

Green Skies Over Akron: "Revolutionizing CAK with a \$20M Sustainability Blueprint"

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INTRODUCTION

Abstract: In a daring leap towards eco-innovation, the Akron-Canton Airport (CAK) is poised to become the most eVTOL-friendly airport in the United States with our \$20 million electrical master plan. This visionary project is set to catalyze a greener future for over 5 million residents, drastically curtail carbon emissions, and propel the airport to the forefront of Advanced Air Mobility (AAM).

Background: Our CAK stakeholders intend to leverage 80 acres for aeronautical development, to transition the '\$1 Billion' annual economic activity airport into a sustainable future. This pivotal shift to sustainable energy and advanced air mobility promises not only to optimize operational costs but also to spawn new business ventures and enhance regional connectivity.

HYPOTHESIS

Hypothesis: Implementing the electrical master plan with solar power and eVTOL infrastructure at Akron-Canton Airport will significantly cut energy costs and emissions, leading to economic viability and environmental sustainability within two years.

Constraints: The airport executives shared their interest to modify the airport's current Master Plan before implementing any other changes. These modifications include moving taxiways, repositioning of hangars, avoiding wetlands, proposing a new ATC tower location, and segmenting ASOS and RADAR signals. We created a modified version to build upon:

Discovery & Industry Analysis: Through site visits, analysis of existing green initiatives at airports like Denver, and consultations with stakeholders, a tailored, viable, and desirable solution was meticulously crafted.



Current e- Infrastructure



Denver's Energy Master Plan



Airport e- Publications



Tour (BETA Charging station)

RESULTS

Energy Efficiency: From our analysis, and calculations; Solar installations at CAK are projected to generate significantly over 400 MWH monthly, fully meeting the airport's energy needs and producing a surplus. With an investment of \$18M - \$23M from Grants we found, CAK stands to NET over \$330K annually from energy savings and sales post-completion.



CAK as of 2023



Constraints-based Modification

CAK MONTHLY
400 MWH *
 Average Energy used in a month in CAK

IT TAKES
35/55 ACRES

**To power all of CAK with 20 Acres in excess energy



Result 1: 55 Acres of Solar Panels

THIS WILL COST
\$18M - \$23M †
 Over 2 years

REVENUE
330K+

Annually. Based on OH Edison's Net Energy Metering



Result 2: Vertiports & AAM Center

Next Steps:



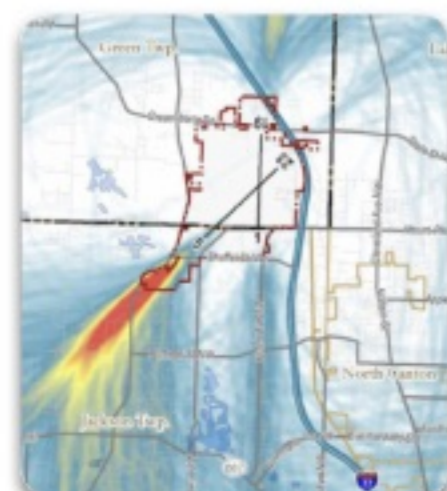
Sponsorships & Partnerships

METHODOLOGY

Site Analysis: The research utilized airport layout analysis for solar and eVTOL placement, air traffic and noise pollution studies for operational safety, and aerial imagery to guide for minimal environmental impact.



Airport Diagram



Flight Density Analysis



Dark Space Analysis



Noise Exposure Analysis

CONCLUSIONS

This designed electrical master plan is not just an infrastructure upgrade; it's provides a future-proof business model that can set CAK as the AAM capital for Ohio and even the nation; additional next steps include securing funding partnerships and initiating installations, ensuring compliance with aviation regulations.

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APPENDIX

- *4960MWH Annually. Energy values derived from V.P., Finance at CAK
- **Based on Calculations made on pivotal inference for region.
- † Range based on calculations from Indianapolis' Solar Facility
- 15 Research References available upon request.