

DOES AN A330NEO MAKE SENSE?



AirInsight

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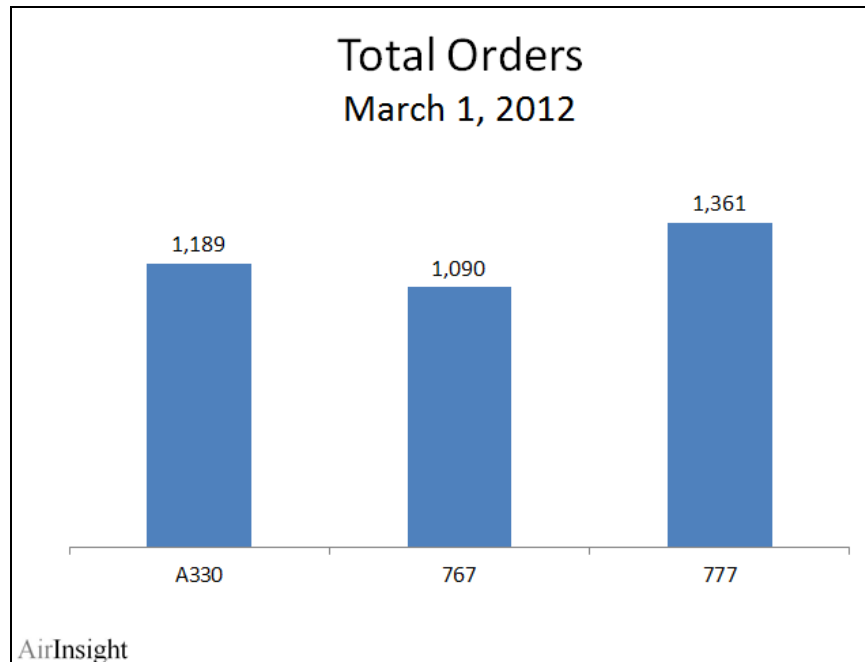
With the market success of the Airbus A320neo, generating record-setting orders in today's high fuel cost environment, the question has emerged again whether a re-engining would make sense for the popular Airbus A330 mid-sized wide body aircraft.

AirAsia, the fast-growing low cost carrier, promoted the idea at the 2011 Paris Air Show when announcing a record order for the A320neo. Airbus reportedly discussed the concept to Singapore Airlines¹ but otherwise has largely downplayed the prospect in public statements.

The A330 is still relatively young by airplane standards: it first entered service in 1994. It has undergone several Program Improvement Packages, increasing gross weight, range and economics. But as with the Airbus A350 XWB vs. the Boeing 777- which entered service a year later--new technology is challenging the A330 in the form of the Boeing 787. Just as Boeing is faced with a decision whether to upgrade the 777 and to what extent, Airbus is faced with a decision whether to further upgrade the A330 and by how much.

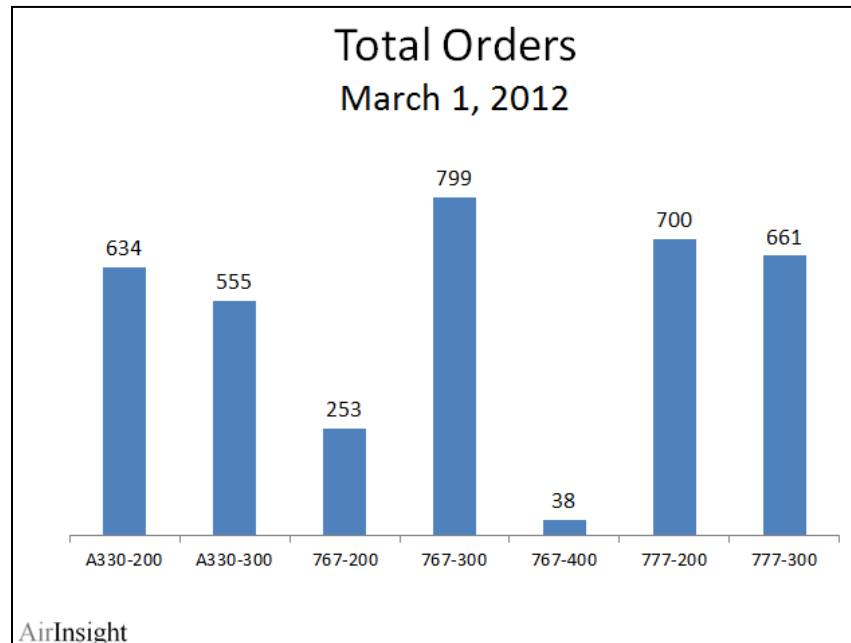
The popularity of the A330 is clear. Within the twin-engine, mid-size twin-aisle class, the A330 has surpassed sales of the Boeing 767, which entered service in 1982 and which remains in production at a low rate of 1.5-2 aircraft per month. New life in the 767 program has been received via the USAF decision to select the 767-2C for the KC-X tanker program. Although only four orders have been received for the KC-46A, the contract is eventually to be for 179 tankers. Other orders are predominately for the 767-300ERF and a handful of orders for the 767-300ER passenger model serving as compensation and interim lift for the delayed 787 program.

¹ <http://www.aspireaviation.com/2012/03/05/airbus-mulls-re-engined-a330-along-with-sharklets/>



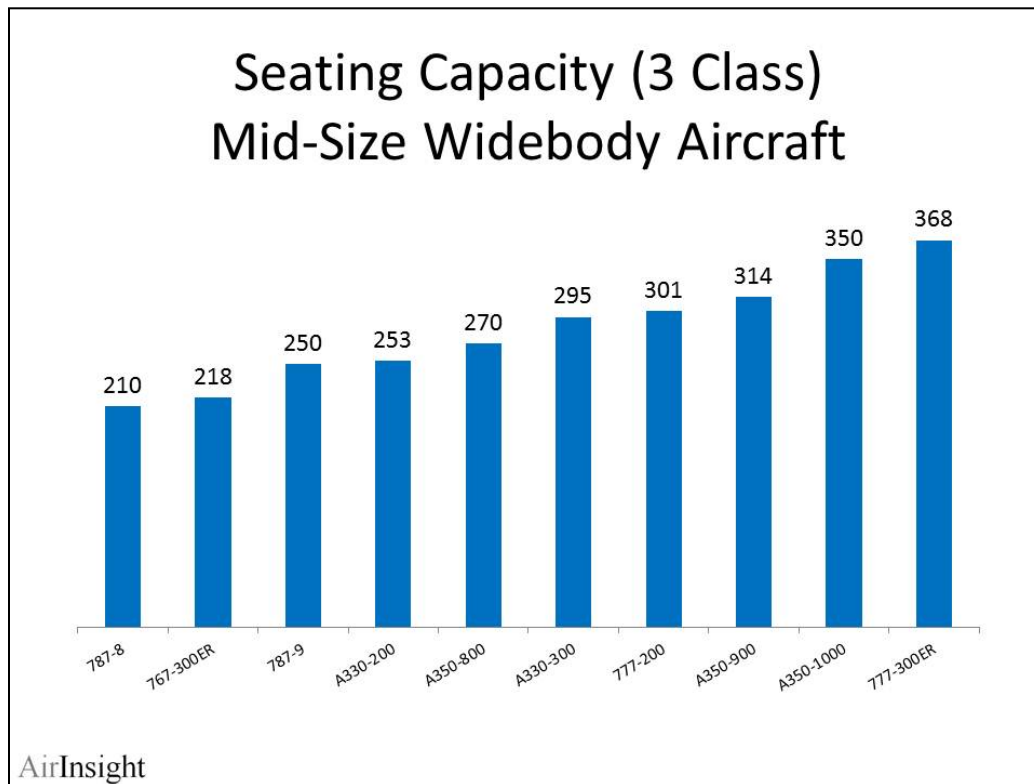
Sources: Airbus and Boeing Orders and Deliveries tables.

The 777 program has done even better, despite starting a year later than the A330. The A330-300 was, and remains, an intermediate range aircraft by today's standards. The 777-200ER, with which the A330-300 nominally competes, has longer range. All versions of the 777-200, including the freighter, combine to out-sell the A330-300. But the 777-200 has been eclipsed by the 777-300ER, which is largely in a class by itself pending introduction of the A350-1000.



Source: Airbus and Boeing Orders and Deliveries tables.

The A330 has 837 deliveries through the end of 2011 and a backlog of 346 additional aircraft on order. With the introduction of the 787 and the planned A350 XWB, the twin-aisle mid-sized segment aligns as shown in the following chart.



Sources: Airbus and Boeing

Airbus' dilemma

When Airbus launched the A350 XWB, it took on two market segments: the upper end of the lower half of the middle market and the upper-end of the middle market; in other words, the 787-9, the 777-200 and the 777-300 with the A350-800, -900 and -1000 respectively. This left the entire 210-250 seat segment exclusively to Boeing with the new technology 787-8.

Airbus claimed its customers told it the 787 was too small, prompting Airbus to proceed with the A350 XWB in the sizes it chose.

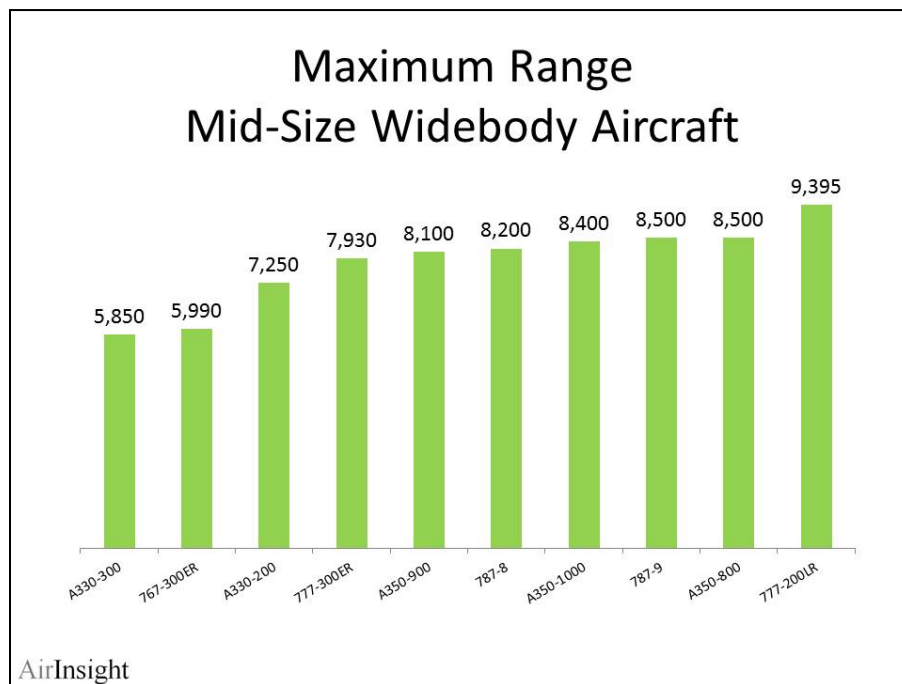
But the 787-8 has been sold in more numbers than the 787-9 and is a true replacement for the 767-300ER. The A330-200, which effectively killed the 767-300ER, may be considered evidence that "larger is better" but does nothing to compete on a technological basis with the 787-8. The

Airbus argument concedes the A330-200 costs more to operate but that its revenue-generating ability outweighs the 787's cost advantage.

The A330 is positioned between the Boeing 787 and 777 in the marketplace, as is the forthcoming Airbus A350XWB. While the A330-200 is smaller than the A350-800, the A330-300 falls directly between the A350-800 and -900 and could potentially cannibalize sales for the new A350XWB if a re-engined version was offered.

Of course, the A350XWB, and the competing Boeing 787, are much longer-range aircraft than the A330. Comparing the aircraft by range shows that the A330-300 has a significantly shorter range than its new technology competitors. However, this has not prevented the aircraft from being quite successful in the market, serving thousands of routes that do not require exceptionally long range.

Moreover, in 2008 Airbus reacted to the 787 threat by offering high gross weight (HGW) versions of its A330-200. The A330-200 HGW offers 300 nautical miles more range.



Nautical Miles. Sources: Airbus and Boeing.

Still, Airbus is faced with aging aircraft in a market segment that will be filled with new technology aircraft. With the A350 XWB program under development, the A380 still representing a negative cash flow for a few more years, an A400M program that will remain cash negative for years to come, and an A320neo program in development, Airbus is not in a position to launch another all-new airplane development.

The question, then, comes what to do with the A330, if anything, beyond adding sharklets and undertaking routine PIPs.

New engine technology could improve fuel economy over existing engines, in a re-engined configuration, by 12%-15%. With a resultant 12% increase in range, an A330-300neo could operate 6,586 nm and an A330-200 8,120 nm. Such an increase would bring the A330-200 in line with other new technology aircraft, with just about the same range as the A350-900.

While the A330-300 would become directly competitive with the A350XWB-800, the A330-200 is a smaller aircraft, just larger than the 787-9, that could find a niche in that marketplace.

The prospect of re-engining the A330 is hardly new. This was the initial approach to the Airbus response to the 787 with what is now commonly referred to as A350 V1.0. In addition to the proposal to re-equip the A330 with GENx engines, a new wing and other upgrades were suggested while retaining the A330 fuselage and tail. The market roundly rejected this plan, and key players in the market remain skeptical. At the 2012 ISTAT conference in Scottsdale (AZ), Henri Courpron², chairman of mega-lessor ILFC, stated: *"We put our money where our mouth was with the neo but this doesn't mean re-engining is the right decision. When Airbus tried to re-engine the A330 to be the A350 that was an unmitigated debacle."*

Steven Udvar-Hazy, now CEO of Air Lease Corp. and the man who thoroughly thrashed the A350 V1.0 at the 2006 ISTAT meeting in Orlando (FL), had this to say at the 2012 ISTAT meeting: *"There is always a risk of balkanization of the wide-bodies that has too many engines. The only re-engine we've seen is the 747-8. I don't really see that happening. Boeing is talking about a new engine on the 777 but it will have more changes with it. I don't see it happening with the A330. Rejigging the wide body has significantly more risk. The A330-A350 debacle was a good lesson for Airbus and Boeing."*

While their points are well taken, we believe the circumstances are different than those existing with A350 V1.0. With respect to Courpron's comment, there is no question A350 V1.0 was an "unmitigated debacle." Airbus admitted that it had misjudged the proposed 787 and the market response to it and V1.0 was clearly a hasty response. We believe Airbus would have a much more thoughtful response with a prospective A330neo that would be a "minimum change" concept as opposed to the re-wing, systems upgrade suggested for A350 V1.0. This leads to the difference with Hazy's comment. The 747-8 became much more than a "re-engine." It, in fact, followed much the same path as A350 V1.0, ultimately having a new wing and major new systems. Boeing now bills the 747--8 at an 80% new airplane compared with the 747-400.

² Courpron is also the former president of Airbus North America (now Airbus Americas).

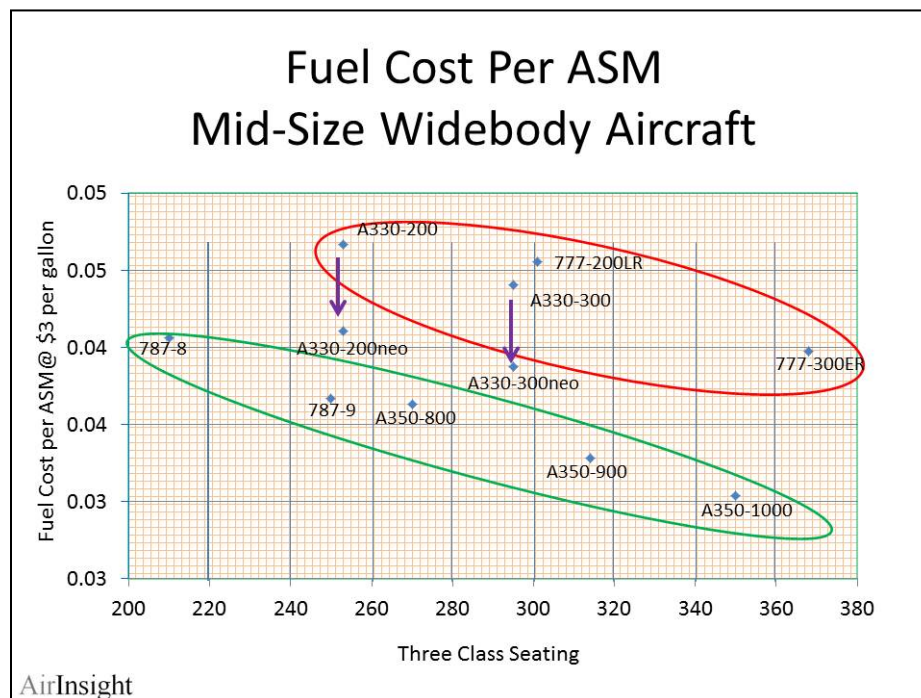
With Airbus stubbornly (in a good way) sticking to a minimum change A320neo, providing 95% commonality with the A320ceo (current engine option), we believe Airbus would abandon the concept of A350 V1.0 and instead follow the A320neo example.

The key question then becomes, do the economics make sense?

Economics

Today's new technology engines burn 15% lower fuel than the last generation, and installing new generation engines on the A330, conservatively, could result in a net 10%-12% lower fuel burn after installation. Because these new engines are not optimized for the A330 airframe, a re-engining program will not result in a full 15% reduction in fuel burn. However, as with the A320neo program, the addition of sharklets will likely gain approximately 2%.

Economic comparisons of the existing A330 against the 787 and A350XWB models are better than the current A330 but not equal to the new technology aircraft, because the lightweight composite structure and new technology engines result in a significantly lower fuel burn, as shown in the following chart:



With similar costs for maintenance, crews, environmental fees, the overall economic picture is quite similar to the picture for fuel -- the economics of new aircraft outperform those of the last generation, as well as the suggested neo models.

As a result, it appears that it would make more sense for Airbus to concentrate its efforts on the A350XWB.

Based on comparative economics, it is our view is that the neo concept for the A330 does not make economic sense; the aircraft would not reach the level of performance to match either 787 or A350. Because the A330-200 is slightly larger than the 787-9, and slightly smaller than the more economical A350XWB-800, we believe customers would choose the more economical aircraft, despite additional seats, as those represent future potential profit at lower operating costs. Additionally, with longer range the A350 becomes more flexible than the A330.

But, *strategically*, given the absence of an Airbus new technology airplane in the 210-250 seat market--and giving Boeing a de facto monopoly in this segment--is a major PIP revolving around a new engine option a necessary move for Airbus? Strategically, is a neo for the A330-300 also necessary or will it truly cannibalize the A350-800?

The answer may be that "it depends." The A330-300, with a current range of 5,850nm, is substantially below the ranges advertised for the A350 XWB and the prospective 6,950nm range of the 787-10. Yet it is plenty for the majority of the routes operated by a large number of airlines.

The A330-200, with a current range of 7,250nm, is less than the advertised range of the A350 and the 787 but remains more capable than the larger A330-300. Improving fuel burn of the A330-200neo and -300neo by 12%-15% with new engines and sharklets may provide strategic benefits for Airbus, particularly if R&D expenditures associated with a "minimum change" airplane (as opposed the to "change creep" experienced by Boeing for the 747-8)--and R&D cost-sharing with the engine manufacturers (as with the A320neo) could make this a low-risk, attractive ROI project.

Another prospect an A330neo program would make sense is as an STC for retrofit new engines to existing airplanes. The differential in capital cost to achieve significant fuel savings would not be as high as replacing an entire aircraft. Unfortunately, most commercial aircraft re-engining programs have not been economically successful, with the lone exception of the Cammacorp program replacing the JT8D with the CFM-56 on the DC-8 Super Sixty series three decades ago. UPS re-engined the Boeing 727-100 with the Rolls-Royce Tay engine and gained satisfactory economic returns, but this was an in-house rather than a commercial project.

As a result of the high risk of such a proposition, which requires the cooperation of the manufacturer, we don't foresee anyone stepping up to the plate for an A330 refit. We believe Airbus is not about to cannibalize the market with an A330neo by competing with its own new technology airplanes.

Bottom line

Despite urging by AirAsia, we don't believe it makes sense, neither economically nor competitively, for Airbus to undertake such a program.