

# **ENERGY SAVINGS IMPROVEMENT PROGRAM GUIDEBOOK**

**NJ Board of Public Utilities  
October 2023**

# ESIP GUIDEBOOK

## What is ESIP?

Many public agencies are striving to reduce their energy consumption, water use and operational costs while facing limited budgets. Energy Performance Contracting (EPC) is a creative financing method that provides a way to pay for energy efficiency improvements, even when there is no budget to fund the work. In New Jersey, EPC is commonly referred to as Energy Savings Improvement Program or ESIP.

## Step 1

### Project Planning

ESIP offers many benefits:

- Improves overall environment enhancing productivity for all building occupants via better air quality, lighting, and temperature control
- No upfront, out of pocket expenses
- No impact to taxpayers or an entity's credit rating
- Positive cash flow throughout loan term
- Option to guarantee energy savings
- Turnkey approach

## Step 2

### Project Implementation

After a preliminary audit is performed, the public entity will determine how the energy efficiency measures recommended in the audit will be implemented. The entity can contract with an Energy Service Company (ESCO) or do the upgrades themselves. The cost to make the improvements will be paid by the energy savings.

The goal of this online tool is to guide you through the five phases of NJ's ESIP process, beginning with identifying potential projects to project completion. Board of Public Utility (BPU) staff is available to assist with in-person visits or by phone throughout the process. It's recommended that the government entity establish a point person at the very beginning of this process. This key individual will establish a relationship with BPU's ESIP Coordinator to remain well informed throughout the process. NJ offers all the support necessary for a successful experience and viable project.

## Step 3

### Project Development

## Step 4

### Project Execution

## Step 5

### Project Evaluation

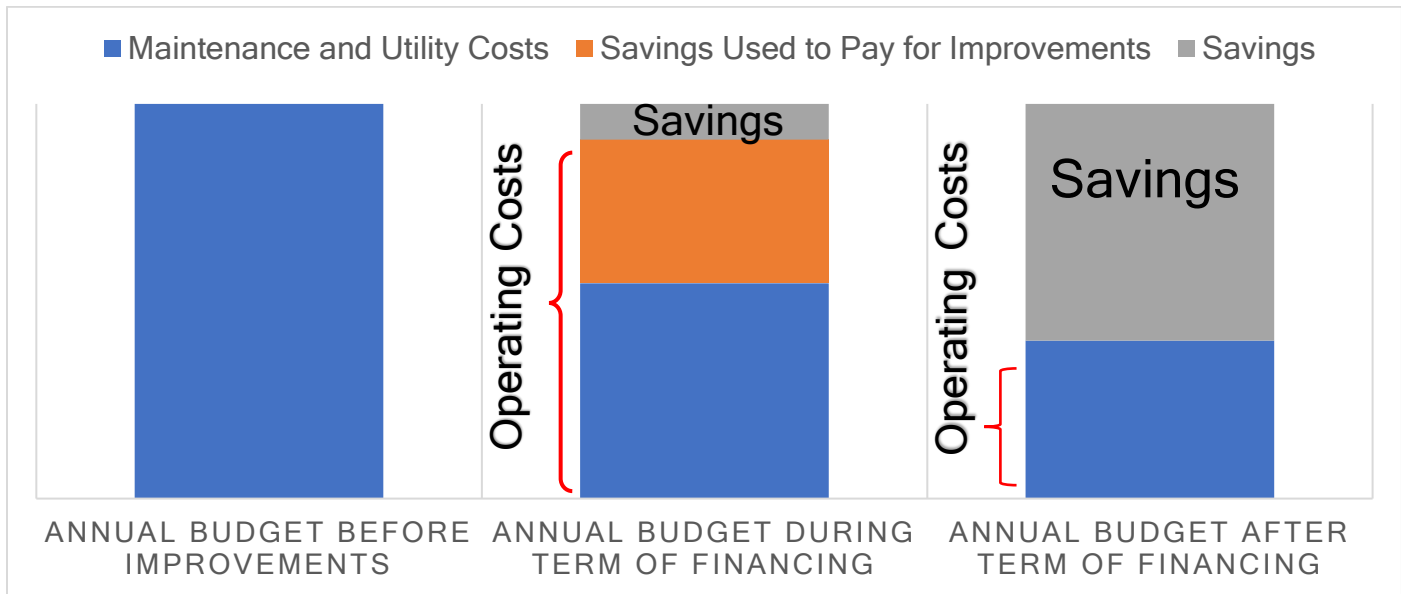
The content in this guidebook is organized to first answer your questions about ESIP and then walk you through the process. Use the menu on the left to navigate through the information. You'll find additional links to external resources throughout.



## WHAT IS ESIP?

ESIP Law was established in 2009 and updated in 2012. ESIP, is a financing mechanism that allows government entities to make energy efficiency upgrades without using capital budget funds. These upgrades are often referred to as Energy Conservation Measures (ECMs) and are implemented either by the agency themselves or by an Energy Service Company (ESCO). The cost to make the improvements is repaid with the savings achieved. If an ESCO is hired to do an ESIP, they can offer a savings guarantee assuring the projected savings will materialize and will also provide yearly verification while reporting on the actual savings.

The figure below illustrates how the initial net savings increase dramatically once the financing is paid back.



## Common Energy Savings Measures in an ESIP

- Indoor Air Quality & Ventilation improvements
- Indoor lighting fixtures & controls
- Occupancy sensors
- HVAC improvements
- Boiler replacements
- Pumps, fans & drivers
- Equipment controls
- Building envelope improvements
- Water efficiency
- Street, traffic & other outdoor lighting
- Renewable energy installations such as a solar installation or a Combined Heat and Power system

## What is EPC's track record?

**Energy Performance Contracting (EPC)** originated in the 1970s and has expanded to 49 states and approximately \$8 billion per year in energy improvement projects. In New Jersey performance contracting is commonly referred to as **Energy Savings Improvement Program (ESIP)**.

As of October 2023, there have been 167 ESIP projects improving government buildings in NJ. This includes public school buildings, veteran's facilities, libraries, and state, municipal and county

administrative buildings, wastewater treatment plants, prisons and other government buildings in communities across all 21 of NJ's counties. To date, local governmental entities have developed Energy Savings Plans (ESP) with nearly \$1.34 billion worth of potential in projects, which are expected to yield over \$1.6 billion in overall energy and operational savings.

## Who will have a role in your ESIP project?

ESIP process involves a team effort with a number of key players:

**BPU's ESIP Coordinator and Staff** – for assistance and support

**ESIP Project Committee**- designated team established to make all project related decisions

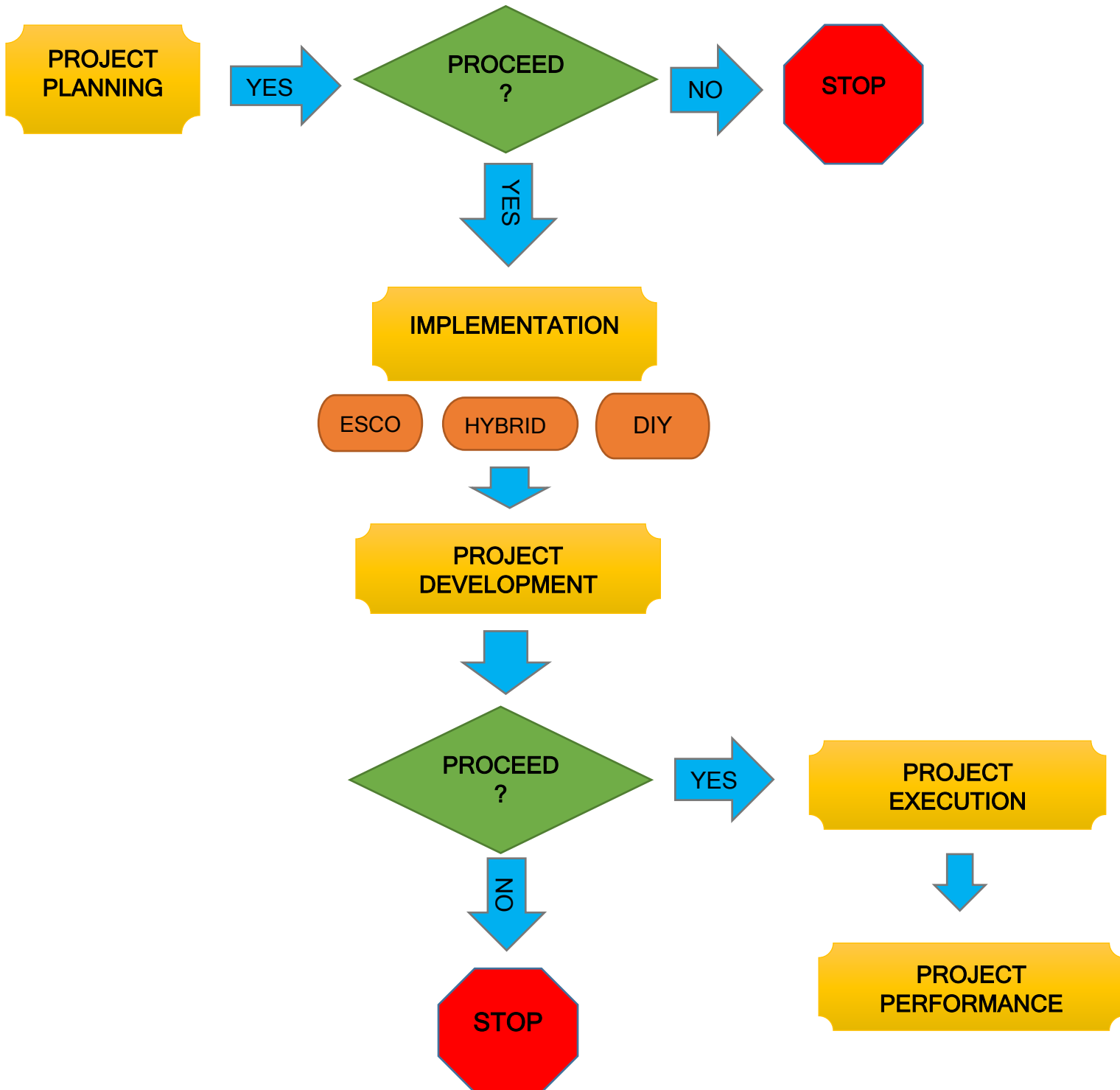
- Stakeholders in your organization
  - Facilities/Engineering/Sustainability – usually leads the project
  - Governing body or executive – approves ESIP contracts
  - Finance – investigates financing options and signs off
  - Legal – reviews all contracts
  - Office of Management and Budget – manages utility budgets
- **Architect/Engineer of Record**- in-house expertise
- **ESCO** – provides education, designs, builds and manages the work, offers a guarantee for the savings
- **Utility** – offers incentive and rebate programs
- **Owner's Representative** – if hired, consultant serves as your expert to help assure success

## THE ROLE OF THE ONLINE ESIP GUIDEBOOK

The Online ESIP Guidebook provides detailed steps and procedures for you to develop and implement an ESIP project. The process has been designed to help you complete projects successfully and within the framework established by NJ's ESIP statutes. The step-by-step approach allows you to investigate and move one step at a time, in a logical way, with decisions at key points along the way.

## ESIP PROCESS FLOWCHART

Below, the five phases and two decision points in the ESIP process are reflected in a flowchart. The outline that follows details the activities involved in each phase.



Hopefully, the flow chart helped you to understand the process, now let's break it down the into a simple outline.

## 1. PROJECT PLANNING

In the first phase you'll decide whether you have a good opportunity to develop an ESIP project.

- A. Learn about what resources are available from the State and Federal government
- B. Utilize facility staff workers to identify buildings that need retrofitting or replacement of equipment
- C. Submit ESIP intake form and complete the Preliminary Audit
- D. Begin outreach to key stakeholders, establish ESIP Committee
- E. Define project goals
- F. Explore financing strategies
- G. Develop scope of potential work

### DECISION POINT #1 – Proceed? Or Not?

## 2. PROJECT IMPLEMENTATION

If you've identified a good opportunity for a project, you'll now have to determine how to implement the necessary upgrades and which ESIP model you will follow. Reach out to BPU's ESIP Coordinator to discuss the models. There are three available paths within the NJ program.

- A. ESCO Model - Will you hire an ESCO? An ESCO can provide turnkey projects and offer an energy savings guarantee. Use the BPU RFP template for hiring an ESCO.
- B. DIY Model - Will you do the project yourself using in-house expertise?
- C. HYBRID Model - Will you do a combination of the two and hire an ESCO to work for your in-house expert as a subcontractor? A DIY that subcontracts an ESCO will default to this model.

## 3. PROJECT DEVELOPMENT

Regardless of how you will implement the upgrades, the next step is an Investment Grade Energy Audit (IGEA), which must be performed and is a crucial component of the ESIP process. This audit is a more comprehensive and deeper dive than the Preliminary Audit and it will provide detailed information for the project's Energy Savings Plan (ESP). The ESP will be the cornerstone of your project and should address all of the priorities for your facilities and any additional wants or needs for your buildings. If you decide to proceed, you will nail down the details and sign an agreement with the contractor or the ESCO to perform the work. The ESP must be vetted by a third party auditor and approved by the BPU ESIP coordinator before moving forward.

- A. Investment Grade Audit (IGEA) / project proposal
- B. Develop Energy Savings Plan

- C. Decide on measurement and verification (M&V) plan
- D. Decide on financing (Bond or Lease Purchase Agreement)
- E. Verification of ESP (Third Party Audit)

## DECISION POINT #2 – Proceed? Or Not?

### **4. PROJECT EXECUTION**

When an entity has decided to move forward, the ESP is put into action. Either the ESCO or other contractor hired to implement upgrades will install the improvements and may provide other services as part of completing the work.

- A. Energy Conservation Measure (ECM) installation
- B. Commissioning
- C. Training
- D. Operations and maintenance (O&M) services (optional)

### **5. PROJECT PERFORMANCE**

The first year after a project is built and commissioned; all projects are required to be monitored for performance. Periodic reporting may be requested by the BPU. If a performance guarantee is purchased, the ESCO will monitor the energy savings, deliver an annual report, and repair or reimburse you for any shortfalls in the guaranteed energy savings for the length of the purchased guarantee term. Since these projects span 15 years or more, you want a process in place to track your savings.

- A. Measurement and Verification (M & V)
- B. Savings Guarantee
- C. Monitor Project Performance

# 1. PROJECT PLANNING

The purpose of this phase is to help you determine if performance contracting is an appropriate path for your needs. In this phase, you will compile data to assess cost-saving opportunities for a project, review available resources, and identify project stakeholders for your project team.

## A. Project intake form

If you are interested in pursuing an ESIP project, complete [this form](#) and return it to the ESIP Coordinator at [ESIP@bpu.nj.gov](mailto:ESIP@bpu.nj.gov). The BPU can help you follow the State statutes and provide free technical assistance to help get your project set up and avoid potential pitfalls. In addition to the information in this Guidebook, the ESIP Coordinator can also schedule a call or in-person visit. The coordinator will ask for a contact person for the project at this step.

Communication is a key element throughout this process. The process relies on you, your team and the ESIP Coordinator for communication and reporting activities. It is important to keep informed early and throughout the process to ensure a successful project. BPU's State Energy Services Office will provide assistance for all aspects of the process.

## B. Utilize facility staff workers to identify buildings that need retrofitting or replacement of equipment

Next, you will determine if your facilities are a good fit for EPC based on potential project size, annual utility bills, comfort or maintenance problems, equipment age, funding options, and future plans for renovation or retention. The tool below in green may help you decide if your facilities are in need of energy efficiency upgrades.

### ESIP Preliminary Diagnosis Tool\*

Does your facility have more than 50,000 square feet of floor area?

Do you spend more than \$60,000 a year on energy bills?

If so, you may be a good fit for an ESIP project. It is likely to benefit you even more if you have...

- Aging buildings or equipment;
- Recurring maintenance problems or high maintenance costs;
- Comfort complaints;
- Scarce budget resources;
- Too little energy management expertise;
- Too many demands on your maintenance staff;
- No recent upgrades of your lighting or controls systems; and  
Energy-using equipment that is ready for replacement



In addition, some guidelines regarding cost savings and project size may be helpful in the pre-screening process:

- Determine utility consumption and costs on an annual basis. This means you will need at least the last 14 months of utility data.
- Utility savings for most ESIP projects typically do not exceed 30% and generally range between 15-25%.
- ESIP's standard finance term is 15 years. If there is an opportunity to use a Combined Heat and Power (CHP) system within the project, then the financing term can be extended an additional 5 years, making it a 20 year payback.

## C. Preliminary Audit Process

In order to do an ESIP project, a public entity must have a preliminary audit (ASHRAE level II for buildings and level III for lighting) for the gathering of baseline data. It also sets the scope of which buildings will be considered for upgrades and identify possible ECMs. Only buildings in the audit can be in the ESIP. If you prefer to do your own preliminary audit, and pay out of pocket, a list of State approved energy auditors can be found [here](#).

Another option is to apply for a Local Government Energy Audit (LGEA). State, local, and county governments are eligible along with K-12 and secondary schools. There is a \$150,000 cap per entity. This audit will include an inventory of all energy-consuming equipment, comprehensive utility bill analysis, facility benchmarking, and feasibility for solar and combined heat & power.

## D. Begin outreach to key stakeholders, establish ESIP Committee

The support of multiple stakeholders is important for a successful ESIP project. Key staff may not be familiar with performance contracting, so gaining their support may take some time. BPU ESIP Staff are always available to discuss the benefits of doing an ESIP and address any concerns they may have. Meet with them now to introduce ESIP and its benefits, let them know what you're doing, and lay the groundwork for their support. US DOE developed a one-page [handout](#) comparing EPC to the traditional Design-Bid-Build project approach, which may be helpful in these meetings. The list in the next section includes various types of ESIP stakeholders, which are described by function, because the names of the departments with these functions often vary.

### **KEY ESIP STAKEHOLDERS**

**Authorizing Power** (Agency Head, Mayor, City Council, School Board, etc.) – These are the people who will ultimately need to approve the project. They will share many of the same interests as the stakeholders below.

**Finance Function** – Finance will have to sign off on the financing for the project, and this is a good time to start discussing the possible financing options and get a feel for what might work. Finance people will tend to focus on the cash flows and risks, so the performance guarantee will be of particular interest.

**Budget Function** – The Budget people will be responsible for modifying your budget to reflect the ESIP project. While your utility budget may be reduced, a new account will need to be created for

repayment of the financing. Budget people will want to know that the combination of your new utility budget plus the financing payments will be *less than or equal* to your old utility budget.

**Legal Function** – The project will be governed by two agreements: first, the Investment Grade Energy Audit (IGEA) and ESP project proposal agreement and then the performance contracting agreement itself. The legal function will need to approve the contracts. They will want to be familiar with the laws and the rules governing NJ ESIP.

**Contracting/Purchasing Function** – This function will typically need to be involved in the Request for Proposal to select an ESCO for the project. A template has been provided for you and can be found here [on this webpage](#).

**Facilities Function** – As the people responsible for operating and maintaining the buildings to be improved, Facilities will often be the function that takes the lead on the project.

**Utility** – Natural gas and electric companies offer rebates, grants, or other incentives for installing energy-saving improvements. It is helpful to know what incentives are available early in the process, because they can have an impact on the potential size of the project. Department of Community Affairs (DCA) guidance must be followed when considering these incentives. To find out more information about what incentives are available through your respective utility provider, click [here](#).

## E. Define project goals

Next, define and outline your project goal. Common performance contracting goals focus on project components that have cost-savings measures focused on reduced energy or water consumption or reduced operating and maintenance costs, including:

- Energy cost savings
- Operating cost savings
- Maintenance cost savings
- Positive cash flow (cost savings exceed financing and other costs)
- Financing mechanism that avoids the need for capital costs
- Inclusion of a critical non-energy capital improvement in the project, with cost savings from the energy improvements helping to pay for the non-energy improvements
- Heightened awareness of occupants about energy waste
- Resolution of deferred maintenance issues by replacing old equipment before it fails and disrupts operations

Keep in mind the interests of your stakeholders and potential supporters. While most project goals should be quantified, it may only be feasible to give rough estimates or ranges at this stage.

## F. Explore financing strategies

The goal at this point is not to nail down financing, but to simply explore what financial options might be available. You'll want to talk with your finance and budget departments to learn what is possible and what is not. The ESIP can be financed in one of two ways: using refunding bonds or lease purchase agreements. Both options are market driven and have advantages and disadvantages. In NJ BPU ESIP Guidebook

addition, some external funding sources that do not have to be repaid can be included such as rebates and incentives offered through your respective utility provider or the BPU and any State or federal grant.

## **G. Develop scope of potential work**

Your scope of work should start with the buildings that are most likely to have savings opportunities that justify an energy performance contract and were included in your preliminary audit. The information to collect includes details such as:

- Buildings: age, size, as-built construction drawings and specifications, and blueprints from any renovation projects.
- Equipment: age, make, model numbers, efficiency ratings, and service records for major equipment, including Heating, Ventilation, & Air Conditioning (HVAC), lighting, hot water heaters, and plug loads (computers, copiers, desk lamps, etc.), giving special attention to older and less-efficient equipment.
- Utility information: providers, meter locations, and energy use for at least 14 continuous months, and preferably for the last two years.
- Potential improvements: identify potential improvements based on equipment age, efficiency ratings, maintenance problems, etc.

You should now have enough information to decide whether to move forward with an ESIP project or not.

### **DECISION POINT #1.**



## 2. PROJECT IMPLEMENTATION

If you've decided to proceed, your next steps will involve deciding how you will implement the suggested energy conservation measures that were determined through the preliminary audit. There are three ways to implement: the ESCO Option; the DIY Option; or the Hybrid Option. Regardless of method of implementation, any and all contractors, including professional services, must be classified with the NJ Treasury Department Division of Property Management and Construction (DPMC). Some entities elect to hire a consultant to assist in the process as well. This cost may be bundled into the financing. You also need to fill out a project intake form if you haven't already and send to the ESIP coordinator.

### A. The ESCO Model

The ESCO model is the turnkey approach to doing an ESIP. It involves hiring an ESCO and means that one firm is responsible for completion of the ESIP. The ESCO can provide the local government unit a holistic approach, assuming responsibility for the entire process. The ESCO serves as a general contractor that will oversee subcontractors hired through the bidding process. The ESCO will offer an optional energy savings guarantee. The ESCO can also assist with identifying funding options however, it is still the responsibility of the local government unit to repay those funding obligations; so, it is advisable to be prudent when exploring financing options and to make sure that all avenues are reviewed in order to get the best financing package available. Hiring an ESCO will require advertising a competitive Request For Proposal (RFP). This RFP template is available online for your convenience.

### Pros and Cons: The ESCO Model

Pros	Cons
<ul style="list-style-type: none"><li>• A single entity (the ESCO) handles the majority of the process, including many of the most challenging parts, such as the Investment Grade Energy Audit (IGEA), developing the Energy Savings Plan (ESP), managing the construction process, and conducting Measurement &amp; Verification analysis.</li><li>• ESCO required to offer an Energy Savings Guarantee as part of the ESIP.</li></ul>	<ul style="list-style-type: none"><li>• Public entities must be careful to ensure fairness in the RFP for the ESCO selection process. They cannot favor ESCOs that, for example, manufacture specific digital controls.</li></ul>

## B. The DIY Model

If you chose to proceed with a DIY project, the local government unit takes the lead. The local government unit may utilize in-house expertise to run the project. Frequently, however, local government units retain an engineer (or an architectural firm with engineering capabilities) to assist with the ESIP. This authorizes the engineering firm to be responsible for procurement of services from different organizations to perform various elements of an ESIP including preparation of the ESP development of construction plans, bids and specifications, making recommendations regarding the award of construction contracts, and managing the construction process. Local government units that choose to use the DIY Option are responsible for locating and applying for incentives and securing financing for the project. An ESCO cannot be used in this model.

### Pros and Cons: The DIY Model

Pros	Cons
<p>Greatest amount of flexibility provided, with the public entity taking the lead on the project using in-house expertise as well as various contracted vendors to do the many different steps of an ESIP.</p>	<ul style="list-style-type: none"> <li>• An ESCO cannot be part of DIY. Will make it a hybrid model</li> <li>• Public entities are responsible for applying to incentives.</li> </ul>

## C. The HYBRID Model

The Hybrid Option is a combination of the first two options. A local government unit uses in house expertise or if it chooses, it can retain the services of an engineering firm. The engineering firm would act on the local government unit's behalf to supervise the ESCO's work throughout the process. When the local government unit uses the Hybrid Option, which essentially mixes ESCOs and other services, there is the potential for professional or monetary conflicts of interest. Local government units should ensure that contracting relationships do not create conflicts of interest or provide potential monetary incentives that go beyond the contract with the local government unit. For example, if the local government unit's architect or engineer is determined to be the best qualified to prepare design specifications based on an energy savings plan prepared by an ESCO, the local government unit must hire and pay the professional; the professional cannot be hired by and be contractually responsible to an ESCO. In the Hybrid Option, the ESCO offers an optional energy savings guarantee to the local government unit, as in the ESCO Option.

### Pros and Cons: The Hybrid Model

Pros	Cons
<ul style="list-style-type: none"> <li>• Allows public entities to use their retained engineering firms or other resources to oversee the RFP process for ESCO</li> </ul>	<ul style="list-style-type: none"> <li>• Greatest potential for professional or monetary conflicts of interest. Public entities should be careful in managing contracting relationships and/or monetary incentives.</li> </ul>



selection, and to supervise the ESCO throughout the construction process. <ul style="list-style-type: none"><li>• ESCO required to offer an Energy Savings Guarantee as part of the ESIP.</li></ul>	
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Regardless of which option you choose, an independent third-party review of the ESP is required as part of the ESIP process and will be discussed in more detail in Section 3. In addition, all three models require the ESP be reviewed and approved by BPU.

### **3. PROJECT DEVELOPMENT**

At this point, the model you will utilize has been determined. In addition, the project's scope has been confirmed noting that all facility priorities should be addressed and listed first. Two biggest pieces of the ESIP puzzle - the IGEA and the ESP are completed in this phase.

Some other important factors to consider now include how big a project is your organization interested in taking on; will you divide it into phases and start the first part now while phasing in other upgrades as funds are available and are there any non-energy upgrades that you want to include? If so, now is the time to incorporate that information.

#### **A. The Investment Grade Energy Audit (IGEA)**

The IGEA is the technical and economic foundation for an ESIP project – which must produce guaranteed energy savings. It's a deeper dive and this audit provides more detail on existing consumption levels, operating hours, and utility costs than the preliminary audit. This type of audit analyzes the financial aspects of energy savings and the return on investment from potential changes or upgrades.

#### **B. The Energy Savings Plan (ESP)**

The results of the IGEA are used in the development of the ESP). The purpose of the ESP is to match the most efficient energy conservation measures with the respective savings to show that the total project costs, which include design and construction, as well as professional expenses, are offset by energy savings over the borrowing term.

Here are some items that should be included in the ESP:

- Description and cost of all ECM's including any capital improvement measures (non-energy related)

- Details of any available economic offset, such as state/federal incentives, grants, utility incentive programs
- Estimate of greenhouse gas reductions resulting from those energy savings
- Identification of all design and compliance issues and identification of who will provide these services
- Assessment of risks involved in the successful implementation of the plan
- Identification of the eligibility for demand response and curtailable service activities
- Maintenance requirements necessary to ensure continued energy savings and a description of how maintenance services will be provided
- Cost for providing a guarantee of energy savings
- What ECMs are considered but may be phased in
- What is being considered under 15% non-energy related

This ESP is the cornerstone of your project and must be reviewed and approved first by an independent energy auditor (detailed in section E below) and upon their approval, it must be submitted to the BPU for review and approval by the ESIP Coordinator.

## **C. Measurement & Verification (M & V) Plan**

Measurement and Verification (M & V) is crucial to all ESIP projects. It's a component of the ESP and typically, a preliminary M & V plan was developed during the IGEA process. Its purpose is to accurately measure whether the improvements are delivering the predicted energy savings. The cost for M & V (done for one year after construction/commissioning) is included in the overall project cost. All M & V needs to follow the guidelines established in the International Performance Measurement and Verification Protocol (IPMVP). See [DOE's M & V Guidelines](#) for more information on the M & V process and requirements.

A strong M & V plan should define precisely what “energy savings” means, and specifically how savings will be measured. Furthermore, the M & V plan should address how unforeseen events (weather variations, building use changes, etc.) will be handled.

## **D. Financing**

How will you finance this project? There are two options for financing an ESIP. A financial advisor can help with these decisions and will be a good resource to use throughout the process.

### **The Refunding Bond Option**

For public schools, the NJ Department of Education (DOE) has concluded that debt financed ESIP projects are not covered by State aid for debt service as there is no new local debt being authorized. As a refunding bond, however, school energy savings obligations are eligible for coverage under the School Bond Reserve Fund. This fund enhances the bond rating of the obligations; it has nothing to do with any revenue commitment from the State. Finally, projects funded under an ESIP plan require DOE “Other Capital” Project approval.

If the bond option is used, the local government unit issues refunding bonds, which are normally only used if the local government unit refinances bonds previously issued with a higher interest rate. If this option is chosen, approval is needed from the Local Finance Board. (LFB), a Division of the NJ DCA.

If the local government unit is a school district, no referendum is required prior to introducing and adopting the refunding bond ordinance. This is a big advantage of the ESIP process for NJ school districts. Using refunding bonds to finance an ESIP can, depending on market conditions, result in the lowest net interest cost to the local government unit. NJ municipal bonds are generally good quality, relatively highly rated bonds, and those factors can result in lower interest rates than a lease obligation. There are potentially additional costs associated with the issuance of bonds; therefore fees from a bond counsel, local attorney, and rating agency could be higher if the refunding bond option is used. A cost analysis of current market interest rates as well as all borrowing fees should be completed and compared to the repayment projections for lease financing prior to choosing the method of financing.

## **The Lease-Purchase Option**

If a lease purchase financing option is used (after a thorough financial analysis is completed), the length of time it takes for the financing phase is shorter. When the lease purchasing option is used, there is no need for the issuance of refunding bonds and there is no approval required from the LFB. When a local governing unit enters into a lease with a private party that is not a governmental entity, or with the ESCO it has selected through competitive contracting, it must be done in accordance with a competitive process as required under the local government unit's procurement law.

Additionally, there is no bond rating required for the lease purchase option. In order to get the most advantageous financing rate, the local government unit should solicit bids from at least three banks. The local government unit should also include its "bank of record" as one of the respondents. No formal Official Statement is required to solicit a proposed interest rate, but a term sheet that lists all of the pertinent financial terms would assist prospective bidders with understanding the project to be financed. When the term sheet is sent to the bidders, access to the local government unit's most recent financial audit should also be made available. Most likely this process would be completed electronically, and the local government unit's website could be referenced for access to the audit. As with the bond financing option, funds are available to the local government unit two weeks after the terms are finalized. The funds become available after the closing of the transaction when all of the pertinent documents are signed by the borrower as well as the lender.

## **E. Independent Audit of the Energy Savings Plan**

Once the ESP is developed, it must be verified by an independent third-party that will certify that the plan savings were properly calculated pursuant to BPU protocols. The firm that verifies the plan cannot be the ESCO or the firm that developed the ESP. For a list of DPMC approved energy auditors, click [here](#).

The verification includes a thorough review of each proposed energy conservation measure, its associated cost; the anticipated energy savings; and any funding from outside sources such as grants and utility rebates or incentives.

The final (and most important) factor to be verified is the net savings that will be achieved after all borrowing costs are considered. The calculations must show that the costs (including acquisition, installation, and financing) of the energy conservation measures will be offset by energy savings as well as by grants or other related funding and will result in a net savings to the local government unit on an annual basis. The cash flow must remain positive throughout the life of the loan. All information and correspondence between the auditor and entity is subject to review by the BPU.

## DECISION POINT #2

Have your priorities been addressed?  
Are you satisfied with the Energy Savings Plan?  
Will you implement the entire project? Or phase it in?  
Have you thought about a guarantee?

WILL YOU  
PROCEED?

## 4. PROJECT EXECUTION

The ESCO or other contractor will install the improvements and may provide other services as part of completing the work.

### A. Energy Conservation Measure (ECM) Installation

The ESIP law is specific about how improvements are made or implemented. Routine public works construction contracting procedures of the local government unit are followed, whether or not an ESCO is used. This includes requirements regarding public bidding, bid security, performance guarantees, insurance, and other requirements that are applicable to public works contracts. Once plans and bid specifications are prepared, the governing body advertises for bids, and the usual course of contracting is followed. If the ESCO or project engineer is engaged as a project manager, they may have a role in reviewing and recommending award of contracts. The role of all professionals involved with an ESCO must be clearly defined in its contractual arrangements and in bidding documents.

## **B. Commissioning**

Commissioning refers to a process that sets, verifies and documents a building's energy performance to ensure that it meets defined requirements. Buildings should be commissioned when they are first constructed and after substantial changes are made. This is the process of starting and testing equipment, and making adjustments to ensure all energy conservation measures implemented are working in accordance with their design and meeting the projected energy savings. Commissioning is an important process in any EPC project. It ensures that installation is complete and functioning as intended under various load and conditions.

Once construction and installation is complete, final commissioning and verification is required. This process is performed by an independent third-party, not the ESCO or the contractor that installed the equipment or participated in construction. Click [here](#) for DPMC's list of "Building Commissioning" firms approved to provide commissioning services. This verification can be completed by the third-party that performed the verification of the ESP if certified by DPMC.

## **C. Training**

As with any new equipment, facility staff will need to be trained on proper operation and maintenance. Make sure that staff know how to work the equipment, spot issues with performance, and understand how it plays into the overall plan. Training requirements should be included in your plan and may be provided by the ESCO if one is utilized. Training costs may be included in the overall project cost.

## **D. Operations and Maintenance (O & M)**

Taking the step to upgrade or replace equipment also requires the commitment to keep that equipment in working order. Ongoing maintenance, as recommended by manufacturer specifications and/or an ESCO, is required to achieve the projected energy savings. Maintenance should also include a periodic verification of the system to make sure the maintenance is properly conducted and the system is meeting the original specifications and design. If a guarantee is purchased and the owner fails to maintain the system according to ESCO recommendations and manufacturer specifications, an ESCO guarantee could be voided and added energy costs will be incurred. If there is no ESCO guarantee and the owner fails to properly maintain the system, savings will be lost and the local government unit will incur additional energy costs, as they will continue to pay for both the improvements and for energy that did not need to be consumed. All maintenance requirements must be detailed clearly and appropriately carried out or completed.



## **5. PROJECT PERFORMANCE**

After a project is built, there are several ways to monitor performance and payback. These include measurement and verification; saving guarantee; and continuous monitoring. The BPU may require at certain milestones project reporting.

### **A. Measurement & Verification (M &V) Plan & Protocols**

The local government unit shall conduct M & V at the one year operational date and shall provide a copy of the M&V report to the Board of Public Utilities. Any significant changes in operation that may impact anticipated savings calculations need to be addressed. If an ESCO is involved, they should be notified of any changes. The plan should include a section that describes how potential changes will be handled during the M & V period and then after. Changes that may affect the savings calculations include:

- Operating hours
- Facility use
- Equipment (New or additional)
- Building addition
- Occupancy

If the local government unit is using an ESCO, the one- year operational date will be noted within the ESCO Contract.

### **B. Savings Guarantee**

A savings guarantee can only be offered by an ESCO and should be negotiated during the ESP development stage. Its purpose is to measure, verify, and provide the necessary support services to sustain savings over time. Per NJ ESIP law, an energy savings guarantee must be a separate contract from the ESIP Construction Contract and is considered an out of pocket expense. If savings are calculated in accordance with the BPU protocols, the system is installed properly, and the system operator maintains the system in accordance with specifications, a reliable outcome of energy savings can be achieved. If these elements are in place, the energy savings will accrue without the need for a guarantee. Local government units should carefully consider the need for a guarantee and measure its cost, given the verification requirements that are part of the process. However, the guarantee will, if properly structured, eliminate the possibility of any budgetary shortfall.

## **C. Monitor project performance**

During the initial period after the successful implementation of the agreed-upon improvements, if using the ESCO model, the ESCO must comply in full with original signed EPC contract. These requirements should include:

- Measurement and verification reporting and services
- Guarantee of performance and cost savings
- Maintenance and/or repair of equipment
- Training for facility personnel on maintenance and systems operations (is there anything underneath this)
- Training for occupants
-

## REVIEW: Division of Responsibilities between Implementation Models

Action	Responsible party in DIY Model	Responsible party in ESCO Model	Responsible party in Hybrid Model
Submit ESIP Intake Form	Entity	Entity	Entity
Schedule LGEA or Preliminary Audit	Entity	Entity	Entity or Engineer/Architect of Record (EoR)
ESIP RFP for an ESCO	NOT Required	Entity	Entity or EOR
Hire Firm to Perform IGA	Entity bids out for services	ESCO performs audit	ESCO performs audit
Development of the Energy Savings Plan; Apply for EE Incentives	Entity bids out for services; entity applies for incentives	ESCO	Entity or EOR
Secure Financing	Entity  (Financial Advisor)	Entity  (Financial Advisor)	Entity  (Financial Advisor)
Hire Third Party Auditor	Entity	Entity	Entity
Development of Construction Plans	Entity bids out for services	ESCO	Entity or EOR
Bids and Specifications	Entity bids out for services	ESCO	Entity or EOR
Manages the Construction Process	Entity	ESCO	Entity or EOR
Measurement and Verification	Entity bids out for services	ESCO	Entity or EOR
Reporting	Entity	Entity	Entity

Please visit the BPU ESIP webpage for the most up to date program information. Any questions can be directed to [ESIP@bpu.nj.gov](mailto:ESIP@bpu.nj.gov)