RAP

Energy solutions for a changing world

Financing Tools for Energy Efficiency Programs Webinar

July 27, 2011 @ 1:00 p.m.

Moderator: **Chris Neme**, Energy Futures Group

Instructors: **Peter Adamczyk**, VT Energy Investment Corp.

Dennis O'Connor, United Illuminating Co.

Please make sure to answer the brief survey following this presentation.
http://www.surveymonkey.com/s/rapsurvey4

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The Need For and Role of Financing to Promote Efficiency Investments

Peter Adamczyk, Energy Finance and Development Manager
Vermont Energy Investment Corporation

Definitions

Money used for energy efficiency (or renewables) is an investment, not an expense

- **Spend** *to use up or pay out*
- **Invest** *to commit money in order to gain a financial return; to devote for future advantage or benefit*

Energy investments differ from traditional investments

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- Return on investment (ROI) is money that is NOT spent on future energy bills. To determine the ROI, compare the actual energy cost with what it would have been; the difference is the ROI.

- Traditional investments generally have some end value of the original investment (sale or maturity of an asset). In an energy investment, the initial investment is spent and ROI comes from future energy savings – *unless* the energy improvements add to resale value.

Differentiating “Funding” from “Financing”

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Funding

Public Investment through grants or rebates from government, energy suppliers or third parties, including grants, interest rate subsidies, tax credits, etc.

+

Building Owner’s share of investment in energy efficiency measures

Financing

Financial mechanisms to spread the cost of measures over time, including consumer loans, leasing, mortgages, performance contracts, power purchase agreements and property-secured finance

Common financing myths

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- Information is sufficient – if building owners have information on costs and benefits, they will make rational investment decisions that benefit them
- An adequately attractive financing program is sufficient
- This can all pay for itself out of savings – we just need to get it started and/or remove a few market barriers with bright new ideas and access to capital

MORE common financing myths!

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- Most comprehensive energy improvements have short “paybacks.”
- Revolving loan programs need to be capitalized only once, up front, and can then keep on making loans indefinitely.
- ESCOs can do it all – if there’s money to be made, the market will step up and provide a service.

So you want to understand how CEOs and CFOs think?

Newsweek, November 9, 2009:

“80 percent of CEOs and CFOs said they would not spend money to make their factories more efficient and save money in the long run if it hurt their next-quarter bottom line.”

"That," says Al Gore, "is functionally insane."

Conventional Financing Options

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- Consumer loans from banks and credit unions
- Home equity loans
- Mortgage financing or refinancing
- Leasing
- Energy Performance Contracting
- Business loans

Experience to date with conventional financing

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- Participation in energy finance programs has been less than 0.5% per year
- Energy financing programs mostly serve those who least need them
- Conventional financing programs have not resulted in comprehensive or ‘deep’ treatment of opportunities

There are many barriers to be overcome

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- Consumer limited investment horizon
- Consumer reluctance to incur debt
- Poor availability of suitable financial products
- Financing term matched to life of savings
- Security of repayment / loan qualification / credit
- Hassle factor

Key Issue #1: Assurance of Repayment

A. Secured by credit of the borrower

- Great for those who meet loan underwriting requirements, but most building owners do not have adequate credit to take on significant new debt
- In US, **50%** of population does not meet “good” credit criteria (FICO credit score of 680 or better)

B. Secured by cash flow of utility payment stream

- Uncommon and raises issues around disconnection

C. Secured by property

- Secured by lien on the property
- Uncommon, but now being widely pursued in the US

Key Issue #2: Term of Repayment

While savings *can* pay for energy retrofits over time:

- Few mechanisms available for long-term financing (20-year) required to support deep retrofits
- Increased value of buildings due to retrofits is not yet established in the market
- The investment needs to be made by the current building owner, who may not continue to be the recipient of the savings over time. Most are reluctant to invest beyond a 5-year payback.

Example: Effect of term for New England home with 50% savings

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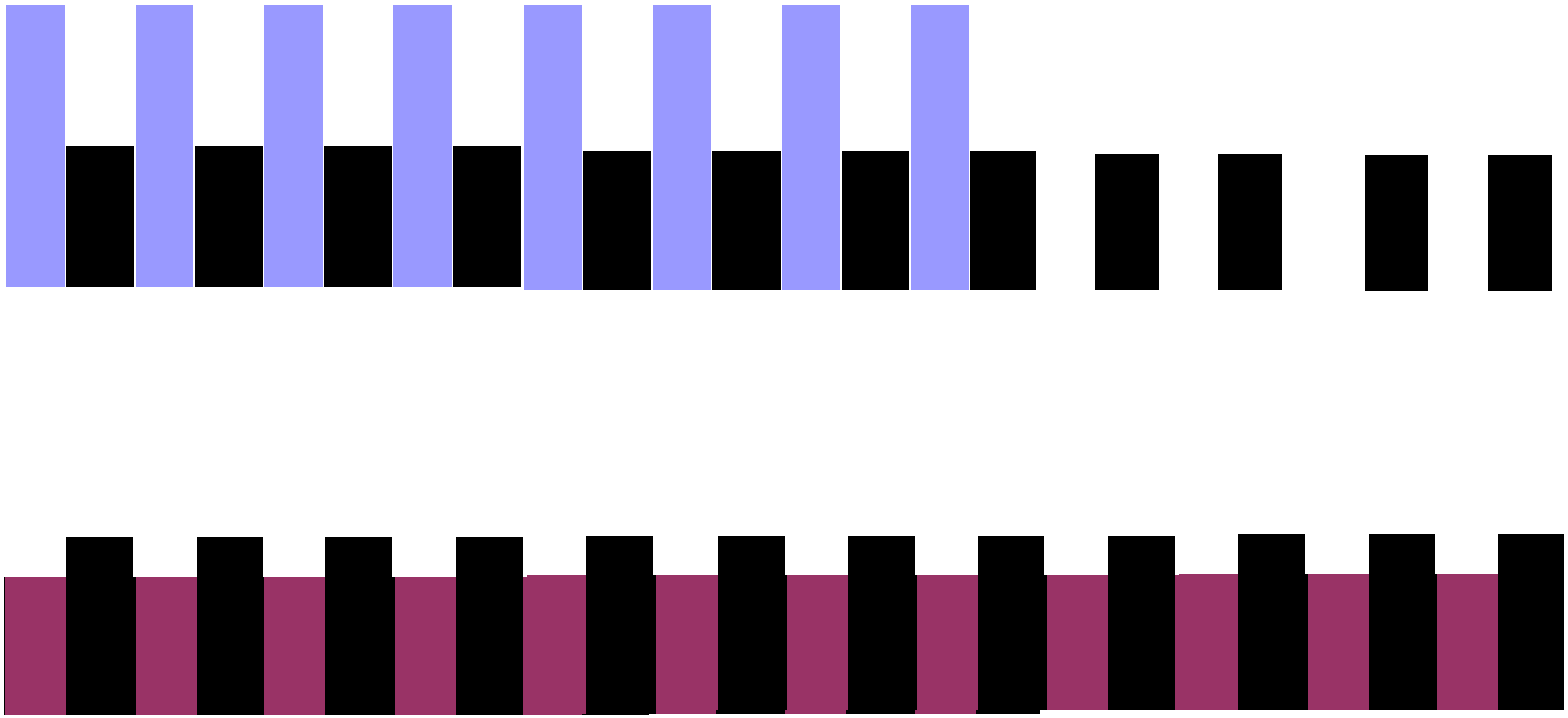
Existing Energy Use and Cost			50% Savings
Fuel Oil	900 gallons @ $3.79 =	$3,411	$1,706
Electricity	9,000 kWh @$.14 =	$1,260	$630
	Total	$4,671	$2,336

Term (Years)	Annual Savings	Annual Payments *	Net Annual Cash Flow
5	$2,336	($4,529)	($2,194)
10	$2,336	($2,546)	($210)
15	$2,336	($1,898)	$438
20	$2,336	($1,584)	$752

** Assumes $20,000 loan at 5.00% interest*

Align the period of payment with the period of the savings



Promising Developmental Financing Options

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- Energy Performance Contracting Variant
  - The Public Purpose ESCO concept
- Mortgage Financing Variants
  - Energy Improvement Mortgages (EIM)
  - Deep energy savings refinance

Promising Developmental Financing Options (continued)

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- On-Bill Financing from Utilities
  - Short term loans with on-bill repayment
  - Tariffed Installation Program (TIP): payment obligation tied to meter
- Property Assessed Clean Energy (PACE)
- Loan Loss Reserve Fund

PPESCO defined

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- The public-purpose ESCO (PPESCO) model seeks to perform all cost-effective measures, rather than the traditional ESCO model of limiting measures to those that achieve the greatest return on investment.

- By its nature, a PPESCO will tend to make higher levels of investment for a given project than a traditional ESCO would, with associated deeper savings

PPESCO defined

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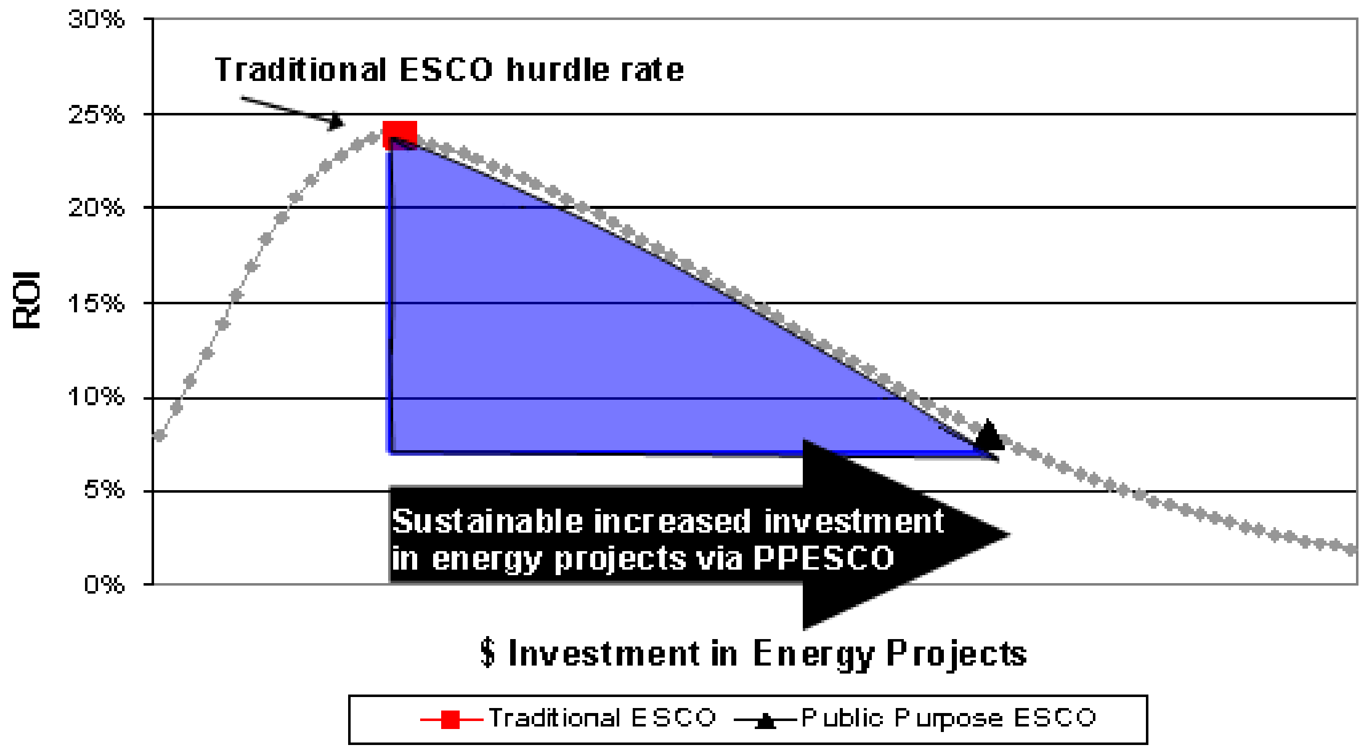

The PPESCO model serves broader public purposes

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- Enables deeper energy savings, allows for transparency in project pricing, longer investment timeframes and lower returns on investment.
- Aids market growth and increased use of high-efficiency approaches and products in sectors with large potential but little or no ESCO penetration
- Lowers barriers to the achievement of goals concerning energy-related economic development, and housing affordability by removing profit maximization as one necessity of upfront financing
- Has not yet been successfully implemented

How PAVE works

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- Voluntary mechanism - property owners opt in to a special assessment district
- Eligible energy improvements are funded by municipal bonds or other debt
- Repayment period up to 20 years
- Special assessments transfer to the new owner when the property is sold, or can be paid in full at time of transfer

Where PACE has been authorized

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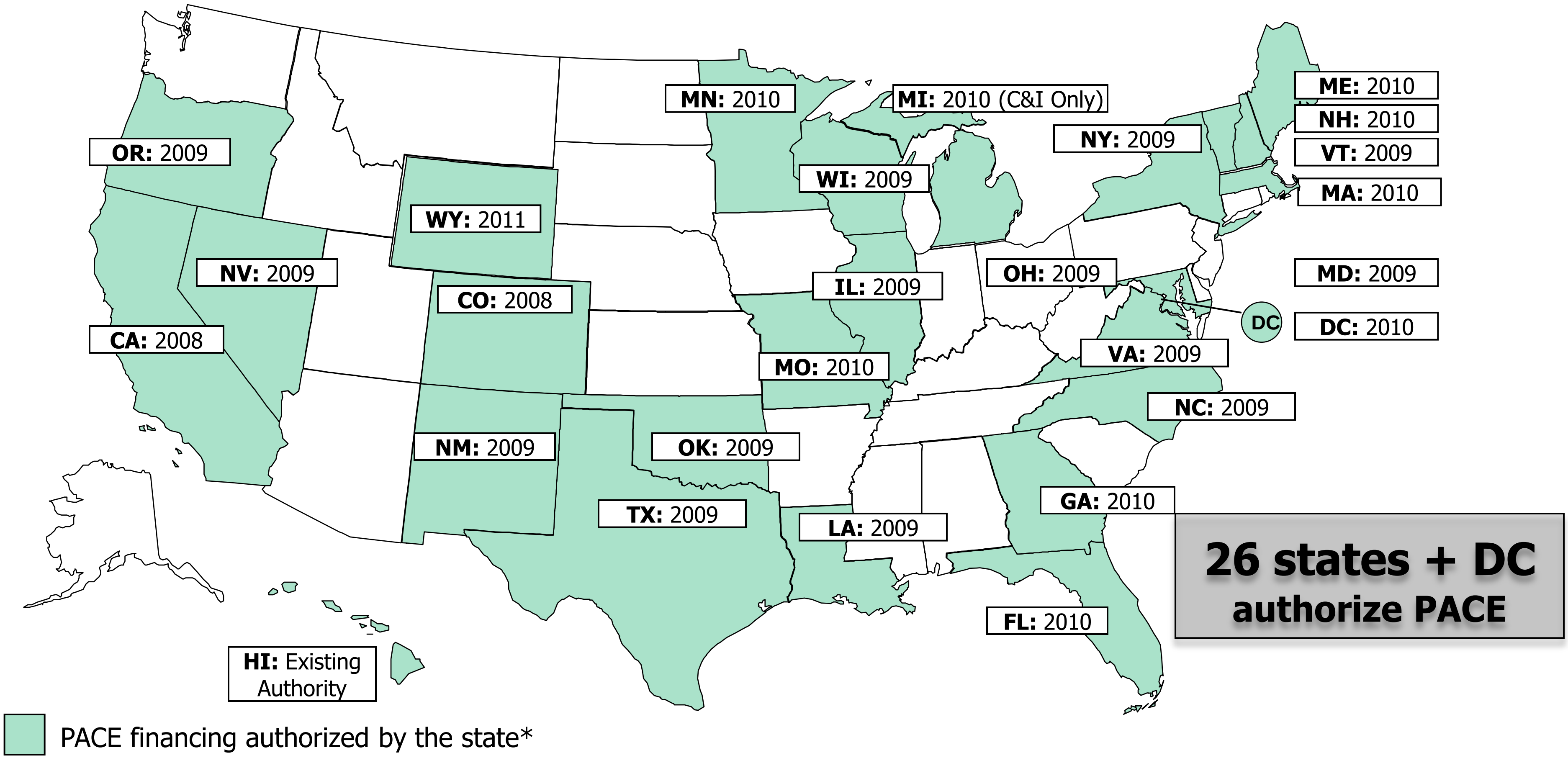
Source: www.dsireusa.org / July 2011



The Federal Housing Financing Agency (FHFA) issued a statement in July 2010 concerning the senior lien status associated with most PACE programs. In response to the FHFA statement, most local PACE programs have been suspended until further clarification is provided.

PACE developments - FHFA

Federal Housing Finance Agency (FHFA) issued a letter in July 2010 regarding PACE:

- instructed Fannie Mae and Freddie Mac to use more restrictive mortgage underwriting standards for all borrowers in jurisdictions with PACE programs
- property owners that participate in senior-lien residential PACE programs will violate standard mortgage provisions and could trigger a mortgage default.

Almost every PACE program in the US has suspended residential applications until further notice

Latest PACE developments

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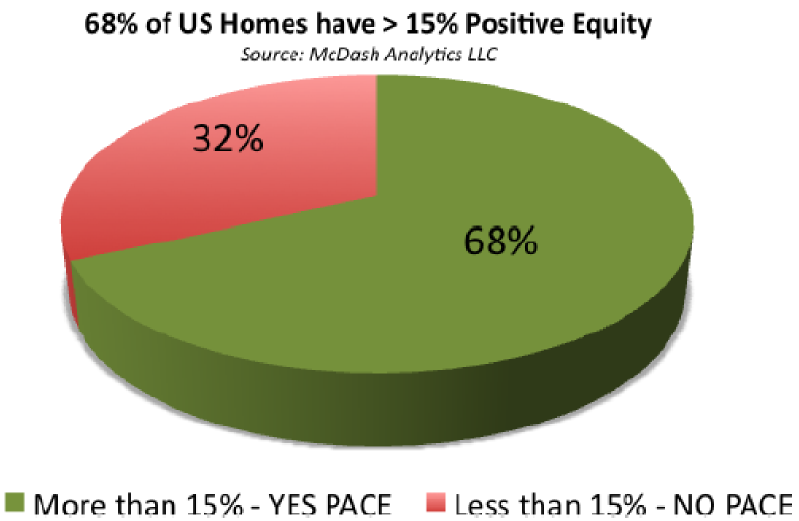
Underwriting Criteria Limit (Eliminate) Risk to F/F

PACE Legislation Requirements

- Homeowner must have at least 15% positive equity.
- Projects capped at 10% of home value.
- Homeowner must have solid property tax payment history.
- PACE lien does not accelerate in event of default.



- Energy assessment must demonstrate projects pay for themselves.

Characteristics of loan loss reserves (LLR's)

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- Provides partial risk coverage to lenders by covering a pre-specified amount of loan losses
- Lender can draw on the LLR to cover losses on defaulted loans
- Program's liability for loan losses is strictly limited to the amount of the LLR

Characteristics of loan loss reserves (continued)

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- Portfolio approach
  - Size of LLR set to be higher than estimated loan losses
  - Default of a few loans will represent a small portion of the total
- Lender is responsible for all losses in excess of those covered by the LLR; 'second losses'

Barriers to Promising Financing Options

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- Energy Performance Contracting
  - Profit vs. deep savings
  - Economies of scale

- Mortgage Financing Variants
  - Skepticism about certainty of savings
  - No standard for valuing energy improvements

Barriers to Promising Financing Options (continued)

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- On-Bill Financing from Utilities
  - Dual-fuel customers
  - Challenges of changing utility billing systems
  - Financing is not a core business for utilities
- Property Assessed Clean Energy (PACE)
  - Lien position
  - No national standards
- Loan Loss Reserve Fund
  - First cost

Conclusions

Financing program designs most likely to achieve wide participation and deep savings should:

- Focus on long repayment terms (10-30 years)
- Secure repayment through dedicated, structural revenue streams (utility bills, tax assessments, mortgages), rather than personal credit
- Focus on broadening the pool of potential participants through loan guarantees and other credit enhancements

The most promising financing mechanisms are those with which we have the least experience!

Energy Efficiency
&
On-Bill Financing
For
Small Businesses

Presentation for:
RAP Webinar

07/27/2011

Connecticut Light & Power
The Northeast Utilities System

CONNECTICUT ENERGY EFFICIENCY FUND
www.CTEnergyInfo.com

The United Illuminating Company

Connecticut's Energy Efficiency Programs are funded by a Charge on Customer energy bills.
The Programs are designed to help customers manage their energy usage and cost.

Connecticut Energy Efficiency Fund (CEEF)

Connecticut's Energy Efficiency Programs are funded by a Charge on Customer's electric bills.

The Programs are designed to help customers manage their energy usage and cost.

Objective

PROVIDE > **COST-EFFECTIVE**, turn-key **CONSERVATION** and **LOAD MANAGEMENT SERVICES** to **SMALL C&I CUSTOMERS.**

<u>What qualifies as a SMALL BUSINESS?</u>

A "Mom & Pop" store with a $150 monthly electric bill up to a mid size manufacturing company with a $20,000 monthly electric bill.

Examples: Retail, convenience stores, houses of worship, professional offices, non-profits, gas stations, restaurants, common areas of apartment buildings, warehouses, sport facilities.

UI Customer Base

- **325,000** Total Customers
- **30,000** C&I Customers (Commercial, Industrial, Municipal)
- **16,800** are Small Businesses
- Over **4,550** Small Businesses (25%) have participated

Financial Solutions

- NO OBLIGATION Energy Audit
- NO UP-FRONT COSTS
- INCENTIVES
  (up to 40% lighting & non-lighting measures)
- 0% ON-BILL FINANCING
  (to qualified customers)

Statistics 2000 - 2011

- **Over 4,450 Installed Projects**
  - Average project cost between $10K and $12K
  - Average Project savings 16,000 kWh
  - Average savings between 20 and 25% (up to 40% with comprehensive)

- **997m Lifetime kWh Saved =**

> 591,000 TONS of AVOIDED CARBON DIOXIDE!

Statistics Continued

- **$12.3m** Incentives Paid by CEEF
- **$33.1m** in 0% Financed Loans
- Under $329,000 **(<1%)** in loan defaults

Loans

- Minimum loan; $250 - Maximum loan; $100,000
- Max. loan term 48 months (Average 30 month)
- Qualifications: Utility payment history; less than 60 day arrears in most recent 6 months
- 93% of customers qualify for financing
- Of those who qualify, 54% decide to participate
- Of the 7% who don't qualify for financing only 19% decide to participate

Loans (Continued)

- 80% of participants are "tenants"
- Multiple on-bill loan capability (for multi-phase projects)
- Loans are transferrable or assumable
- Defaults are recovered by public funds (low default rate must be maintained)
- Utility allowed to earn interest on funds they supply for financing
- Partial payments are applied to loan installment first

Typical E/E MEASURES

- High-Performance Lighting, Occupancy Sensors, Photocells, Induction and LED Technology
- Refrigeration Controls; Anti-Condensation Door Heater Controls, Evaporator Fan Controls, Open Case Night Covers, Electronically Commutated Motors
- HVAC, Programmable T-Stats, A/C Replacements, Economizers
- Air Compressors
- Variable Frequency Drives
- Premium Efficiency Motors
- Gas Incentives; Cooking Equipment

Before	After
Obsolete lighting	New lighting tech.
No lighting controls	Occupancy sensors
Obsolete refrigeration	New refrigeration technology
24/7 Refrigeration	Refrigeration controls /night shutoffs
Poorly maintained HVAC equipment	Properly maintained HVAC /Programmable Thermostats
= $3,000 monthly bill	= $1,800 monthly bill

Side by Side Comparison

Original Loan Term Strategy

Project Cost:	Material costs	$9,204.20
	Labor costs	$6,571.03
	Project Subtotal	$15,775.23
	Tax (CT 6%)	$946.51
	Total Cost	$16,721.74
	Approved UI Incentive	$7,886.52
	Net Total Cost	$8,835.22
	Monthly Payment (16)	$552.20
->	*Annual Energy Savings*	42,301 *kWh*
Estimated: ->	*Annual Dollar Savings*	$6,927 = $577.25/monthly
(may include adjustments) ->	*Pay Back*	1.2 years

Cash Positive $25.05

Loan Extension Strategy

Project Cost:	Material costs	**$9,204.20**	
	Labor costs	**$6,571.03**	
	Project Subtotal	**$15,775.23**	
	Tax (CT 6%)	**$946.51**	
	Total Cost	**$16,721.74**	
	Approved UI Incentive	**$7,886.52**	
	Net Total Cost	**$8,835.22**	
	Monthly Payment (24)	**$368.13**	
->	*Annual Energy Savings*	**42,301**	***kWh***
Estimated: ->	*Annual Dollar Savings*	**$6,927**	**= $577.25/monthly**
(may include adjustments) ->	*Pay Back*	**1.2 years**	

Cash Positive $209.12

Monthly Loan Installment

New Charges & Credits
POD [illegible] (CYCLE 03)

Current Supplier: VIRIDIAN ENERGY, INC.			
Generation Services Charge	80 kWh X $.105000	$	8.40
Generation Services Charge	4240 kWh X $.099900	$	423.58
Total Generation Services Charges		$	**431.98**

Transmission per kwh on-peak	1520 kWh X $.050792	$	77.20
Distribution Basic Service		$	66.82
Distribution per kw on-peak	14.4 kW X $3.630000	$	52.27
Distribution per kw off-peak	0.0 kW X $3.630000	$	0.00
Distribution per kwh on-peak	1520 kWh X $.014199	$	21.58
Distribution per kwh off-peak	2800 kWh X $.014199	$	39.76
Combined Public Benefits Charge	4320 kWh X $.007512	$	32.45
Competitive Transition Assessment per kwh	4320 kWh X $.015222	$	65.76
Non-Bypassable FMCC per kwh on-peak	1520 kWh X $.013194	$	20.05
Decoupling Adjustment	4320 kWh X $.000291	$	1.25
Pension Tracker and Earnings Sharing	4320 kWh X $.000689-	$	2.98 cr
Total Delivery Charges		$	**374.16**

CT Sales Tax on Electricity (6.0%)	$	39.37
Small Business Program	$	516.19
Total New Charges	$	**1,361.70**

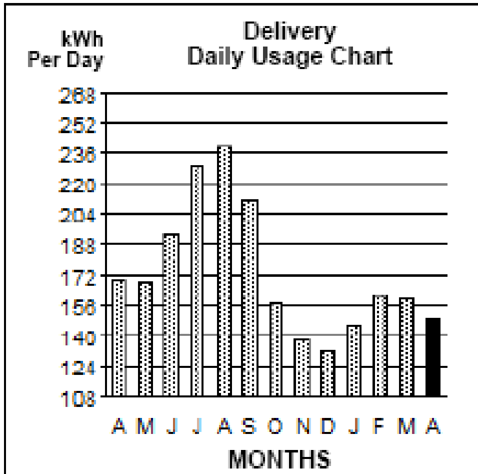
Amount Now Due: $ 1,361.70

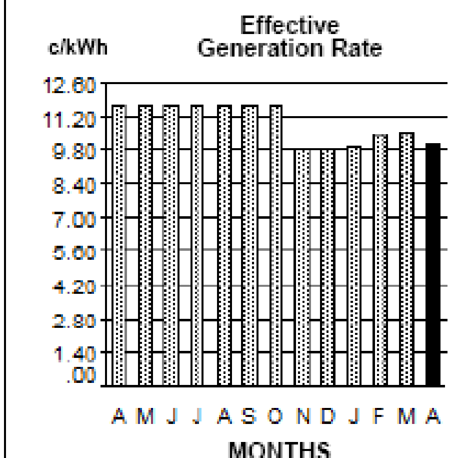
Actual Account Balance: $ 16,331.21

One or more components have changed pricing this month, pricing may not print for that component.

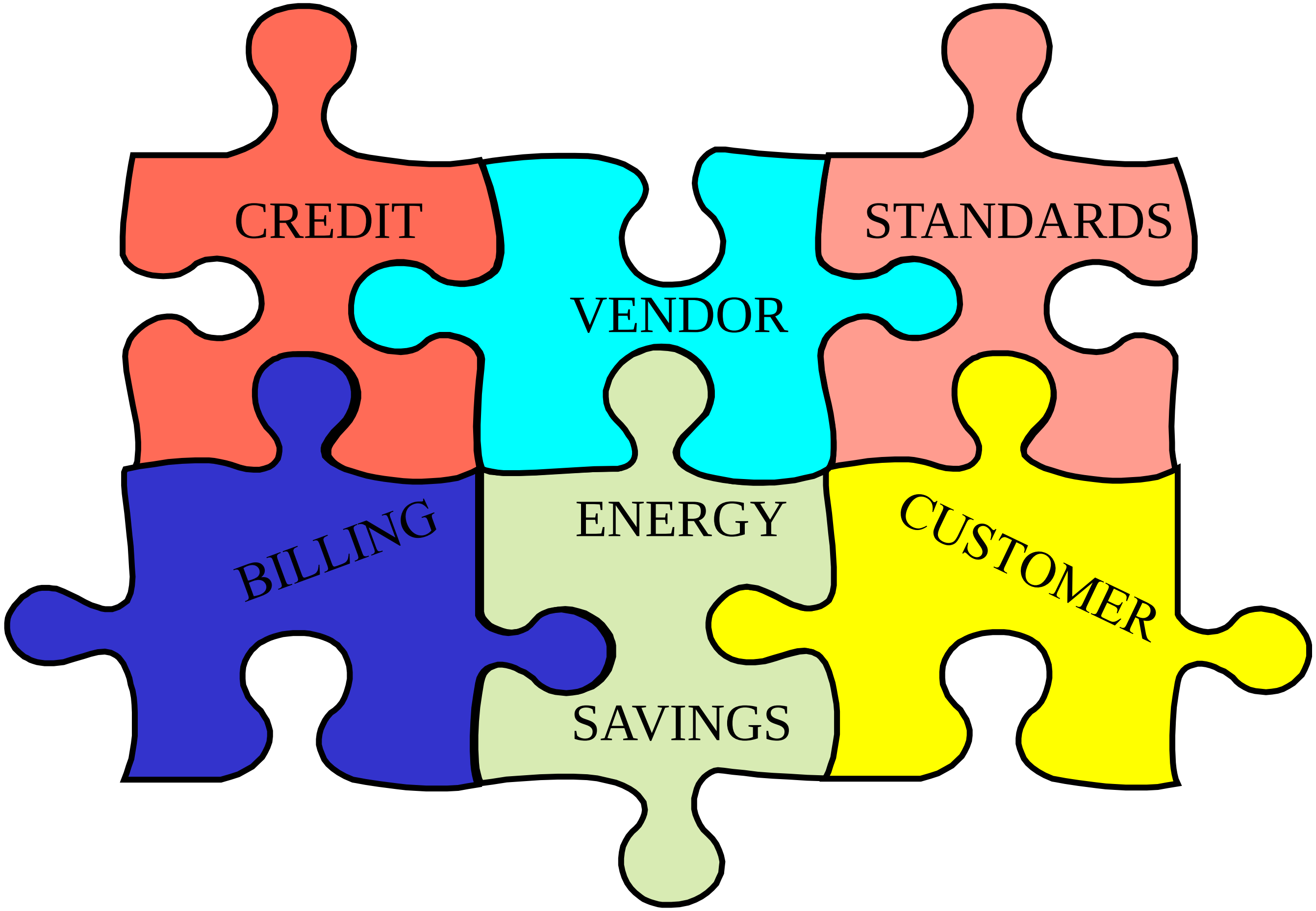
All charges are due as of your Statement Date. Any unpaid charges will be subject to interest as of your Statement Date, at the rate of 1.25% per month, if not paid on or before **May 6, 2011**. *Making your payment on the Due Date at an authorized payment agent may not post until the following business day. If you have a question, contact UI. As authorized by law, for residential accounts, we supply payment information to credit rating agencies. If your account is more than 90 days delinquent, a delinquency report could harm your credit rating.*

MONTHLY MONEY-SAVER
Make sure lighting dimmer switches are turned off when not in use. Sometimes a light that appears to be off is still consuming electricity.





CRITICAL PIECES



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