



NASA Subsonic Transport System Level Metrics



Strategic Thrusts

1. Energy Efficiency

2. Environmental Compatibility



TECHNOLOGY BENEFITS*	TECHNOLOGY GENERATIONS (Technology Readiness Level = 4-6)		
	N+1 (2015)	N+2 (2020 ^{***})	N+3 (2025)
Noise (cum margin rel. to Stage 4)	-32 dB	-42 dB	-52 dB
LTD NOx Emissions (rel. to CAEP 5)	-60%	-75%	-80%
Cruise NOx Emissions (rel. to 2005 best in class)	-55%	-70%	-80%
Aircraft Fuel/Energy Consumption [†] (rel. to 2005 best in class)	-33%	-50%	-60%

* Projected benefits once technologies are matured and implemented by industry. Benefits vary by vehicle size and mission. N+1 and N+3 values are referenced to a 737-800 with CFM56-7B engines. N+2 values are referenced to a 777-200 with GE90 engines.
^{**} ERN's time-phased approach includes advancing "long-pole" technologies to TRL 6 by 2015.
[†] CO₂ emission benefits dependent on life-cycle CO₂e per MJ for fuel and/or energy source used.

Research addressing revolutionary far-term goals with opportunities for near-term impact