

Comments Submitted by Chris Vance on Docket number 12-EBP-1 Comprehensive Energy Efficiency Program for Existing Buildings (AB 758) Scoping Report Staff Workshop – 10/23/12

The following comments are not intended to reflect the position of the City of San Francisco Public Utilities Commission (SFPUC) but rather are my own personal and professional views. I submit these comments not as an employee of the SFPUC, but rather as a concerned citizen and as an energy efficiency professional with more than 25 years of experience designing, developing and managing energy efficiency programs for the public and commercial sectors.

These comments focus on nonresidential buildings and describe a strategy to overcome the critical problem of project delivery barriers to whole building energy retrofits. Proposed below is a program design that encompasses the major components of what AB 758 is calling for, as summarized below.

To match the aims of AB 758, stakeholders are calling for a program approach that:

- Achieves greater energy savings through *whole building* retrofits in the most efficient and transparent manner possible, and with contractor accountability and consumer protection;
- Is flexible enough to effectively serve a wide range of commercial building types while at the same time is systematized in order to facilitate scaling up energy efficiency; and
- Ensures that measureable energy savings are delivered and efficiently verified in order to support broad acceleration of energy efficiency project finance.

Realizing this vision will require addressing the “project delivery gap”

Realizing this vision is challenging due to the fragmented way in which the energy efficiency (EE) industry currently delivers EE services and incentives that result in multiple barriers to whole building retrofits and a “project delivery gap” for the customer. This delivery gap is especially prevalent in the municipal, universities, schools, and hospitals “MUSH” market and in the small to medium commercial market - where most of the energy efficiency potential remains untapped.¹ Partial solutions that don’t effectively address this project delivery gap will result in partial success that falls short of the ground breaking and transformative solutions and impact that is being called for, and that is within our reach.

Solution → regionally based “lean green retrofit machines”

What is needed is a way to transform at least part of the EE industry into regionally based “lean green retrofit machines”, including as-needed “job Order Contracting” (JOC) and integrated building commissioning services. A program modeled after the City of San Francisco’s successful JOC based EE program could bring the necessary EE service providers and utility offerings together into one smooth turnkey process for busy building owners, while providing sufficient quality assurance, transparent pricing, and performance risk management to consistently generate credible energy savings in support of acceleration of energy efficiency investment. Centralized EE project delivery services could also provide greater support for existing and evolving EE workforce development efforts. This comprehensive program delivery structure – when used in conjunction with the EE finance solutions envisioned within AB 758 – encompasses the critical components to unleash significant EE activity; this would enable the nonresidential EE industry to grow and thrive, and would help achieve the state’s aggressive emission reduction targets.

Program model for delivery of flexible, on call, turnkey whole building retrofits and EBCx/CCx services

A statewide branded program, administered through regionally based Third Party Program

Administrators could provide multiple customers with easy access to flexible, on-call, turnkey energy

¹ The biggest challenge faced by ABAG’s Local Government Energy Partnership Program, serving over 70 local governments in California was “overcoming the barriers and bridging the gap between project development and project implementation/completion” (Chamberlain, Lahr & Nushwat 2008).

retrofit services with integrated existing building retrocommissioning (EBCx) and continuous commissioning (CCx) services. Whole building energy retrofit identification and delivery is streamlined and accelerated by joining together teams of energy engineering firms for as needed audit, design and construction management services - with Job Order Contracts for on call EE retrofit services - in a partnership approach. The program features flexibility, rapid response, transparency, competitive bidding, quality control, and the ability to stretch funding. Regional collaborations have emerged as a means to overcome the inefficiencies of duplicative procurement processes by multiple local agencies engaged in similar projects. Regional procurement of as-needed turnkey EE services for use by multiple customers could bring economies of scale and other efficiencies that benefit all stakeholders, and this model offers a structure that makes this concept viable.

Key program components include unit pricing via Job Order Contracting, direct trade contracting, and an integrated design approach. The program structure enables a collaborative approach that efficiently leverages consultants' energy efficiency expertise, and contractors' knowledge of constructability, to conceptualize and execute the projects rapidly and cost-effectively. Standardized procedures and templates allow the teams to quickly navigate through documentation requirements while maintaining high quality assurance. The program ensures contractor accountability and standards with incentives to perform and streamlined quality assurance and quality control (QA/QC) protocols that are systematically built into the project delivery. The program's flexibility, cost savings, and transparency are ideally matched to the post- ARRA era of reduced funding from diverse sources.

Program design based upon successful San Francisco municipal building EE program

The program envisioned here is modeled after a successful program at that City and County of San Francisco (CCSF) that has completed approximately \$13 million in energy retrofit projects in more than 80 municipal buildings since 2009. The program is estimated to complete another \$7 million in retrofits at more than 20 sites in the next 12 months with a core staff of approximately 3 FTE. Projects have been completed in a wide range of public facilities that demonstrate the program model's broad applicability across various building types and energy efficiency measures (EEMs). Projects tend toward deep retrofits comprised of a comprehensive package of EEMs that combine short-payback and long-payback EEMs on a facility or multi-facility basis to maximize energy savings while meeting an overall payback period of 15 years or less. Lighting EEMs and HVAC EEMs are more efficiently and cost effectively constructed separately using lighting and mechanical trade contractors with projects ranging in size from small fire station lighting retrofits to a \$1.6 million major central plant/HVAC upgrade with *EBCx* at Davies Symphony Hall.² Using JOCs has made a dramatic difference in the quality, speed and value of EE projects delivered by the program for our municipal departments. A regional-based program could perhaps realize results that are similar to or better than those achieved by CCSF.

What is a Job Order Contract and what advantages does a JOC-based EE Program offer?

A Job Order Contract (JOC) is a competitively bid, firm, fixed-price, indefinite quantity contract for as-needed construction services. With Job Order Contracting, a contractor's bid is their proposed mark-up applied to the pre-set unit prices found in an exhaustive catalog of detailed construction tasks (referred to as a "Construction Task Catalog" or CTC. The contractors that meet the minimum qualifications and bid the lowest mark-ups are awarded contracts. The CTC includes specifications for each task, and is priced locally, including local material, labor and equipment rates. Although designed for public sector construction, JOCs can offer the same advantages to private contracting as well.

² The City of San Francisco JOC based EE program is described in more detail within two papers published as part of the 2010 and 2012 American Council for Energy Efficient Economy Summer Study on Energy Efficiency in Buildings, and listed in the references section.

Key advantages that come from utilizing JOCs for EE retrofit programs and projects:

- 1) *Administrative efficiency*: master contracts are awarded to multiple contractors through one simple, fast, competitively bid RFP process; contractors are then available **on call** to multiple customers to deliver flexible, comprehensive retrofit services. As projects are identified and assigned to contractors over time, each contractor completes multiple smaller jobs that roll up to the overall value of their contract.
- 2) *Quality contractors and quality assurance*: Contractors must meet minimal qualifications; also each task in the CTC comes with technical standards that can be customized. Contractors are guaranteed only a minimum amount of work and thus have an incentive to perform high quality work in order to continue receiving projects.
- 3) *Complete transparency*: Construction costs are broken down into a detailed list of tasks with CTC unit prices and quantities. Online software programs/services are available to streamline the development of cost proposals by contractors and review by engineers and project managers.
- 4) *Cost savings and greater cost certainty and control*: The CTC is used to develop early cost estimates using pricing to which the contractor is held; and there is less risk of inflated costs for change orders since added work is priced from the catalog. The JOC process ensures that any change orders are fairly priced, thereby providing greater cost certainty and control. Cost savings compared to traditional contracting methods include lower procurement and project management costs, and lower design cost savings from performance specifications versus full design drawings.
- 5) *Speedy project delivery*: Detailed design is replaced with performance-based technical specifications that build off of the completed audit report. The streamlined design takes a few weeks versus months for full construction drawings (CDs); once the performance specifications are complete construction can begin within weeks through a streamlined task order process. Full CDs are completed by the JOC contractor when required.
- 6) *Enables greater collaboration and integrated design approach*: Contractors are on contract to engage early in audit-design stages to solicit their input on the constructability and relative costs of various EEMs. This enables team members to collaborate throughout the entire project while utilizing an integrated design approach to optimize the whole building retrofit and to mine every available energy reduction.

This contracting method is ideally suited for EE retrofits and provides many advantages over design-bid-build (typically used in the public sector) that tend to set up designers and contractors to be at odds with each other. Unfortunately, design-bid-build (unless very skillfully managed) can become a recipe for low quality construction at the highest price when one accounts for the cost of change orders necessary to complete the project.

The program model joins together two necessary components for successful EE Projects:

The two components necessary to deliver successful energy retrofits in nonresidential buildings are:

- 1) *Sound energy engineering to establish the project's technical foundation*: energy engineers must determine the energy baseline and estimate the energy savings associated with a package of EEMs using acceptable engineering methods appropriate to the scale of energy savings, level of complexity of the site and EEMs.
- 2) *Quality contractors for implementation*: contractors install the proposed measures and are critical for assisting in evaluating building retrofit/upgrade needs from the perspectives of constructability, construction costs, and often building operations impacts, associated with various EEM options.

Why new entity is needed to transform the fragmented EE project delivery market

A regionally based, third party, EE project coordinator and implementation entity would fill the market's project delivery gaps and allow engineers, contractors, building owners and facility staff to each do

what they already do best. The project delivery gap would be directly addressed by bringing the services together for the customer – in a way that no one existing market player can.

- Project financing is essential, but financing alone, no matter how attractive the terms, is not sufficient to create action among all customers and generate an EE project;
- Qualified contractors are vital as well, but they typically do not have the skills to perform energy audits and evaluate the energy and cost saving associated with deep comprehensive whole building retrofits. As such contractors cannot be expected to present the value proposition of whole building retrofits to customers/building owners without the aid of energy engineers;
- EE engineers producing energy audit reports are again essential but not sufficient to complete a project.

Additional market players needed to transform the nonresidential EE retrofit market include:

- Marketing experts - none of the above market players has demonstrated the marketing prowess that needed to create a dramatic up-tick in EE “sales” to building owners;
- Project manager/ owner rep providers – Like a trusted real estate agent that helps you through the complex and unfamiliar territory of a home purchase, building owners often need an agent to help navigate the audit-design-CM, financing, and M&V phases of the retrofit process.

Why not ESCOS for turnkey EE project delivery?

Energy Performance Contracting (EPC) is the industry’s primary vehicle for bundled EE engineering-construction services. EPC provides a compelling package with its turnkey services and guaranteed savings, so long as one employs due diligence in order to avoid its potential pitfalls.³ But when it comes to significantly accelerating and scaling up building energy retrofits, the EPC model has some potential drawbacks including complex contracts that take time and effort to set up, high transaction costs, lack of transparency, and potentially high mark-ups that interfere with performing deep comprehensive retrofits. Providing owner rep services and pre-qualifying energy service companies (ESCOs) that agree to uniform performance contracting terms could mitigate some of these risks.⁴ But the ESCO pool is relatively small, many customers/projects are too small to attract ESCOs (and aggregating projects takes time and effort), and the typical EPC model would still result in duplicative procurement and processes undertaken by multiple agencies in contrast to the economies of scale and efficiencies offered by the proposed regional JOC based EE program model.

How could the program be structured?

For the MUSH market, the program would be administered through a suitable agency such as the CEC, a Regional Energy Network (REN), or other suitable regional agency. Program Participants would include cities, counties, school districts, schools, universities, hospitals and other public and quasi-public agencies. Program Participants would enter into a Joint Powers Agreement (JPA) with the Administering Agency to receive turnkey retrofit services, including project management, audit, design, and construction management, and construction by lighting and HVAC JOCs, and EBCx/CCx services.

The key service providers for the program would be as follows:

- **Administering (Sponsoring) Agency:** The Administering Agency would hold all of the contracts with the service providers and enter into Joint Power Agreement (JPA) with each participant.
- **Program Administrator/Project Management Services:** The Program Administrator (PA) would perform all program set up tasks including assisting the Administering Agency with continuous solicitation through RFPs to establish the pools of EE service providers; performing marketing and

³ (Vance & Deakin. 1996)

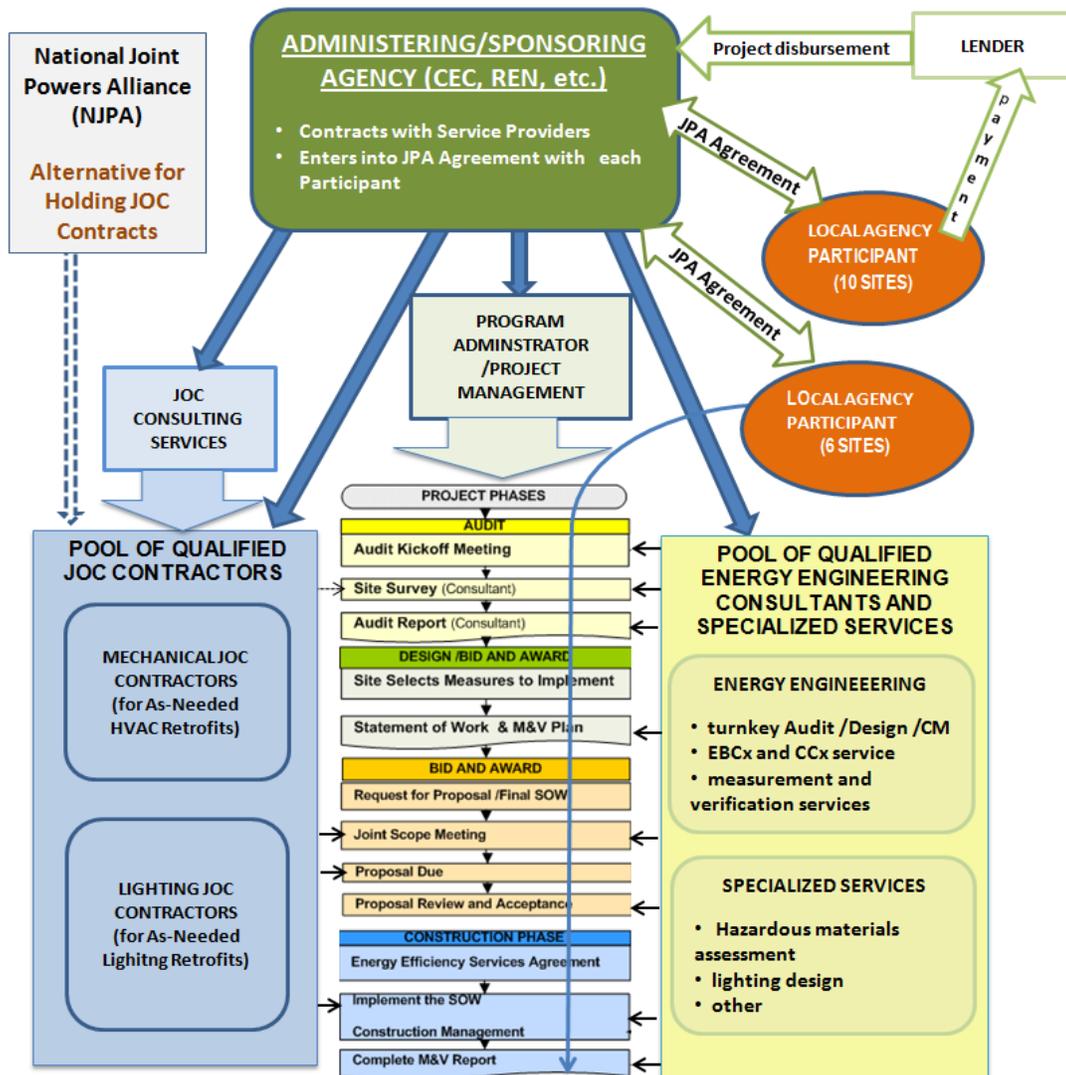
⁴ (Bevington & Seeley. 2012)

outreach; performing project management and overseeing all technical services; and coordinating Workforce Development activities.

- **Energy Engineering Services:** A pool of prequalified engineering teams provide audit, design, construction support, M&V and EBRx/CCX services; and firms with specialized expertise, such as lighting design or hazardous materials assessments, provide services as required.
- **JOC Consulting Services:** A JOC consulting firm would help set up JOC contracts, provide customized EE catalogs, technical support and training for PMs, engineers, and contractors. In San Francisco's case, program staff, working with City contract/procurement staff, engaged The Gordian Group for these services. Fee structures are variable. For the San Francisco program, The Gordian Group's compensation was a fixed percentage of the construction cost of approved task orders.
- **Pool of Lighting and HVAC JOC Contractors:** A pool of competitively awarded contracts with CTC unit prices based on prevailing wages & materials.

Figure 1 below shows one possible program structure.

Figure 1 - Possible MUSH Market Program Structure



National Joint Powers Alliance - Alternative for establishing lighting/HVAC JOC Contracts

Options exist for establishing the lighting and HVAC JOC contracts with relatively few set-up steps, and then adding more energy engineering teams and JOC capacity as demand for services grows. In this scenario, a local program participant could access existing JOC contracts by establishing a JPA with the National Joint Powers Alliance (NJPA). The NJPA is a national service cooperative created by the Minnesota Statute 123A.21. The Gordian Group's EZIQC (easy indefinite quantity construction contract) program has worked with NJPA to establish general construction JOC contracts in various regions in the U.S.; these contracts may be accessed by any local agency that is a member of NJPA and enters into a JPA for services. The strategy contemplated here is that this EZIQC program would respond to Administering Agency's requests to set up specialized lighting and HVAC JOC contracts for a particular region. In this scenario, NJPA, in conjunction with the Gordian Group, would advertise and award competitively bid lighting and HVAC JOC construction contracts based upon regional pricing updates to the lighting and HVAC task catalogs developed for the San Francisco Retrofit Program. Once the master lighting and HVAC JOC contracts are awarded, local government NJPA members could implement individual projects by issuing a purchase order against the master contract. On a pilot program basis these easy-access lighting and HVAC JOC construction contracts available through the NJPA could be paired with the energy engineering and project management services.

Program Set Up: The PA would assist the administering/sponsoring agency with conducting RFPs and establishing all of the necessary services to deliver on call, whole building, retrofit services, including:

- 1) Pool of consultants for energy engineering services and other specialized services
- 2) JOC consulting firm to help establish Lighting and HVAC construction task catalogs (CTCs) and to provide ongoing technical support and training in the JOC computer based pricing system
- 3) Pool of competitively bid, on call, Lighting (C-10) and HVAC (C-20) JOC contractors that meet minimum qualifications and are contractually bound to the pricing in the CTCs.

The PA would also establish program standards, templates, best practices, policies, and be responsible for overall program management and quality assurance. PA staff would provide project coordination, oversight and management and insure continuity of services throughout the entire project cycle.

Possibility of establishing "Benefit Corporation" for private sector commercial building program

There are many possible structures for a program that would target private sector commercial buildings, but one possibility would be to establish a "benefit corporation" that has the necessary capabilities to serve as a program administrator. A benefit corporation is a new way for mission driven companies to legally organize themselves with the goal of doing business in a socially and environmentally conscious way. It allows the company to officially adopt policies "that create a material positive impact on society and the environment" as part of their legal charter. A benefit corporation, serving in the role of a PA-General Contractor-Super ESCO, could hold all of the JOC and engineering consulting contracts and enter into agreements with participating customers that allow them to receive the turnkey EE services.

Development of specific construction task catalogs (CTCs) for certain market segments

As mentioned previously, the San Francisco program has been applied to a wide range of public facilities and measure types that demonstrate the program model's broad applicability. This is because the City sponsored a collaboration of EE experts and its JOC service provider, The Gordian Group, to create the first-ever customized CTCs for a single EE trade (one for lighting, one for HVAC). These EE-customized CTCs provide an exhaustive list of EE tasks that can be used to price out virtually any EE retrofit including for example emerging lighting technologies in the lighting JOC CTC and retrocommissioning tasks in the HVAC CTC. Also, any EE measure not in the CTC can be added as a "non pre-priced" item and paid for "at cost" plus a pre-agreed mark-up. Nevertheless, different market segments have unique needs and may benefit from development of specific CTCs and solicitation of

contractors to more efficiently and cost effectively serve specific building types (retail or grocery stores, for example).

Project delivery steps

The following is a description of main project delivery steps involved.

1) Project Manager and Consulting Team is Assigned to Customer Throughout Project

As customers are enrolled into the program, a project manager and consulting team is assigned to each customer to provide services throughout the entire project cycle for all enrolled sites. Program services would typically phase the lighting project ahead of the mechanical project, with the consulting team responsible for coordinating any integrated aspects of the project (such as controls) between the two contractors if necessary.

2) Energy Audit by Consultant

The level of technical audit provided would be tailored to the size, complexity and potential energy savings of the project but robust enough to insure identified measures can move to implementation. After meeting with the customer to determine the overall needs and potential scope of the project, the consultant first performs a lighting efficiency and HVAC efficiency survey to identify a preliminary list of retrofit opportunities. After discussing the opportunities with the customer, a draft energy audit is completed with the project cost estimates based upon the pricing in the CTCs. Estimating project costs using the CTC saves time and provides greater certainty in the projects costs. Next, a lighting and HVAC JOC contractor is assigned and a “joint scope meeting” is conducted with the JOC contractors and the customer to discuss the opportunities on site. The consultant then finalizes the analysis of the retrofit solutions, incorporates input from the JOC contractor (for example on costs and constructability of various competing retrofit options), and completes the audit report and draft project proposal for consideration by the customer. The Project Manager (PM) encourages and facilitates a collaborative, integrated design approach among all of the team members. The audit report is presented to the customer who, if interested in moving forward, selects the final package of measure for project implementation (steps 3 through 6).

3) Design Performance Specs by Consultant and Project Proposal by PM

Once the customer selects the final package of EEMs to implement commits to moving forward, the consultant develops a detailed JOC Scope of Work (SOW) that builds upon the detail in the audit report and adds performance specifications. The consultant performs any additional site visits with the contractor if necessary, and reviews costs for appropriate quantities and pricing. The JOC costs are transparent and itemized in detail based upon the tasks, equipment and pricing in the CTC. The project manager then develops final project proposal inclusive of all costs, incentives and financing (OBR, loans, etc.) that is tailored to the needs of the customer.

4) Signed Agreement and with Notice to Proceed (NTP) in a Few Weeks

Once the department agrees to the terms and signs an Energy Services Agreement for project financing and implementation services, a task order NTP is issued for installation of the EEMs within a few weeks.

5) Construction by JOC Contractor and Construction Support by Consultant with PM Oversight

Project implementation services include project construction through the lighting and/or HVAC JOC contractors, construction support services through the energy consultant, and overall project management by PA staff. Day-to-day on-site construction coordination is typically and most cost effectively provided by the customer, but additional construction management services can be provided on a case by case basis and included in the cost of the project.

6) Project Implementation Verification/Measurement and Verification (M&V) report/Project Close Out

After the JOC Contractor finishes resolution of all punch-list items, the consultant verifies that the contractor has performed the approved SOW and completed construction with PM review and sign off.

The consultant then completes a M&V report (depending on size of energy savings and level of performance risk). Prior to project close out, the contractor provides a Systems/O&M Manual containing SOW, submittals, CDs, implementation verification documentation, e.g. TAB reports, commissioning reports, start-up sheets, O&M manuals, and training materials.

How could IOU programs and public and private funding be integrated into program model?

IOU Programs: IOU incentive programs could adopt a whole-building EE incentive structure aimed at encouraging customers to achieving deeper levels of savings. One successful model is the New Jersey's Office of Clean Energy's Pay for Performance Program.⁵ IOU programs could also focus on evolving EBCx and CCx tools and technical platforms (as suggested by PG&E). Tools and methods that help extend the delivery of these high tech services to small and medium commercial buildings, where the majority of remaining EE potential exists, would perhaps help make these underserved customers more compatible for EE performance based financing structures.

Public funds for Program Set Up and Audits: The program requires public-funded seed money to get started but once economies of scale are reached, the program could become self-sustaining. Public funds would be used for the initial program set up, marketing and outreach, energy audits, and performance specifications. Although if a participating customer were to move forward with project implementation, the costs for these services could be recovered as part of value proposition presented to the customer. Likewise, overall program costs could be recovered by including a small fee equal to a fixed percentage of the construction cost. Although, the cost efficiencies gained through regional procurement and utilization of JOCs would more than offset these costs when compared to customer's cost if they implement the project without these services through more conventional methods (assuming customers have the resources to support project implementation).

Private funds for Project Implementation: Integrated private financing via OBR or other performance based EE financing would cover the full project costs and include a small fee to recoup program costs.

How does the program support workforce development activities?

Centralizing EE retrofit work on a regional basis under a single program would support: 1) greater coordination between the state of California Apprenticeship system and the pool of JOC contractors; 2) greater coordination between college and technical training programs and the pool of engineering firms; and 3) greater integration of existing workforce development training and support services. The collective impact of these efforts through greater concentration of EE work under a single program could conceivably lead to the planning and creation of whole career paths for individuals within both the trades and technical/engineering professions. It may also provide greater opportunities to support and carefully shepherd smaller contractors into the EE industry as the program (and industry) grows, thereby creating more supportive conditions for their success beyond EE training.

How could the program provide project performance risk management in support of EE finance?

Whether utility on bill repayment (OBR) or some other financing mechanism is used to fund projects, EE programs that can consistently deliver reliable and measureable results will be crucial to scaling up EE; otherwise EE could remain in the "valley of death".⁶ To be successful in this regard, the major risks associated with EE project performance must be assessed and strategies developed for mitigating these risks. Performance risk is best assigned to the party that can control it or gain the most from its control; and the Program Administrator (PA) is in a position to control many of the key factors that determine a

⁵ Incentives are generous and are designed to be significantly greater than prescriptive equipment rebates/incentives in order to drive retrofits, early retirement, and deep energy savings. Incentives are directly linked to energy savings – more incentives for deeper savings. Rozanova, Valentina, Rooney, Tom, Ruderman, Jack, Mosser, Mona. 2012)

⁶ Valley of death refers to "ideas not workable at scale or too risky for traditional investors without additional innovation. (Presentation by Milton Bevington at 2012 ACEEE Summer Study on Energy Efficiency in Buildings.)

project's success. For example, the PA sets minimum qualification standards for the engineering consultants and JOC contractors through the RFP selection process, they establish best practices and procedures to ensure reasonable energy savings are estimated and EEMs are installed at sufficient quality. PAs also provide project management and program oversight to ensure best practices and standards are followed. This level of control over the key success factors (much like a broker type ESCO) allows the PA to serve as a sort of "super ESCO" and provide guaranteed energy savings in connection with OBR financing or similar financing that depends on credible energy savings.

The energy savings guarantees could be priced based upon the package of EEMs and the level of EE savings and risk, and the PA would be compensated for bearing this risk. This "guaranteed savings" fee, however, could be priced with economies of scale in mind and partially mitigated through program level strategies (such as a shortfall reserve fund to cover energy saving shortfalls as used in some demand response programs). Perhaps a structure could be set up to allow the PA to aggregate this risk on an overall program or project portfolio level within greater economies of scale for the benefit of all customers (somewhat like the way demand response program aggregators manage program/portfolio risk). This program/portfolio approach may provide some risk management advantages over the typical ESCO model with its one-to-one contractual relationship with customers.

Finally, having pools of multiple contractors and engineering firms to draw from gives the PA options to reassign work from poorly performing service providers (under certain clear conditions) to those that perform well. In contrast, with the ESCO model, once a customer has signed a contract with an ESCO, the customer has "all of their eggs in one basket" so to speak – and divorcing an ESCO can be costly.

How does the program serve all stakeholders and foster co-creative innovation?

- Customers receive easy access to fast, high quality, competitively bid, turnkey EE retrofit services that could take advantage of all utility offers, new technologies, funding, etc. in one smooth process. (Building owners and facility staff may or may not be motivated to upgrade facilities in order to mitigate global warming, but most are motivated - if not desperate - to repair and upgrade older and failing equipment, and this program combined with EE financing, solves that problem.)
- The program reduces overall market inefficiencies and brings all of the advantage of economies of scale – all while having the ability to customize solutions to the unique needs of each customer
- Efficiently connects EE service providers with multiple customers
- Provides marketing channel for utility performance based incentives and identifies potential customers (post retrofit) for EBCx and CCx emerging technologies, tools and technical platforms
- Promotes transparency and consistency of EE assumptions and methods (audits, M&V)
- Provides an efficient channel for the PA, CEC or CPUC to disseminate information on EE policies, methods, technologies and to solicit input for continuous improvement
- Provides a centralized project delivery "HUB" that can integrate with the EE finance HUB services and potentially provide a credible savings guarantee to support acceleration of EE investments
- Supports more effective, sustained and comprehensive workforce development solutions

Finally, the program model brings together EE expertise within in a coordinated structure that enables the industry's collective wisdom to be tapped on an ongoing basis to foster co-creative innovation in ways that may not emerge strictly through competition.⁷ Many of the innovations that contributed to the success of the San Francisco JOC based EE program were the result of this kind of collective creativity.

⁷ Co-creative innovation refers to collective creativity to address the collective needs and create shared value. It happens when various stakeholders take part in the value creation process. In co-creative innovation, organizations try to address the customer's needs using not only their own creativity but the creativity of customers and other external stakeholders as well. (Sankaranarayanan (2012).

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