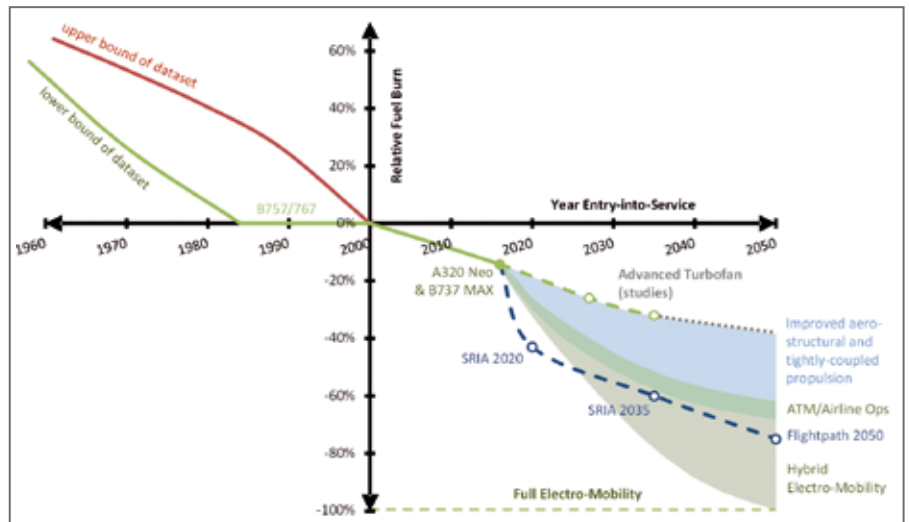


Interdisciplinary think-tank for the future of aviation

Bauhaus Luftfahrt is an interdisciplinary research institution funded by the four aerospace companies Airbus Group, Industrieanlagen-Betriebsgesellschaft (IABG), Liebherr-Aerospace and MTU Aero Engines as well as grants of the Bavarian Ministry for Economic Affairs, Media, Energy and Technology. The non-profit association is an internationally-oriented think tank. The team of around 50 employees deals with the future of mobility in general and with the future of air travel in particular. The goal of the research work is to consider the complex system of aviation from different points of view. In every project, the technical, economic, social and ecological aspects are considered holistically.

Energy technologies for future aircraft

A key research focus at Bauhaus Luftfahrt are novel energy and power conversion technologies that will help aviation realize the important emission savings imposed by political roadmaps such as Flightpath 2050. In particular, Bauhaus Luftfahrt is studying the potential of electrically powered flight: While at present universally-electric aircraft only exist in the ultra-light category, modern commercial airliners already have many more electric subsystems than their predecessors, with a future tendency to increase both electrical power levels and voltage ratings.



Aviation industry goals and technology options for future transport aircraft with ultra-low emissions.

Challenges to airborne power electronics

Evidently, to move from there into the power range of electric propulsion for passenger aircraft, important research questions must be addressed: Should the aircraft's power architecture rely on DC or AC components? How can the required redundancy levels be achieved? Which materials are most suitable to design power electronic controllers for MW-level electric motors? How can we improve or optimize power, weight and volume ratios within mobile applications? Researchers at Bauhaus Luftfahrt are working to address these questions from a fundamental point of view, using physics-based models of power electronic components and engineering knowledge of the aircraft as an integrated system to



In 2012, Bauhaus Luftfahrt unveiled the pre-concept study "Ce-Liner" for a universally-electric short-to-medium range aircraft seating up to 189 passengers.

identify alternatives that could conceivably meet tomorrow's requirements. Strict attention is paid to the fact that visionary concepts and strategies are also always application-oriented and technically feasible, giving rise to concepts such as Bauhaus Luftfahrt's 2012 pre-concept study "Ce-Liner" of a universally-electric short-to-medium range aircraft for 189 passengers.