

ACRP 02-82

Developing a Roadmap to Achieve Zero Emissions at Airports

**Cian Fields, Senior Analyst
The Cadmus Group LLC**



ACRP AIRPORT
COOPERATIVE
RESEARCH
PROGRAM

CADMUS



FURTHER, FASTER, TOGETHER

Project Outcomes

- ✈ 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



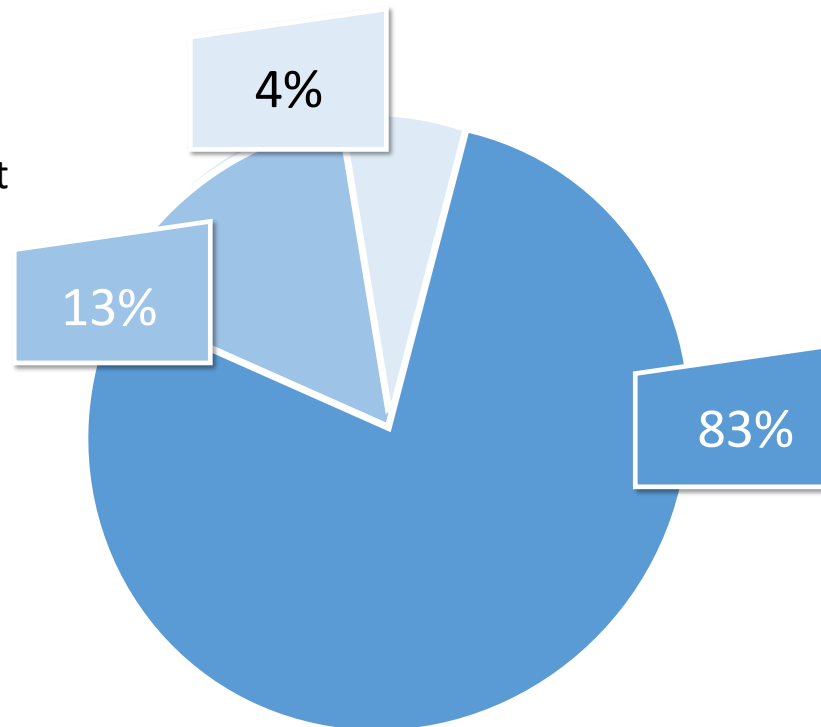
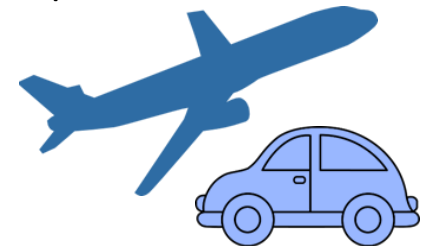
Scope 2

Indirect emissions from purchased energy



Scope 3

Indirect emissions as a consequence of the airport's activities



****Percentages in graphic are illustrative only**

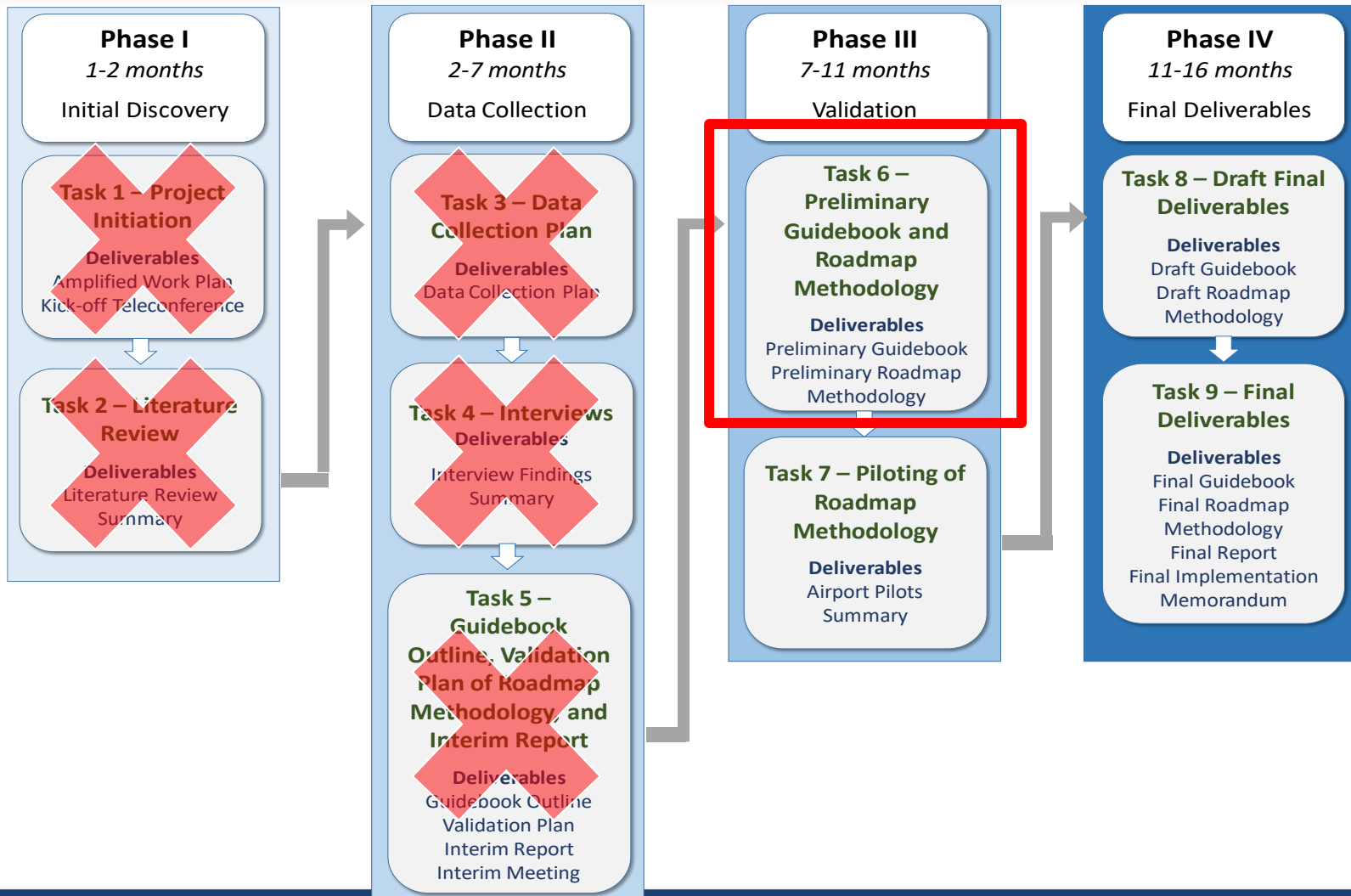
Key Research Questions

- ✈️ 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?

Approach

- ✈ 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

Project Status



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

Airports
Amsterdam Airport Schiphol (Netherlands)
Dallas/Fort Worth International Airport (U.S.)
Hong Kong (China)
Indira Ghandi International Airport (India)
Montréal–Pierre Elliott Trudeau International Airport (Canada)
Nantucket Memorial Airport (U.S.)
San Diego International Airport (U.S.)
San Francisco International Airport (U.S.)
Seattle-Tacoma International Airport (U.S.)
Swedavia (Sweden)
TAG London Farnborough Airport (U.K.)
Toronto Pearson International Airport (Canada)

*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

Cian Fields, Senior Analyst

(240) 204-6241

Cian.Fields@cadmusgroup.com

Washington, D.C.

CADMUS