

INDUSTRIAL ASSESSMENT CENTERS
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Presented By:

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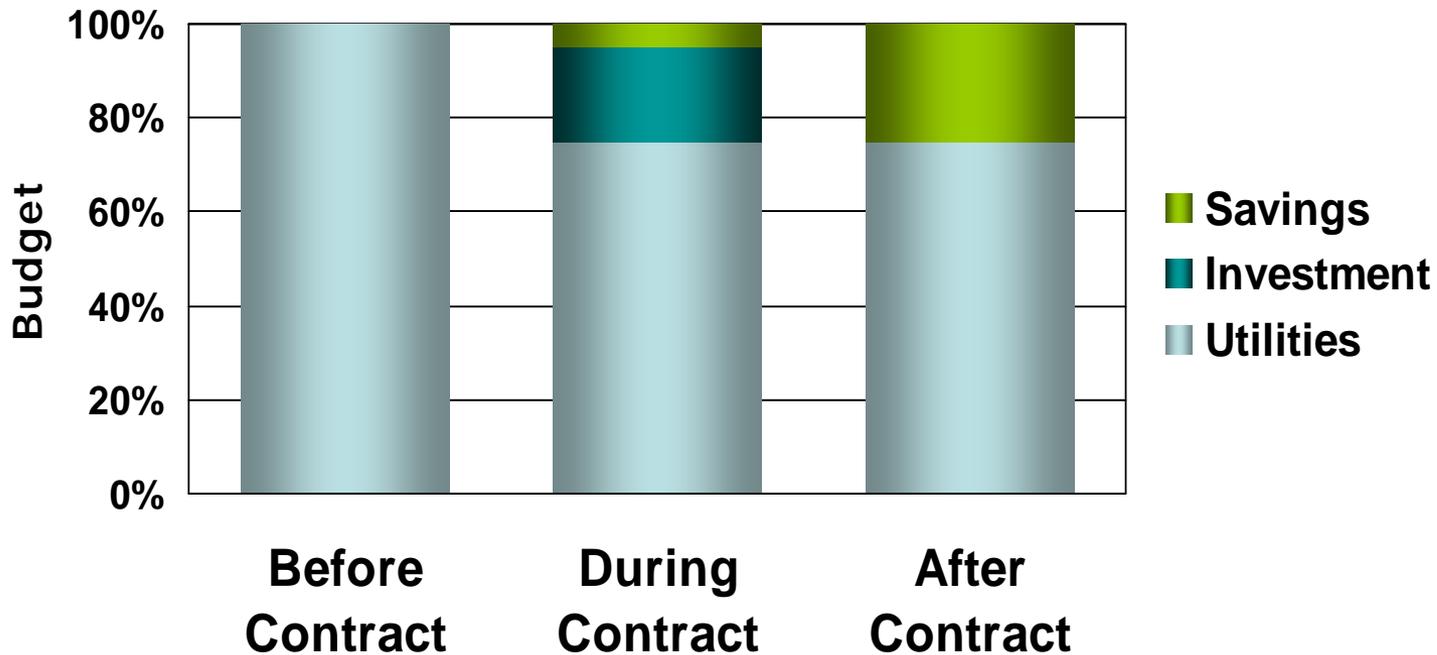
N  RESCO

Energy Savings Performance Contracting

- ✧ A procurement methodology
 - ✧ and project delivery approach
 - ✧ to renovate buildings and improve infrastructure
 - ✧ by leveraging existing operating inefficiencies
 - ✧ to fund the improvements.



How does ESPC work?



About NORESCO

- Energy Services Company (ESCO)
 - Our core business is energy conservation and infrastructure solutions
 - 25 years experience in the energy services industry
 - Over \$2 billion in proven energy savings solutions implemented in over 2,200 facilities
- Development & Construction Capabilities
 - In-house analysis, engineering, design, and construction management services
 - Over 60 project managers and over 50 engineers
 - Only ESCO to implement wind and PV under a federal ESPC
- Operations & Maintenance Capabilities
 - 90 O&M personnel
 - Flexible O&M offering
 - 24/7 staffing, nationwide call center



About NORESKO - Strengths

- Proven leader in developing, implementing and financing ESPCs
 - Highest DOE technical rating, significant in-house technical resources
 - Unmatched customer satisfaction ~ multi-phase projects with multiple customers
- Proven Methods & Procedures for developing and constructing energy efficiency projects at project sites
- Experts at maximizing real savings and mitigating risk to all stakeholders
- Recognized experts in supply-side infrastructure projects
 - Boiler plants, chiller plants, cogeneration, wind, photovoltaic, biomass, etc.
- Utility Independence
 - Fuel/energy source neutral



Management Team and Philosophy

- All engineering and construction management functions performed in-house
 - Major analysis, design, and construction management functions performed in-house
 - Typically subcontract out only pre-qualified local trade labor, specialty engineering and equipment service contracts
- Advantages
 - NORESKO on-site presence
 - Minimize sub contractor mark-ups
 - Streamlines communication
 - Complete accountability
 - Experience with local subcontractors



Examples of Renewable Applications

- NORESCO customers have saved over 25,000,000 kWh through the use of green efficiency applications and renewable energy production
- Technologies installed and operating
 - Photovoltaic (sizes ranging from 5 kW to 750 kW)
 - Wind (sizes ranging from 750 kW to 3.8 MW)
 - Biomass (wood chip fired)
 - Fuel Cells, Microturbines
 - Solar Thermal Systems
- Technology applications currently under evaluation
 - Hydro Pump Storage
 - Tidal Current
 - Vanadium Redox Battery Storage
 - Plasma Conversion
 - Seawater Cooling



Examples of Innovative Non-Renewable Applications

- Microturbines for Navy Region Southwest as a demonstration project. Environmental funds were applied to evaluate the lower emission technology. Provided post-installation metering and data collection to support Navy performance evaluation program.
- Biaxial lighting
- Compressed Air Systems: Extra storage, new compressors and demand expanders.
- Heat pipes to reduce humidity without CHW.
- PAMPER systems to eliminate need for fuel oil delivery and storage.
- TurboCor Chillers: Currently under evaluation as part of the Navy TECHVAL program



Project Experience

DOE Pantex Plant Amarillo, TX



Reference:

Susan Nelson, (806) 447-7187

Type of Contract: DOE Central ESPC

Term of Contract: 18 Years, 19 Years (2 DOs)

Total Contract Cost: \$24,439,626

Total Annual Savings: \$2,617,208

Technologies:

- 3,500 point EMCS using fiber-optic network
- Solar domestic hot water heating
- Replaced or retrofitted over 22,000 lighting fixtures
- Replacement of 17 air and water cooled chillers with six new air cooled chillers and associated piping
- Replacement of over 400 steam traps and 30 condensate return units
- Dehumidification system upgrades
- Replaced 7 inefficient roof top units on 3 buildings
- New high efficiency laundry facility to process over 1 million pounds of laundry each year



Project Experience

U.S. Naval Station Guantanamo Bay, Cuba



Reference:

Bev Wade, (757) 847-7962



*2006 Renewable Energy
Project Award Winner*

Facility Type: Naval Base

Facility Size: 5,412,267 sq. ft.

Type of Contract: Navy Caribbean ESPC

Term of Contract: 12 & 14 years

Total Capital Cost: \$26,000,000

Total Annual Savings: \$3,200,000

Technologies:

- Wind turbines installed and integrated into electrical grid. This 3.8 MW project will reduce toxic emissions by over 13,000,000 lbs per year
- Higher efficiency diesel generators (7.2 MW) installed for central power plant. Substantial electrical grid improvements also being made to ensure reliability and support increase of mission.
- Energy efficient lighting and water conservation in over 850 family housing units and 100 commercial buildings.



Project Experience

Federal Corrections Center Victorville, CA



Reference:

Greg Britt, (925) 803-4707

Facility Type: Federal Prison

Facility Size: 2,000,000 sq. ft.

Type of Contract: DOE West ESPC

Term of Contract: 19 Years

Total Capital Cost: \$5,947,862

Total Annual Savings: \$420,589

Technologies:

- 66 kW solar PV covered parking structure
- A single 750 kW electricity generating wind turbine
- HVAC and controls systems improvements



*2006 Renewable Energy
Project Award Winner*



Project Experience

Navy Region Southwest California



Reference:

John Thomas, (619) 556-7989

ENERGY USER NEWS *Project of the Year*

Facility Type: Navy Base

Facility Size: 9,500,000 sq. ft.

Type of Contract: DOE West ESPC

Term of Contract: All DO's 10 Years or Less

Total Capital Cost: \$33,217,000

Total Annual Savings: \$5,085,000

Technologies:

- 750 kW solar PV parking structure and 30 kW roof PV array
- Two 60 kW microturbines w/ heat recovery heat exchangers
- Energy efficient lighting; daylighting and control system
- Controls conversion to DDC connected to Area-Wide EMCS
- Irrigation centralized control system; upgrade and expansion of the existing underground irrigation system
- HVAC system upgrades
- Major improvements to compressed air plants and systems
- 5 MW steam turbine generator

Project Experience

Mount Wachusett Community College Gardner, MA



Reference:

Ed Terceiro (978) 632-6600 x102

Facility Type: Community College

Type of Contract: ESPC

Term of Contract: 10 Years

Total Capital Cost: \$4,300,000

Total Annual Savings: \$272,826

Technologies:

- Replacement of more than 4,400 lighting fixtures in various buildings. This included retrofit of all T-12 fixtures with energy efficient T-8 fixtures and mercury vapor and incandescent lighting with metal halide and compact fluorescent units
- Retrofit of urinals and sinks with low-flow flushometers and aerators. Replacement of toilets with 1.6 gallon per flush units.
- Installation of VFDs on air handling unit supply and return fans to vary electric consumption in accordance with heating and cooling demand.
- Construction of a 320 bhp low emission advanced biomass boiler plant with 300 bhp oil backup to replace the college's inefficient electric resistance heating system. Connection of new hot water distribution piping to existing chilled water mains and retrofit of unit ventilators and heating and ventilation units with hydronic coils.



Project Experience

U.S. Coast Guard Integrated Support Command Kodiak, AK



Reference:

Michael Brown (907) 487-5320 x229

Facility Type: Coast Guard Base

Facility Size: 2,666,487 sq.ft.

Type of Contract: DOE West ESPC

Term of Contract: 8 Years

Total Capital Cost: \$4,670,000

Total Annual Savings: \$894,000

Technologies:

- Installation of an O² trim system, burner retrofit, new feedwater heaters (economizers) and controls on four 800 hp fire-tube boilers.
- Energy efficient lighting upgrade including replacement or retrofit of 9,674 fixtures, lamps, and ballasts.
- Replacement of existing EMS with a new DDC EMS
- Retrofit three 15 hp pumps and motors to replace the existing units
- Installation of VFDs on the existing constant volume fans to integrate into the base-wide EMS.
- Replacement of 60 French doors with new French doors.
- 1,500,000 gallon fuel tank conversion (JP-5 to DF-2) and install 4,500 linear feet of fuel piping.
- 348 storm doors with weather stripping on 174 housing units.



Why NORESKO?

- Proven leader in developing, implementing and financing ESPCs
- Core business is technically complex energy upgrades
- NORESKO has the most breadth of experience – Solar PV, wind, state of the art and traditional energy conservation measures
- Collaborative and Innovative Approach
 - Develop the best program for our customers
 - Maximize investment for the most comprehensive energy project
 - Collaborative approach to ESPC
- Local construction team and project office
- Provide the highest quality service in the industry

We work FOR our customers to accomplish their efficiency, technology, and facility improvement goals

