



LAX Community Noise Roundtable

Aviation Noise News Update

September 10, 2014

Progress by Industry Partners in FAA's CLEEN Program



- The Continuous Lower Energy, Emissions and Noise (CLEEN) program is the FAA's principal NextGen environmental effort to “accelerate the development of new aircraft and engine technologies and advance sustainable alternative jet fuels.”
- Under this program the FAA has entered into a five-year cost-sharing agreement with five companies
- With funding matches from all five companies, the total investment could exceed \$250 million. Matching funds spent by FAA to date include:
 - Boeing - \$27.4 million
 - GE - \$23.2 million
 - Honeywell - \$11.6 million
 - P&W - \$24.5 million
 - Rolls-Royce North America - \$11.1 million

Progress by Industry Partners in FAA's CLEEN Program



- CLEEN Goals – developing and demonstrating:
 - Certifiable aircraft technology that reduces aircraft fuel burn by 33%;
 - Certifiable engine technology that reduces landing and takeoff cycle (LTO) nitrogen oxide (NO_x) emissions by 60%;
 - Certifiable aircraft technology that reduces noise levels by 32 dB cumulative;
 - “Drop-in” sustainable alternative jet fuels. “Drop-in” fuels require no modifications to aircraft or fuel supply infrastructure.

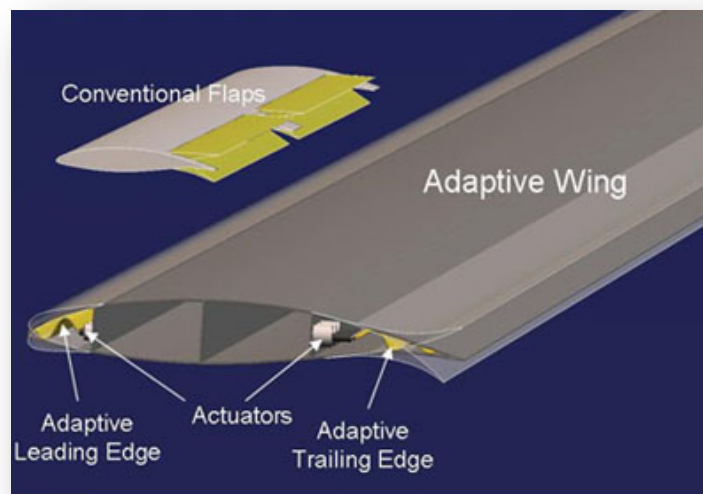
CORNERS OF THE TRADE SPACE	NextGen CLEEN Goals (2015-2018)*
Noise (cum below Stage 4)	-32 dB
LTO NO _x Emissions (Below CAEP 6)	-60%
Aircraft Fuel Burn (Relative to Current Technology)	-33%

* Timeframe for Introduction into Market

(https://www.faa.gov/about/office_org/headquarters_offices/apl/research/aircraft_technology/cleen/)



- Boeing CLEEN Program
 - Two technologies focused on reducing aircraft fuel burn by up to 2%:
 - Adaptive Trailing-Edge
 - Deploys miniature flaps to improve wing aerodynamic efficiency and decrease noise during approach
 - Ceramic Matrix Composite (CMC) Engine Nozzle
 - Withstands higher temperatures and made of lighter material, thus improving fuel consumption. Can accommodate acoustic treatments to reduce noise
 - Implementation could result in 340 million gallons of fuel saved a year, cost savings of \$1.2 billion, based on 2009 total gallons burned



(Photo Credit:
FlexSys Inc.)

Progress by Industry Partners in FAA's CLEEN Program



- GE CLEEN Program
 - Four technologies that will reduce fuel burn, emissions, and noise:
 - Open Rotor Engine
 - Initial testing on single aisle aircraft showed possible reduction in fuel burn by up to 26% and up to 15 dB cumulative noise reduction to FAA Stage 4 noise standards
 - Twin Annular Premixed Swirler (TAPS) II
 - Initial testing showed landing and take-off nitrogen oxide (NOx) emissions reduced 60%
 - Flight Management System-Air Traffic Management (FMS-ATM) System Integration
 - Trajectory synchronization will provide pilots and controllers better predictability of aircraft location, enabling fuel saving through efficient aircraft routing
 - Flight Management System-Engine Integration
 - Technology will reduce aircraft burn through efficiencies gained by adaptive engine control, integrated vehicle health management, and integrated flight-propulsion control



- Pratt & Whitney CLEEN Program
 - Ultra-high Bypass Ratio Geared Turbofan (GTF) Engine
 - Projected to reduce single aisle aircraft fuel consumption by 20% and produce a 25-dB noise reduction relative to Stage 4 noise standards

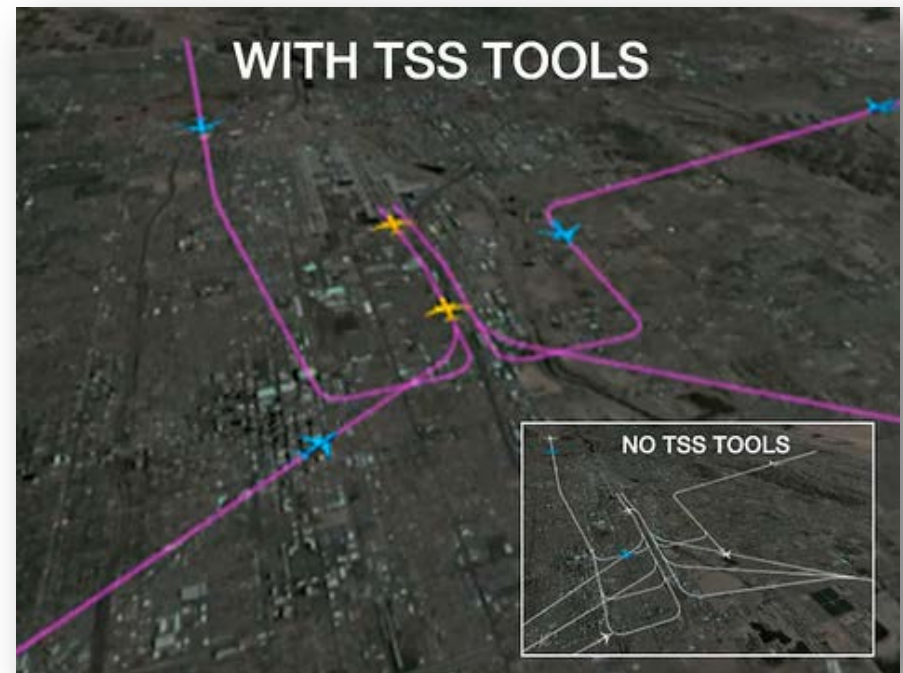


(Photo Credit: Bin im Garten, P&W)

NASA Turns Over NextGen Air Traffic Management Tool



- Terminal Sequencing and Spacing (TSS), a NASA-developed technology, was handed over to the FAA
- Will enable ATC to better manage spacing between aircraft as they fly more efficient approaches into airports, saving time and fuel consumption
- The FAA expects implementation within the next five years, targeting initial operating capability around 2018
- Full implementation date is dependent on funding availability



Study to Investigate Noise Effects on Student Achievement

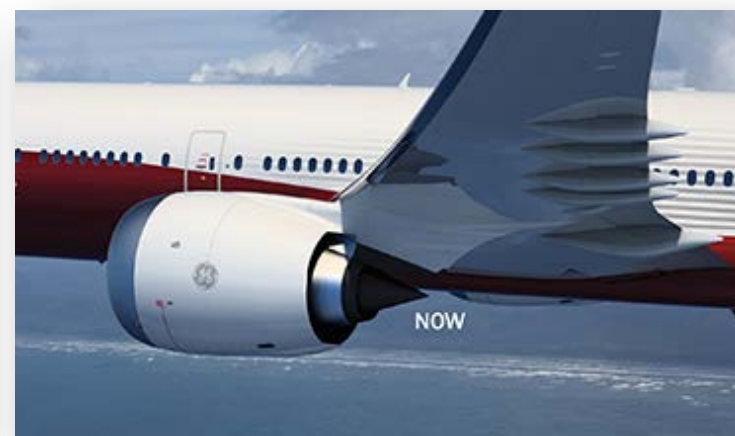


- HMMH was selected to conduct Airport Cooperative Research Program (ACRP) 02-47: “Assessing Aircraft Noise Conditions Affecting Student Achievement-Case Studies”
- Objectives:
 - Identify and measure factors that influence the impact of aircraft noise on student achievement
 - Identify metrics that define level and characteristics of aircraft noise that impact student achievement
 - Develop guidance on how to reduce impact of aircraft noise on student achievement
- Study to be completed by March 2016



What is New on The Boeing 777X?

- Span Growing by 2 feet to 235.5 feet
- Folding Wingtip design allows for wingspan of 213 feet on taxiways and at gates
- Possible use of new ceramic matrix composite (CMC) exhaust nozzle
- New nozzle design technology will eliminate the distinctive “sawtooth-shaped” chevrons on the nacelle
 - Reduces drag and provides “equivalent levels of noise for cabin and community, but is lighter in weight.”



NASA Pitches In to End Overland Supersonic Flight Ban



- On June 18th, at an annual event held by the American Institute of Aeronautics and Astronautics in Atlanta, NASA researchers presented their work on “how people on the ground perceive low sonic booms”
- The research on low-sonic boom aircraft and the characterization of the noise is in progress
- NASA said the research “Might help in the reconsideration of the current ban on supersonic flight over land.”



Comments on LAWA's Proposed FAR Part 161 Restriction



- A number of comments both supporting and opposing LAWA's proposed restriction on east departures during over-ocean or west-flow conditions were submitted to the FAA as a part of the 30-day public comment period that ended on July 26, 2014
- In addition to the LAX Roundtable, several cities, homeowner's groups, and elected officials offered strong support for the proposed restriction including the cities of El Segundo, Rancho Palos Verdes, and Palos Verdes Estates, the Westchester Neighbors and Ladera Heights Civic Associations, and Councilman Mike Bonin
- LAX Roundtable Chairman Denny Schneider stated, "These east departure operations cause sleep disturbance for thousands of residents living in the communities east and south of the airport as these easterly departures fly at very low altitudes for an extended period of time to maintain a safe distance from aircraft arriving to LAX from the east and the south."

Comments on LAWA's Proposed FAR Part 161 Restriction



- On the other hand, the Cargo Airline Association (CAA) stressed the restriction was not needed stating, “Both the Airport Noise and Capacity Act (ANCA) and Part 161 specifically require that, for a proposed regulation to be approved, it must be ‘reasonable.’
...LAWA has not demonstrated a significant noise problem and the proposed mandatory operating restriction at LAX is both unnecessary, unreasonable, and creates an undue burden on interstate and foreign commerce.”
- The CAA stated that only an average of 65 flights per year were affected and thus the restriction was not needed

Comments on LAWA's Proposed FAR Part 161 Restriction



- The CAA continued, “LAWA apparently believes that carriers will simply limit their payloads or occasionally delay individual flights until more favorable wind conditions exist, but that such operational impacts on air carrier operations and associated costs will be small. This belief is wholly at odds with an all-cargo business model that depends on guaranteed expedited time-definite service. Contrary to LAWA’s assertions, off-loading cargo and/or delaying flights which could operate on time is not a viable option – especially where, as here, the environmental benefits are *de minimis*,” the association wrote.
- The CAA urged the FAA to deny LAWA’s application, saying to rule otherwise would “find that the noise complaints of a few residents trump the public interest.”
- FAA plans to issue a decision approving or disapproving the restriction by November 8, 2014