



Electrical power and propulsion

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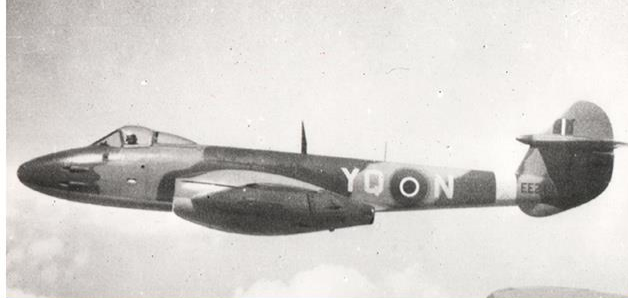
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PIONEERS OF POWER



Vickers Vimy



Meteor Welland



Comet



Concorde



Harrier Pegasus



Trent XWB powered Airbus A350-1000



Bell Boeing V-22 Osprey



Lockheed Martin F35-B



Trent 1000 powered Boeing 787-10



Electrification is not new to Rolls-Royce



Delivering fuel savings of between 15% and 50%.





Electrification in Civil Aerospace



All electric

Hybrid electric

More electric





ACCEL

Accelerating the Electrification of Flight



A small, fast, all-electric single-seater demonstrator aircraft flying ~200nm

Flight testing in
2020

Targeting new air speed records



In partnership with:
Electroflight Ltd UK
YASA UK
UK Government



CityAirbus



Fixed-rotor
multicopter eVTOL

First flight **2019**,
currently flight test
with extended envelope

Demonstrator for Urban
Air Mobility





APUS i-5

Serial-hybrid electric propulsion



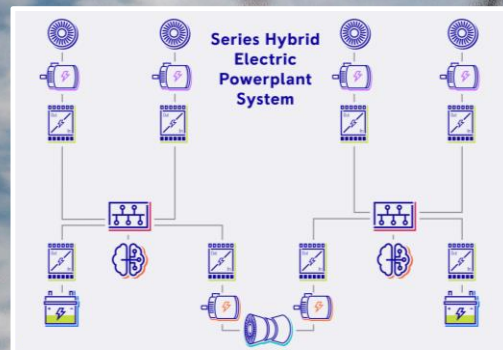
Demonstrating competitive performance, low noise and reduced fuel consumption

Experimental flights on aircraft after 2023

In partnership with APUS and Brandenburg University of Technology



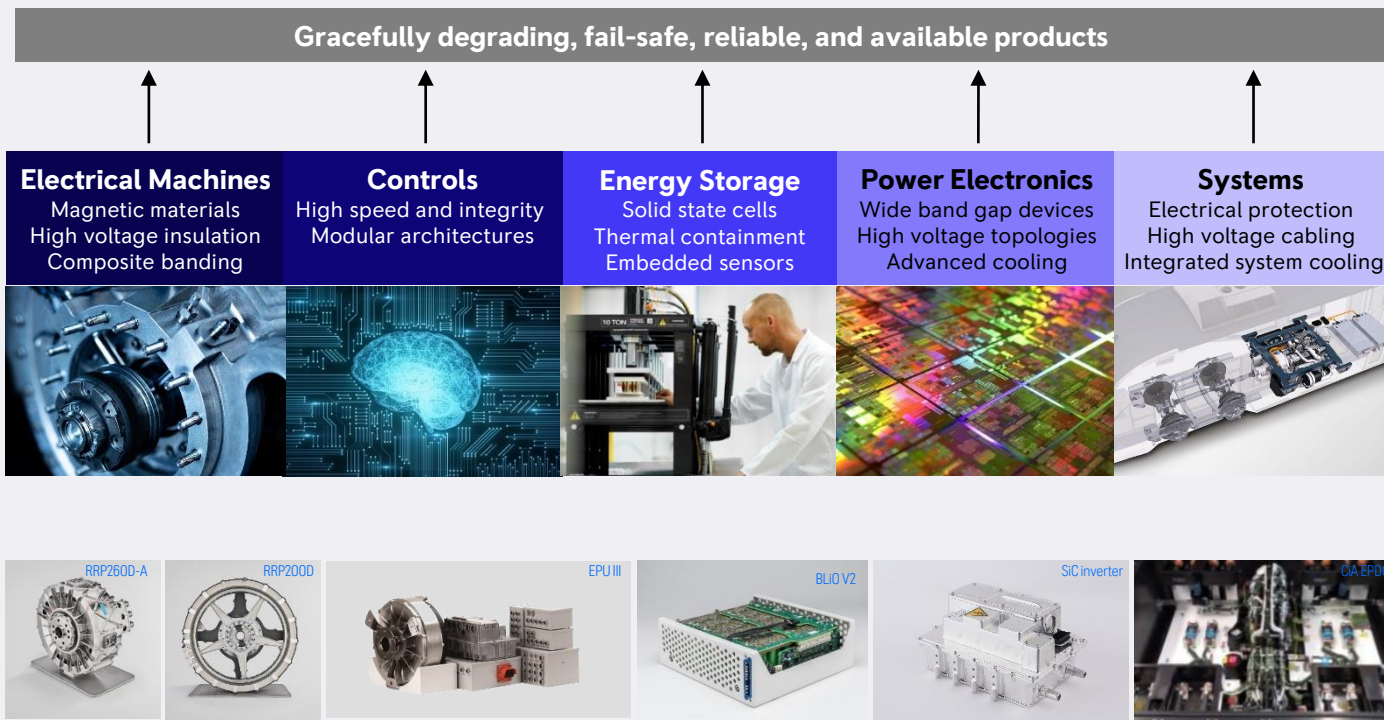
Supported by Brandenburg Government





Technology for electrical power and propulsion systems

Complete system to meet market demands





Small Propeller Aircraft

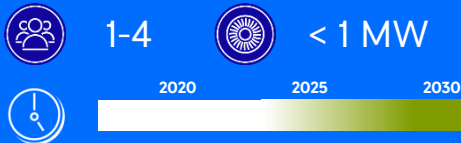


- Efficient and more silent flight at reduced operating cost & low emission
- Preparing the industry for electric products at scale



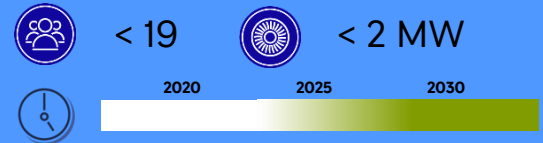
eVTOL

- Enhancing urban mobility concepts on fixed routes and on-demand
- New market creation



Commuter Aircraft

- Retrofit & new concepts for cost efficient regional transport and thin-haul cargo
- Reinvigorating regional airports, shortening travel time and connecting remote communities





Small Propeller Aircraft



eVTOL



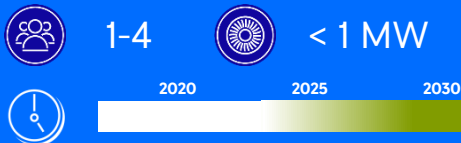
Commuter Aircraft

Preparing for EPU launch for each market within this decade

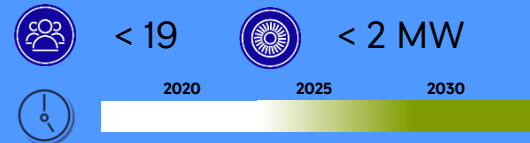
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AE2100 Hybrid Regional



A 2.5MW AE2100-
based power
generation system



Ground test
2021

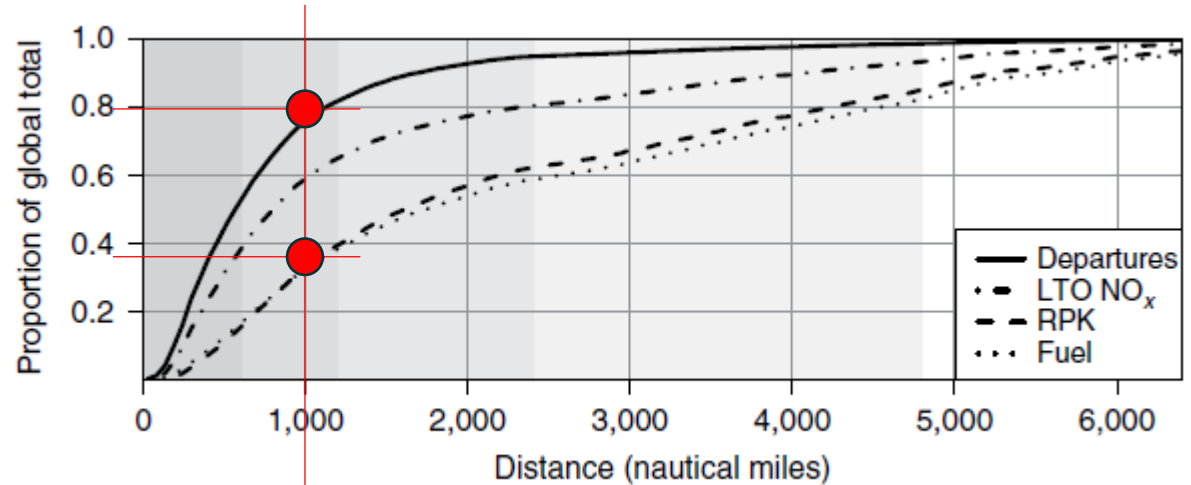
In partnership with:

Airbus

ATI UK

Clean Sky 2

CO2 and Departures vs Distance



Nature Energy, "Technological, economic and environmental prospects of all-electric aircraft", Andreas W. Schäfer 1, Steven R. H. Barrett2, Khan Doyme1, Lynnette M. Dray1, Albert R. Gnad2, Rod Self3, Aidan O'Sullivan1, Athanasios P. Synodinos3 and Antonio J. Torija3



Norwegian opportunity

- 140 TWh Hydro power
- Rich on Natural Gas
- Political will to electrify
- Airliners that are willing to take the risk on new technology
- Historical track record to electrify
- Governmental funding schemes
- One owner of all Airports
- In country value creation





Thanks for your attention!