

## **Best Practices in Community Energy Efficiency Programs Large Commercial and Industrial Program Design**

*Prepared by Clean Energy Solution, Inc.*

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### **Addressing Large C&I Effectively**

Because of the large amount of wasted energy and the size of each transaction, the “Large C&I” market sector is where a major revenue-producing arena exists for LEAs:

- Fees as a % of installed costs, built into project financing
- Fees collected from contractors in consideration of marketing and certification
- Compensation for services provided by the LEA staff directly to customers
- Sale of Attributes

Definitions of “Large C&I” vary widely. For purposes of profitable program design and financing, the most rewarding sub-sectors are governmental, educational, and health facilities. They can handle long-term contracts, are good underlying credits, pay their bills, present large opportunities for improved efficiencies, are interested in environmental stewardship, are easily identified, are likely to issue RFPs for energy services, and will be around long enough to handle long-term debt. Some other institutional facilities (cultural, recreational), some commercial properties, selected multi-family residences, and a few industrial facilities may be good targets as well, but should be given significant marketing effort only when their commitments are well established. (All of these may be categorized as “C&I” by the utility, which identifies customers by meters rather than by function.) A separate Best Practices paper addresses the opportunities, barriers, and approach to nonprofit-owned buildings.

One important caveat about serving this sector is critical to state now: given the sophistication, extent of resource commitment and long decision-making pipeline in this sector, the LEA should not enter this market until it has established credibility and a track record in the smaller buildings marketplace. It requires significant internal expertise in marketing and technical knowledge to serve this sector, a very different set of skills normally needed to serve small buildings. It also requires a different set of partners among engineering firms and ESCOs to play in this market. While research and preliminary conversations with large building decision-makers can start in the first year of the program, it is not realistic to launch a typical LEA program in this sector until proficiency in the small buildings market is established.

This customer class is best addressed by:

1. Identifying the individual decision-makers within each customer and offering Value Propositions that appeal to their personal needs
2. Selling at the Board Room level, not the Boiler Room
3. Recruiting a First Mover who will be perceived as a leader by others in his/her class or market subsector (office building, warehouse, supermarket, etc).
4. Selling services that the LEA can deliver with its own staff, and for which it has credibility, and starting with a scope that is easily understood and easily accepted.
5. Collaborating with the customer's utility, the political power structure, and the media
6. Attaching some free money or services to the offer

These six principles are further developed below.

1. Large customers are not monolithic and do not necessarily make decisions based on what seems best for the organization. The CFO, the chief Facilities officer, the legal/procurement administrator(s), and often more than one committee or task force must all say "yes," and any of them can say "no." They have very different agendas. Appendix A is an outline of the "Value Proposition" that can be offered; the LEA must perceive which of these values appeals to which decision-maker, and tailor the offer accordingly. Although the sale must be made at high levels (see item 2 below), all the "no-sayers" have to perceive some personal value. The facilities people, for example, can be allies who have labored unsuccessfully to get capital approvals for their deferred maintenance; the financial and procurement people can be allies who need new capital sources; but all have to feel in charge, following procedures with which they are familiar.

2. This is ultimately a presidential-level sell. Ironically, because energy cost is actually a small part of the annual budget, it requires a high-level commitment to promote its significance. That is best done by appealing to climate leadership, public relations and marketing advantages, or key stakeholder approval (endowment donors, prospective students, patients, publicly-stated goals, customers, taxpayer groups, media). The LEA actually has a marketing advantage in reaching presidents and boards and city councils: its public sponsorship and its access to media as a *community* organization. These have to be used wisely, and early. While the TV lights are on and the LEA mission is fresh, political and institutional leaders will come together to announce their support of new jobs, a cleaner environment, and saving taxpayer/ratepayer/tuition/health costs. But these commitments have no "legs" unless a follow-up plan is already in place with assignments given to those in each customer organization who must carry out defined next steps. And not just to form another Task Force: they must agree to sign a Memo of Understanding (MOU) with LEA, defining next steps that they will take to make their promises a reality. Appendix B provides an example of an MOU that is effective but not threatening—that is within the

credible capabilities of LEA and the safe margins of the customer. The MOU must be signed by the CFO, COO, or CEO, not by the chief engineer.

It is unwise to “sell uphill”—i.e., to try to convince an organization that shows little interest that they “should” participate, or to devote major effort to prospects just because they are large or prominent. High-level interest in participating in the LEA program can be gauged fairly quickly by a city manager or county executive who knows the presidents personally.

3. The first client in each sector is the key client. The LEA needs an opinion-leader on its side when addressing others in her/his group. And the very first client had better be the city (or whatever public sponsor is part of the LEA’s governance). Without the city’s (county’s, state’s) example, LEA credibility is undermined. This may not be a simple matter, as discussed in Section A.4 (c); political opponents and elements of a bureaucracy can make giving contracts to an “insider” risky. Thus the availability and process of government contracting has to be addressed and clearly delegated (with an eye to coming elections and possible changes in political support), before the LEA management proceeds with unfounded assumptions. A visible public project must lead, along with one in education and one in health care. The executives of these leaders can then participate in councils of their peers to promote the Mission.

4. What services shall the LEA offer to the “large C&I” market? Not just being a broker for ESCOs. Not engineering or auditing or design-build or banking or energy sales, because large customers will not perceive the LEA as a capable and reliable supplier in a commercial world. Instead, the LEA must offer a “Sustainability Partnership” including behavioral work, supplementing the customer’s budget-constrained maintenance staff, getting good PR, and helping to arrange contracting and financing. An example is given in Appendix C. Even to enter into that kind of collaborative exploration of opportunities, the LEA needs on its staff (or among its close consultants) at least one experienced practitioner of those services, who can bring credibility and new ideas to the early discussions. One candidate for such a practitioner would be the “Independent Engineer” that LEA will engage on behalf of the customer to oversee contractor work, participate in commissioning, and verify savings.

With these arrangements in place, the LEA can effectively address the large C&I sector: the starting scope of work will be credible, easily understood (App. C), easily committed to (App. B), and promising in its ultimate goals (App. A).

5. All three of the essential collaborators of LEA (the power structure, utility(ies), and the media) will be present at LEA’s launch event, because it is in their interests to be there. Ongoing collaboration is much harder, however. The political advantage, the utility franchise, and the story have to be sustained by LEA’s work. The “power structure,” of course, will be part of LEA’s governance, but they must be continually nurtured by stories of successes, bringing in new grants and private capital, job creation, and opportunities to announce progress. The utility(ies) require just as much attention but of a different kind (see Section B.2). And the media need real personal-interest stories, events to cover, and credit for bringing attention to the Mission.

6. The LEA has a unique platform for raising foundation grants, memberships, private investment, regulatory support of increased utility subsidies, revenue from the aggregation and sale of Attributes, and new government support. These and other funding sources are discussed elsewhere in this document. Nothing gets attention, facilitates a meeting, and closes a deal as well as the availability of some free money, even if modest, especially if it has deadlines attached.

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## **APPENDIX A. Customer Value Proposition**

### IMMEDIATE LEA DIRECT SERVICES:

1. Community recognition
2. Tracking of carbon-footprint improvements, by a trusted expert, on a basis consistent with measurements by other consumers and commodity traders
3. Assistance with utility approvals, interconnections, charges, other cooperation
4. Assistance with City and State approvals and cooperation
5. Joint announcements and publicity
6. Relations with community groups, advocacy organizations, government agencies, students, faculty, staff, peers, alumni, and other stakeholders
7. Consistent, authoritative, and verifiable documentation of energy consumption and demand, savings, trends, baselines and comparisons – by facility and end-use
8. Augmentation of internal staff (analysis, documentation, project management)
9. Financing when and as needed, no hassle, at total cost < internal costs + opportunity cost
10. Support for internal budgeting, approvals, coordination with related programs
11. Services of an Independent Engineer, expert in energy:
  - Assurance of maximum opportunities for savings (energy, demand profile, water, maintenance, replacement) and lowest life-cycle cost
  - Commissioning
  - Savings verification
  - Ombudsperson services
  - Quality assurance (design, construction, O&M, training, documentation)
12. Support of client's internal approval process
13. LEA intends to bid in Greenhouse Gas auctions of carbon credits, and will sell these verified credits at cost to customers who agree to retire them, thus reducing the cap on emissions

### EXTENDED BENEFITS FROM INSTALLATION OF ENERGY –EFFICIENCY, RENEWABLE-ENERGY, AND COGENERATION IMPROVEMENTS:

#### PROPERTY VALUE ENHANCED

- Facilities' energy and water systems upgraded, deferred maintenance caught up
- Comfort, health, productivity increased
- Reliability enhanced, complaints reduced
- Environmental Rankings improved

- Endowment giving made more attractive
- Cost reductions – energy, maintenance, water, capital replacements, insurance

#### EFFICIENCY AND RENEWABLES TARGETS MET

- Expert selection of dependable renewable-energy sources – including geothermal, solar thermal, biomass conversion, methane capture, steam & water turbines, PV, wind, etc.
- Real-world carbon trading – local and verifiable
- Carbon footprint reduction documented and endorsed by impartial experts

#### SECURITY, RELIABILITY, AND QUALITY OF ENERGY SUPPLY

- Freedom from the vulnerable electric grid, via local (distributed) generation
- Improved monitoring, alarms, perimeter protection, lightning, indoor air quality control
- Dependability of UPS (uninterruptible power supply) back-up for critical circuits
- Power, heat, cooling, compressed air, and refrigeration generated by on-site CHP
- New CHP, inertial storage, and renewables capacity ensures continuous “clean” power, free from the increasingly “noisy” electric grid

#### DEFERRED MAINTENANCE AND NEW EQUIPMENT

- A chance to catch up on one of the most troublesome problems on large campuses
- Much of the catch-up pays for itself out of savings
- Energy-efficiency improvements install new equipment, immediately saving near-term maintenance dollars and freeing up capital budget

#### HEDGE AGAINST ENERGY PRICE VOLATILITY

- On-site generation capacity
- Improved controls and better demand profile allow negotiation for better rates and more effective trading in futures markets

#### SUPPORT OF FACILITIES STAFF

- Documentation of “as-built” improvements and existing systems (often the current staff does not understand details of their plant)
  - Training
  - Extended warranties and long-term O&M support
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## **APPENDIX B. MEMORANDUM OF UNDERSTANDING**

### **MEMORANDUM OF UNDERSTANDING**

**between**

**[CLIENT NAME]**

**and**

**Local Energy Alliance (LEA)**

**Dated \_\_\_\_\_**

1. Collaborative Scope of Work. LEA proposes to collaborate with Client in identifying, designing, installing, financing, operating, maintaining, and documenting improvements to Client facilities that reduce their carbon footprint, improve their value, increase reliability, reduce energy and maintenance costs, and meet or exceed standards of comfort, health, and security.
2. Partnership. As a new form of public-private organization devoted entirely to environmental and economic benefit in (City), LEA works in *partnership* with institutional, government, commercial, industrial and residential building owners and managers. Their interests are LEA's interests.
3. Resources available. Through a competitive process, LEA has pre-qualified national leaders in energy and water efficiency, renewable energy, performance contracting, engineering, and energy project financing. All have agreed to fair and transparent client dealings and pricing. We will bring to the proposed collaboration the resources of these experts as they are needed, subject to your approval of each step.
4. Recognition of carbon-footprint reductions. Carbon-footprint measurement, verification of savings, tracking, documentation, and publicity are rigorous disciplines requiring expert practitioners and a trusted witness. LEA has already set up the necessary protocols, engaged an expert who is under contract to monitor City buildings, and qualified as a provider of demand reductions to (Regional ISO). We have also engaged an Independent Engineer to assure quality, participate in design and commissioning, oversee M&V of savings, and offer an unbiased resource to our clients. Our ability to bring high-level endorsements and public notice of achievements can be judged by reference to our Web site [www.\(City\)energyalliance.org](http://www.(City)energyalliance.org).
5. Scope. By entering into this MOU, Client agrees simply to engage LEA to explore opportunities and perform such services as may be jointly identified. The LEA staff, management, and contractors will operate as extensions of Client's staff. Typical "Phase I" work is described in the attached "Sustainability Partnership."

Some clients need help only in finding the time to re-commission electrical/mechanical systems; some in choosing contractors or performing feasibility studies; some in financing improvements already identified but outside current budgets; some in third-party design reviews or commissioning of installations. Some clients will benefit from the engagement of a pre-qualified energy service company (ESCO) to search out the most cost-effective energy-saving improvements, catch up on deferred

maintenance, be a general contractor and guarantee savings. Clients' needs change over time, and this MOU ensures the availability of the best experts at the time of greatest need. LEA has the capability to take on all these tasks, bringing to each the best skills and resources available at competitive costs. In all cases, LEA serves as the client's advocate, quality assurer, and recorder of achievements.

6. Costs. In keeping with its nonprofit status and mission, LEA accounts for costs in full transparency. Every significant effort is budgeted and scheduled in advance with Client approval. LEA will allocate its indirect costs as well as its direct costs to each project, proceeding with Client approval and reporting monthly or more frequently on progress and costs.
7. Savings. Most energy- and water-efficiency improvements will pay for themselves out of savings. LEA can arrange an ESCO guarantee of this as part of their design-build-finance service, if desired. Some clients are willing to "stipulate" savings, however, avoiding the cost of guarantees or long-term M&V. Some clients may also want to include in their package improvements that will not pay for themselves, and LEA can support this to the extent desired, including financing.
8. Process. Upon your signing this MOU, LEA will assign an Account Manager (subject, as are all decisions, to your approval) to work with your representatives. S/he will take the following steps:
  - a) Identify your needs and priorities
  - b) Decide with you which of LEA's resources (engineering, ESCO, financing, documentation, publicity, etc.) will best meet those needs
  - c) Estimate costs and schedules over the first few months, and get your approval
  - d) Personally perform, or bring in the appropriate experts to perform services as required.

Beyond the "Phase I" services listed above, LEA will offer to serve as your agent in implementing the improvements identified. These "Phase II" services could include some or all of the following:

- > facility "audit" to identify cost-effective energy- and water-saving improvements, renewable-energy opportunities, cogeneration and demand-response potential, behavioral or maintenance improvements\*
- > identification of all applicable utility and government subsidies
- > design and other engineering
- > preparing drawings and specifications
- > obtaining permits, City or State approvals, community acceptance, etc.
- > overseeing bidding and selection of contractors
- > engaging mechanical, electrical, and plumbing contractors as required
- > procuring materials and equipment
- > supervising construction/installation
- > commissioning the work
- > as-built documentation, training, certifications
- > long-term operation and/or maintenance of energy/water systems

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\* A "scoping audit" can be done quickly at low or no cost. An "investment-grade audit" computing dependable savings and costs can be offered on a deferred-cost basis when the work is to be financed.

- > purchase and lease-back of energy systems
- > generation and sale of electricity, steam, chilled water, treated water, compressed air, or refrigeration
- > measurement, verification, tracking, and reporting carbon-footprint reductions, cost savings, and other benefits
- > managing publicity, endorsements, awards, etc.

9. Financing. Any or all of the above services and equipment can be financed by banks and financial partners already engaged by LEA. Although many large clients have their own access to financing, some may prefer to use LEA sources for (a) convenience and flexibility, matching costs to small extensions of debt as needed; or (b) off-balance-sheet treatment. The LEA Account Manager can arrange an “open purchase order” financing at any point in the engagement.
10. Attributes and subsidies. Utility and government funds available to support energy and water efficiency are increasing rapidly at city, state, regional and national levels. LEA management and consultants are expert in these developments and have participated in their design. Most will be applied directly to reduce the cost of installations. Some, like the Regional Forward Capacity Market and certain derivatives of energy savings, may require pre-certification and elaborate M&V plans, some of which LEA has filed. If the engagement produces significant electric peak demand reductions or tradable derivatives, LEA will request that the Client assign to us the right to apply for and collect any consequent revenues from ISO-NE or other markets, and apply them to reduce LEA’s costs of serving all (City) customers. (This is the same request made by local utilities.)

If this MOU correctly describes your understanding of the relationship with LEA, kindly sign and date below so we may begin working together immediately.

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## **APPENDIX C. SUSTAINABILITY PARTNERSHIP**

The Local Energy Alliance has the capability to design, set up, and *sustain a permanent transformation* in

**Carbon Footprint ↓ Reliability ↑ Complaints ↓ Property value ↑ Health & Safety ↑**  
**Energy cost ↓ Comfort, productivity ↑ Maint./replacement costs ↓ Stakeholder<sup>1</sup> approval ↑**

A ***Sustainability Partnership*** aggregates all facilities owned or occupied by the client. It can be marketed to municipal facilities, public schools, colleges and universities, hospitals, cultural and recreational institutions, and large commercial properties as appropriate. The LEA essentially serves as an extension of the client's staff, which is stretched too thin to take advantage of savings and funding opportunities.

The Alliance offers its services in five steps. All five of these services can be *paid out of savings*.

1. Inventory and visit each facility and create a data base of conditions, consumption, and needs; document this for the customer
2. Analyze and develop an investment plan that pays for improvements out of savings
3. Bring in financing and new funding
4. Arrange contracting
5. Monitor, re-commission, and sustain savings and reliable operations

***Step 1. Inventory and visit*** each facility. Enter its consumption and costs of electricity, fuels, and water, its size, age, condition, plans, uses, and needs. Benchmark its energy intensity vs. like facilities elsewhere. Then determine its problems and needs:

- List all energy- and water-using systems:
  - > capacity > controls
  - > use logs > distribution of working fluids
  - > waste disposal > SHPO limitations
- Interview occupants and users re:
  - > comfort, productivity > health
  - > safety > operations
- Interview engineer(s) + operator(s) + maintenance staff re:
  - > complaints > reliability
  - > needs and problems > ideas
  - > maintenance issues

***Step 2:*** Arrange facility ***audits***, identify applicable ***incentives***, and develop an ***investment plan*** and priorities, supported entirely by ***savings***, that will simultaneously

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<sup>1</sup> Stakeholders include taxpayers, students, auditors, community and advocacy groups, employees, peers, etc. Papers available at [http://www.cleanenergysol.com/news/news\\_conferences.html](http://www.cleanenergysol.com/news/news_conferences.html)

- > complete high-priority repairs and
- > install energy- and water-efficiency and renewable-energy improvements to meet environmental goals

**Step 3: Bring in *financing and new funding*.** The Alliance is expert at combining public, utility, and private financing sources to match the investment plan. Because it can *aggregate* savings from many smaller consumers and among jurisdictions, the Alliance can (a) “monetize” the savings stream efficiently to raise private capital, (b) attract more grant funding from both federal and local agencies, and (c) generate income from the sale of “attributes.”

**Step 4: *Arrange Contracting*.** The Alliance arranges contractor implementation in three forms, depending on client procurement rules and preferences and facility needs:

- Certifying local contractors who agree to discount pricing and QC oversight
- Qualifying ESCOs, maintaining quality control, and overseeing savings measurement
- Serving, with Client staff, as the Energy General Contractor in place of an ESCO

**Step 5. *Monitor and re-commission*** by daily re-visiting on a rotating schedule

- Check switches, control settings and logs, doors and windows, leaks, valves, belts, filters, adjustments, occupancy –related controls, etc. Adjust them on the spot.
- Make the EMS and control systems work properly. Perform other “retro-commissioning” of energy- and water-consuming systems.
- Run behavioral programs, incentives and awards to eliminate unnecessary use of energy and water; provide “benchmarking” services to give customers a sense of their relative efficiency; consider sub-metering and real-time feedback; provide for anonymous suggestions on-line
- Provide training and documentation of as-built systems
- Re-interview occupants, users, engineers and maintenance staff to identify new problems and opportunities continuously
- Support utility relationships, ensure optimum billing
- Document progress, support media and public relations