NextGen and ASPIRE
Environmental Initiatives

Presented to: ICAO Colloquium
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Date: May 12-14, 2010
NextGen Implementation Plan 2010

- Primary goal to provide new capabilities to make air transportation safer and more reliable, improve the capacity of the National Airspace System (NAS), and reduce aviation’s impact on our environment

- Greater emphasis on existing technologies and procedures

- Focus on dependencies and transformational programs

Released March 8th
NextGen Mid-Term Technologies....
NextGen Transformational Programs

Automatic Dependent Surveillance
  – Broadcast (ADS-B)
  • Infrastructure includes ground stations and aircraft avionics.

System Wide Information Management (SWIM)
  • IT infrastructure program that makes it easier for FAA to create interfaces between systems.

Network Enable Weather (NNEW)
  • Provides weather data that can be shared by internal and external users

Stages of readiness:

- Implementation
- Investment Analysis
- Concept Development

Data Communications
  • Communications Infrastructure where most functionality will flow through ERAM.
ADS-B: Nationwide Deployment with Extension to Some Non-Radar Areas

Nationwide build-out of ADS-B Ground Stations on track 2013 completion
Performance-Based Navigation
RNAV & RNP

- 211 RNAV routes
- 331 RNAV standard departure/approach procedures
- 193 RNP SAAAR procedures
Industry Engagement

FAA is committed to:

- ✔ Mitigating the business risk
- ✔ Assume some of the risk
- ✔ Work with industry on the scheduled rollout
NextGen and the Environment

- **NextGen’s Vision is to provide environmental protection that allows sustained aviation growth**

  - Through quieter, cleaner and more fuel efficient flights
  - Through use of alternative fuels, new equipment and operational procedures to lessen the impact on the climate
  - Through more precise flight paths to lessen the impact of noise
The ASIA and Pacific Initiative to Reduce Emissions (ASPIRE)

• ASPIRE is a regional approach to environmental stewardship
  • Accelerate and promote the development and implementation of operational procedures
    ➢ Reduce the environmental footprint for all phases of flight on an operation basis from gate to gate
    ➢ Facilitate regional interoperability of environmentally friendly procedures and standards
The ASIA and Pacific Initiative to Reduce Emissions (ASPIRE)

- Emphasizes
  - Best Practices for ASIA-Pacific international flights
  - Shared performance measurement
  - Collaborative efficiency improvement through enhanced procedures and technologies
  - Shared operational demonstration exercises
ICAO Colloquium on Aviation and Climate Change

Aspire: Asia and Pacific Initiative to Reduce Emissions

Airservices Australia

Airways New Zealand

Federal Aviation Administration

JCAB
Japan Civil Aviation Bureau

Qantas

JAL

United

Air New Zealand

Singapore Airlines

Civil Aviation Authority of Singapore
ASPIRE Recommended Best Practices

• Asia and Pacific procedures, practices or services that have *demonstrated* success in the reduction of fuel burn and emissions

• Examples include:
  – User Preferred Routes (UPR)
  – Dynamic Airborne Reroute Procedures (DARP)
  – Performance Based Navigation (PBN) Separation
  – Reduced Vertical Separation Minima (RVSM)
  – Optimized Profile Descents
ASPIRE Flight Concept

- The ASPIRE Partners Have Conducted Five Gate to Gate Green Flight demonstrations, involving:
  - No-Delay Taxi to Runway / No-Delay Taxi to Gate
  - Unimpeded Climb-out on Departure
  - User Preferred Routes for Oceanic Phase of Flight
  - Dynamic Airborne Reroutes (DARP)
  - Reduced Vertical Separation Minima (RVSM)
  - Cruise Climb
  - Variable Optimized Speed
  - Tailored Arrival to the Approach
**ASPIRE Flight Success**

- Demonstrate snapshot of best environmental efficiency:
  - Using today’s technology and procedures, and
  - Removing controllable constraints

<table>
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<tr>
<th>ASPIRE One</th>
<th>Air New Zealand</th>
<th>B777</th>
<th>Auckland to SFO</th>
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ASPIRE Flights
Summary Fuel Savings

101,986 Kg of CO2

- Singapore Airlines, 33,769
- Qantas Airlines, 27,995
- Japan Airlines, 14,196
- United Airlines, 14,812
- Air New Zealand, 11,214

32,386 Kg of Fuel
Find further information on ASPIRE at:

www.aspire-green.com