

# SeaTac Airport Energy Conservation Program

# Energy Conservation SeaTac Airport

- Conservation at SeaTac
- Savings Realized
- Long and Short Term Energy Forecasts
- ESCO Process
- Scope of Mechanical Stage 3



# Conservation Projects - History

- The SeaTac energy conservation program has reduced energy consumption by 25% over the last 15 years
- SeaTac electrical energy consumption is now at a 10 year low
- Recent projects have utilized the State of Washington Energy Savings Performance Contracting and a pre-qualified Energy Service Company (ESCO)
  - University Mechanical Contractors
  - McKinstry



# Conservation Projects - History

Project	Completion	Energy Savings (Annual)	Dollar Savings (Annual)
Stage 1 Lighting	2001	1,489,204 kWh Electricity	\$ 134,028
Stage 2 & 3 Lighting	2005	5,224,054 kWh Electricity	\$470,165
Stage 4 Lighting	2006	3,092,040 kWh Electricity	\$278,284
Parking Garage Emergency Lighting	2013	1,731,878 kWh Electricity	\$ 155,869
Stage 1 Mechanical	2008	184,765 Therms Natural Gas 2,701,322 kWh Electricity	\$317,025
Stage 2 Mechanical	2013/2014	64,844 Therms Natural Gas 2,556,781 kWh Electricity	\$256,048

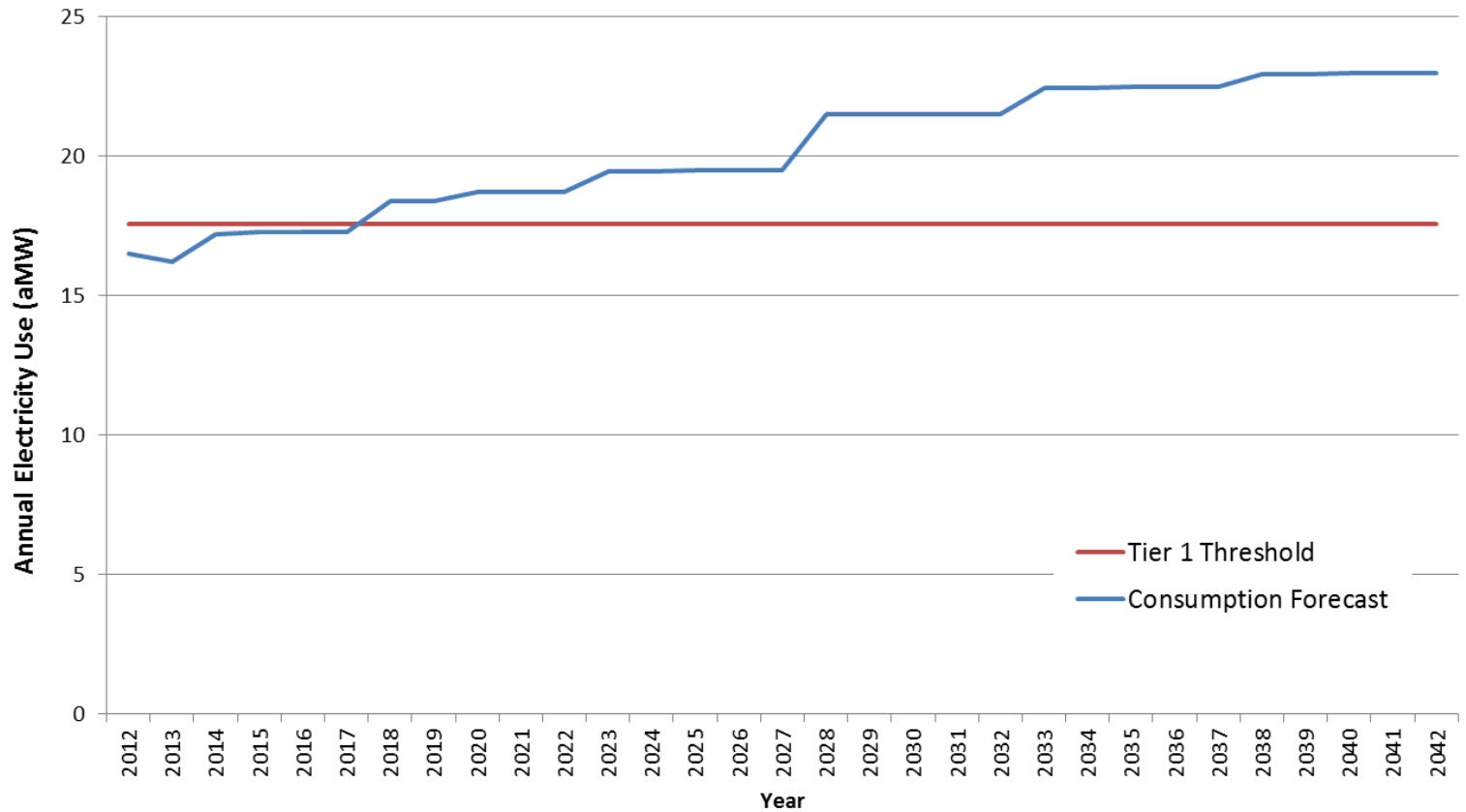
# Savings / Advantages SeaTac Airport Conservation Program

- Identify and pursue Energy Conservation Measures that have a favorable ROI
  - Measures that do not meet minimum performance threshold do not move forward
  - Guaranteed savings and project costs
  - Utilize Grants and Incentives effectively
- Improve Efficiency and Reduce Carbon Footprint
- Improve Occupant Comfort
- Renewal and Replacement of Old Systems with New Energy Efficient Equipment



# 30 Year Energy Forecast

## Airport-Wide Electricity Forecast



# Short Term Energy Forecast

New Large Loads				
Project Name	Year	SQFT	MWh Added	aMW
Stage 2 Mechanical	2013/14	N.A.	-2,557	-0.29
Pre Conditioned Air (PC-Air)	2014	N.A.	4,267	0.49
Electric Ground Service Equipment (EGSE)	2014	N.A.	3,504	0.40
Electric Ground Service Equipment (EGSE)	2015	N.A.	5,254	0.60
Miscellaneous (EE, Bag, etc.)	2015	N.A.	1,151	0.13
South Satellite Renovation	2016	183,500	-1,153	-0.13
International Arrivals Facility (IAF)	2018	245,000	7,275	0.83
New Airport Hotel	2018	185,000	2,472	0.28
North Satellite Renovation (North Star)	2020	275,250	2,321	0.26
<b>Stage 3 Mechanical Conservation</b>	2014/15	N.A.	<b>TBD</b>	<b>TBD</b>
Parking Garage Lighting Upgrade	2014/16	N.A.	-5,501	-0.63
<b>2020 Electrical Load Growth Forecast</b>			<b>17,033</b>	<b>1.94</b>
2020 Forecast Summary				
Current SeaTac Electrical Load			141,859	16.19
2020 SeaTac Electrical Load			158,892	18.14
Energy Goal (Tier 1 Power)			153,615	17.54
<b>Conservation Shortfall (without Stage 3 Mechanical)</b>			<b>5,277</b>	<b>0.60</b>

# State Energy Savings Performance Contracting Process:

1. Outline scope of work to audit
2. Enter agreement with State \*\*
3. Contract with ESCO \*\*
4. ESCO performs energy audit and provide guaranteed costs and savings
5. Contract with ESCO to design and construct viable measures \*\*
6. Measurement and verification

\*\* Commission Approval Required





# Commission Schedule – Stage 3

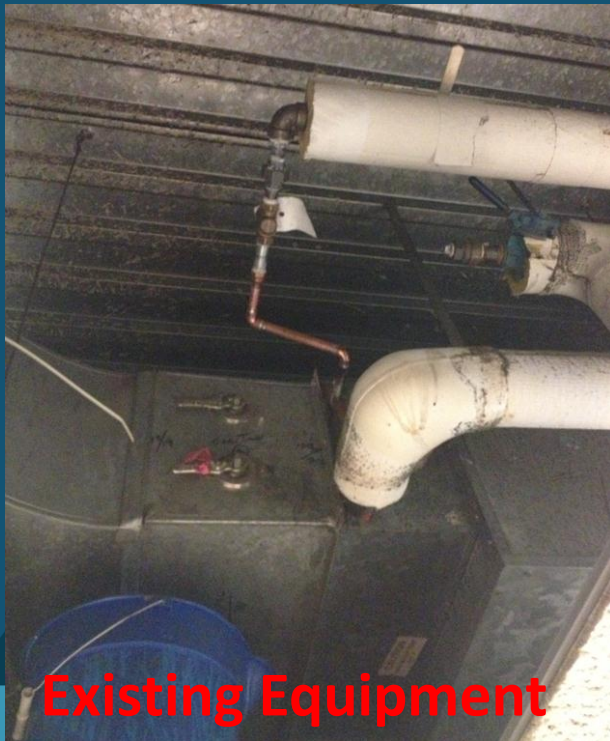
- March 2014: Request for Energy Audit funding
  - Analyze and develop conservation measures including, costs, savings and preliminary designs
- December 2014: Request for Design and Construction funding
  - Design and construct those conservation measures that meet the minimum performance criteria



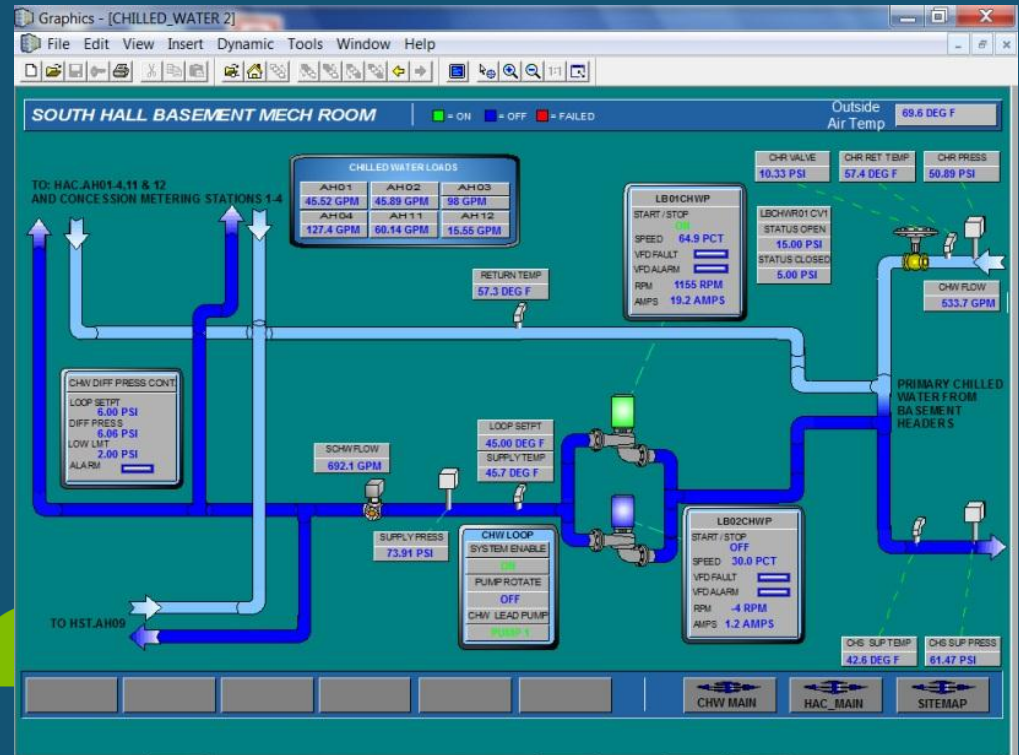
# Project – Stage 3

- Anticipated Improvements

- Replace constant volume with variable volume air handling terminal boxes
- Chilled water system pumping optimization

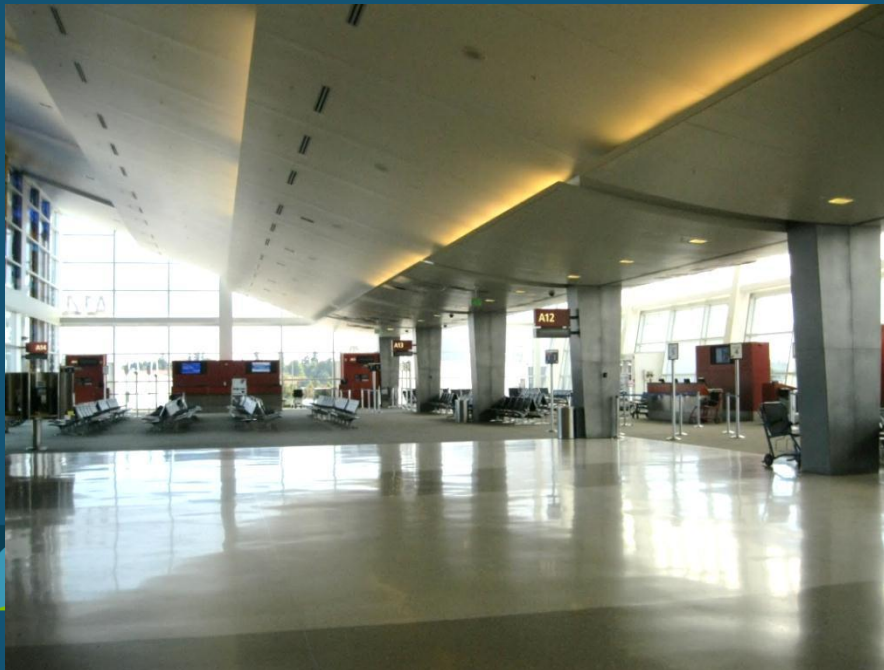


Existing Equipment



# Project – Stage 3

- Anticipated Improvements
  - Occupancy adjustments for controlling building ventilation
  - Air curtains to reduce air flow in/out of main terminal



# Project – Stage 3

- Project Budget
  - March, 2014 Authorization Request \$ 349,440
  - Total Estimated Project Cost \$3,500,000
  - ESCO Projects are Low Risk
    - The performance of each Energy Conservation Measure (ECM) is independently evaluated
    - ECMs must guarantee a 10% ROI or the Port has no obligation to proceed or pay associated fees
  - Port of Seattle Financial Risk
    - \$25,700 Termination Fee
    - ESCO Design Fees \$0 - \$199,440
    - Port Project Management Costs \$150,000
  - Project costs and savings will be included in terminal costs paid by airlines



# Questions

