

## Environmental Defense Fund

### FEMP Request for Information Response

The [Investor Confidence Project](#), an initiative of Environmental Defense Fund, has developed a set of industry-recognized protocols designed to streamline the process of underwriting energy efficiency projects and improve the reliability of savings.

By leveraging the Investor Confidence Project's Energy Performance Protocols, the Federal Energy Management Program (FEMP) can streamline federal contracting, by standardizing engineering requirements and documentation, resulting in reduced administrative burden when developing opportunities and evaluating proposals, as well as allowing for better benchmarking and transparency. Standardization will create a more competitive and innovative market and ensure that the federal government is receiving the greatest return on its energy efficiency investments.

Because the Investor Confidence Project (ICP) protocols are also being adopted in the private sector, FEMP's public investment will also build a track record and actuarial data that will support the growth of a private market for energy efficiency. Larger markets will amplify federal investments and help hit broader federal objectives that include dramatic reductions in building energy use across all categories of buildings.

Environmental Defense Fund (EDF) is committed to averting catastrophic climate change by minimizing the environmental impact of energy generation. By scaling up energy efficiency while developing renewable energy resources, FEMP can limit pollution, reduce carbon emissions, protect communities, slash energy bills, stimulate clean technology innovation and create new American jobs.

McKinsey's study, *Unlocking Energy Efficiency in the U.S. Economy*<sup>1</sup>, concluded that, at scale, a comprehensive and innovative approach to unlocking energy efficiency in buildings "would yield gross energy related savings of more than \$1.2 trillion. Such a program has the potential to reduce end-use energy consumption in 2020 by 9.1 quadrillion Btus, roughly 23% of projected demand, potentially abating up to 1.1 gigatons of greenhouse gases annually.

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<sup>1</sup> [1] McKinsey & Company. [Unlocking Energy Efficiency in the U.S. Economy](#), July 2009.

EDF's Investor Confidence Project was developed to address barriers to energy efficiency in the private building sector. However, we have learned that ICP is also highly relevant and helpful to public sector energy efficiency programs.

In the private buildings sector, the barriers to energy efficiency (EE) are not trivial. In existing buildings, capital upgrades are usually needed to unleash future energy savings. To date, financing mechanisms have not succeeded in attracting capital either at a large enough scale or outside certain "safe" markets (such as universities or municipalities) where buildings are owned for long periods of time and the cost of capital are inherently low. There are many reasons for this failure.

First, energy users are reluctant to invest their own capital in EE projects, instead preferring zero initial cost financing structures. This reluctance is exacerbated in multi-tenant commercial and multifamily buildings, where misaligned or split incentives exist between building owners, who control building improvements, and occupants, who pay the energy bills. Second, the fact that loans are made to owners or tenants personally, often without any security interest related to the property where the improvements are made, and are rarely linked to measurable energy savings streams, discourages current owners and tenants from considering projects with payback periods that may extend beyond the current ownership or tenancy. Third, neither lenders nor building owners have confidence that the promised energy savings will be realized or, consequently, that investments will provide attractive returns.

The Investor Confidence Project is focused on addressing the third barrier listed above for the wide array of investors who manage performance risk in these projects, including building owners and managers, energy service companies, finance firms, insurance providers, and even utilities. Investors have lacked a standardized method to manage the performance risk associated with predictions of energy and financial savings from efficiency upgrades, due to wildly variable methodologies and a dearth of information about their relative accuracy. Moreover, the historical lack of a standard approach to performance assurance has prevented the meaningful aggregation of historical project performance data that would enable market actors to better manage the risk associated with future energy efficiency investments. Asset owners remain unconvinced and hesitant to approve projects and large funds assembled for energy efficiency remain untapped due to a lack of "shovel ready" investment quality projects. The cost of attempting to manage this risk often leads to redundant engineering steps and significantly increased transaction costs. The lack of actuarial data is only part of the problem; in addition, the non-standardized process of bringing a project into the market also reduces the efficacy of origination channels, creating barriers for building owners and investors alike.

The public building sector, though not reliant on private investments, also lacks a standardized method to gauge the accuracy of predicted energy and financial savings from efficiency upgrades. The result is in high transaction costs associated with redundant layers of engineering, and a premium being paid for performance guarantees. Increased confidence and better transparency will lead to competition and will drive companies servicing Federal buildings to shoulder more of the performance risk of projects in order to be competitive in the market.

### **The ICP can help FEMP accomplish many of its stated goals:**

#### **Increase the speed at which projects can be awarded**

Utilizing the Investor Confidence Project protocols will vastly simplify underwriting. Projects that are developed following standard protocols will be much easier to assess and understand, which will reduce the time and expense of often redundant re-engineering cycles. It will also reduce cost of sale as RFPs become consistent, and project developers will be able to evaluate projects and deploy consistent services.

#### **Improve the certainty of savings persistence**

By standardizing on a full lifecycle approach to the engineering and measurement process for energy efficiency retrofits, FEMP will reduce performance risk and variance by requiring best practice standards that include baseline, auditing and prediction, commissioning, operation and maintenance, ongoing commissioning and measurement and verification. By reducing variation in the engineering process, FEMP will drive more reliable results and data, which will in turn result in lower costs for performance guarantees and capital.

#### **Encourage innovation in project finances and risk management**

Currently the FEMP rules favor an integrated approach to the ESCO market where only large companies that can serve the entire project and have substantial balance sheets are able to participate. ICP will enable a more open market where a broader field of qualified providers will create more competition and innovation. The same core functions of a traditional integrated ESCO can be accomplished in a distributed model where companies team up to provide services on a single project. This environment will be conducive to teams of smaller and more specialized companies, allowing new ideas and business models to be developed, tested, and deployed to the market. Through collaboration, companies can more effectively find new solutions, create new products, and manage risk for building owners.

### **Enable FEMP to streamline ENABLE Program for Smaller Facilities**

Standard engineering and project workflow will reduce transaction costs for both buyers and sellers. With everyone speaking the same language, more fluid teams will emerge to service this market and reduce upfront costs and risk associated with the complexity of contracting in the Federal arena. This will address current challenges that limit providers to only those large companies who provide full services and can afford the high transaction costs associated with gaining access to Federal contracts by standardizing the approach and engineering process.

### **Contribute to the development of private markets and commercial building retrofits**

FEMP has an opportunity to align standards in the public and private markets in a way that will create synergies in both arenas and help drive a larger and more sustainable national marketplace, increase transparency, build consistent actuarial data on performance, and increase energy efficiency in all sectors.

While the public market is clearly a great starting point and an important segment of buildings to serve, the vast opportunity inherent in the commercial building stock remains largely untapped due to a host of systemic problems, including high upfront capital costs, significant development and transaction costs, uncertainty of savings, and perceptions of risk.

There is a great need for a unified national marketplace that spans and leverages both the public and private markets for energy efficiency through a standardized system to manage performance risk and enables large scale underwriting of building energy efficiency. Unlocking private capital is the key to creating a marketplace of the size and diversity that EDF, McKinsey, DOE and a wide range of private companies envision.

In order to attract private capital at such a scale and with competitive rates, investors need a level of certainty with respect to project performance and risk. By adopting the ICP Protocols, FEMP can help to create the standardization that is the foundation for creating an environment that will enable the creation of such a marketplace and lead to additional benefits aligned broadly with both DOE and White House goals.

### **The Investor Confidence Project**

The Investor Confidence Project (<http://www.EEperformance.org>) creates a set of trusted, consistent and replicable protocols for engineering and evaluating energy efficiency projects, measuring energy savings and helping to ensure that savings persist post-retrofit. The ICP Energy Performance Protocols (EPP) will enable the monetization of energy efficiency investments, allowing investors to manage performance risk while ensuring that building

owners achieve the many benefits of energy efficiency, including reduced operating costs, higher market value, enhanced productivity and a significantly lower carbon footprint.

The objectives of the Investor Confidence Project include:

- **Increase deal flow and reduce transaction cost** by enabling channels to originate standardized investment-quality projects
- **Improve outcomes and manage performance risk** by ensuring use of best practices and the consistent application of standards
- **Develop meaningful actuarial data** with consistent engineering, measurement and documentation

For the last two years, the [Environmental Defense Fund](#) has worked with a cross-functional team of [industry experts](#) to assemble existing technical standards and best practices into a straightforward set of protocols that define a clear road map from efficiency opportunity to an investment quality project with reliable returns and access to markets.

Through collaboration with a wide array of [allied organizations](#) and informal partners, the Investor Confidence Project is assembling a growing marketplace connecting origination channels to a wide range of project investors. This growing coalition includes both equity and debt finance companies, building owners and managers, energy service providers, insurers, engineers, utilities, and a range of NGO and public sector organizations.

To date, most energy efficiency retrofits are occurring in the public sector, addressing the opportunity in municipal, university, school, and hospital buildings (the "MUSH" market), as well as federal buildings. This public market has emerged as a result of a number of factors, including the creditworthiness of public and institutional entities, the standardization of contracts, business models, and requirements by FEMP and other agencies, and the fact that most ESCo players to date have involved large integrated companies, with very limited competition, focused almost exclusively on very large projects.

While ICP began with a focus on the commercial marketplace, we believe that we can provide similar value to the MUSH and Federal markets. We also believe that we can help further leverage public investments by harnessing data and transactions into a larger market that will attract private capital, reduce costs, and contribute to a broad set of federal objectives related to job creation and energy goals.

The Investor Confidence Project has developed a portfolio of Energy Performance Protocols that define investment quality engineering and documentation for an energy efficiency retrofit,

based on existing technical standards, resulting in reduced investor transaction costs and manageable performance risk.

Protocols for different types of buildings and projects are housed inside a Project Framework that spans the full lifecycle of virtually every energy efficiency project.

## Investor Confidence Project Framework



The ICP Project Framework enables a clear definition of the complete process necessary to ensure performance from the initial audit through ongoing commissioning and Measurement and Verification. (In practice, some projects are designed or executed in a manner that omits one or more of these steps; the framework does not necessarily disallow all such projects, but it does draw attention to what they are missing.) This structure can be used to categorize the specific attributes of many protocols based on different building types or investor risk models.

A combination of standards designed for a specific building type or risk model comprises an [Energy Performance Protocol](#).

### Baselining

A sound energy usage baseline is the starting point for accurate projection of potential energy savings as well as for measurement after retrofits and/or retro-commissioning. A baseline should indicate how much fuel and electricity a building can be expected to use in a day given heating and cooling conditions and occupancy of the building (and potentially other influential factors).

Depending upon the location of the building in question, the time of day at which energy is saved can have a significant impact on the dollar value of the savings achieved. Where demand charges are in effect or where rates for on-peak electric usage exist, load profiles must be provided to show the pattern of daily demand. An annual electric load profile must be constructed for peak demand (kW) as recorded and billed by the utility. Rates that include Ratchet provisions must be identified. The same procedure must be followed for any other energy source that is sold with a peak demand charge separate from energy usage.

### Savings Projections

Savings calculations for projects of the scale anticipated must be based on calibrated building simulation models that meet specific procedural requirements and follow existing documents and guidelines. Once a simulation model is established and calibrated, iterative runs are conducted for individual measures. The total package of all measures must be run together for the final projection of package energy reductions, to account for interactive effects.

### **Design, Construction, and Commissioning**

The design and construction team must commit to executing the energy audit recommendations accepted by the Project Owner. That this commitment is met will be part of the project's commissioning (Cx) effort.

### **Operations, Maintenance, and Monitoring**

Operations, Maintenance, and Monitoring is the practice of systematic monitoring of energy system performance and instituting corrective actions to ensure "in specification" energy performance over time. (Such practices are also referred to as Ongoing Commissioning, Continuous Commissioning, Monitoring-based Commissioning, Performance-based Monitoring, and Building Re-Tuning.)

### **Measurement and Verification (M&V)**

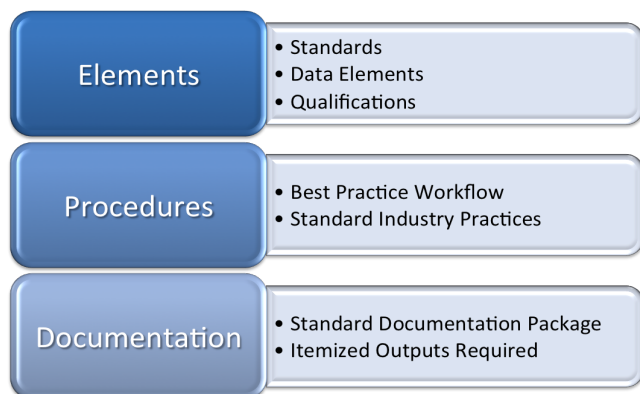
Measurement and Verification is the process of using measurements to reliably determine actual savings generated within an individual facility by an energy management, energy conservation or energy efficiency project or program. As savings cannot be directly measured, the savings can be determined by comparing measured use after implementation of a project with a baseline that simulates how the building would have performed had the project not been executed, making appropriate adjustments to that baseline to reflect post-intervention conditions.

### **Energy Performance Protocol**

Energy Performance Protocols (EPPs) are an industry best practice amalgam of existing standards, practices, and documentation in order to create the data necessary to enable underwriting or managing of energy performance risk. Within the Project Framework, there can be multiple EPPs for different building types, and risk models.



For each category, the protocol establishes minimum requirements, including required Elements, Procedures, and Documentation. The ICP assembles existing technical standards and best practices into a standard project-level protocol. ICP does not create new technical standards, but leverages standards that are already accepted and in use in the industry.



### Standard Documentation Package

Similar to an appraisal pack in a commercial real estate deal, each defined EPP creates a standard set of documentation that will help standardize project performance underwriting, leading to better data on performance, and a more efficient marketplace with less duplicative engineering and lower transaction costs. The result should enable an increase in deal flow and a more transparent and efficient market.

### What can ICP bring to the Federal Energy Management Program?

Standardizing public markets will provide increased transparency leading to more aggressive pricing and better overall results. Rather than having the market limited to a small number of completely integrated firms, often employing a proprietary engineering and underwriting process, standardization will create more consistency and access to enable benchmarking and competition that will bring down costs and encourage private sector actors to share in the risk. FEMP will also encourage more innovative business models and provide access to a wide range of smaller firms who will be enabled to participate in federal projects by standardizing the approach and allowing teams to deliver services once reserved for only massive integrated firms.

### What can FEMP and ICP bring to the Commercial Energy Efficiency Market?

FEMP has the opportunity to play a significant role in helping to stand up the marketplace for energy efficiency retrofits for commercial buildings, a market that is underserved for a myriad of reasons listed previously.

### ICP Recommendations and Next Steps:

The EDF Investor Confidence Project team recommends the following steps to begin the process of integrating ICP Protocols into the FEMP process.



First, we would like to invite FEMP to participate in our ongoing process of developing and refining protocols. ICP working groups meet on a monthly basis and focus on developing protocols for additional building and project types as determined by our network of stakeholders. This process varies in intensity based on release schedules, but generally requires attendance on the monthly call, and potentially some review of documents in between. The protocols are living documents, and we are eager to receive feedback from FEMP to further develop protocols that are effective in both the public and private markets.

Second, we would invite FEMP to incorporate these protocols into the ENABLE program to encourage adoption of a single protocol that spans both private and public markets. Since FEMP is currently seeking new approaches, now represents an excellent time to integrate the ICP Protocols and create a more standardized and effective process for federal agencies seeking project teams and investors. This will result in reducing contracting times, more accurate savings estimates, and reduced transaction costs. It will also serve to create a unified, effective, and robust market throughout the energy efficiency landscape.

Please contact the EDF Investor Confidence Project team to learn more about how we can work together to collaborate on what we believe is an important building block of a mature energy efficiency marketplace.

Respectfully submitted by:

Matt Golden  
Senior Energy Finance Consultant  
Environmental Defense Fund  
[matt@efficiency.org](mailto:matt@efficiency.org)  
415.902.4546