Best Practices for Establishing Municipal Funds for Energy Efficiency Projects

June 21, 2011
What is TAP?

DOE’s Technical Assistance Program (TAP) supports the Energy Efficiency and Conservation Block Grant Program (EECBG) and the State Energy Program (SEP) by providing state, local, and tribal officials the tools and resources needed to implement successful and sustainable clean energy programs.
How Can TAP Help You?

TAP offers:

- One-on-one assistance
- Extensive online resource library, including:
  - Webinars
  - Events calendar
  - TAP Blog
  - Best practices and project resources
- Facilitation of peer exchange

On topics including:

- Energy efficiency and renewable energy technologies
- Program design and implementation
- Financing
- Performance contracting
- State and local capacity building
Provides a platform for state, local, and tribal government officials and DOE’s network of technical and programmatic experts to connect and share best practices on a variety of topics.

Local Energy Rebate Programs

- The City of Charlottesville and Albemarle County in Virginia jointly formed the Local Energy Assistance Program (LEAP) which is creating and administering energy efficiency (EE) programs for the residential sector. The Southeast EE Alliance (SEEA) funded the creation of LEAP in 2008 and the county and city have each allocated $500,000 for LEAP to take programs to scale. They are currently working on rebate, incentives, and a local contractor network to deliver services to the residential sector. LEAP info: www.leapsva.org
- The town of Islip, New York has rolled out the Long Island Green Homes Program in which residents can make energy efficient improvements to their homes at no cost and without assuming new debt through some innovative municipality-based financing initiatives. http://www.islipudc.ny.gov/islipdoc/islipdoc?c=5340
- The Cambridge (Massachusetts) Energy Alliance is a not-for-profit organization created to save municipal money, while reducing Cambridge’s carbon footprint. The Alliance is working with homeowners, businesses and institutions across the city to achieve unprecedented levels of energy savings and to expand clean energy choices. They offer:
  - Comprehensive energy assessments for Cambridge buildings
  - Up to 35% rebates in energy bills
  - Energy efficiency upgrades with no up front cash requests
  - A one-stop energy solution with guaranteed quality
- The ClimateSmart programs are run by the City of Boulder, Colorado’s Office of Environmental Affairs. For information on Boulder’s programs, see http://www.boulderco.gov/96/boulderco/CLIMATESMART.html

The management of these programs varies. The municipalities listed above include both municipal staff tasked with running these programs and others that have an outside non-profit organization providing services on behalf of the municipality. There are other examples of municipalities that outsource these services to for-profit consulting firms (Charleston, SC is about to put out an RFP to hire one).

There is not one best way to go or implementing/managing municipal EE programs. There are good reasons and justifications for each of these three models. If the municipality is
We encourage you to:

1) Explore our online resources via the Solution Center

2) Submit a request via the Technical Assistance Center

3) Ask questions via our call center at 1-877-337-3827 or email us at solutioncenter@ee.doe.gov
## Upcoming Webinars

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<td>Geothermal Heat Pumps: In Policy and Practice</td>
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<td>Partnering with Utilities 101: Introduction to Utility Energy Efficiency Programs and Developing New Partnerships</td>
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For the most up-to-date information and registration links, please visit the Solution Center webcast page at [www.wip.energy.gov/solutioncenter/webcasts](http://www.wip.energy.gov/solutioncenter/webcasts)
• **Overview:** Glenn Barnes, DOE TAP Technical Assistance Provider, UNC Environmental Finance Center

• **Case Study #1:** Nate Geisler, Energy Programs Associate, City of Ann Arbor, MI

• **Case Study #2:** Rich Deming, Principal, Calor Energy, Union County, NC

• **Other Case Studies, Funding Mechanisms and Challenges:** Glenn Barnes

• **Q & A**
ARRA was a Game Changer

- Some governments implemented sustainability programs and/or energy finance programs before ARRA.

- Suddenly, a huge crop of governments received ARRA funds and were directed to spend them on sustainability and energy finance programs.

- Many of those governments (and others who saw their success) want to continue with sustainability and energy finance programs post-ARRA.
Scope of Sustainability Program

Facilities, Operations & Maintenance

Employee actions

The community
Internal Energy Finance and Sustainability Programs

• Efficiency Upgrades on Public Buildings
  – Guaranteed Energy Savings Contracts

• Renewable Installations on Public Buildings
  – Examples: Knoxville Convention Center Solar (Third Party Equity), Moscone Convention Center, San Francisco Solar and Energy Efficiency (Public Funds), Farmington Hills, MI Solar (ARRA)

• Procurement Policies
  – Fuel Efficient Vehicle Policy in Arlington, MA

• Internal Revolving Loan Funds
Revolving Fund Key Elements

• How a revolving energy fund works
• Choosing projects to fund
• How the money is handled
• Measurement and verification of projects
How a revolving energy fund works

- Capitalized as a “bank” from which departments and divisions can borrow to fund energy efficiency, renewable energy or energy conservation projects.

- Allows municipalities to provide a continual stream of funds for energy efficiency improvements without tapping into existing capital cycles.
Figure 1: Revolving Energy Fund

Source: Ann Arbor Energy Fund
Choosing Projects

- Based on audits of government facilities or other pre-determined criteria
- Energy efficiency tied to other capital improvements
- Applications from departments
- “Spreading the wealth”
Choosing Projects
Issues to consider

- It may depend on your government’s internal policies and/or how your energy bills are paid
- A clear, consistent policy is key for the long-term success of the revolving fund

Ways for the money to be handled

- Within your finance office
- Each department repays the fund
- The budget includes a certain amount of money to be re-appropriated into the fund each year
Repayment Methods

- Actual Savings
- Estimated Savings (Defined repayment schedule)
- Upfront Agreements
- Determining Loan Terms
From a finance and management perspective, the issue is how to determine repayments into the fund:
- Actual savings
- Estimated savings

If repayments are tied to actual savings (note: actual energy savings ≠ actual dollar savings), you need a pre-determined M&V system.

If repayments are on a fixed schedule based on estimated savings, M&V is not relevant for repayments.
Shell game?
Management Benefits

• Incentivizes
• Rewards leadership and innovation
• Creates a process for choosing projects
Energy Office
Ann Arbor, MI

City of Ann Arbor
Municipal Energy Fund
$4.5-$5M Annually on Energy

- Streetlights: $1,499,026 (27%)
- Water Treatment: $1,280,826 (22%)
- Wastewater Treatment: $1,040,543 (18%)
- Motor Fuel: $831,761 (14%)
- Parking Structures: $363,202 (6%)
- City Hall: $226,762 (4%)
- Pools / Ice Rinks: $223,234 (4%)
- Other Facilities: $317,946 (5%)

FY2007 Data
In 1981 the City of Ann Arbor's Energy Plan called for energy conservation to be promoted in City buildings.

This plan established goals and programs to reduce energy use and costs in Ann Arbor while moving the City towards more sustainable energy use. Consequently, the Ann Arbor Energy Office was created in 1985 to oversee improvements and projects.
The Energy Fund is used strictly for municipal programs aimed at improving energy efficiency at municipal facilities.

The annual payments are made from a portion (80%) of the resultant energy savings, allowing facility budgets to be reduced or to apply the remaining savings (20%) to further improve the facility or services. Repayment starts the first year after the energy saving measures are installed.

Repayments based on estimated energy savings.

Fund projects with 3-5 year payback.
The Fund is administered by the City’s Energy Office under the supervision of a three-person board who approve funding, implement the projects, and often serve as project manager.

The Office provides the board with information from energy audits along with applications from facility managers for projects requesting energy funds.

The board reviews all applications and makes final decisions on what projects to fund each year.
Energy Fund Background

- The Energy Fund is financed by re-investing the funds saved through energy efficiency measures into new energy saving projects.
  - In 1988, the City utilized its municipal bonding authority to fund a $1.4 million Energy Bond project. The Energy Bond enabled the City to implement energy efficiency measures in thirty City facilities. The payments for this ten-year bond were generated through energy cost savings.
  - With the bond paid off in 1998, the City chose not to eliminate the bond payment line item in the annual budget but rather to reduce it by 50% to $100,000 for 5 subsequent years. This money was then used to establish the Municipal Energy Fund.
Energy Fund

- City Council approved the first $100,000 to be available in fiscal year 1998-99
  - $87,000 was spent in the first year to update energy audits for 21 facilities and to implement lighting improvements at 14 of the facilities.
  - During fiscal year 1999-00 these improvements generated $19,850 in energy savings of which $15,880 was re-invested in the Municipal Energy Fund.
  - This money is transferred from the budgets of the facilities that receive the energy improvements to the Energy Fund at the end of fiscal year and be available to finance further energy improvements in future fiscal years.

- The $100,000 budgeted annual contribution to the Fund was discontinued after the fiscal year 2003-04. From that point forward, the Fund has relied on payments from past projects to finance new projects.
Energy Fund Annual Repayments 1999-2011

Average = $36,000
Total = $576,000
Example Energy Fund Projects

- Lighting Improvements, Airport HVAC, photovoltaics at Science Center (1999-00)
- LED traffic signals, Municipal garage lights (2000-02)
- City Hall cooling tower, solar pool heating, energy tracking software (ongoing-2010), vending misers (2002-03)
- Solar pool installs and repairs (2003-05)
- Airport taxiway LED pilot (2008-09)
Allocated Retrofit Costs

- ~$330,000 for LEDs
- ~$50,000 renewable energy projects
- ~$237,000 miscellaneous efficiency projects
Energy Fund

Annual Energy Savings vs. Project Costs

Fiscal Year

98-99 99-00 00-01 01-02 02-03 03-04 04-05 05-06 06-07 07-08 08-09
Outcomes

- Over $600K invested as loans
- Over $146K annual energy savings, $1.5M cumulative
- Savings of over 1,000 MWh of electricity and 270 MCF of natural gas and reducing CO$_2$ emissions by over 980 tonnes annually
Factors for Success

- Initial funding source (available for 3-5 years): The level of the initial funding will depend on funds available and the number and condition of municipal facilities.
- Manager assigned to support and coordinate the fund and its projects.
- The City of Ann Arbor has just over 60 facilities which pay $4.5-5 million/year in energy costs. The $100,000/year initial funding for the first 6 years has proven to be adequate, both for the energy saving opportunities available and for the fund management.
- Ann Arbor was fortunate to have an opportunity to establish the Municipal Energy Fund at a time when a ten-year bond was just being paid off.
Key Points

- Project Paybacks: Most projects financed by the Ann Arbor Municipal Energy Fund have payback periods of three to five years. For cities that have not been actively installing energy saving measures (“low hanging fruit”), there will be many opportunities available with payback periods of less than three years. This will contribute to a much quicker regeneration of an energy fund.

- Leading by Example: The Energy Fund is used strictly for municipal programs aimed at improving energy efficiency at municipal facilities. However, the Energy Plan calls for the City to lead by example, and this type of fund should be feasible for many local businesses that own and operate a large number of facilities.
Support Infrastructure

- The Energy Commission's charge includes the following duties:
  - Oversee City policies where energy efficiency and renewable energy should be addressed and advise City Council;
  - Create periodic public reports and recommendations on means of improving municipal and community energy efficiency and renewable energy;
  - Prepare, adopt, amend, and transmit to City Council plans identifying municipal and community-based energy efficiency, renewable energy and other production projects;
  - Research, formulate, and oversee community education programs; and
  - Identify and make recommendations regarding energy project financing options.
Resources & Contact Info

- Energy Office Website: www.a2gov.org/energy
- Energy Fund Website: http://www.a2gov.org/government/publicservice/systems_planning/energy/Pages/EnergyFund.aspx
- Nathan Geisler - Energy Programs Associate
  - energy@a2gov.org
  - 734-794-6430 x43724
Case Study: Union County Revolving Energy Fund

Planting a seed with EECBG stimulus funding

Department of Energy Webinar
June 21, 2011

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Background

Union County is located south of Charlotte, North Carolina
- On the border with South Carolina
- Population: 201,1292
- Building portfolio: 16 buildings, 600,000 sq. ft.
- Commissioner/manager form of government
- Fastest growing county in NC, 6th fastest in the U.S.
- Received $751,800 in EECBG Funding

Calor Energy is an Energy Consulting Firm in Charlotte
-- Energy Lead for the Centralina Council of Governments
-- Renewable Energy Strategy Practice
  -- Governments & Private Clients
  -- Technical, financial and process (RFPs, etc.) advice
  -- Experienced team of Engineers, CPAs and Technicians
Refresco Engineering did a complete assessment of the building portfolio
-- High return Energy Efficiency projects, costs & ROI
The Calor team wrote the Energy Strategy Plan

A. Set up an Energy Work Group
B. Establish Timeline
C. Establish “ground rules”
D. Establish how fund is reapportioned
E. Misc other sections
   I. Answer specific DOE questions
How the Revolving Energy Fund works

Seed Funding
ARRA/
DOE/
EECBG
Funding

New projects funded

Energy projects implemented

Energy savings identified

Energy savings results monitored

Percentage of savings reinvested

Percentage of savings used for other projects
Essential Issues:

1. Sign off by Legal Department
2. Sign off by Finance Department
3. Sign off by stakeholders in each relevant department
   A. Building services
   B. School System (for lighting projects)
   C. Corrections (for solar thermal system)
4. Approval by the County Commission
   A. Codify the re-apportioning requirement.
Projects:

1. Solar Thermal on the Jail
2. Lighting upgrades in two schools
3. All new outdoor lighting (induction)
4. HV/AC upgrades
5. Many low-cost, no-cost measures by maintenance department
Recommendations and Things To Keep In Mind

1. Development of Working Group gave project flexibility
2. Include stakeholders early and often
   - Working group included County Manager’s representative, General Services, Finance Department and consultant.
3. County Commission Sign-off Is Essential
Next Steps – Moving Forward

--Engineer retained for two years to certify savings
  A. Will create a report to present to the Commission
--Finance Department will re-opportune energy savings each year
  A. Each project savings returned to 113% to help cover administration
--First energy savings will be documented and finance returned in FY 2012 Budget
--Working group will develop new project each year
Contact Info

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Additional Examples
Chapel Hill’s Energy Bank

- Established: 2006

- Seed money amount: $500,000

- Seed money source: Bond

- Fund maintenance: 100% of energy savings
Orlando’s REF

Established: 2010
Seed money amount: $1,000,000
Seed money source: EECBG

Fund maintenance:

• 100% of energy savings during payback period plus one year
• Assigning federal tax benefits to design companies
• Generate and sell RECs
How do you capitalize the fund?
“This part of the plan will be funded with all the unused money we must have laying around someplace.”
Sources of Capital Funds

• Appropriated funds
• Unrestricted fund balance
• Capital reserve fund
• ESCO financing
• Grants
  – Public and Private
• Installment Purchase/Lease
• Fees
• Bond proceeds
  – G.O.
  – ARRA Bonds

Sources of Revenue

• Increased appropriated funds
• Savings linked to project
• Revenue linked to project
  – Energy sales
  – Green tags/Recs
• Assessments
Establishment: Seed money

- Appropriating funds
- Maintaining an expired budget line item
- Capitalizing on existing energy savings and other cost reductions
- Cost reductions from competitive bidding
- Private foundations and grants
- Bonds
Fund maintenance

- Avoided costs and
  - Interest from borrowers
  - Appropriated funds
  - Renewable energy credits/Green tags
  - Energy sales
Key Lessons Learned

• Inspiring participation
• Ensuring department budgets are not reduced
• Paying for fund administration
• Process for project selection
• Payback timeline
• Measurement and verification
  – Payback based on estimated or measured energy savings
  – Sub-metering
Q&A and Discussion

• Other grantee experiences
  – Do you have a fund for financing energy efficiency projects?
  – Have you faced any barriers setting up a municipal energy efficiency fund?

• Please participate in the Q&A session by:
  – Typing your question into the Q&A box –or–
  – Raising your virtual hand and we can unmute you to share your comment or question with the group
Thank You!

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