

Florida Airports Council 2025 Education & Training Summit

Environmental – Airport

Energy Management: Is your Future Electric?

Friday May 9, 2025

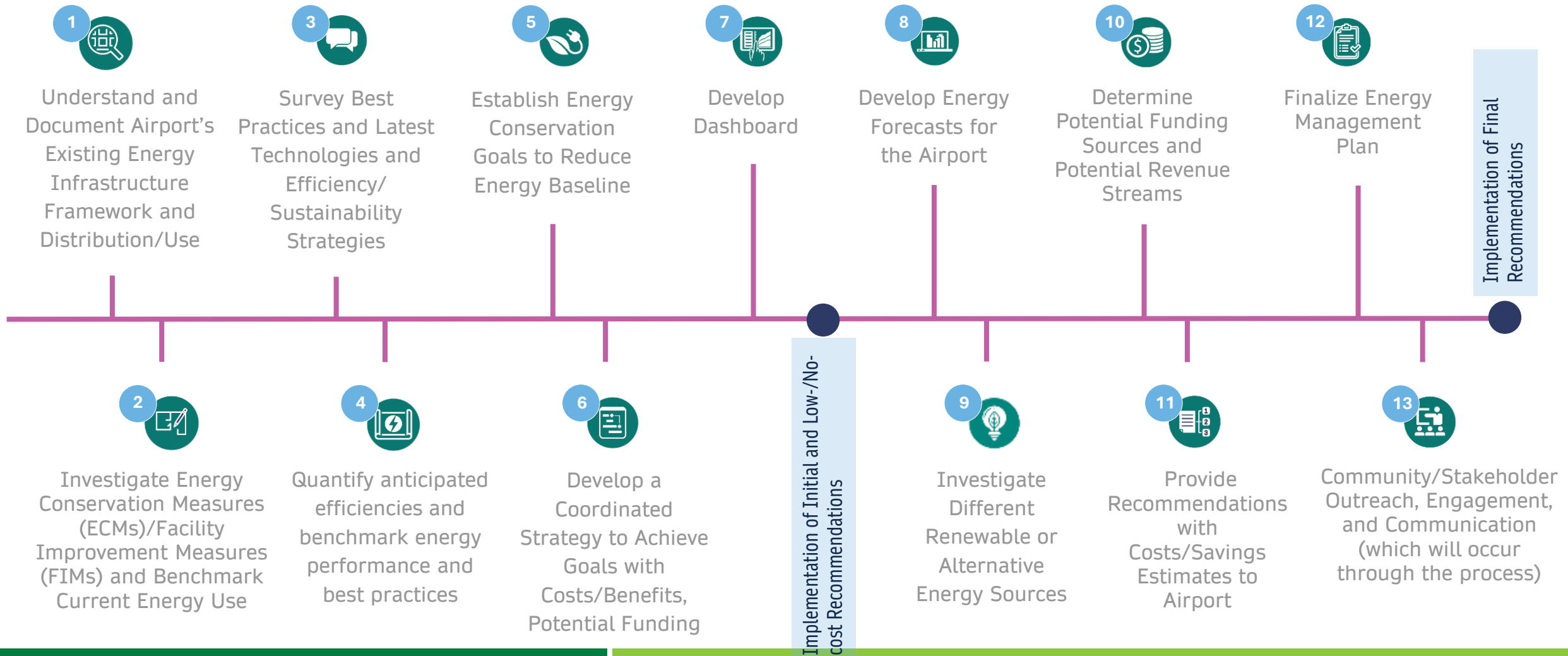
Energy Management: Is your Future Electric?

Energy Management Plan Concepts



Wade Conlan, P.E., CxA, BCxP, LEED AP, FASHRAE
Commissioning & Energy Discipline Manager

POTENTIAL PROCESS



KEYS TO SUCCESS

IDENTIFY THE AIRPORT END GOAL – WHERE DO YOU WANT TO BE ON FACTORS

ESTABLISH BASELINE AGAINST WHICH GOALS ARE DETERMINED AND TARGETS ARE SET

UNDERSTAND DECISION-MAKING METRICS



Business Continuity & Resiliency



Sustainable Buildings & Infrastructure



Energy



Sustainable Transportation



Greenhouse Gas Emissions



Community, Customers & Employees



Land Use & Natural Resources



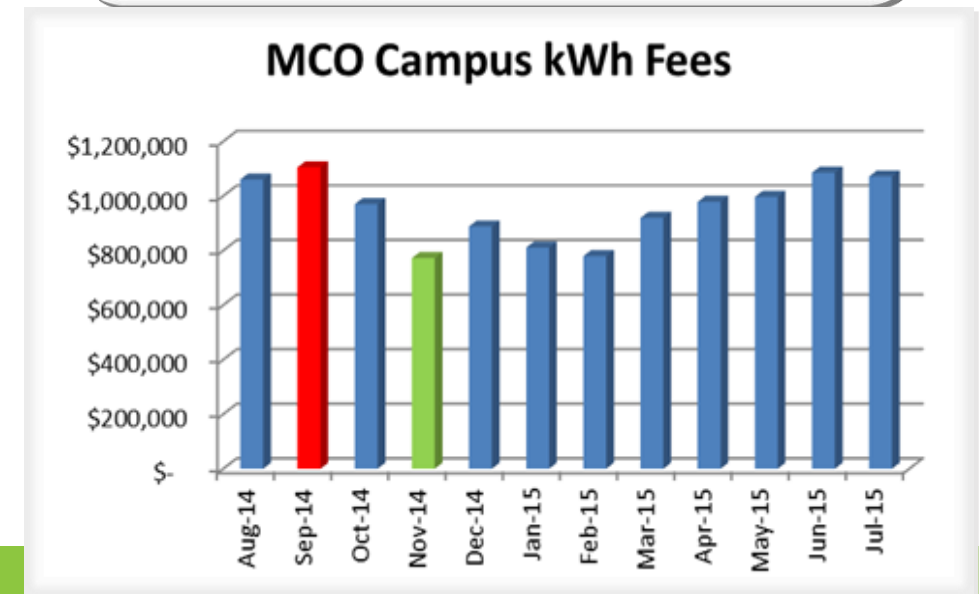
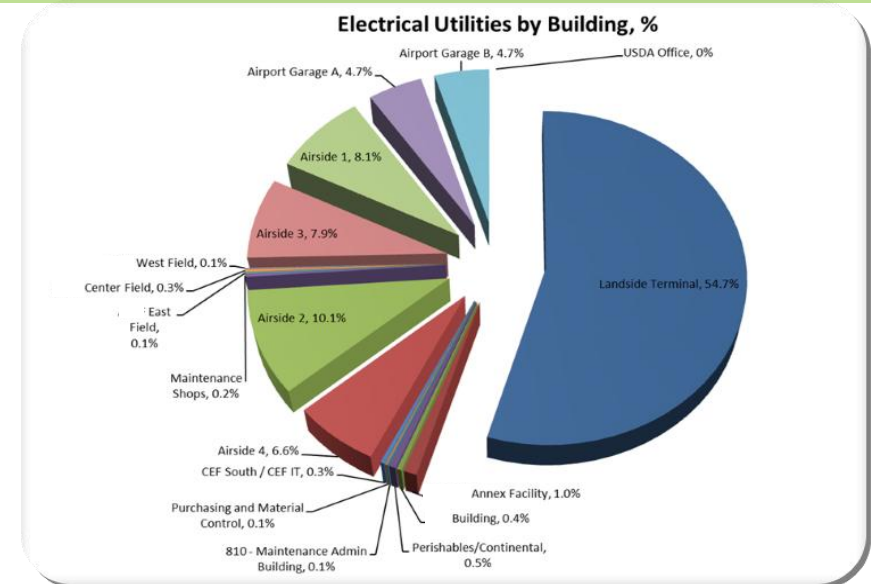
Materials & Waste



Water & Stormwater

Energy Roadmap - MCO

- Existing Consumption & Demand
 - Consumption: \$11.4M, 167M kWh
 - Demand: \$3.1M, 51.4-Megawatt peak
- Benchmarking
 - 85.5% of GOAA Utilities Benchmarked
- Targets for Reduction
 - Goal: 10% reduction
 - \$1.46M annual savings target
 - 5-year payback criterion
- Projected Growth Scenarios
 - South Airport Complex: 16,000 kVA service
 - Increase of 56M kWh, 9.3 MW Peak demand
 - Anticipated Utility Budget Impact of SAC: \$4.5M/year



Energy Roadmap – JFK IAT 4

Task 1 – Review existing Energy Audits, RCx Reports and active projects

- Create an initial list of Facility Improvement Measures (FIMs)
- Develop a concept M&V Plan
- Evaluate potential for NYSERDA (and other) rebate programs

Task 2 – Develop Energy Audits

- Perform Energy Audits to identify FIMs
- Create FIMs Report

Task 3 – Energy Forecasts for the Facility

- Review historic energy demand, consumption and growth
- Review effects of upcoming projects and planned affect

Task 4 – Develop the Energy Roadmap

- Provide recommendations for prioritizing energy tasks for future years



ACRP Energy Resiliency Guidebook

Set your electrification goals to meet your short-, medium-, and long-term electrical demands and resiliency needs, bring the needed projects into your overall master plan and CIP program, design the planned projects and support the construction of the projects.

The primary recommendations are:

- Airport operations require energy to meet customer needs.
- Airports are a hub for energy personnel and services.
- Airports need the ability to continue airport operations with natural or human-made disruptive events.
- Airports need to plan for longer-term shifts in energy supply and demand.
- Stakeholder engagement, including utility provider is important to process the goals, tools and strategies (will vary by airport).



Florida Airport Council

2025 Education & Training Summit

Energy Assessments – For TOP GUN Fans

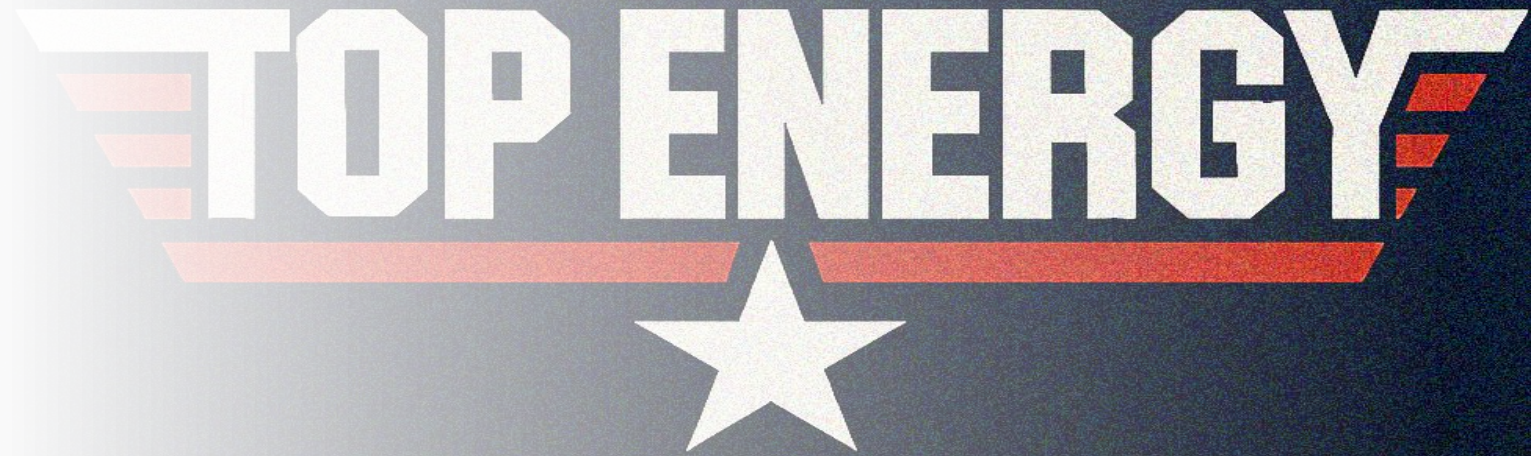


Michael Simon, P.E.
KCI Technologies
Electrical Practice Leader | Associate

MISSION BRIEFING

MISSION OBJECTIVES

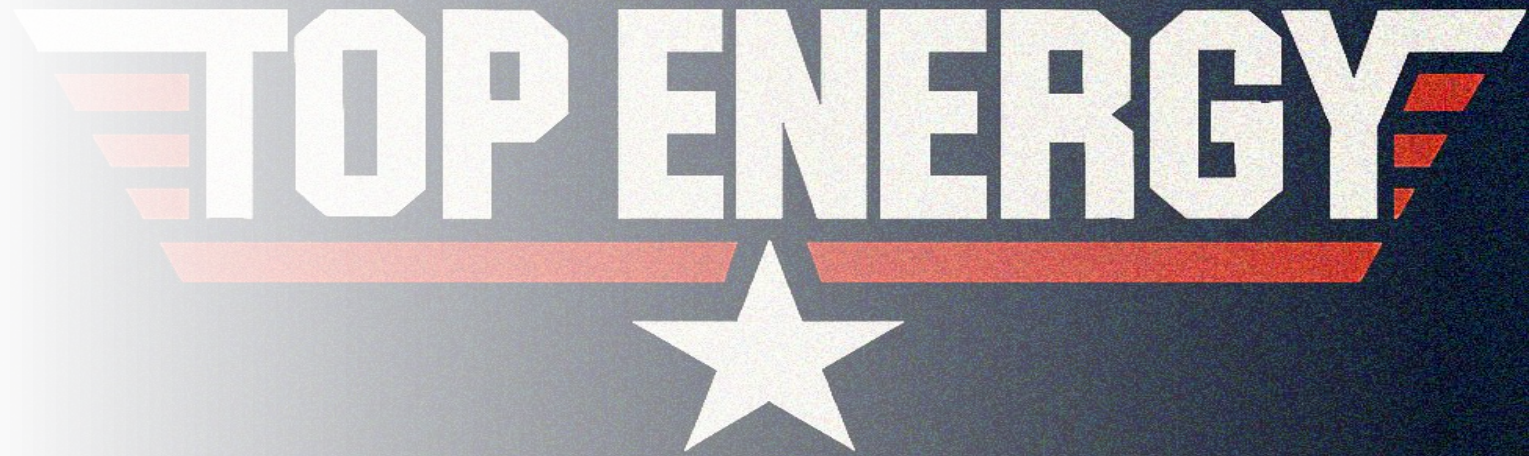
- **TRAINING MISSION:**
 - ROLE OF ENERGY AUDITS
 - KEY SYSTEMS
 - BEST PRACTICES
 - COVERING OUR 6
 - STATE OF MISSION READINESS
- **WINGMAN RECRUITMENT**
 - BEST OF THE BEST



ENERGY ASSESSMENTS

TYPES & STANDARDS

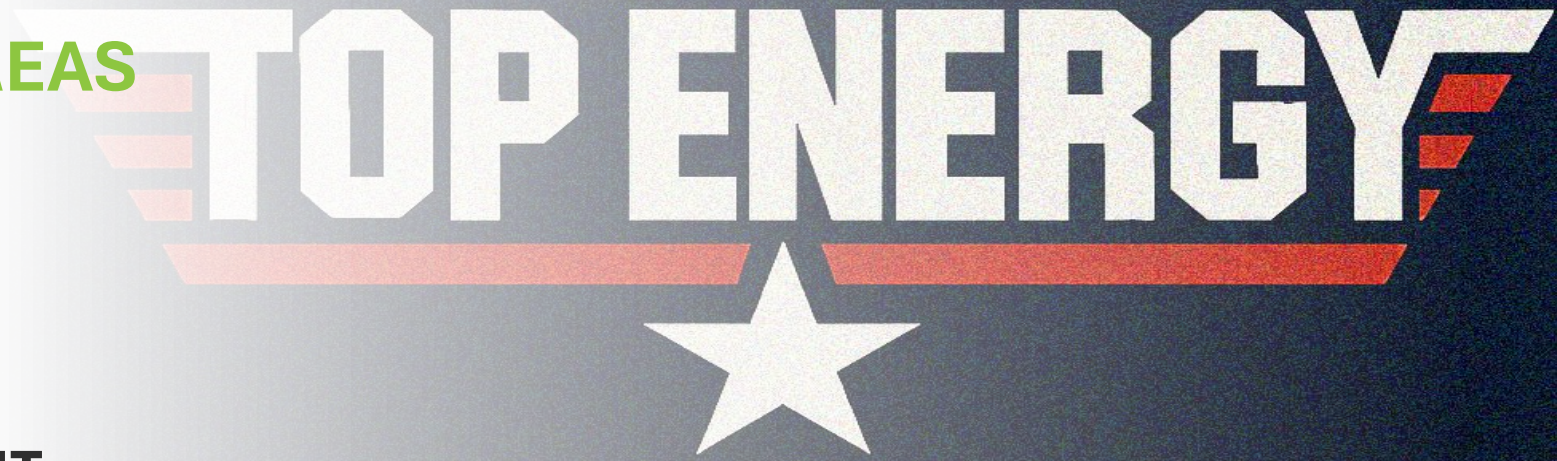
- **ASHRAE: FACILITIES FOCUSED**
 - Standard 211 – Standard for Commercial Building Energy Audits
 - Procedures for Commercial Building Energy Audits
- **Investment Grade Audit (IGA)**
 - Federal Energy Management Program (FEMP) Guidelines
 - Typical for DOE ESPC performance contracts
- **ISO 50002**
 - Similar to ASHRAE, Internationally focused



DANGER-ZONES!

MISSION CRITICAL - HIGH ENERGY CONSUMPTION AREAS

- HVAC SYSTEMS
- CENTRAL PLANTS
- FUEL FACILITIES
- GROUND SUPPORT EQUIPMENT
- LIGHTING
- RENTAL CAR FACILITIES
- BAGGAGE HANDLING



ASHRAE Energy Audit - General Overview

- Pre-Flight Checklist
 - Preliminary Energy-Use Analysis (PEA)
 - Benchmark Building Performance
 - Gathering Utility Bills & Usage Data
 - Gather Facilities As-Built Data
 - Interview Vendors, M&O
- Sortie - On-Site Surveys
 - Interview M&O
 - Field Investigation
 - Measurements
- Flight Simulator - Modeling
 - Modeling
 - eQuest
 - EnergyPlus
 - OpenStudio
- Battle Damage Assessment - Reporting
 - Identify EEMs /ECMs
 - Data Analysis & Cost Assessment
 - Report Development
 - Presentation to Stakeholders

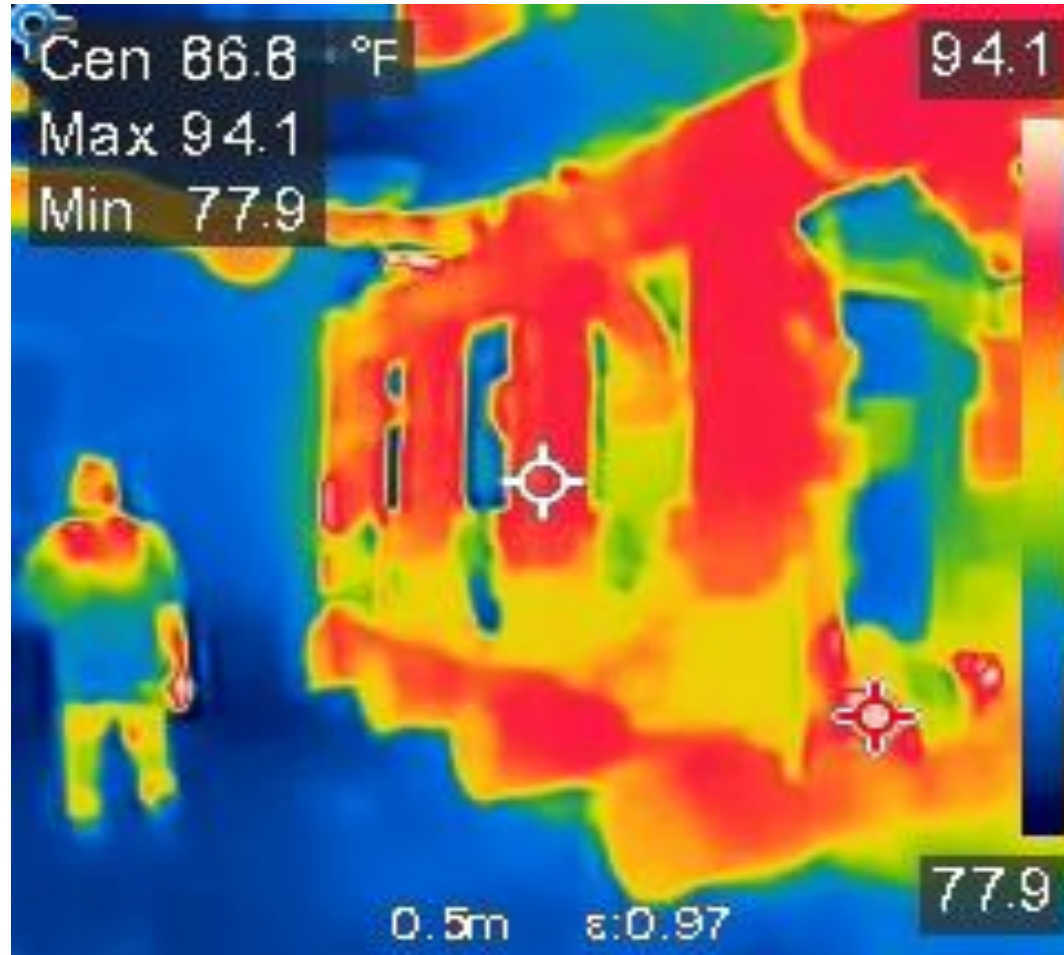


ASSEMBLE THE SQUADRON

- **Key Stakeholders - Maintain Tight Formations**
- Energy Auditors
- Airport Maintenance
- Airport Operations / Capital Planning
- Airport Management
- Airport Operations Vendors
- BAS
- Lighting
- Baggage Handling
- Utilities
- Fueling
- Tenants



LOCK & LOAD: Tools



- Thermal Imaging Cameras
- Industrial Thermal Guns
- Power Meters / Data Loggers
- Light Meters
- Pipe Calipers
- Camera with GIS

Airport Systems: Energy Targets of Opportunity

HVAC

BAS

Central Plants

Lighting

Refrigeration

Baggage Handling

Fuel Facility

Rental Car Wash Bays

Parking / Garages



Land The Plane – Analysis & Reporting

- Present Energy Efficiency Measures to stake holders
- Target maximum Low Cost / No Cost Solutions
- Effectively Report findings, costs, and ROI to capital planning



RETROCOMMISSIONING RCx



MAV, WOU WANT TO
KNOW WHO THE BEST IS?
THAT'S THEM,
RETROCOMMISSIONED
HVAC, ICE COLD – NO
MISTAKES



RCx HVAC SYSTEM

But Why?

- Energy Auditing Can Be:
 - Expensive
 - Time Consuming
 - Difficult to coordinate



**ENERGY
MANAGEMENT
PLAN
CRASHING &
BURNING?**



STAY AHEAD OF THE ENERGY DEMAND



EXCESSIVE ELECTRICAL PEAK DEMAND LOADS?



Strategies vs Reactions

- Entire Airport vs Building by Building
- Potential for Return on Investment
- Efficiency Gains Reduce Peak Demand on Equipment
- Increase Overall Energy Capacity of the Airport
- Provides the groundwork for Strategic Energy Master Planning



**IF YOU MADE IT THIS FAR –
YOU CAN BE OUR WINGMAN ANYTIME!**



Questions?



CAPTAIN OLIVER SIMON
CALL SIGN: ZOOMIE

May 9, 2025

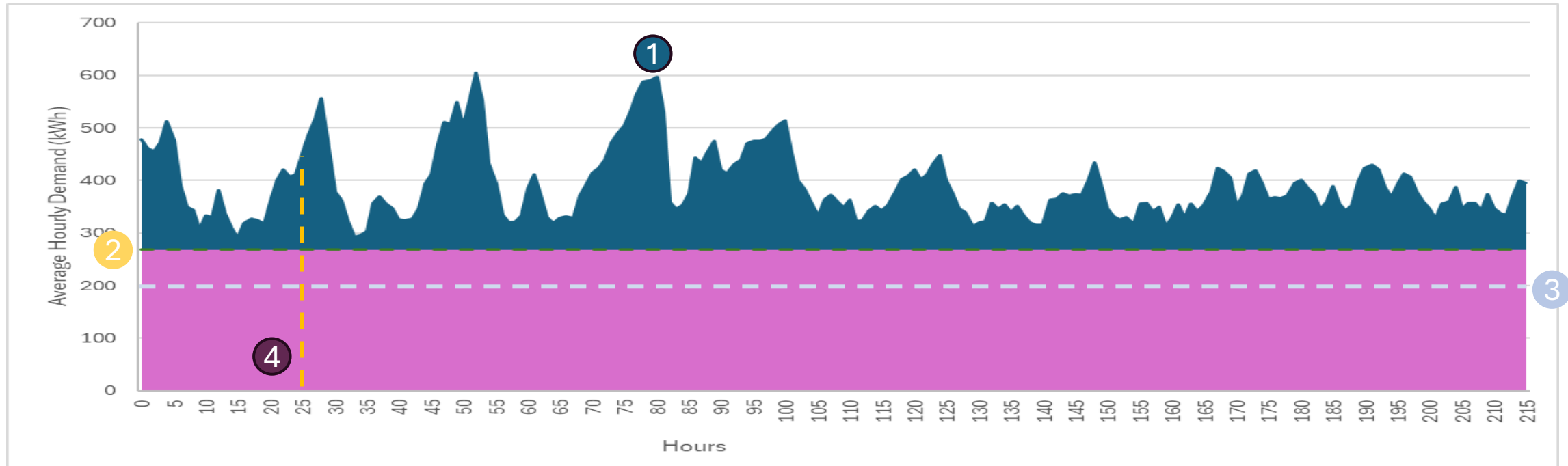
Airport Energy Management *Is your future electric?*

Chris Dwyer, CEM, BCxP, BEMP
RS&H
Chris.Dwyer@rsandh.com



Power Profile Informs Microgrid Design Criteria

key things it tells us



- 1 Peaks demand (morning rush)
- 2 Baseload is high (~ 2/3 of all consumed energy)
- 3 Existing generator capacity
- 4 Area under curve (per 24 hour span)