

widerøe



WIDERØE 1934 - 2024

Now fully owned by:

norwegian ✈

Widerøes fleet



De Havilland Dash 8-100/200

39 seats

27 aircraft



De Havilland Dash 8-300

50 seats

3 aircraft



De Havilland Dash 8 Q-400

76/78 seats

18 aircraft



Embraer E190-E2

110 seter

3 aircraft

Widerøe's route network

Widerøe currently operates flights to **51 airports** in 10 countries

41 domestic destinations in Norway

10 international destinations across Europe.

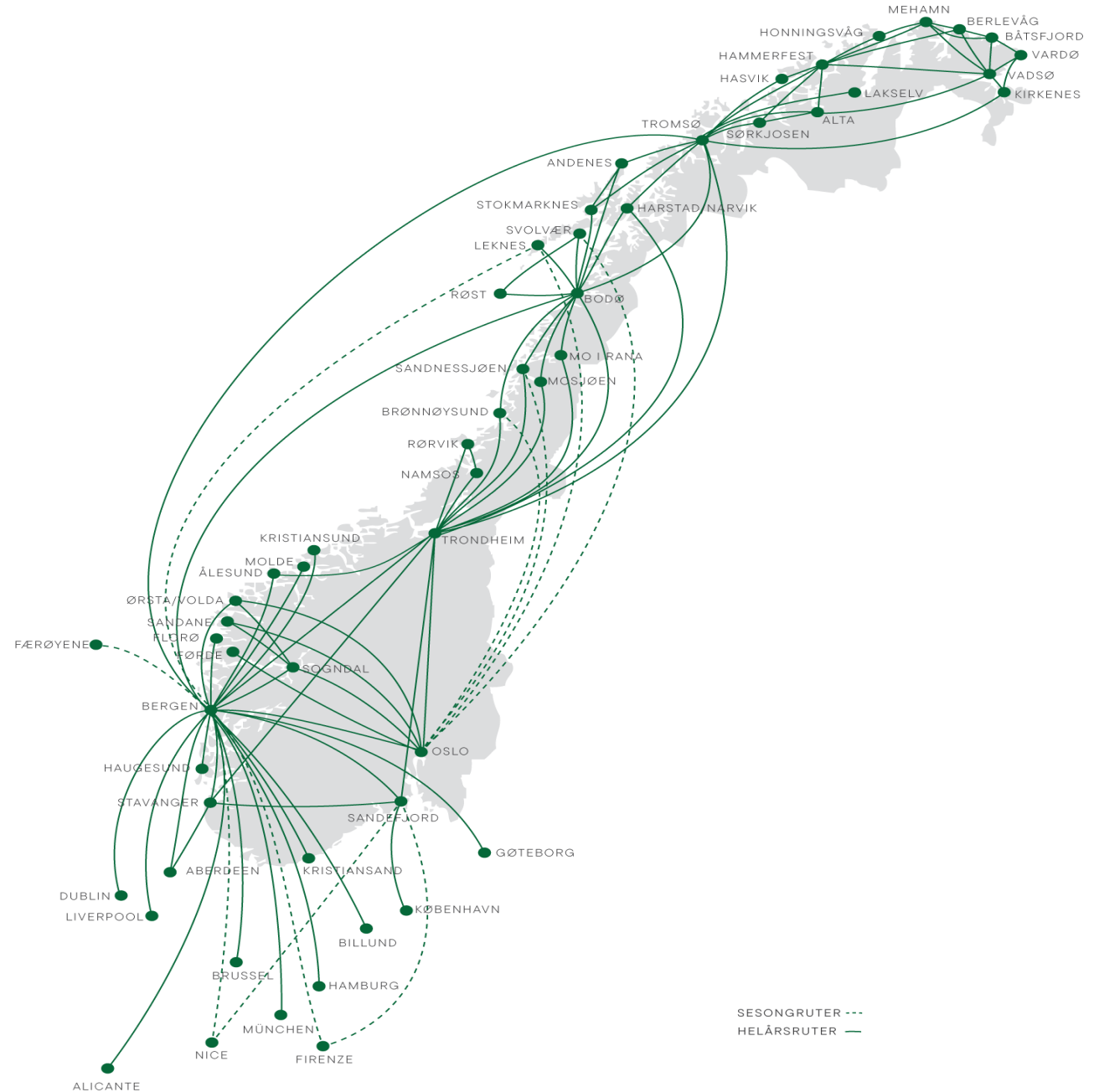
More than **400 daily departures**

40% of all routes are PSO (passenger service obligation)

Average flight time for PSO routes are 25 minutes

Average length of PSO routes are 60 NM

17 of the airports have 800-to-900-meter runways



Challenges for Widerøe



- The smaller aircraft in the fleet are getting older (DH1 and DH2) and will reach end of life
- The Dash 8 is out of production, and it is difficult to see a good replacement in the near future
- We expect to have low emission requirements from the government on future PSO routes
- New PSO requirements will require heavy investment in a new fleet

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ZERO

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TECNAM PVOLT

is one of several candidates we looked at

TECNAM TO POSTPONE THE P-VOLT PROGRAMME

13.06.2023

After three years of intensive studies covering the entire lifecycle of an all-electric aircraft, Tecnam has concluded that the time for P-Volt is not yet ripe, although research activities will continue to explore new emerging technologies.

Since the beginning of the P-Volt development, Tecnam's focus has been to provide operators with the ability to fly an all-electric passenger aircraft profitably, efficiently and sustainably in terms of operating costs, emissions, performance, turnaround and time to market. At present, Tecnam believes that these can only be achieved by extremely aggressive speculation on uncertain technology developments.

Tecnam has a deep understanding of electric flight, gained from previous projects such as the H3ps hybrid aircraft based on the P2010 four-seater, and today we have looked closely at the state of the art in energy storage and realistic 5 year developments, excluding technological revolutions that no one can speculate on. One of the conclusions was that an aircraft with a battery pack at the end of its life would not be the best product for the market, but certainly the worst in terms of Net Present Value (NPV).





Few Viable Alternatives Yet

Lack of Alternatives

No current alternatives to fossil-fuel powered aircraft exist for commercial aviation operations.

Emerging Technologies Limitations

Electric and hydrogen-powered aircraft are still under research and not ready for widespread commercial use.

Electric Aircraft Limitations



Weight Challenges

So far are electric aircraft quite heavy and this will have an impact on range and capacity

Limited Passenger Capacity

Current electric aircraft accommodate no more than nine passengers, limiting their capacity for commercial use.

Operational Challenges

Electric aircraft face operational viability concerns in challenging climatic regions, affecting reliability and safety.

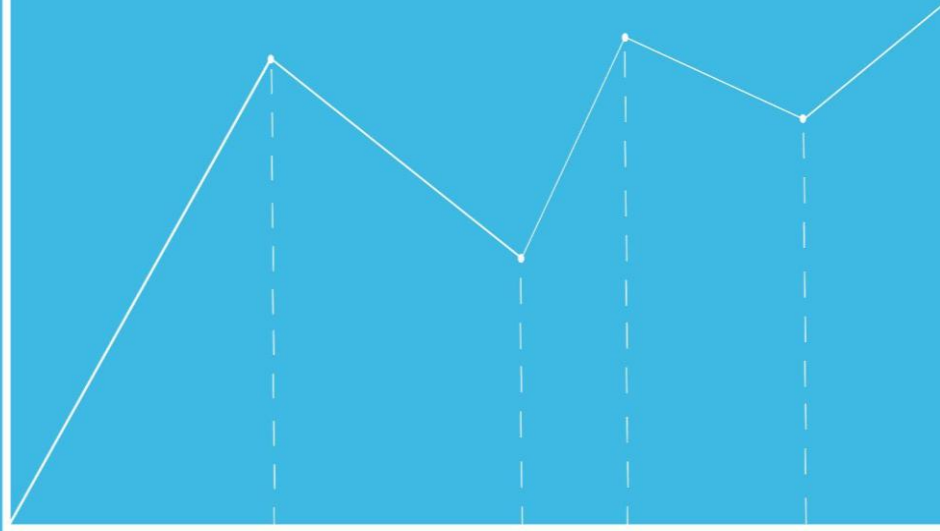
Niche Market Application

Their limited size and performance restrict electric aircraft to short-haul routes and niche market use.

Scalability Limitations

Electric aircraft currently do not provide a scalable solution for broader commercial aviation demands.

Hydrogen Solutions Are Far Away



Technological Challenges

Hydrogen propulsion faces significant technological hurdles including storage, handling, and system integration.

Infrastructure and Distribution

Developing infrastructure for hydrogen fuel distribution and storage requires extensive investment and coordination.

Regulatory and Safety Barriers

Strict safety standards and certification processes create long-term regulatory challenges for hydrogen aviation.

Long-Term Outlook

Hydrogen solutions are unlikely to impact aviation emissions significantly before the year 2040 due to these challenges.

Slow Technological Progress

Lagging Aviation Technologies

Development of electric and hydrogen propulsion systems has significantly lagged behind pre-pandemic expectations.

Emerging Technologies Limitations

Electric and hydrogen-powered aircraft are still under research and not ready for widespread commercial use.

Implications for Planning

Delays require operators and manufacturers to recalibrate timelines and investment strategies for sustainable aviation.

Life extension of the current fleet

Extending the life from 120 000 cycles to 160 000 cycles will give us 10 to 12 years extra



Every launch of a new type of aircraft has a risk

What kind of performance will the new aircraft have

What kind of down time will there be when you charge/refuel

Will new infrastructure give us the needed support from day one, and who will cover the cost

Will a new aircraft be able to deal with challenging climate, strong wind, cold weather with snow and ice

Rules and regulation, will they adapt to future needs

Financial risk is considerable for a small regional operator

Acquisition cost and residual value

There is still a lot of uncertainty about actual maintenance cost for a new aircraft

What kind of support will you get from a small start up with limited infrastructure and resources

How many passengers will the aircraft carry, and what will the passenger perception be

How many pilots will be required, one or two

Summary

Aviation Challenges

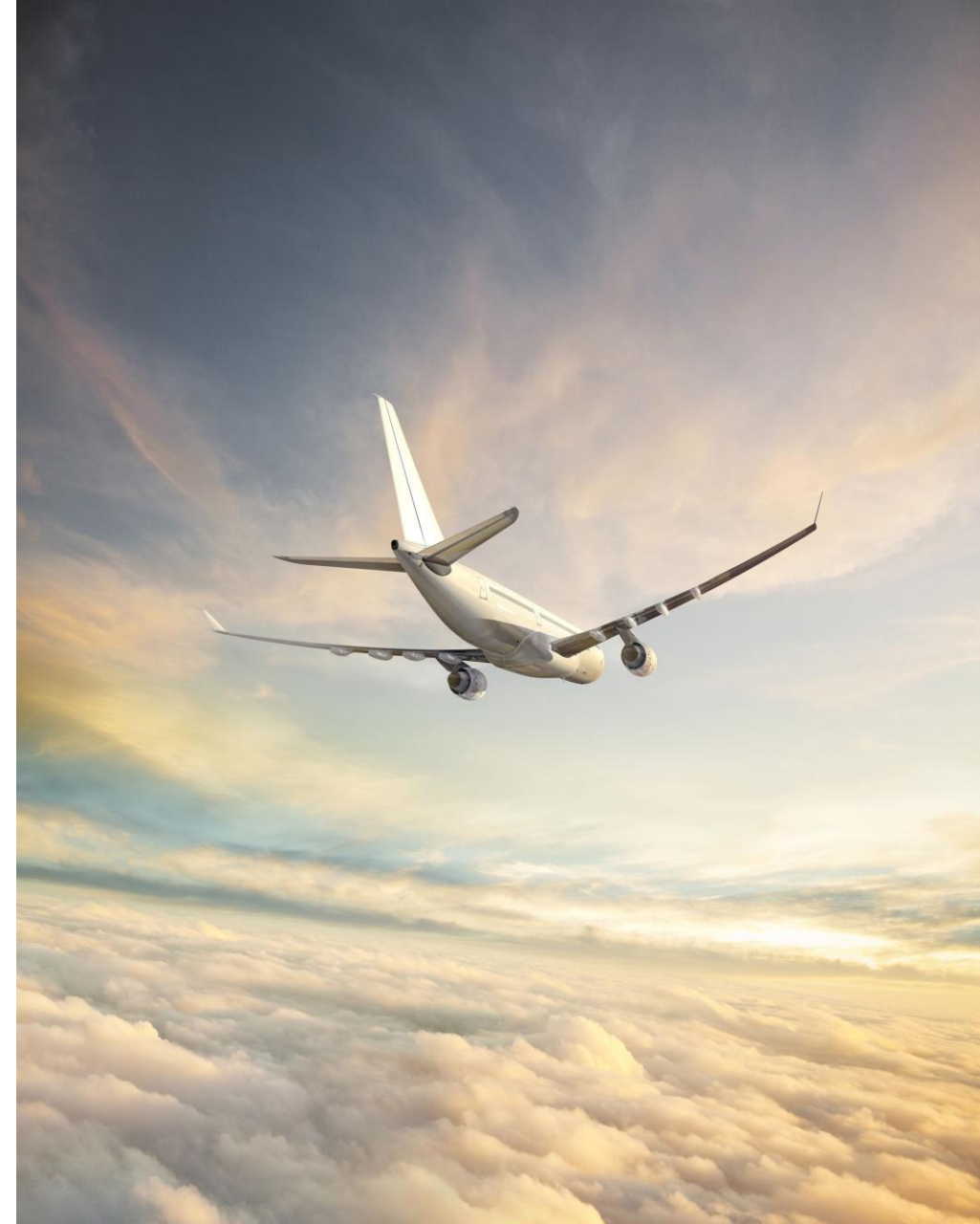
The pace of aviation technology innovation has not met pre-pandemic expectations, posing challenges for sustainability.

Limitations of Alternatives

Current alternatives to fossil-fuel aircraft face technological, infrastructural, and financial limitations.

Role of Sustainable Aviation Fuel

Sustainable Aviation Fuel (SAF) offers a near-term solution to reduce emissions while new technologies develop.





Thank you!