

# Zero CO2 Transport Aims To Replace 757F In Air Logistics

*NASA Flux Capacitor Tech Enables Hydrogen In Designed-For-Freight Mainline Freighter*

HUNTINGTON BEACH, CALIFORNIA, UNITED STATES, October 24, 2023 /EINPresswire.com/ -- NOVAdev Inc. today announced the design of its EcoFlight™ EF-5C [turboelectric air freighter](#), an innovative benchmark in aviation's journey to decarbonize. It is the first aircraft ever to be specifically designed for the mainline air freight industry and with zero carbon emissions.



NOVAdev EcoFlight™ EF-5C Designed-For-Freight Air Freighter (©NOVAdev Inc.)

The EcoFlight™ EF-5C will transport 85,000 pounds of cargo 3,200 nautical miles at a cruise speed of Mach .80 and up to 40,000 feet in altitude. The aircraft's payload and range make it an ideal replacement for industry's ageing 757 and 767 freighters. The cargo bay offers 38% more payload volume than the industry's comparably sized 757-200F workhorse.

“

You look at the technologies, you do the engineering trades, you really understand certification requirements, and this is where it leads you for that mid-size commercial market space.”

*Michael Kramer*

NOVAdev's vision is an automated, truly intermodal, and [zero carbon air logistics](#) industry, unlocking innovations that improve shipper-to-destination efficiency. EF-5C's automated systems load, position and unload cargo containers through two loading doors without human intervention, improving speed and safety. The standard footprint, fully intermodal containers are designed to robotically integrate with airport freight facilities and trucks to distribute shipments faster, more securely, and more

reliably. All this is accomplished with a mainline air freighter that eliminates the business and environmental costs of CO2 emissions, a growing financial expense.

“Air freight is the right place to start with zero carbon hydrogen fuel”, says Michael Kramer, NOVAdev's founder. “Its routes and scheduling are less complex than passenger services so infrastructure stand-up is easier, and certification testing is less arduous. It’s the perfect sector to develop zero-carbon technologies that will migrate to passenger service over time”.

Importantly, the EcoFlight™ system and EF-5C transport are operable and certifiable with both hydrogen and sustainable aviation fuels (SAF). The company’s product plan will allow operators to specify either fuel for their aircraft build and better manage their fleet transition to clean energy sustainable operations.

NOVAdev believes the industry will embrace the purpose-built EF-5C freighter. “A huge portion of current mid-size freighters are aging out of service with no replacement from Boeing or Airbus in sight”, says Richard Bartz, NOVAdev Vice President, Business Development. “We think that market of 700-plus aircraft will embrace a purpose designed, [zero carbon air freighter](#) because the efficiency and decarbonization cost savings cannot be ignored.”

### How EcoFlight™ Works

EcoFlight™ is a turboelectric power and propulsion system designed for mainline aviation. The system networks an internal set of turbine driven electric generators to power a 30-megawatt electrical grid for propulsion. Networking turbine generator units inherently ensures fail-safe power redundancy for all mission critical systems. To save fuel, turbine generator units only run at peak efficiency and individually cycle on or off based on aircraft power requirements.

Other innovative system features include:

- Hydrogen or SAF fuel – Turbines run effectively on a variety of fuels. EcoFlight™ turbines and its fuel system are configurable during manufacturing for hydrogen or SAF with no impact on the aircraft’s design or functionality, including cargo hold, flight systems, electrical generation, or propulsion.
- NASA “flux capacitor” storage – Flux capacitor technology holds hydrogen in a “solid state” which eliminates challenges associated with carrying liquid hydrogen. It is ideally suited to aviation use and easier to certify. NOVAdev holds an exclusive technology license from NASA for mid-size aircraft applications.
- Distributed propulsion – EcoFlight™ enables distribution of electric propulsion rotors across the wings permitting smaller motors, smaller rotors, and reducing the aircraft’s environmental noise impact.

EcoFlight™ also enables the well-established benefits of “open rotor” propulsion and “blown wing” aerodynamics at mainline transport scale. Open rotor propulsion is proven more efficient than conventional ducted turbofans. Positioning rotors to maximize air blown over the wings

markedly improves aircraft performance in take-off and landing role, time to cruise altitude, and cruise efficiency.

NOVAdev began hydrogen aircraft design studies in 2018 and realized small scale systems cannot scale to mainline aviation. “Batteries and fuel cells are not going to support airplanes the size of the 757-200F or EF-5C”, says Mr. Kramer. “We came to understand that proven and trusted aerospace turbine technologies can be innovated and reconfigured to deliver all the climate advantages of zero carbon hydrogen and can be easily configured for low carbon SAF as well.”

## Why It Matters

Industry data indicates 50% or more of aviation CO2 emissions are generated by mainline “single aisle” aircraft like 737, A320 and 757 transports similar in size to NOVAdev's EF-5C. EcoFlight™ was developed to eliminate 100% of carbon emissions in that aviation market segment, which industry data places at more than 100 million metric tons of CO2 annually in North American alone.

The EcoFlight™ system represents a design standard for decarbonizing passenger aviation as well as air logistics. “You look at the technologies, you do the engineering trades, you really understand certification requirements, and this is where it leads you for that mid-size commercial market space”, says Mr. Kramer. “EcoFlight™ is directly applicable to decarbonizing passenger aircraft. It will just take longer to evolve given certification and infrastructure requirements for flying people.”

“Air freighters are passenger aircraft designs adapted to freight service, and that entails compromises which constrain air logistics”, says Mr. Bartz. “While most of EF-5C’s technology is highly mature, its clean energy, automation, and efficiency innovations characterize air logistics’ future in a very practical sense.”

Air freight industry experts helped shape EF-5C’s design around intermodal containers, rather than people. The design was developed by a NOVAdev team of senior aviation engineering leaders having backgrounds with the industry’s most prominent aircraft and systems manufacturers. The company’s program plan entails full scale system demonstrator flights beginning 2026 and certification flight testing beginning 2028.

NOVAdev is actively engaged with aviation manufacturing, air logistics, airport infrastructure, and climate investment organizations in arranging support for EcoFlight™ EF-5C’s phase one full scale ground systems development.

To learn more visit [www.novadev.aero](http://www.novadev.aero).

About NOVAdev

NOVAdev is engaged in development of commercial aircraft and airborne systems that enable earth-friendly, zero-carbon aviation at mainline scale. NOVAdev is an innovation company, applying novel solutions to aerospace engineering challenges.

Richard Bartz  
NOVAdev Inc.  
rbartz@novadev.aero

---

This press release can be viewed online at: <https://www.einpresswire.com/article/639800787>

EIN Presswire's priority is source transparency. We do not allow opaque clients, and our editors try to be careful about weeding out false and misleading content. As a user, if you see something we have missed, please do bring it to our attention. Your help is welcome. EIN Presswire, Everyone's Internet News Presswire™, tries to define some of the boundaries that are reasonable in today's world. Please see our Editorial Guidelines for more information.

© 1995-2023 Newsmatics Inc. All Right Reserved.