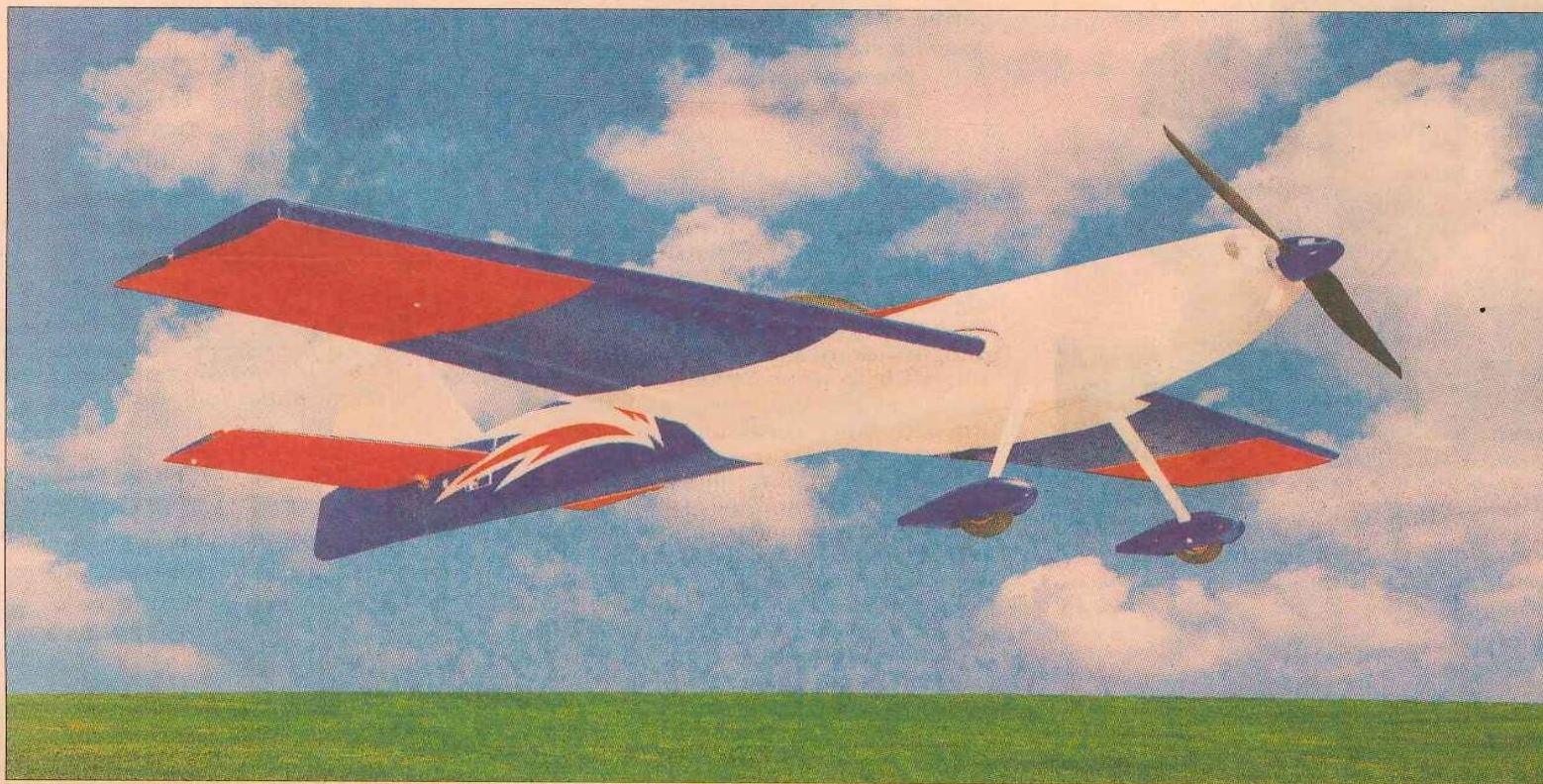


Electric planes on the anvil



When there's so much talk about electric cars, how can planes be left behind?

FALL GOES AS planned then in the next 10 years, you could hop on to an electric battery-powered plane. UK budget airline EasyJet has paired with US firm Wright Electric to develop a battery-powered aircraft fleet that can be used for its short-haul flights.

Should the commercial e-plane become a reality, it would have huge benefits for the environment. Airplanes release around 500 million tons of carbon dioxide into the atmosphere each year, representing a significant contribution to global warming. Electric flight replaces petrochemical consumption with cleaner, battery-powered electricity.

As part of a wider strategy to progressively decarbonise and reduce noise from aviation operations, EasyJet hopes to build the all-electric commercial passenger jet within the next decade. EasyJet and Wright Electric envision that the electric planes will be powered by swappable battery packs. A distributed electric propulsion system, which sees electric power shared across motors integrated into the wing, will enable a more energy-efficient flight.

The electric aircraft could be used for flights under two hours or 335 miles, which would cover up to 20% of EasyJet's routes flown, including the UK and European short-hauls such as London to Paris and Amsterdam, and Edinburgh to Bristol.

Every short-haul flight could be electric within 20 years. Short-haul flights account for 30% of all flights and 50% of regional flights. In 20 years, you will most likely be able to buy a ticket for a flight on an electric airplane capable of commuting 100 passengers.

EasyJet has a carbon emissions target of 72 gm by 2022, which would be a 10% reduction from today's performance and a 38% improvement from 2000. This move makes EasyJet the first major airline to commit to developing an all-electric aircraft.

And it is not just one company which is talking about electric planes. Zunum Aero, a start-up based in suburban Seattle, believes millions of people will be comfortable flying on the hybrid electric planes it plans to deliver starting in 2022. The hybrid electric jet will seat up to 12 people, fly up to 700 miles and have operating costs of 8 cents per seat mile, below the operating costs of small turboprops and business jets powered by jet fuel.

The travel time of over four hours would be cut in half by avoiding the crowds and security lines at big hubs that are required for larger planes. About 96% of US air traffic travels through 1% of its airports, leaving thousands of small airports virtually untapped.

In April, Lilium, the "world's first" electric jet plane capable of taking off and land-

ing vertically, successfully completed test flights in Germany, while Airbus presented its concept for a tilting-rotor-powered flying electric car at the Geneva Motor Show, with plans to test it later this year.

In addition, US-based start-up Kitty Hawk revealed a prototype for an electric vehicle that moves like a flying jet ski, which, it says, will hit the market later this year, and the Daimler-backed autonomous passenger drone company Volocopter reportedly took Dubai's Crown Prince Sheikh Hamdan bin Mohammed on a 200-m-high flight across the Emirati city earlier this week.

In the past 150 years, atmospheric carbon dioxide levels have risen an estimated 35%. While hybrid electric and full-electric vehicles have become more common in recent years, the aviation industry has been slow to embrace e-planes partially because of the weight and cost of lithium-ion battery packs.

When a single person flies round-trip from New York to London, that travel generates approximately the same greenhouse gas emissions as heating a residential home for a year. In order for electric flights to really take off and become mainstream in both commercial and recreational markets, it needs better batteries.

Other industries have replaced traditional lead-acid batteries with lithium-ion batteries, which now power most of our laptops, phones and electric cars. But in order to be aviation-compatible, the next generation of batteries needs to deliver a whopping amount of power while being simultaneously smaller, safer and lighter than lithium-ion ones.

Electric drones would soon be scaled up to become personal electric aircraft.

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