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CASE STUDIES

- **Brevard Community College: Florida Power & Light**
- **City of Miami Beach: Johnson Controls, Inc.**
- **Cape Canaveral Air Force Station: NORESKO**
- **Arbor Shoreline Office Park: Progress Energy Solutions**
- **Broward County Libraries: Sempra Energy Solutions**
- **Jacksonville University: Siemens Building Technologies**
- **Florida Department of Corrections: TECO Solutions**

BREVARD COMMUNITY COLLEGE

Cocoa, Florida

ESCO	Florida Power & Light
Features	4 campus sites 40+ buildings 1,761,102 square feet
Pre-project Annual Utility Costs	\$1,493,955
Project Cost	\$6,034,324
Projected Annual Savings	\$657,322
Guaranteed Annual Savings	\$657,322
Measured Annual Savings	\$560,316
Stipulated Annual Savings	\$97,006
Annual Operational Savings	\$40,000/year (discontinued an outside maintenance contract)
Contract Term	10 years
Funding	Tax-exempt lease
Construction Completed	2003
Savings M&V	<ul style="list-style-type: none"> • Partial measured retrofit isolation • Whole facility bill analysis • Stipulated • Measured/calibrated
ECMs Installed	<ul style="list-style-type: none"> • Chillers (Titusville, Cocoa and Melbourne) • Thermal energy storage repairs (Cocoa and Melbourne) • Energy management controls (all 4 campus sites) • HVAC system and air handler repairs • Lighting retrofits • Water conservation facilities

FLORIDA POWER & LIGHT

CITY OF MIAMI BEACH

Miami Beach, Florida

ESCO	Johnson Controls, Inc.
Features	19 facilities 1.5 million square feet
Pre-project Annual Utility Costs	\$2 million (approximately)
Project Cost	\$1.9 million
Projected Annual Savings	\$240,000
Guaranteed Annual Savings	\$210,000
Measured Annual Savings	\$210,000
Stipulated Annual Savings	none
Annual Operational Savings	\$78,000 (approximately)
Contract Term	10 years
Funding	Tax-exempt lease
Construction Completed	1998
Savings M&V	<ul style="list-style-type: none">• Utility bill comparison using Metrix software• Monthly reporting with annual reconciliation
ECMs Installed	<ul style="list-style-type: none">• Chillers• Lighting• Variable speed drives• Energy management system
ESCO Notes or Comments	Actual project savings are exceeding guarantee each year by 10-20%

JOHNSON CONTROLS, INC.

CAPE CANAVERAL AIR FORCE STATION

Cape Canaveral, Florida

ESCO

Features

Project Cost

Annual Utility Unit Savings

Guaranteed Annual Savings

Contract Term

Funding

Construction Completed

Savings M&V

ECMs Installed

NORESKO

200 buildings 3 million square feet

\$11.9 million

848,470 therms of natural gas
678,492 gallons of oil
4,800,000 kWh in electric

\$1.1 million

13 years

ESCO financing

2001

- Meter
- Stipulated savings

- Base-wide lighting upgrade
- 4,000 point energy management system
- 300 ton gas-fired chiller
- Distribution transformers
- HVAC replacement
- Oil to gas boiler conversion
- Installation of a 5-mile extension of natural gas main
- 2 additional miles of gas distribution piping

NORESKO

ARBOR SHORELINE OFFICE PARK

Clearwater, Florida

ESCO	Progress Energy Solutions
Features	8 buildings (suburban office complex) 230,790 square feet
Project Cost	\$1,000,000
Pre-project Annual Utility Costs	\$551,847
Projected Annual Savings	\$140,800
Guaranteed Annual Savings	Guaranteed a kW reduction and agreed to perform more work if the measured kW reduction did not meet or exceed the guaranteed amount
Contract Term	See ESCO comments
Funding	Owner financed (part of a new 10-12 year mortgage)
Construction Completed	2000
Savings M&V	Pre and post measurements were made of all affected lighting loads
ECMs Installed	<ul style="list-style-type: none">• Lighting retrofits• RTU HVAC replacement project• Facility-wide HVAC controls• Centrifugal chiller (2) replacement
ESCO Comments	This project was not structured like a traditional performance contract project; however, pre- and post-measurements were made to verify a 272.9 kW demand reduction, which was required in the contract.
Customer Comments	“Under budget and on time with minimal tenant interruption.” — Albert Morrison, Chief Financial Officer, National Housing Corporation

BROWARD COUNTY LIBRARIES

Broward County, Florida

ESCO	Sempra Energy Solutions
Features	19 sites 512,210 square feet
Project Cost	\$2,177,155
Pre-project Annual Utility Costs	\$743,101
Projected Annual Savings	\$218,098
Guaranteed Annual Savings	\$152,374
Measured Annual Savings	\$30,935
Stipulated Annual Savings	\$187,154
Annual Operational Savings	\$32,322
Contract Term	10 years
Funding	Owner financed
Construction Completed	1999
Savings M&V	<p>IPMVP Option A: Verifying that the measure has the potential to perform and to generate savings.</p> <p>IPMVP Option B: Verifying that the measure has the potential to perform and verifying actual performance by end use.</p> <p>Engineering calculations with metering and monitoring throughout term of contract</p> <p>Engineering calculations (possibly including spot measurements) with stipulated values</p>
ECMs Installed	<ul style="list-style-type: none"> • Lighting at 19 sites • New unitary HVAC units (3 sites) • Thermal storage (1 site) • Two 350-ton chillers (1 site) • VFDs (3 sites) • EMCS (3 sites) • Load control

JACKSONVILLE UNIVERSITY

Jacksonville, Florida

ESCO

Siemens Building Technologies

Features	28 buildings 727,323 square feet
Project Cost	\$2,117,000
Pre-project Annual Utility Costs	\$900,000
Projected Annual Savings	\$342,000
Guaranteed Annual Savings	\$276,000
Measured Annual Savings	\$333,700 (partial year)
Stipulated Annual Savings	\$65,000
Contract Term	10 years
Funding	Tax-exempt lease
Construction Completed	2003
Savings M&V	Utility bill comparison using Metrix and stipulated savings
ECMs Installed	<ul style="list-style-type: none">• Energy management systems• Energy efficient chillers• New cooling towers• Lighting retrofit• HVAC unit replacement
ESCO Comments	This project was done in conjunction with major campus upgrades and building additions

FLORIDA DEPARTMENT OF CORRECTIONS

North Florida counties

ESCO

TECO Solutions

Features

16 facilities
4.6 million square feet

Project Cost

\$15,607,867

Projected Annual Savings

\$1,200,000

Guaranteed Annual Savings

\$1,150,000

Measured Annual Savings

\$1,150,000

Annual Operational Savings

Lighting (annual group relamp for 10 years, including lamps, ballasts, labor): \$481,654
HVAC maintenance: \$17,012
Laundry maintenance: \$15,000
Boiler maintenance/staffing: \$93,544
Avoided diesel handling costs: \$6,055

Contract Term

10 years

Funding

Tax-exempt lease; grant funding for natural gas

Construction Completed

1998

Savings M&V

IPMVP Option C: whole facility, main meter approach

ECMs Installed

- Luminare retrofits
- Efficient fan motors
- Chiller plant modifications
- HVAC replacement
- New heat recovery unit
- Boiler stack economizers
- Programmable thermostats
- Solar domestic hot water system
- Energy management controls
- Conversion of fuel oil-propane equipment to natural gas
- Laundry equipment and systems upgrades
- Cold water laundry
- Replace windows in open dormitories
- Boiler replacements and controls
- Fix steam leaks
- New variable-speed drives
- New chiller in medical facility

TECO SOLUTIONS

HERNANDO COUNTY SCHOOL DISTRICT

Brooksville, Florida

ESCO	Tampa Bay Trane Asset Management
Features	17 buildings (9 elementary, 4 middle, 3 high schools and 1 auditorium) Approximately 1.76 million square feet
Project Cost	\$17,421,873
Pre-Project Annual Utility Costs	Electric: \$2,600,000 Gas: \$47,000 Water: \$330,000
Projected Annual Savings	\$839,595
Guaranteed Energy Savings	\$839,595
Measured Energy Savings Stipulated Energy Savings	\$802,865 \$36,730 (water conservation)
Operational Cost Savings	\$301,821 (material and outside maintenance contract savings)
Contract Term	20 years
Funding	Tax-exempt municipal lease
Construction Completed	2000
Savings M&V	Point Source (FEMP Option A)
ECMs Installed	<ul style="list-style-type: none"> • Lighting retrofits • Dedicated outdoor air units • Building automation systems & central workstation for district • Chiller replacements / central chilled water plant • Convert DX HVAC equipment to chilled water • Air handler replacements • Variable frequency drives on air handlers • VAV retrofits (replace VAV boxes and convert constant volume to VAV) • Water conservation • Energy awareness/behavior modification program
ESCO Comments	Hernando County School District is located in West Central Florida and comprised of 17 schools serving a population of over 130,000 residents of Hernando County. The School District was dealing with aging infrastructure and a lack of capital to fund needed HVAC and plant upgrades. The District also desired to improve their ability to perform preventative maintenance in their school buildings. Centralizing operations, converting inefficient DX and unitary systems to chilled water, upgrading building automation, and increasing outdoor air to ASHRAE 62 standards were among the goals of the performance contracting project.

TAMPA BAY TRANE

CITY OF JACKSONVILLE

Duval County, Florida

ESCO	Viron Energy Services
Features	19 buildings (city hall, police station, fire and rescue building, convention center, performing arts center, city services office building, libraries, traffic signals) 1,459,389 square feet 1,013 traffic signal intersections
Project Cost	\$7,276,854
Pre-project Annual Utility Costs	\$1,810,133
Projected Annual Savings	\$636,914
Guaranteed Annual Savings	\$618,903
Measured Annual Savings	\$534,594
Stipulated Annual Savings	\$84,309
Operational Cost Savings	\$11,333 (material and labor savings from traffic signal retrofits)
Contract Term	20 years
Funding	Local utility company bonds
Construction Completed	In construction
Savings M&V	IPMVP Option C: Ongoing building comparison of pre-retrofit and post retrofit utility usage IPMVP Option B: Pre and post retrofit measurement of utility usage
ECMs Installed	<ul style="list-style-type: none"> • LED traffic signals retrofits • New energy management control systems • Lighting retrofits • Variable frequency drives on pumps and supply fans • Solar photovoltaic system for lighting • Solar water heating • Primary to secondary chilled water conversions • Outdoor air ventilation retrofits • Energy efficient HVAC condenser units • Water conservation retrofits • Web-based utility monitoring – utility vision
ESCO Comments	This project represents Phase 1 of the retrofit of the City of

VIRON ENERGY SERVICES