

## Section 1 – Overview of Approach

We are an Energy Service Company (ESCO) focused on providing optimal value, unbiased solutions and effective energy-efficiency, facility-improvement services. Energy Solutions Professional's highly skilled team and streamlined corporate structure enable us to offer exceptional services at unparalleled value for our clients. ESP's team offers holistic project development, implementation and Measurement & Verification services that span energy & facility audits, energy & design engineering, energy behavioral training, assistance securing financing and project / construction / performance management expertise.

One of our main objectives when engaging a client is to identify opportunities to reduce their operating cost, and guarantee that savings will be sufficient to pay for energy and other facility improvements over time. This allows facility upgrades to be acquired without the client needing to spend capital dollars. The volatility and increasing cost for electricity, water and gas has heightened awareness regarding energy efficiency and has enhanced both the interest in and need for implementing energy-saving projects.

### Mission, Vision and Guiding Principles

- **Mission:** *To provide exceptional energy-efficiency and facility-improvement services in a professional, people-oriented and cost-effective manner, with an emphasis on integrity and excellence.*
- **Vision:** *To be an organization of unparalleled integrity that is client-focused and offers services that yield tangible value for our clients.*

### COMPANY STRENGTHS

#### Personal:

- Primary owners and team members have had substantial success in industry, with broad-range of clients
- Our members have **provided & received** energy services, so we are empathetic to client needs
  - ⇒ **One of our Key Members (Dale Worley) was the first Administrator of the State of Kansas' FCIP**
  - ⇒ **He provides unique and beneficial insight that helps ESP maximize value for State Agencies**
- Commitment to meeting client's needs and objectives above all else
- Conviction that conscientious service provides extremely beneficial value
- Broad range of experience and positive references in many different market-segments

#### Corporate:

- Size and structure enables us to provide client-focused, highly personal services
- Owners are actively involved, so we can respond with flexibility and timeliness
- Established strong relationships with vendors, subcontractors and financiers, so can offer value-oriented services for equipment, installation and financing of projects.

#### Financial:

- We can provide superior services and value for considerably lower cost.
- Project financing and insurance will not be profit center for ESP, so client will receive absolute best value for these critical components of service.

ESP's entire Team is committed to providing holistic solutions, which is embodied within our *Energy Efficiency Triad™* approach. Utility and operating costs can only be optimized if equipment and systems are at peak efficiency, people are trained how to utilize systems in a cost-conscious manner, and utility supply is evaluated from both cost and sustainability perspective. Taking this holistic approach ensures optimal savings over time.

### PRIMARY SERVICES OFFERED

Our sole focus is to provide cost-effective and value-oriented professional services designed to help our clients improve energy-efficiency, enhance facility environment, resolve critical infrastructure needs and assist in future planning. There are four primary areas in which we provide professional Energy Solutions services:

## 1) Project Development

- Utility Bill Analysis: evaluation of historic utility usage and costs, rate structure and billing history. This analysis identifies consumption/cost trends, billing anomalies and provides a macro-look at facility/campus energy efficiency.
- Facility Needs Analysis: determines what systems are in need of repair, replacement and/or retrofitting for energy or functional reasons. This may include taking field-measurements of power-consumption, airflow, water-flow, temperature readings, etc. in order to establish the functionality level of existing systems.
- Energy Utilization Indexing: provides a comparative analysis of a given facility's energy usage to similar facilities in like regions in order to help understand the viability of implementing energy efficiency measures to reduce costs. In addition, may provide a breakdown of consumption by end-use device in order to help a client understand where they should focus their energy efficiency efforts.
- Energy Efficiency Design Review: planned and existing system designs may be reviewed by our experienced Professional Engineer(s) to determine if the design falls within current "best-practice" design for energy efficiency and life-cycle cost.
- Preliminary Energy Analysis: determines the economic viability regarding implementation of an energy performance contract.
- Investment Grade Audits: Please refer to Section 5 for a detailed description of our IGA approach and process.

## 2) Project Implementation

- Project Management: this involves all functions associated with securing bids, writing and overseeing all sub-contracts, establishing an implementation schedule, managing construction process (i.e. establishing communication channels between ESP, clients and subcontractors, and verifying site-condition construction parameters). We will provide a full-service turn-key approach to project management, using management techniques that we have honed over many years in the business. Our clients will have the comfort of single-point responsibility for all work implemented on their behalf.
- Construction Management: this is the on-site management that is critical to ensuring the project flows smoothly and has the smallest amount of impact on the client's day-to-day operation as possible. We will hold regular on-site meetings in which activities are planned using a three-week look-ahead approach, and all job-site issues are discussed and addressed. Our construction manager was the administrator of the State of Kansas' Facility Conservation Program for 5-years, so was responsible for over-seeing over \$100M of energy performance contract projects in that time-frame.

## 3) Performance Management

- Pre and/or Post Efficiency Measurements: involves methodical measurement of key energy consuming system's operating parameters (power consumption, light levels, flow-rates, entering/leaving temperature, combustion ratios, etc.) to establish efficiency and functionality of equipment. This is a key component in our method of measuring and verifying guaranteed energy savings are achieved.
- System Commissioning: providing professional assistance in commissioning / evaluating systems to ensure their functionality and that all sequence of operations have been appropriately implemented.
- Energy Awareness Training: a people-oriented training that instills a sense of responsibility in the staff, students and patrons (i.e. occupants) of facilities. This program has a long history of success over a broad spectrum of clientele settings
- Measurement and Verification: formal service that quantifies guaranteed savings and establishes a customized plan; based on client needs and desires, for measuring the efficacy of the energy efficiency measures installed.

## 4) Assistance with Financing Options

- Budget and Operational Expenses Review: analysis of client budgets to assist with long-term facility planning in conjunction with energy performance contracting.
- Assistance in Securing Lease for Project: Pass-through service to assist the client in identifying potential financiers, evaluating financing "bids" and securing the best-value financing source for performance contract project.

## KEY PERSONNEL

Combined our team members have over 300 years of practical experience providing business development, design and energy engineering, energy analysis, facility auditing, project, construction & performance management and financing services. Our Team members have provided services for numerous clients all across the United States, Canada, Mexico, Korea, Japan, and Taiwan. Projects have been completed for all levels of educational facilities, local, state and federal government, hospitals, correctional facilities, industrial, commercial facilities, residential high/low rises, etc. These highly qualified and exceptional professionals have SUCCESSFULLY completed energy performance contracts for over 140 clients totaling about \$300M in total project costs. So, clients can rest-assured that we have practical experience with successfully implementing energy-savings based projects.

## ADDITIONAL INFORMATION

ESP is a Kansas Limited Liability Company, and a Small Business Enterprise (SBE). We have a corporate structure and size that enables us to offer comprehensive services and tangible guarantees, without the large overhead costs associated with other ESCOs. We have no parent company to answer to, and no ties or agreements with product vendors, utilities or other service providers. Our vendor-independent, flat-tier construction and distinctive approach minimizes cost, gives our clients more control over energy conservation measures (ECMs), equipment and services selection, while shifting the risks associated with project implementation onto ESP and our team of experienced and highly skilled engineers. Our creative, unbiased technical expertise enhances savings potential, while superior project and construction management reduces costs. We offer comprehensive and unique performance management services that maximize savings and diminish difficulties during the guarantee phase of the project. Our approach puts control firmly in your hands, while we complete a guaranteed program geared toward your specific needs.

### Energy Efficiency Triad™

ESP's entire Team is committed to providing holistic solutions. So, we have developed an approach that we refer to as the *Energy Efficiency Triad™* (See Graphic). We recognize that utility and operating costs can only be truly optimized if equipment and systems are at peak energy efficiency; people are trained how to utilize systems in an effective and cost-conscious manner and utility supply is evaluated from a cost and sustainability perspective. Our dedicated group of energy conservation training personnel has practical experience implementing behavior-based energy saving programs that help individuals understand how their actions can dramatically impact energy usage and costs.



#### Supply

Includes all aspects of how a client acquires and pays for energy. We look for things like billing errors, possible rate changes, power purchase agreements, power quality, renewable energy options and more.

#### Facilities & Systems

We take a comprehensive look at facilities and their energy-consuming systems to identify all of the energy-saving opportunities available (interior and exterior). A more detailed list of the wide variety of energy conservation measures we have evaluated on past projects is included in Section 3.

#### Behavior

Often overlooked by other companies, how people use and operate your facilities is just as key to your energy consumption. We work to identify behaviors and practices that could be changed to save substantial additional energy.

### ESP Approach to Completing Energy –Saving Performance Contracting (See Graphic)

The Energy Solutions Professionals team has developed and honed our approach to successfully completing projects over many years in the business working together as a team on over 140 projects, and our collective experience includes roles as the provider and as the recipient of the service. This gives us a unique understanding of what it takes to provide optimal value for our clients. We have specifically geared our process towards maximizing these and other benefits, and our team's vast experience

helps us accomplish that goal. We remain people-oriented by having regularly scheduled workshops to obtain your staff’s input. Since the project follows a negotiated process, continual communication and collaborative team-work are keys to overall success.

The typical approach for implementing energy performance contracts involves three phases: *project development*, *project implementation* and *performance management*.

**Project development** includes two distinct analyses. The Preliminary Energy Analysis (PEA), or Feasibility Analysis, typically includes review of the most recent year’s utility data, brief site survey & analysis, limited needs appraisal, development of projected savings and estimated project magnitude. When the PEA shows that an economically viable project exists an Investment Grade Audit (IGA) may be conducted. The (IGA) includes 3 year utility review, comprehensive facility analysis, field measurements, project scoping, energy engineering, subcontractor bids for firm pricing, (guaranteed) savings development and a mutually agreed upon measurement and verification plan. The IGA results in comprehensive information that enables sound planning for implementation.

Preliminary Analysis  
Investment Grade Audit

**Project implementation** usually results in a design-build approach in which the ESCO takes single-point responsibility for managing the entire process. Final design-build engineering is completed during the implementation stage. Usually, local subcontractors provide labor and materials, and the ESCO provides construction and project management services. It is normal to include system commissioning; which ensures all mechanical and electrical systems are ready for active service, with implementation services. Comprehensive (hands-on and on-site) technical training is provided for each piece of equipment and/or system installed.

Engineering Design  
Construction  
Commissioning  
Training

**Project performance** includes both the functionality of installed equipment, and verification that savings are actually achieved. The commitment from the ESCO is that prior to a project being “Final”, all systems will function as designed. Further, a Measurement & Verification Plan will be carried out that yields quantifiable evidence that savings goals are met.

The management plan identified here represents the “typical” approach that most every energy service company would incorporate in an energy performance contract project. While the steps are fairly generic, the personnel, processes, philosophy and corporate structure of the company providing the services can have a dramatic impact on the results, effectiveness and value the client receives. Energy performance contracting is a largely negotiated procurement process, so it is very important for the client and ESCO teams to develop effective channels of communication and a high degree of trust.

M&V of Savings  
Performance Management  
Maintenance (Optional)

We at ESP are committed to developing a partnership in which we work with you to facilitate *your* (not our) project. Our vendor and commodity independence enables us to develop unbiased, value-oriented and personalized solutions for your needs. We provide experts to fulfill the required roles for development, implementation, and long-term performance. In addition to providing the technical expertise, our business philosophy and approach to project management is designed to maximize the benefits obtained from implementing a performance contract. Our process will create a true partnership between our project team and the State Agency or Municipality staff, so that your interests play the essential role in defining the project scope.

Another aspect of ESP’s Project Management plan that provides extreme value for our clients is our commitment to “flat-tier” project management. This means we will contract directly with each primary trade and may directly purchase (if it adds value for our client) major equipment. This greatly reduces amount of double markups, which has a significant reduction on construction cost, which will enable the client to acquire a greater number of improvements for the savings generated. In addition, this approach creates separation between specialized trades and products, which can shorten implementation time, because we can award contracts as each trade’s scope is finalized as opposed to waiting for everything to be completed. This allows the project to be “fast track” in nature. Also, by holding all primary subcontracts we take responsibility for the entire project, eliminating “hand-off” problems between design, construction and various contractors, which reduces finger-pointing and blame-game challenges.

Energy Solutions Professionals was founded in 2006 and have been in business as an independent ESCO for 5.75 years; however, this doesn't tell the whole story with respect to the "age" of our company. Energy Solutions Professionals' Team members have a combined experience in the energy services field of over 300 years, and many of our team members have worked together since the early 1990's. We have purposely formed our Team with highly skilled individuals that have long track records of success within the Energy Services field. While there are companies that may boast of longer history in the industry, there are few project teams that can match the experience of the people ESP assigns to each and every task for completing an energy-efficiency, facility-improvement project. ***Effective energy services comes down to the quality of the PEOPLE providing the service, and ESP's team offers unparalleled experience, commitment and service in a truly cost-effective and value oriented manner for our clients.***

It is important for us to point out that our Team members have successfully implemented projects all over the United States; and even internationally, while being based within the Kansas City area. We certainly recognize the importance of the ESCO having an on-site presence for both the audit/project development and construction phases of the project. We use local labor and/or vendors (to extent possible) to install the energy saving measures you have selected. Service after the project is often managed by our team, but is provided by your preferred local contractors, which yields overall better service and response times.

The following table provides a synopsis of the number and magnitude of energy-saving performance contracts our team members have been involved with over the many years we have been in the energy services field. These projects were completed in areas including CA, DC, GA, IL, IA, KS, LA, MD, MI, MN, MO, NV, NJ, NY, OK, PA, SC, TX, and VA. Further, these projects were for both very small, very large state entities and everyone in-between.

Organization Type	Quantity of Projects	Approximate Total Contract Amount
<b>State Government</b>	<b>31</b>	<b>\$38,270,000</b>
Department of Corrections	12	\$20,750,000
Social Rehabilitative Services	9	\$9,050,000
State Schools (for special needs)	2	\$1,470,000
State Office Buildings	8	\$7,000,000
<b>Local Government</b>	<b>21</b>	<b>\$20,750,600</b>
Cities/Municipalities	13	\$9,780,600
Counties	8	\$10,970,000
<b>Primary/Secondary Education</b>	<b>39</b>	<b>\$86,101,000</b>
<b>Federal Government</b>	<b>6</b>	<b>\$7,337,000</b>
<b>Higher Education</b>	<b>35</b>	<b>\$145,506,000</b>
Community/Technical Colleges	8	\$11,154,000
Colleges/Universities	27	\$134,352,000
<b>Private Sector Clients</b>	<b>9</b>	<b>\$4,685,500</b>
	<b>141</b>	<b>\$302,650,100</b>

## Section 2 – Project History

### 2.1. Related Experience:

#### 2.1.1 Design, engineering, installation, maintenance and repairs associated with energy-savings performance contracts:

As a full-service Energy Services Company that has no product or service to “push”, ESP’s primary focus is to provide cost-effective and value-oriented professional services designed to help our clients improve energy-efficiency, enhance facility (and global) environment, resolve critical infrastructure needs and assist with future planning.

##### **Development/Design Services**

As we have identified elsewhere in this response, ESP has a highly qualified and diverse project team, and our members have provided energy services to a wide variety and large number of clients over many years. Our Team includes multiple licensed professional engineers, certified energy managers, certified field-technicians who provide testing, balancing, commissioning and other practical field services. Our entire design / project development team understands and works around the precept that our solutions must be technically correct, while also taking into account practical field conditions that will impact serviceability and equipment life. All of the services we provide with respect to project development provide information that is utilized in both the energy and design engineering aspects of our projects.

Our solution development services encompass more than the traditional facility (i.e. load and space calculations for determining equipment sizing), because it is imperative that we understand load requirements, energy efficiency and actual field functionality needs in order to provide optimal energy efficiency designs. Hence, we provide truly holistic services that allow us to make recommendations based on traditional technical aspects, existing field conditions and utility usage.

##### **Development Services Provided**

- Utility Bill Analysis: evaluation of historic utility usage and costs, rate structure and billing history. This analysis identifies consumption/cost trends, billing anomalies and provides a macro-look at facility energy efficiency.
- Facility Needs Analysis: determines what systems are in need of repair, replacement and/or retrofitting for energy or functional reasons. This may include taking field-measurements of power-consumption, airflow, water-flow, temperature readings, etc. in order to establish the functionality level of existing systems.
- Energy Utilization Indexing: provides a comparative analysis of a given facility’s energy usage to similar facilities in like regions in order to help understand the viability of implementing energy efficiency measures to reduce costs. In addition, may provide a breakdown of consumption by end-use device in order to help a client understand where they should focus their energy efficiency efforts.
- Energy Efficiency Design Review: planned and existing system designs may be reviewed by our experienced Professional Engineer(s) to determine if the design falls within current “best-practice” design for energy efficiency and life-cycle cost.
- Preliminary Energy Analysis: includes (in part or in whole) the above three items, and further provides an economic viability analysis regarding implementation of an energy performance contract. Typically will include projected savings magnitude and the potential magnitude of improvements these savings could fund.
- Investment Grade Audits: includes all of the above items. In addition, project costs will be acquired from pre-qualified contractors, savings will be calculated and guaranteed, and financing options will be developed and presented. This results in a “laundry-list” of potential energy efficiency and/or facility improvement measures that could be provided, typically includes individual cost, savings and payback for the client’s review. Also, a formal construction plan and schedule will be developed.

##### **Approach to Recommending and Designing Solutions**

We are committed to gaining a truly comprehensive understanding of our client’s facilities, systems, people, business and financial situation so that we can design and recommend holistic solutions that optimize value for our clients. We use energy performance contracting as a tool to help address energy efficiency, critical infrastructure needs, environmental / comfort and code-compliance issues. Therefore, we must evaluate every facet of your organization to find the best design solutions for your unique situation.

Our approach to evaluating, recommending and designing energy and facility solutions is based on bridging the gap between theory and reality so that improvements can yield maximum results for our clients. We will utilize all the data collected, engineering principals, computer modeling and the personal input of our clients to develop optimal solutions. Our evaluation and development process is based on maximizing system efficiency, while being sure to meet operating requirements; based on actual measured field data. Our engineers and designers use a combination of engineering principals and logged-data from your facilities to ensure that our designs for solutions are practical and will work effectively in each given facility.

We are totally independent from all vendor, subcontractor and energy suppliers. This enables us to take a truly unbiased and client-focused position on every improvement measure considered for inclusion in the energy performance contract project. We will analyze a wide range of available products and services and; along with your staff, will mutually determine what products and services offer the best long-term value for the client. We specifically guide this evaluation towards a total-cost-to-own as opposed to lowest-first-cost-criteria, which gives the client the ability to make sound long-term decisions regarding selection of solution designs.

One of the main driving forces behind all solutions developed for energy performance contracts is energy efficiency. However, we at ESP will always include occupancy comfort, system reliability and safety. It does not do anyone any good to install systems that will not yield a comfortable and positive environment. We task ourselves with knowing about "leading-edge" technology and applying where feasible, while never going so far that we recommend systems that do not have a proven track-record of reliable service. Finally, all of our technical Team members have practical field experience, so safety and maintainability are important factors that are weighed in the evaluation and recommendation of solution designs.

### **Installation Services**

The vast experience and broad spectrum of facilities, equipment and system types that our team has worked in gives us a platform from which to provide exceptional installation services. Our Team consists of individuals that have been providing and/or receiving installation services for 15-30 (even 40) years so we are able to react quickly and effectively as field issues arise. We offer comprehensive installation services that encompass both the administrative and field aspects associated with installation, including:

- **Project Management:** this involves all functions associated with securing bids, writing and overseeing all subcontracts, establishing an implementation schedule, managing construction process (i.e. establishing communication channels between ESP, subcontractors and our clients, and verifying site-condition construction parameters). We will provide a full-service turn-key approach to project management, using management techniques that we have honed over many years (our Team Members have over 300 years in the energy services field) in the business. Our clients will have the comfort of single-point responsibility for all work implemented on their behalf.
- **Construction Management:** this is the on-site management that is critical to ensuring the project flows smoothly and has the smallest amount of impact on the client's day-to-day operation as possible. We will hold regular on-site meetings in which activities are planned using a three-week look-ahead approach, and all job-site issues are discussed and addressed. Our construction manager was the administrator of the State of Kansas' Facility Conservation Program for 5-years, so was responsible for over-seeing over \$100M of energy performance contract projects in that time-frame.

The following verbiage provides an overview of some of the "practical application" of our project and construction management approach to both procuring equipment/services and managing implementation efforts. We identify how we select and procure equipment and subcontractors, manage on-site construction. Additionally, we have shared some of the approaches we take to ensure that projects are completed in a timely, cost effective and energy efficient manner.

### **Equipment Selection & Procurement: A key Component of ESP's Value-added Approach to Performance Contracting**

The Energy Solutions Professionals Team prides ourselves on using common-sense, engineering principles and practical field experience in recommending and making equipment selections. After going through the processes identified above to determine equipment and facility needs, we work collaboratively with our client's staff to determine sound equipment replacement and/or retrofit solutions. Refer to below for details on our unique "flat-tier" procurement approach to maximizing value for our clients.

Our primary objective in selecting equipment is to identify equipment solutions that improve the energy efficiency, facility comfort and maintainability within the client's facilities. We will work with your staff to find equipment that will reduce energy costs, while improving the environment within the buildings. We understand the importance of having access to key components of equipment, and the value that being able to properly maintain equipment has over time. We will work with your staff to identify ways of improving maintenance access for your equipment.

Some key factors that we weigh when selecting equipment:

1. Strive to match current client standards and product preferences
2. Verify heating/cooling loads and match equipment selection to actual loading conditions.  
(Utilize field-measurements not simply theoretical calculations)
3. Evaluate on "Cost to Own" not just "First Cost"
  - a. Evaluate and compare first cost, on-going energy consumption and maintenance costs to find "best value"
  - b. What is the maintenance track-record for various vendors
  - c. Who has best local support in case of maintenance needs
4. An advantage to this procurement approach is that the client has much more say in the equipment selection, because it is not a requirement that the "low-bid" provider be taken. Hence, LLC staff will play a key role in final equipment selection.
5. We will evaluate cut-sheets and submittal information, and mutually determine which solutions offer the best long-term value for the State of Connecticut entity.

### **Procurement Process**

Our vendor, subcontractor and commodity independence provide the neutral and unbiased base from which value-driven equipment and subcontractor selection and procurement take place. We have no preconceived ideas about what equipment or provider should "get the work", so we normally obtain multiple bids for the ensuing scope of work. During the qualification process of the subcontractors and equipment suppliers, we will gain a thorough understanding of their industry strengths and weaknesses to ensure that the scope they are bidding matches up to those strengths. As a result we will have multiple qualified contractors from multiple trades provide bids for the scope of work, and multiple material bids from qualified vendors will be solicited. Evaluating contractors, developing multiple scope documents, soliciting, acquiring and analyzing multiple bids adds time and effort to our process; however, we are convinced it results in much better pricing and greater value for our clients, not to mention a better end result.

While we do not have any corporate ties with anyone else, our Team has established strong relationships with many of the leading providers of energy efficiency equipment; such as lighting, HVAC, motors, variable-speed drives, energy management systems, etc. These relationships have earned us national-buying account ratings, so we are able to secure very low prices and some of the best warranties offered in the business. Frankly, we often purchase equipment and services from our ESCO competitors; such as Trane, Johnson Controls/York, Honeywell, TAC and others, when their equipment offers the best solution for a given client.

The competitive bid process that we manage does not allow simply ANYONE to bid. As discussed above, we run all vendors and subcontractors through a rigorous pre-qualification process that must be passed in order for us to even consider accepting a bid from them. A significant part of this process involves obtaining information from client staff and administration regarding what local subcontractors and vendors have provided stellar work, so that we can get them on the list.

Another aspect of our equipment and subcontractor selection process that is designed to maximize value for our clients is that we will strive for "**flat-tier**" project plan. This means that we subcontract directly will all of the major trades, and may purchase large equipment directly, which greatly reduces markup cost and enables clients to acquire more improvements for the same amount of savings.

ESP's Team of experts will work directly with the client team to select the best-value equipment and/or vendor(s) for your specific application. You will not be required to buy any product or service as part of our project, so your staff and administration will

have ultimate control over who/what gets used for the project. We often provide bid-sheets summarizing each subcontractor and vendor bid, so your staff can make informed decisions regarding final selection of equipment and subcontractors.

### **Subcontractor Selection Process**

As described above, we will conduct a competitive-bid selection process. This process will not be per the traditional plan and specification approach. We take a design-build approach in which only highly qualified (preferably local) subcontractors are solicited. Similar to the equipment selection/procurement process, we look to help you identify the “best value” not necessarily the “lowest first cost”. Factors such as qualifications, track-record and experience with similar work will weigh heavily in selecting a quality subcontractor.

Some Key Subcontractor Selection Criteria Factors include:

1. Proven track-record, experience and qualifications of the contractor
2. Demonstrated expertise in the scope of work being implemented
3. Ability to complete work within the projected schedule – guaranteed energy saving projects typically are completed under a fairly “fast-track” process, so ability of the subcontractor to staff-up to meet timelines is important
4. Since much of the scope of work will be retrofit and/or replacement of equipment within existing facilities the ability of the subcontractor to complete work with minimal negative impact on the day-to-day operations of the client will be evaluated and weighed.
5. Capability and experience of assigned project team
6. Pricing and flexibility of pricing structure
  - a. Will subcontractor provide Open Book Pricing approach?
  - b. Are they willing to provide “labor-only” pricing? (ESP may; when it provides value, direct-purchase major component equipment in order to reduce multi-tier markup for client)
  - c. Component and unit pricing for easy adjustment of scope

### **The Subcontracting Process**

Energy Solutions Professionals provides a single-source, turn-key approach to implementing guaranteed energy savings contract projects. Our staff provides the analysis, development, design, implementation and performance management services for the entire project. Our subcontracting process has been honed over many years of practical experience managing construction projects.

As we discuss elsewhere, this process includes a competitive-bid selection in which pre-qualified providers submit bids based on design-build scopes of work generated by ESP’s engineering team. This bid process includes an evaluation not only of first-cost, but also life-cycle value that reviews equipment life, maintenance costs, energy-efficiency and projected energy savings for the various approaches. Our team sits with the client’s project team and mutually develops who the true “best value” provider is after evaluating all the pertinent factors associated with first-cost, maintenance, energy-efficiency, life-cycle cost, etc.

Once the subcontractors are selected, we develop and have the subcontractors sign standard DBIA Subcontract agreements. These subcontracts identify all of the standard terms and conditions that they must adhere to as part of working on the project. These include items such as: certificate of insurance, payment and performance bond, site-condition requirements, safety manuals, payment application process.

We take the Design Build process seriously and work diligently with our subcontractors to give them a sense of ownership and pride in the work that they helped develop. This typically leads to a higher level of motivation and quality from our subcontractors. We recognize the critical role that subcontractors play in developing and implementing an effective guaranteed energy savings project, and strive to make them feel like Team Members working collaboratively to ensure the best possible results for the client.

### **Maintenance and Repairs**

ESP is willing to work with the client to directly provide or arrange for any on-going services that you desire. After the installation is complete, and commissioning and training have been wrapped up, we take post-measurements of equipment efficiency to ensure that the systems we installed are performing as expected and generating the appropriate level of savings.

We work with you to handle any warranty issues that may come up and can assist in arranging for any ongoing service contracts that you would like.

Additionally, we can provide ongoing behavioral training and monitoring of your energy-savings. None of these ongoing services are a requirement of our performance contract in order for our savings guarantee to be valid, so we'll work with you to identify if any of these make sense in your situation.

### **(a) Scheduled Preventative Maintenance**

The Performance Management / Service period encompasses the time-frame from the day of Final Completion of construction through the Final Payment on the lease, which ranges anywhere from 7 to 20 years. During the first year after completion, we provide assistance with warranty management and standard operational questions. We also have the ability to offer on-going Measurement & Verification (M&V) services, maintenance training, Energy Management System monitoring &/or (re)commissioning and management of preventative maintenance services. We will discuss these services at length with your staff, and help your personnel determine whether there is enough tangible value for you to consider using these services. Our personal history has been to help clients know how to do these things internally, and dissuade them from including on-going costs and services as part of the contractual commitment of the Energy Performance Contract. That is primarily because we typically feel the money is usually better spent investing in your facilities rather than our services. However, we are happy to go through a cost and benefit evaluation with your staff to determine which on-going services may make good sense for your given application.

We have one basic principal that we apply to all services we offer: we must provide tangible value and beneficial service before we are even willing to propose any of our services.

An example from a project our members worked on would yield some insight into our thinking. During the Investment Grade Audit phase of completing a project for Southeastern Illinois College it was uncovered that SIC was paying about \$120,000 annually for "full service" on controls and HVAC equipment by a leading controls manufacturer. Investigation by Mr. Flathman identified that the maintenance was not being performed effectively; and further, that once the measures included in the project were implemented a local HVAC/Service contractor would provide comprehensive maintenance for less than \$10K/year. This tangible/quantifiable operational savings was the most significant single line-item of savings for the project. This taught a few things:

- ▶ Maintenance agreements must be monitored closely to ensure work is done.
- ▶ Utilizing local service companies can be more cost effective, and typically someone local takes more pride in doing a legitimately good job.
- ▶ ESP members have developed maintenance plans, managed their creation and ensure quality performance. However, this is likely something that the State of Connecticut entity can take-on themselves to reduce costs.

Energy Solutions Professionals does not have our own fleet of service trucks and technicians. We are SOLELY focused on providing "exceptional energy-efficiency and facility improvement services in a professional, people-oriented and cost-effective manner, with an emphasis on integrity and excellence". We can help our clients develop and manage preventative maintenance programs; however, we have determined that our clients typically benefit more by doing the maintenance in-house or hiring local subcontractors to provide these services.

The State of Connecticut entities staff, Energy Solutions Professionals, one of the subcontractors on the project, a specialized service contractor, or a combination thereof will provide maintenance of installed equipment. The decision about who provides maintenance is determined individually for each project based primarily on the maintenance capabilities and desires of the client. If the client handles all maintenance, we provide a checklist of tasks to be required, and conduct training (as described above) to assure they are done properly. In each case, ESP must be assured that all equipment will be properly maintained.

If it is determined that follow-up maintenance is to be provided by Energy Solutions Professionals, we provide it through pre-qualified, local, and specialized service company(s). Our personnel may manage the maintenance effort; however, the service itself will be provided by specialized service companies. It is important to note that ESP is totally open to negotiating the maintenance contract, and we will work with client staff to determine what the best-value approach is for their facilities.

Any company that we would engage to provide an on-going maintenance function would be qualified to fulfill the role they are assigned, and would be capable of providing consistent, reliable and quality service. Since we would first target local contractors; and if necessary we would train their staff (including the service company's staff in the training programs described earlier) on the systems we install as part of the guaranteed energy savings project, the client can be assured that response times would be prompt and service would be conscientious.

It has been our experience that an effective energy services project will result in less overall maintenance cost for the client. New equipment is often provided to replace older more maintenance intensive equipment. Equipment run time is typically reduced, resulting in fewer failures and less maintenance. Retrofit of existing equipment for improved energy efficiency can result in less maintenance. An enhanced, web-based and accessible computer-based energy management system can make troubleshooting HVAC and other systems much easier.

Energy Solutions Professionals will provide a list of tasks required to periodically be performed on the major energy consuming equipment. These tasks are commonly accepted as minimum preventive maintenance services required in ensuring that equipment works efficiently. Preventive maintenance is extremely important for various reasons. One of the primary reasons includes keeping the equipment at peak efficiency and performance. This is the most important aspect of maintenance. It allows the client the ability to insure the energy savings are being achieved since our guarantee is usually tied directly to the efficiency of the equipment. ESP recognizes the importance of preventive maintenance and will develop a detailed, clear, project specific procedure to be followed throughout the term of the project so that a transition can easily be made in the event that you decide to redirect services from in-house to out-source, or from one provider to another.

Based on the list of preventative maintenance tasks, available time by the maintenance staff, the required tools available, and the level of staff expertise, a joint decision is made with the cities administration and staff as to whether equipment maintenance is to be the responsibility of ESP or the facility staff.

An effective maintenance plan is a vital ingredient to an effective energy performance contract. We will work with you to develop and implement a successful plan.

As mentioned above, ESP is certainly capable of securing a maintenance plan for the term of the Energy Performance Contract, and if it is mutually agreed that this would actually be in the best interest of the Client, then we would do so. However, our experience has been that our projects typically reduce the amount of "putting out fires" that is needed by your in-house staff, so they have more time for actually being proactive with regards to the preventative maintenance plan, reducing your need for out-source maintenance help.

### **2.1.2 Conversions to a different energy or fuel source, associated with a comprehensive energy efficiency retrofit:**

Our team has been involved in numerous comprehensive energy efficiency retrofits that involved fuel switching. A recent example is our Cathedral Square Towers project which is currently in development. It involves moving the multi-tenant housing client from district steam to natural gas. District steam prices have risen drastically over the past several years in this specific location, while natural gas prices have remained low. Switching to natural gas will result in major savings for the client.

Our team has also implemented several cogeneration systems for schools in New York that produced electricity from gas-fired turbines and used the waste heat to generate hot water that was used for heating in the winter and cooling in the summer. This allowed the districts to avoid paying rising electric costs or to peak shave when the opportunity was favorable.

In other instances, we have switched clients from gas to electric systems where the exchange was in their favor. Our team also has past experience with designing district cooling plants that generate ice overnight to avoid peak charges, and then provide cooling to multiple buildings in a downtown or campus setting during the day.

### 2.1.3 Post-installation project monitoring, data collection and reporting of savings:

The reason for measurement and verification is simple: provide quantitative evidence that projected/guaranteed savings levels are achieved for the energy saving measures installed as part of the project. Further, it is important to balance the verification methodology versus the magnitude of savings generated; that is, don't spend an inordinate amount of time and money to verify a measure that has a relatively small magnitude of savings. Similarly, do not spend lots of time or money verifying measures for which there is a proven track-record and high degree of confidence in the efficacy of the savings. EPS's primary objective with respect to Measurement & Verification is to provide our clients the evidence they need to feel good about the results, for the least cost possible.

ESP follows the guidelines of the International Performance Measurement & Verification Protocol (IPMVP) when conducting M&V. The IPMVP is the industry standard for conducting M&V and was originally developed by the Department of Energy as a framework for conducting M&V. We are also familiar with the FEMP guidelines and the HUD Measurement and Verifications Guidelines and would be willing to follow those guidelines for your project. Our Team members have experience implementing, providing and receiving all of the M&V Options identified in the current International Performance Measurement & Verification Protocol. Every project requires an application-specific M&V evaluation, because each will have its own unique set of improvement measures, and differing levels of client parameters to meet. As stated in the IPMVP:

**“It is difficult to generalize about costs for the different IPMVP Options since each project will have its own unique set of constraints. However it should be an objective of M&V planning to design the process to incur no more cost than needed to provide adequate certainty and verifiability in the reported savings, consistent with the overall budget for the ECMs [Energy Conservation Measures]. Typically however it would not be expected that average annual savings determination costs exceed more than about 10% of the average annual savings being assessed.”**

— International Performance Measurement and Verification Protocol (IPMVP) March 2002, p42.

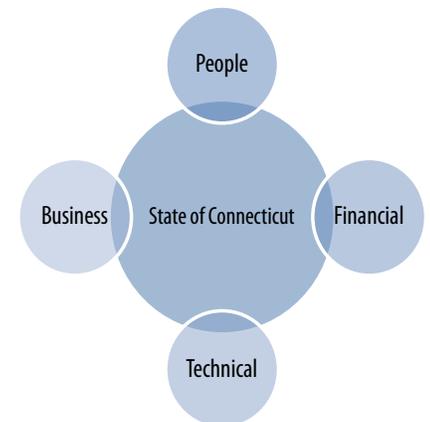
The table on the following page presents the four basic M&V options outlined in the IPMVP. We'll work with you to mutually determine the amount of measurement and verification that is most appropriate for your project, and the methods that will be used to measure and verify the savings. We have used all of the IPMVP options for verifying savings on projects.

IPMVP Option	How Savings Are Calculated	Typical Applications
<p><b>A. Retrofit Isolation: Key Parameter Measurement</b></p> <p><i>Savings</i> are determined by field measurement of the key performance parameter(s) which define the <i>energy</i> use of the <i>ECM</i>'s affected system(s) and/or the success of the project. Measurement frequency ranges from short-term to continuous, depending on the expected variations in the measured parameter, and the length of the <i>reporting period</i>. Parameters not selected for field measurement are <i>estimated</i>. <i>Estimates</i> can be based on historical data, manufacturer's specifications, or engineering judgment. Documentation of the source or justification of the <i>estimated</i> parameter is required. The plausible <i>savings</i> error arising from <i>estimation</i> rather than measurement is evaluated.</p>	<p>Engineering calculation of <i>baseline</i> and <i>reporting period energy</i> from:</p> <ul style="list-style-type: none"> <li>• short-term or continuous measurements of key operating parameter(s); and</li> <li>• estimated values.</li> </ul> <p><i>Routine</i> and <i>non-routine adjustments</i> as required.</p>	<p>A lighting retrofit where power draw is the key performance parameter that is measured periodically. Estimate operating hours of the lights based on building schedules and occupant behavior.</p>
<p><b>B. Retrofit Isolation: All Parameter Measurement</b></p> <p><i>Savings</i> are determined by field measurement of the <i>energy</i> use of the <i>ECM</i>-affected system. Measurement frequency ranges from short-term to continuous, depending on the expected variations in the <i>savings</i> and the length of the <i>reporting period</i>.</p>	<p>Short-term or continuous measurements of <i>baseline</i> and <i>reporting period energy</i>, and/or engineering computations using measurements of proxies of <i>energy</i> use. <i>Routine</i> and <i>non-routine adjustments</i> as required.</p>	<p>Application of a variable-speed drive and controls to a motor to adjust pump flow. Measure electric power with a kW meter installed on the electrical supply to the motor, which reads the power every minute. In the <i>baseline period</i> this meter is in place for a week to verify <i>constant</i> loading. The meter is in place throughout the <i>reporting period</i> to track variations in power use.</p>
<p><b>C. Whole Facility</b></p> <p><i>Savings</i> are determined by measuring energy use at the whole <i>facility</i> or sub-<i>facility</i> level. Continuous measurements of the entire <i>facility's energy</i> use are taken throughout the <i>reporting period</i>.</p>	<p>Analysis of whole <i>facility baseline</i> and <i>reporting period</i> (utility) meter data. <i>Routine adjustments</i> as required, using techniques such as simple comparison or regression analysis. <i>Non-routine adjustments</i> as required.</p>	<p>Multifaceted energy management program affecting many systems in a <i>facility</i>. Measure energy use with the gas and electric utility meters for a twelve month <i>baseline period</i> and throughout the <i>reporting period</i>.</p>
<p><b>D. Calibrated Simulation</b></p> <p><i>Savings</i> are determined through simulation of the <i>energy</i> use of the whole <i>facility</i>, or of a sub-<i>facility</i>. Simulation routines are demonstrated to adequately model actual <i>energy</i> performance measured in the <i>facility</i>. This Option usually requires considerable skill in calibrated simulation.</p>	<p>Energy use simulation, calibrated with hourly or monthly utility billing data. (Energy end use metering may be used to help refine input data.)</p>	<p>Multifaceted energy management program affecting many systems in a facility but where no meter existed in the <i>baseline</i> period.</p> <p>Energy use measurements, after installation of gas and electric meters, are used to calibrate a simulation. <i>Baseline</i> energy use, determined using the calibrated simulation, is compared to a simulation of <i>reporting period</i> energy use.</p>

### 2.1.4 Overall project management and qualifications:

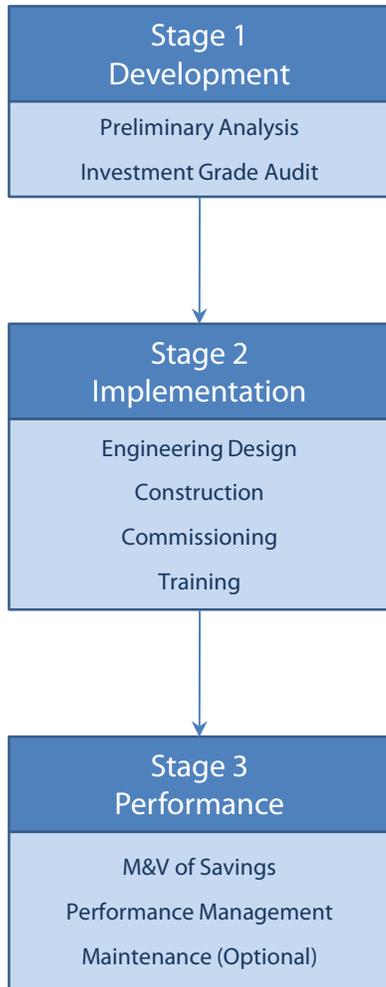
#### **Philosophical Approach**

Technical and financial aspects are the foundation of every performance contract. We at ESP recognize this; however, we also understand that people and business concerns often form the primary basis for making decisions. That is, things such as comfort, working environment and morale often are even more important than technical criteria. The chances of successful implementation and long-term value decrease dramatically if all four of these areas are not addressed. The future for State of California facilities can only be properly planned and implemented if historical and current information are used to effectively help shape that future. The process for evaluating each improvement measure should include analysis of all four core areas, and once all factors are weighed a decision regarding including that measure in the final scope can be made. Our grasp of this concept; and the subsequent procedures we have in place for Solution & Design Development and project implementation allows us to provide superior value and holistic long-term solutions.



The illustration shows the philosophical process we will use to complete a successful project. Our Team will strive to understand who you are (mission, principles, purpose, roles) and what you do (goals, plans, systems, skills). This provides the key insight for us to structure a program that addresses your needs, while remaining true to your primary mission and principles. It is critical for our team to understand your history, current situation, and future expectations, because the energy performance contract is likely to have a substantial impact on your facilities and your people.

A diverse understanding of both your facilities and project team enable us to structure our program in a manner that truly benefits your entire organization. The fundamental objective of a traditional performance contract is to identify the energy and operational saving measures and implement them. However, it is necessary to ensure that all measures we recommend be evaluated with respect to your critical needs, your overall renovation plans and that they fit within desired financial parameters.



**General Overview of Project Management Plan**

The Energy Solutions Professionals Team has developed and honed our approach to project management over many years in the business, and our collective experience includes roles as the provider and as the recipient of the services. This gives us a unique understanding of what it takes to provide optimal value for our clients. We have specifically geared our process towards maximizing these and other benefits, and our Team’s vast experience helps us accomplish that goal. As we discussed in the Solution Development Approach, we remain people-oriented by having regularly scheduled workshops to obtain your staff’s input. Since the project follows a negotiated process, continual communication and collaborative team-work are keys to overall success.

The typical approach for implementing energy performance contracts involves three phases: project development, project implementation and performance management. We have provided a flow chart and associated verbiage on the following page that gives some details regarding what is involved with completing each primary phase of the ESP project management plan.

**Project development** includes two distinct analyses. The Preliminary Energy Analysis (PEA) typically includes review of the most recent year’s utility data, brief site survey & analysis, limited needs appraisal, development of projected savings and estimated project magnitude. When the PEA shows that an economically viable project exists, an Investment Grade Audit (IGA) may be conducted. The (IGA) includes 3 year utility review, comprehensive facility analysis, field measurements, project scoping, energy engineering, subcontractor bids for firm pricing, (guaranteed) savings development and a mutually agreed upon measurement and verification plan. The IGA results in comprehensive information that enables sound planning for implementation.

**Project implementation** usually results in a design-build approach in which the ESCO takes single-point responsibility for managing the entire process. Final design-build engineering is completed during the implementation stage. Usually, local subcontractors provide labor and materials, and the ESCO provides construction and project management services. It is normal to include system commissioning; which ensures all mechanical and electrical systems are ready for active service, with implementation services. Comprehensive (hands-on and on-site) technical training is provided for each piece of equipment and/or system installed.

**Project performance** includes both the functionality of installed equipment, and verification that savings are actually achieved. The commitment from the ESCO is that prior to a project being “Final”, all systems will function as designed. Further, a Measurement & Verification Plan will be carried out that yields quantifiable evidence that savings goals are met.

The management plan identified above represents the “typical” approach that most every energy service company would incorporate in an energy performance contract project. While the steps are fairly generic, the personnel, processes, philosophy and corporate structure of the company providing the services can have a dramatic impact on the results, effectiveness and value the client receives. Energy performance contracting is a largely negotiated procurement process, so it is very important for the client and ESCO teams to develop effective channels of communication and a high degree of trust.

The vast experience and broad spectrum of facilities, equipment and system types that our team has worked with gives us a platform from which to provide exceptional installation services. Our Team consists of individuals that have been providing and/or receiving installation services for 15-40 years so we are able to react quickly and effectively as field issues arise. We offer comprehensive installation services that encompass both the administrative and field aspects associated with installation:

- **Project Management:** this involves all functions associated with securing bids, writing and overseeing all subcontracts, establishing an implementation schedule, managing construction process (i.e. establishing communication channels between ESP, subcontractors and our clients, and verifying site-condition construction parameters). We will provide a full-service turn-key approach to project management, using management techniques that we have honed over many years (our Team Members have over 250 years in the energy services field) in the business. Our clients will have the comfort of single-point responsibility for all work implemented on their behalf.
- **Construction Management:** this is the on-site management that is critical to ensuring the project flows smoothly and has the smallest amount of impact on the client's day-to-day operation as possible. We will hold regular on-site meetings in which activities are planned using a three-week look-ahead approach, and all job-site issues are discussed and addressed. ***One of our senior construction managers was the administrator of the State of Kansas' Facility Conservation Program for 5-years, so was responsible for over-seeing over \$100M of energy performance contract projects in that time-frame, and he offers us a unique perspective on how best to SERVE state-agency (all) clientele.***

### **Construction Management Processes: Communication, Scheduling & Tools**

Communication and collaborative team-work are essential for effective construction management on a comprehensive energy project. The bulk of work will consist of retrofitting or replacing equipment in facilities that are currently occupied and fully operational. Hence, communication and planning become essential to making sure that disruption of the day-to-day facility operations is kept to a minimum level. We provide a full-time; direct Energy Solutions Professionals member, on-site construction manager during the entire implementation process.

This on-site Construction Manager (CM) will be the liaison between ESP, client staff and all sub-contractors and vendors. The CM will coordinate all on-site issues and be the person that contractors and client staff goes to on a daily-basis to resolve any on-site issues. The CM will chair the regularly scheduled (weekly or bi-weekly) on-site construction meetings and distribute meeting minutes from these meetings. The CM is the master scheduler for all construction activities, and must adjust this schedule as needed to minimize negative impact on the client's day-to-day operations. In addition, this person will be responsible for field-verifying that work is being completed per design intent, and ensuring scope is completed on time and within budget. The CM will help collect field-data to be used for fulfilling the measurement & verification plan and Post Implementation Report.

We understand the difference between "substantial" and "final" completion. It is not uncommon for efforts to get lax after substantial completion has been achieved. This is when equipment is in a state of operability, but has not received final check-out. We have a process whereby our Construction Manager oversees site-walkthroughs and creation, tracking and completion of punch-list items for all scopes of work. No work will be considered final until our Construction Manager and a client staff member inspect the work and mutually agree that it is FINAL. We have forms; created specifically for each job, which will be utilized for the walkthrough and punch-list signoff.

We have honed our project planning processes over many years of experience, and practical job-site interaction. As mentioned above, ESP holds regularly scheduled construction meetings throughout the implementation phase of the projects. Our construction manager is tasked with providing an agenda and meeting minutes from the previous meeting prior to each meeting. This ensures these meetings can proceed in an orderly, timely manner, which enhances productivity of all involved. We do not believe in meeting simply for the sake of meeting, and will vary the frequency of the meeting based on the level of activity on-site.

We work with your staff to understand scheduling requirements based on client activity, and relay this to our subcontractors. The subcontractors and our team then develop a three week look-ahead schedule that identifies where they would LIKE to work 3-weeks out, where they PLAN to work 2-weeks out and where they WILL BE that particular week. This schedule is then shared with the client's project team so they can communicate with appropriate facility personnel to confirm whether the proposed schedule may work. This typically yields enough "lead-time" for staff to approve scheduling at each facility, and (when necessary) for our subcontractors to adjust their plans to accommodate client needs, without suffering a dramatic loss in production time.

There are a myriad of factors that must be weighed when putting together the implementation schedule for a comprehensive energy project. First and foremost, we will schedule all endeavors in a manner to minimize disruption of the daily-operations for the agency/client. We need to consider weather factors and try to schedule equipment replacements to not impact occupant comfort (i.e. change chillers in winter and boilers in summer so they can provide conditioning when they're needed). Hence, it may be beneficial to complete any HVAC renovations during mild-temperature months in the spring/fall as opposed to summer or winter months. It is also important to maximize dollar savings generated by the program, so we target getting the primary energy-saving measures installed as early in the process as possible. We recognize that equipment lead-time impacts construction schedule, as it is important not to have construction crews on-site with no materials to be installing, and we have specialized methods for ensuring effective material handling and implementation scheduling.

The fundamental approach is to determine what your desired completion date is, and then work back from there to determine what has to happen to accommodate the required end-date. All the factors mentioned above must be considered and will be included in the creation of the schedule. We utilize scheduling software that allows all construction parameters; including equipment lead-time and delivery, labor hours, available work-hours, holidays, etc., to be factored into scheduling process. The schedule allows identification of critical milestones that must be hit in order for subsequent work to complete on-time. The construction and project managers will monitor this software on a regular basis, and update project status based on real-time field conditions. This coupled with dynamic/regular communication with all parties helps us keep on-time.

There are several factors that have a significant impact on effective project scheduling. Clearly, sound communication channels and proactive planning are two of the primary items that can help projects proceed through implementation and mitigate "mountains out of mole hills" circumstances. It is highly likely that something will go wrong; such as equipment delivery delayed, subcontractor not staffed properly, weather does not cooperate, client activity precludes getting work done in an area as scheduled or other similar issues, during a major construction project. It is the effectiveness of the schedule planning and communication channels that will determine whether a minor issue develops into major problem.

Proactive use of scheduling software and regular communication between the ESCO Team, client project team and subcontractors can help avert trouble, and certainly reduces the chance of major problems. ESP's project team works closely with our client, vendors and subcontractors to develop a schedule; typically utilizing Microsoft Project software, that reflects realistic delivery times, committed installation times and buy-in from client staff regarding access and availability to conduct work in given areas. We then tie-together all activities so that everyone can clearly see the impact that each function has on the other (i.e. installation is impacted by availability of space to be "disrupted" and is tied to equipment delivery, which is tied to submittal approval, etc.). Demonstrating this co-dependency allows us to track the key milestones and address each step as it becomes important in the overall project schedule. Holding regularly scheduled construction meetings to review project status, update project schedule and discuss each component's progress provides a proactive platform from which effective project scheduling can be built.

The Microsoft Project software enables the Project Team (ESP, agency/client & Subcontractor staff) to track each key component of the construction schedule. ESP members will track the Investment Grade Audit progress, contract execution, engineering design, submittal review and approval, purchase-order and subcontract execution, equipment delivery, installation, commissioning and performance management using this tool. As mentioned previously, we establish a desired completion date and then work back-words to build a schedule that allows the client's objective to be met. The software allows the project team to develop task lists that are interdependent, so we can accurately develop an implementation plan and track each step of the process that leads to successful completion.

#### **2.1.5 Securing long-term financing:**

Energy Solutions Professionals Team members have assisted with soliciting, acquiring and/or setting-up financing for over \$330 million of Energy Performance Contracting projects. We have vast experience with all facets of developing a financial plan that is in our client's best long-term interest. This experience and background enables us to act as an effective liaison for our clients in securing the most cost-effective and value-oriented financing terms possible.

Although financing is an integral part of our programs, it does not constitute a profit center for ESP. Therefore, we are more than willing to evaluate all avenues of potential financing, including working with clients who decide to self-finance projects. We have strong relationships with many of the leading national lending institutions, so we work with our clients to solicit and select financing arrangements that best meet their long-term needs and objectives.

### **Determining Payment Amount**

The Financing Plan actually begins with accurately establishing the amount of utility, operational and avoided future cost savings the project will generate. This savings amount is then used as the basis for establishing the annual payment amount the client can afford to pay. This payment amount is the amount of operational and/or capital funds the client can redirect to cover the debt-service, and the payment amount is then used to “back-into” the Total Project Amount that can be funded (similar to backing into the amount of home-loan one can afford based on knowing the monthly payment that can be made).

### **Frequency of Payments**

The frequency of payments is typically determined based on client preferences. There is definitely a reduction in amount of overall interest payments made with monthly payment approach. However, this comes with added administrative costs when compared to annual payments. We are capable of helping our clients evaluate the cost (not simply financial but also “human-headache-factor”) vs. savings aspects associated with various payment frequency options. Ultimately, our clients have the final say in what frequency to utilize.

### **Term of the Proposed Agreement**

The financing/project term is usually established through an iterative process of adding scope that typically includes significant infrastructure improvements until the appropriate balance between scope, cost and financing term is reached. Clearly, the shorter the term the less interest clients will pay. However, the longer the term the greater the amount of infrastructure improvements that can be paid for by the energy savings.

### **Other terms or Information Relevant to Financing**

The typical approach for establishing financing terms has been to utilize a “flat-payment” amortization approach, which enables the client to have a fixed annual payment amount over the entire life of the project. The reality of today’s utility supply environment is that costs are rising steadily, so funding for energy efficiency projects sometimes takes advantage of a balloon or escalated payment approach. This method enables clients to acquire a greater magnitude of project TODAY; however, it locks them into an “agreed” escalation rate for utility savings. In situations where it is a GIVEN that utility rates will increase, this approach actually MAY make good fiscal sense. However, this is only true if the client had actually built this utility rate escalation into their annual budget.

ESP Member’s projects have historically exceeded guaranteed savings. This lead us to establish favorable “early payment” terms with the finance companies that we work with, which enables clients to direct excess savings to pay the lease off early. Often times, this can greatly reduce interest costs over the life of the project.

### **Potential Financing Mechanisms**

ESP’s Members have extensive experience in arranging financing, and we will lend our expertise to find the best possible solution for your situation. Our objective is to help you find the most cost-effective way to implement the project, so that you may maximize the value obtained from the savings generated through the energy-efficient measures.

Several potential sources exist for obtaining the funds necessary to enter a guaranteed energy cost savings contract. These include lease-purchase financing, bonds, or cash/capital outlay. We typically recommend financing through one of the following:

- o Performance Contract Lease-Purchase Financing: Lease-purchase financing will take the savings gained from the installation of the energy-efficient equipment and use it to cover lease costs, equipment, engineering, and energy study fees, without affecting your cash flow.
- o Tax Exempt Municipal Leases: another option is utilizing tax-exempt municipal-lease financing. When the lessor's earnings off the interest are exempt (all public entities) from federal income tax, lenders are able to offer considerably lower interest rates, which enable the savings generated by the program to cover a larger amount of up-front work.
- o There are a wide array of bond programs and energy-efficiency funding opportunities available, and our Team will work with each agency/client to determine if there are specific opportunities that should be investigated for their given project.
- o Rebates/Grants/DNR Funding: Utility companies often offer grants and rebates for a myriad of energy-efficiency improvements. Additionally, ESP's Team has secured ARRA Grant funds for numerous clients. We will work with client staff to identify and secure any/all funding sources of this nature that may be available.
- o Capital Outlay or Other Internal Funding: We do not require that our clients utilize an outsourced financing mechanism. If you have the capital funds, money through an endowment organization or other internal financing mechanism we are more than willing to work with your staff to utilize whatever funds will yield the best long-term financial solution.

Energy Solutions Professionals typically utilizes Third-Party financing in the form of Tax-Exempt Municipal Leases for our projects. This third-party financing will be signed directly between the client and whichever finance company demonstrates the best long-term value. We simply assist in soliciting and securing this financing, in a no cost pass-through arrangement.

We have worked with many financing sources, and have developed agreements that offer maximum flexibility at no cost for our clients. The financing can be set up as a master lease, allowing additional projects at a later date by simply adding a rider to the existing lease. The lease may often be set up so that there is no early or pre-payment penalty, so you may buy-down the principal if funds are available (potentially with excess savings generated from program), which can greatly reduce interest costs.

#### **2.1.6 Financial Stability:**

The owners of ESP have been in the energy services field for over 20 years, and when they founded Energy Solutions Professionals nearly six years ago they saw a significant need within the industry for a company sized and structured appropriately to be able to provide holistic and cost effective solutions for small to medium sized (\$100K to \$3 million project potential) clients. We have successfully filled that role throughout our (nearly) six-year history, while also having the expertise on our team to have provided comprehensive services for very large clients such as the University of Kansas, Greenville, SC Schools and others. We are committed to staying streamlined enough to provide value-oriented and cost-effective solutions for smaller clients, while having the financial strength and staffing to a) provide services and b) financially support commitments to larger clients. Having successfully completed projects that range from \$115K to \$26.5 million is testament to successful fulfillment of these goals. Our unique structure and team makeup provide us a very stable platform from which to continue providing these valuable energy services.

While we cannot boast a balance sheet of the magnitude that many of the multi-billion dollar ESCOs can, we do have the financial wherewithal, bonding capacity, insurance coverage and credit strength to be a viable provider of comprehensive energy services for clients of all sizes and vertical markets. ESP has grown significantly; in spite of recent economic down-turn, over the last few years, and we have developed very strong relationships with our banks, Surety Company and insurance providers. We have completed about \$39 million of comprehensive energy services; implemented through energy performance contracting, over the past 24 months. This has enabled us to develop the financial, personnel and technical resources to expand our business and fulfill at least \$20M of energy performance contracting annually moving forward.

**NOTE: Please refer to Section 3.2 for greater details regarding ESP's financial stability.**

### 2.1.7 Projects of similar size and scope:

Our project experience, size of undertakings, and types of work cover a diverse span of market types and project sizes. We have recently completed several projects for small rural cities and counties, and a two-building school district that ranged in size from \$150,000–\$500,000; as well as large projects for major universities like the University of Kansas where we completed a \$25.6M holistic energy audit and performance contract project that encompasses the majority of their main Lawrence campus. Over their careers, our team has worked on projects located throughout the United States, including several projects in the Northeast and many in California, while still being based in the Midwest.

Section 2.2 below goes into more detail regarding the specifics of the vast array of building and client types we have worked with over the years, and the magnitude of work we have done in those areas.

### 2.1.8 In-state projects and Connecticut-based subcontractors

Although we've never done a project in Connecticut, our business model is setup specifically to allow us to do work throughout the United States while still having our main office in the Kansas City area. Our team members have completed projects in New York, New Jersey, Maryland, Virginia, Washington D.C., and Pennsylvania.

In all of those efforts, our team members turned to local subcontractors and suppliers to implement the projects that were developed and designed. Our plan is to take that same approach in Connecticut and to use your local contractors to fulfill these energy-saving performance contracting projects. Not only does it benefit us to leverage well known and respected contractors and suppliers in your State, but it boosts your State's economy and workforce by developing projects using the energy-saving performance contracting model; work that otherwise does not have a funding source and would not exist. We've already begun talks with Connecticut based companies like Integrated Building Services, Atlantic Energy Concepts and PPL Savage Alert to name a few. It's too early to identify that we will be working with any of these companies specifically, but we will continue to reach out and develop relationships with Connecticut based contractors and suppliers so that we are prepared to use your local resources when the time comes to implement a project.

### 2.1.9 United States Department of Energy programs

We have submitted an application to get on the Department of Energy list of Qualified ESCOs, and expect to hear back from them with positive results any day now. We are also applying to get on the approved GSA vendor list for Energy Saving Performance Contracts. These qualifications will allow us to participate in the newly developed program by FEMP called ENABLE. The goal of ENABLE is to address energy efficiency improvements in the vast number of smaller Federal buildings that are located throughout the United States and in U.S. territories. As a smaller, streamlined ESCO who is able to work throughout the United States, we believe we are uniquely positioned to assist FEMP in this effort by providing lower-cost, higher value services for these buildings. These are the types of projects that are typically not large enough to be attractive or cost-effective for the large ESCOs.

### 2.1.10 Professional Certifications

All of our licensed professional engineers are also Certified Energy Managers by the Association of Energy Engineers. Other certifications held by our team include: Life Cycle Costing Certification from the U.S. Department of Energy, High Performance Management Certification, as well as numerous other technical certifications.

ESP will gladly assist you in assessing your buildings' ENERGY STAR rating and we can work with you to identify improvements that will allow your buildings to achieve the ENERGY STAR label. Our team has successfully addressed these challenges before and our Vice President of Engineering was instrumental in assisting the City of Baltimore, Maryland to receive ENERGY STAR® awards for three of their buildings, including their historic City Hall.

ESP is also a member of the USGBC, the organization that handles LEED certification. ESP will gladly assist State of Connecticut clients that are interested in evaluating improvements that would achieve LEED-EB certification standards.

## 2.2. Market Sector Involvement:

### 2.2.1 State Agencies

The ESP team has significant experience with implementing Energy-Saving Performance Contracts for State Agencies. As a company, we are currently on the pre-approved list of Energy Service Companies in both Kansas and California, but our team members have completed performance contracting projects in multiple other states as well. In total, our team has completed over \$38 million in performance contracting projects for State Agencies (excluding Higher Education – see below), with diverse projects such as:

- Office buildings
- Campuses and building complexes
- Correctional facilities
- State hospitals and mental health facilities
- State schools (i.e. schools for the deaf and blind)
- Parks and recreation facilities
- National Guard training facilities and armories

### 2.2.2 Boards of Education

Based on the number of projects, the ESP team has completed more projects for Boards of Education, and associated K-12 school districts, than any other type of building that we've done work in. School sizes have ranged from districts with only two buildings, to some of the largest districts in the nation (Chicago Public Schools, Greenville School District, SC), and every size in between. Our team has completed projects for more than 38 districts across the nation for a total of \$85 million in energy-efficient improvements.

### 2.2.3 Higher Education

Based on project size, the ESP team does more work in Higher Education facilities than in any other vertical market. Our team has experience in addressing the needs of multiple community and technical colleges, colleges (both public and private), and major Division I Universities. Our largest project on record is a \$26 million effort for the University of Kansas that addressed 56 of their academic buildings that encompass 4.3 million square feet of space. In total, our team has been instrumental in nearly \$140 million of performance contracting work at more than 30 colleges and universities.

### 2.2.4 Municipalities (population 100,000 - 150,000)

The ESP team has experience working with several municipalities ranging in size from 100,000 to 150,000 in population, as well as several municipalities that are much larger. The types of facilities we have addressed in these projects have included administrative and office buildings, water and wastewater treatment plants, lift stations, police and fire facilities, parks and recreation buildings, jails/correctional facilities, historical buildings, community centers, street and traffic lights, water meters, and a whole host of other buildings and systems.

The largest municipality that our team has implemented an energy-saving performance contract for is the City of Baltimore, MD (pop. 619,000). The City implemented \$2.5 million worth of improvements during the first phase, and another \$2.0 million worth of improvements to their fire stations during phase two. As part of that project, our Vice President of Operations was instrumental in assisting the City of Baltimore receive ENERGY STAR® awards for three of their buildings, including their historic City Hall.

### 2.2.5 Municipalities (population under 100,000)

As a smaller, streamlined ESCO, we pride ourselves on being able to deliver energy-saving performance contracting projects to small clients that are often overlooked or unappealing to larger ESCOs. Smaller municipalities often struggle because they need to deliver the same general types of services to their citizens as larger municipalities, but on much smaller budgets. They have many of the same types of facilities and maintenance needs and are often good candidates to benefit from performance contracting, as long as the fees being charged are reasonable.

As a company, we've purposefully structured ourselves to meet the needs of these clients. As proof of that claim, three of our recent clients have been municipalities with populations less than 3,000. Our smallest municipal client based on population is the City of Sedgwick, KS, with just 1,700 people. Using grant money that we were able to acquire for the City, we are currently making \$250,000 worth of improvements to their buildings.

### 2.2.6 Specific Government Building Types

ESP has significant experience in working in all types of government buildings. Our team members have spent over a decade working on projects under the State of Kansas' Facility Conservation Improvement Program. Not only have we provided services to State clients under that program, but one of our team members spent many years as the administrator of the program for the State of Kansas, so we have insight in working both from the provider and the client perspective. As noted above, we have worked with:

- Office buildings
- Campuses and building complexes
- K-12 school buildings
- State schools (I.e. schools for the deaf and blind)
- Parks and recreation facilities
- Correctional facilities
- National Guard training facilities and armories
- State hospitals and mental health facilities
- Computer rooms and data centers
- Libraries
- Multi-family housing
- Dormitories
- Registered historic buildings

### 2.2.7 Other Non-Buildings

In addition to the wide variety of building types that our team has been involved with making energy-efficient improvements to throughout their careers, working with a large number of State and municipal clients has led to us gaining experience in numerous different "non-building" systems that are equally a part of a State or municipal energy-consuming infrastructure. Some of the different types of non-buildings that we have been involved with include:

- Water and wastewater treatment facilities
- Pumping and lift stations
- Water metering
- Traffic signals
- Street lights
- Shelters
- Pools
- Fleet management

## 2.3. Project List:

Energy Solutions Professionals has completed guaranteed energy saving performance contracting projects for a wide variety of clients with numerous types of facilities including: state facilities of all types (correctional facilities, state office complexes/capitals SRS offices & state, National Guard, etc.), public/private hospitals, federal buildings, retirement-home housing, high-rise condominium living, major universities (academic, student housing and support facilities), K-12 schools, community colleges, municipal and county governments, hospitals, churches/faith-based organizations, retail commercial and private industry settings. Our projects have ranged from as small as \$120,000 to as large as \$26 million.

ESP might be considered a relatively “young” company; however, our people have a combined experience in excess of 300 years and we have developed and implemented a large number of projects together over many (18+) years of working together as a Team, with both ESP and other ESCOs. Our track-record of success and the results we have garnered for our clients demonstrate our ability; as a TEAM, to offer optimal results and value for State Energy Conservation Programs. We feel that the number of “repeat clients” we have is a clear demonstration of the quality, value and effectiveness of the energy services we provide. Our commitment to each of our clients is to provide exceptional service with unparalleled value.

The table below identifies the projects that ESP has completed during the past 5 years, and shows that the total dollar magnitude of those projects is \$49,966,000. Each of the projects listed below, except for the Greenville County Schools project, were guaranteed energy saving performance contracts that included the following comprehensive ESCO services: preliminary assessment, investment grade audit, design and specifications, assistance in arranging financing, project and construction management, installation of measures, commissioning, training of site personnel, and measurement and verification. In addition, the University of Kansas, Pittsburg State University, and Mulvane USD#263 projects involve ongoing metering and energy information management as part of their measurement and verification plans.

Project Name	Facility Type	City & State	Project Size (\$)	Project Size (Sq. ft.)	Year Completed
Sedgwick	City	Sedgwick, KS	250,000	9,628	In Process
St. Andrews Episcopal Church	Church	Kansas City, MO	365,000	68,018	In Process
Benedictine College	Private College	Atchison, MO	2,200,00 to 4,000,000	660,116	In Process
Cathedral Square Towers	High-rise Residential	Kansas City, MO	1,283,000	129,836	In Process
Mulvane USD 263	k-12 School District	Mulvane, KS	1,185,000	441,553	2011
Mulvane USD 263 (Phase II)	k-12 School District	Mulvane, KS	774,600	63,672	2012
Pittsburg State University (Phase I)	State University	Pittsburg, KS	4,735,000	1,491,736	2011
Pittsburg State University (Phase II)	State University	Pittsburg, KS	750,000	N/A (149 meters installed)	2012
University of Kansas	State University	Lawrence, KS	25,596,000	4,022,333	2011
Northeast Vernon County Schools	k-12 School District	Walker, MO	172,000	73,425	2012
Hodgeman County	County	Jetmore, KS	250,000	45,000	2011
Metropolitan Condominium Assoc.	High-rise Residential	Kansas City, MO	532,000	176,019	2011
Ellis County	County	Hays, KS	524,000	113,918	2011
Prairie Village	City	Prairie Village, KS	1,300,000	49,112	2011
Edwards County Hospital	Hospital	Kinsley, KS	506,000	54,645	2011
Wichita State University	State University	Wichita, KS	1,600,000	316,544	2010
Greenville County Schools	k-12 School District	Greenville, SC	2,025,000		2010
Reno County	County	Hutchinson, KS	1,430,000	241,950	2009
Nowlin Hall	Apartments	Raytown, MO	884,000	108,000	2009
Neosho County Community College	State College	Chanute, KS	114,000		2009
Liberty Public Schools	k-12 School District	Liberty, MO	5,900,000	1,464,782	2008
<b>Total - Past 5 years:</b>			<b>\$49,966,000</b>		

## 2.4. Project References:

Following are five project references and supporting detail. All of the projects were comprehensive in scope, and included a preliminary project proposal/feasibility analysis, investment grade energy audit, comprehensive list of energy services, broad selection of energy technologies and measures, and utilized a variety of measurement and verification plans. Both the Pittsburg State University and the City of Prairie Village projects received grant monies for their project and the City of Prairie Village also received a utility rebates.

### Nowlin Hall Apartments

#### 2.4.1 [Project Identification:](#)

Nowlin Hall Apartments  
 1905 Hardesty  
 Kansas City, Missouri 64127  
 Private sector not-for-profit housing

#### 2.4.2 [Contact Information:](#)

Bill Foreman  
 Vice President, Regional Property Manager  
 YARCO, Inc.  
 7920 Ward Parkway  
 Kansas City, MO 64114  
 bforeman@yarco.com  
 (816) 300-0635

#### 2.4.3 [Project Type:](#)

Energy-savings performance contract

#### 2.4.4 [Project Size:](#)

Nowlin Hall Apartments is a 108,000 square foot high-rise apartment complex. The building is 11-stories, with one of these being a basement area that consists primarily of common area and services; such as laundry and game room. There are 163 living units, 20 of which are studio units.

#### 2.4.5 [Project Dollar Amount:](#)

Contract Amount: \$883,600  
 Financed amount: \$883,600

#### 2.4.6 [Source of Funding:](#)

As a 501(c)(3), Nowlin Hall does not qualify directly for tax-exempt financing; however, we secured a tax-exempt municipal lease for them through a conduit issuer.

#### 2.4.7: [Project Dates:](#)

Audit: 3/2008-4/2008  
 Construction: 9/2008-12/2008

#### 2.4.8: [Contract terms:](#)

Guaranteed Energy Savings Contract. 12-year term

2.4.9: Project Personnel:

- Jeff Flathman (Business Development Manager)
- Bob Miller (Project Engineer/Project Manager)
- Dale Worley (Construction Manager)
- Doug Hall (Commissioning)

The people referenced above would be available for project work for the State of Connecticut.

2.4.10: Project Schedule:

Completed on schedule

2.4.11: List of Improvements:

- Lighting system upgrades
- Chiller replacement
- Boiler replacement
- Water conservation
- Vending machine controls

2.4.12: Project Performance:

Units	Projected Annual Energy Savings	Guaranteed Annual Energy Savings	Actual Energy Savings Year 1	Actual Energy Savings Year 2	Actual Energy Savings Year 3	Actual Energy Savings Year 4	Actual Energy Savings Year 5
kWh	-131,279	-131,279	-119,014	Additional Measurements not Required by Client			
kW	-214.2	-214.2	-189				
ccf	83,608	83,608	84,418				
kgals	1,007	1,007	1,245				
dollars	81,726	81,726	84,825				

2.4.13: Measurement and Verification:

IPMVP Option A: Retrofit Isolation was the primary method used to determine savings. Pre- and post-wattage of lighting was measured, along with pre- and post-flows for water efficiency improvements, and pre- and post-combustion efficiency for the boiler improvements. Vending machine controls and the chiller replacement savings were agreed to by ESP and the client.

2.4.12: Performance Guarantee:

	<u>Projected</u>	<u>Actual</u>	<u>Excess</u>
Energy Cost Savings	\$81,726	\$84,825	+\$3,099

2.4.12: Additional Comments:

ESP was able to complete the project under budget, which enabled us to utilize funds to cover the needed replacement of the aging and inefficient domestic water system, which totaled about \$13,000 installed cost. Additionally, we provided new shut-off valves and lines at all toilets and replaced some broken/missing lenses on light fixtures.

Due to the success of the Nowlin project, Yarco has engaged ESP to complete a similar project at Cathedral Square Towers and to evaluate other properties in their portfolio. The Cathedral project is another multi-tenant high-rise with primarily elderly residents, and will include the following improvements: new lighting, energy-efficient plumbing, smart vending machine controls, a high-efficiency boiler plant, a new chiller and cooling tower, a VFD on the cooling tower fan, and consolidation of the individual meters to a single master meter for rate savings.

## Liberty Public Schools

### 2.4.1 [Project Identification:](#)

Liberty Public Schools  
650 Conistor  
Liberty, Missouri 64068  
k-12 School District

### 2.4.2 [Contact Information:](#)

Mike Brewer  
Superintendent  
Liberty Public Schools  
650 Conistor  
Liberty, Missouri 64068  
mbrewer@liberty.k12.mo.us  
(816) 522-0700

### 2.4.3 [Project Type:](#)

Energy-savings performance contract

### 2.4.4 [Project Size:](#)

Liberty Public Schools consists of 19 facilities that have a total of 1.5 million square feet of space. The oldest school was constructed in 1923, and several of the newer schools were built in the early 2000's. Many of the schools have been renovated and added on to several times over the years.

### 2.4.5 [Project Dollar Amount:](#)

Contract Amount: \$5,900,000  
Financed amount: \$883,600

### 2.4.6 [Source of Funding:](#)

Tax-Exempt Municipal Lease Financing

### 2.4.7: [Project Dates:](#)

Audit: 2/2007-5/2007  
Construction: 6/2007-11/2007

### 2.4.8: [Contract terms:](#)

Guaranteed Energy Savings Contract. 10-year term

### 2.4.9: [Project Personnel:](#)

Jeff Flathman (Business Development)  
Bob Miller (Project Engineer/Project Manager)  
Dale Worley (Construction Manager)

The people referenced above would be available for project work for the State of Connecticut.

### 2.4.10: [Project Schedule:](#)

Completed on schedule

2.4.11: [List of Improvements:](#)

- |                          |   |
|--------------------------|---|
| Lighting system upgrades | Water conservation                          |
| Chiller replacement      | Roof-top unit replacements                  |
| Boiler replacement       | Energy management system expansion          |
| Vending machine controls | Window replacement                          |
| Meter Consolidation      | Constant to variable air volume replacement |

2.4.12: [Project Performance:](#)

Units	Projected Annual Energy Savings	Guaranteed Annual Energy Savings	Actual Energy Savings Year 1	Actual Energy Savings Year 2	Actual Energy Savings Year 3	Actual Energy Savings Year 4	Actual Energy Savings Year 5
kWh	6,335,123	6,194,791	6,242,246	Additional Measurements Not Required by Client			
kW	7,215	6,785	6,932				
ccf	57,907	57,539	59,626				
kgals	3,862	3,669	4,098				
dollars	484,416		492,723				

2.4.13: [Measurement and Verification:](#)

IPMVP Option A: Retrofit Isolation was the primary method used to determine savings. Upgrades that were measured using this method included lighting, water conservation measures, energy management system expansion, boiler replacements and the conversion of constant volume systems to variable air volume systems. Other measures were verified using engineering calculations agreed to by the client and ESP.

2.4.12: [Performance Guarantee:](#)

	<u>Projected</u>	<u>Actual</u>	<u>Excess</u>
Energy Cost Savings	\$484,416	\$492,723	+\$8,307

2.4.12: [Additional Comments:](#)

The Liberty project was setup under a design-build contract that carried a guaranteed maximum price for the scope of work identified. Since we were able to complete the project under budget, Liberty Public Schools was able to acquire \$165,337 in additional improvements to their facilities. Some of those improvements included the following:

- Replacement of backflow preventers at Lewis & Clark and Liberty Junior High
- Replacement of strainer, gate valve and dielectric unions at Liberty Junior High
- New chilled water coil, pipe, and pump at Lewis & Clark
- Lewis & Clark conversion of hard ceiling to drop ceiling and associated electrical work
- Ridgeview unit ventilator coil cleaning
- Liberty Junior High duct/control repairs and improvements
- Lillian Schumacher - repairs per retro-commissioning report
- Lewis & Clark - variable air volume damper replacements
- Admin Center/ Pre-school - repairs per retro-commissioning report

- Liberty Middle School - repairs to changeover bypass dampers
- Lewis & Clark -patch access holes in ceiling
- Lewis & Clark - repairs to hot water valve and vortex damper motor
- Franklin - relocation of temperature sensors
- Franklin - repair of outside air damper motors
- Shoal Creek - re-work light switching in open area
- Manor Hill - controls for two packaged roof-top units
- Admin - SCR repairs (partial)

## **Pittsburg State University**

### 2.4.1 Project Identification:

Pittsburg State University  
1701 South Broadway  
Pittsburg, Kansas 66762  
State University

### 2.4.2 Contact Information:

John Patterson  
VP Administration and Campus Life  
jpatters@pittstate.edu  
(620) 235-4107

### 2.4.3 Project Type:

Energy-savings performance contract

### 2.4.4 Project Size:

Pittsburg State University has more than forty facilities that occupy the main campus. These buildings are all different types including academic, administrative, research, housing, libraries, support facilities, and other buildings providing miscellaneous functions. A total of twenty eight facilities totaling 1,491,736 square feet were evaluated and energy conservation measures were implemented.

### 2.4.5 Project Dollar Amount:

Project value: \$5.5 million  
Financed amount: \$4.5 million

### 2.4.6 Source of Funding:

PSU obtained bond funding through the Kansas Development Finance Authority. In addition, ESP obtained \$1,000,000 in grant funds for the client for this project.

### 2.4.7: Project Dates:

Audit: 3/2010 – 2/2011  
Construction: 3/2011-3/2012

### 2.4.8: Contract terms:

Guaranteed Energy Savings Contract 12.5 yr. term

### 2.4.9: Project Personnel:

Jeff Flathman (Business Development)  
Chris Torline (Engineer)  
Doug Hall (Commissioning)  
Zack Smith (Project Manager)  
Dale Worley (Construction Manager)  
Tim O'Kane (Marketing)  
Terry Divine (Behavioral Training)  
Mike Breneman (Energy Conservation Specialist)

The people referenced above would be available for project work for the State of Connecticut.

2.4.10: [Project Schedule:](#)

Completed on schedule

2.4.11: [List of Improvements:](#)

- |   |                                 |
|---|---------------------------------|
| Geothermal heat pumps                     | Lighting retrofits              |
| Steam trap replacements                   | Steam piping insulation         |
| Thermostatic control valves               | De-Aerator tank vent condensers |
| Steam heat exchanger and PRV replacements | Boiler replacement              |
| Occupancy based temperature controls      | Sub-metering                    |
| Behavioral training                       |                                 |

2.4.12: [Project Performance:](#)

Units	Projected Annual Energy Savings	Guaranteed Annual Energy Savings	Actual Energy Savings Year 1	Actual Energy Savings Year 2	Actual Energy Savings Year 3	Actual Energy Savings Year 4	Actual Energy Savings Year 5
kWh	3,678,934	3,678,934	TBD – The end of Year 1 has not been completed.				
kW	610	610					
mcf	21,434	21,434					
Cf (water)	11,473	11,473					
dollars	449,506	427,031					

2.4.13: [Measurement and Verification:](#)

M&V is being performed using a combination of IPMVP Options A, B & C to measure savings. Where possible, actual equipment efficiencies are being measured and compared to pre-installation results. However, the complexity of measuring the results of the behavioral training portion of the current project requires Option C as a measurement tool to understand the overall impact on energy savings campus-wide.

2.4.12: [Performance Guarantee:](#)

	<u>Guaranteed</u>	<u>Actual</u>
Energy Cost Savings	\$427,031	TBD

2.4.12: [Additional Comments:](#)

The current project with PSU involves a total of twenty eight facilities in the Energy Performance Contract, for a total of more than 1.5 million square feet of space. The oldest building was constructed in 1912, and many of the buildings have been renovated and added on to several times over the years.

Even though the University had completed an energy-saving project across campus in 2004, there were still huge opportunities for additional energy savings just seven years later. Some were due to newer technology being available, while other opportunities came from replacing aging equipment, or completing rethinking ways to heat and cool buildings.

Two of the most notable energy saving measures that were part of the project were a geothermal heating/cooling system that serves McPherson Hall (Nursing Building) and Timmons Chapel; and a campus wide submetering effort.

ESP designed and installed 147 utility submeters at Pittsburg State University. The submeters allow the University to track electric, gas, steam and water use in every building in real time. The \$750,000 project was funded by a grant provided under the American Reinvestment and Recovery Act (ARRA). The meters record and transmit real-time data to an on-campus server, and the information is used to monitor, track and analyze campus utility use in order to identify and quantify energy conservation efforts

on campus. All data can be viewed instantaneously as well as logged and trended for historical comparisons and analysis. Additionally, several kiosks will be installed around campus that will allow students an interactive experience with access to all of the real-time data, information and results for each building, as well as sustainability messaging and information.

## City of Prairie Village, KS

### 2.4.1 [Project Identification:](#)

City of Prairie Village  
7700 Mission Rd.  
Prairie Village, KS 66208  
City

### 2.4.2 [Contact Information:](#)

Chris Engel  
Assistant to the City Administrator  
cengel@pvkansas.com.  
(913) 385-4635

### 2.4.3 [Project Type:](#)

Energy-savings performance contract

### 2.4.4 [Project Size:](#)

The City of Prairie Village consists of 6 facilities that have a total of 49 thousand square feet of space.

### 2.4.5 [Project Dollar Amount:](#)

Contract Amount: \$1,300,000

### 2.4.6 [Source of Funding:](#)

Unknown; however, ARRA grant monies of \$250,000 plus an additional \$70,000 for unclaimed ARRA funds were received plus \$12,875 in utility rebates.

### 2.4.7: [Project Dates:](#)

Audit: 5/2010-12/2010  
Construction: 7/2011-12/2011

### 2.4.8: [Contract terms:](#)

Guaranteed Energy Savings Contract. 10-year term

### 2.4.9: [Project Personnel:](#)

Jeff Flathman (Business Development Manager)  
Chris Torline (Project Engineer)  
John Linson (Construction Manager)  
Doug Hall (Commissioning)  
Zack Smith (Project Manager)  
Tim O'Kane (Marketing)

The people referenced above would be available for project work for the State of Connecticut.

### 2.4.10: [Project Schedule:](#)

Completed on schedule

### 2.4.11: [List of Improvements:](#)

Lighting system upgrades  
 Water conservation  
 Energy Management System expansion

Geothermal heat pump system  
 Controls  
 Building infiltration

2.4.12: Project Performance:

Units	Projected Annual Energy Savings	Guaranteed Annual Energy Savings	Actual Energy Savings Year 1	Actual Energy Savings Year 2	Actual Energy Savings Year 3	Actual Energy Savings Year 4	Actual Energy Savings Year 5
kWh	256,399	229,056	229,056	Additional Measurements Not Required by Client			
kW	270	243	243				
mcf	2380	2142	2142				

2.4.13: Measurement and Verification:

IPMVP Option A: Retrofit Isolation was the primary method used to determine savings. Upgrades that were measured using this method included lighting, water conservation measures, energy management system expansion, and geothermal heat pumps. Other measures were verified using engineering calculations agreed to by the client and ESP.

2.4.12: Performance Guarantee:

	<u>Guaranteed</u>	<u>Actual</u>
Energy Cost Savings	\$45,200	\$45,200

2.4.12: Additional Comments:

A new geothermal heating/cooling system was installed that will serve City Hall, Police Headquarters, and the Community Center. The City evaluated several different types of heating and cooling systems, and even toured some other geothermal installations in the Kansas City area. In the end, they decided that geothermal would provide the best long-term value and return on investment. Other improvements include interior and exterior lighting upgrades, more efficient plumbing fixtures, and a new energy management system to control the new equipment.

## Mulvane USD #263

### 2.4.1 [Project Identification:](#)

Mulvane USD #263  
628 E. Mulvane  
Mulvane, KS 67110  
k-12 Public School District

### 2.4.2 [Contact Information:](#)

Dr. Brad Rahe  
Superintendent  
(316) 777-1102

### 2.4.3 [Project Type:](#)

Energy-savings performance contract

### 2.4.4 [Project Size:](#)

The Mulvane School District, located near Wichita, KS, comprises seven buildings that total 441,553 square feet of space. The buildings include Mulvane High School, Mulvane Middle School, Mulvane Grade School, Munson Primary, Mulvane Academy/Bloomenshine, the district office, and the transportation building.

### 2.4.5 [Project Dollar Amount:](#)

Phase I Contract Amount: \$1,186,000  
Phase II Contract Amount: \$774,600

### 2.4.6 [Source of Funding:](#)

Phase I – ESP helped the district secure third-party tax-exempt municipal lease to finance improvements

Phase II – the District secured bond funds for major improvements throughout the district, including energy-efficiency upgrades at one of their elementary schools

### 2.4.7: [Project Dates:](#)

Audit: 9/2010-12/2010  
Construction: 5/2011 – 11/2011 (Phase 1)  
5/2012 – 9/2012 (Phase 2)

### 2.4.8: [Contract terms:](#)

Guaranteed Energy Savings Contract. 10-year term

### 2.4.9: [Project Personnel:](#)

Jeff Flathman (Business Development Manager)  
Bob Miller (Project Engineer)  
Dale Worley (Construction Manager)  
Doug Hall (Commissioning)  
Zack Smith (Project Manager)  
Terry Divine (Behavioral Training)

The people referenced above would be available for project work for the State of Connecticut.

2.4.10: [Project Schedule:](#)

Completed on schedule

2.4.11: [List of Improvements:](#)

- |                                    |                            |
|------------------------------------|----------------------------|
| Lighting improvements              | Roof-top unit replacements |
| Vending machine controls           | Chiller replacement        |
| Building infiltration              | Retro-commissioning        |
| Energy Management System expansion | Condensing unit repairs    |
| Boiler replacements                | Behavioral training        |
| Replace FCU with VRF System        |                            |

2.4.12: [Project Performance:](#)

Units	Projected Annual Energy Savings	Guaranteed Annual Energy Savings	Actual Energy Savings Year 1	Actual Energy Savings Year 2	Actual Energy Savings Year 3	Actual Energy Savings Year 4	Actual Energy Savings Year 5
kWh	775,708/156,663	775,708/156,663	TBD – The end of Year 1 has not been completed.				
kW	2,241/266	2,241/266					
mcf	4,897/1,431	4,897/1,431					
kgals	759/NA	759/NA					
dollars	149,951/23,669	149,951/23,669					

2.4.13: [Measurement and Verification:](#)

M&V is being performed using a combination of IPMVP Options A, B & C to measure savings. Where possible, actual equipment efficiencies are being measured and compared to pre-installation results. However, the complexity of measuring the results of the behavioral training portion of the current project requires Option C as a measurement tool to understand the overall impact on energy savings throughout the district.

2.4.12: [Performance Guarantee:](#)

	<u>Guaranteed</u>	<u>Actual</u>
Energy Cost Savings	\$173,620	TBD

2.4.12: [Additional Comments:](#)

After completing an investment grade audit, Mulvane USD 263 and ESP sat down to determine which of the proposed energy-saving measures should be included in the project. One of the top priorities for the project was replacing the boiler at the district office that was past its useful life. Among the other upgrades were new lights throughout the district, plumbing fixtures that use less water, weatherproofing doors, windows and other gaps, and enhancements to the district’s computerized building controls. The central office also received a new chiller and roof-top unit that replaced less-efficient units that had reached the end of their useful life.

The major effort in Phase II of the project involved installing a variable refrigerant flow system to heat and cool the Munson Primary. The building is undergoing renovations, so the system had to be designed to provide heating and cooling to the existing portions of the building while still be flexible so that it can be expanded into the new additions as they are completed.