

# Energy Finance Programs

## Panel Discussion



UNC

ENVIRONMENTAL FINANCE CENTER

[www.efc.unc.edu](http://www.efc.unc.edu)

# Participants

- Anne Klein, Saint Louis County
- David Jenkins & Christine McFadzen, Wisconsin
- Glenn Barnes, UNC Environmental Finance Center

# Energy Finance Programs: All Shapes and Sizes

| Program Types   | Funding Sources  | Loan Types  | Loan Recipients  |
|---|--|---|--|
| <ul style="list-style-type: none"><li>• Grants / Rebates</li><li>• Loans</li><li>• Revolving loan funds</li><li>• Interest Rate Buy-down/<br/>down/</li><li>• Credit Enhancements</li><li>• Assessments</li></ul> | <ul style="list-style-type: none"><li>• ARRA</li><li>• General Fund Appropriations</li><li>• Bonds</li><li>• Violation funds</li><li>• Utility revenues</li><li>• Multi tier</li></ul> | <ul style="list-style-type: none"><li>• Efficiency</li><li>• Renewables</li><li>• Combination</li><li>• Vehicle</li></ul> | <ul style="list-style-type: none"><li>• Residential</li><li>• Government</li><li>• Schools</li><li>• Commercial</li><li>• Industry</li></ul> |

**Existing programs vary substantially**

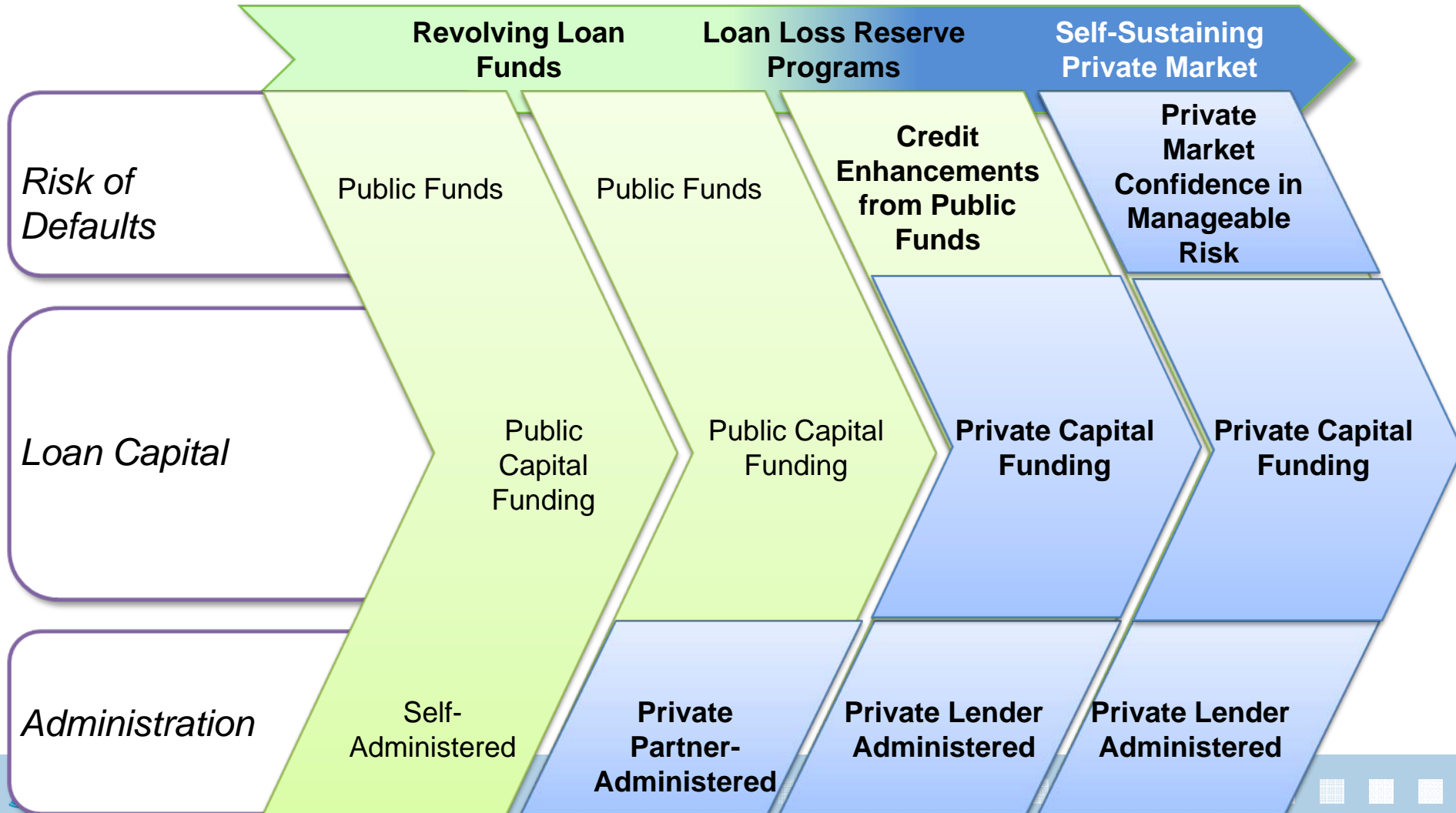
# Why A Finance Program?

- Way to focus government resources on the community at large
- Increase the impact of limited funds
- Can work in tandem with rebate programs to make energy efficiency more affordable
- Puts responsibility on customers



# Roadmap to a Self-Sustaining Private Market

Grantees currently are building programs at different points along the spectrum, as appropriate to their capabilities and the risk appetite of their financial partners



# Quick word on rebates

- There were some good examples of rebate programs you heard about yesterday (like in Illinois)
- Today we will focus mostly on loan programs, assessments and similar efforts

Now let's hear from our  
speakers...



St. Louis  
**COUNTY**  

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*GREEN AND GROWING*

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*EECBG & SEP Regional  
Peer Exchange Meeting  
February 8, 2011*



# Energy Efficiency & Conservation Block Grant

## \$8.4 Million

- Increase energy efficiency
- Reduce energy consumption & costs
- Reduce greenhouse gas emissions
- Create jobs



# Original EECBG Funded Activities

- **Neighborhood Stabilization Program**

Increase the energy efficiency of foreclosed homes acquired and renovated through the Program

- **Residential Energy Audit Incentive**



# Road Blocks...

- Davis Bacon – No NSP
- Residential Energy Audit Incentive – PACE Instead?



PACE is the Answer







# DOE Alternative to PACE...

- Loan Loss Reserve (LLR)
- Revolving Loan Fund



# County Alternative to PACE...

- \$500,000 of EECBGG Funds
- Access to \$10.3 Million Qualified Energy Conservation Bonds (QECBs)
- AAA Bond Rating



# Qualified Energy Conservation Bonds (QECBs)

- ◉ Debt instrument to fund energy conservation projects
- ◉ Direct Subsidy bonds – 70% cash rebate from U.S. Treasury to subsidize net interest payments
- ◉ Missouri received access to \$61,329,000 in QECBs and allocated \$10,307,031 to St. Louis County



# QECBs continued...



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## QECB and New CREB Bond Mechanics

- **IRS NOTICE 2010-35 addresses the new federal refundable tax credit subsidy option under Section 301 of the 2010 HIRE Act**
  - This changes QECBs and New CREBs from tax credit bonds to direct subsidy bonds

| Bond Feature                                | Description (rates as of July 9, 2010)  |
|---|---|
| <b>Term Limit*</b>                          | <ul style="list-style-type: none"> <li>▪ Currently 17 years- Set monthly by the U.S. Treasury</li> <li>▪ Limit is set so that the present value of the principal payments equals 50% of the original principal amount. Discount rate = 110% of the long-term adjusted AFR (Applicable Federal Rate), compounded semi-annually, reset monthly</li> </ul>   |
| <b>Structure/Amortization</b>               | <ul style="list-style-type: none"> <li>▪ Bond Structure options: Bullet (all principal due at maturity), serial or terms bond with sinking fund</li> </ul>  |
| <b>Coupon Payment/<br/>Tax Credit Rate*</b> | <ul style="list-style-type: none"> <li>▪ Issuer sells taxable bonds and pays a taxable coupon semi-annually to the investor</li> <li>▪ Issuer receives from U.S. Treasury the lesser of (i) the taxable rate of the bonds or (ii) 70% of the Tax Credit Rate as of the Bond Sale Date</li> <li>▪ Tax credit rates are the same for any direct subsidy bond like New CREBs, QECBs, QZABs, QSCBs</li> <li>▪ 17 year tax credit rate is currently 5.34%</li> </ul> |
| <b>Sinking Funds/<br/>Permitted Yield*</b>  | <ul style="list-style-type: none"> <li>▪ With bullet structures, issuers can make level annual deposits to a sinking fund to smooth debt service payments.</li> <li>▪ Sinking funds can earn interest subject to arbitrage restrictions. The permitted sinking fund yield is fixed at pricing and limited to 110% of the long-term adjusted AFR, compounded semi-annually, reset monthly.</li> <li>▪ Permitted yield is currently 4.35%.</li> </ul>             |
| <b>Redemption Features</b>                  | <ul style="list-style-type: none"> <li>▪ Call features are market driven and subject to negotiations with investor. They are not set by U.S. Treasury</li> <li>▪ Call options: Make whole (if bonds are a called, the issuer pays the investor a premium so original bond yield is maintained) or 10-year par call (with a higher interest rate on bonds)</li> </ul>  |

# QECBs continued...



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## QECB Qualified Issuer and Qualified Purpose

| QECB                                  | Description   |
|---------------------------------------|---|
| <b>Qualified Issuer</b>               | <ul style="list-style-type: none"> <li>▪ States</li> <li>▪ Local governments</li> <li>▪ Entities empowered to issue bonds on behalf of States and local governments</li> </ul>  |
| <b>Qualified Conservation Purpose</b> | <p>QECBs fund capital expenditures for the following conservation purposes:</p> <ol style="list-style-type: none"> <li>1. Reducing energy consumption in publicly-owned buildings by at least 20%</li> <li>2. Implementing green community programs (including loans grants or other repayment mechanisms)</li> <li>3. Rural development involving the production of electricity from renewable energy resources</li> <li>4. Any qualified facility</li> <li>5. Research facilities, research grants and supporting research in               <ol style="list-style-type: none"> <li>a) Development of cellulosic ethanol or other nonfossil fuels</li> <li>b) Capture and sequestration of carbon dioxide produced by fossil fuels</li> <li>c) Increasing the efficiency of existing technologies for producing nonfossil fuels</li> <li>d) Automobile battery technology or other fossil-fuel reduction technology in transportation</li> <li>e) Technologies to reduce energy use in buildings</li> </ol> </li> <li>6. Mass commuting and related facilities that reduce energy consumption and pollution</li> </ol> |
|                                       | <ul style="list-style-type: none"> <li>▪ While qualified conservation purposes only include capital expenditures, there are exceptions for QECBs used to finance green community programs.</li> <li>▪ If the bonds provide funding for loans, grants or other repayment mechanisms for capital expenditures to issue green community programs, they are not treated as private activity bonds.</li> </ul>   |

**2. Implementing green community programs (including loans, grants or other repayment mechanisms)**

Slide 17

<http://www.eere.energy.gov/>

# Residential Energy Efficiency Loan Program

- LOAN

Unsecured loans for energy efficiency improvements in homes – max. loan \$15,000

- MARKET

Homeowners with FICOS scores 660 and higher and debt to income ratio of 50% or less

- RATE

Fixed rate, not to exceed 4%

- TERM

Up to 10 Years



# Questions from the “Higher Ups”

- Why not get a Home Equity Loan?
- Doesn't it look bad for us to be helping people who already make six figures?
- Is there really a demand for this?
- What is the County's Liability?





# Financing Options...

| <b>Available Residential Energy Upgrade Financing Programs</b> |  |   |
|--|--|---|
| <b>Program</b>   | <b>Eligibility Requirements</b>                            | <b>Participant Benefits</b>                                 |
| Weatherization Assistance Program (WAP)                        | Household Income $\leq$ 200% of Federal Poverty Guidelines | Free installation of basic energy efficiency improvements   |
| CDBG - Home Improvement Program                                | Income $\leq$ 80% Area Median Income                       | 5-Year forgivable loans to make necessary home improvements |
| Residential Energy Efficiency Loan Program                     | FICO $\geq$ 660 and Debt-to-Income Ratio $\leq$ 50%        | <4% financing   |



# Public Demand

- Experience of Other Programs
- Local Support for PACE
- Experience of Energize Missouri Homes Program



# County Liability???



- Default Rates
- Default Rates
- Default Rates



# Moving Forward...

- RFPs for Program Development, Implementation & Administration due 2/4/2011
- Anticipated Contract Start Date 3/4/2011
- Initial Communication on QECBs going to County Council 2/15/2011
- Bond Closing Date – End of March/Start of April



# Questions?

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*We do not inherit the earth  
from our ancestors,  
we borrow it from our children.*

– Native American Proverb

# Financing Clean Energy Projects in Wisconsin

US DOE Peer-to-Peer Forum  
Argonne National Laboratory  
February 8, 2011

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# Green to Gold Fund

- In April 2010, the WI Legislature passed ACT 332 that established the Green to Gold Fund.
- The fund can be accessed by manufacturing businesses to deploy clean energy projects, energy efficiency investments, or retool to produce clean energy products.
- The Green to Gold Fund will hold the WI revolving loan fund monies from the SEP-ARRA loans.
- The WI SEP-ARRA allocation was \$55,488,000 all of which was directed to clean energy projects in manufacturing plants.

# Green to Gold Fund

## SEP-ARRA Loans

- \$250,000 to \$5,000,000
- 2% interest, 7 year term
- Principal and interest deferrals for 6 to 12 months
- Only for manufacturing businesses
- 50% to 75% of the project costs must be provided by the firm
- Subordinated to senior debt of the firm
- 10-page application

# Green to Gold Fund

## SEP-ARRA Loans

- 60 applications
  - 28 funded
  - 3 under NEPA review
- Companies ranged from 10 - 1,700 employees
- Companies sign agreements to create and/or maintain specific numbers of jobs for a certain number of years.
- Planned jobs created – 999
- Planned jobs maintained – 4410
- Leverage Dollars – 2:1 (approximately \$100 million)

# Green to Gold Fund

- Projects vetted by:
  - State Energy Office
  - WI Department of Commerce
    - Two administrative positions added temporarily by WI Department of Commerce for assistance in processing the projects.
- State programs sometimes added to the financing packages (e.g., state tax credits)



# ZBB Technologies

- Advanced battery manufacturer
- Project cost of \$4,500,000
  - \$1,300,000 SEP
- 80 Jobs





# Betin/Monchevre

- Whey and waste water digester
- Produces methane, then electricity
- Project cost of \$3,000,000
  - \$550,000 SEP
- 13 jobs



# Helios USA

- Monocrystalline PV panel assembly/fabrication
- Project Cost of \$8,900,000
  - \$1,000,000 SEP
- 54 jobs



# Idle Free Systems

- Battery storage units (APUs) to operate all systems on large trucks instead of idling the engine (saves 1.5 gals/hr)
- Project cost of \$2,100,000
  - \$450,000 SEP
- 20 jobs



# Orion Energy

- Large scale solar generation
- Project cost of \$1,400,000
  - \$260,000 SEP



# Lessons Learned/Best Practices

- Be nice to US DOE-especially your Program Manager
- Be collaborative. Check your ego at the door.
- Put the interests of the recipient/public before the interests of your agency.
- Share with other states (We sent the Michigan SEO a cheese box in exchange for EF-1 help)
- Follow up with recipients-CRM
- Have a Plan B for your projects

# Thank you





# They are all energy finance programs...

- Two main program elements
  - Finance program design
  - Sources of capital
- Programs around the country mix and match designs and sources of capital

# Program Design

- We've heard about two different revolving loan programs
- Other choices include utility on-bill financing programs, property-assessed programs, and performance contracting



# Sources of Capital

- Public sources like ARRA funding, general fund revenues, public benefits charges, greenhouse gas auctions
- The bond market
- Private sector capital that may include a publicly-funded credit enhancement

# Fannie Mae Energy Loan Program

- Small-scale energy investments at rates of between 14 to 16 percent for periods of 8 to 9 years
- Capital comes directly from Fannie Mae with an expectation/requirement of return on their capital in the range of 12 to 13 percent

# PowerSAVER

- New program from Federal Housing Authority announced on December 9
- Will offer homeowners up to \$25,000 to make energy-efficient improvements of their choice

# Interest Rate Buy-Down

- Cash paid to lenders to lower the interest rate that borrowers pay
- Example: Connecticut pilot program to buy down interest rate of Fannie Mae energy loan program

# Loan Loss Reserve Pools

- Credit enhancement to securitize private lending
- Advantage is that lending pool stays unless there are defaults
- Examples: Michigan Saves, Keystone Help (Pennsylvania), programs in Washington state

# PACE

- Property owners assessed for cost of energy improvement through their property tax bills
- Many residential programs on hold
- Example: Commercial program in Boulder County, CO funded by QECBs

# Rate Payer Capital

- Utilities pledge their own funds for the loan pool
- Example: Manitoba Hydro Power Smart Residential Loan Program, the largest in North America

# Greenhouse Gas Auction Funds

- Will become a more common source of capital if cap-and-trade programs become more common
- Example: Green Jobs/Green New York, operated by NYSERDA and funded through RGGI auctions



# Lessons Learned

- Financing programs are complex and not widely understood by customers, so do not hesitate to ask for help—and it will take time
- Technical Assistance available on program design questions, financial modeling, legal issues, help with contracts/RFPs, etc.

# Lessons Learned

- An advantage of financing programs is that dollars last beyond the ARRA grant period
- Remember that you will need to **pay for program management and administration** for as long as you operate the program

# Lessons Learned

- You should care a great deal about program design and sources of capital.  
*Your customers don't care about this.*  
They just want a good rate for the energy improvements they want/need to make

# Lessons Learned

- Take the time to understand the potential market for energy finance programs. Do a market snapshot. Think about specific types of residents or businesses to target. And don't neglect the program marketing piece.
- Technical assistance for this is available

# Lessons Learned

- Think about your “competition.” What other programs are available to potential borrowers in your jurisdiction? Do they compliment your finance program or conflict with it? Can you team up?

# Lessons Learned

- If you are planning to include private lending in your program, take the time to meet with lenders, explain your program goals, and listen to their needs before designing the lender RFP
- There are no off-the-shelf program designs that will work



# Resources for Communities



<http://www1.eere.energy.gov/wip/solutioncenter/financialproducts/default.html>

The screenshot shows the EERE Information Center website. At the top, there is a header for the U.S. Department of Energy, Energy Efficiency & Renewable Energy. Below this is a green banner with the text 'Solution Center' and 'Technical Assistance for EECBG & SEP'. A navigation bar contains links for 'Webcasts', 'Project Map', 'Recovery Act Benefits Savings Calculator', 'Request Technical Assistance', and 'Home'. On the left, a sidebar menu lists various categories, with 'Financial Products' highlighted. The main content area features a large heading 'Financing for Energy Efficiency and Renewable Energy' and a paragraph describing the website's purpose for ARRA recipients. To the right of this text is a 'Printable Version' link. Further right, a 'Key Program Elements' box lists several links: Market Segments, Transaction Points, Eligible Measures, Financing Terms, Credit Enhancement, and Sources of Funds. Below this is a link for the 'Clean Energy Finance Guide For Residential and Commercial Buildings'. On the far right, a search bar and a 'FEATURES' section are visible, with features including 'EECBG & SEP Regional Peer Exchange Meetings Schedule', 'Request Technical Assistance', 'Submit Your EECBG or SEP Case Study', and 'Technical Assistance'.

U.S. DEPARTMENT OF **ENERGY** | Energy Efficiency & Renewable Energy

**Solution Center** *Technical Assistance for EECBG & SEP*

Webcasts | Project Map | Recovery Act Benefits Savings Calculator | Request Technical Assistance | Home

**Buildings**

**Electric Power and Renewable Energy**

**Energy Education**

**Financial Products**

- Financing Overview
- Key Program Elements
- Types of Financing Programs

**Industry**

**Policy, Planning, and Energy Security**

**Transportation**

**Financing for Energy Efficiency and Renewable Energy** [Printable Version](#)

This website is intended for American Recovery and Reinvestment Act (ARRA) recipients that want to set up financing programs for their energy efficiency and renewable energy projects. Highlighted are financing tools that fund energy improvements to buildings - homes, offices, schools, and other facilities. [Webinars](#), memos and [FAQs](#), [case studies](#), and other resources will be added frequently, so please check back for new information.

**Types of Financing Programs:**

**Key Program Elements**

- [Market Segments](#)
- [Transaction Points](#)
- [Eligible Measures](#)
- [Financing Terms](#)
- [Credit Enhancement](#)
- [Sources of Funds](#)

**Clean Energy Finance Guide For Residential and Commercial Buildings**

Search Help ▶ More Search Options  
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■ FEATURES

- EECBG & SEP Regional Peer Exchange Meetings Schedule**
- Request Technical Assistance**
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- Technical Assistance**





DRAFT \_\_\_\_\_ U.S. DOE

CLEAN ENERGY FINANCE GUIDE FOR  
RESIDENTIAL AND COMMERCIAL  
BUILDING IMPROVEMENTS  
THIRD EDITION

Prepared by the Finance Technical Assistance Team

*Under contract to Oak Ridge National Laboratory for the U.S. Department of Energy*

BOA Task # 420000342

DOE State Energy Program (SEP) and  
Energy Efficiency and Conservation Block Grant (EECBG)  
Program Recipients Technical Assistance Network (TAC)

DECEMBER 9, 2010

- Comprehensive guide developed by technical assistance team
- Available for free at Solution Center



<http://www.eereblogs.energy.gov/tap/>

## Technical Assistance Program Blog



### Developing Financial Incentives for Residential Retrofit Programs

February 1, 2011 06:53 | [Comments \(0\)](#)

"Money makes the Residential Retrofit world go 'round" In previous weblogs, I explained why incentives are necessary for driving energy efficiency programs, as well as how strategic messaging enhances social acceptance of efficiency-centered upgrades. In this post, I will explain how to tackle the sometimes challenging job of setting an appropriate incentive level for your program—guidelines pulled from a soon-to-be released handbook on residential retrofit program des... [\[More\]](#)

Categories: [Best Practices](#) | [Financing](#) | [Program Design & Implementation](#) | [Residential](#)

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<https://tac.eecleanenergy.org/?TAR=TARrequest.aspx>

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## Technical Assistance Center



### Log In

For general assistance, or if you have forgotten or need a new user name and password, please call 1-877-EERE-TAF (1-877-337-3827).

Username:

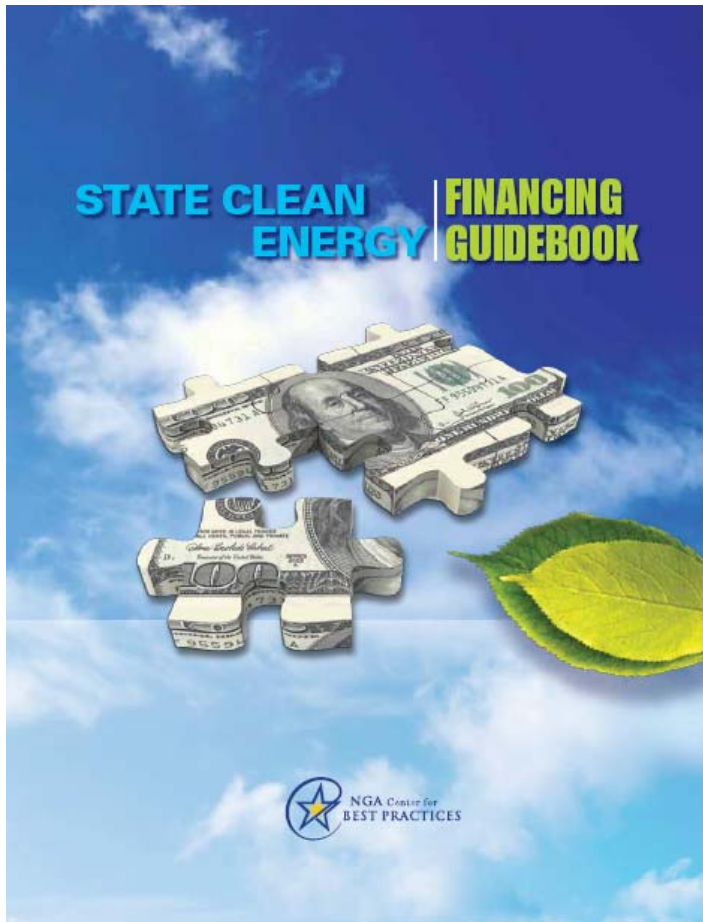
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<http://www.nga.org/portal/site/nga/menuitem.9123e83a1f6786440ddcbeeb501010a0/?vgnnextoid=d3822327672dd210VgnVCM1000005e00100aRCRD>



- Hot off the presses!
- Primarily for states but programs are similar for local governments as well

# DSIRE Database

- <http://www.dsireusa.org/>

**DSIRE™**  
Database of State Incentives for Renewables & Efficiency

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy  
North Carolina Solar Center | IREC

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**DSIRE SOLAR**  
solar policy information

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What's New?

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.

Choose one or both databases:  
 Renewable Energy  Energy Efficiency

Federal Incentives

Map of the United States showing state abbreviations: WA, OR, CA, NV, UT, CO, WY, MT, ND, SD, NE, KS, MN, IA, MO, WI, IL, IN, OH, KY, WV, VA, PA, NY, NJ, DE, MD, DC, VT, NH, ME, MA, RI, CT.



# SELF Database

- [www.naseo.org/resources/selfs](http://www.naseo.org/resources/selfs)

The screenshot shows the NASEO website with the following elements:

- Header:** "SHARE" with social media icons (Facebook, Twitter, Email), navigation links "Home | Join NASEO | Contact", and a search bar "Search NASEO.org".
- Logo:** "NASEO" in large white letters, with the tagline "Transforming America's Energy Future" in a smaller, italicized font.
- Navigation:** A dark blue bar with white text links: "About Us | State Energy Program | Members | News | Events | Publications | Programs | Committees & Task Forces | Resources | Home".
- Left Sidebar (Resources):** A grey box with the title "Resources" and a list of links: "Other Energy Sites", "State Energy Loan Funds Database", "Funding Opportunities", "Requests for Proposals", "Job Announcements", and "Clean Energy Workforce Development".
- Main Content Area:**
  - Section Header:** "State Energy Loan Fund Database - SELF"
  - Text:** "NASEO created the State Energy Loan Fund (SELF) database as a resource for reviewing and analyzing various State and Territory Energy Office revolving loan programs. The SELF database contains loan program statistics such as funding sources, fund size and focus, website links, and contact information. The database focuses on revolving loan funds which are self renewing and provide a low-cost way to implement self sustaining programs."
  - Text:** "NASEO collected data from each US State and Territory Energy Office and determined that there are 58 funds available in 32 states. New data is added on a regular basis. Some loan funds have been operating for years, while others are being implemented through the American Recovery and Reinvestment Act (ARRA) of 2009. The total amount of funding dedicated to State energy revolving loan funds covered in the database is over \$750,000,000.00. For detailed information, please click on a blue state in the map below or contact Gath Otto at [gotto@naseo.org](mailto:gotto@naseo.org). A further report explaining revolving loan funds, as well as a selection of state summaries, can be accessed by clicking on [State Energy Revolving Loan Funds - Overview and Trends](#)"

# Driving Demand

for Home Energy Improvements:

Motivating residential customers to invest in comprehensive upgrades that eliminate energy waste, avoid high bills, and spur the economy



September 2010

Environmental Energy Technologies Division

Lawrence Berkeley National Laboratory



LBNL-3960E

**Question:** How can millions of Americans be persuaded to divert valued time and resources into upgrading their homes?

## What We Did:

- ✓ Case studies of 14 residential energy efficiency programs
- ✓ Review of relevant marketing and behavioral research reports and presentations
- ✓ Phone survey of 30 home performance contractors
- ✓ Interviews with key experts

Report, listserves, upcoming & past webinars, and other resources:

<http://drivingdemand.lbl.gov/>

# Best Program Name Ever

- It's from Texas...any guesses?
- LoanSTAR
- (I love good environmental finance humor...)