

## Session 6: Partnership Case Studies

### *Hybrid Equipment Replacement - Energy Efficiency Project*

#### **NOAA - Sand Point Facility Seattle, WA**

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### **Background on NOAA Facility**

- Gross Acreage: 114 Acres
- Number of Buildings: Nine
- Buildings Square Footage: 600,000 ft<sup>2</sup>
- NOAA Staff On-Site: 900 employees
- Activities: Weather Service for PNW, Research Facility (offices and labs), Dive Training Center
- Annual Energy Cost: \$420,000 per year

## The Facility (overhead)



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## The Facility



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## Project Summary

- Initial Energy Audit / Project Scope done by a Super ESPC
- Project Economics did not support Super ESPC implementation
- DOE-SRO request to BPA
  - ◆ Perform Reimbursable Project Management
  - ◆ Contract All Equipment and Services
  - ◆ Coordinate 3<sup>rd</sup> Party Long Term Financing (20 year term)
- Total Project Capital Cost:       \$800,000
  - ◆ Does not include interest cost
  - ◆ Does not discount energy rebate and other contributions

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## Project Measures

- Replace 8 Rooftop HVAC Units (30-60 ton each)
  - ◆ Aging equipment needed replacing
  - ◆ Project not solely justified on utility cost savings
  - ◆ Overall project Simple Payback ~15 years (prior to rebates)
  - ◆ Fuel switch from electric to gas heating on all units
  - ◆ VFD on all Supply and Return Air Fans
- Retrofit / Replace ~1,400 Fluorescent Lighting Fixtures
- Install New Natural Gas Distribution Lines
- Replace Electric Water Heater (Kitchen) with Gas Unit
- Install New Electric & Natural Gas Radiant Heaters
  - ◆ To replace existing electric convective heating

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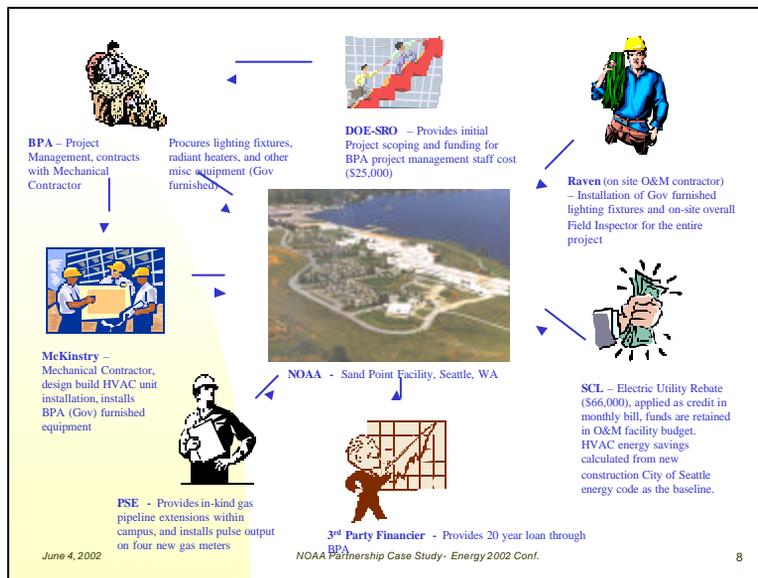
## The Partners

- **NOAA:** Federal Facility Client
- **Raven Services:** On-Site O&M Contractor at NOAA
- **DOE-SRO:** FEMP Perspective & Project Catalyst
- **BPA:** Project Management & Contracting
- **McKinstry:** Mechanical General Contractor
- **Puget Sound Energy (gas):** In-Kind Piping Construction
- **Seattle City Light (electric):** Electric Energy Savings Rebate
- **Third Party Financier:** 20 Year Loan (through BPA)

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## HVAC Rooftop Unit Installations



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## Radiant Heater Unit Installations



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## Bottom Line Results

- Comprehensive Annual Energy Cost Savings
  - ◆ Based on a full post year utility bill analysis, savings are **\$53,000 per year**
  - ◆ Includes cost savings of heating with gas vs. electric
  - ◆ Reflects a ~40% electric rate increase from 2000 to 2001
    - ✦ Due to the West Coast Power Crisis  
(high priced electric wholesale energy and low hydro water year)
- Annual Electric Energy Savings
  - ◆ ~880,000 kWh/year from Electric Efficiency Measures
  - ✦ Additional ~500,000 kWh/year of electricity fuel switched to gas
- Annual New Natural Gas Use
  - ◆ ~20,000 Therms/year - Fuel switching from electric to gas

