



Department of Transportation Airports Division

Energy Savings Performance Contracting



HI DOT ESPC Goals

- To ***increase energy efficiency and building performance*** with the goal of ***reducing energy usage and demand***
- To ***improve management and efficiency of utility usage*** through monitoring and submetering
- ***Reduce facilities life cycle costs including: maintenance, equipment replacement, energy and water utilities, waste disposal, emergency power outages, etc.***
- To ***improve indoor environmental quality for occupants***
- To ***address deferred repair and maintenance projects***

Source – Invitation for Proposal, Project No. AS1060-15



Energy Savings

Reduce Electricity Usage by

53% per year

\$18,112,062 per year

Rising Fuel Oil Costs - escalated electricity costs 6.7% annually since 1988



Summary

- **ECM Implementation Costs - \$ 176 Million**
 - Contribution to the General Fund (GET) - \$ 8 Million
 - **Total Guaranteed Savings - \$ 574 Million**
 - **Total Debt Service - \$ 244 Million**
 - **Obligatory M&V Spend - \$ 22 Million**
 - **Performance Period Spend - \$ 67 Million**
 - GET During 18 Year Performance Period Over \$ 6.3 Million
- Over \$ 166 Million in Additional Benefits to DOT (Unclaimed)***

DOT Economic Evaluation Results

ECM Category	Sum of Total First Year Savings	Sum of Total Sell Price including Project Level	Internal Rate of Return
Lighting (ECM 01)	\$ 5,640,650	-\$53,857,310	12.40%
HVAC -Air Systems (ECM 02,04)	\$ 5,364,416	-\$27,260,256	23.64%
HVAC - Chilled Water Systems (ECM 03,10,12)	\$ 3,254,917	-\$23,324,484	16.95%
Transformers (ECM 05)**	\$ 520,616	-\$6,837,454	10.48%
Solar PV (ECM 06)**	\$ 3,331,462	-\$61,169,386	7.21%
Deferred Maintenance			
Roof & Trellis repair (ECM 06a)		-\$12,714,843	
Equipment Replacement (ECM 07)		-\$5,852,496	
HNL - OST Transit Piping (ECM 11)		-\$7,996,884	
HNL - Electrical Room Improvements (ECM 13)		-\$2,983,537	
Total Project	\$ 18,112,062	-\$201,996,650	10.23%

- ** - based on 25 year useful life



Determination of Price

Johnson Controls Scope

- Open Book Pricing
- Labor Hours
- Labor rate
- Material costs
- Volume 2 of IGA Report
- Markup and Profit limited by Original Vendor List

Local Installing Contractors

- Commercial Subcontracts with JCI
- Subcontractor Prequalification form
- Issue RFP
- Bid Evaluation / Interviews
- Best Value Selection



Other Considerations

- Unclaimed Benefits
 - Replacing some Capital Improvement Projects
 - Energy Savings above Guarantee amount
 - Energy Savings during Construction
 - Rebate dollars
- Design Build / shovel ready vs. DIY
 - 3 years of lost savings
 - No guarantee
 - Utility budget – fixed baseline with escalation
 - DOT assumes risk
 - Equipment Replacement needed now!



Baseline Energy Usage

- Foundation for Verifying Energy Savings
 - Electricity Usage at 12 Airports
 - \$34,224,731 Annual Costs (2011 dollars)
 - Baseline Year is 2011 – 123,326,151 kWh Consumed, 17.5 MW Monthly Demand
 - Range from \$0.26 to \$0.50 per kWh Energy Charge
 - Rising Fuel Oil Costs Have Been Escalating Electricity Costs at 6.7% Annually Since 1988
 - Five Airports use 99% of This Electricity



Notice To Proceed
11/1/13

Mobilization
12/1/13

Construction
1/1/13

Project
Acceptance
11/1/15

The DOT project is estimated to produce the following economic and environmental impacts.

Project Benefits



7,962 jobs created by the project in the local community¹



\$895,284,282 in economic development¹



\$525,681,739 in energy savings over the life of the project



43,225 metric tons of CO2 saved annually

Carbon Equivalents



Equivalent to emissions offset by **1,326,951** trees planted in an urban area and allowed to grow for ten years



Project will reduce emissions equivalent to **9,478** passenger vehicles over its lifespan



Equivalent to the electricity used by **8,602** homes for one year



Equivalent to **104,721** barrels of oil per year



Summary

- **ECM Implementation Costs - \$ 201.9 Million**
 - Contribution to the General Fund (GET) - \$ 9.08 Million
 - **Total Guaranteed Savings - \$ 548 Million**
 - **Total Debt Service - \$ 371 Million**
 - **Obligatory M&V Spend - \$ 22.9 Million**
 - **Discretionary Performance Period Spend - \$148 Million**
 - GET During 18 Year Performance Period Over \$ 6.3 Million
- Over \$ 166 Million in Additional Benefits to DOT (Unclaimed)***