CAEP Analyses Supported by FAA Tools

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CAEP Analyses Supported by FAA Tools

CAEP Cycle	Subject	USG Fleet Tool	USG CO2 Tool	USG AQ Tool	USG Noise Tool	USG Impacts Tool	Base Year	Forecast
CAEP/05	Noise Standard	FOM	-	-	MAGENTA	-	1998	FESG CAEP/05
CAEP/06	Noise Trend Update	FOM	-	-	MAGENTA	-	1998	FESG CAEP/06
CAEP/06	NOx Standard	FOM	-	EDMS	-	-	2002	FESG CAEP/06
CAEP/07	Goals Assessment	FOM	AEDT/SAGE	AEDT/SAGE	AEDT/MAGENTA	-	2005	FESG CAEP/06
CAEP/08	Goals Assessment	FOM	AEDT/SAGE	AEDT/EDMS	AEDT/MAGENTA	-	2006	FESG CAEP/08
CAEP/08	NOx Standard	FOM & APMT-E	AEDT/SAGE	AEDT/EDMS	AEDT/MAGENTA	APMT-Impacts	2006	FESG CAEP/08
CAEP/09	Noise Standard	FOM & APMT-E	AEDT	AEDT	AEDT	APMT-Impacts	2006	FESG CAEP/08
CAEP/09	Fuel Trends	FOM	AEDT	-	-	-	2010	FESG CAEP/09
CAEP/10	Environmental Trends	FOM	AEDT	AEDT	AEDT	-	2010	FESG CAEP/09
CAEP/10	ASBU Assessment	FOM	AEDT	-	-	-	2010	FESG CAEP/09
CAEP/10	CO ² Standard	EDS & APMT-E	AEDT	AEDT	AEDT	APMT-Impacts	2010	FESG CAEP/09

Tool use varies with the type of analysis

- Fixed-fleet (goals) analyses use only the base year fleet-types for growth and replacement then apply improvement factors
- Technology-specific analyses use in-production and technology readiness level eight (TRL8) project aircraft

The latter is used for both Cost Effectiveness Analyses and Cost Benefit Analyses The fixed-fleet analyses use an equal manufacturer share assumption with the FOM for fleet evolution

AEDT – Aviation Environmental Design Tool APMT-E – Aviation environmental Portfolio Management Tool for Economics APMT-I – Aviation environmental Portfolio Management Tool for Impacts Analyses FLEET-Builder – FLeet Evolution, Estimation and evaluaTion Builder FOM – Fleet and Operations Module



CAEP Standard Development Overview

Tool use also varies by where CAEP is in the Standard Development process





FAA Environmental Tools History: CAEP 4 & prior





FAA Environmental Tools History: CAEP 5, 6 & 7





Current Full Aviation Environmental Tools Suite



AEDT – Aviation Environmental Design Tool APMT-E – Aviation environmental Portfolio Management Tool for Economics APMT-I – Aviation environmental Portfolio Management Tool for Impacts Analyses FLEET-Builder – FLeet Evolution, Estimation and evaluaTion Builder FOM – Fleet and Operations Module



Tools use: USG input on CAEP Metric Systems





Tools use: USG input on CAEP Stringency Options





Tools use: CAEP Stringency Option Analyses





Tools use: USG input on CAEP Standard Levels





Summary

The USG brings extensive analytical capabilities to ICAO with the current Aviation Environmental Tools Suite

However, these capabilities have been in use for a relatively short time, and CAEP is still in a learning mode about some of the tools

Which tools are used varies with the type of analysis and where CAEP is in the Standard Development process

Aircraft design and rapid analysis tools have been used to inform development of Metric Systems and Stringency Options for Standards

Cost Effectiveness Analyses for CAEP Standards development are informed by the fleet evolution, cost, noise and emissions tools

Monetizing environmental benefits and Cost Benefit Analysis tools are being investigated by CAEP

Continuing tools improvement will benefit CAEP (e.g., nvPM and fleet evolution)

The process for agreeing assumptions and an analysis framework for developing each CAEP Standard has complexities that are independent of the supporting tools

