Sign in with
your email
address

Sign in with your
Eurocontrol
account

FlyingGreen

Sign in

Sign in with your email address

tom.smith@eurocontrol.int

.....

Forgot your password?

Sign in

Don't have an account? [Sign up now](#)

Sign in with your social account

EUROCONTROL AD

3

You do not have an
Account and need
to sign up

Sign Up: Create
an account



Authenticator App needed on your mobile
phone to enable the login process

NetZero

Navigating Path to Sustainable Aviation

1 Zone

2 Filters & What If

3 Emissions

4 Fuel Burn

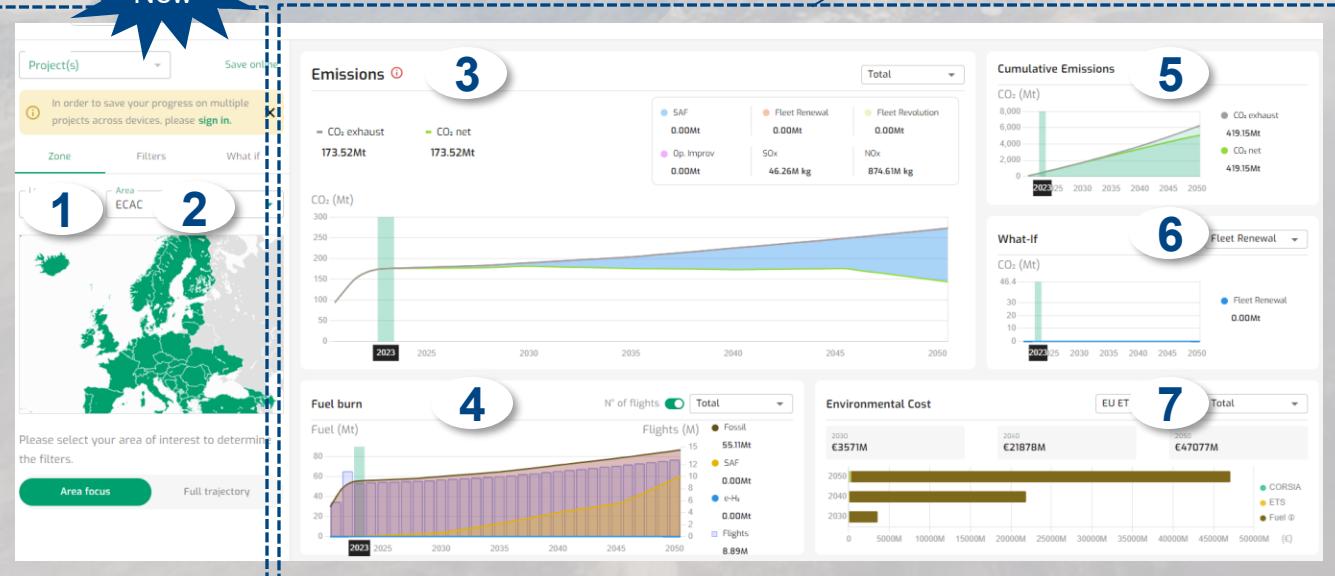
Cumulative
Emissions

6 What if / KPIs

7 Environmental
Costs

New

Log in to save your projects



Based on EUROCONTROL data and traffic forecasts, get an estimate of future trip fuel burn and emissions towards 2050 in different operational views and with traffic filtering options. Explore what-if scenarios to inform sustainable strategic decisions. Leverage on what-if scenario tools, exploring how Sustainable Aviation Fuel (SAF) volumes, technological and operational improvements can impact emission reduction potential. See an indication of additional environmental costs from SAF and market-based measures.

NET
ZERO
2050

Functionalities

Project
Data

1 Save/ Retrieve/ Delete Project

Emissions estimate

Area

2 Select the Area and Level of interest

Emissions

3 View the Emissions (totals, average and reference)

Fuel Burn
Number of
Flights

4 View the Fuel Burn and Flights number

Cumulative
emissions

5 View the Cumulative Emissions

What if

6 View the KPIs or results per category

Environmental
Costs

7 View the Environmental Costs

Filters

8 Select the Flight criteria Filters

Scenarios

9 Select the Aviation Outlook Scenario

What-if estimates

SAF
Blend

10 Customise the SAF Blend

Fleet, Air
Traffic Mgt
and Economic
Prices

11 Customise the Fleet, Air Traffic Management and Economic Prices

Save/Retrieve/Delete Project data



You need to login to enable project data management

1

Display Projects list

Project(s) — MyFirstProject

MyFirstProject

MySecondProject

New Project

2

Create New Project and save data



And

**3**

Update data in current project

Project(s) — MyFirstProject

Save

4

Retrieve project data

Project(s) — MyFirstProject

My New Project Name

MyFirstProject

MySecondProject

New Project

5

Delete Project

Project(s) — MyFirstProject

My New Project Name

MyFirstProject

MySecondProject

And

Are you sure you want to delete this project?

Cancel

Confirm

Select the Area and Level of interest

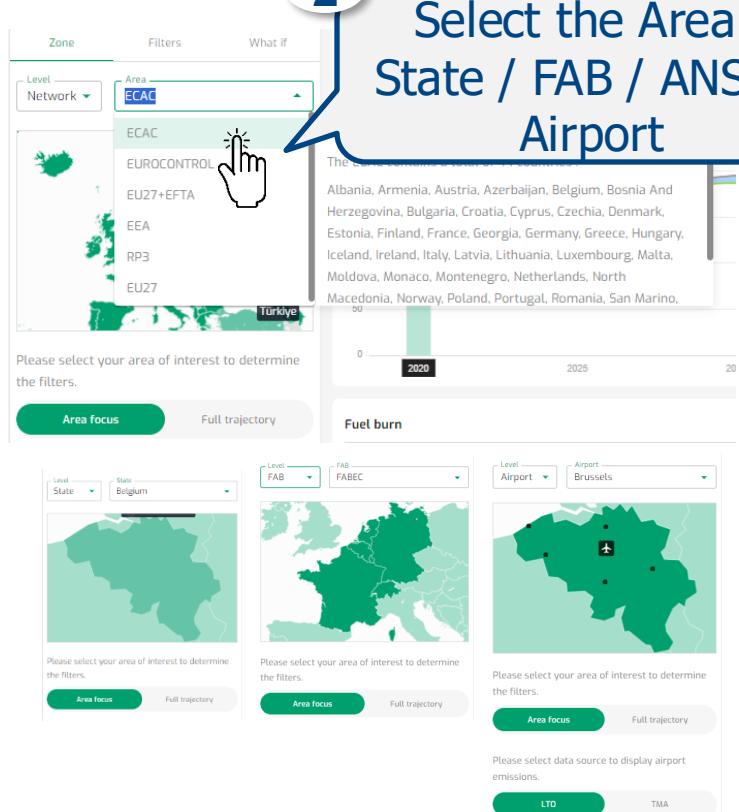
1

Select the Level



2

Select the Area / State / FAB / ANSP / Airport



Default

- Default Level value is Network
- Default Area value is ECAC
- Default State value is Belgium
- Default FAB value is FABEC
- Default ANSP value is Skeyes
- Default Airport value is Brussels

Output

The Level and Area selection update the Emissions, Fuel burn, Cumulative Emissions and What-if Graphs.

Data

UN list of countries. The designations employed do not imply the expression of any opinion whatsoever on the part of EUROCONTROL concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Generally, Airports with, on average, more than 10 movements per day are included.

Definition

Network: group of states

State: nation or territory considered as an organized political community under one government

FAB (Functional Airspace Block): an airspace block based on operational requirements and established regardless of State boundaries.

3

View the Emissions (totals, average and reference)



Default

Default values CO₂ exhaust, CO₂ net, SAF, Fleet Renewal, Fleet Revolution, Operation Improvements, NOx, SOx
Default Emissions View Total

The Emissions results vary depending on the Zone selected, the Filters and the What if values. The total emissions of one year, and the reduction potential of in-sector improvements are visible at the top of the graph.



Output

EUROCONTROL uses trajectories from operational systems (CPR data) and Advanced Emission Modelling tools (based on BADA3.16) to calculate historical emissions. The latest STATFOR forecasts are used to generate future trajectories and to calculate estimated future emissions in the different area selections.

Data

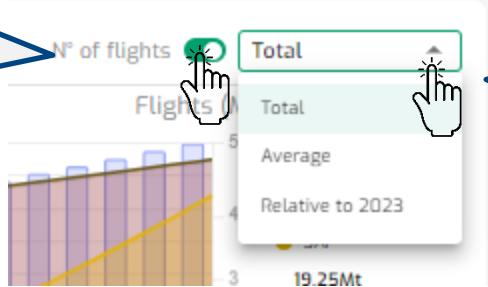
Definition

Total value presents absolute total values of emissions
Average values present values per flight
Relative values present the yearly relative change compared to the reference year (currently 2024)

View the Fuel Burn & Number of Flights

View/Hide the number of flights

1

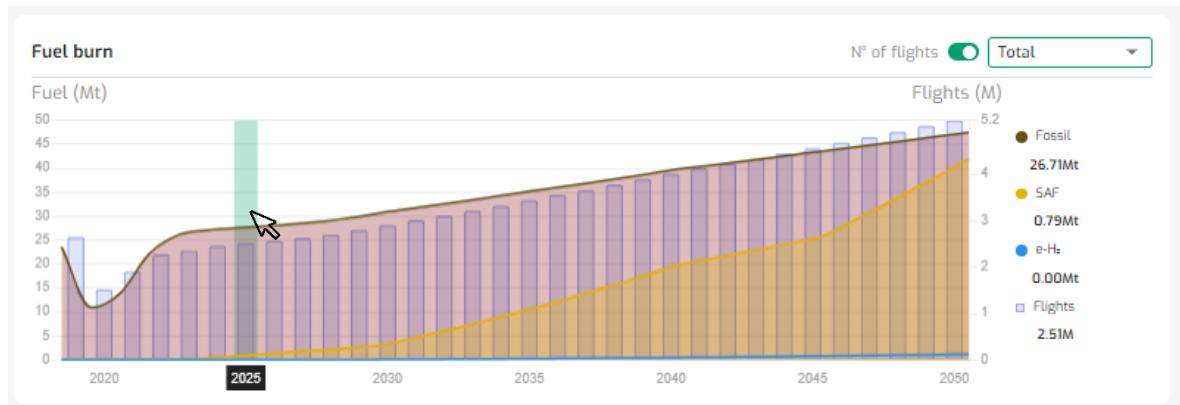


2

Select Emissions View mode

Default values Fossil, SAF, e-H₂ and Number of flights

The Fuel Burn results vary depending on the Zone selected, the Filters and the What if simulation. The Fuel Burn of one year is visible at the top of the graph. The graph shows total fuel burn and average fuel burn per flight. The H₂ and electricity energy is based on the percentage of fleet revolution chosen.

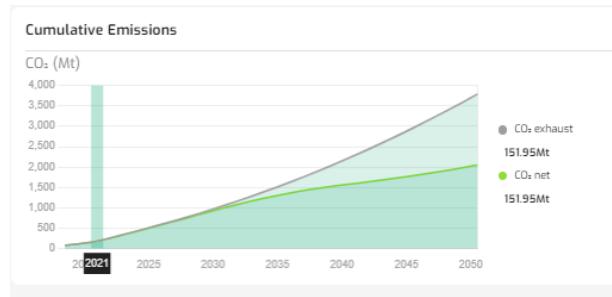


Fuel burn historical values are calculated for each flight using the EUROCONTROL Advanced Emission Model (AEM) based on latest aircraft/engine fuel burn and emission models with BADA3.16. Estimated Fuel burn values towards 2050 are based on actual trajectories of reference year (usually the last full year) and traffic growth rates as published by STATFOR.

View the Cumulative Emissions

1

View the Cumulative Emissions graph



Default

Default values CO₂ exhaust and CO₂ net

Output

The Cumulative Emissions results vary depending on the Zone selected, the Filters and the What if simulation. The Cumulative Emissions of one year is visible by travelling on top of the graph.

Data

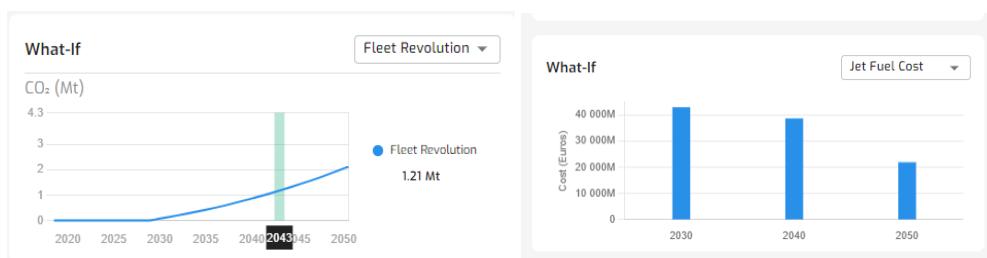
The yearly results from the main graph are added to indicate the cumulative emission results for CO₂ (as CO₂ remains in the atmosphere for many decades).

6

View the What if results

1

View the results graph



Default

Default view Fleet Renewal

Output

The What if results vary depending on the Zone selected, the Filters and the What if simulation. The What if results of one year are visible by travelling on top of the graph.

Data

The results for the parameters are extracted from the results in the main emission, fuel burn and cost calculation. This graphs presents simply an easier overview of expected results over time for only one parameter.

1

Or view the KPI overview

KPIs

2050

OPS improvement
Taxi-Out
10.15kt ↓ 0.64%

OPS improvement
Climb
18.74kt ↓ 1.19%

OPS improvement
Cruise
81.15kt ↓ 5.15%

OPS improvement
Descent
10.98kt ↓ 0.70%

OPS improvement
Taxi-In
2.57kt ↓ 0.16%

Total milage
37 726 924Nm

Default

Default view In ANSP and Airport views, a KPI overview is shown

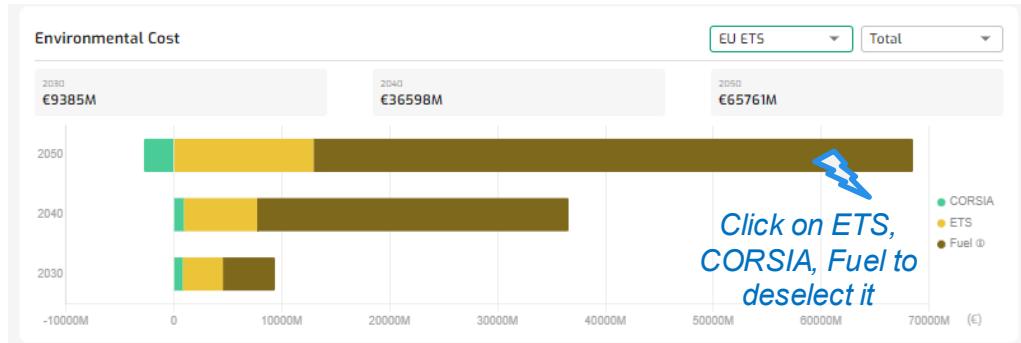
Output

The KPI results depend on the Zone selected, the Filters and the What if simulation. The What if results of one year are visible by travelling on top of the KPI overview.

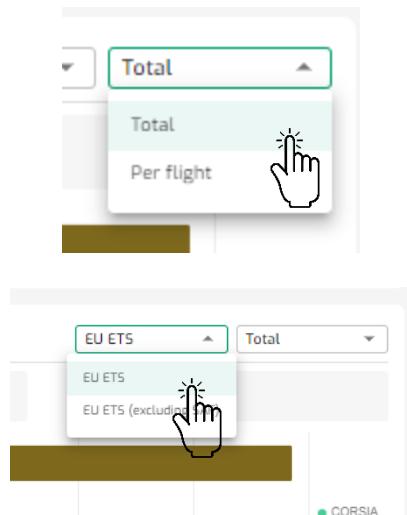
Data

The results for the parameters are extracted from the results in the main emission, fuel burn and cost calculation. This overview presents simply an easier overview of expected results over time for the main indicators of interest (improvements and cost impact)

1 View the Environmental Cost bar chart



1 Click on the view : Total or Per Flight and choose the calculation wished : EU ETS excluding or not SAF



Default Default values EU ETS and Total view

Output The Environmental costs vary depending on the Zone selected and the What if simulation. The Environmental cost are visible for 3 years: 2030, 2040 and 2050.

Data Data to calculate additional environmental costs are synchronized with assumptions from Eurocontrol Aviation Outlook 2050 (see below). EU ETS cost are assumed to offset the total remaining net emissions, both taking into consideration LCA values (option EU ETS), and not taking into consideration SAF lifecycle values (the option with SAF excluded).

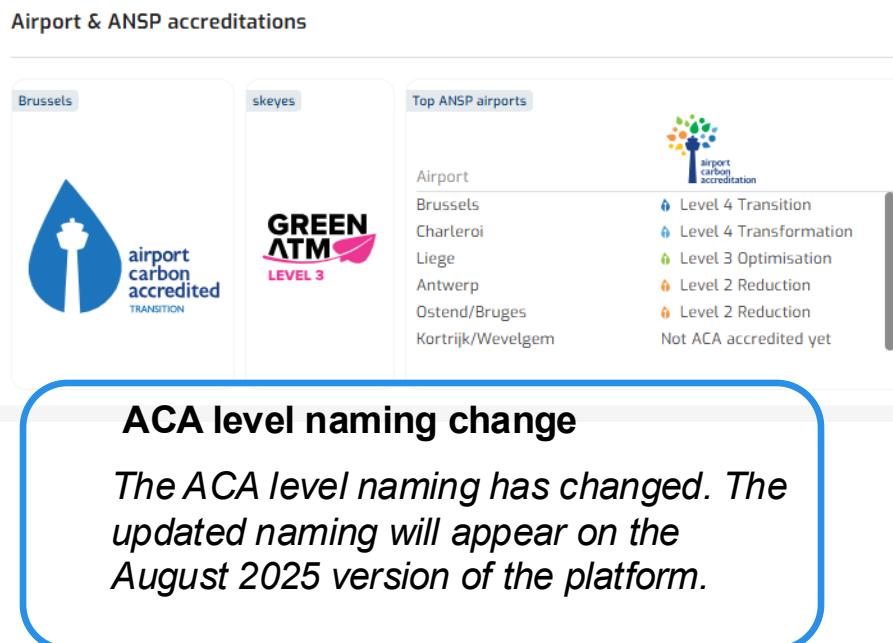
Simplified CORSIA costs only appear if emission values for eligible flights are higher than 85% of 2019 emissions and then taking CORSIA sectoral growth factors into consideration (linear progression from zero towards SGF 2,6 in 2050). Only sectoral offset methodologies are included to avoid too high calculation complexities.

Price of travel (2025/2050)	Moderate (80€/369€)	Moderate (80€/369€)	Moderate (80€/369€)
Price of CO ₂ allowances (€/t)			
Price of conventional fuel (€/t)	Low (720€/834€)	Moderate (715€/819€)	High (1.408€/1.554€)
Price of Sustainable Aviation Fuel (€/t)	Moderate (1.897€/1.720€)	Moderate (1.897€/1.720€)	High (2.537€/2.406€)

View the Environmental Management status

1

View the Environmental management systems used



In the ANSP and Airport views, instead of the cost graphs an overview is presented on the EMS status of ANSP and airports

Indication of the Environmental Systems that are applied at the ANSP and different national Airports.

ANSP

Several Environmental Systems may be applied at ANSP level, such as EMAS, GreenATM, ISO 14000 family, etc.

The CANSO GreenATM programme is a voluntary environmental accreditation designed for ANSPs to assess and enhance their environmental performance. It offers a structured framework with five maturity levels, evaluating areas such as governance, operational efficiency, infrastructure, and stakeholder engagement. Participation in the GreenATM programme is entirely voluntary for ANSPs. It serves as an independent, industry-endorsed accreditation of their environmental efforts.

Airports

The Airport Carbon Accreditation (ACA) programme, developed by Airports Council International (ACI), is a globally recognized certification that helps airports measure, manage, and reduce their carbon emissions. It offers a six-level framework, from mapping emissions to achieving net zero, and is based on independent assessment and annual verification.

Select the Flight criteria Filters

1

Select Flight type

Area Focus

Full Trajectory

OR

2

Adjust Filters

Flight phases

Market segment

Default Area of interest is Area focus.

Default Flight type Area Focus is Departures and Arrivals

Default Flight type Full trajectory is Departures

No Default Flight phases for Area focus or Full trajectory

No Default Market segment for Area focus

Default

Output

Data

The Area of interest and filters selection update the Emissions, Fuel burn, Cumulative Emissions and What-if Graphs.

Emission values are calculated using 2 different methodologies. The Area focus presents Fuel burn and Emissions within the Area selected. Finetune the type of traffic to be presented by Departures to outside the Area selected, Arrivals to within the Area selected, Internal flight within the Area selected, and Overflying traffic of the Area selected.

With the Full trajectory method, the Fuel burn, and Emissions of the Full trajectory are presented. Possible traffic selections are Full emission and Fuel burn of departing traffic from the Area selected, from Arrivals to the Area selected and from Domestic flights. Traffic selections cannot be selected simultaneously to avoid overlap.

Select the Aviation Outlook Scenario

1

Select the Scenario

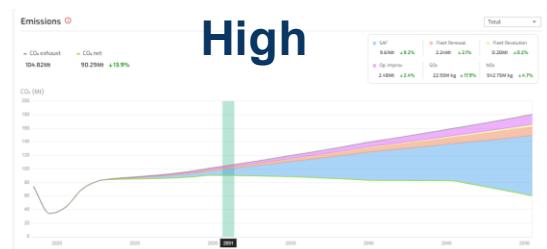
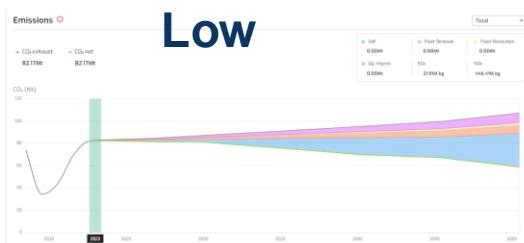


Default

Default Scenario value is Base

Output

The Low, Base and High Scenarios represent traffic hypothesis. The Scenario changes the Emissions, Fuel burn, Cumulative Emissions and What-if Graphs values.



Data

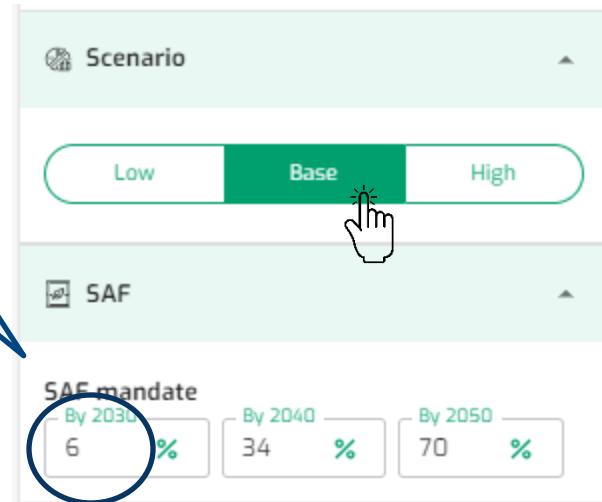
Traffic numbers and Emission and Fuel burn are based on High, Base and Low scenario as applied in the EUROCONTROL Aviation Outlook 2050. Each scenario presents different growth rates that are reflected in the emission Fuel burn graphs.

10

Customise the SAF Blend

1

Customise SAF Blend



Default Blend Low scenario: 4% in 2030, 26% in 2040, 50% in 2050
Default Blend Base scenario: 6% in 2030, 34% in 2040, 70% in 2050
Default Blend High scenario: 10% in 2030, 49% in 2040, 88% in 2050

Bio-SAF/synth-SAF ratios are applied according to ReFuelEU mandate.

The Blend % changes the CO₂ net curve on the Emissions and Cumulative emissions graph and the SAF curve on the Fuel Burn graph.



To assess the impact of the use of Sustainable Aviation Fuels on the NET emission values, input the percentages of SAF blend in the different years and the specific SAF pathway. Default values in the base scenario are aligned with the ReFuelEU SAF requirements. LCA values applied are: 65% emission reduction for bio-SAF and 70% emission reduction for synthetic SAFs.

Default

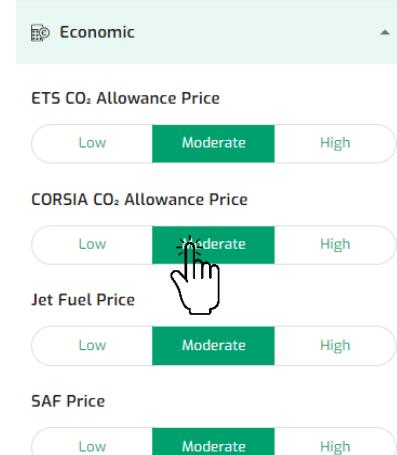
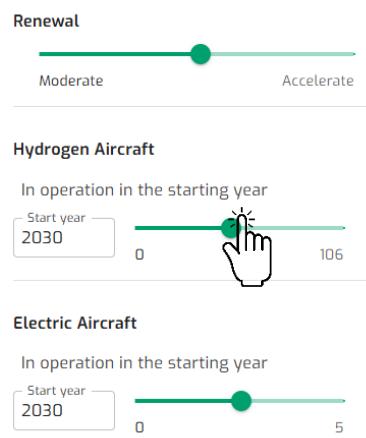
Output

Data

Customise the Fleet, Air Traffic Management and Economic Prices

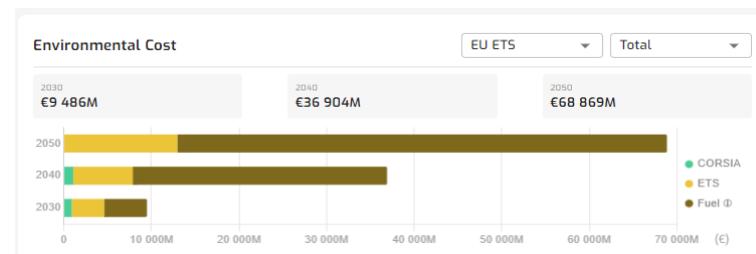
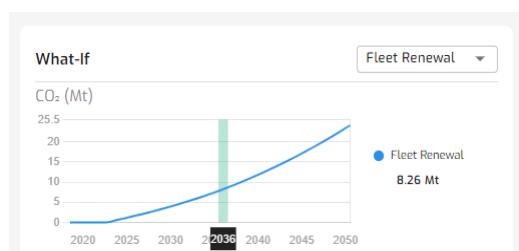
1

Customise The Fleet and Economic Prices



Default Levels Moderate (Fleet and Air Traffic Management) or Moderate (Economic Scenario)

The different levels update the Emissions, Fuel burn, Cumulative Emissions, What-if and Environmental Cost Graphs.



Fleet evolution, revolution input impacts forecasted emission reductions. Default values are aligned with the EUROCONTROL Aviation Outlook 2050. For revolution a/c the user can enter expected year of introduction and the amount of e- or H₂ a/c deliveries as percentage of max estimated deliveries. The maximum amount of deliveries is based on the ambitious scenario of the Alliance of Zero Emission Aircraft (AZEA). The reduction potentials per year are extrapolated towards final results in 2050 in the different scenarios. For fleet evolution, the user can select delay or accelerated fleet renewal (with a certain number of years). The user can select specific improvement percentages using the sliders and/or select low, moderate or high prices for fuels, SAF and CO₂ as indicated in the Eurocontrol Long-Term forecast 2050. The state view includes the impact on ticket price and subsequent impact on demand. In this release very simple values and methodologies are applied (not specified per market segment or other filters), assuming fixed operational margins and fuel cost shares of airlines, to present the user with only an indication of possible impact. The price elasticity value applied is -0.1.

Default

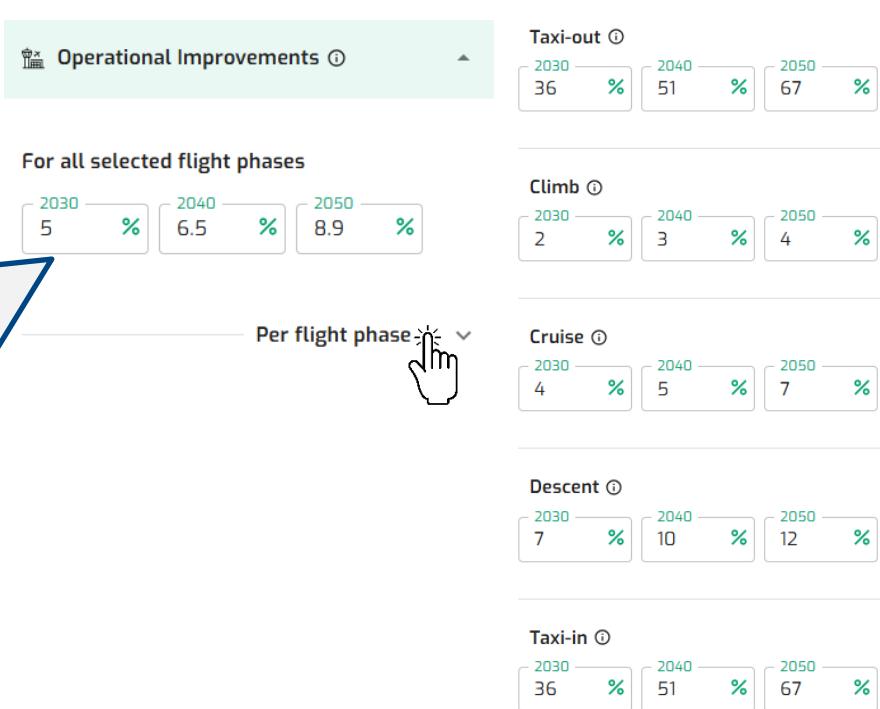
Output

Data

See the impact of operational improvements

1

Customise Operational improvements per flight phase

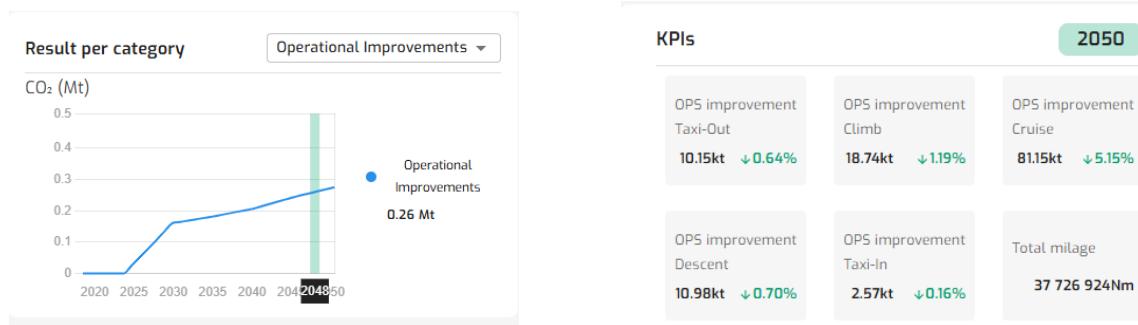


Default

Default Levels Moderate (Fleet and Air Traffic Management)

Output

The different input of operational improvements update Emissions (with indicated reduction of emissions from operational improvements, Fuel burn, Cumulative Emissions, What-if and Environmental Cost Graphs).



Data

The user can select his/her/their specific improvement percentages per flight phase. Each flight phase presents indications of potential improvement percentages for different operational concepts. The operational improvements are only applied to the available trajectory segments in the selected zone/area. E.g. taxi operational improvements will not affect upper area airspace emissions.

NetZero step-by-step

- Emissions**
- Fuel Burn**
- Filters**
- Scenarios**
- SAF Blend**
- Fleet, Air Traffic Mgt and Economic Prices**

- Check the Emissions for ECAC in 2035
- Check the Fuel Burn for ECAC in 2035
- Check only the departures, take-off phase and Mainline market segment for ECAC through the years
- Check the high scenario for ECAC through the years
- Change the % of SAF blending for 2030 for ECAC
- Consider High Fleet Renewal and a Moderate scenario for ATM and Airline operation Improvements or enter specific improvements per flight phase. Set the SAF Price on the highest possible level.

The advantages of your journey

- 1 Have the latest EUROCONTROL emission data of your area of interest available.
- 2 See the impact of operational changes on fuel burn and emission values.
- 3 Benchmark your emission values with those of different area of interests and using different methodologies.
- 4 Get an indication of additional environmental cost due to regulations (ReFuelEU, EU ETS, CORSIA), and impact on ticketprice and demand.



FuellingDecarb

Gateway to Informed Green Energy Choices



FuellingDecarb

The decarbonisation of the aviation sector from 2030 to 2050 will require the deployment of electricity, biomass feedstocks, and investments. Fuelling Decarb aims at providing a centralised source of information regarding the transition from fossil fuel to sustainable propulsion modes.

1

Estimation
tool

Fuelling estimation tool

Designed for strategic planning and decision-making, the fuelling estimation tool provides essential insights into the production and demand for sustainable fuels and electricity. By evaluating production potential, identifying market gaps, and estimating energy requirements, this tool empowers you to navigate the complexities of transitioning to sustainable energy. It serves as a crucial assistant in the global effort to achieve NetZero, enhancing the sustainability of the aviation sector and beyond.

[Start to estimate](#)

2

SAF Map

SAF Map

Explore the adoption of sustainable aviation fuels across European policies, regulatory frameworks, and the efforts of airports, airlines, manufacturers, and fuel producers to reduce carbon emissions in Europe.

[Go to SAF Map](#)

3

SAF News
Corner

SAF News Corner

Discover the latest developments and innovations shaping the future of aviation with EUROCONTROL. Stay updated with the latest news or click "Explore all" to browse the full collection.

December 9th 2024
French startup Elyse Energy secures €120 million in funding to accelerate e-methanol and SAF projects in

[Learn more](#)

December 9th 2024
Topsoe and Sasol selected to provide gas-to-liquid e-fuels technology for the German Aerospace

[Learn more](#)

December 2nd 2024
The French government approves the Toulouse Hydrogen Technocampus at François Mitterrand Airport

[Learn more](#)

November 25th 2024
The UK SAF mandate will require 2% SAF in jet fuel by 2025, scaling to 10% by 2030 and 22% by 2040. Key

[Learn more](#)

December 9th 2024
A Fraunhofer CML study reveals Hamburg's potential to become Germany's central hydrogen hub by 2045

[Learn more](#)

The FuellingDecarb pillar of the platform allows to assess the volumes, costs and Minimum Selling Prices of Sustainable Aviation Fuel and the quantities of electricity and feedstock required to produce Sustainable Aviation Fuel (SAF) but also hydrogen, electricity for hydrogen and electric powered aircraft.



Functionalities 1/2

Fuel Assessment

- | | |
|---|--|
| Settings | 1 Select the Fuel Assessment tool settings |
| Fuel Estimate | 2 View the Fuel Assessment page |
| Bio SAF | 3 The Bio SAF Fuel production, units, electricity required, GHGs, cost & Minimum Selling Price |
| SAF Coproduct | 4 Assess the SAF Coproducts production |
| Synthetic SAF | 5 The Synthetic SAF fuel production, electricity required, units GHGs, Costs & Minimum Selling Price |
| Electric Aircraft | 6 The Electric Aircraft electricity production |
| Hydrogen Aircraft | 7 The Hydrogen fuel production |
| Allocated Renewable Electricity | 8 Assess the volume of Green electricity (produced with renewable energy) necessary for Fuel production |
| Electricity Share | 9 Display Global, Allocated & Used electricity |
| Fill the Renewable Electricity gap | 10 Plan the Renewable electricity infrastructures to fill the Renewable electricity gap with costs |



Functionalities 2/2

Fuel Assessment

Allocated
Low-Carbon
Electricity

11

**Assess the Low-Carbon electricity
necessary for Fuel production**

Fill the
Low Carbon
Electricity
gap

12

**Plan the Low-Carbon electricity
infrastructures to fill the Low-Carbon
electricity gap with costs**

Allocated
Other
Electricity

13

**Assess the Others energy category of
electricity necessary for Fuel production**

Needs
&
Production

14

**View needs & production chart
(SAF, Hydrogen fuel and Electric aircraft)**

SAF & H₂
Costs Graph

15

**Graphical display of SAF and H2 costs
for each feedstock/pathway**

SAF Map

SAF Map

16

View the SAF map

SAF News Corner

SAF News

17

View the SAF news

1

Select the Fuel Assessment tool settings (1/2)

1

Select an Area / State & Year

2

Customed RefuelEU Aviation regulation

2

Reset Customed to Default RefuelEU Aviation

3

Select the mass & energy conversion provider

4

Complete the Needs

4

Modify the Needs

4

Modify the Units

5

Modify the SAF mandate

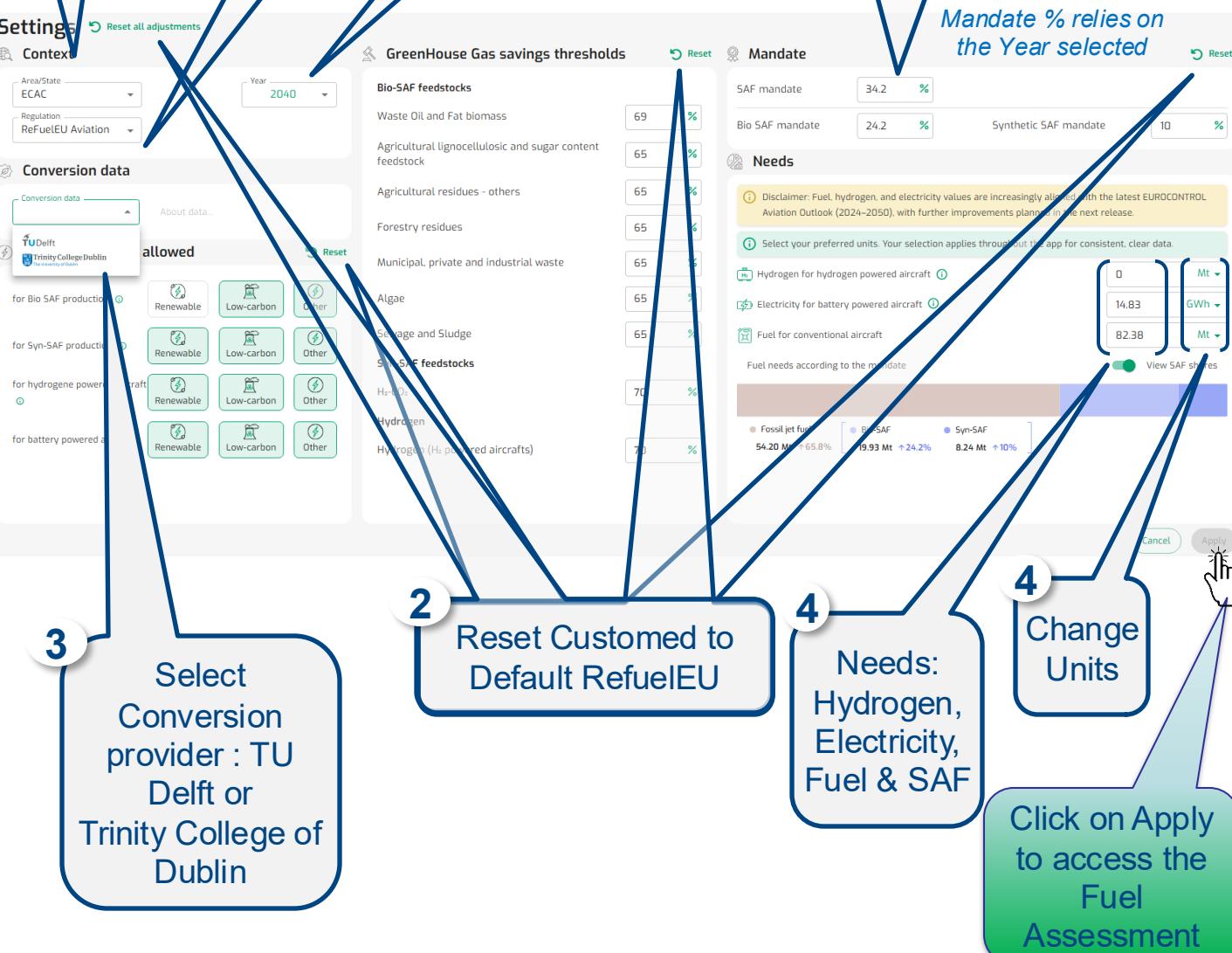
1 Context Area/State. Default is ECAC

2 Customed ReFuelEU Aviation regulation

1 Context - Year (From 2025 to 2050 every 5 years). Default = 2040

5 Update the SAF mandate

Mandate % relies on the Year selected



The screenshot shows the 'Settings' and 'Needs' sections of the tool.

Settings:

- Context: Area/State (ECAC), Regulation (ReFuelEU Aviation), Year (2040).
- Conversion data: Allowed (Renewable, Low-carbon, Other) for Bio SAF products, Syn-SAF products, Hydrogen powered aircraft, and battery powered aircraft.
- GreenHouse Gas savings thresholds: A table showing bio-saf feedstocks and synthetic saf feedstocks with their respective percentage values (e.g., Waste Oil and Fat biomass at 69%, H2O2 at 70%).
- Mandate: SAF mandate (34.2%), Bio SAF mandate (24.2%), Synthetic SAF mandate (10%).
- Needs: Fuel needs according to the mandate (Fossil jet fuel: 54.20 Mt, Bio-SAF: 19.93 Mt, Syn-SAF: 8.24 Mt).

Needs:

- 3 Select Conversion provider : TU Delft or Trinity College of Dublin.
- 2 Reset Customed to Default RefuelEU.
- 4 Needs: Hydrogen, Electricity, Fuel & SAF.
- 4 Change Units.
- Click on Apply to access the Fuel Assessment.

1

Select the Fuel Assessment tool settings (2/2)

Default

Default Area is ECAC

Default Year is 2040

Default Regulation is ReFuel EU Aviation (Mandate corresponding to 2040)

Needs values are prefilled for some Areas / States

Output

The Settings impact the Fuel Assessment goals to reach on SAF production, Hydrogen production and Electric production.

Data

EU Commission, EASA and ICAO. ECAC Member States list.

Definition

SAF: Sustainable Aviation Fuel, a bio or synthetic fuel used to power aircraft with smaller carbon footprint than conventional jet fuel.

GHGs: Green House Gas savings

Feedstock: Sources from which the SAF is produced. The feedstock is here presented in two different categories considered.

Bio SAF feedstocks : biomass such as agricultural and forestry residues, municipal waste or algae.

Synthetic SAF feedstocks: H₂-CO₂

Electricity sources

Renewable: In this context, electricity source coming from renewable source (i.e solar, hydroelectric, wind).

Low-carbon: In this context, electricity produced with nuclear power plants.

Other: in this context, electricity sources not coming from renewable or low-carbon sources (such as coal, oil and gas electricity sources).

Battery powered aircraft: Aircraft partially or fully powered via an electric battery (hybrid-electric or full electric aircraft).

Hydrogen powered aircraft: Aircraft powered by hydrogen via Direct combustion in jet engines or via fuel cell to produce electricity for electric engines.

2

View the Fuel Assessment page (1/2)

1 View the Bio & Synthetic SAF

2 View the Electric Aircraft Electricity

3 View the Hydrogen Fuel Production

4 View the Electricity (Renewable, Low-carbon & Other)

5 View the Fuel produced

1 2 3

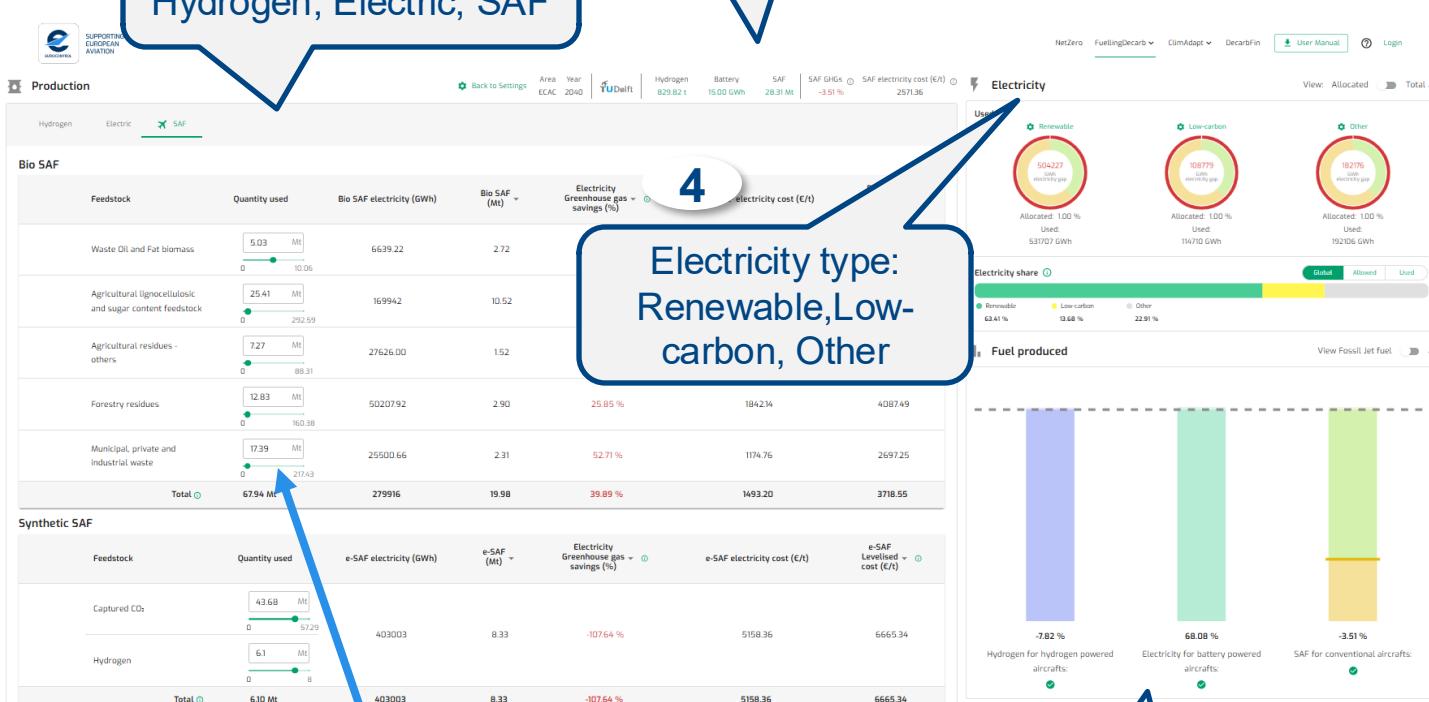
Production type :
Hydrogen, Electric, SAF

Header : Results summary

4 Electricity type:
Renewable, Low-carbon, Other

For some States data is provided, some States do not have existing data the counters start from 0 but the configuration is possible

5 Fuel produced:
Hydrogen, Electric and SAF



View the Fuel Assessment page (2/2)

Default

Default Fuel is SAF

Default Electricity are Renewable, Low-Carbon & Other Quantities values are prefilled for EU27, ECAC, US, China and World Areas / States

Output

The Fuel Assessment provides information on the Fuel to produce. The different zones of the Fuel Assessment allows a personalised configuration of the Fuel produced.

Data

CONCAWE and Imperial College London data, EUROCONTROL research, EUROSTAT, FAO, Fraunhofer Institute for Solar Energy Systems, ICCT, IEA, EEA, Project SkyPower, TU Delft, Trinity College of Dublin, ASTM standards. For more details on SAF pathways data, please also consult "About data" section on the site.

TU Delft SAF conversion available:

- HEFA-SPK: Hydrotreated Esters and Fatty Acids (HEFA) transformed in Synthesised Paraffinic Kerosene.
- FT-SPK: Synthesised paraffinic kerosene produced via Fischer-Tropsch process.
- ATJ : Alcohol to Jet production process
- ATJ-SPK: Synthesised paraffinic kerosene produced with Alcohol to Jet
- PTL : Power to Liquid via Fischer-Tropsch synthesis process.

Trinity College Dublin SAF conversion available:

- HEFA-SPK (NG no CCS): Natural gas for heat & H₂ no carbon capture sequestration.
- FT-SPK: Synthesised paraffinic kerosene produced via Fischer-Tropsch process.
- MtJ: bioMethanol to Jet process. Agricultural residues to produce biomethane, methanol and convert it to jetfuel (ASTM D4054 certification ongoing).
- HTL: Hydrothermal liquefaction via electricity or hydroge, (not yet certified).
- PTL : Power to Liquid via liquid sorbent DAC and Fischer-Tropsch synthesis process.
- PTL : Power to Liquid via solid sorbent DAC and Fischer-Tropsch synthesis process.
- PTL: Power to Liquid process via MtJ process (not yet certified) .

Definition

3

The Bio SAF Fuel production units and costs (1/3)

- 1 Display Bio SAF feedstocks list
 - 2 Configure the Quantity used for aviation
 - 3 Display SAF electricity
 - 4 Display SAF production
 - 5 Display Electricity Green House Gas savings %
 - 6 Display Electricity Cost
 - 7 Display Levelised Cost
- OR
- 4 Display Number of plants
 - 5 Global Green House Gas savings %
 - 6 OR Minimum Selling Price
 - 7 Bio SAF Levelised cost (€/t)

Bio SAF

Feedstock	Quantity used	Bio SAF electricity (GWh)	Bio SAF (Mt)	Electricity Greenhouse gas savings (%)	Bio SAF electricity cost (€/t)	Bio SAF Levelised cost (€/t)
Waste Oil and Fat biomass	5.03 Mt 0 10.06	6639.22	2.72	89.54 %	259.92	2160.82
Agricultural lignocellulosic and sugar content feedstock	25.41 Mt 0 292.59	16994.2	10.52	30.69 %	1721.72	4176.99
Agricultural residues - others	7.27 Mt 0 88.31	27626.00	1.52	21.96 %	1938.70	4185.38
Forestry residues	12.83 Mt 0 160.38	50207.92	2.90	25.85 %	1842.14	4087.49
Municipal, private and industrial waste	17.39 Mt 0	25500.66	2.31	52.71 %	1174.76	2697.25
Total	67.5 Mt	279916	19.98	39.89 %	1493.20	3718.55

Open the details of the Feedstock (see next page)

2

Feedstock quantity used for aviation is 5% of total quantity by default

Example of TU Delft conversion pathways

3

The Bio SAF Fuel production units and costs (2/3)

Feedstock details

1 **Adjust Feedstock quantity**

Description Waste Oil and Fat biomass refers to oils and animal fats that are being discarded, these oils and fats can be repurposed through various sources.

Quantity Global quantity: 10.06 Mt Quantity used for aviation: 5.03 Mt

2 **Adjust Feedstock quantity per pathway**

Conversions Pathway HEFA-SPK

Pathway	Quantity used	Bio SAF electricity (GWh)	Bio SAF (Mt)	Co-product (Mt)	Greenhouse gas savings (%)	Bio SAF electricity cost (€/t)	Levelised cost (€/t)
HEFA-SPK	5.03 Mt	6639.22	2.72	2.07	89.54 %	259.92	2160.82

3 Set Custom mode to adapt Electricity Repartition

Electricity source used: Allowed Custom

Renewable 63% 4895.3 GWh Low-carbon 14% 1056.38 GWh Other 23% 1769.13 GWh

4 Display Co-Products (see)

5 Minimise/maximise SAF production

Optimise SAF Production: Min Typical Max

6 Update SAF Costs & transports input parameters

Feedstock cost 1167.02 €/tFeed

Feedstock transport emissions 38 gCO₂eq / tFeed/km

Feedstock transport to SAF plant cost 0.064 €/tFeed/km

SAF transport emissions 38 gCO₂eq / tSAF/km

SAF transport to Airport cost 0.098 €/tSAF/km

Gas cost 68.2 €/MWh

SAF plant other OpEx 367 €/tSAF

Discount rate 7 %

SAF plant yearly capacity 0.073 MtSAF/y

Water cost 2.27 €/m³

Diesel selling price 1080 €/t

Other co-product selling price 200 €/t

Share of the Capital Intensity affected to number of SAF plant learning 20 %

Share of the Capital Intensity affected to SAF plant production capacity learning 45 %

Share of the Capital Intensity not affected by any learning 35 %

Learning Rate number of SAF plant (LRP) 4 %

Learning Rate Capacity SAF capacity (LRC) 7 %

Please note that any cost values ending in '99' for feedstock, water, or gas indicate cases where no reliable source data was available. These figures are reasonable estimates, included to guide the user while clearly signaling a degree of uncertainty.

New Capital Intensity affected by learning 2899.86 €/tSAF

Annualised capital cost per SAF ton 269.49 €/tSAF

Cumulative Capital Investment (CCI) 0.21 €bn/SAF plant

Total Capital Investment (TCI) 8.00 €bn/SAF plant

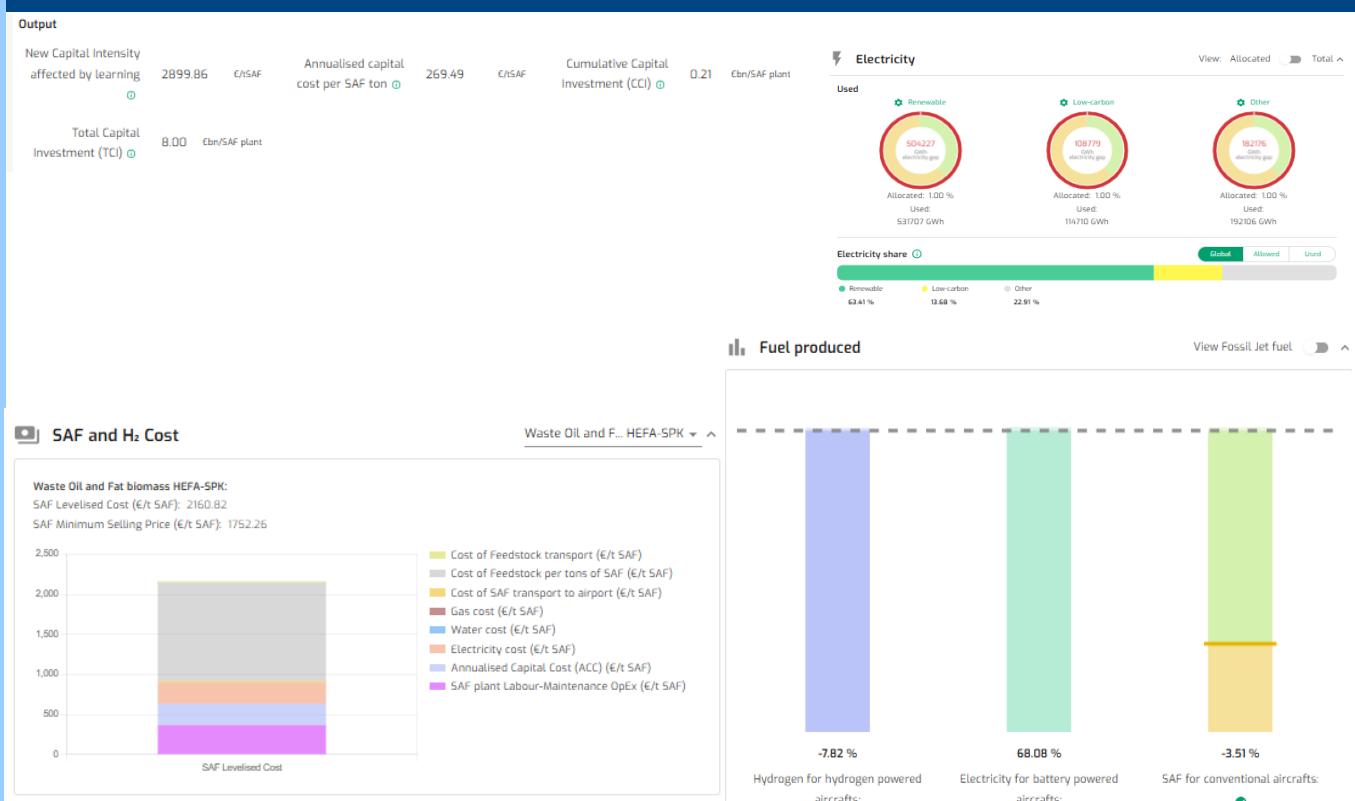
3

The Bio SAF Fuel production units and costs (3/3)

Default

Default Pathways per Feedstock
Default Electricity are Renewable, Low-Carbon & Other
Quantities values are prefilled for some Areas / States

Output



Data

CONCAWE and Imperial College London data, FAO ,EUROCONTROL research, EUROSTAT, Fraunhofer Institute for Solar Energy Systems, ICCT, IEA, EEA, Project SkyPower, TU Delft, Trinity College of Dublin, ASTM standards.

The CONCAWE dataset was amended for manure feedstock in Greece. For more details on SAF pathways data, please also consult "About data" section on the site. Sewage feedstock were from EUROSTAT, amended with ICCT methodology by excluding volumes used for agriculture, composting.

Therefore only volumes used for incineration, landfilling, and other use considered eligible feedstock for SAF production.

4

Assess the SAF Coproducts production


[← Back](#) Waste Oil and Fat biomass

Description Waste Oil and Fat biomass refers to oils and animal fats that are no longer suitable for their original purpose, including cooking oils used in restaurants, household oils, and fats from food processing industries. Instead of being discarded, these oils and fats can be repurposed through various processes to produce sustainable aviation fuel (SAF), contributing to waste reduction, resource efficiency, and the creation of renewable energy sources.

Quantity

Global quantity: 10.06 Mt Quantity used for aviation: 5.03 Mt 0 → 10.06

The coproducts results are updated when changing the Quantity of feedstocks used for aviation, as well as on the pathway repartition.

Conversions

Pathway	Quantity used	Bio SAF electricity (GWh)	Bio SAF (Mt) ↘	Co-product (Mt)	Electricity Greenhouse gas savings (%) ↗	Bio SAF electricity cost (€/t)	Bio SAF Levelised cost (€/t) ↗
HEFA-SPK	5.03 Mt 0 → 5.03	6639.22	2.72	2.07	90.84 %	236.30	2137.20

[▼ Co-product details](#)

1	Co-product	Electricity (GWh)	Produced (Mt)	Electricity Cost (€/t)
SAF Coproducts: 4 coproducts	Diesel	132.84	0.38	33.66
	Naphtha	475.02	0.73	63.08
	Light gas	76.49	0.29	25.39
	Other	398.53	0.66	58.14
	Total	1082.89	2.07	50.73

Default Pathways per Feedstock
Default Electricity are Renewable, Low-Carbon & Other
Quantities values are prefilled for EU27, ECAC, US, China and World Areas / States

CONCAWE and Imperial College London data, EUROCONTROL research, FAO, Fraunhofer Institute for Solar Energy Systems, IEA, EEA, TU Delft, Trinity College Of Dublin, ASTM standards. For more details on SAF pathways data, please also consult "About data" section on the site.

Default
Data



5

The synthetic SAF fuel production units and costs (1/3)

- 1 Display Synth SAF feedstocks list
 - 2 Configure the Quantity used for aviation
 - 3 Display SAF electricity
 - 4 Display SAF production
 - 5 Display Electricity Green House Gas savings %
 - 6 Display Electricity Cost
 - 7 Display Levelised Cost
- OR**
- Display Number of plants
 - OR**
 - Global Green House Gas savings %
 - OR**
 - Minimum Selling Price

1

2

3

4

5

6

7

Synthetic SAF						
Feedstock	Quantity used	e-SAF electricity (GWh)	e-SAF (Mt)	Electricity Greenhouse gas savings (%)	e-SAF electricity cost (€/t)	e-SAF Levelised cost (€/t)
Captured CO ₂	43.68 Mt 0 57.29	403003	8.33	-107.64 %	5158.36	6665.34
Hydrogen	6.1 Mt 0 8	403003	8.33	-107.64 %	5158.36	6665.34
Total	6.10 Mt	403003	8.33	-107.64 %	5158.36	6665.34

2

Quantity used for aviation

2

Open the details of the Synth Feedstock (see next page)

5

The synthetic SAF fuel production units and costs (2/3)

Synth. Feedstock details

1 Adjust Feedstock quantity

Description: Captured carbon dioxide (CO₂) and hydrogen (H₂) represent two key components in the synthesis of synthetic fuels. CO₂ can be captured from industrial sources or directly from the atmosphere using carbon capture technologies, while hydrogen can be produced through electrolysis of water or via Tropsch synthesis, offering a pathway to produce SAF from carbon-neutral or even carbon-negative sources.

2 Adjust Feedstock quantity per pathway

3 Set Custom mode to adapt Electricity Repartition

4 Custom Repartition of the Type of electricity used

5 Minimise/maximise e-SAF production

6 Update e-SAF Costs & transports input parameters

Display CoProducts (see)

Please note that any cost values ending in '99' for feedstock, water, or gas indicate cases where no reliable source data was available. These figures are reasonable estimates, included to guide the user while clearly signalling a degree of uncertainty.

Parameter	Value	Unit
H ₂ Production cost per ton	6300.38	€/tH ₂
CO ₂ Carbon capture cost per ton	1049.72	€/tCO ₂
New Capital Intensity affected by learning	8800.07	€/tSAF
Annualised capital cost per SAF ton	1033.65	€/tSAF
Cumulative Capital Investment (CCI)	1.76	€bn/SAF plant
Total Capital Investment (TCI)	73.92	€bn/SAF plant

5

The synthetic SAF fuel production units and costs (3/3)

Default

Default Pathways is Power-to-liquid
 Default Electricity are Renewable, Low-Carbon & Other
 Quantities values are not prefilled

The Synthetic SAF Fuel production results are presented on the Fuel produced, SAF and H₂ Cost and electricity charts. Depending on the repartition of the Type of electricity and the Quantity of feedstock usage the donut charts are updated.

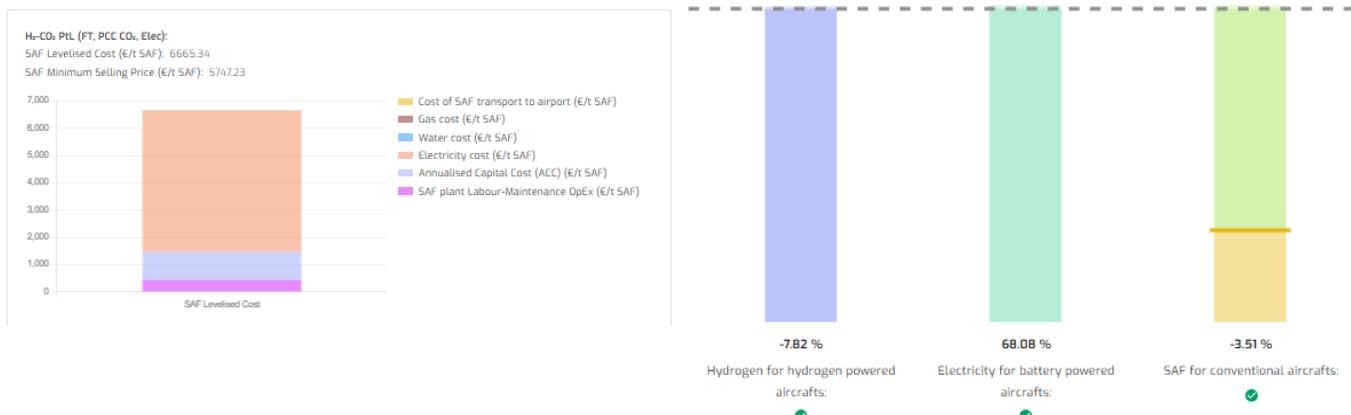
Output

H ₂ Production cost per ton	6300.38	E/tH ₂	CO ₂ Carbon capture cost per ton	1049.72	E/tCO ₂	New Capital Intensity affected by learning	8800.07	E/tSAF
Annualised capital cost per SAF ton	1033.65	E/tSAF	Cumulative Capital Investment (CCI)	1.76	Ebn/SAF plant	Total Capital Investment (TCI)	73.92	Ebn/SAF plant

Fuel produced

View Fossil Jet fuel

 SAF and H₂ Cost

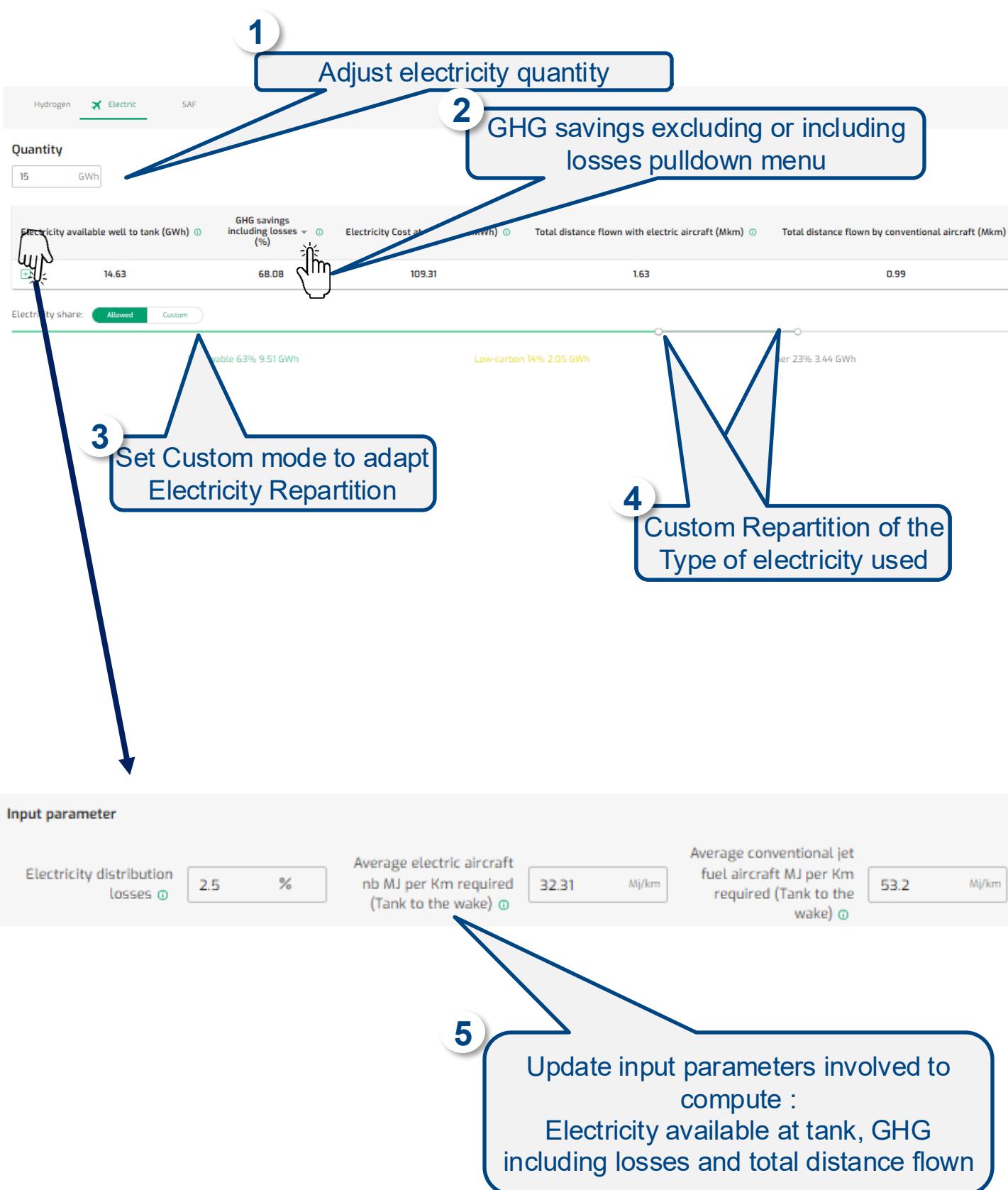
 H₂-CO₂ PtL (FT, PCC CO₂, Elec) ▾ ▲


CONCAWE and Imperial College London data (lower estimates), EUROCONTROL research, FAO, IEA, EEA, Project SkyPower , TU Delft, Trinity College of Dublin, ASTM standards. For more details on SAF pathways data, please also consult "About data" section on the site.

Data

6

The Electric Aircraft electricity production (1/2)



6

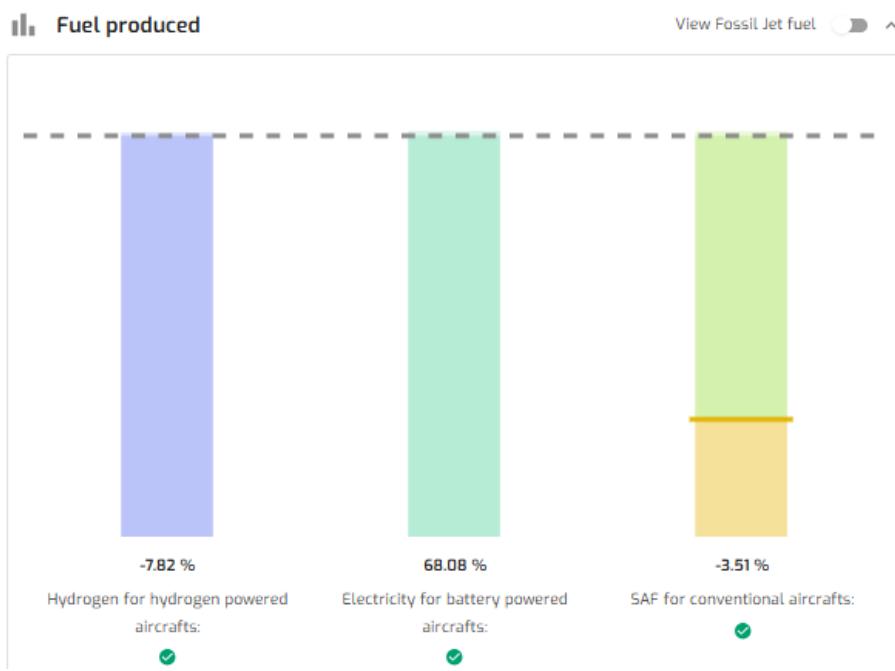
The Electric Aircraft electricity production (2/2)

Default

Default Electricity are Renewable, Low-Carbon & Other Quantities values are prefilled for some Areas / States

The Electric Aircraft electricity results are presented on the Fuel produced chart. Depending on the Type of electricity selected and the Quantity of electricity usage the donut charts are updated.

Output

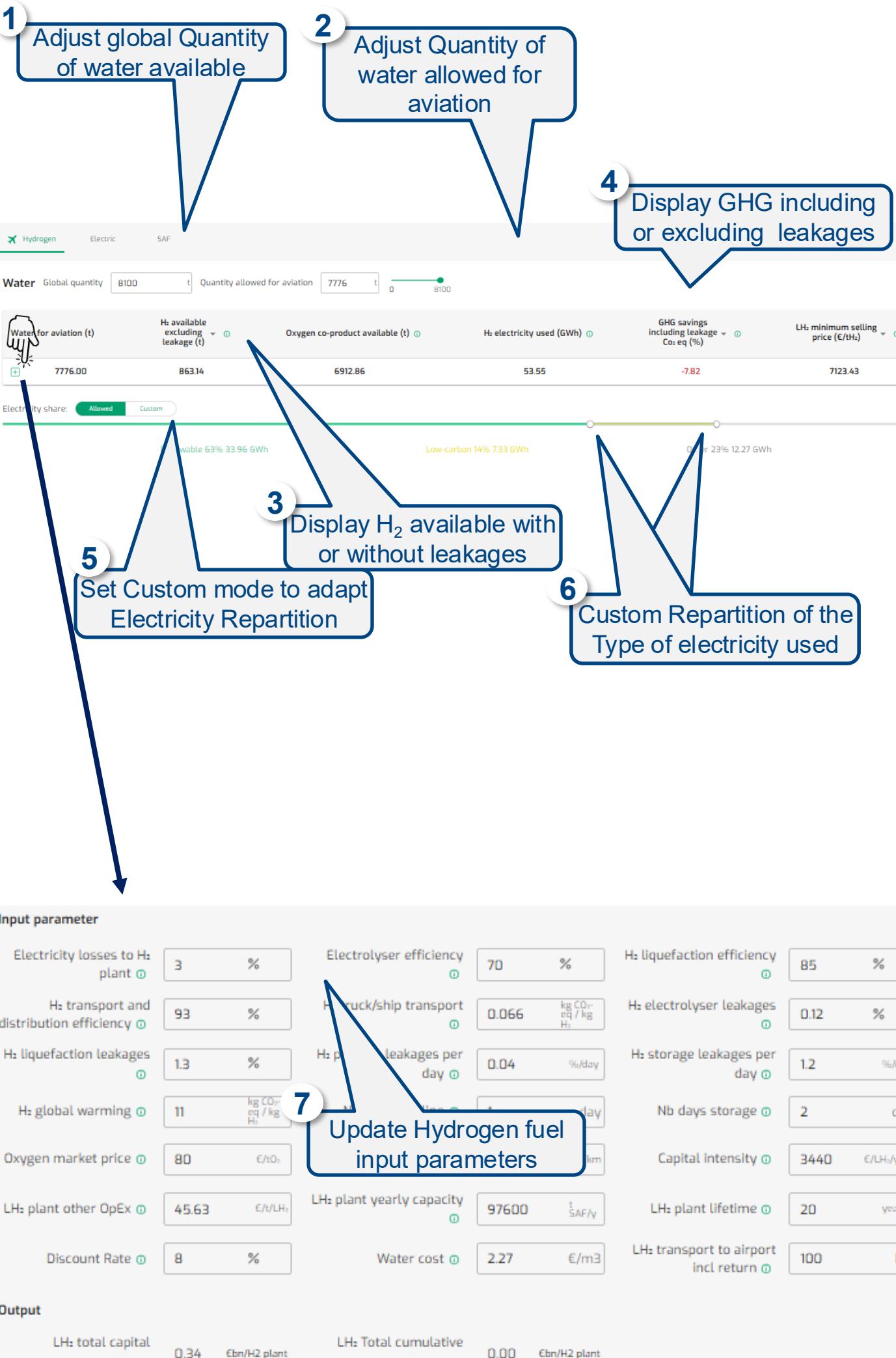


Data

EUROCONTROL Aviation Outlook (Long Term Forecast report), IEA, EEA.

7

The Hydrogen Fuel production (1/2)



The Hydrogen Fuel production (2/2)

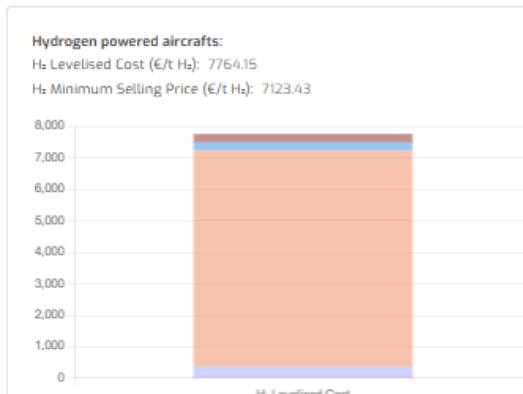
Default

Default Electricity are Renewable, Low-Carbon & Other Quantities values are prefilled for some Areas / States Conversion efficiency

The Hydrogen Fuel production results are presented on the Fuel produced chart. Depending on the Type of electricity selected and the Quantity of electricity usage the donut charts are updated.

SAF and H₂ Cost

Hydrogen powered aircrafts ▾ ^



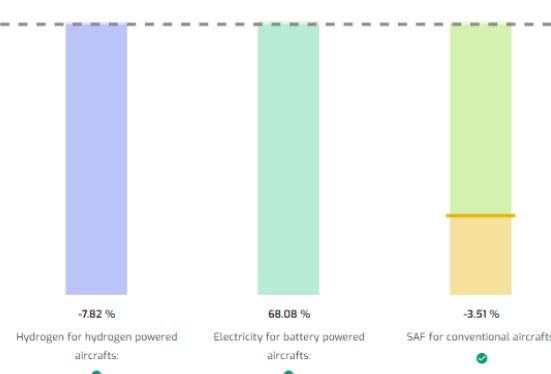
- Cost of H₂ transport (€/t H₂)
- Water cost (€/t H₂)
- Electricity cost (€/t H₂)
- Annualised Capital Cost (ACC) (€/t H₂)
- H₂ plant other OpEx (€/t H₂)

Fuel produced

View Fossil Jet fuel ▾

Electricity

View: Allocated ▾ Total ▾



, EUROCONTROL research, EUROCONTROL Aviation Outlook (Long Term Forecast report), IEA, EEA, ASTM standards.

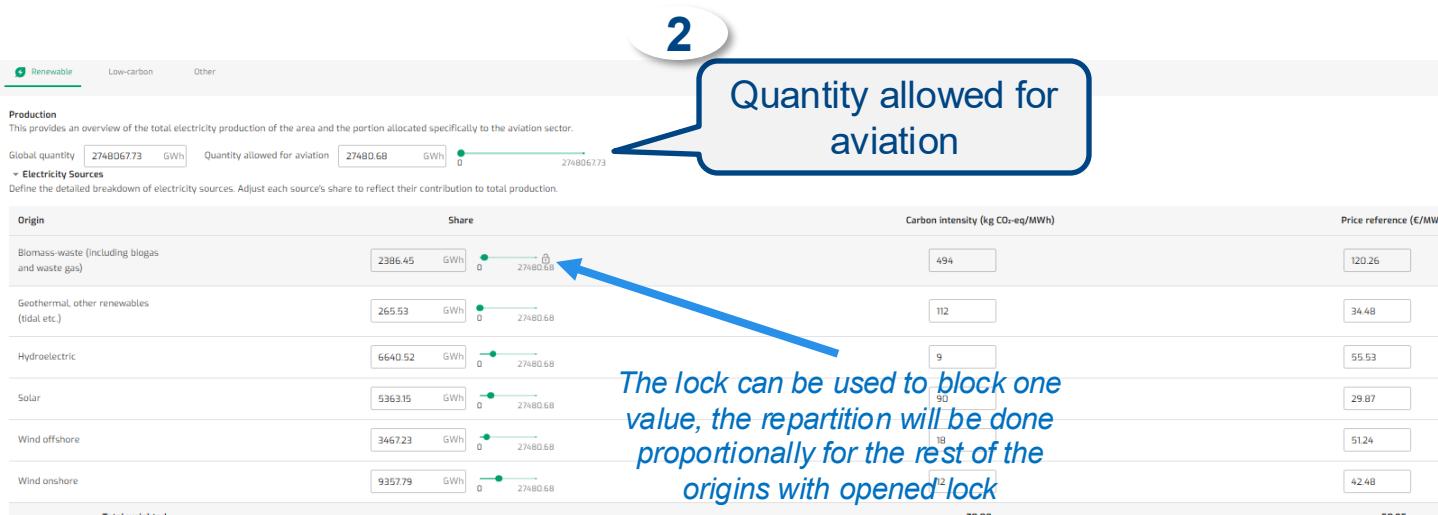
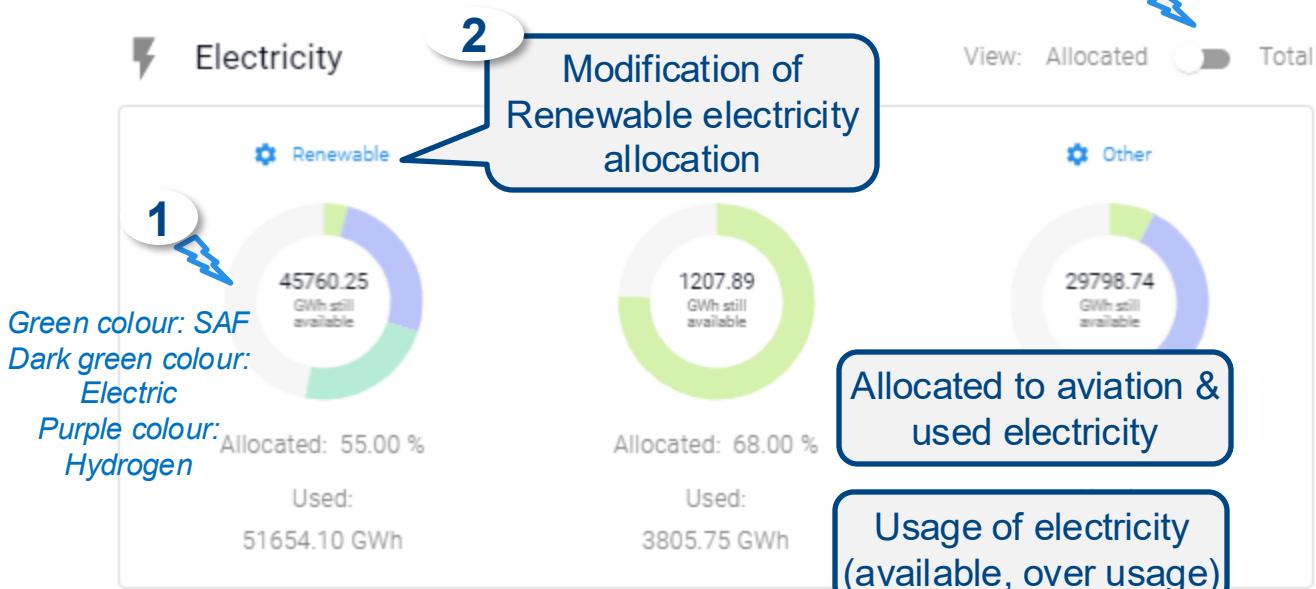
8

Assess the volume of Green electricity necessary for Fuel production (1/2)

1 View the Renewable electricity

2 Configure the Renewable electricity quantity & properties

The Allocated Electricity or Total Electricity can be seen by activating the toggle



Origins of the Renewable electricity

Repartition of the different origins

Carbon intensity & price reference of the origin

8

Assess the volume of Green electricity necessary for Fuel production (2/2)

Default

Default Electricity are Renewable, Low-Carbon & Other Quantities values are prefilled for some Areas/States Share of origins is proportionally distributed between origins Carbon intensity & price reference are prefilled for some Areas/States Conversion efficiency prefilled and not editable

Output

The Renewable electricity results are presented on the Electricity donut chart. The modification of the Renewable electricity quantities impacts the quantity available per Type of electricity for Hydrogen Fuel, Electric aircraft and SAF.

Data

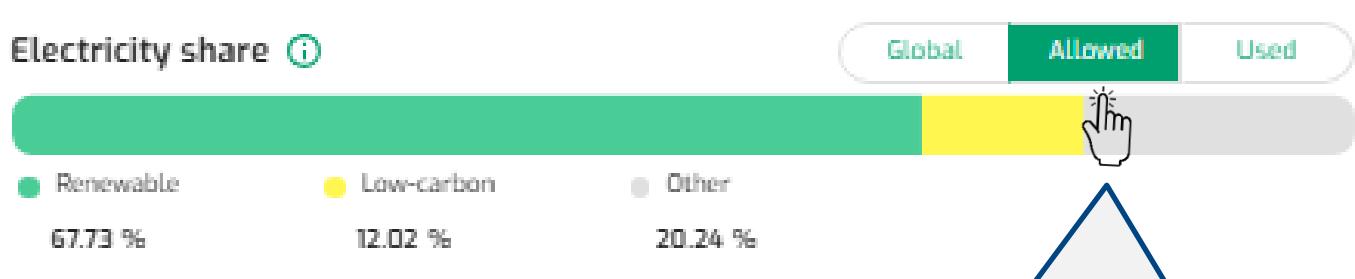
EUROCONTROL research, EUROCONTROL Aviation Outlook (Long Term Forecast report), IEA, EEA, Lazard, Deutsche Bank economic research reports, European Commission - Cost of Energy 2020 report - prepared by TRINOMICS, Fraunhofer Institute for Solar Energy Systems, EIA, McKinsey.

9

Display global, allocated & used electricity

Electricity share board displays the electricity repartition percentages of renewable, low-carbon and other

Electricity share 



The user can switch to :

- **Global** :total electricity available
- **Allowed** : Electricity allowed for aviation
- **Used** : total electricity used for fuel production including unfilled and filled gap electricity

! **Used** electricity repartition is updated according to electricity repartition customization

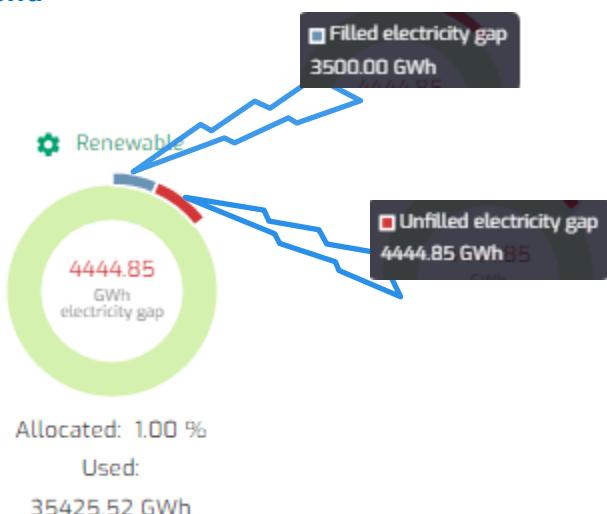
10

Plan the Renewable electricity infrastructures to fill the Renewable electricity gap with costs (1/3)



When renewable electricity need goes beyond allocated electricity to aviation, the user can manage the electricity Gap to meet the needs.

Filled electricity gap is managed With the Electricity Gap Board, and Displayed in Blue in the Donut. Unfilled electricity Gap is displayed In Red in the Donut.



1

Expand/Shrink the Electricity Gap board

2

Update Carbon Intensity and Price Reference for each renewable electricity gap

3

Display renewable deployment costs



→ Electricity Gap

Airline's electricity demand exceeds the available allocation. Define additional sources or adjust allocation to cover the shortfall, ensuring that aviation's energy requirements are met without surpassing the production limits.

Origin	Share	Carbon intensity (kg CO ₂ -eq/MWh)	Price reference (€/MWh)	Additional electricity source units	Renewable deployment cost (€bn)
Gap to fill	1. 0 GWh	0 504226.8	70.08	50.95	
Imported electricity	2. 0 GWh	0 504226.8	102	89.17	
Biomass-waste (including biogas and waste gas)	0 GWh	0 504226.8	253	92.6	
Geothermal, other renewables (tidal etc.)	0 GWh	0 504226.8	96	26.6	
Hydroelectric	0 GWh	0 504226.8	9	42.85	
+ Solar	201690.72 GWh	0 504226.8	66	261 636 985 30.00 %	523.27 km ² 22.88 km x km 56.51
+ Wind offshore	161352.57 GWh	0 504226.8	15.43	2 047	14 329.00 km ² 119.70 km x km 120.77
+ Wind onshore	141183.5 GWh	0 504226.8	10.29	2 779	19 453.00 km ² 139.47 km x km 52.80
Total	504227 GWh		Total weighted 34.22	Total weighted 34.85	Total 230.09

10

Plan the Renewable electricity infrastructures to fill the Renewable electricity gap with costs (2/3)

1

Plan the Solar infrastructure and costs

1

Solar

201690.72 GWh

0

504226.8

66

27.03

Additional electricity source units

Renewable deployment cost (€bn)

 261 636 985 523.27 km²

30.00 %

22.88 km x k m

56.51

Solar farm setup

 Panel power: 600 Wc Orientation: South Solar irradiance: 3.52 kWh/m²

 Panel size: 2 m² Orientation coefficient: 1 Cost per watt peak: 0.36 €/Wp

Solar farm setup :

Panel power : The default peak power for a standard solar panel is typically around 300 to 400 watts per panel for residential and small commercial applications, however the default peak power evolve quickly.

Panel size : Surface area of a single solar panel is typically in the range of 1.6 to 2 square meters (m²) depending on the panel's size and wattage

Orientation : The default orientation coefficient for photovoltaic (PV) panels adjusts energy estimates based on their tilt and azimuth. For well-optimized installations, the coefficient typically ranges from 0.9 to 1. Panels facing east or west may have a lower coefficient, while those with tracking systems may have a higher one.

Solar irradiance : Values are from Global Solar Atlas. Average theoretic potential Ground Horizontal Irradiance (no tilts or orientation) and independent of temperature/electrical factors. The user could take these factors into account and adjust the default value for photovoltaic panel efficiency (%).

[Data behind the study - Tabular data \(XLSX\) and GIS raster layers \(GeoTIFF\)](#)

Cost per watt peak: Solar PV is set to become the largest renewable energy source by 2029 according to IEA. Solar PV prices have dropped significantly over the past two decades due to technological advances, economies of scale, and increased global production, primarily from China. According to forecasts, the cost of solar PV is expected to continue declining. Globally, the total installation cost of solar PV projects would continue to decline in the next three decades. This would make solar PV highly competitive in many markets, with the average falling in the range of USD 340 to 834 per kilowatt (kW) by 2030 (Average € 0,524cts/MWh) and USD 165 to 481/kW by 2050 (Average € 0,288cts/MWh), compared to the average of USD 1 210/kW in 2018.

Source: IRENA FUTURE OF SOLAR PHOTOVOLTAIC Deployment, investment, technology, grid integration and socio-economic aspects

Solar and wind Output Data:



Total number of photovoltaic solar panels



Total surface of the solar farm (no inter row spacing)



Total net square edge surface of the solar farm (no inter-row spacing)



Efficiency of the photovoltaic solar panels under standard test condition (STC) %

10

Plan the Renewable electricity infrastructures to fill the Renewable electricity gap with costs (3/3)

2

Plan the Wind offshore & onshore infrastructure and costs

2
Wind offshore

161352.57 GWh 0 → 504226.8

15.43

44.6

 Additional electricity source units

Renewable deployment cost (€bn)

2 047

14 329.00 km²

119.70 km x km

120.77

Wind farm setup

Turbine power 20 MWc Load factor 45 %

Spacing distance per wind turbine (km²) 7 km²

Cost per wind turbine 59 ME

2
Wind onshore

141183.5 GWh 0 → 504226.8

10.29

34.87

 Additional electricity source units

Renewable deployment cost (€bn)

2 779

19 453.00 km²

139.47 km x km

52.80

Wind farm setup

Turbine power 20 MWc Load factor 29 %

Spacing distance per wind turbine (km²) 7 km²

Cost per wind turbine 19 ME

Wind Input Data :

Turbine power : Refers to the maximum default power output of the turbine

Load factor :

The wind turbine load factor measures the actual electricity generated versus its maximum potential, expressed as a percentage. It depends on factors like location, wind consistency, and turbine technology. Onshore turbines have load factors of 20–35%, while offshore turbines range from 35–55% or higher.

Spacing distance per wind turbine (km²) :

Wind turbine spacing ensures efficiency and minimizes wake turbulence, with area allocation often measured in square kilometers. The general guideline is 5–10 rotor diameters between turbines in the wind direction and 3–5 in the crosswind direction. Proper spacing helps optimize performance and reduce energy loss.

Cost per wind turbine :

Many factors such as the location, water depth, foundation type, supply chain constraints may affect the cost. The cost per unit may appear to rise, but this is due to significant improvements in wind turbine technology. Turbines are becoming more powerful, increasing from 10 MW in 2010 to 30 MW by 2050. Their lifespan is also extending, from 20 years in 2025 to 30 years in 2050, and their efficiency is improving, with the load factor rising from 40% in 2025 to 50% in 2050. Despite these changes, the levelized cost of energy (LCOE) per MWh is expected to decrease by 70% between 2025 and 2050.

Cost per Megawatt peak includes:

- Turbine CapEx: Rotor, Nacell, Tower.
- Balance of System CapEx: Engineering and development, Project management, Foundation, site access, Assembly and installation, Electrical infrastructure, Wind turbine transport.
- Financial CapEx: Construction financing, Insurance during construction, Contingency, Plant Commissioning, Wind turbine warranty

Not included:

- OpEx: Operation, maintenance and decommissioning.

Source: NREL 2022 Cost of Wind Energy Review December 2023

Additional assumption: Life duration 25 years 2025 to 30 Years 2050, 1% cost reduction every year

Exchange rate \$ to € has been used, based on 10 years from 2014 and 2024, 1 EUR = 1,12 USD

Wind Output Data:



Total number of offshore/onshore wind turbines



Total net square edge surface of the wind farm (km x km)



Total surface of the wind farm (km²)

11

Assess the Low-Carbon electricity necessary for Fuel production (1/2)

1

View the Low-Carbon electricity

2

Configure the Low-Carbon electricity quantity & properties

 Electricity

2

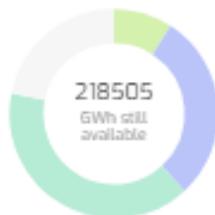
Modification of Low-Carbon electricity allocation

The Allocated Electricity or Total Electricity can be seen by activating the toggle



View: Allocated Total

 Renewable

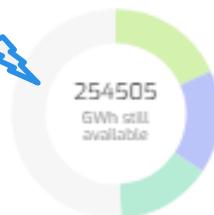


Allocated: 43.38 %
Used:
781495 GWh

 Low-carbon

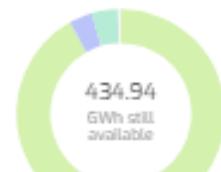
1

Green colour: SAF
Dark green colour: Electric
Purple colour: Hydrogen



Allocated: 73.09 %
Used:
245495 GWh

 Other



Allocated to aviation & used electricity 1 %
593070.53 GWh

Usage of electricity (available, over usage)

Renewable  Low-carbon Other

Production

This provides an overview of the total electricity production of the area and the portion allocated specifically to the aviation sector.

Global quantity 593070.53 GWh Quantity allowed for aviation 5930.71 GWh 0 593070.53

Electricity Sources

Define the detailed breakdown of electricity sources. Adjust each source's share to reflect their contribution to total production.

Origin	Share	Carbon intensity (kg CO ₂ -eq/MWh)	Price reference (€/MWh)
Nuclear energy	5930.71 GWh <input data-bbox="547 2060 676 2086" type="range" value="5930.71"/> 0 5930.71	9	57.3

Total weighted

Origin of the Low-Carbon electricity

2

Quantity allowed for aviation

Carbon intensity & price reference of the origin

11

Assess the Low-Carbon electricity necessary for Fuel production (2/2)

Default

Default Electricity are Renewable, Low-Carbon & Other

Quantities values are prefilled for some Areas/States

Origin is Nuclear energy

Carbon intensity & price reference are prefilled for some Areas/States

Conversion efficiency prefilled and not editable

Output

The Low-Carbon electricity results are presented on the Electricity donut chart. The modification of the Low-Carbon electricity quantities impacts the quantity available per Type of electricity for Hydrogen Fuel, Electric aircraft and SAF.

Data

CONCAWE and Imperial College London data, 2021 EU report on Energy and GHG emissions, EUROCONTROL research, EUROCONTROL Aviation Outlook (Long Term Forecast report), FAO, IEA, EEA, ASTM standards.

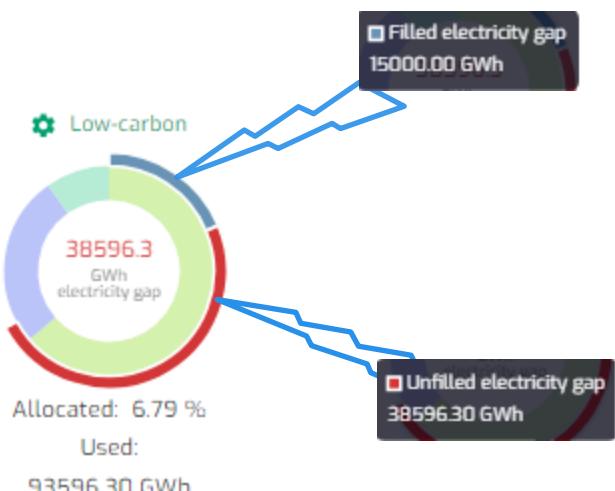
The 2021 EU report on Energy, Transport and GHG emissions data was amended to reflect national policy changes impacting low carbon production.

12

Plan the Low-Carbon electricity infrastructures to fill the Low-Carbon electricity gap (1/2)

When Low-Carbon electricity need goes beyond allocated electricity to aviation, the user can manage the electricity Gap to meet the needs.

Filled electricity gap is managed With the Electricity Gap Board, and Displayed in Blue in the Donut. Unfilled electricity Gap is displayed In Red in the Donut.



1

Expand/Shrink the Electricity Gap board

2

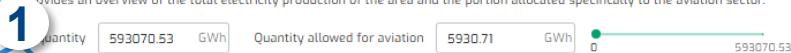
Update Carbon Intensity and Price Reference for each low-carbon electricity gap

Origin column displays :

1. **Gap to Fill** : the volume of electricity above the Quantity allowed for aviation which needs infrastructures planning.
2. **Low-Carbon production means, including importing electricity.**

Production

This provides an overview of the total electricity production of the area and the portion allocated specifically to the aviation sector.



Electricity Sources

Electricity Gap

Airport's electricity demand exceeds the available allocation. Define additional sources or adjust allocation to cover the shortfall, ensuring that airport's energy requirements are met without surpassing the production limits.

Origin	Share	Carbon intensity (kg CO ₂ -eq/MWh)	Price reference (€/MWh)	Additional electricity source units	Low-carbon deployment cost (€bn)
Gap to fill	1. 14274.87 GWh	0 19274.87	9	57.3	
Imported electricity	2. 0 GWh	0 19274.87	102	89.17	
Nuclear plant	5000 GWh	0 19274.87	9	89.17	1
Total	5000.00 GWh	Total weighted 9.00	Total weighted 89.17		Total 10.94

12

Plan the Low-Carbon electricity infrastructures to fill the Low-Carbon electricity gap (2/2)

1

Plan the Nuclear infrastructure

1

	Additional electricity source units	Low-carbon deployment cost (€bn)
Nuclear plant	5000 GWh 0 19274.87	89.17 1 10.94
Nuclear plant setup	Load factor 82 % Nuclear plant reactor Power (MW) 1600 MW Cost per nuclear plant 10.94 €bn	

Nuclear Input Data :

Load factor : The load factor (sometimes called capacity factor) of a power plant is a measure of the actual output of a power plant relative to its maximum possible output over a period of time. It essentially indicates how efficiently a power plant is being utilised.

Nuclear plant reactor power (MW) :

Nuclear reactor electrical power output

Cost per nuclear plant :

The construction cost of a power plant varies depending on factors like technology, location, and scale. Modern nuclear reactors can cost between €11 billion (Olkiluoto 3) and €19.1 billion (Flamanville). The U.S. Energy Information Administration estimates the initial capital cost of a new reactor at \$5,339 per kW, or \$5.3 billion for a 1000 MW reactor. However, additional costs from financing, long construction periods, and price increases can result in total costs being much higher than the initial estimates.

Nuclear Output Data :



Total number of nuclear reactors

13

Assess the Others energy category of electricity necessary for Fuel production (1/2)

1

View the Other electricity

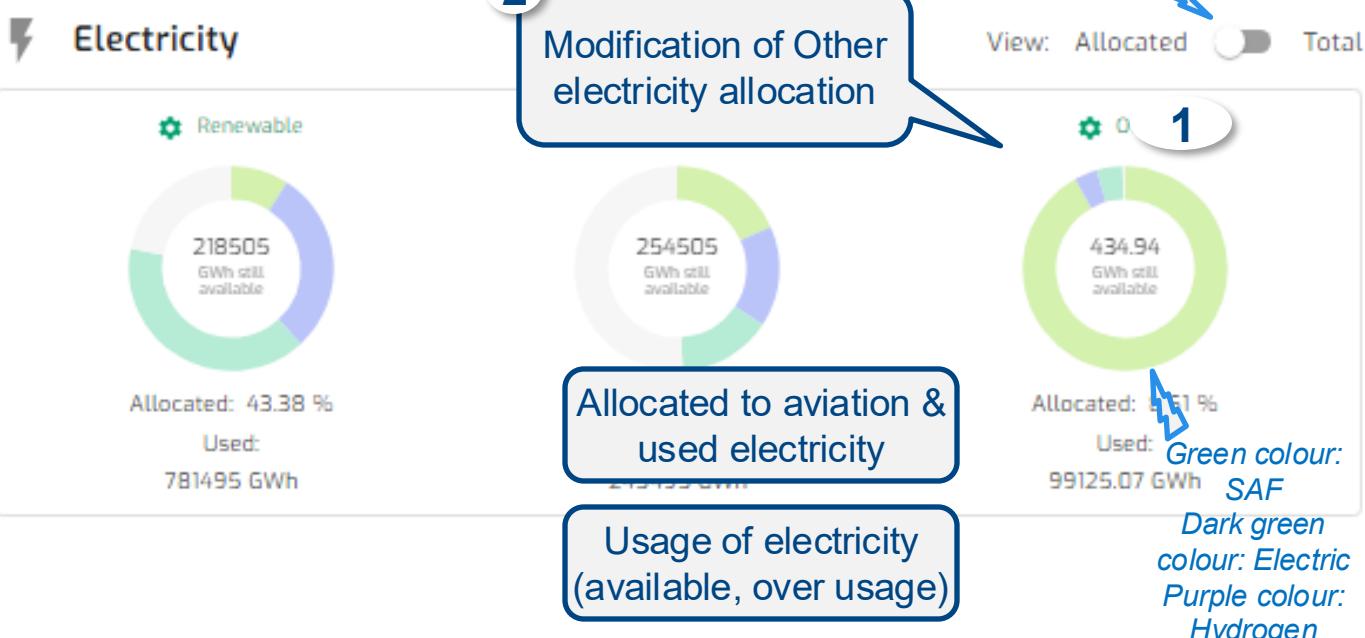
2

Configure the Other electricity quantity & properties

The Allocated Electricity or Total Electricity can be seen by activating the toggle

2

Modification of Other electricity allocation



2

Quantity allowed for aviation



Origin of the Other electricity

Repartition of the different origins

Carbon intensity & price reference of the origin

13

Assess the Others energy category of electricity necessary for Fuel production (2/2)

Default

Default Electricity are Renewable, Low-Carbon & Other Quantities values are prefilled for some Areas/States Share of origins is proportionally distributed between origins Carbon intensity & price reference are prefilled for some Areas/States Conversion efficiency prefilled and not editable

Output

The Other electricity results are presented on the Electricity donut chart. The modification of the Other electricity quantities impacts the quantity available per Type of electricity for Hydrogen Fuel, Electric aircraft and SAF.

Data

2021 EU report on Energy and GHG emissions, EUROCONTROL research, EUROCONTROL Aviation Outlook (Long Term Forecast report), IEA, EEA, ASTM standards.

14

View needs & production chart (SAF, Electric Aircraft, Hydrogen Fuel) (1/2)

1

View the needs

2

View the Fuel produced

1 Needs

i Disclaimer: Fuel, hydrogen, and electricity values are based on the latest EUROCONTROL Aviation Outlook (2024–2050), with further information available in the Outlook.

Needs modification and validation

i Select your preferred units. Your selection applies throughout the app.

Inconsistent, clear data.

 Hydrogen for hydrogen powered aircraft **i**

823 t ▾

 Electricity for battery powered aircraft **i**

14.83 GWh ▾

 Fuel for conventional aircraft
The Fossil Jet Fuel

82.38 Mt ▾

Fuel needs according to the mandate



View SAF shares

The needs of bio and synthetic SAF update when changing the mandate %

 Fossil jet fuel

54.37 Mt ↑ 66%

 Bio-SAF

19.77 Mt ↑ 24%

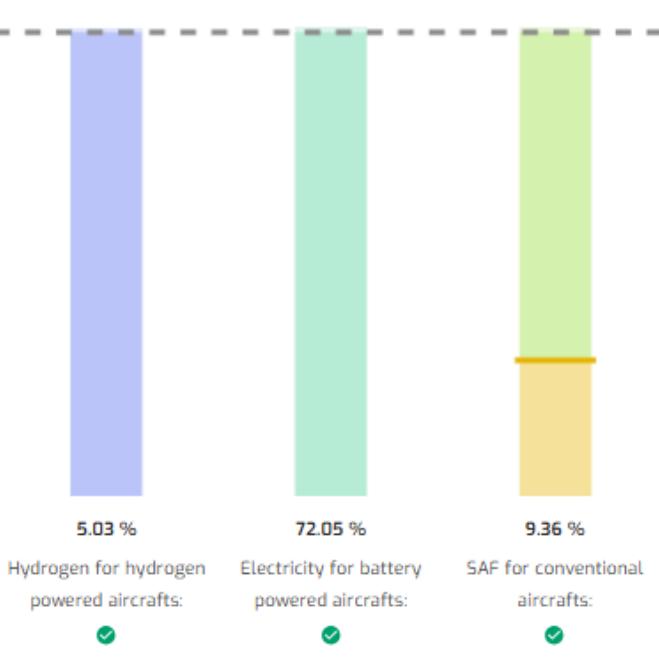
 Syn-SAF

8.24 Mt ↑ 10%

2

Fuel produced

View Fossil Jet fuel



Different indicators on Fuel produced :

Dotted line: the needs

Coloured bar: Fuel produced

Light coloured bar : Overproduction

Red arrow: Fuel missing to fulfil needs

14

View needs & production chart (SAF, Electric Aircraft, Hydrogen Fuel) (2/2)

Default

Default Needs are Hydrogen, Electricity & Fuel
Needs values are prefilled for some Areas / States
Default Fuel produced chart are Hydrogen, Electricity & SAF

Output

The Fuel produced results are presented on the Fuel produced chart.
The results presentation are compared to the needs in the settings page.

Data

CONCAWE and Imperial College London data (low scenario) ,
2021 EU report on Energy and GHG emissions,
EUROCONTROL research, EUROCONTROL Aviation Outlook
(Long Term Forecast report), FAO, IEA, EEA, ASTM standards.
Lazard, Deutsche Bank economic research reports, European
Commission - Cost of Energy 2020 report - prepared by
TRINOMICS, Fraunhofer Institute for Solar Energy Systems,
EIA, McKinsey.

15

Graphical display of SAF and H₂ costs for each feedstock/pathway (1/2)

1

View the detailed SAF and H₂ structure of cost

1

Display detailed levelised, Minimum Selling Price and detailed cost structure

Select the feedstock and associated pathway in the list

Iconify, extend window

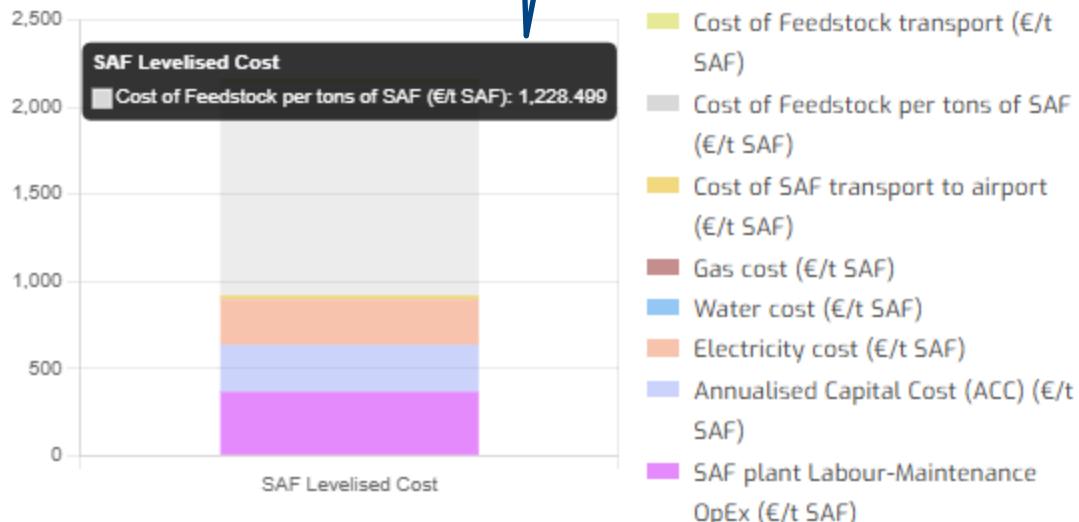
Waste Oil and F... HEFA-SPK ▾ ^

SAF and H₂ Cost

Waste Oil and Fat biomass HEFA-SPK:

SAF Levelised Cost (€/t SAF): 2160.82

SAF Minimum Selling Price (€/t SAF): 1752.26



Graphical display of SAF and H₂ costs for each feedstock/pathway (2/2)

Example of the detailed cost assumptions taken for the HEFA-SPK conversion pathway of waste oil and fat biomass feedstock.

Each assumption can be modified to suit your specificities or to test different hypothesis.

Feedstock cost ⓘ	1286.2	€/tFeed	Feedstock transport emissions ⓘ	38	gCO ₂ eq / tFeed/km	Feedstock transport to SAF plant incl return ⓘ	200	km
Feedstock transport to SAF plant cost ⓘ	0.064	€/tFeed/km	SAF transport emissions ⓘ	38	gCO ₂ eq / tSAF/km	SAF transport to airport incl return ⓘ	220	km
SAF transport to Airport cost ⓘ	0.098	€/tSAF/km	Gas cost ⓘ	43.56	€/MWh	Water cost ⓘ	2.72	€/m ³
Capital Intensity ⓘ	3027	€/tSAF/y	SAF plant other OpEx ⓘ	367	€/tSAF	SAF plant yearly capacity ⓘ	0.073	MtSAF/y
SAF plant lifetime ⓘ	20	year	Discount rate ⓘ	7	%	Diesel selling price	1080	€/t
Naphtha selling price ⓘ	1500	€/t	Light gas selling price	110	€/MWh	Other co-product selling price	200	€/t
Share of the Capital Intensity affected to number of SAF plant learning ⓘ	20	%	Share of the Capital Intensity affected to SAF plant production capacity learning ⓘ	45	%	Share of the Capital Intensity not affected by any learning ⓘ	35	%
Learning Rate number of SAF plant (LRP) ⓘ	4	%	Learning Rate Capacity SAF capacity (LRC) ⓘ	7	%			
Output								
New Capital Intensity affected by learning ⓘ	3027.20	€/tSAF	Annualised capital cost per SAF ton ⓘ	281.32	€/tSAF	Cumulative Capital Investment (CCI) ⓘ	0.22	€bn/SAF plant
Total Capital Investment (TCI) ⓘ	0.22	€bn/SAF plant						

16

17

View the SAF map & SAF news

1

View the SAF map

2

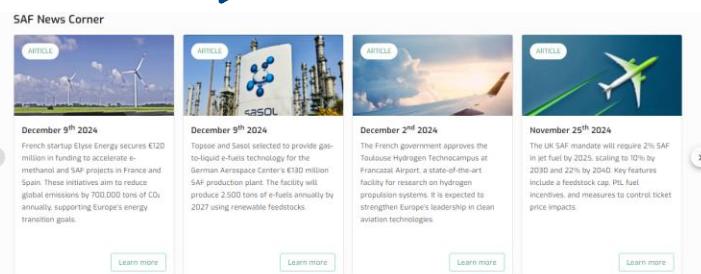
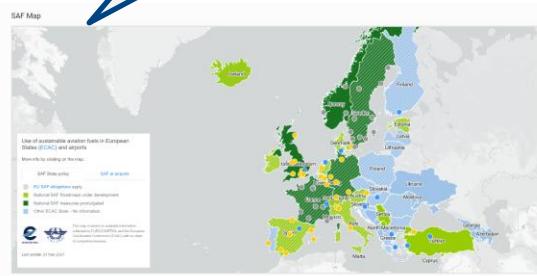
View the SAF news Corner

1

Click on the SAF map to open the SAF map website

2

Browse the SAF News corner carousel



Default

SAF map
SAF news corner

Output

The SAF map is presented. The SAF news corner is presented.

Data

EUROCONTROL and ECAC research and stakeholders' inputs.



FuellingDecarb journey



FuellingDecarb step-by-step

Settings

Needs

Bio SAF

e-SAF

Electric & Hydrogen

Allocated Electricity

Fill the Electricity Gap

Fuel production

- Click on Start to estimate, select the country/area and year
- Define the needs for the country/area
- Change the global quantity of feedstock and minimise/maximise the SAF for a pathway.
- Global quantity of Bio SAF and synthetic SAF are set according to Refuel EU mandate.
- Adjust the quantity of Hydrogen and CO₂ to produce synthetic SAF according to Refuel EU.
- Estimate the quantity used for Electric Aircraft and Hydrogen Fuel according to the needs.
- Change the Global quantity of Renewable Electricity to 1000 GWh and modify the origin shares
- Plan new electricity infrastructures or import to fill the Renewable and Low-Carbon electricity gap.
- Check if the configuration is meeting your defined needs and Green House Gas savings

The advantages of your journey

1

Simulate the production of SAF, Electricity and Hydrogen.

2

Use different sources of electricity to produce SAF, Electricity and Hydrogen.



ClimAdapt

Navigating the Climate Adaptation Challenge

Geographical subdivision

	NEU	WCE	WCA	MED	GIC
--	-----	-----	-----	-----	-----

Western and Central Europe - Encompassing much of continental Europe. It exhibits diverse climates, ranging from oceanic to continental.

Climate change effects

- Increase in mean air temperature**
Temperatures are projected to increase by more than the global mean temperature, and heatwaves are likely to become more frequent and intense.
- Increase in severe wind storms**
A slight increase in frequency and amplitude of extratropical cyclones, strong winds and extratropical storms is projected.
- Relative sea level rise**
Relative sea level is projected to rise, increasing the risk of coastal flooding and erosion.
- Increase in heavy precipitation**
An increase in heavy precipitation events is projected.

Key climate change effects in Europe



1

High level screening tool

Is your operation climate-proof? Run a quick assessment to evaluate whether you know how climate change impacts could affect your aviation operations. Find out if further detailed analysis is advised.

[Evaluate impacts](#)

2

Economic Assessment tool

Plan for the financial implications of climate change impacts. Assess the likelihood of climate change events and evaluate potential impacts across key financial criteria. View a tailored cost projection to guide your strategic decision-making.

[Run cost assessment](#)

Repository of Climate Change Impacts and Adaptation Measures

Effectively manage the risks of climate change by identifying potential impacts and adaptation measures. This database helps you identify targeted solutions based on your stakeholder group, the climate effects you're facing, and the specific risks to your organisation.

[Explore risks & solutions](#)

Climate Change Adaptation Planning Checklists

Use our checklist to identify the key steps to evaluate the impacts of climate change on aviation infrastructure and operations and develop an adaptation plan, ensuring that your national aviation sector is prepared for potential climate impacts.

[Review checklist](#)

Repository of Information and Guidance

Get guidance on assessing climate change risks and implementing effective adaptation strategies by exploring resources on the following topics:

[Climate change effects](#) [Climate change impacts for the aviation sector](#) [Climate change risk assessment and adaptation planning](#)



About the data

This climate change visualisation tool is based on data from the following sources:

[IPCC AR5 Regional Climate Change Information](#) [IPCC Regional Factsheet Europe](#) [European Climate Risk Assessment](#) [Climate Change in the Mediterranean Region](#)

[IPCC Report Explainer](#) [IPCC AR5 WGI Regional Fact Sheet Polar Regions](#)

1

Climate Change Effects map

2

High level screening tool

Economic Assessment tool

Repository of Climate Change Impacts and Adaptation Measures

Climate Change Adaptation Planning Checklist

Repository of Information and Guidance

ClimAdapt is your portal to information on climate change impacts and adaptation measures for your organisation.

- Find out how the climate will change around the European region.
- Initiate a location and organisation-based pre-screening assessment to support the initiation of a full climate risk assessment.
- Run a financial assessment and evaluate the potential costs of climate impacts.
- Use the checklist to plan a climate change risk assessment and adaptation strategy.
- Explore key climate impacts and adaptation measures by stakeholder, climate effect, or risk category.
- Get guidance on assessing climate change risks and implementing effective adaptation strategies from various sources.



Functionalities

Climate Change effects

1

View Climate change effects per Climate zone or State

High level Pre-Screening tool

2

Run a climate change risk pre-screening assessment

High level Pre-Screening tool

3

View the pre-screening assessment report summary

Economic Assessment tool

4

Plan for the financial implications of climate change

Economic Assessment tool

5

View the economic assessment results

Repository of Impacts and Adaptation Measures

6

Search for potential climate impacts and targeted measures to reduce vulnerabilities

Adaptation Planning Checklists

7

Check the key steps for climate risk assessment and adaptation action

Repository of Information and Guidance

8

Get guidance on climate change risks and adaptation measures from various sources

About the Data

9

View ClimAdapt data sources

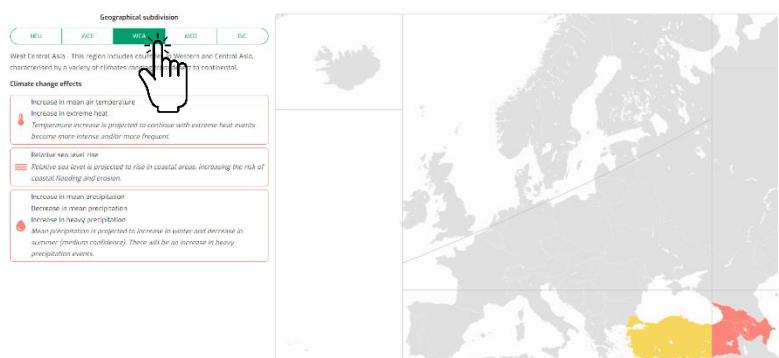


1

View Climate change effects per Climate zone or State

1

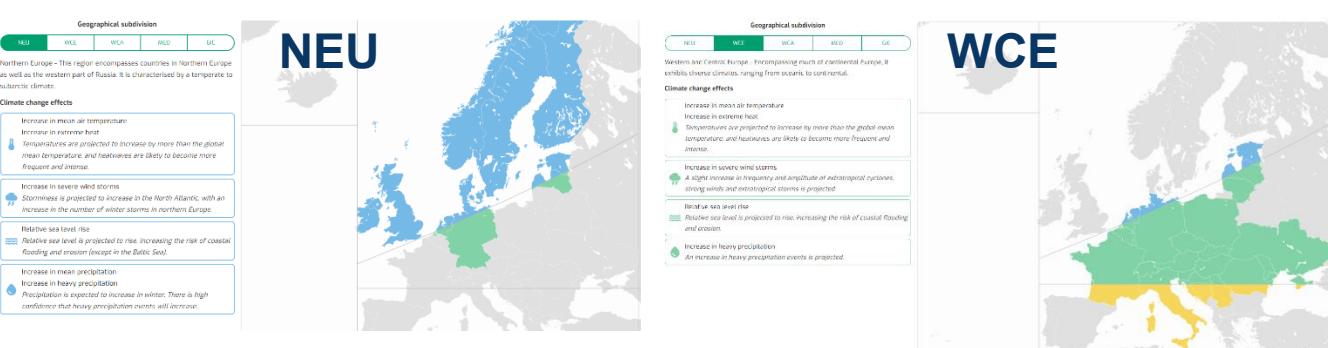
Select Geographical Subdivision



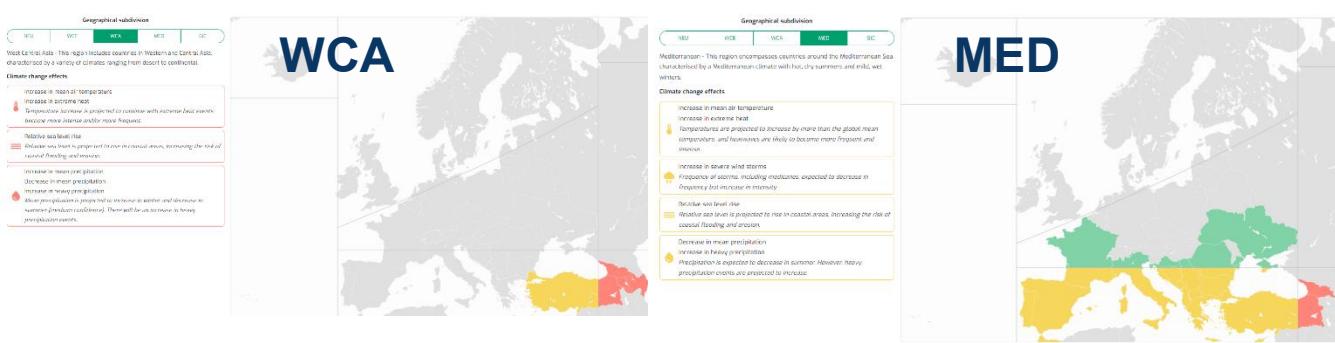
Default

No Geographical subdivision selected
Climate change effects is empty
Map displayed with all IPCC zone with colour codes

Selected IPCC geographical subdivision highlighted with related Climate change effects.



Output



Data

Scientific sources the IPCC assessment reports.

2

Run a climate change risk pre-screening assessment

1

Click on Run new assessment

High level screening tool

Is your operation climate-proof? Run a quick assessment to evaluate whether you know how climate change impacts could affect your aviation operations. Find out if further detailed analysis is advised.

Evaluate impacts



Default

Default Location type State
No profile selected

Selected State or IPCC geographical subdivision, and selected profile, impacts the questions presented for: Temperature, Storms, Sea levels and Precipitation.

Location

State IPCC State France

Select your profile

ANSP Airport Airline State

Apply

Temperature

Storms

Sea Levels

Precipitation

Generate Report



Do you know by how much mean temperatures are projected to increase in your subregion?

Yes No

Do you know how higher average and extreme temperatures will affect aircraft take-off performance for your fleet?

Yes No

Do you know to what extent storms are projected to increase in frequency and/or intensity in your subregion?

Yes No

Do you have a contingency plan in place for disruptive weather events?

Yes No




State or IPCC selection

Questions related to the selection

Output

Questionnaire and methodology are designed by EUROCONTROL experts.

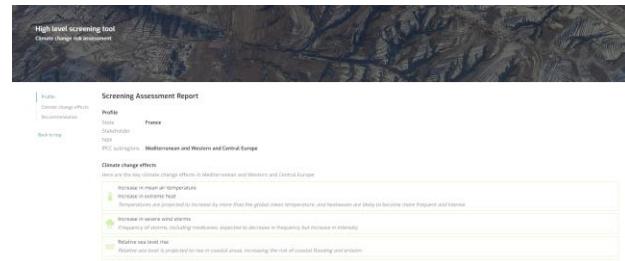
Data

3

View the pre-screening assessment report summary

1

Scroll down to see the report summary



The screenshot shows the 'Screening Assessment Report' page. At the top, it says 'High level screening tool Climate Change risk assessment'. Below that, there's a map of France with a subregion highlighted. The main content area is titled 'Screening Assessment Report' and includes sections for 'Profile', 'Climate change effects', 'Recommendations', and 'Back to map'. Under 'Climate change effects', there are several items listed with icons: 'Increase in mean air temperature' (green), 'Increase in extreme heat' (blue), 'Increase in severe wind storms' (orange), 'Relative sea level rise' (grey), 'Decrease in mean precipitation' (red), 'Increase in heavy precipitation' (yellow), 'Increase in mean air temperature' (green), 'Increase in extreme heat' (blue), 'Increase in severe wind storms' (orange), 'Relative sea level rise' (grey), 'Decrease in mean precipitation' (red), 'Increase in heavy precipitation' (yellow), and 'Evaluate financial impacts with the [Economic Assessment Tool](#)' (green). The 'Recommendations' section is currently collapsed.

Default

Results from the High-level pre-screening assessment

The results of the high-level pre-screening assessment are presented: Screening Assessment Report, answers to climate change effects and impacts questions, and Recommendation for next steps.

Results of the last assessment can be downloaded.

Output

Climate change effects

Here are the key climate change effects in Mediterranean and Western and Central Europe.

- Increase in mean air temperature**
Temperatures are projected to increase by more than the global mean temperature, and heatwaves are likely to become more frequent and intense.
- Increase in extreme heat**
Temperatures are projected to increase by more than the global mean temperature, and heatwaves are likely to become more frequent and intense.
- Increase in severe wind storms**
Frequency of storms, including hurricanes, expected to decrease in frequency but increase in intensity.
- Relative sea level rise**
Sea level is projected to rise in coastal areas, increasing the risk of coastal flooding and erosion.
- Decrease in mean precipitation**
Precipitation is expected to decrease in summer. However, heavy precipitation events are projected to will increase.
- Increase in heavy precipitation**
Precipitation is expected to increase in winter. However, heavy precipitation events are projected to will increase.
- Increase in mean air temperature**
Temperatures are projected to increase by more than the global mean temperature, and heatwaves are likely to become more frequent and intense.
- Increase in extreme heat**
Temperatures are projected to increase by more than the global mean temperature, and heatwaves are likely to become more frequent and intense.
- Increase in severe wind storms**
A slight increase in frequency and amplitude of extratropical cyclones, strong winds and meteorological storms is projected.
- Relative sea level rise**
Sea level is projected to rise, increasing the risk of coastal flooding and erosion.
- Increase in heavy precipitation**
An increase in heavy precipitation events is projected.

[Evaluate financial impacts with the \[Economic Assessment Tool\]\(#\)](#)

[Download report](#)

[Edit answers](#)

[Close report](#)



Your climate change effects answers

Temperature ↕

Do you know by how much mean temperatures are projected to increase in your subregion?

No

Stroms ↕

Do you know to what extent storms are projected to increase in frequency and/or intensity in your subregion?

Yes

Do you have a contingency plan in place for disruptive weather events?

No

Sea level rise ↕

Is your hub airport located less than 10m above sea level?

No

Precipitation ↕

Do you know how much precipitation is expected to change in your subregion (increase/decrease)?

Yes

Do you know if the airports you fly to/from are at risk of inundation from heavy precipitation events?

No

Recommendation

You have identified several areas of uncertainty as to how the effects of climate change will impact your organisation. We recommend carrying out a full climate change risk assessment based on local or regional climate projections to better understand any potential impacts. You may also wish to use the ClimAdapt Economic Assessment tool to gain an understanding of potential economic costs associated with any impacts identified.

4

Plan for the financial implications of climate change

1

Click on Run cost assessment

Economic Assessment tool

Plan for the financial implications of climate change impacts. Assess the likelihood of climate change events and evaluate potential impacts across key financial criteria. View a tailored cost projection to guide your strategic decision-making.



[More details](#)

● Potential loss severity level reference values

2

Choose the level of Potential Loss per impact



Definitions available by clicking on “+”

3

Choose the level of Likelihood

Potential Loss
Select cost categories that might be incurred by your organisation due to a specific climate change-related event such as a major storm or flooding event.

Direct Financial Impact

	Not Applicable	Insignificant	Minor	Significant	Damaging	Serious	Grave
DIRECT COST							
Loss of service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
EXTRA COST							
OPEX	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CAPEX	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Legal / Regulatory Impact

	Not Applicable	Insignificant	Minor	Significant	Damaging	Serious	Grave
Compensation for breaching contractual commitments	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Payments to 3rd parties due to liabilities for injury	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fines for non-compliance to regulations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Insurance related Impact

	Not Applicable	Insignificant	Minor	Significant	Damaging	Serious	Grave
Insurance pay off	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Loss of reputation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Likelihood

Select likelihood of climate change event assessed:

- Negligible**
Unlikely to occur
- Very low**
Likely to occur two / three times every five years
- Low**
Likely to occur once every year or less
- Medium**
Likely to occur once every six months or less
- Very High**
Likely to occur once per month or less
- Extreme**
Likely to occur multiple times per month or less

● Likelihood reference values



[More details](#)

No answers selected

Selected levels impact the results.

[Get results](#)



Default

Output

Data

5

View the economic assessment results

1

Scroll down to see the results

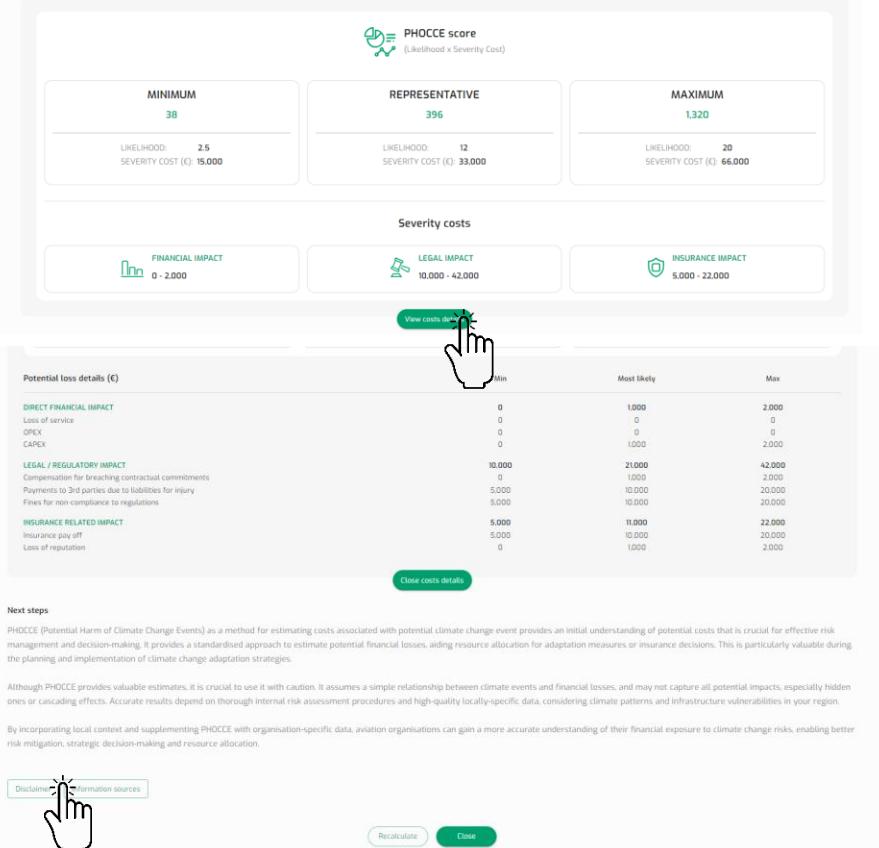
2

Click on View costs details to see the details

3

Click on Disclaimer and Sources

Potential harm of climate change event (PHOCCE) results



Results from the Economic assessment

The results of the Economic assessment are presented: PHOCCE score, Severity costs, Potential loss details, Next steps, Disclaimer and Sources.

Results of the last assessment can be displayed.

Recalculation is possible at the end of the results.

Default

Output



6

Search for potential climate impacts and targeted measures to reduce vulnerabilities

1

Click on Explore risks & solutions

Repository of Climate Change Impacts and Adaptation Measures

Effectively manage the risks of climate change by identifying potential impacts and adaptation measures. This database helps you identify targeted solutions based on your stakeholder group, the climate effects you're facing, and the specific risks to your organisation.

[Explore risks & solutions](#)



2

Filter by Stakeholder, Climate effect and/or Risk category

Use the tabs to filter easily

3

Export the selection

[Export selected criteria](#)



Default

All filters: Stakeholder, Climate Effect and Risk Category preselected

Output

Climate impacts results with vulnerabilities and adaptations measures.

Data

The information in this repository is based on ICAO Key Climate Change Vulnerabilities for Aviation Organisations, ICAO Key Climate Change Vulnerabilities for Aviation Organisations, ICAO Menu of Adaptation Options, EUROCONTROL Climate Change Risks for European Aviation 2021, EUROCONTROL Adapting Aviation to a Changing Climate 2018.

7

Check the key steps for climate risk assessment and adaptation action

1

Click on Review checklist

2

Edit the list of actions

3

Check off the actions considered

Climate Change Adaptation Planning Checklist

Use our checklist to identify the key steps to evaluate the impacts of climate change on aviation infrastructure and operations and develop an adaptation plan, ensuring that your national aviation sector is prepared for potential climate impacts.

[Review checklist](#)



Select not applicable actions

Choose the actions that are not relevant to your State. These actions will no longer appear in the checklist, ensuring your progress reflects only relevant tasks.

See de-selected actions

Planning and Stakeholder Engagement

- Determine the aviation stakeholders/organisations to be covered by the climate change risk assessment and adaptation plan.
- Identify non-aviation organisations that may have knock-on effects on the aviation sector, such as ground transport and utilities suppliers.
- Establish a process for stakeholder involvement, including relevant government agencies, aviation organisations, and non-aviation entities.
- Determine the required resources, including financial and technical aspects, for the climate risk assessment and adaptation process.
- Set a timeline for completing the assessment and developing the adaptation plan.

Regulatory and Policy Considerations

- Consider any legal or regulatory requirements that must be addressed during the adaptation planning process.

[Cancel](#) [Save](#)



Filter **All** Removing

See Remaining actions

Check off the actions you have considered.

Planning and Stakeholder Engagement

This checklist focuses on engaging with all relevant parties, including stakeholders and non-aviation entities that might be impacted by or contribute to the climate change risks.

- Determine the aviation stakeholders/organisations to be covered by the climate change risk assessment and adaptation plan.
- Identify non-aviation organisations that may have knock-on effects on the aviation sector, such as ground transport and utilities suppliers.
- Establish a process for stakeholder involvement, including relevant government agencies, aviation organisations, and non-aviation entities.
- Determine the required resources, including financial and technical aspects, for the climate risk assessment and adaptation process.
- Set a timeline for completing the assessment and developing the adaptation plan.

Regulatory and Policy Considerations

- Consider any legal or regulatory requirements that must be addressed during the adaptation planning process.

[Edit list](#)



Filter **All** Removing

Default

No actions preselected

Output

Progress bar updated from the actions selected.

You have completed 5 out of 23 actions selected as applicable in your State.

This checklist contains 23 actions which may need to be considered when carrying out a national aviation sector climate risk assessment and implementing a climate adaptation plan. Not all actions will be applicable for all States. To select the actions of relevance please use the 'edit list' button. The actions are grouped into five consecutive steps. However, this is for indicative purposes only and actions and steps can be followed in the order that is most suitable for the State. Actions can be checked off the list once completed. This list will be saved every time you update it.

[Edit list](#)

22%

Data

ICAO guidance : Climate Change: Climate Risk Assessment, Adaptation and Resilience

8

Get guidance on climate change risks and adaptation measures from various

1

Click on the section of the repository

2

Click on the section to hide it

3

Click on the link
a new window opens

Repository of Information and Guidance

Get guidance on assessing climate change risks and implementing effective adaptation strategies by exploring resources on the following topics:

[Climate change effects](#)
[Climate change impacts for the aviation sector](#)
[Climate change risk assessment and adaptation planning](#)


Repository of Information and Guidance

This repository provides an overview of resources to support aviation sector stakeholders in carrying out climate change risk assessments and implementing adaptation actions. Note that some resources may be in more than one section.

[Resources on climate change impacts for the aviation sector](#)
[Resources on climate change risk assessment and adaptation planning](#)
[Resources on climate change effects](#)


No actions preselected

Default

9

View ClimAdapt data sources

1

Click on the data sources

About the data

This climate change visualisation tool is based on data from the following sources:

 IPCC AR6 Regional Climate Change Information  IPCC Regional Factsheet Europe  European Climate Risk Assessment  Climate Change in the Mediterranean Region  IPCC Report Explainer



Default

Links

The data sources links open in a new window.

Output

The new report from the Intergovernmental Panel on Climate Change (IPCC) on the science of climate change lands in the aftermath of a series of deadly extreme weather events around the world. From the record-breaking "heat domes" in the Pacific north-west and the wildfires that followed, to the catastrophic flooding in Europe and China and rainfall in 2021. It is fitting, then, that the mammoth document [assessment report \(AR6\)](#) – includes a dedicated section on extreme weather and climate change.

Explainer: What the new IPCC report says about extreme weather and climate change

Source(s): Carbon Brief

Regional fact sheet - Europe

SIXTH ASSESSMENT REPORT Working Group I - The Physical Science Basis

Regional fact sheet - Europe

Common regional changes

- ① Regardless of future levels of global warming, temperatures will rise in all European areas at a rate exceeding global mean temperature change, relative to past observations. (high confidence)
- ② The frequency and intensity of hot extremes, including marine heatwaves, have increased in recent decades across most regions of Europe. (high confidence)
- ③ The frequency of heavy precipitation events has increased in recent decades across most regions of Europe. (high confidence)
- ④ The frequency of cold spells and frost days will decrease under all the greenhouse gas emissions scenarios considered. (high confidence)
- ⑤ Despite strong internal variability, observed net trends in European mean and extreme temperatures cannot be explained without accounting for anthropogenic factors. Before the 1980s, warming by greenhouse gases was balanced by cooling from volcanic eruptions and other factors. Since the 1980s, the cooling from volcanic eruptions has lessened and the warming from greenhouse gases has increased. (high confidence)
- ⑥ There is evidence of a positive trend in the annual increase in the number of days with extreme precipitation in winter in Northern Europe. A precipitation decrease is projected in summer in the Mediterranean extending into Central Europe. (medium confidence)
- ⑦ The frequency of extreme sea level events will increase in all European seas except the Baltic Sea, due to sea level rise and more intense storm surges. (high confidence)
- ⑧ Extreme sea level events will become more frequent and more intense, leading to more coastal flooding. (high confidence)
- ⑨ Strong declines in glaciers, permafrost, snow cover extent, and snow seasonal duration at high latitudes/altitudes are observed and will continue in a warmer world. (high confidence)



ClimAdapt journey



ClimAdapt step-by-step

Climate Change effects

High Level Pre-screening tool

Economic Assessment Tool

Repository of Impacts and Measures & Adaptation Checklist

About the Data

- Select your IPPC region and view climate change effects
- Select your State and organisation type and answer to the assessment questions to obtain your recommendation
- Select your potential loss severity levels and the likelihood values and obtain your results
- Search for the vulnerabilities and adaptation measures for your organisation type and identify the key steps to evaluate the impacts of climate change
- Check the additional data sources

The advantages of your journey

1

Understand the climate change effects projected in your region.

2

Assess your understanding of climate change effects and impacts for your organisation. Receive a recommendation to support a full climate change risk assessment.

3

Plan for the financial implications of climate change impacts.

4

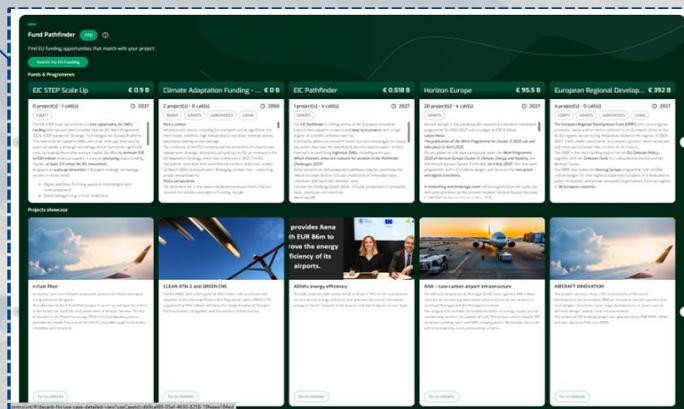
Manage the risks of climate change and identify the key steps to evaluate the impacts.

DecarbFin

Fostering aviation access
to sustainable finance

1 Fund-Pathfinder

1

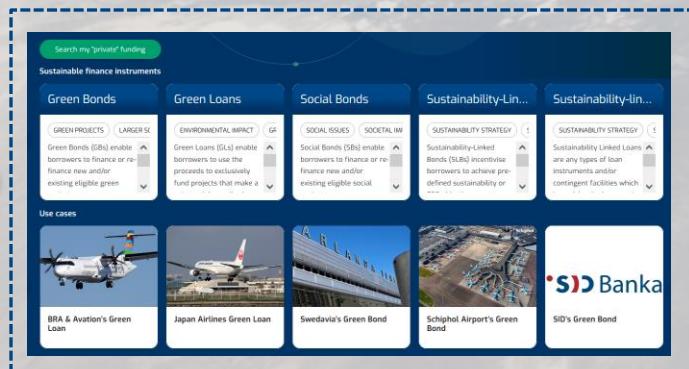


The screenshot shows a grid of funding opportunities:

- EE STEP Scale Up**: €0.9 B, Project duration: 3 years, Status: Funded.
- Climate Adaptation Funding**: €0.8 B, Project duration: 3 years, Status: Funded.
- EC Pathfinder**: €0.518 B, Project duration: 3 years, Status: Funded.
- Horizon Europe**: €95.5 B, Project duration: 3 years, Status: Funded.
- European Regional Develop.**: €392.8 B, Project duration: 3 years, Status: Funded.

2

Funding Booster



This section highlights five types of sustainable finance instruments:

- Green Bonds**: Green Bonds (G) enable borrowers to finance new and/or existing eligible green projects.
- Green Loans**: Green Loans (GL) enable borrowers to use the proceeds to exclusively fund projects that make a positive environmental impact.
- Social Bonds**: Social Bonds (SB) enable borrowers to finance new and/or existing eligible social projects.
- Sustainability-Linked Bonds**: Sustainability-Linked Bonds (SLBs) incentivise borrowers to achieve pre-defined sustainability or contingent facilities.
- Sustainability-Linked Loans**: Sustainability-Linked Loans (SLLs) are any type of loan instruments and/or contingent facilities which.

Use cases shown include:

- BRAK & Aviation's Green Loan
- Japan Airlines Green Loan
- Swedavia's Green Bond
- Schiphol Airport's Green Bond
- SID's Green Bond

3

BlueBook



The Bluebook is a guide for the aviation sector to understand and comply with the EU Taxonomy and Corporate Sustainability Reporting Directive (CSRD) as well as related regulations and rules.

[Download report](#)

As financing aviation decarbonisation proves challenging, due to limited access to sustainable finance and evolving regulatory landscape, DecarbFin provides you with tools and information necessary to facilitate your access to public and private sustainable funding opportunities. Check out also the Bluebook, a guide for enhanced ESG reporting and compliance with the EU Taxonomy and CSRD to help you navigate this complex regulatory and reporting landscape.



Functionalities (1)

FAQ

1 View the DecarbFin FAQ

Fund-Pathfinder

Funds
Overview

2 View the Funds & Programmes overview

Search
My Funds

3 Filter My Funds and Calls

Funds
In detail

4 View the Funds, the Programmes and
the Calls' details

Projects
Overview

5 View the Projects overview



Functionalities (2)

Funding Booster

Instruments Overview

6

View the Sustainable Finance instruments - Summary

Instruments Details

7

View the Sustainable Finance instruments - Details

Instruments Summary

8

View the Use Cases

Dictionary

9

View the Dictionary of Terms

Search Instruments

10

Search and Filter my “private” Sustainable Finance instruments

Essentials View

11

View the Essentials (ESG Frameworks, Roadmaps)

Dashboard

12

View the Sustainable Finance dashboard

Funding Basket

13

View the Basket

BlueBook

14

Download the Bluebook

1

View the DecarbFin FAQ

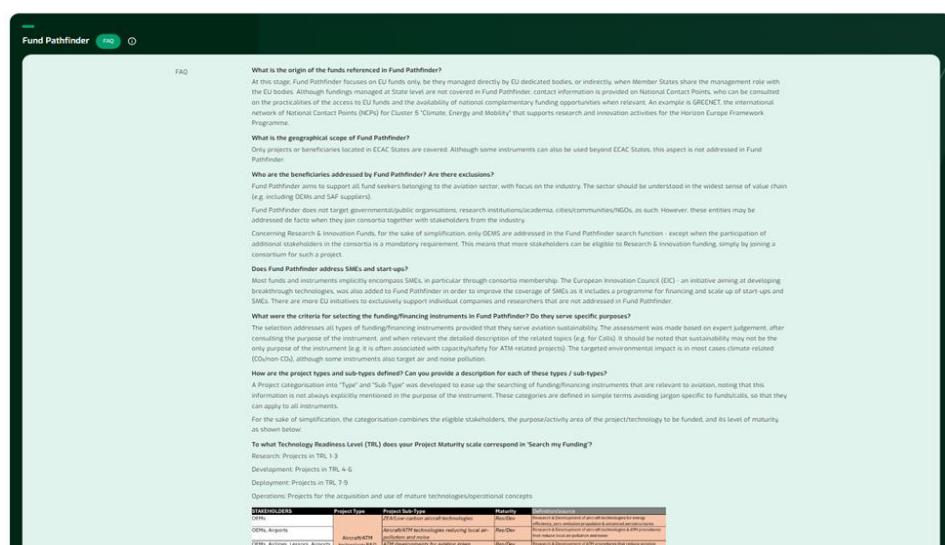
1

Click on FAQ


Default

FAQ for Fund Pathfinder

The FAQ is presented for the Fund-Pathfinder.


Output

The FAQ summarises the scope of Fund Pathfinder under a list of given Q&A defining geographical scope, programme/fund scope, stakeholders addressed, funding options, project (sub-) types, and project maturity.

Data

Beneficiaries: aviation stakeholders benefiting from the EU funding programmes included in Fund Pathfinder

Result type: search results that correspond to either a Fund, a Call, or both

Fund: a EU funding programme or financing instrument

Call: a specific funding opportunity (often a grant) for a given Fund/Programme, with a specific time window when applicants are invited to submit under their Call for Proposal

Technology Readiness Level (TRL): a method used to assess the maturity of a particular technology

Project type/sub-type: project categorisation according to eligible stakeholders, purpose of project and maturity level

Definition

2

View the Funds & Programmes overview

1

Click on the arrow to scroll

Funds & Programmes	
EIC STEP Scale Up	€ 0.9 B
0 project(s) · 1 call(s)	© 2027
EQUITY The EIC STEP Scale Up scheme is a new opportunity for SMEs' funding that has just been included into the EIC Work Programme 2025. STEP stands for Strategic Technologies for Europe's Platform. This new scheme supports SMEs and small mid-caps that need to scale up rapidly a strategic technology which represents significant risks, by helping them raise venture capital. By offering a mix of equity and other financial support, it aims at catalysing major funding rounds, at least 3-5 times the EIC investment.	
Climate Adaptation Fu...	€ 0 B
2 project(s) · 0 call(s)	© 2050
BONDS GRANTS GUARANTEES LOANS Policy context Infrastructure assets, including for transport, are at significant risk from floods, wildfires, high temperatures and other extreme events, potentially leading to vast damage. The resilience of the EU economy and the protection of citizens have always been strategic objectives pursued by the EU, as stressed in the EU Adaptation Strategy, which was reinforced in 2021. The EU institutions reiterated their commitment to these objectives in their	
EIC Pathfinder	€ 0.518 B
1 project(s) · 4 call(s)	© 2027
GRANTS The EIC Pathfinder is a Programme of the European Innovation Council that supports research and deep tech projects with a high degree of scientific ambition and risk. It primarily addresses research teams but also encourages to involve key actors that have the potential to become future leaders in their field such as promising high-tech SMEs, including start-ups. Which thematic areas are relevant for aviation in the <i>Pathfinder Challenges 2025</i> ?	
Horizon Europe	€ 95.5 B
20 project(s) · 4 call(s)	© 2027
GRANTS Horizon Europe is the ambitious EU research & innovation framework programme for 2021-2027 with a budget of €95.5 billion. Latest News: The publication of the Work Programme for Cluster 5 2025 call will take place in April 2025. For an update on the topics proposed under the Work Programme 2025 of Horizon Europe Cluster 5 Climate, Energy and Mobility, join the Horizon Europe Cluster 5 Info Day on 6 May 2025. This new work programme...	
European Regional ...	€ 392 B
4 project(s) · 0 call(s)	© 2027
EQUITY GRANTS GUARANTEES LOANS The European Regional Development Fund (ERDF) aims to strengthen economic, social and territorial cohesion in the European Union across all EU regions, by carrying out initiatives between the regions. In 2021, the European Commission adopted a strategy to make the EU more connected and more social Europe that is closer to its citizens. The ERDF is one of the main funding sources for the EU Cohesion Policy, together with the Cohesion Fund, it is co-financed by the EU and the Member States.	

Default

All Currently available* Funds & Programmes

* With one exception: although completed and replaced by Horizon Europe, Horizon 2020 is displayed here as it has funded many aviation related projects of interest

Output

The Funds & Programmes available are presented on the carrousel.

Data

The source of information for the Funds & Programmes is the official EU (and EU relevant agencies) websites.

Definition

Funds / Programmes: financial resources allocated by the EU to projects & initiatives that support the EU strategic priorities, within its Member States and beyond in some cases. A sub-set of Funds selected for their relevance to aviation sustainability.

State: ECAC Member State in which the aviation beneficiary is located

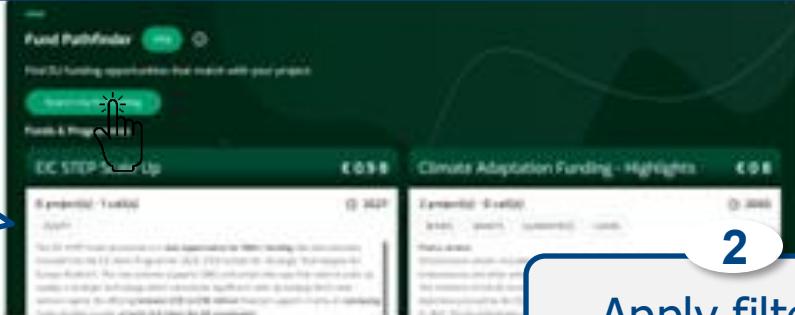
Stakeholder: type of company/organisation in the aviation value chain

3

Filter My Funds and Calls

1

Click on Search my funding


2

Apply filters

Two methods for searching

- Quick general query:** you may use the filters at the top of the page: State, Stakeholder, Keyword: you can select one State, one or multiple Stakeholders and optionally Keyword(s) .
- Refined query for specific project types:** You may use the filters on the left hand-side, where all filtering combinations are possible: Result type (Fund/Call), Status (Active/Upcoming...), Funding Type (Grant, other...), Project maturity, Project Type (purpose). The search can combine filters at the top and the left of the page.
- Note on Result Type:** The query can be made on "Funds" or "Calls", or both combined. "Calls" are instantiations of "Funds" meaning that they are more focused and may only target a subset of the project types defined in the corresponding "Fund".

Search my funding	
Result Type	39
Funds	13
Calls	26
Status	
Upcoming	0
Active	5
Closing Soon	5
Closed	16

Search my funding

3

Filters applied dynamically when selected.

State & Stakeholder filters applied combined with a filter on Project Type

Result Type	Count
Funds	11
Calls	26
Status	0
Upcoming	0
Active	5
Closing Soon	5
Closed	16

Project Types

- Clean Aviation: €1.7 B
- Connecting Europe Facility: €25.8 B
- EIB Funding: €0.9 B
- EIC Accelerator: €1.309 B
- EIC Pathfinder: €0.518 B
- EIC STEP Scale Up: €0.9 B

Query
Output

View the Funds, the Programmes and the Calls details

1

Click on a Fund or a Call card

Click on a card from the landing page or from Search my funding

Default

Sections appearing in a Fund : Description, Funding types, Calls, Other support, Funding principles and rates, Project Maturity, Eligible States, Aviation related cases, References, Contact.
 Sections appearing in a Call : Description, Funding types, Call total budget, Funding ratio, Call topics.

Output

The Funds & Programme or Calls details are displayed. The navigation is managed from the navigation index on the left-hand side.

Click on a card of a Call in the Fund details

Data

The information is sourced from the official EU websites and/or from the website of the specific programme/fund/call.

Definition

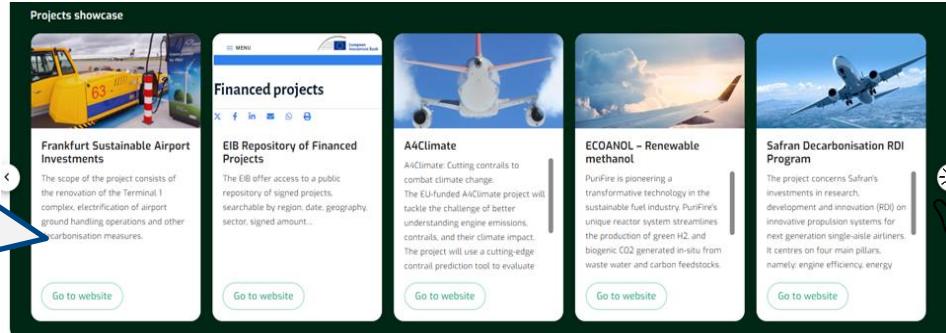
Funding type(s): type of funding resource (e.g. grant) or financing instrument (e.g. loan, bond, equity...)
Submission: process of providing all necessary documents before deadline when applying for an EU funding opportunity

5

View the Projects overview

1

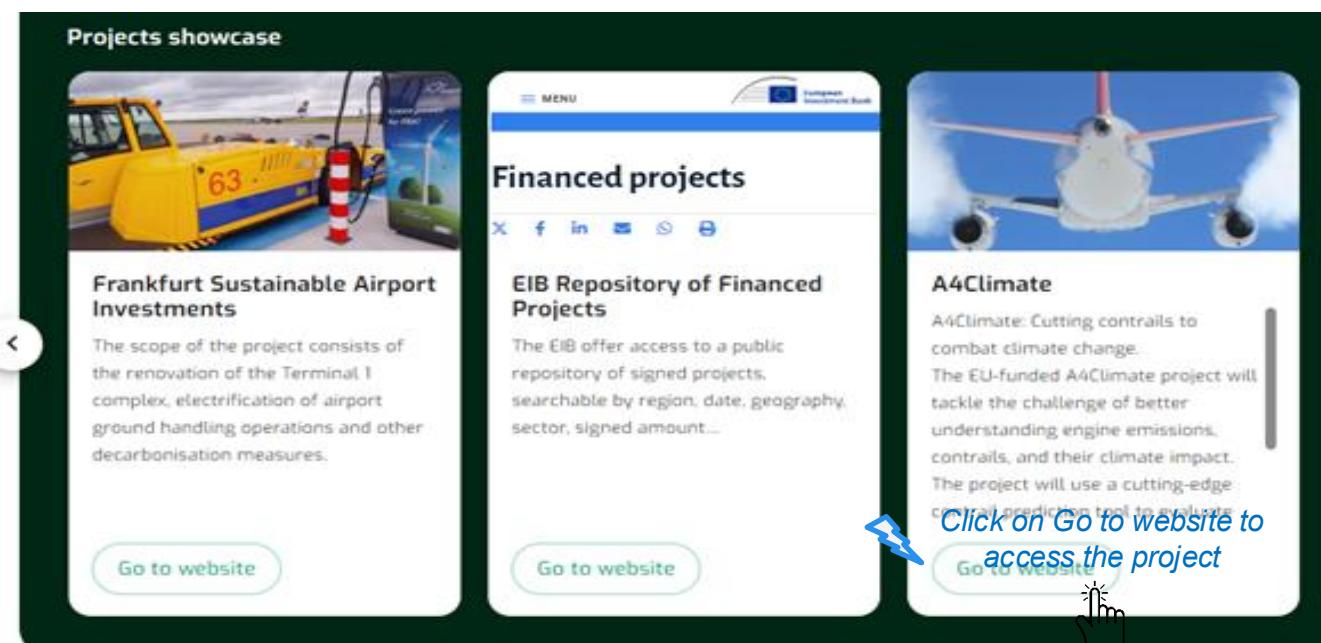
Click on the arrow to scroll



Default

Current or past Projects, publicly available, that have benefited from EU Funding and are relevant for aviation decarbonisation.

Output



Data

All projects showcased and their descriptions are sourced from the official sites of the projects or from relevant EU websites.

Definition

Projects showcase: A (non-exhaustive) selection of publicly disclosed projects, that have benefited from EU Funding and are relevant for aviation decarbonisation.



6

View the Sustainable finance instruments - Summary

Default

Sustainable finance instruments offered by the financial institutions: sustainability-linked loans, green bonds, sustainability-linked bonds, green loans, social bonds and venture capital.

Sustainable finance instruments

Sustainability-linked Loans	Sustainability-linked Bonds	Green Loans	Green Bonds
SUSTAINABILITY PERFORMANCE	SUSTAINABILITY PERFORMANCE	GREEN PROJECTS ENVIRONMENT	GREEN PROJECTS LARGER SCALE
Sustainability-Linked Loans (SLLs) incentivise borrowers to achieve sustainability goals. <ul style="list-style-type: none">- Use of proceeds: Flexible- Sustainability strategy: strongly	Sustainability-Linked Bonds (SLBs) incentivise borrowers to achieve pre-defined sustainability or ESG objectives. <ul style="list-style-type: none">- Use of proceeds: Flexible	Green Loans (GLs) enable borrowers to use the proceeds to exclusively fund projects that make a substantial contribution to an environmental objective.	Green Bonds (GBs) enable borrowers to finance or re-finance new and/or existing eligible green projects. <ul style="list-style-type: none">- Use of proceeds: Very specific and clear

Output

Carousel of the summary cards of sustainable finance instruments located in the landing page constitute a very structured summary of the full description of sustainable finance instruments

Data

Public data available in various websites with focus on ICMA resources. The selection of options is based on historic transactions pertaining to the aviation industry coupled with two extra alternatives for social and early-stage projects

Definitions

Please consult the Dictionary of terms function

Tip : By clicking on any of the cards in the carousel, a longer description of the sustainable finance instrument appears – please see next page



7

View the Sustainable finance instruments - Details

View the Description of the instrument, the recorded range of aviation-related volumes, Areas of Eligibility, Potential Use of Proceeds, Instrument's Characteristics, Procedural Framework, Sustainability Strategy, Key Performance Indicators, Reporting Needs, External Verification Needs and Completed with the relevant (if any) Use Cases corresponding to that specific instrument.

Sustainable finance instruments are presented in detail. The navigation can also be managed from the navigation menu on the left hand-side.

The screenshot shows a detailed view of a sustainable finance instrument. The top navigation bar includes links for NetZero, FuellingDecarb, ClimAdapt, DecarbFin, User Manual, and Logout. The main content area is titled 'Green Loans' and includes tabs for ENVIRONMENTAL IMPACT and GREEN PROJECTS. The 'Description' section defines a Green Loan (GL) as a financing form that funds projects contributing to environmental objectives. It notes that Green Loans resemble Green Bonds and are used for new or existing eligible green projects. The 'Aviation: historical average volumes (B €)' section indicates one green loan was recorded by EUROCONTROL. The 'Eligible Areas' section lists ECAC and EU 27. The 'Use of proceeds' section includes options for earmarked investments and flexible use for general corporate purposes, with a note about tracking funds for green projects. The bottom of the page has a 'Instrument characteristics' section.

All information is sourced from publicly accessible sources which are located at the bottom of the page.

Please consult the Dictionary of terms function

Default

Output

Data

Definitions

8

View the Use Cases

Default

A selection of diverse sustainable finance transactions or past Use Cases from the global aviation sector. They constitute financial deals between borrower companies active in aviation and financial institutions. These deals are subject to ESG-related financial conditions.

Output

Each Use Case outlines a single transaction with details on: State, type of stakeholder, organisation, amount asked, use of proceeds, KPIs used, EU Taxonomy relevance, transaction year and source.

EUROCONTROL
SUPPORTING
EUROPEAN
AVIATION

Schiphol Airport's Green Bond


STATE	KPIs USED	EU TAXONOMY RELEVANCE
Netherlands	Total annual energy (GJ) savings, total annual electricity (kWh)	Low carbon airport infrastructure & Ground handling operations
ORGANISATION	USE OF PROCEEDS	SOURCES
Schiphol Airport	Green buildings, electric buses, charging stations for airside e-vehicles (other than airside e-busses), charging stations for landside e-vehicles (other than landside e-busses) and energy infrastructure for the charging stations for landside e-buses	 Original Green Bond
TYPE OF STAKEHOLDER	TRANSACTION YEAR	
Airport	2018	
AMOUNT ASKED	TYPE OF FINANCIAL INSTRUMENT	
USD 500 million	Green Bonds	

Use cases



Air France – KLM's sustainability-linked bond



Easyjet's sustainability-linked loan

Each Use Case includes link(s) to the original source

Data

Public data mainly by press releases from involved parties or articles mainly at bank websites.

Definitions

Please consult the Dictionary of terms function

View the Dictionary of terms

Default

List of short explanations and definitions of terms appearing in the Funding Booster functionalities .

Output

Each term is categorised under the Funding Booster's functionality it belongs due to times of appearance. Each term is shortly explained with examples provided sometimes.

Data

All information is based on internal ASU validated information/knowledge and/or public acknowledged websites.

Dictionary of terms



Dictionary and Abbreviations

General Finance & Investment

- **Aggregation** - The process of one company joint-funding another company or its assets.
- **Assurance** - The process of providing confidence that a company's financial commitments or performance, and associated compliance with regulation.
- **Bond** - A debt instrument issued by an organisation to raise capital, with a promise to repay the principal amount along with interest at a future date.
- **Business model** - A company's plan for how it generates resources and profits, including its value proposition and target market.
- **Capital attack** - The hierarchy or structure of different sources of capital used to finance a business, ranging from equity to debt, each with different risk and return profiles.
- **Convertible facilities (financial contract)** - Highly potential liabilities or investment goals that are activated based on conditions or events (usually uncertainty).
- **Convertible debt** - Convertible debt is a type of financing that involves a loan or debt obligation that can be converted into equity or ownership in the company.
- **Convertible Equity** - Equity that can be converted into another form of equity or into cash under specified conditions, often at a discounted price.
- **Corporate or general use of proceeds** - Capital raised that is not specifically allocated to a particular project but can be used for broad corporate purposes.
- **Coupon rate test** - A mechanism whereby the bond issuer links their rate increases or decreases based on the issuer's performance against specified criteria.
- **Debtors (Financial contract)** - Financial instruments are promises or agreements entered by a borrowing party that are financial in



10

Search my “private” funding and Filter my Sustainable Finance instruments

Query

- Type of stakeholder: definition of stakeholder type
- Project purpose: selection of the purpose of the proceeds (project – based or non-project based)
- Strategy and Reporting: profiling of sustainability strategy and reporting capabilities of the company

The screenshot shows the 'Funding Booster' interface. At the top, there are filters for 'Stakeholder' (All), 'Type of organisation' (EU27), and 'Instruments'. Below these are cards for 'Green Loans', 'Venture Capital', 'Social Bonds', and 'Sustainability-linked Bonds'. Each card provides a brief description and a list of characteristics. On the left, there are vertical filters for 'Project Purpose', 'Instrument Type', and 'Strategy And Reporting'. On the right, there are sections for 'Essentials' and 'Strategy and Reporting' with ESG rating questions.

List of search results pertaining to sustainable finance instruments

The screenshot shows a list of search results under the 'Sustainable Finance Instruments' tab. It includes cards for 'Sustainability-linked Loans', 'Sustainability-linked Bonds', 'Green Bonds', 'Social Bonds', and 'Venture Capital'. Each card has a 'Added to basket' button. A blue arrow points from the text box below to the 'Sustainable Finance Instruments' tab.

Two tabs:
Sustainable
finance
instruments and
Essentials: list of
finance options
and list of ESG
frameworks and
roadmaps
respectively

Output


 11A

View the Essentials

ESG Frameworks

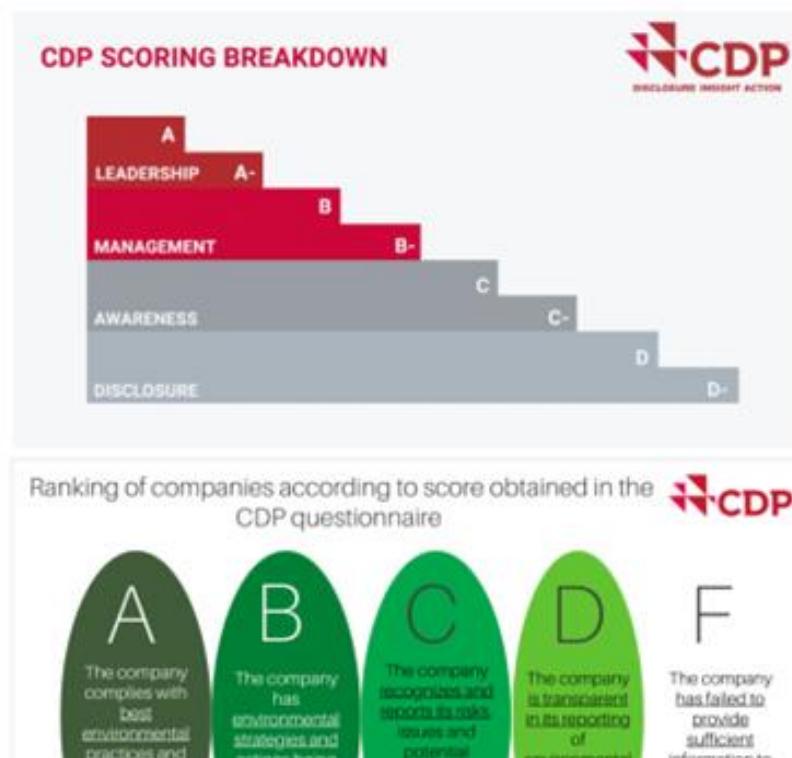
Default

View the Purpose of the framework, its Focus Areas, some Key Highlights, categories of ESG metrics, Target Audience, relevance with Aviation Sector, Where to Report, Cost of Use, Target Users, Reporting Period, a short Conclusion.

Output

Each ESG framework is presented in detail. The navigation can be also managed from the navigation menu on the left side.

- + Forests:
 - Deforestation risk exposure
 - Forest product sourcing (palm oil, timber, cattle, soy)
- Scoring: Yes



Data

All information is sourced from publicly accessible sources which are indicated at the bottom of the page. Some of them correspond to the official site of the ESG framework, where applicable (ie. CDP).

Definitions

Please consult the Dictionary of terms function.



11B

View the Roadmaps

Aviation Sustainability Roadmaps

Default

View the Description of the roadmap, its Strategy Goals it entails, Main Features, Technological solutions put forward, Policy and Market Mechanisms, Investment and Financing, Operational and Infrastructure Changes, International Collaboration, and Timelines/Milestones under its decarbonisation pathways.



Output

Each roadmap is presented in detail. The navigation can be also managed from the navigation menu on the left side.

Data

All information is sourced from publicly accessible sources which are located at the bottom of the page. They correspond to the official site of the roadmap release (ie. ICAO, IATA, SBTi, etc.).

Definitions

Please consult the Dictionary of terms function.

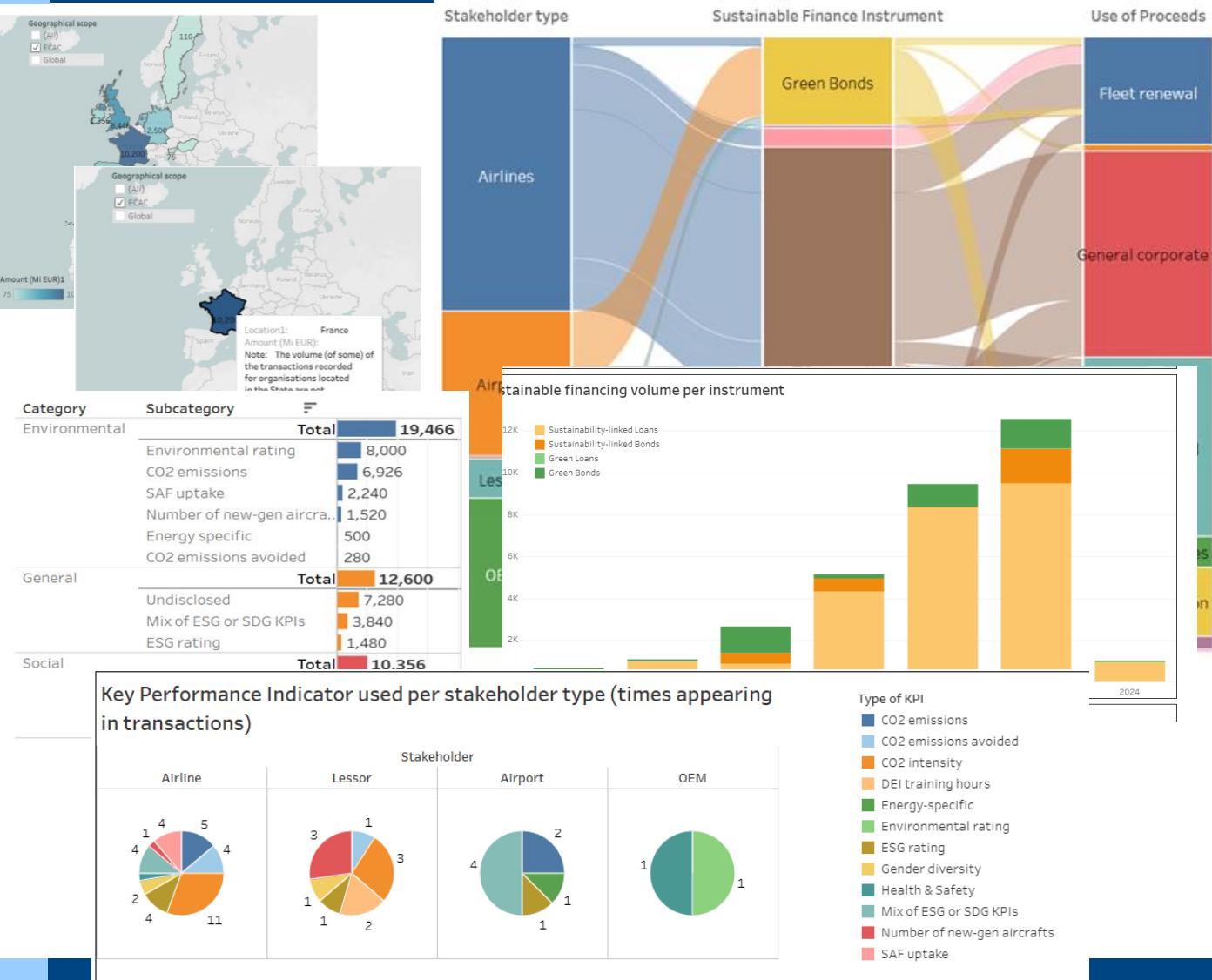
View the Sustainable Finance dashboard

Default

- Volume transactions per State (ECAC & Global)
- Sustainable financing volume per instrument
- Sustainable financing volume per Key Performance Indicator
- Proceeds allocation per instrument and per stakeholder
- Key Performance Indicator used per stakeholder type

Output

Key volumes per geography, over time and per instrument, per Environmental, Social or General context, per stakeholder type and use of proceeds and finally, indicators appearing in transactions.



Data

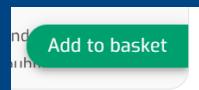
Public data (web).

Definitions

Please consult the Sustainable Finance dashboard for more information on how to read and interact with the visuals.

Funding Basket: a space to temporarily store selected information from Fund Pathfinder and Funding Booster and export to a word format

>>> To add an element in the Funding Basket you can click >>>

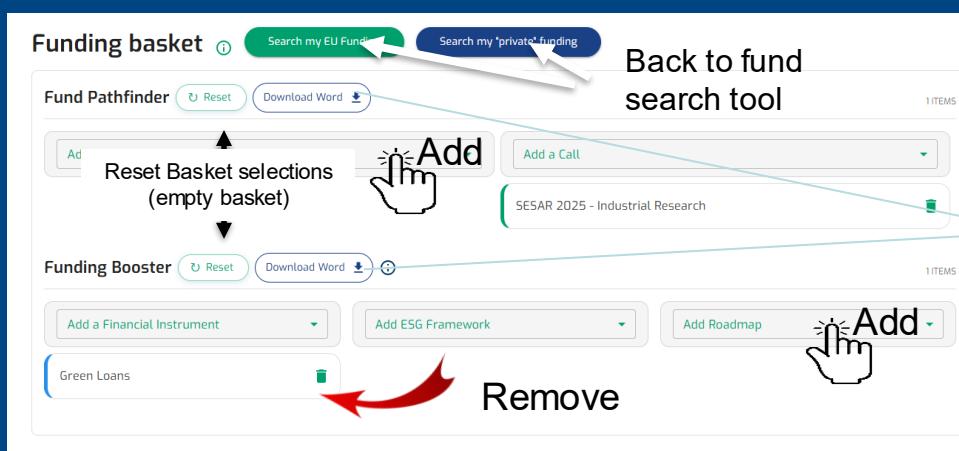


And to access the Basket space you click >>>



The basket view consists of:

- **A Fund Pathfinder (EU funding) and Funding Booster (private funding) space:** the user can select/add, view, and remove all the funds/calls and financial instruments previously selected. They can also add, view and remove ESG frameworks and Roadmaps.



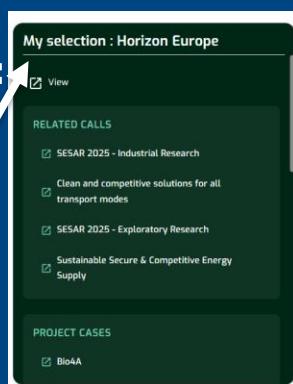
>>> Export your saved business case in word (doc.) by clicking



in both Fund Pathfinder and Funding Booster

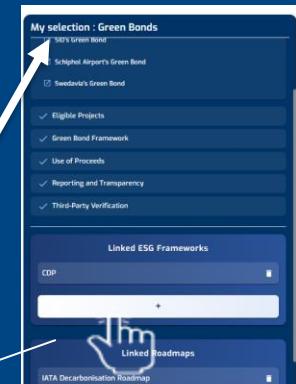
CASE BUILDER

Fund Pathfinder: user can view Selected EU Funds/Calls and relevant Project Cases



Funding Booster: selected finance instruments, and associated ESG frameworks and roadmaps

Click (+) to link an ESG framework or a roadmap



Default

- **Fund Pathfinder:** Sustainable business case including a selection of Funds and/or Calls including relevant EU funded project cases.
- **Funding Booster:** Sustainable business case defined by a single, selected financial instrument, and may include a linked ESG framework and/or a linked Roadmap

Output

1

Click on
Download report



Default

Bluebook

The Bluebook is downloadable from the Landing page.

Output



Data

The Bluebook summarises the EU Taxonomy and CSRD regulations using and quoting information provided by official EU regulatory websites, material produced by EFRAG, and other non-EU advisory services.



DecarbFin journey



DecarbFin step-by-step

Funds Overview

Projects

Search My Funds

Calls Overview

Search my financing

Find a Use Case

Dashboard

View the Basket

Bluebook

- Check the Description of a Fund: Horizon Europe
- Check a funded Project's website: BioSFera project
- Search for the available Funds with the criteria 'France' and 'ANSP' – Refine the search with the criteria 'Active Calls'
- Check all calls attached to a given Fund: Connecting Europe Facility
- Search for Sustainable finance instruments: Sustainability-linked Loans
- Check for past use cases/ transactions: Air France-KLM Sustainability-linked Loan
- Become aware on latest sustainable finance trends & metrics
- Save and export selected information
- Download the Bluebook

The advantages of your journey

1

Quickly identify EU funding options that are relevant for your projects, with initial guidance to apply, with Fund Pathfinder.

2

Check success stories of past and ongoing, aviation sustainability-related, EU funded projects, as a source of inspiration.

3

With the Bluebook, better understand the EU Taxonomy and CSRD with aviation-specific insights to help you comply with these regulations.

4

Build a robust sustainability business case with the right EU fund(s), private financing instrument(s), and complement it with essential ESG frameworks and sustainability roadmaps.