Strategic Facilities Management Using Public and Private Funding for Energy Projects: A Case Study

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Abstract:
The Alamo Community College District (ACCD) in San Antonio, Texas has a long history of participating in public and private sector loan programs for facilities energy projects. In its most recent experience, the District has demonstrated the value of these loans beyond simple kWh savings. In 2002, The District received $3.0 million in private sector loans for projects including indoor lighting retrofits, cooling tower upgrades, and Continuous Commissioning®. Documented energy cost savings from this project exceeded the projected savings since its completion in early 2005. Now nearly a decade later, ACCD is participating in a State-funded revolving loan program for energy retrofits estimated at $10 million. A wide range of projects are proposed, including indoor *and* outdoor lighting retrofits, central plant upgrades, solar thermal pool heating, enhanced retrofit commissioning and installation of water based thermal storage systems. In addition, existing campus load profile analysis uncovered utility rate change options that yielded instant savings. In total, over $1 million per year in cost savings and 4 megawatts of mitigated power generation capacity are projected due to these projects. This paper presents the details of the loan procurement process as part of a state program designed for building energy efficiency retrofit projects, and how ACCD is using available resources to strategically integrate short-term systems upgrades with long-term infrastructure, energy management, and sustainability goals.

Keywords:
Facilities Management, Energy Loans, LoanSTAR, Thermal Storage, Strategic Planning, Energy Cost Reduction Measures

1. Introduction

It is a well-established fact that energy performance improvement projects can have a significant impact on an institution's overall financial performance and environmental footprint. Steps to improve energy performance can also lead to improved comfort, which positively affects occupant productivity. For many organizations facing economic downturn, revitalizing and expanding energy initiatives can help spur economic activity and reduce operating costs. In the last few decades, funds to finance public and private sector projects have become increasingly abundant. However, barriers such as a lack of understanding for financial and engineering aspects of such funding programs, lack of competent owner's representation, and perceived risks have discouraged widespread participation. ACCD, the

subject of this case study, has successfully navigated these barriers over several rounds of energy project funding in order to strategically cut utility costs while stimulating growth even in a harsh fiscal climate.

2. Background

In 2001, ACCD received a preliminary energy assessment report funded by the U.S. Department of Energy (DOE) Rebuild America Program. After reviewing the findings and conducting a competitive bidding process for potential lenders, the District initiated a $3,076,207 loan program financed by a local bank at 3.84% interest. The basis of the loan was a detailed assessment conducted by Texas Energy Engineering Services, Inc. (TEESI) with Continuous Commissioning® (CC®) portion lead by Texas A&M's Energy Systems Laboratory (ESL). The assessment covered approximately 2,350,000 ft^2 of facility area, comprising four main campuses and two district office buildings in San Antonio, Texas. Proposed Energy Cost Reduction Measures (ECRMs) included: indoor lighting improvements, motion sensors installation, Saint Philip's campus central plant cooling tower upgrade, controls systems upgrades, variable frequency drive and booster pump installation at Palo Alto College, and CC® at all existing locations. ECRMs planning to implementation phase steps included: preliminary energy analysis report, detailed energy assessment (investment grade) report, design and construction management of ECRMs, CC® and Measurement and Verification (M&V). TEESI's scope was design and implementation of approved ECRMs while the ESL was responsible for CC® and conducting M&V for the project. Retrofits were implemented using the traditional Design-Bid-Build approach while commissioning and M&V activities were through inter-agency agreement. The simple payback of individual projects ranged from 3 to 22 years with overall payback projected at almost 7 years. Loan repayment equaled $3,513,038.76 ($41,821.89 per month times 84 months). Loan repayment was from January of 2003 through December 2009, and was sourced from savings from the District's utility budget generated by ECRMs. There were no explicit guarantees of energy savings with total reliance on the team experience, proven technology applications, and quality control techniques. The CC® measures were completed in late 2003 while retrofits were completed in late 2004 to early 2005. Measured savings indicated actual payback of 6 years compared to projected payback of almost 7 years. ESL continues to monitor savings and work with ACCD staff to constantly fine-tune the operations of the buildings.

In May of 2012, the ACCD Board of Trustees formally requested the Chancellor to develop, manage, and direct the District's Sustainability Program. The sustainability mission of the District is "meeting our needs today while ensuring that future generations retain the ability to meet their needs". ACCD embraced environmental, social and economic sustainability by making provisions and taking responsibility for its decisions and actions. The program will integrate the values of sustainability, stewardship, and resource conservation in the way that it interacts with the physical environment and community. The program emphasizes embracing sustainability for existing buildings' maintenance and operations, and renovation projects. To this end, the District will establish seven environmental sustainability areas of concentration: Sustainability Literacy, Energy, Air Quality, Waste Management, Water, Facility Maintenance, Renovation and Construction, and Purchasing.

In anticipation of adopting this program, ACCD facilities management department initiated a preliminary energy assessment to identify opportunities for upgrading equipment and infrastructure while further improving energy efficiency. The findings were included in the

application submitted for a competitive loan procurement program as administered by State Energy Conservation Office (SECO). The newly proposed ECRMs were divided into two phases of detailed assessment and loan procurement: Phase I in 2011 and Phase II in 2012. Detailed assessments covered a total of 4.3 million ft^2 in San Antonio including a recently added main campus. Selected ECRMs will greatly impact ACCD's energy efficiency and help achieve its goals in the short as well as long term.

3. Facilities Description

The ACCD locations selected for projects included San Antonio College, Saint Philip's College, Southwest Campus, Palo Alto College, Northeast Lakeview College, Northwest Vista College, and two District Office locations. Table 1 summarizes the primary energy users (lighting and HVAC) at each facility. With the exception of the District Offices and Southwest Campus, most facilities use chilled water (CHW) cooling provided by water-cooled centrifugal chillers. San Antonio College and Northeast Lakeview College each distribute CHW to campus buildings with a single central plant and CHW loop. Northwest Vista College serves buildings from two separate central plants, but on one common loop. Palo Alto College also uses two plants, but a valve system can isolate a separate CHW loop for each if desired. Finally, St. Philip's College has a new section of campus served by a separate chiller plant and distribution loop. The new plant at St. Philip's uses variable primary pumping, while all other plants have constant primary, variable secondary systems. On the air side, the vast majority of units are single or dual duct variable air volume (VAV) air handling units (AHUs), with some single zone units for areas such as gymnasiums and theatres.

Table 1. ACCD Facilities Summary.

Campus	Approx. Square Footage	Indoor Lighting	Outdoor Lighting	Cooling	Heating	Primary Air Distribution
San Antonio College	1,587,000	T8 fluorescents and metal halides	HID pole lights and wallpacks	Four 1,000 ton water cooled chillers	Five 4,000 MBH steam boilers	Single and dual duct VAV AHUs with fan powered boxes
Saint Philip's College	785,000	T8 and T5 fluorescents and metal halides	HID pole lights and wallpacks	Seven 500 ton water cooled chillers	Three 8,370 MBH steam boilers	Single duct VAV AHUs with fan powered boxes
Southwest Campus	385,000	T8, T5, and T12 fluorescents and metal halides	HID pole lights and wallpacks	Rooftop units, split-DX and two 180 ton air cooled chillers	Electric and gas furnace, one 1,000 MBH HW boiler	Single duct VAV AHUs, RTUs
Palo Alto College	553,000	T8 fluorescents and metal halides	HID pole lights and wallpacks	Five 500 ton water cooled chillers	Electric terminal reheat and three 4,123 MBH HW boilers	Single duct VAV AHUs with fan powered boxes
Northeast Lakeview College	464,000	T5 fluorescents and metal halides	HID pole lights and wallpacks	Three 800 ton water cooled chillers	Electric terminal reheat	Single duct VAV AHUs with fan powered boxes
Northwest Vista College	588,000	T8 and T5 fluorescents and metal halides	HID pole lights and wallpacks	Four 500 and two 375 ton water cooled chillers	Electric terminal reheat	Single duct VAV AHUs with fan powered boxes
District Office, Houston Street	33,000	T8 Fluorescents	HID pole lights and wallpacks	Rooftop units and split-DX	Electric and gas furnace	Rooftop units and split-DX
District Office, Sheridan Street	44,000	T8 Fluorescents	HID pole lights and wallpacks	Rooftop units and split-DX	Electric and gas furnace	Rooftop units and split-DX

4. LoanSTAR Revolving Loan Program

The Texas LoanSTAR (loans to Save Texas And Resources) Program is the largest state-run energy efficiency and conservation program of its kind in the United States. The program is administered by the Texas State Energy Conversation Office (SECO). Loan funds are targeted for energy retrofit projects at public buildings throughout the state of Texas. The program was initiated by the Texas Energy office in 1988 and approved by the DOE as a state wide building energy efficiency demonstration program. Original funding of $98.6 million for energy efficient retrofits came from Petroleum Violation Escrow (PVE) funds. As a demonstration program, it went through an extensive data monitoring and evaluation process. During the mid-90's, the demonstration label was removed from the program. During the demonstration phase, Borrowers used traditional Design-Bid-Build project delivery method. In 2001, the program was opened to participation by Energy Savings Performance Contracts (ESPC) and water conservation programs. The success of the program is attributed to the quality control mechanism put in place and the detailed guidelines for the program participants. Table 2 summarizes performance results from program inception through March 2012 (source: SECO).

Table 2. LoanSTAR program results since inception through March 2012

Number of Loans	212
Number of loan defaults	0
Volume of loans	$305,332,224
Cumulative energy savings	$355,762,062
Cumulative emissions savings	11,024 tons Nitrogen oxides, 3,611,090 tons Carbon dioxide, 7,918 tons Sulfur dioxide and 0.05 tons Mercury

The program provides funding for measures that will result in utility dollar savings, not just energy consumption savings. The cost of a detailed energy assessment report can be rolled into the loan amount, if desired by the Borrower. A cumulative simple payback of ten years or less is required, and current single application loan funding limit is a maximum of $5 million per application. Loan repayment schedule is provided to the Borrower when: the project is 100% complete, the project has been approved by the SECO Engineers, the Borrower has received all reimbursements, and SECO has received the Borrower's Final Report.

The principal amount on the Loan Repayment Schedule consists of the dollars reimbursed plus the interested accrued on the reimbursed dollars. Each time a Borrower requests a reimbursement during construction, interest begins to accrue on the amount reimbursed. Interest rates under the program range from 2.5% to 3.0%. Interest will continue to accrue up to the day of the first loan payment. Repayment of loan starts 90 days after the project official closeout. As loans are repaid by the Borrower(s) the money is returned to the program to make additional loans, making it an ongoing or "revolving" funding program.

5. ECRMs (Phase I and II)

Due to maximum loan amount limitations per application, ACCD's recent funding procurements were divided into two phases. Phase I is currently in the design and construction phase with a loan of $4,999,975 for projects including indoor lighting upgrades, central plant upgrades, solar pool heating, and thermal energy storage. Phase II funding has recently been approved and is entering the design and construction phase, with a loan of $4,815,464 for projects such as outdoor lighting upgrades, thermal energy storage, controls upgrades, and enhanced commissioning. Both phases have a projected completion timeline of 12-18 months. The project costs and savings presented in the sections that follow are based on utility dollar savings only and do not include potential maintenance savings or rebates from the utility provider, with the exception of rebates included in the proposed thermal storage projects.

5.1. Phase-I ECRMs

Table 3 summarizes the energy, environmental, and financial impact of Phase I projects. A brief description of each proposed Phase I measure follows.

Table 3. ACCD LoanSTAR Phase I Project Summary.

SUMMARY OF PROJECT (Phase I)		
	Total	
kWh Savings	6,481,548	kWh/yr
Demand Savings	19,977	kW-mo/yr
Gas Savings	6,036	MCF/yr
Total MMBTU Savings	28,332	MMBTU/yr
Utility Cost Savings	**$498,421**	**$/yr**
Base Year Cost Reduction	8%	%
Est. Annual Greenhouse Gas Emission Reduction (CO_2)	**4,662**	**Tons**
Est. Mitigated Power Generation Capacity	**2.1**	**MW**
Implementation Costs	$4,999,975	$
Simple Payback	10.0	Years
LoanSTAR Interest Rate	**3.00**	**%**

Interior Lighting Retrofits: This project comprised a retrofit of existing light fixtures by replacing all 32 W, T8 lamps with 28W, extended life T8 lamps. Fixtures were located throughout the buildings in hallways, offices, conference rooms, classrooms etc. Savings calculations were based on manufacturers published wattage levels and observed operating hours, with adjustments for heating penalty and cooling savings. Implementation costs were based on current vendor quotations at quantities corresponding to district-wide fixture retrofits. Costs included lamp and ballast disposal per Federal and State guidelines. Across all the ACCD campuses, projected costs and annual utility savings for this project were $794,327 and $101,054, respectively, yielding a simple payback of 7.9 years.

High Bay Lighting Retrofit: It was also recommended to replace existing HID light fixtures in gymnasiums, mechanical/electrical rooms, and other areas with 32W, T8 high bay linear fluorescent lamps and fixtures with high ballast factor (>1.15) ballasts. Savings calculations were based on manufacturers' published wattage levels, and implementation costs were based on current vendor quotations. Costs included lamp and ballast disposal per Federal and State

guidelines. Across all the ACCD campuses, projected costs and annual utility savings for this project were $322,197 and $61,310, respectively, yielding a simple payback of 7.9 years.

Central Plant Upgrades - San Antonio College (SAC): The central plant at SAC will undergo a major retrofit involving chillers, cooling towers, pumps, hot water generation system and controls upgrade. Two out of three existing 1,000 ton chillers were recommended for replacement with new high efficiency units. The existing wooden cooling tower for these chillers (chillers and cooling tower installed in 1991) were also recommended for replacement. Savings calculations for these projects were based on cooling load bin hour analysis in conjunction with manufacturer's data for chiller part loading, as shown in Figure 1. Equipment performance requirements will be enforced through guide specs, formal submittals and certifications. The projected costs and annual savings for this project are $1,586,760 and $151,393, respectively, yielding a simple payback of 10.5 years.

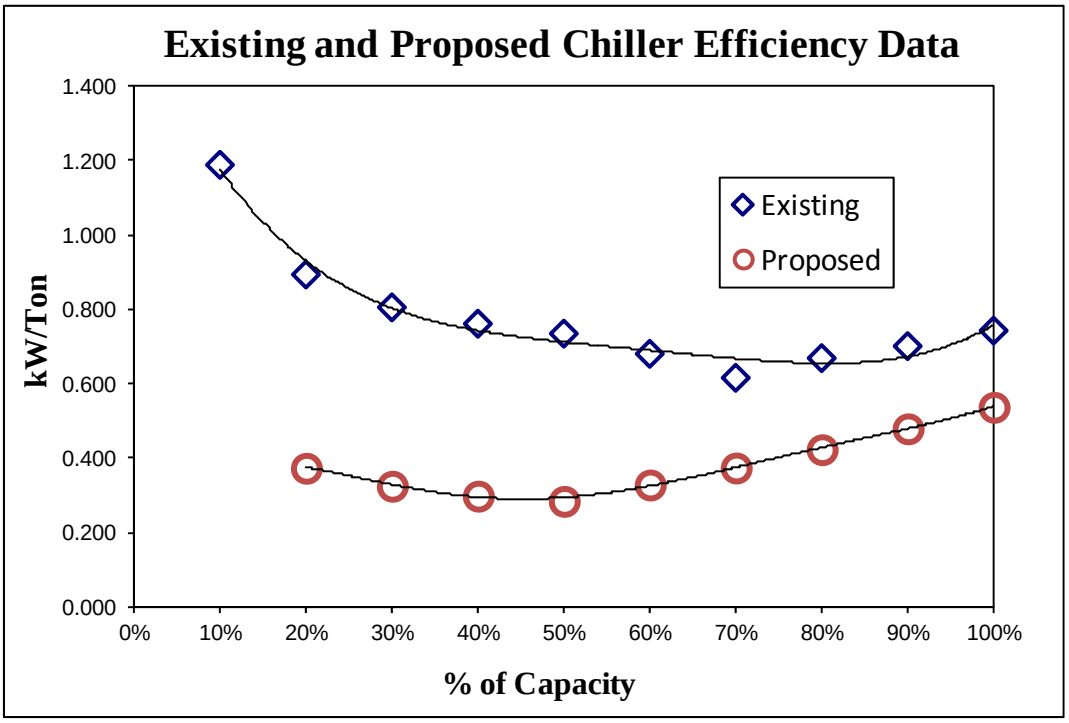

Figure 1. SAC Chiller Part Loading Data Used in Savings Calculations.

As part of the chilled water (CHW) system upgrades, it was also recommended to install variable frequency drives (VFDs) on four primary chilled water pumps to modulate the pump speed as required by the chiller load. In addition, it was recommended that flow restriction devices such as triple duty valves be removed from both primary and condenser water (CW) loops, and that VFDs be installed on condenser water pumps to balance flows to design levels under the new optimized pump head. The anticipated costs and annual savings for this project are $125,232 and $34,320, respectively, giving a simple payback of 3.6 years.

The existing SAC boiler plant comprises five 4,000 MBH steam boilers. Each steam boiler is equipped with a steam-to-hot water heat exchanger. This project proposes to replace the existing steam boilers and associated heat exchangers with four new high efficiency 4,000 MBH hot water boilers and two 2,000 MBH condensing hot water boilers with upgraded controls. The project scope included turnkey installation and removal/disposal of old existing

equipment. The estimated costs and annual savings for these central plant upgrades is $558,227 and $30,503, respectively, giving a simple payback of 18.3 years.

Solar Thermal Pool Heating System Installation -SAC: This project involved installation of a solar collector pool heating system to supplement the existing pool boiler at the Candler Physical Education Center. The solar collection system was to provide a first stage of heating for the pool, with the natural gas fired boiler used as a second stage when needed. The anticipated costs and annual savings from this project are $87,048 and $5,793 respectively, giving a simple payback of 15 years.

Install Thermal Storage System (TSS) - Northeast Lakeview College: This project involved installing a water based Thermal Storage System (TSS) to shift the cooling demand from on-peak periods to off-peak periods. The "cooling" demand to be shifted includes the chiller kW, primary and condenser pump kW and the cooling tower fan kW. The system will use existing chiller capacity, and the storage tank will be located adjacent to the physical plant. Piping will be added to connect the chillers and the storage tank system. The capacity of the proposed storage tank (approx. 9,000 ton-hrs, 1,000,000 gallons) was calculated based on the peak kW-profile for the highest demand day of the year, while the potential savings were calculated based on the peak profile for the highest demand day in each month. These profiles were determined from central plant trend data taken from the campus control system. An example of an observed peak day in August of 2011 is shown in Figure 2. These profiles were confirmed with 15-minute interval data from the utility provider.

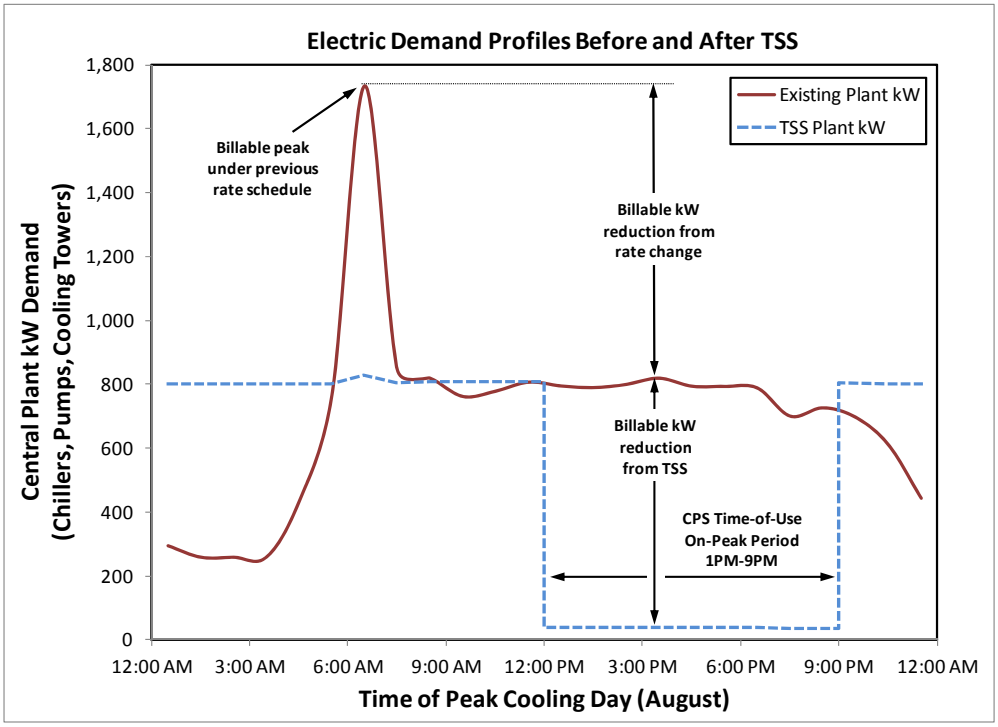

Figure 2. Peak load profile from central plant trend data.

The TSS will store chilled water at 40°F (colder supply will maximize capacity) in the evening between 11 PM and 7 AM, for campus cooling use during the utility company “City Public Service” (CPS) demand window from 1 PM to 9 PM. The plant demand will be minimal (secondary pumps only) during this entire peak time (i.e., this is a full-shift design).

In addition, existing system flow restrictions (flow regulating devices, etc.) will be removed and VFDs installed on the primary chilled water pumps. Existing condenser water pumps were determined to be oversized for the application. The new CW pump will be selected with a larger impeller and smaller, slower premium efficiency motor, still meeting flow and head requirements. Primary pump VFDs will be used to vary flow through the chillers as needed to maintain optimum leaving water temperature at the optimum chiller load.

To fully realize savings from the TSS, the NLC campus will be switched to CPS's time-of-use rate. From an analysis of current consumption and demand at NLC, it was determined that the facility could benefit from a rate change with no capital retrofits required. The utility cost savings during the interim period before completion of the TSS project were included in the ECRM. In addition, NLC was found to be eligible for a "High Voltage Discount" of $0.39/kW. The utility rate change modeling and impact was discussed and verified with the utility. The new rate is already in place and saved nearly $15,000 through two months (January-February of 2012) when compared to "what-if" billing using the previous rate schedule. The thermal storage project has an anticipated cost and annual savings of $1,526,184 and $114,049, respectively, yielding a simple payback of 13.4 years.

5.2. Phase –II ECRMs

Table 3 summarizes the energy, environmental and financial impact of Phase II projects. A brief description of each proposed Phase II measure follows.

Table 4. ACCD LoanSTAR Phase I Project Summary.

SUMMARY OF PROJECT (Phase II)		
	Total	
kWh Savings	6,708,533	kWh/yr
Demand Savings	24,320	kW-mo/yr
Gas Savings	2,553	MCF/yr
Total MMBTU Savings	25,519	MMBTU/yr
Utility Cost Savings	**$481,851**	**$/yr**
Base Year Cost Reduction	9%	%
Est. Annual Greenhouse Gas Emission Reduction (CO_2)	**4,603**	**Tons**
Est. Mitigated Power Generation Capacity	**2.0**	**MW**
Implementation Costs	$4,815,464	$
Simple Payback	9.99	Years
LoanSTAR Interest Rate	**2.50**	**%**

Outdoor Lighting Retrofits, Multiple Campuses: This project involved retrofitting existing light fixtures by replacing Metal Halide (MH) exterior lighting with suitable induction lamp retrofits reusing the existing housing. Fixtures are located throughout the campus in parking lots. The projected costs and annual savings for this project are $576,906 and $40,658, respectively, giving a simple payback period of 14.2 years.

Install TSS System Palo Alto College and Northwest Vista College: Similar to the TSS for Northeast Lakeview in Phase I, this project scope includes construction of a water based thermal storage tank with related piping, as well as installation of pump VFDs to balance primary and CW flows with optimized pump heads. In the case of Northwest Vista College, the proposed tank was sized to mitigate the load of one of the two NVC central plants only

(Texas Persimmon Plant). At Palo Alto, space limitations led to a constrained tank size, from which the potential load shift was back-calculated (i.e. a partial storage design). Both campuses, and especially PAC, currently have issues with low CHW system ΔT (as low as 6°F on average at PAC when designed for 10°F). In order to maximize the cooling capacity of the proposed TSS tanks, and thus the potential for load shift, solving or improving the low ΔT will be part of the project. In addition to providing colder water from the tanks, zone pressure regulation valves will be installed at buildings nearest to the central plant to restore coil controllability and prevent control valve blow-through. Other possible causes will be investigated as part of a proposed enhanced commissioning program. With these changes in effect, the system ΔT is expected to achieve 12-16°F or more with the TSS in place. The Phase II TSS projects have a projected cost and annual savings of $2,696,497 and $158,427, respectively, yielding a simple payback period of 17 years.

Enhanced Building Commissioning: This ECRM proposes an enhanced commissioning program that will supplement and build on the CC® measures that was initiated over eight years ago and that is currently on-going. The proposed ECRM will combine aspects of controls optimization, retro commissioning, specs for repair and minor retrofits and design/construction phase commissioning for TSS and other new systems. It will include new measures focusing on load management and enhanced demand controls, as well as repair and retrofit projects such as VFD installation. The ECRM is expected to be a key component of ensuring that overall projected savings for both phases are realized. The proposed program has a projected cost of $958,789, which includes a $248,789 allowance for minor repairs and upgrades as well as air-handler VFD installations. The estimated yearly savings is $265,441, giving a simple payback period of 3.6 years.

EMS installation at Northeast Lakeview College, Building 7990: This ECRM comprised installation of an EMS interface with five Rooftop Units (RTUs) at a satellite building for NLC. Savings were calculated from avoided operating hours due to resultant scheduled start/stop capabilities, as well as cooling energy savings from potential remote setbacks and setpoint limitations. The anticipated costs and annual savings of the project are $17,315 and $3,306, respectively, yielding a simple payback of 5.2 years.

EMS upgrade- Northeast Lakeview: This ECRM proposed to tie an input signal from motion sensors installed in spaces to existing VAV box demand setup/setback functions. When spaces are unoccupied, setpoints will be reset up 3 degrees in cooling and down 3 degrees in heating, saving on fan energy as well as cooling/heating energy during unoccupied periods. The upgrade will also aid in the ability to reset ventilation amounts based on actual sensed occupancy on respective units. The projected costs and annual savings from this project are $186,591 and $14,018, respectively, giving a simple payback period of 13.3 years.

6. Savings Summary

Figure 3 shows the cumulative savings from the commissioning and retrofits performed as part of ACCD's initial energy loan from 2002 to September 2011.

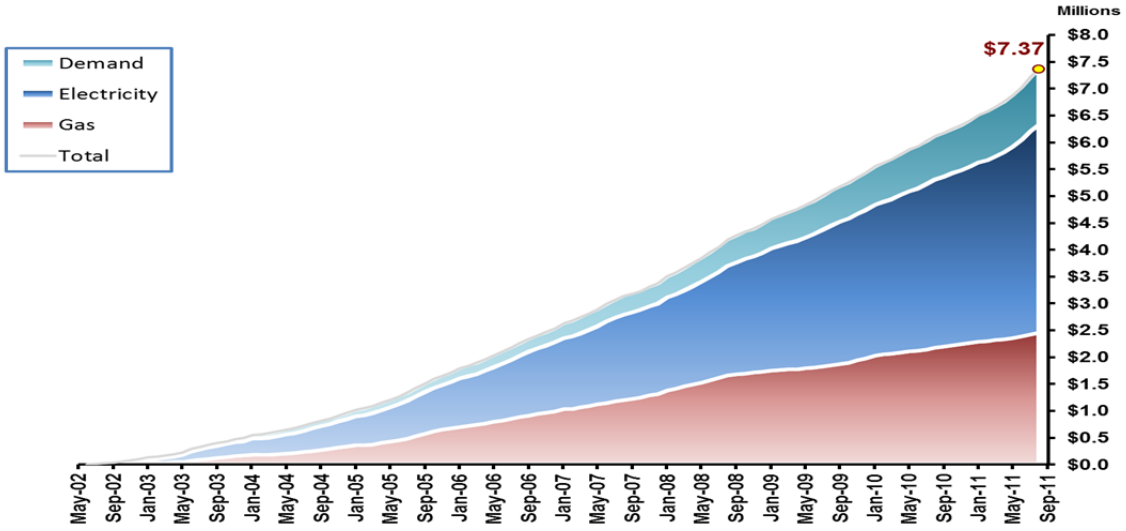

Figure 3. Estimated savings from CC measures (Courtesy Energy Systems Lab).

The experience with and success of the previous program shown above played a pivotal role in the District's decision to pursue additional energy retrofit programs. The recent adoption of a District-wide sustainability plan set a goal to reduce energy use by 20% from the base year (August 2011 to August 2012) while also reducing the Colleges' carbon footprint. The Phase I and II ECRMs, as summarized in Table 5, are expected to contribute significantly toward these economic and environmental goals.

Table 5. Phase I and II ECRMs Summary

SUMMARY OF PROJECT (Combined Phase I and II)		
	Total	
kWh Savings	13,190,082	kWh/yr
Demand Savings	44,297	kW-mo/yr
Gas Savings	8,589	MCF/yr
Total MMBTU Savings	53,851	MMBTU/yr
Utility Cost Savings	**$980,273**	**$/yr**
Base Year Cost Reduction	17%	%
Est. Annual Greenhouse Gas Emission Reduction (CO_2)	**9,265**	**Tons**
Est. Mitigated Power Generation Capacity	**4.1**	**MW**
Implementation Costs	$9,815,439	$
Simple Payback	10	Years

In addition to the energy consumption and greenhouse emissions savings possible from this program, Alamo Colleges will also be able to take advantage of other long-term benefits, such as mitigating equipment replacement, maintenance, and repair costs. The fast paybacks of measures such as lighting retrofits, CC®, and enhanced commissioning make possible larger infrastructure upgrades such as chiller and boiler replacements. Other projects like thermal storage, whose cost savings are not as immediate, represent an investment in the next 30+ years by the district, when energy *demand* is anticipated to be a larger component of utility costs. In addition, the system will enable participation in demand response programs and provide standby cooling capacity if needed.

In addition to energy and demand cost savings, the Phase I and II projects also offer other cost benefits such as utility rebates. Utilities offer standardized rebates for lighting and HVAC upgrades, while custom rebate programs are available for other technology such as TSS. Up to $850,000 in rebate opportunities are anticipated from standard offers alone. For TSS in particular, TEESI will negotiate with CPS to incorporate extended monitoring for five years or more to verify electrical load reduction. The resultant real-time metering by the utility may identify additional opportunities.

7. Conclusion

ACCD, as a public institution, has utilized both public and private sources of funding for energy efficiency project implementation. By adopting a District sustainability plan, with particular emphasis on energy consumption reduction, top management has shown its commitment to sustainability and long-range strategic planning. By undertaking longer payback thermal storage projects, ACCD is positioning itself to absorb anticipated higher future demand costs. A projected 4 MW of peak demand reduction represents utility cost savings for the District as well as mitigated generation capacity for the utility provider. Shorter payback programs such as commissioning make longer payback projects possible and act as a quality control and assurance to verify goals are being met.

Availability and access to public and private loan funding programs can play a vital role in providing facilities management departments a means to upgrade aging equipment through a stream of energy savings. Unfortunately, obstacles such as economic uncertainties and perceived risk often discourage participation. Careful selection of a technical team to represent Owners throughout the process and clear but flexible loan program guidelines are all critical to overcoming these hurdles. As demonstrated by Alamo Colleges, strategic and experienced use of energy loan programs can help reduce operating costs and spur economic development while positively impacting the environment.

Acknowledgements:

Special thanks to Tom Glass with TEESI for his experience and guidance in thermal storage system analysis and assistance in the field. Thanks also to ACCD campus facilities staff David Ortega, Sergio Rivera, David Wissmann, Sherry Toliver, Bernie Zertuche and many more for their assistance throughout the detailed assessment process. Thanks to Joe Martinez with Energy Systems Lab for providing historical savings and campus load data used to generate load profiles. The Authors will also like to thank Eddy Trevino, Program Manager for the LoanSTAR program and the Texas State Energy Conservation Office for providing useful reference material related to the LoanSTAR program. Finally, thanks to City Public Services personnel for their support in providing rate schedule information and utilities interval data.

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