



Future CoE Emissions R&D Plans

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Rationale

- ❖ Increasingly stringent CAA ozone and particulate matter emissions standards, and increasing concerns over air toxic emissions from aviation as a health risk.
- ❖ **Uncertainties in the scientific understanding of aviation's influence on local air quality and climate change.**
- ❖ Local air quality requirements and international emissions-based agreements as a potential barrier to increasing capacity of the NAS.
- ❖ **Unified government, industry, and academia efforts to understand and minimize aviation emissions and facilitate technological/scientific advancement.**
- ❖ Adequacy and efficiency of emissions certification regulations and procedures in pace with state of the art.



Program Structure

❖ Aviation Emissions

- Technology development and assessment
- Certification regulations, procedures and guidance
- Computer models and databases
- Assessment methodologies
- Estimating emissions inventories
- Atmospheric and Health effects, including impact of hazardous air pollutants
- Analyzing mitigation measures



Program Outcomes

- ❖ Minimum global, regional, and local impacts of aviation emissions without detriment to system safety and efficiency.
- ❖ Enable FAA to fulfill responsibilities under Clean Air Act (CAA) and National Environmental Policy Act.
- ❖ **Characterization and understanding of emissions impacts for CAA compliance, to support increased airport capacity.**
- ❖ Emissions modeling capability to facilitate understanding of changing aviation system and its effects on the atmosphere.
- ❖ Reduced cost of emissions certification while maintaining integrity of process.



Program Outputs

- ❖ Technological, scientific, environmental, and economic bases to establish future standards and certification regulations.
- ❖ Tools to understand aviation's impact and give insight into consequences of alternative courses of action.
- ❖ Validated estimates of emissions for all phases of flight and analysis of various technology and operational scenarios.
- ❖ Identification and assessment of measures to mitigate the impact of aviation emissions.
- ❖ Technical reports, handbooks, AC's, training courses, and procedural guidance materials for use by industry, FAA field personnel and designees.



Future CoE Technology Areas

- ❖ **Atmospheric Effects of Aviation Emissions**
 - Assess the state of science/knowledge
 - Conduct atmospheric measurement campaigns
 - Develop metrics and methodologies to assess relative impact
 - Identify thresholds of significant impact to aid development of practical mitigation solutions
- ❖ **Health Effects of Aviation Emissions**
 - Assess the state of science/knowledge
 - Conduct source apportionment studies
 - Develop metrics and methodologies to assess relative impact
 - Identify thresholds of significant impact to aid development of practical mitigation solutions