

A Guide to Financing Options and Funding Opportunities to Support Local Government Energy Assurance Planning



Local Government
Energy Assurance Planning



Acknowledgement

This material is based upon work supported by the Department of Energy under Award Number DE-OE0000116.

Disclaimer

This document was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product or process disclosed, or represents that its use would not infringe upon privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agent thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

U.S. Department of Energy

The U.S. Department of Energy (DOE) Office of Electricity Delivery and Energy Reliability (OE) funded the production of this publication. The Infrastructure Security and Energy Restoration Division (ISER) of OE is the primary DOE office responsible for energy emergency planning and response. For more information, visit the OE website at: www.oe.energy.gov. This Guidance document was produced by DOE/OE/ISER under the leadership of Alice Lippert, Program Manager for DOE's State and Local Government Energy Assurance Program.

Public Technology Institute

This document was developed by Public Technology Institute (PTI). As the only national non-profit technology organization created by and for cities and counties, PTI works with a core network of leading local government officials—the PTI membership—to identify opportunities for technology research, share best practices, promote technology development initiatives and develop enhanced educational programming. Visit PTI at www.pti.org.

Local Government Energy Assurance Planning (LEAP)

To find out more about local government energy assurance efforts, we encourage readers to visit www.energyassurance.us. This site, maintained by PTI, is designed to support all local governments, large, medium and small, across the nation that want to learn more about creating energy assurance plans for their communities. Once created, these plans will help ensure that local governments can provide life-saving services during an energy emergency.

Editorial Team

The author of this document is Steve Foute, Ph.D. a strategic advisor to Public Technology Institute and former environmental manager for the City and County of Denver. This work was managed by Ronda Mosley, Assistant Executive Director for Research and Government Services, Public Technology Institute.

A Guide to Financing Options and Funding Opportunities to Support Local Government Energy Assurance Planning

Introduction

This paper was developed in response to an increase in the number of events that have resulted in the loss or reduction of local government essential functions and services due to energy disruptions. Although energy assurance is recognized as important by a large number of local governments, an impediment to action has been “How do we pay for it?”

This guide was developed to help you understand the financing options and funding opportunities that can underwrite energy assurance Capital Projects and Actions. Financing options are from the private sector whereas funding opportunities are public sector derived. Capital Projects are those that use equipment or hardware, like a back-up generator, to protect key community assets from an energy disruption. Actions on the other hand, are energy disruption measures that are non-tangible such as policies and procedures. PTI has a glossary on its web site that defines many energy assurance terms. For clarity and simplicity, this guide uses electric power in its presentation of material.

The intended audiences for this document are local government energy officials and energy assurance managers, as well as those involved in maintaining and operating local government systems that depend on energy availability such as IT officials and emergency response professionals. Local policy makers, appointed and elected officials may also find this guide useful due to their direct accountability to taxpayers and their responsibility to serve the public.

Overview

When discussing local government energy assurance efforts, it is helpful to categorize these into capital projects and actions. Typically, only capital projects will be financed or underwritten by both the private and public sectors whereas the non-tangible ‘actions’ may only receive public sector funding. Capital projects can fall into three (3) subcategories: (1) demand reduction options such as energy efficiency and conservation; (2) supply options which may include on-site/distributed energy production from traditional as well as renewable energy technologies; and (3) emergency backup power. Energy efficiency and conservation increase energy assurance by decreasing reliance on supplied energy, thereby resulting in a higher level of local government self-reliance. In addition, both energy efficiency and conservation measures may be more cost-effective in the long run than purchasing supplied energy. On-site/distributed energy production makes a positive contribution to energy assurance because these systems can be independent of the grid and can be used as a primary source of power if needed. Lastly, emergency back-up power is an energy assurance asset because it can be dispatched in real time and with little effort in the event energy is disrupted from the primary energy supplier.

Whereas traditional debt financing instruments available to public sector organizations (e.g., loans, bonds, etc.) can be used to finance capital projects in all three of these

categories, there are certain instruments that are more specific for certain project types; these are highlighted below.

Maximizing the Benefits from Local Government Energy Assurance Investments

A. Pursuing Supplementary Benefits and Objectives

Finding the right funding/financing mix to support local government energy assurance capital projects and actions can be challenging. The optimum mix is largely dependent on the local government's objective(s). In addition to increasing energy assurance, multiple complimentary objectives can be set such as:

1. Maximizing revenue;
2. Deploying renewable energy capacity;
3. Implementing cost-effective energy conservation and efficiency measures;
4. Integrating the energy assurance plan with the government's emergency operations plan;
5. Investing in on-site electrical backup generation capability;
6. Reducing the amount of energy being purchased/utilized from the utility.

1. Maximizing revenue

One way to maximize a local government's revenue is to invest in electrical supply measures or technologies that produce energy during the utility's energy peak demand periods. Peak loads, for the utility, occur during those times when most of the utility's customers are using energy, so the demand for service is at its highest (or peak). Peak shaving is cost-effective to electric providers because the cost to generate each additional kilowatt increases as demand increases. If this is the objective, financing instruments should be selected to take advantage of the enhanced revenue that can be captured from the utility. Depending on the regulatory environment, utilities may also provide incentives to those customers that either reduce their consumption or provide excess electrical energy back to the grid during these peak periods.

2. Deploying renewable energy capacity

Deploying renewable energy has become a priority for many local governments. However, many renewable energy technologies, such as solar and wind, do not have the ability to deliver electricity 24/7 unless coupled with considerable control technology and battery storage options. Yet with utility, state, and federal incentives and a financing instrument tailored to these supply technologies, renewable energy options are now within reach for many local governments. There are also considerable community and public relations benefits from being known as a *green neighbor* that should not be overlooked. Lower air emissions, less water consumption and waste, and other environmental benefits can positively contribute to a go, no-go decision when considering renewable energy options.

3. Implementing cost-effective energy conservation and efficiency measures

Low- and no-cost energy demand reduction measures such as conservation and efficiency are very attractive ways to decrease the energy footprint of a facility or governmental

operation. Investments can typically be funded through a general fund appropriation or capital improvement program. Even larger expenditures are often well-received by policy-makers and budget analysts because the savings in energy costs often exceed the expense in just a few years, netting an acceptable return on investment. Moreover, funding conservation and efficiency measures can reduce the capital required for more expensive energy assurance items. For example, if the cooling load for an IT facility can be reduced by 25 percent through conservation, the size of a backup generator needed in the event of an energy disruption can be scaled back to more than offset the costs of conservation.

4. Integrating the energy assurance plan with the government's emergency operations plan

Many, if not most, local governments have an office of emergency response or management — or at least trained staff dedicated to emergency preparedness and continuity of operations planning. Considerable funding, especially from federal and state sources, has been directed toward local government emergency preparedness, emergency response planning, training and exercises. These objectives go hand-in-hand with energy assurance, reliability and security priorities. A reasonable and recommended approach for any local government is to build on this considerable history of investment when developing an energy assurance plan.

5. Investing in on-site electrical backup generation capability

Generating backup power onsite is one way local governments can ensure energy self-sufficiency in the event of a disruption to the electrical grid. Backup generation can also be used to supplement a utility's power when needed as long as: (1) it is available 24/7 for the utility to distribute; (2) the utility can turn on the backup power to help meet peak demand; and (3) legislation and rules establishing the System Benefit Charge include backup systems as an eligible use of the funds. Keep in mind that if the utility has the ability to turn on the backup power (#2 above); the power will not be available to the government in an emergency, thus nullifying its contribution to energy assurance. The exception to this would be if contractual arrangements have been made between the utility and the local government that specify that during an emergency, the electrical generation remains with the local government.

6. Reducing purchased energy from the utility

There are various financial instruments that can be used to reduce energy purchased from the provider/utility, such as those available for energy efficiency, conservation, supply technologies (e.g., diesel or gas-fired generators), or renewables (e.g., solar or wind). Selecting and matching an onsite supply technology to an end use is an important and technical process. There are many factors and constraints that may affect the selection of specific technologies. For example, there needs to be adequate space onsite to deploy a solar array if a local government is interested in installing a renewable energy system. Likewise, combined heat and power applications are only economical where there is an onsite or closely located application for both heat and power such as a hospital or laundry facility. A consultant with experience in the technology selection process should be retained if there is no one on staff with subject matter expertise. A qualified consultant or staff member will be able to investigate technology types, costs, and application options for decision-makers. Staff should also be tasked to investigate the many and varied

federal, state, and local incentive programs related to each technology type or opportunity.

B. Understanding the Difference between Revenue-Producing and Value-Added Measures

Revenue-producing measures are those that create a monetary return on investment, while value-added measures contribute value in other ways.

1. Revenue-Producing Measures

Local governments can set aside money saved through reduced energy use and associated operating costs and utilize these resources as a revenue stream to underwrite and pay for additional energy investments. Examples of financial instruments that require a revenue stream from energy savings are revenue bonds, shared savings, and purchase power agreements, among others. These financial instruments are expanded upon in greater detail below.

2. Value-Added Measures

The primary value-added measure in energy assurance planning is backup electrical generation. A backup generator is used to provide reserve power to a mission-critical component, facility, or system in the event the utility system (generation, transmission, and/or distribution) is interrupted or temporarily fails. A generator should be considered for any application or facility where systems or operations are considered essential such as fire protection, IT, health facilities, and related activities.

Unlike revenue-based investments in energy-saving technologies, backup energy generators must be viewed as purchases that do not earn a financial return on investment. Generators instead provide added value to the community and specifically to essential functions and public services. Examples of conventional municipal value-added projects include repaving streets, renovating facilities, and building new facilities, like libraries, police stations, and fire stations. These projects do not generate a revenue stream and therefore cannot take advantage of traditional revenue-based financing. However, they can be pursued as part of a general obligation or other bond wherein revenue is not captured by the investment itself but rather is derived from users/taxpayers because of the inherent public benefit.

When generators and other energy production systems are used in a backup role, they do not lend themselves to energy savings because they are asked to function only periodically — during an emergency and during testing — and thus do not have the opportunity for savings upon which to repay project financing. Therefore, the funding sources or financial instruments will differ from those used to pay for revenue-producing measures.

Specific Financing Instruments and Funding Sources

Below is an overview of financing options and funding opportunities available to local governments to underwrite energy assurance capital projects and actions. Local

governments are advised to fully investigate fully these possibilities before pursuing any particular one.

A. Private Sector

The private sector is a prime target for local government energy assurance financing, because innovation and risk taking are encouraged and substantial energy savings are available.

1. ***Conditional Sales Agreements.*** A Conditional Sales Agreement (CSA) is a lease that functions very much like a loan. For tax and accounting purposes, the local government owns 100% of the equipment (under a conditional title), but a lien is placed on it until the CSA is paid in full. Once final payment is received, the lien is released. The advantage of a CSA over a loan is that a CSA allows for 100% financing, including equipment and soft costs. This is an advantage because the purchaser does not have to invest any up-front capital. The purchaser holds the conditional title, and the lessor holds a security interest in the equipment. If the purchased equipment does not generate energy savings (a revenue stream), the governmental entity will need to pay for the CSA using some other financing instrument.
2. ***Installment Purchase Agreement.*** An Installment Purchase Agreement (capital lease) is defined as a contract under which the city makes periodic payments over a stipulated period of time. Unlike a conditional sales agreement, in which the local government owns the equipment, under an installment purchase agreement, the local government only holds an ownership interest. Generally, the government has the right to retain this ownership interest in the equipment at the end of the lease term.
3. ***Shared Savings Agreements.*** Shared Savings Agreements have been around the local government marketplace for about 30 years. A private sector company finances the evaluation (e.g., energy audit), design, installation, and maintenance of an energy management system for a facility, system, or component and warrants it for a contracted period of time. They will also often guarantee the energy savings, sometimes with an insurance policy. This is a turn-key operation. The company is willing to underwrite this cost because they only engage a local government when the savings in dollars from implementing the energy saving measures exceed the total amortized cost. After the term of the agreement, all of the savings due to reduced energy costs are retained by the local government. In some cases, the local government may also collect a portion of the savings during the contract period.

Shared Savings Agreements are offered by energy service companies (ESCOs). An ESCO is a business that develops, installs, and arranges financing for projects designed to improve the energy efficiency and maintenance costs for a given facility over a 7- to 20-year time period. ESCOs generally act as project developers for a wide range of tasks and assume the technical and performance risk associated with the project.

Typically, ESCOs offer the following services:

- Develop, design, and arrange financing for energy efficiency projects.
- Install and maintain the energy-efficient equipment involved.
- Measure, monitor, and verify the project's energy savings.
- Assume the risk that the project will save the amount of energy that was guaranteed.

Most ESCOs are members of the National Association for Energy Service Companies (NAESC). For more information, please visit:

<http://www.naesco.org/about/default.htm>.

B. Utilities

Utilities offer a variety of financing options for local governments to invest in energy assurance planning and energy efficiency programs including rebates and other incentives. The type and number of options often depend on and are driven by consumer groups, the regulatory body (in the case of an independent, regulated utility), or local policies and politics (in the case of a municipal utility).

1. ***On-Bill Financing***: On-Bill Financing (OBF) offers customers low or zero-percent financing for qualifying energy-efficient or renewable energy improvements/projects. (Though in some cases/markets, the interest rate may not be below market rates.) It may also include rebates for qualifying improvements/projects. Typically, a utility is motivated to offer an OBF program to meet internal or external goals, such as Demand Side Management (DSM) or Renewable Portfolio Standard (RPS) requirements. OBF can help meet these goals by funding local government efficiency and renewable improvements.

If an OBF program is not already in place or being considered, it is unlikely to be a realistic option. Talking a utility into implementing an OBF program is a BIG job. It might be difficult to justify the necessary commitment of time and resources on the basis of energy assurance needs alone. If an OBF program is in place through your utility, the first step is to check with the utility to see if the energy assurance system or measure under consideration is allowable under the OBF terms. Pay As You Save (PAYS) is a trademarked OBF program with specified guidelines for implementation. Local governments are encouraged to develop or strengthen contacts with their local utility to dialogue about this and other financing options listed below.

2. ***System Benefits Charge***. Utility-Based System Benefits Charges (SBCs) fund renewable energy, research and development, and energy efficiency programs to name a few popular applications. The way that this functions is that a charge shows up on a consumer's energy bill that is mandated by the local governing/regulatory body such as a Public Utilities/Services Commission. As the name implies, SBC charges are designed to benefit the overall electric utility system. A project or program funded by an SBC typically serves some public purpose, such as increasing energy efficiency,

reducing greenhouse gas emissions, or providing assistance to low-income customers. Incentives include, but are not limited to, rebates; subsidized, low-cost, or zero-interest financing programs; and technical support.

It should also be noted that a utility can accrue system benefits when/if a project or program is able to reduce a utility's peak load. In service territories where the regulatory body has established an SBC or public benefits charge, it could be argued that such benefits should be passed on to customers that are able to provide secure, peak load-reducing power to the utility.

A good example of an SBC can be found on the DSIRE¹ (Database of State Incentives for Renewables and Efficiency) website. The following example is from the State of New York:

http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NY07R&state=NY&CurrentPageID=1&RE=1&EE=1

C. Federal/State Government

Although governmental funding sources come and go, it is useful and instructive to be aware of the general nature of such funding. Some recent federal grant programs that have provided funding directly to local governments, have included the following:

1. **ARRA/EECBG.** The Energy Efficiency and Conservation Block Grant (EECBG) program of the American Recovery and Reinvestment Act of 2009 (ARRA) provided \$3.2 billion in federal funding for cities and counties to reduce total energy use and improve energy efficiency nationwide. This program is administered by the U.S. Department of Energy (DOE).

The first round of proposals was due in June of 2009. These were formula-based per capita grants. Award amounts in the second round were competitively determined.

2. **ARRA/Local Government Energy Assurance Program.** This program was designed to strengthen and expand local energy assurance planning and resiliency, reduce the impacts of energy supply disruptions, and create jobs. The application deadline passed in October 2009. Large municipalities could qualify for up to a \$300,000 grant based on population. The program areas that qualified were: 1) developing new or refining existing energy assurance plans; and 2) integrating new applications such as Smart Grid into these plans. This program is being administered by the U.S. Department of Energy (DOE).
3. **ARRA/State Energy Program.** Almost every State received discretionary ARRA funding for a State Energy Program (SEP). Each State had to submit a plan in 2009 to the U.S. Department of Energy (DOE) for approval, describing how the money was to

¹ DSIRE is a comprehensive source of information on state, local, utility, and federal incentives and policies that promote renewable energy and energy efficiency. Established in 1995 and funded by the U.S. Department of Energy, DSIRE is an ongoing project of the N.C. Solar Center and the Interstate Renewable Energy Council. <http://www.dsireusa.org>

be used. Some of the State plans were flexible enough to allow them to direct a portion of any remaining funds to an energy backup project. The funding is controlled by each State's energy office and is typically renewed each fiscal year, subject to congressional appropriation.

D. Local Government

1. **General Obligation Bonds.** General Obligation (GO) bonds generally require a vote of the people or action by the local governing body (e.g., City Council, County Commissioners). The rate on the bonds is in part determined by the credit rating of the jurisdiction.

Unless an energy assurance project can be coupled with one or more larger civic improvements, this is probably not a feasible option. Issuing bonds is an expensive proposition. If the bonding authority must be approved by the electorate, the improvements must offer the voters a compelling reason to vote "yes."

2. **Capital Improvement Program.** A Capital Improvement Program (CIP) allows for capital projects to be planned, considered, and funded over a period of years. It is separate from the operating (general fund) budget.
3. **Operating Budget.** General Fund (Operating) Budgets can be a funding vehicle for a wide variety of energy projects. Each local government typically has a ceiling funding level they can spend using general fund dollars. Many planning initiatives fall into this category of local government spending. We encourage cities and counties to explore funding energy assurance activities as part of an overall preparedness strategy for your jurisdiction.
4. **Municipal Tax-Exempt Lease Agreements.** A Municipal Lease is typically tax-exempt, which differentiates it from a traditional installment purchase agreement/lease. As such, the cost of funds is typically lower for a tax-exempt agreement than for a non-tax-exempt agreement. Tax-exempt lease purchase agreements are paid for by funds that are set aside in the local government's annual general fund budget or enterprise fund. In a lease-purchase agreement, it is presumed that the City will own the asset after the term expires. The interest rates are appreciably lower than those on a taxable commercial lease-purchase agreement because the interest paid is exempt from federal income tax for public sector organizations. This option could be funded out of the government's annual budget for energy costs wherein the lease payment is projected to be less than the dollars saved from the energy measure(s) purchased/installed.
5. **Tax Increment Financing.** Tax Increment Financing (TIF) is a tool available to local governments that enables them to use future gains in taxes to finance current improvements. Cities use TIF to finance public infrastructure, land acquisition, demolition, utilities, planning costs, and other improvements. Theoretically, a city could designate a TIF district and use some of the revenue to underwrite an energy project that would provide district-wide benefits in terms of grid connectivity for

backup or primary power. This option is conceptual as it relates to backup systems. The gains in taxes would need to come from either increased property values (it's unlikely that a backup system alone would significantly increase property values) or from a willingness of the voters to accept a higher tax rate. One way TIF could work for backup systems would be if such a backup system was a small part of a larger project that would raise property values (e.g., burying above-ground power lines) or that voters would be willing to support with a higher tax rate.

6. ***Certificates of Participation.*** A Certificate of Participation (COP) is essentially a sale/lease-back of a public building, with the proceeds from the sale used to fund improvements to the same and/or other public buildings. The sold building is used as collateral for the lease-back. In essence, it is a vehicle for a public entity to fund projects without infringing on any statutes that limit borrowing. COPs are the most commonly used form of lease purchase financing. COPs create a tax-exempt lease to finance capital improvement projects or to purchase essential equipment. A COP is a lease purchase agreement that is divided and sold to multiple investors in fractions, similar to stocks, usually in \$5,000 denominations. Most COPs receive investment ratings from a rating agency, and each certificate represents a proportional interest in the payments that will be made by the local government. COPs are typically used for large projects (e.g., \$5M to \$10M+) that can bear the relatively high transaction costs. COPs could actually be a good source of funding for energy assurance projects, but not by themselves. For example, a city hospital could use a COP to raise money for structural rehabilitation, a solar array, and a backup generator. Each local government should check with the State or local Treasurer about any COPs that are being planned to determine if there is an opportunity to add energy assurance equipment or energy assurance measures to the project.

Summary

The opportunity for funding and/or financing local government energy assurance work is substantial for those willing to investigate the varied available funding mechanisms and their sources. The sources of funding and financing for energy assurance range from private financing to government funding to utility incentive programs. For each of these sources, innovation and creativity can increase the possible funding opportunities even further. For example, rate cases and testimony before the public service or utility commission can result in expanded utility-base financing programs.

Local government energy assurance can be viewed as local government energy self-reliance. It is in the best interest of governments to actively pursue opportunities to maintain their mission-critical operations in order to fulfill their public service mandate.

This guidance document should serve as a starting point to understanding what financing mechanisms are available to local governments to begin or to enhance energy assurance planning efforts.