5 WAYS PRATT & WHITNEY IS MAKING AVIATION MORE SUSTAINABLE

News / Manufacturer

Global climate change isn’t slowing down – but neither is Pratt & Whitney. We are advancing technologies that will help meet the aviation industry’s environmental goals, including the target of reducing overall emissions by 50% by 2050, compared to 2005 levels. Here’s a snapshot of five ways we’re working to ensure cleaner skies are on the horizon.

1. Saving fuel and CO2 with the GTF

Since entering service in 2016, the Pratt & Whitney GTF™ engine family has made air travel significantly more sustainable. These revolutionary geared turbofan engines deliver 16% lower fuel

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consumption and carbon emissions compared to previous-generation engines. GTF engines have already saved airlines more than 470 million gallons of fuel and more than 4.3 million metric tons of CO2. With more than 960 GTF-powered aircraft delivered, and another 5,000 on order, Pratt & Whitney's GTF is a key enabler for airlines to reduce their environmental footprint while still growing their passenger numbers and route networks.

And we're just getting started. The engine's unique geared architecture has a long runway for future improvements. We're committed to maintaining our advantage as the quietest, greenest, most efficient engine family available for single-aisle aircraft today – and for next-generation aircraft.

2. Investing in next-gen technologies

We are continually investing in next-generation technologies to drive performance and efficiency across our engine portfolio. Technologies like electric, hybrid electric and hydrogen-powered propulsion have emerged as hot topics, and at Pratt & Whitney, we are working to deliver on their potential.

We are actively working on hybrid-electric concepts that would address aircraft from regional turboprops to large commercial aircraft. In partnership with NASA and other public funding bodies, we're planning to test this technology in flight. Much like a hybrid car, hybrid electric jet engines will optimize performance across the different usage phases of flight, providing an electric power boost at takeoff and leaving the gas turbine to run at peak efficiency during cruise.

We are also looking at the potential of hydrogen to enable zero-emissions flight. With experience of hydrogen-fueled engines dating back to the 1950s, we are familiar with the unique properties of this fuel and the required adaptations in engine design. Ultimately, gas turbine technology will continue to play a central role in future aircraft systems, whether they are hybrid-electric or using alternative fuels (or both).

3. Advancing use of Sustainable Aviation Fuels

As a "drop-in" solution fully compatible with existing aircraft and infrastructure, Sustainable Aviation Fuels (SAFs) have a critical role in meeting our industry's emissions reduction goals. Since 2006, we have been testing SAFs and supporting the development of certification standards, through our participation with the American Society for Testing and Materials International and the Commercial Aviation Alternative Fuels Initiative.

All our current engines are ready to accept the certified maximum blend of 50% with conventional jet fuel. Additional testing and certification work will be required to approve SAF blends as a 100% fuel replacement, which could ultimately reduce an aircraft's carbon emissions by up to 80%. In the meantime, we will continue to support our industry in its advocacy efforts to substantially boost the production and availability of SAFs in the global market.

4. Offering a Carbon Offset Service for business jet operators

Carbon offsetting provides one of the most immediate routes to mitigating the environmental impact of air travel. As an increasingly large number of commercial airlines have implemented offset schemes, there is clearly an opportunity to expand their availability to other segments in the aviation industry.

That's why we launched a Carbon Offset Service for business jet operators, the first service of its

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kind offered by an engine maker. Available to operators of business jets with engines enrolled in Pratt & Whitney's pay-per-hour Eagle Service™ Plan (ESP™), the Carbon Offset Service makes it simple to offset for emissions based on the engine's flight hours. We partnered with a recognized worldwide leader in offset programs – South Pole – to support access to clean water, renewable energy and forest conservation projects to compensate for aircraft emissions.

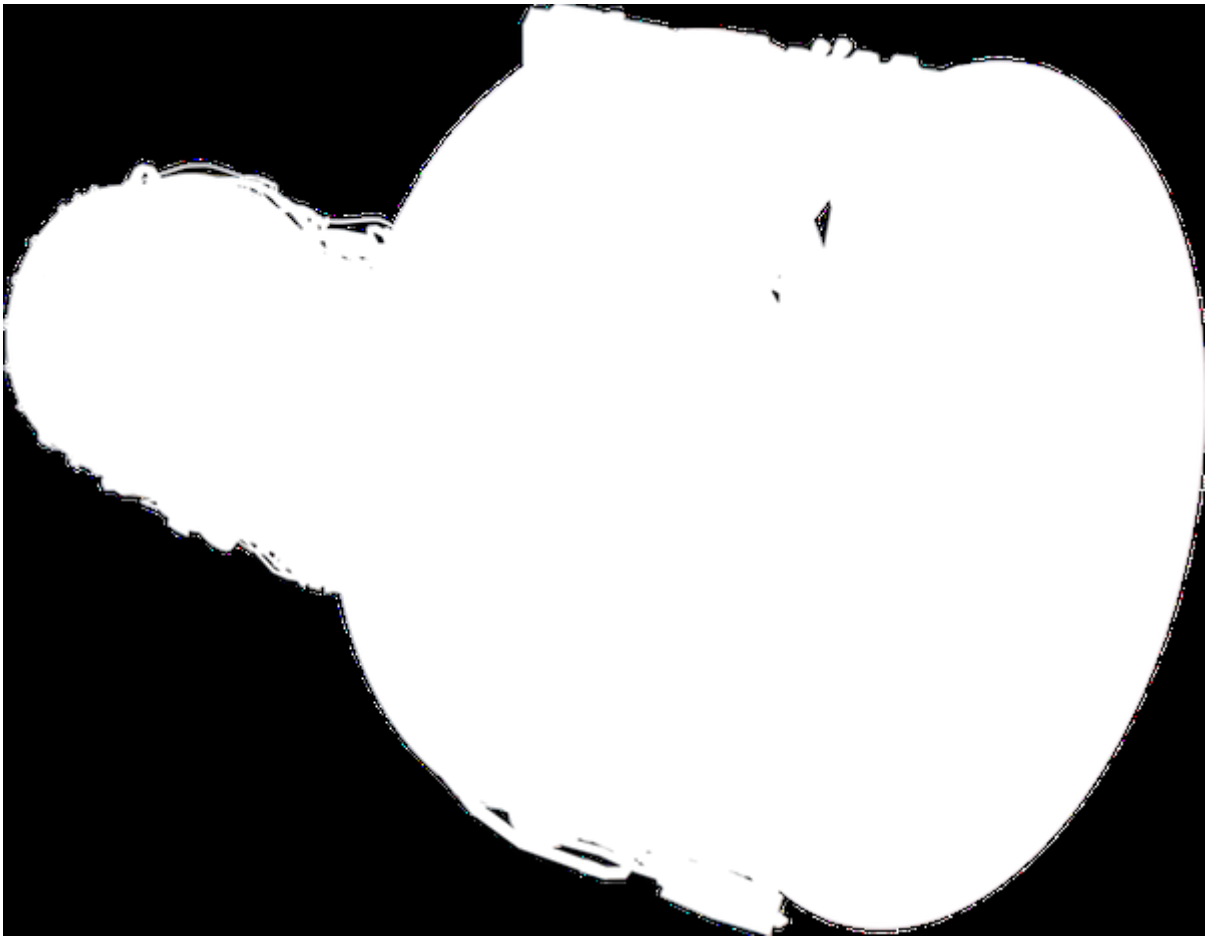
Even as we work toward more efficient aircraft technologies and greater SAF usage, carbon offsets remain an important tool for generating positive action on protecting the environment.

5. Committing to reduce our own energy usage, water consumption and waste

Sustainable aviation begins with sustainable practices. At Pratt & Whitney, we approach every process and product with a sustainability mindset – especially our own operations.

We have continually reduced our greenhouse gas emissions over many years, and we are committing to a further 10% reduction by 2025 (compared to 2019). We are also targeting the same 10% reduction in water consumption and waste production, as well as 100% implementation of water, waste and energy/greenhouse gas best management practices.

And we're committed to going beyond even that through the use of solar installations at facilities around the world. Overall, our global onsite solar capacity generates about 7 million kilowatt-hours of electricity annually and reduces annual CO2 emissions by 4,950 metric tons – the equivalent of planting 82,000 trees per year. Our offsite solar capacity will increase significantly by 2023, with the purchase of an additional 70 million kilowatt-hours of electricity annually. Additionally, we've successfully explored ways to better manage water usage and hazardous waste treatment.



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