ACRP 02-82
Developing a Roadmap to Achieve Zero Emissions at Airports
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Research Team

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FURTHER, FASTER, TOGETHER
Roadmap Methodology, which provides airports a scalable, step-by-step process to create their own, unique Zero Emission Roadmap

Guidebook, which provides detailed context and guidance on emissions planning at airports.
Emission Scopes at Airports

Scope 1
Direct emissions associated with airport activities

Scope 2
Indirect emissions from purchased energy

Scope 3
Indirect emissions as a consequence of the airport’s activities

**Percentages in graphic are illustrative only**
Key Research Questions

What is the definition of a “zero emission airport?”

How to make a business case for zero emission programs?

How can airports track performance relative to other airports?

How can an airport develop an enabling environment towards zero emissions planning?

Which stakeholders are needed for successful zero emission programs?

What best practices regarding zero emission planning can be shared between airports?

How can airports prioritize and sequence zero emission initiatives?
Data gathering:

- Literature review including
- 20 Interviews including European and Asian airports
- Development of guidebook and roadmap methodology
- Validation testing with three airports
- Oversight panel of ~10 airport environmental planners and practitioners
**Phase I**
1-2 months
Initial Discovery
- Task 1 – Project Initiation
  - Deliverables
    - Amplified Work Plan
    - Kick-off Teleconference
- Task 2 – Literature Review
  - Deliverables
    - Literature Review Summary

**Phase II**
2-7 months
Data Collection
- Task 3 – Data Collection Plan
  - Deliverables
    - Data Collection Plan
- Task 4 – Interviews
  - Deliverables
    - Interview Findings
    - Summary

**Phase III**
7-11 months
Validation
- Task 5 – Guidebook Outline, Validation Plan of Roadmap Methodology, and Interim Report
  - Deliverables
    - Guidebook Outline
    - Validation Plan
    - Interim Report
    - Interim Meeting
- Task 6 – Preliminary Guidebook and Roadmap Methodology
  - Deliverables
    - Preliminary Guidebook
    - Preliminary Roadmap Methodology
- Task 7 – Piloting of Roadmap Methodology
  - Deliverables
    - Airport Pilots
    - Summary

**Phase IV**
11-16 months
Final Deliverables
- Task 8 – Draft Final Deliverables
  - Deliverables
    - Draft Guidebook
    - Draft Roadmap Methodology
- Task 9 – Final Deliverables
  - Deliverables
    - Final Guidebook
    - Final Roadmap Methodology
    - Final Report
    - Final Implementation Memorandum
Literature Review Sources

- Airport guidance and tools related to quantifying, tracking, and mitigating emissions.
- Stakeholder outreach materials related to zero emission visioning.
- Airport strategic plans, sustainability management plans, roadmaps.
- Airport financing and budget sources for alternative fuels, renewable energy, energy efficiency, and offsets.
- Regulations, incentives, and policies related to emissions management.
- State and municipal zero emission planning documents.
## Interviewees

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<th>Airports</th>
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<tr>
<td>Amsterdam Airport Schiphol (Netherlands)</td>
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<tr>
<td>Dallas/Fort Worth International Airport (U.S.)</td>
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<td>Hong Kong (China)</td>
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<td>Indira Ghandi International Airport (India)</td>
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<td>Montréal–Pierre Elliott Trudeau International Airport (Canada)</td>
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<td>Nantucket Memorial Airport (U.S.)</td>
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<td>San Diego International Airport (U.S.)</td>
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<td>Seattle-Tacoma International Airport (U.S.)</td>
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<td>Swedavia (Sweden)</td>
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<td>TAG London Farnborough Airport (U.K.)</td>
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<td>Toronto Pearson International Airport (Canada)</td>
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*Also interviewed 8 non-airports related to zero emission planning*
Guidebook Contents

- Engagement and building your team
- Business case for zero emissions
- Regulatory environment and voluntary emissions reduction programs
- Establishing your baseline and identifying goals
- Identifying and prioritizing emission reduction strategies
- External funding opportunities
- Integration with airport planning
- Identifying metrics and benchmarks
Usability of Research

- Airports will use deliverables to build their own zero emission roadmap
- Intent to use numerous call-out box examples, demonstrating real-world zero emissions planning
- Strategies to build buy-in from skeptic decision-makers of the value of zero emissions planning
- Extensive validation testing to ensure, on the whole, the Roadmap Methodology and Guidebook are implementable
Thank You

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