

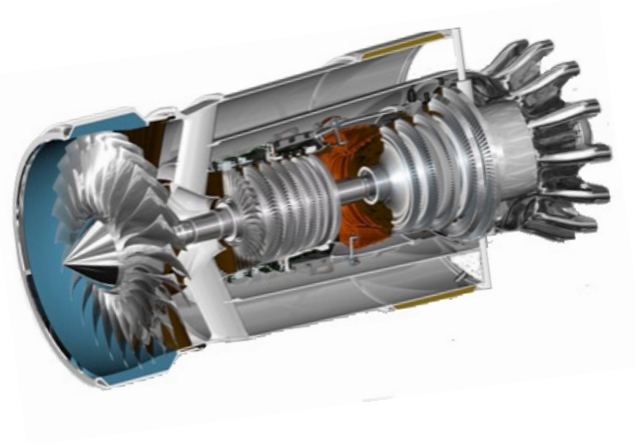
the
PurePower™ PW1000G
engine

The Economic & Environmental Solution

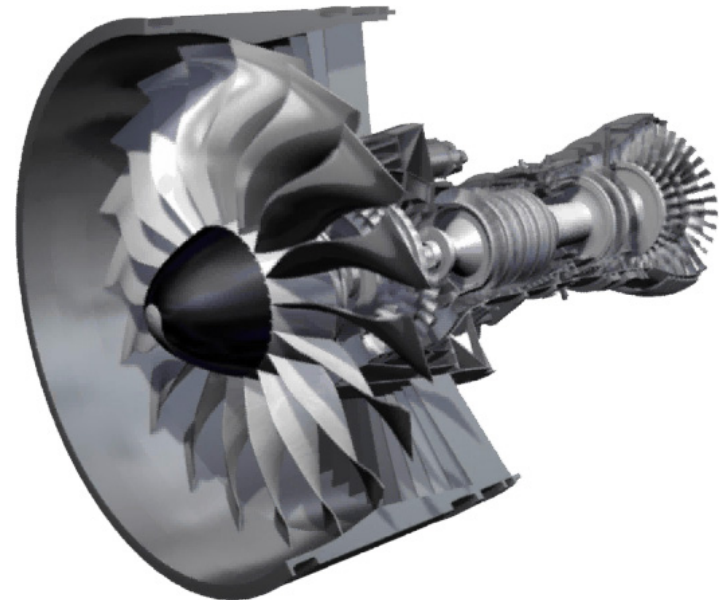
L.A. World Airports • May 13, 2009

PurePower™ Family of Engines

Advanced product offerings for multiple market segments



Corporate Jets
PurePower PW800



Regional & Mainline Jets
PurePower PW1000G

Thrust Class 10,000 - 40,000 lbf

P&W Design Objective

Lower engine operating cost greater than 20%

Cost Drivers

Fuel Burn
Maintenance Cost
Noise
Emissions
Reliability

Key Enablers

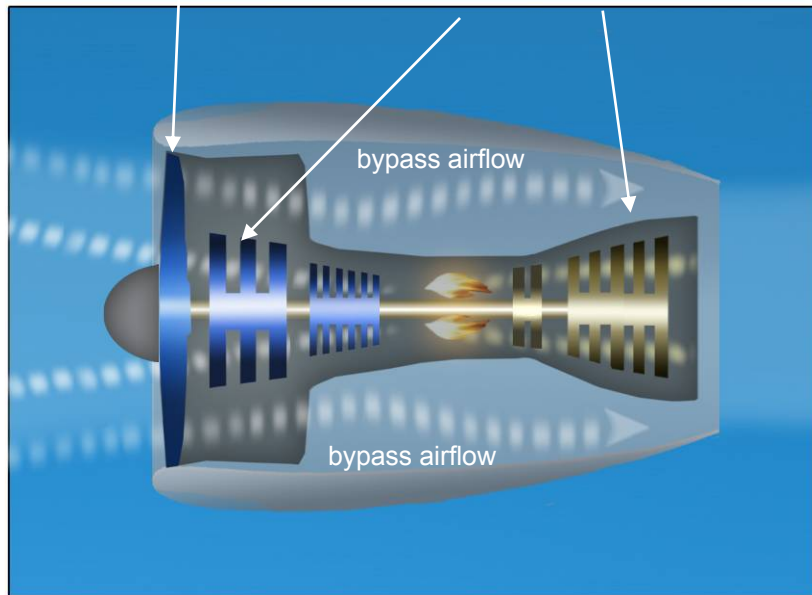
Geared Fan, Advanced Core, Improved Materials
Engine Configuration, Longer Operating Time
Geared Fan, Component Technologies
3rd Generation TALON Combustor
Matured Technology, Proven Configuration

Step Change in Efficiency

Conventional Turbofan

fan speed constrained by
low pressure spool

low compressor & low turbine
speed constrained by fan

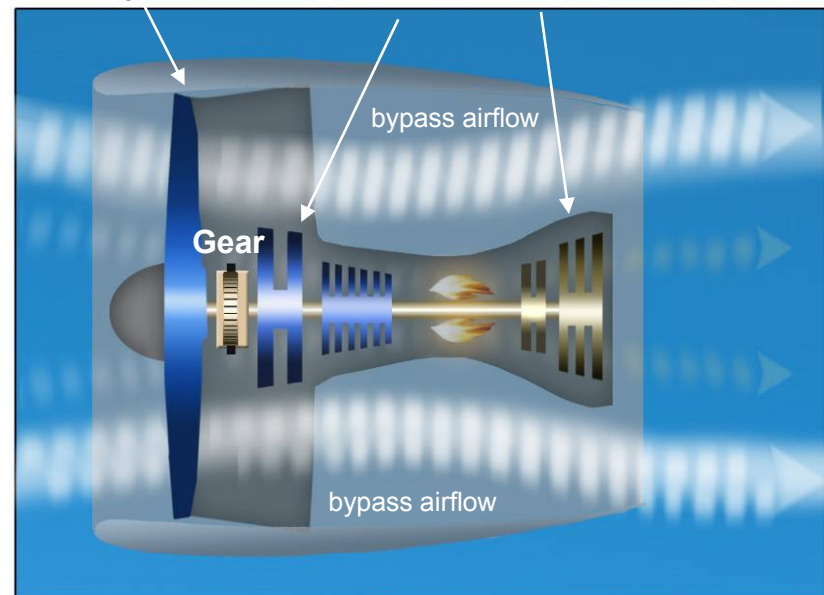


Incremental Improvement

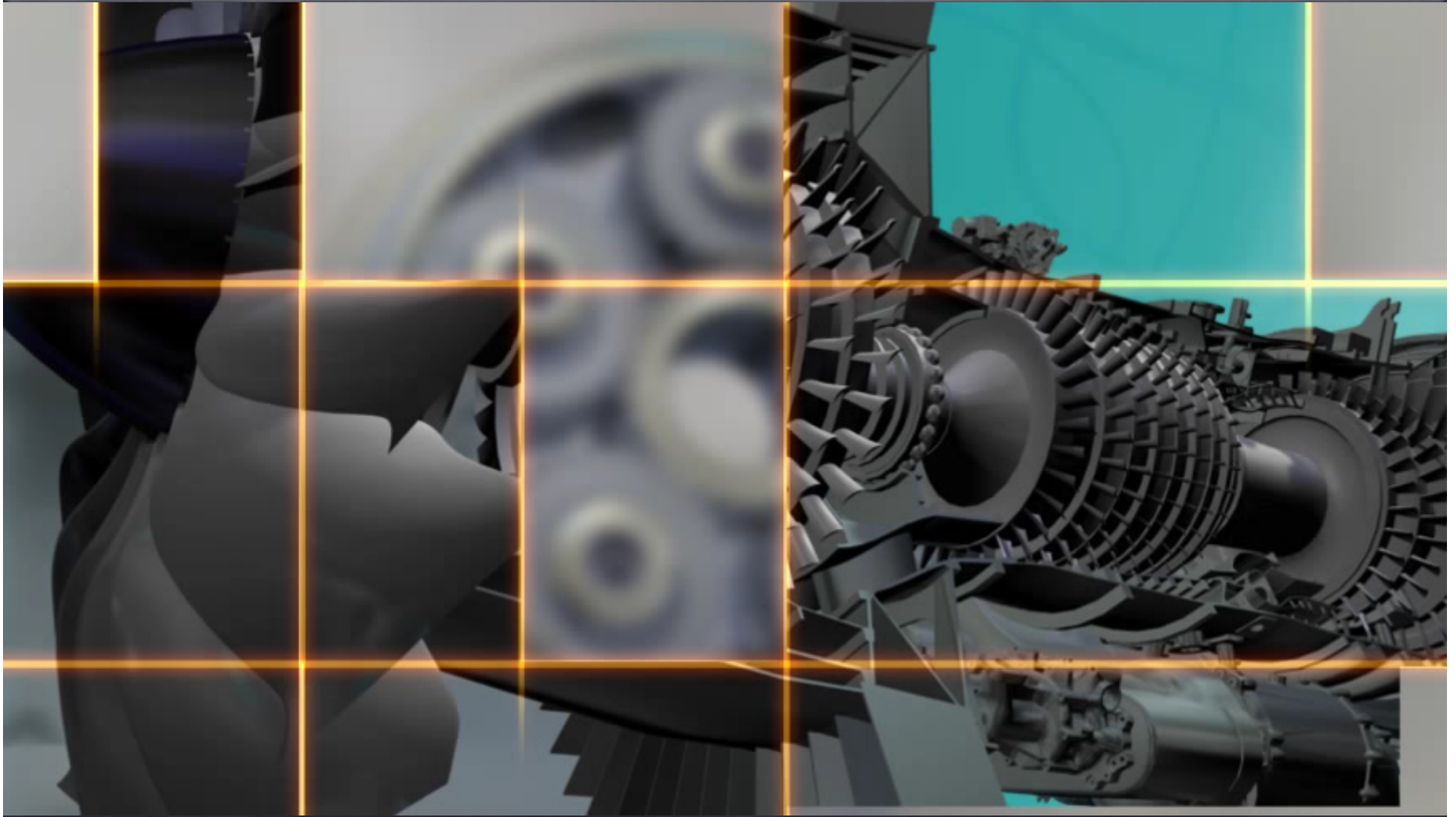
PurePower™ PW1000G Engine

ultra-efficient,
light-weight,
low-speed fan

low compressor & low turbine
speed optimized



Step-Change Improvement



Pratt & Whitney
A United Technologies Company

Step Change in Fuel Burn Savings

Per Trip



140 gallons
\$350 savings

Per Day



840 gallons
\$2,100 savings

Per Year

305,000 gallons



over \$760,000 savings

500 nm mission • 2,200 trips per year • \$2.50 per gallon



Pratt & Whitney
A United Technologies Company

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May 13, 2009

A Greener Future

PurePower™ PW1000G engine slashes CO₂ emissions



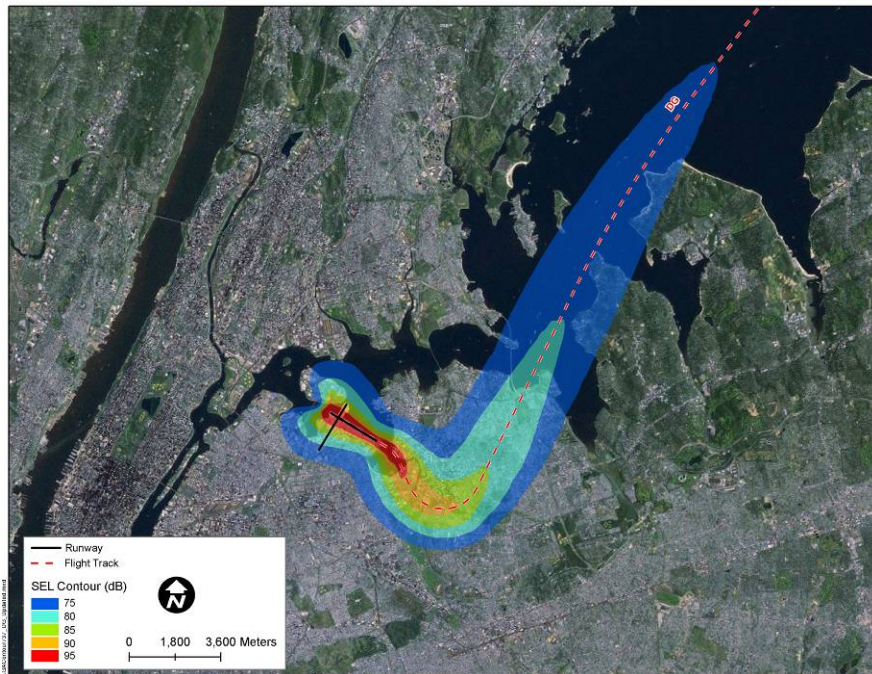
3,000 tonne reduction:
equivalent to planting over 700,000 trees



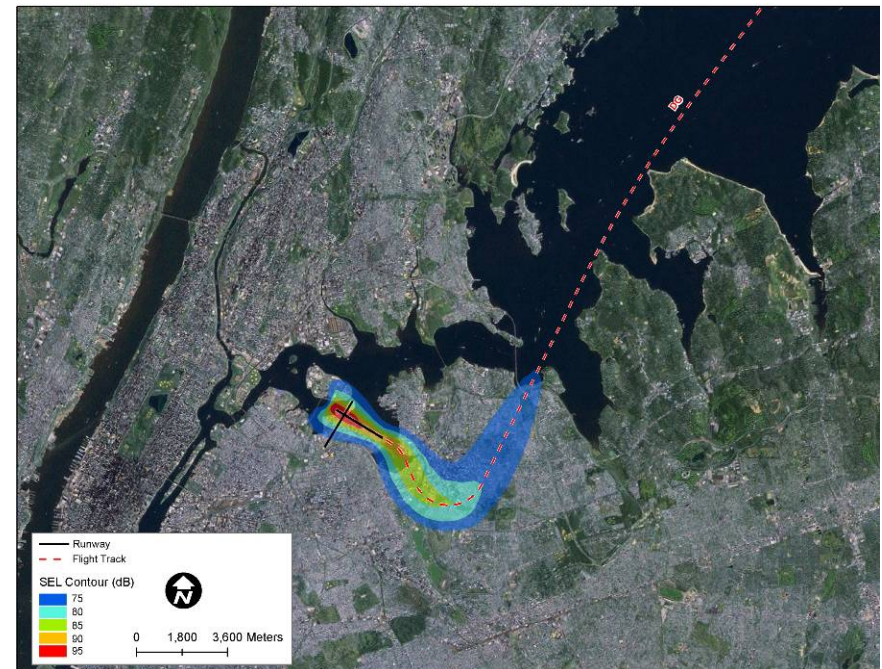
500 nm mission • 2,200 trips per year

Dramatic Reduction in Community Noise

73% reduction in noise footprint – LaGuardia (LGA)



Existing turbofan



PurePower™ PW1000G Engine

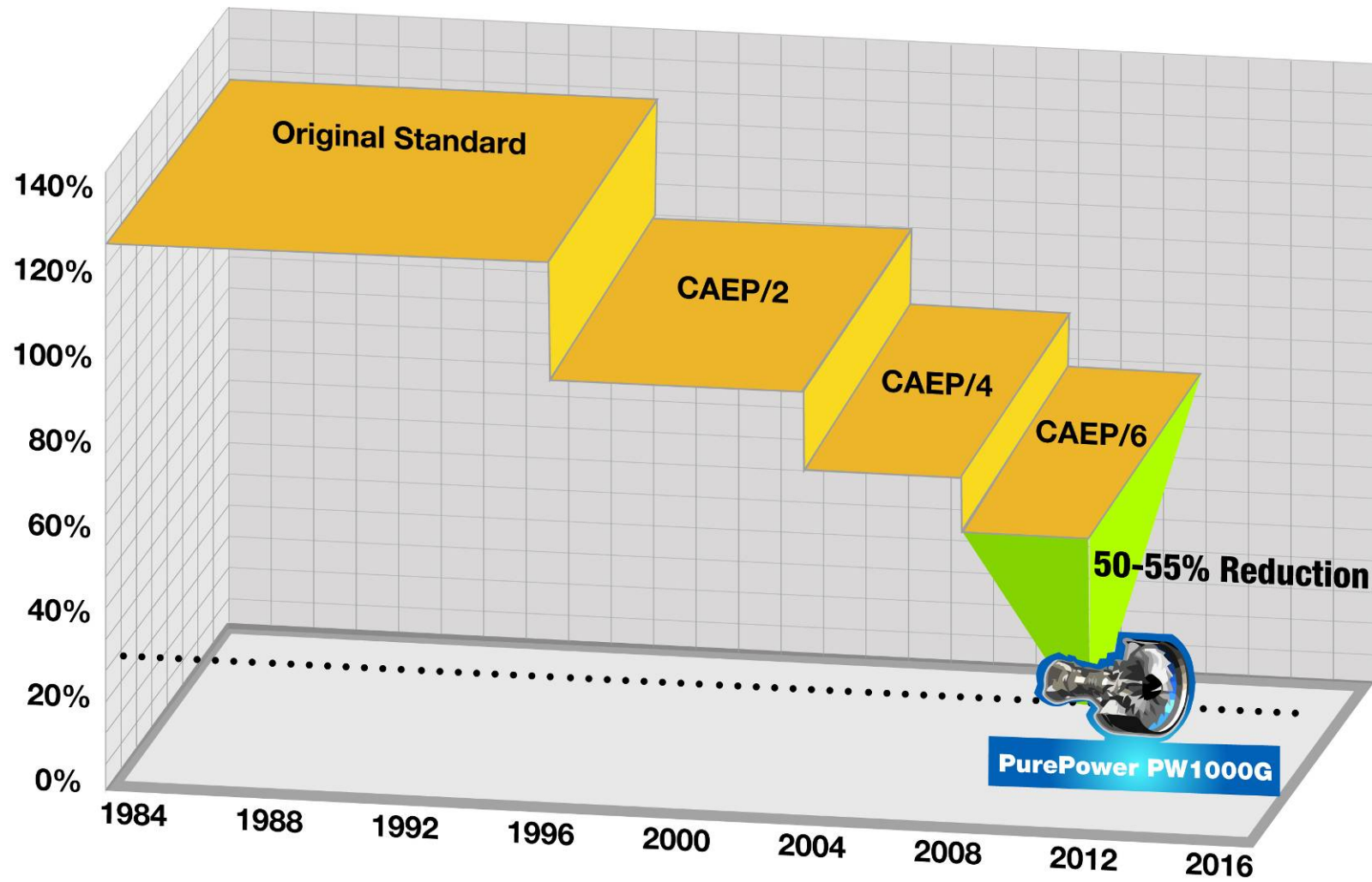
*Potential 2-3% reduction in Cash Operating Cost:
lower noise fees • direct flight tracks • curfew extensions*

Source: Wyle Labs

Existing turbofan: 75 dB contour = 34.8 sq mi
PW1000G engine: 75 dB contour = 9.5 sq mi

Significant Reduction in Emissions

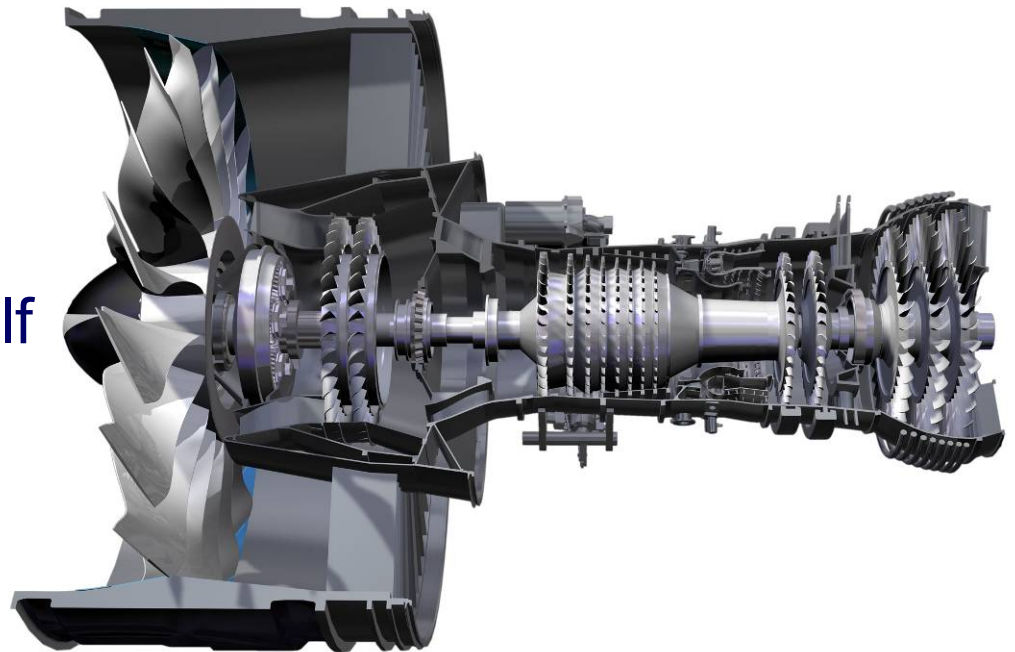
Over 50% margin to most stringent NO_x regulation



PurePower™ PW1000G Engine Benefits

Comprehensive approach to economic and environmental operation

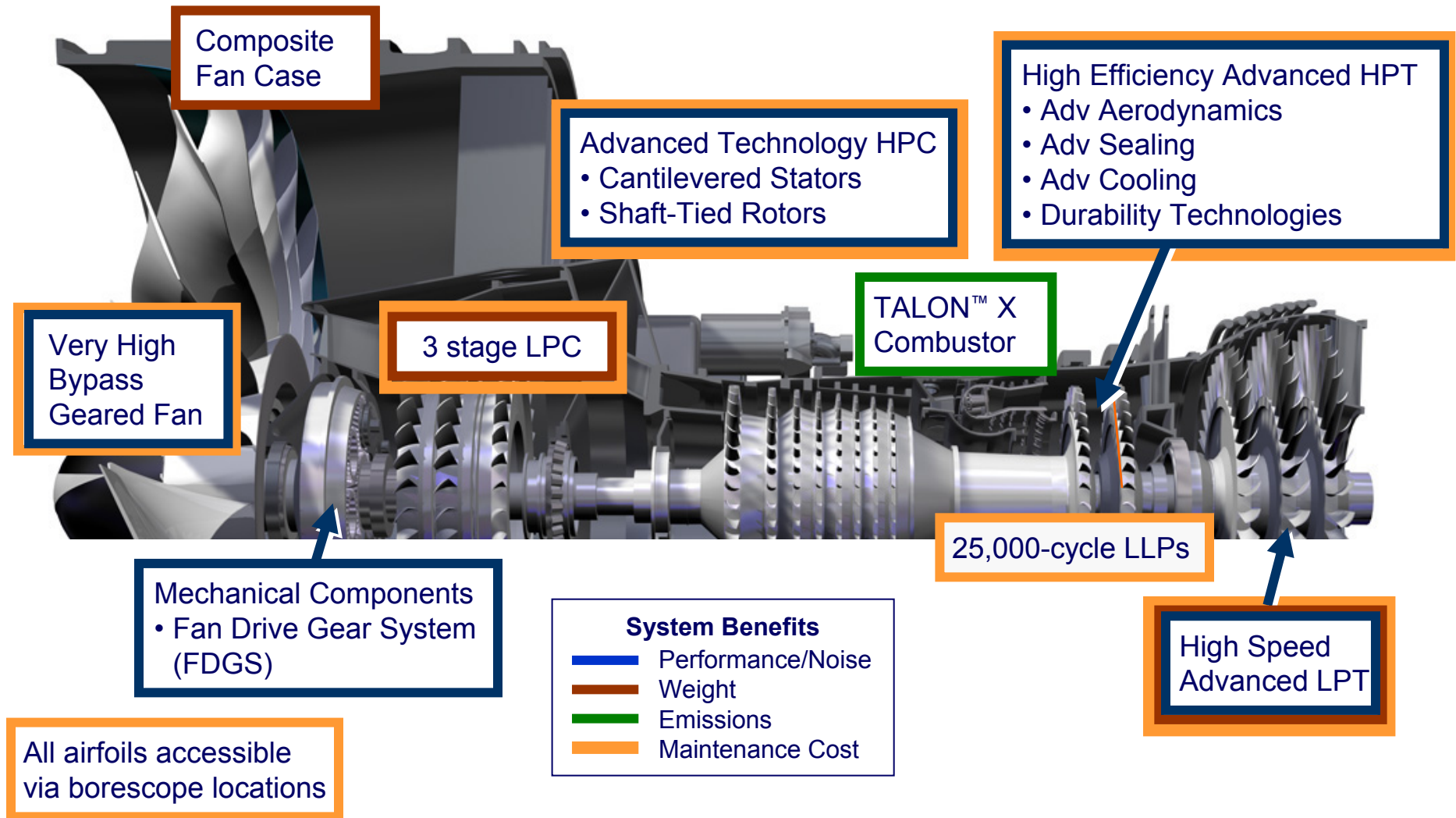
- Fuel burn improvement 12-15%
- CO₂ emissions reduced by 3,000 tonnes per aircraft per year
- NO_x emissions cut in half
- Noise levels of Stage 4 minus 20 dB
- Lower operating costs



\$1.5 million annual operating cost savings per aircraft

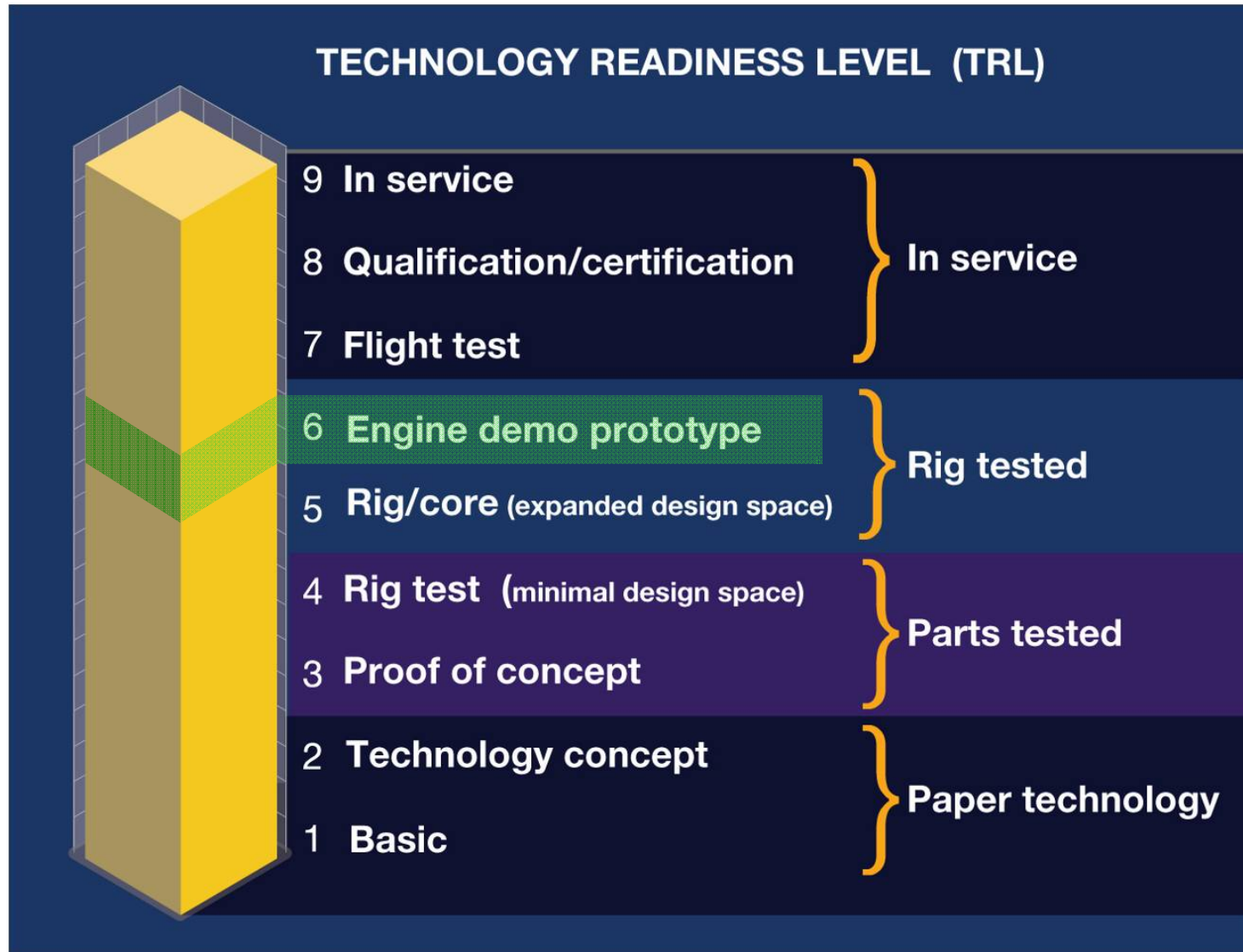
500 nm mission • 2,200 trips per year • \$2.50 per gallon

PurePower™ PW1000G Suite of Technologies



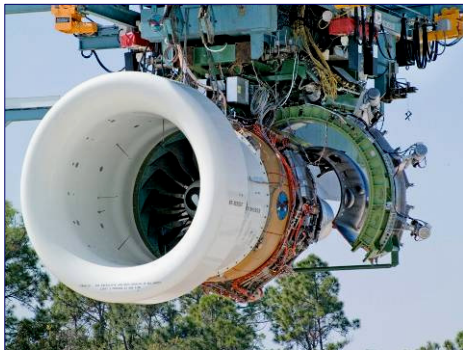
Shown: PW1524G engine for Bombardier CSeries

Key Technologies at TRL6



Technology Demonstrator Program

Over 400 hours of testing completed



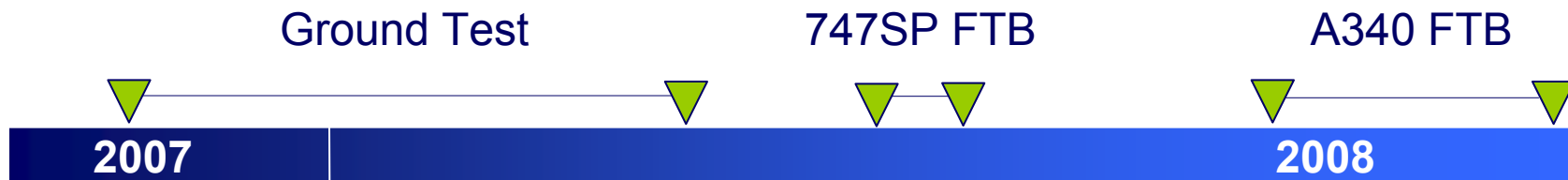
Ground Test
250 Hours



747SP Flying Test Bed
12 Flights
44 Hours

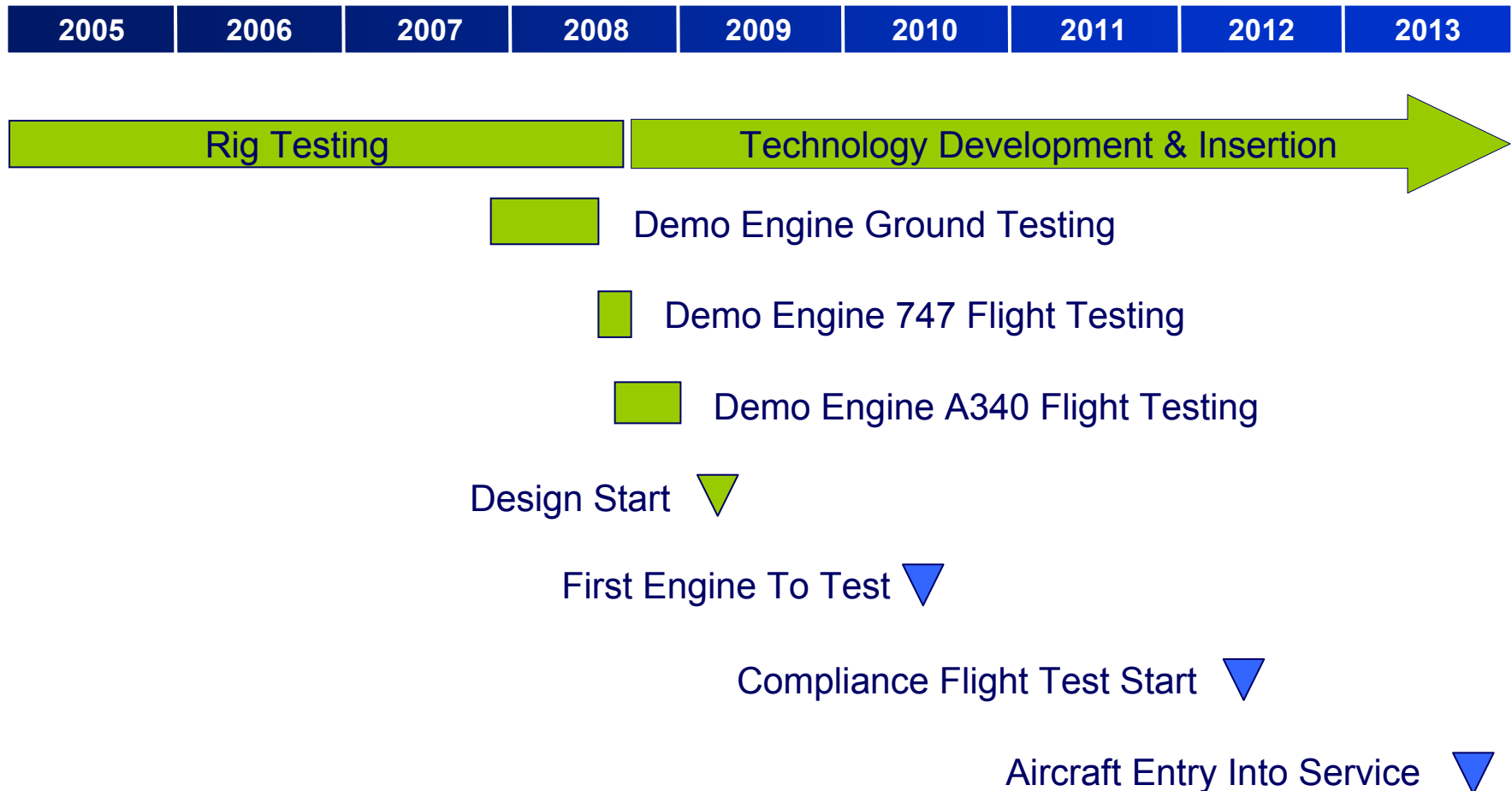


A340-600 Flying Test Bed
27 Flights
76 Hours



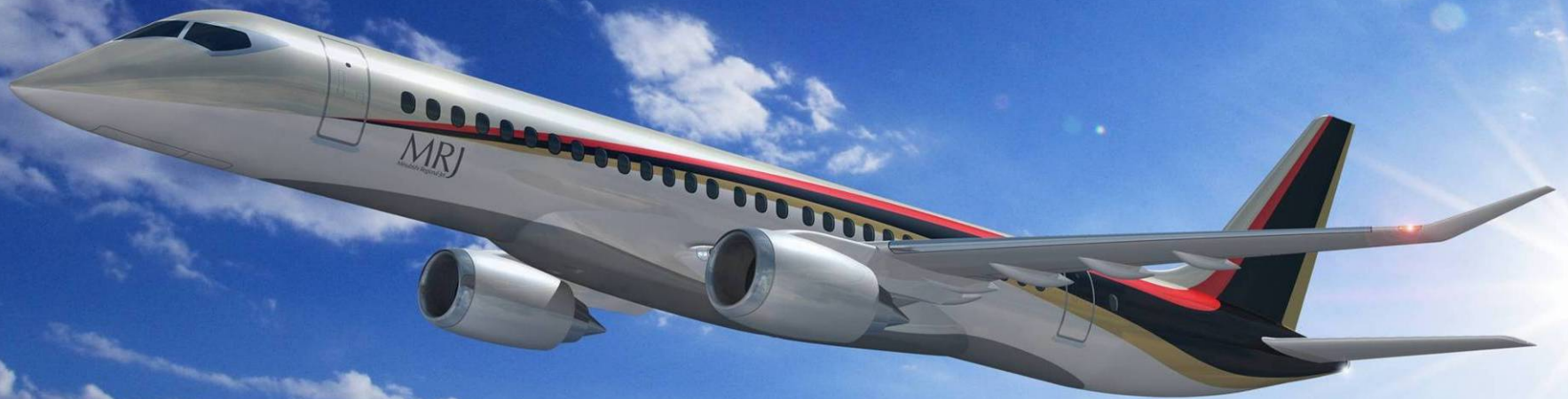
PurePower™ PW1000G Engine Schedule

On track for 2013 entry into service



PurePower™ PW1217G Engine

Exclusive power for the Mitsubishi Regional Jet (MRJ)



PurePower™ PW1524G Engine

Exclusive power for the Bombardier CSeries



LEASE CORPORATION INTERNATIONAL



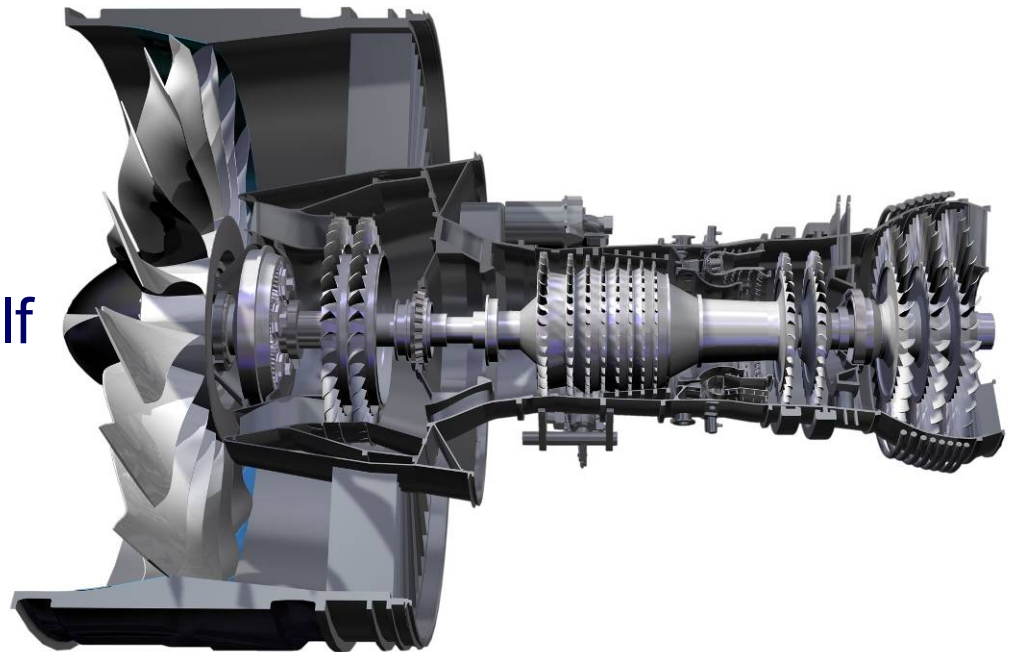
Lufthansa

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PurePower™ PW1000G Engine Benefits

Comprehensive approach to economic and environmental operation

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\$1.5 million annual operating cost savings per aircraft

500 nm mission • 2,200 trips per year • \$2.50 per gallon

PurePower™ PW1000G Engine by Pratt & Whitney



- ↓ Fuel burn
- ↓ Maintenance cost
- ↓ Emissions
- ↓ Noise
- ↓ Engine operating costs

*The comprehensive economic
and environmental solution*



