State Policy Options to Reduce Airport-Related Emissions

Steve Winkelman

Manager of Transportation

Maryland Airports Workshop

December 5, 2001

About the Center for Clean Air Policy

- Environmental think-tank and advocacy group, founded in 1985 by progressive state governors to help find a market-based approach to reducing acid rain.
- Working to apply similar cost-effective approaches to reducing ozone, greenhouse gases, air toxics.
- Active participant in EPA/FAA National NOx Stakeholder Initiative
- Observer to the International Civil Aviation Organization and its Committee on Aviation Environmental Protection.
- On-going effort to investigate policy measures for addressing aviation emissions.
- Transportation and climate change efforts

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Presentation Outline

- Emissions Standards
- Activity Limits
- Cap-and-Trade
- Fee-based
- High-speed rail
- Reducing passenger trips to/from airport

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Aircraft Standards: Overview

- Rate based (i.e., g/kN)
  - Doesn't account for aggregate emissions.
- Not typically been "technology-forcing"
- Applies only to newly designed or certificated engines
  - w/ slow fleet turnover many engines are in airline fleet for long periods of time (e.g., 10-30 yrs.)
- Based upon engine emissions characteristic
  - Doesn't account for emissions attributable to airframe design and condition

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Legal Overview: Aircraft Standards

- Efforts undertaken to harmonize international standards through the International Civil Aviation Organization (ICAO)
  - National sovereignty allows countries to go beyond ICAO standards.
  - Because of competition concerns most countries align standards w/ int'l ones
- EPA given sole authority to establish aircraft standards (in consultation w/ DOT)

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State Action on New Aircraft Standard

- State could petition EPA (and possibly DOT) to set stricter standards
  - Denial of petition would be reviewable by the courts
  - Petition would need to include "new information"
- States could encourage the phase-out of dirtier aircraft and investment in cleaner aircraft
  - What "carrots" could be used?
    - Voluntary agreement?
    - Financial incentives?
    - Others?

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GSE and GAV Standards: Overview

- GAV: Tier II standards will have an impact on GAV emissions

$\Rightarrow$ States can't establish standards

- GSE: standards for diesel engines have been developed; standards proposed for gasoline engines.

$\Rightarrow$ States may not set emissions standards for non-road engines

  - EPA can authorize California to adopt emissions standards and other states may adopt the same standard

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Activity Limits: Overview

- Limits placed on the total number of operations, hours of use, etc. at an airport
  - Unlikely to differentiate emissions intensities of emissions sources.
  - Likely to raise political and economic complaints, except where airport is already constrained.
- Limited ability to place activity limits on aircraft
  - FAA establishes activity levels only on the basis of safety concerns.
  - Operations may be shifted to another airport in region.

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Legal Overview: Activity Limits

⇒States can't establish engine standards, but…

- For GAV: States can include Transportation Control Measures as part of SIP

- For GSE: States may be able to regulate the use and operation of non-road engines
  - Such as regulations on hours of use and daily mass emission limits.

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Limit GAV & GSE Activity

- GSE: States could include program to limit emissions from GSE as part of SIP
  - Program must not create an "emissions standard"

⇒Similar to Texas voluntary agreement with the airlines to reduce GSE emissions in Dallas-Forth Worth & Houston areas

- GAV: States could implement TCMs for airport sources
  - e.g., traffic flow controls and idling restrictions

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Cap-and-Trade via "Bubble": Overview

- Cap placed on total airport emissions or from specific covered sources (e.g., aircraft)
  - Airport authority or individual emitters could be responsible for maintaining emissions below cap.
- Provides Flexibility
  - Emissions from individual source(s) may vary, as long as overall cap is not exceeded.
- Cost-effectiveness
  - Encourages the lowest-cost option
- Aggregate emissions are known

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Bubble in Operation: Logan "Air Quality Initiative"

- Logan Airport is the first to cap airport emissions
  - Arose out of discussions concerning airport expansion
- Massport voluntarily agreed to cap airport NOx and VOC emissions capped at 1999 levels.
- Massport is responsible for maintaining emissions below the cap.
- Massport pays for emissions reductions on- or off-airport facility.
- Cost of emissions reductions is passed on to airlines by increasing overall landing fees.

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Legal Overview: Airport Bubble

- States can require "indirect source" reviews as part of SIP including:
  - any measures "necessary to assure…that a new or modified indirect sources will not attract mobile sources" such as to cause compliance problems.

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Introduce Airport "Bubble"

- States may be able to "encourage" introduction of airport bubble by airport proprietor at new or expanded airports.
  - As part of "indirect source" review program OR
  - voluntary agreements.
- Responsibility for maintaining cap could be assigned to individual emitters.
- Could expand bubble to more than one airport in a state OR to whole region (e.g., OTC)
  - Avoid 'leakage'
  - Greater flexibility, opportunity for cost savings

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Fee-based: Overview

- Emissions sources are charged a fee for emissions from their sources
  - Can be a differentiated charge based upon emissions profile (i.e., higher emitters pay higher amount).
- Emissions result is unknown, since depends on entities response to price signals
  - Small price signals could have limited impact
    - e.g., landing fees are around 2-3% of airline operating costs.
- Likely candidate is aircraft emissions, but could be applied to other sources.

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Fee-based Programs in Operation

- Swiss and Swedish Program
  - Higher emitting aircraft are charged a higher landing fee.
  - Overall landing fees held constant (i.e., is revenue-neutral)
- Logan "Air Quality Initiative"
  - Overall landing fees increased to pay for emissions reductions to maintain cap
  - Initially is weight-based, but aim to have differentiated fees for higher emitting aircraft, in the future.

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Legal Overview: Fee-based

- States may be able to apply emissions-based landing fees on airports that the state (or a political subdivision) owns or operates.
- Fee must be "reasonable" and used wholly for "airport or aeronautical purposes".
  - "Reasonable" includes cost of "remediating environmental contamination"
  - Fee could possibly be used for off-site reductions.

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Introduce Emissions-based Landing Fees

- States that act as owners or operators of the airport could introduce emissions-based landing fees
  - Airlines are charged a higher fee according to emissions profile of their airport fleet.
- Fee could be revenue-neutral by reducing other landing fees OR could increase overall landing fees.

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Improving GSE & GAV Fleet Emissions: Overview

- Promote or require purchase of cleaner vehicles when equipment added to fleet OR
- Develop a declining fleet emissions target.
- Or combinations of the two modelled after the federal Urban Bus Program

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Introduction of Fleet Requirements

- States w/ CA standards may be able to require new or replaced fleet vehicles to meet AFV definitions, including require that they meet ULEV
  - States w/o CA standards could require these vehicles be alt. fuel, but couldn't specify emissions level.
- Fleet emission requirements could be established,
  - as long as operator has options available w/o modifying the engines.
- Airport authority can establish overall fleet emissions requirements, but not rates.

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High-speed Rail: Overview

- Greater use of high-speed rail (HSR) can reduce short-haul flights between certain city pairs.
- States could expand/introduce HSR service for routes where it can be competitive w/ air travel.
- Key issues affecting competitiveness w/ air travel
  - Distance btwn city pairs, and density of travel route
  - Costs and benefits compared to alternative modes
- May help relieve airport congestion
- OTC could consider a resolution supporting HSR and a regional study on HSR potential and impacts

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Transit for Passenger Ground Access

- Improving/expanding transit can reduce emissions
- Airports and transit agencies could:
  - Increase service frequency to airport
  - Provide transit benefits to airport employees
  - Examine parking pricing policies/subsidies
  - Add baggage check-in at transit station (like in Atlanta)
  - Add priority bus lanes w/in the airport and on approach
  - Improve bus stops (location, lighting, heat, phone)
  - Modify vehicles to accommodate baggage (low floors)
  - Consider building rail service to airport
- OTC could developing best practice guidance on airport transit access

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Conclusions

- Promising policy options are available to control airport-related emissions:
  - Petition for new standard
  - Controls on GSE use and operation
  - Emissions cap-and-trade via airport “bubble”
  - Emissions-based landing fees
  - Improving/expanding airport transit service
  - Expand High Speed Rail network

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Conclusions (cont.)

- Legal barriers exist, but opportunities still available for state action.
  - Courts haven't ruled directly on many aviation issues.
  - Policies highlighted could possibly withstand legal challenge, but final ruling is unclear.
- Key considerations include:
  - What works for your state?
  - Are there opportunities to introduce coordinated regional approaches?

Airport “Bubble”: Key Design Issues

- Who’s responsible for maintaining the cap?
  - Airport authority
    - Is responsibility further delegated to individual emitters?
  - Individual emitters (e.g., airlines)
- What sources are included?
  - Aircraft
  - Ground Support Equipment
  - GAV “Inside the Fence”
  - GAV to/from airport

Key Design Issues for "Bubble"

- What is the emissions limit?
  - reduction from projected emissions levels
  - stabilization of current emissions
  - reduction from current emissions levels
- How Big of a Bubble?
  - Single airport
  - Multiple airports in state
  - Multiple airports in region -- e.g., Ozone Transport Region

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Key Design Issues (cont.)

- Can sources substitute reductions outside the bubble (in replace of reductions inside)?
  - from other transportation, point, area sources
  - purchase from emissions market
- Others (e.g., allocation method, monitoring, verification, and reporting)

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