COULD RUSSIA'S FRIGATE ECOJET TAKE ON AIRBUS AND BOEING?

News / Manufacturer

The design and manufacture of large commercial aircraft is one of the world's most challenging industries.

Two aviation giants dominate the field: U.S.-based Boeing and European consortium Airbus.

So can a Russian upstart succeed in its goal of redefining the market with a new aircraft concept whose unique characteristics place it in a category of its own?

The new manufacturer is Moscow-based private company is Rosavia.

Its concept is the inelegantly named Frigate Ecojet.

Wide body vs. narrow body

Airliners can be roughly divided into two groups.

There are wide-body aircraft, like the Boeing 777 and 787 or Airbus A330 and A350 families, designed to carry 250 or more passengers on long-haul flights.

Then there are narrow-body aircraft: smaller single-aisle craft usually seating fewer than 200

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passengers and serving short- and medium-haul routes.

The Boeing 737 and Airbus 320 families are the most common in this category.

But what if an airline needs to transport a large number of passengers over relatively short distances?

One option is to use a wide-body airline -- much heavier than required for short distances.

The other is to use narrow-body aircrafts, flying at greater frequency, and to give up some of the economies of scale that high-density routes can afford.

Neither is an ideal solution.

Russian tradition

The Frigate Ecojet aims to bridge this market gap by combining the capacity of a wide-body aircraft with the economics and range of a narrow-bodied one.

It's been designed to fly between 276 and 358 passengers over distances of 3,000 to 4,000 nautical miles, depending on the model.

Although currently a private company, Rosavia follows the tradition of Russia's aircraft design bureaus.

Some of its senior technical personnel were involved in the roll-out of airliners such as the medium-range Tupolev Tu-204 and the Tu-214.

If its positioning as a medium-haul wide-body airliner sets the Frigate Ecojet apart in the market, its most eye-catching feature is without doubt its curved fuselage.

Rosavia's engineers say its elliptic shape is a particularly efficient solution for seating more than 350 passengers in a three-aisle configuration, while keeping weight and dimensions below those of wide-body aircraft of similar capacity.

The main challenge the Frigate Ecojet faces isn't technical, though, but commercial.

Is there enough demand for an aircraft with these characteristics?

Niche market

Yes, but a limited one, says Daniel Tsang, aviation expert and founder of consultancy firm Aspire Aviation.

He says it's the same terrain that Boeing is purportedly examining as part of a long-term plan to develop a new mid-size airplane.

"While such a market has a demand for up to 2,000 airplanes over the next 20 years, it will remain niche," says Tsang.

Nevertheless, managers at Frigate Ecojet hope to capture a piece of this action.

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They see most of the demand coming from Asia, where the Frigate Ecojet could serve the growth in high-density routes between the region's major cities.

Tsang remains skeptical that the cost savings brought about by the Ecojet could be large enough to prevent Boeing and Airbus from covering the market gap with re-engined versions of their existing jets.

He says that the question is "whether developing a clean-sheet small-twin is the best solution to addressing the niche market needs."

In his view, the re-engined Airbus A321neo and Boeing 737-900 ER will be able to cover most of the demand.

Throw in theAirbus A320neo, whose development cost is fully paid for, and the business case looks even shakier.

Plowing ahead

In any case, Rosavia is plowing ahead with its plans to serially produce the Frigate Ecojet, and hopes to be operational by 2018.

The company has already successfully completed the first round of aerodynamic and structural tests in Germany, with the cooperation of several engineering partners, and it's now looking for a suitable location for its assembly line.

With a catalog price of $120 million, on a par with the smaller Airbus A321neo, Frigate Ecojet's program leader Alexander Klimov expects the project to break even at 115 aircraft.

He says the company will need $3 billion investment over the next 10 years.

It's open, he adds, to discussing financial or industrial partnerships.

That could lead to the company relocating to another European country or to Asia to take advantage of favorable local conditions.

Bold ambition

There's no doubt that the Frigate Ecojet is a bold and ambitious undertaking, even more so when considering it's being led by an independent private company.

However, it's precisely this slice of the market that saw the beginning of one of the most successful growth stories in the history of commercial aviation.

Although the market and political environment is vastly different, it's easy to forget -- four decades after the first Airbus A300 took to the skies -- that once upon a time the mighty and diversified Airbus Group also started with a medium-haul wide-body airliner designed for the same tasks that the Frigate Ecojet now hopes to fulfill.

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