



INNOVATIVE OPPORTUNITIES FOR FINANCING ENERGY EFFICIENCY UPGRADES

Better Buildings by Design 2016

February 4, 2016



AGENDA:



1. Brian Buckley

- Energy Policy Analyst
Northeast Energy Efficiency Partnerships
Financing Energy Upgrades Overview



2. Chris Burns

- Director of Energy Services,
Burlington Electric Department
On-Bill Financing



3. Mark Kelley

- Financing Program Manager,
Vermont Energy Investment Corporation
Financing Programs in Vermont



PRESENTATION SUMMARY



1. About NEEP
2. Fundamentals and Recent Changes
3. Business Model Innovation
4. Resources

**WHY DOES THIS
MATTER TO YOU??**

ABOUT NEEP

Mission

Accelerate energy efficiency as an essential part of demand-side solutions that enable a sustainable regional energy system

Approach

Overcome barriers and transform markets via
Collaboration, Education and Enterprise

Vision

Region embraces **next generation energy efficiency** as a core strategy to meet energy needs in a carbon-constrained world



One of six regional energy efficiency organizations (REEOs) funded by the US Department of Energy (US DOE) to link regions to US DOE guidance, products and programs

THE FUNDAMENTALS AND RECENT CHANGES



1. Efficiency Program Incentives
2. Tax Incentives
3. Energy Transformation Projects
4. Changes to net metering rule

You may already know... but once more for good measure



FUNDAMENTALS: EFFICIENCY PROGRAM AND STATE INCENTIVES



RECENT CHANGES: TAX INCENTIVES



- Last December, Congress *agreed* on something...

What?

- 179D tax incentive for energy efficient commercial buildings
 - Deduction of **\$1.80/square foot on federal taxes**
 - Now extended to December 31, 2016
 - Had expired at the end of 2014
 - Now extended to December 31, 2016, and **retroactively** to 2015

What's Different?

- Standard upgraded, now **ASHRAE 90.1-2007**, not 90.1-2001

Who Qualifies?

- New Construction and Renovation Projects
- Building owners, tenants, and designers of qualifying government buildings

RECENT CHANGES: ENERGY TRANSFORMATION PROJECTS



[Vermont's Act 56](#)-Landmark strategic electrification law

- Three tiers:

- Tier 1- **Total Renewable Electric Requirement**

- In-state Requirement for RPS

- Tier II- **Distributed Generation**

- 1% of retail sales by 2017, 10% by 2032

- Tier III- **Energy Transformation**

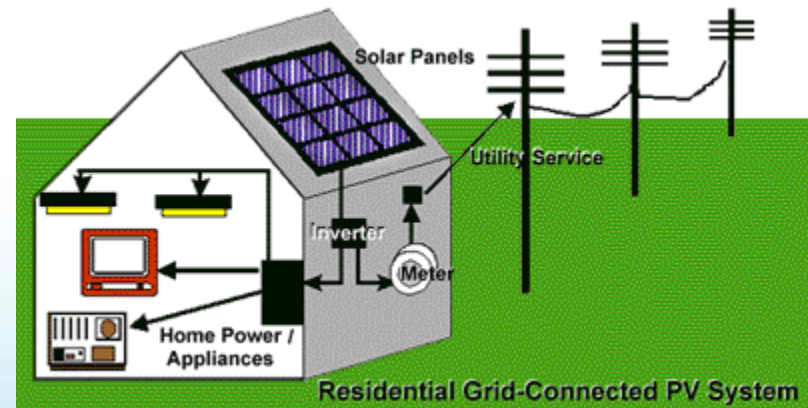
- 2% of retail sales in 2017, 12% in 2032
 - Distribution Utilities encourages to partner w/ EEU
 - Projects Include:
 - Home weatherization or other thermal energy efficiency measures;
 - **Air source or geothermal heat pumps;**
 - High efficiency heating systems;
 - Increased use of biofuels;
 - **Biomass heating** systems;
 - Support for transportation demand management strategies;
 - Support for **electric vehicles or related infrastructure;** and
 - Infrastructure for the **storage** of renewable energy on the electric grid



RECENT CHANGES: NET METERING



- “**Avoided costs**” allows utility to credit customer bill for on-site generation beyond customer’s power required at rate higher than standard generation charge.
- [Proposed rule](#)- Utility credits excess generation at
 - retail rate ($\sim \$0.15/\text{kWh}$)
 - plus $\$0.02/\text{kWh}$ if sited on structure with alternative primary purpose, landfill, parking lot, or gravel pit,
 - plus $\$0.03/\text{kWh}$ if electing to transfer RECs to utility



3. BUSINESS MODEL INNOVATION:



1. Performance Contracting
2. Power Purchase/Energy Services Agreements
3. Credit Facilities

“The stone age didn’t end because we ran out of stones...”

INNOVATION

BUSINESS MODEL INNOVATION: PERFORMANCE CONTRACTING



Traditional performance contracting ([Brattleboro, VT](#)) 2

- Turnkey retrofit solutions
- Through performance contract that guarantees savings, Energy Service Company evaluates, recommends, helps finance, and commission/verify savings
- Ex. Brattleboro, VT contracts with Honeywell in 2007

BUT...

What about **Small projects/deep energy retrofits?**

Public Purpose Energy Services Company

- Similar to traditional model but aims for deep energy retrofits, underserved markets
- Uses patient capital, including investments from foundations
- Ex. VEIC's Commons Energy



Solar Project Finance

- Sungage Financial
- Noesis Financing Services
-

BUSINESS MODEL INNOVATION: POWER PURCHASE AGREEMENTS



Power Purchase Agreement

- Based upon energy services model, amortizes installed equipment's high up-front cost
- Third party installer owns the equipment, and customer purchases power from energy upgrade (primarily PV)
- Off balance-sheet for customer
- Allows securitization of revenue streams
- Local Examples: Suncommon, Real Goods Solar, and others
- Bundling with fuel switching/**air source heat pumps**



On the Horizon

- Off-balance sheet third party energy services and upgrades
 - Ex. NY REV DU as operating system, enabling apps
 - Energy upgrades, behavioral programs, software as a service, etc.

BUSINESS MODEL INNOVATION: CREDIT FACILITIES and LIQUIDITY FOR EE



New York-

- 2013 bond issuance based on NYSERDA's [\\$24.3 million On-bill Residential Loan portfolio](#).

Connecticut-

- Green Bank's 2014 sale of their [\\$30 million Commercial PACE portfolio](#) to Clean Fund

Pennsylvania-

- June 2015 sale of the [Warehouse for Energy Efficiency Loans \(WHEEL\)'s \\$12.58 million worth of residential energy efficiency loans](#)

Other Credit Facility Partnerships-

- In support of the [Connecticut Green Bank's](#) C-PACE program and [New York Green Bank's](#) unsecured residential energy efficiency loan program, each intending to leverage \$100 million of private capital.

SEE Action Resources:



Making it Count: Understanding the Value of Energy Efficiency Financing Programs Funded by Utility Customers

Financing Solutions Working Group and
On-time/Under-budget Energy through Regulatory
Process Working Group

December 2012

The Financing Solutions Working Group and
On-time/Under-budget Energy through Regulatory
Process Working Group have developed this
document to provide a framework for
evaluating the value of energy efficiency
financing programs. This document is
intended to be used as a guide for
policy makers and program designers.



Accessing Secondary Markets as a Capital Source for Energy Efficiency Finance Programs: Program Design Considerations for Policymakers and Administrators

Financing Solutions Working Group

February 2013

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Energy Efficiency Finance Programs: Use Case Analysis to Define Data Needs and Guidelines

Financing Solutions Working Group

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[Making it Count:
Understanding the Value of
Energy Efficiency Financing
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[Accessing Secondary Markets as a
Capital Source for Energy Efficiency
Finance Programs: Program Design
Considerations for Policymakers and
Administrators](#)

[Energy Efficiency Finance
Programs: Use Case
Analysis to Define Data
Needs and Guidelines](#)

And Many More...



BURLINGTON ELECTRIC DEPARTMENT

Better Buildings By Design Conference
Innovative Opportunities for Financing Energy Efficiency Upgrades
BED On-Bill Financing
February 4, 2016

585 Pine Street
Burlington, Vermont 05401
(802) 865-7337

BED – On-Bill Financing for Commercial Electric Efficiency Projects & PACE for Residential Projects

- ▶ For a number of years BED has been investigating financing options for customers to help them more easily participate in our energy efficiency programs and comprehensively treat their energy footprint, including electric energy efficiency, fossil-fuel based weatherization, and the installation of renewable generation.

- ▶ Why?

BED – On-Bill Financing for Commercial Electric Efficiency Projects & PACE for Residential Thermal Projects

- ▶ As both a Distribution Utility (DU) and a Energy Efficiency Utility (EEU), the right financing tools could encourage higher rates of participation, and perhaps deeper savings per project, helping us to meet our aggressive annual savings targets.
- ▶ The City of Burlington's Climate Action Plan calls for innovative techniques to encourage deeper investment in EE and renewables.

BED On-Bill Financing for Commercial Electric Efficiency Projects

- ▶ BED has heard from its customers that, while they appreciate the technical assistance and cash incentives from BED to make electrical efficiency improvements to their buildings, up-front capital is often not available to move forward with recommended efficiency projects regardless of strong ROI's or SPB's.
- ▶ BED has solved a portion of this problem with the start of an On-Bill financing (OBF) service in late 2014 for business customers to make **electric** energy efficiency upgrades (HVAC/controls, Lighting/controls, refrigeration, etc.)
- ▶ A \$1 million dollar grant to BED from the U.S. Economic Development Agency to start a revolving loan fund was made available with the assistance of Senator Sanders and his staff.

BED On-Bill Financing for Commercial Electric Efficiency Projects


- ▶ OBF gives BED's business customers the option to finance electric energy efficiency improvements on the electric bill. This option requires no out-of-pocket expense and the loans can be structured so that the monthly energy savings are greater than the monthly loan payment, creating positive cash flow for the business.
- ▶ 12-72 month fixed-rate loans. 75% of the Wall Street Journal's prime published rate or a maximum of 4%; current rate is 2.63%.
- ▶ \$2,500 loan **minimum** and \$50,000 loan **maximum (BED is willing to flex for the right projects)**



- ▶ Eligible Measures- Professionally installed electric energy efficiency measures that BED normally provides incentives towards.
- ▶ Loan eligibility is based on standard underwriting requirements and includes liens, UCC 1 Forms and/or personal guarantees. ~ 70% of our commercial customers lease which can be a challenge on a number of program levels.
- ▶ The monthly loan repayments stay with BED to be lent out repeatedly creating a revolving loan fund that is dedicated to electric energy efficiency improvements for Burlington businesses for years to come.


BED –On-Bill-Financing (OBF)



- To date, 12 projects have been completed to date using \$128,000 of the loan fund.
 - There are several proposed projects under development that could utilize about \$150,000 of the loan fund.
 - \$280,000 spent and committed funds to date.
- 
- Project example

BED –On-Bill-Financing (OBF)



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- Project examples 

The Project

Leonardo's Pizza, Burlington, VT



PHOTO BY CATHY CHAMBERLAIN

"Upgrading to energy efficient lighting has been an absolute win-win for our store. With the competing priorities of any business, it can be challenging to take on these types of projects alone. Burlington Electric Department made it extremely easy – overseeing the process from start to finish. We see a significant improvement in our electricity bills and store environment. Thanks to BED for being an incredible community partner."

— Kelly Byers

**Fluorescent Lighting Retrofit Project/On-Bill Financing
Completed September 2013**



The project upgraded the existing T12 lighting fixtures to High-Performance T8's (HPT8's). These fixtures use 35-50 percent less electricity than the older T12 technology and can last 1.5 times as long, which means less money spent on replacements and maintenance. HPT8's provide better light quality, including less flicker and "hum" and a better color rendering than the T12's. Because the HPT8's operate at a cooler temperature there is a reduction in the need for air conditioning.

The Savings

\$1,400 Annual

This project resulted in a decrease of electricity usage of about 10,000 kWh annually – about 20% of their annual electrical use.

The new HPT8 lights are expected to last approximately 30,000 hours (1.5 times longer than standard technology).

The lighting quality was significantly improved.

Leonardo's used On-Bill Financing to pay for this project, immediately giving them a cash positive result. With On-Bill Financing, Leonardo's pays the monthly cost of the lighting project right on their electric bill. This financing cost is offset by the lowered electric bill, resulting in immediate savings.



BED Energy Services staff can be reached at 802-865-7342 or EEInfo@burlingtonelectric.com

BED – OBF Sample Project



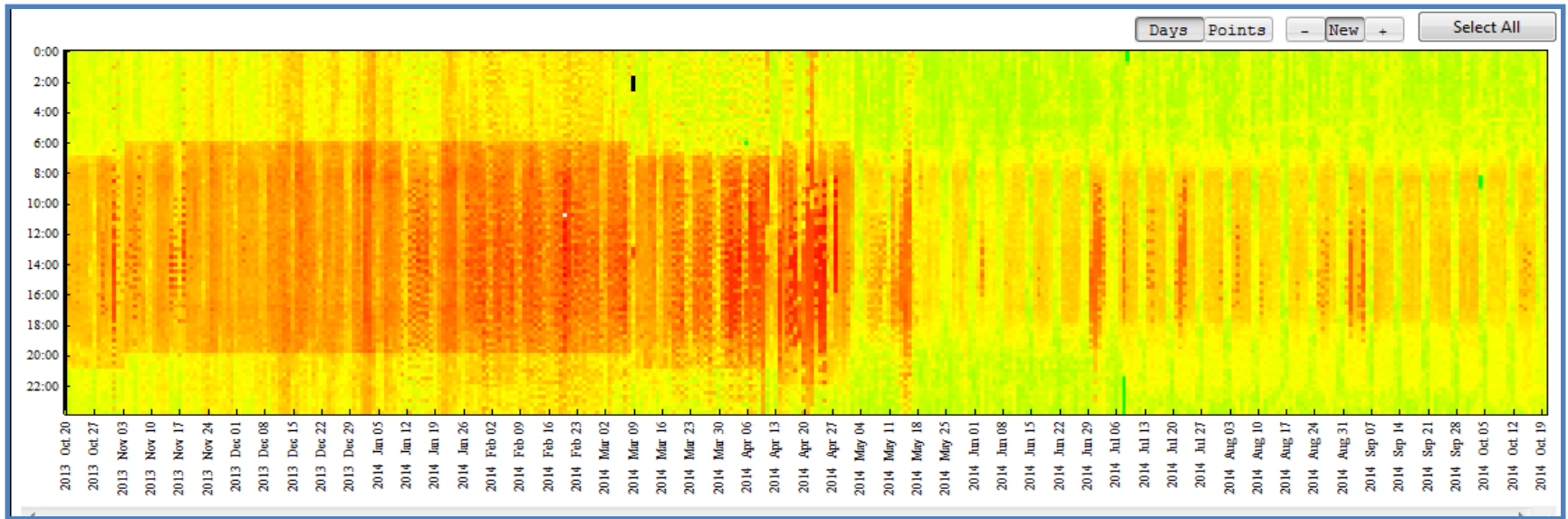
- ▶ Downtown office building with three levels of underground parking.
- ▶ BED identified several months prior that improving the ventilation fan control by providing variable speed capability was a cost-effective measure. However, the first-cost of the control system was a barrier to further progress with this project
- ▶ The no out-of-pocket expense and positive monthly cash-flow features persuaded the customer to pursue the project.

BED – OBF Sample Project

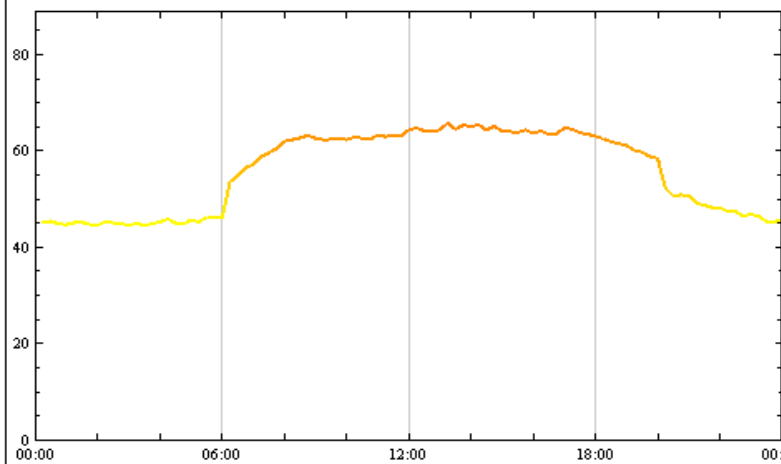


- ▶ The six fan motors (3 HP each) are controlled by QTY=6 VFDs that are tied to a total of QTY=18 CO sensors.
- ▶ \$6,200 annual savings.
- ▶ Customer is now repaying a seven year loan.
- ▶ The energy savings are evident on their house meter monthly bills.
- ▶ Now working with them on HVAC and lighting projects in the same building and exploring opportunities their other property.

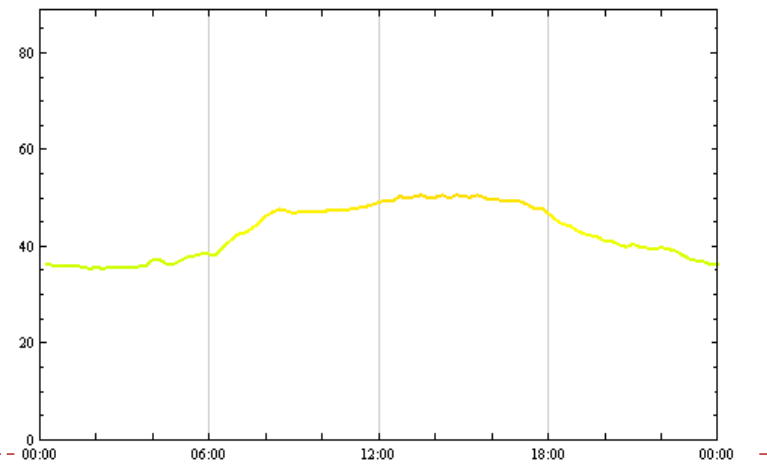
Actual Project Results (DCV Parking Garage)



Daily Usage



Daily Usage



BED – PACE (Residential Thermal Projects)



- ▶ BED offers PACE loans to eligible residential customers; 1 to 4 unit owner occupied dwellings.
- ▶ BED follows the statewide law with the one exception being that customers can repay the loan on their monthly electric bill; currently at a 4% fixed rate.
- ▶ To date, only 2 projects have been completed. PACE was a very good solution for these specific customers.
- ▶ PACE, with the current rules, can't compete with home equity loans.

BED – The Future of OBF and PACE in Burlington



- ▶ BED continues to investigate other sources of capital to finance customer renewable projects using PACE and/or OBF.
- ▶ BED's goal is to create financing options, potentially using the OBF repayment process, that will allow customers to comprehensively treat their energy footprint, including electric energy efficiency, fossil-fuel based weatherization, and the installation of renewable generation.

Questions?

Thanks!





Efficiency Vermont :

Helping to finance energy savings for homes, businesses and communities

Working to Provide Value to Vermonters

Our approach is to financing programs:

- A. listen to what Vermonters are telling us they want and need; what's working and what isn't
- B. Develop solutions based on that that feedback
- C. Partner with or support local in-state lenders, contractors and other state, local or non-profit agencies
- D. Work with customer to identify their best option

We can help you with financing your energy efficiency project

- For Homeowners
 - Heat Saver Loan Program
 - PACE (Property Assessed Clean Energy)
- For Any Organized Entity (business, non-profit,
 - Efficiency Vermont Business Energy Loan Program
- For Medium to Large Commercial Entities
 - Energy Loan Guarantee Program
- Other
 - Local banks, credit unions, agencies and development corps.



What have we done lately?

- A. Newly revamped Business Energy Loan
- B. Energy Loan Guarantee with VEDA
- C. Heat Saver Loan program
- D. PACE improvements

Business Energy Loan

Fast, simple financing for commercial efficiency projects

- Any type of business or nonprofit
- Attractive interest rates (3.25% up to 3 years, 4.25% up to 5 years)
- No closing costs or application fee
 - (\$25 for Certificate of Good Standing from VT Secretary of State, where applicable)
- No collateral requirement; 100% of project costs can be financed
- Up to \$35,000, minimum of \$3,500
- No business financial statements required
- Financing and loan servicing provided by VSECU
 - For more info contact: Efficiency Vermont at 855-317-2254



Energy Loan Guarantee (Non-residential)

Robust financing program for medium to large commercial projects

- Financing provided by the business's lender and is 75% guaranteed to the lender by VEDA (up to \$250K)
- The lender is able to structure the loan in a way that benefits the customer (e.g.. Positive cash-flow, favorable interest rates)
- No maximum project size, minimum of \$3,500
- An unbiased project cash flow analysis is provided by Efficiency Vermont
- Application fees are currently waived (normally 2.25% of loan value)

Heat Saver Loan Program

Financing for Home Heating and Thermal
Envelope Upgrades



Heat Saver Loan Details

Participating Lenders

- **Vermont State Employees Credit Union**
- **Opportunities Credit Union**

Loan limits: No minimum loan amount, up to \$35,000

INTEREST RATES		
Income Qualifications	Loan Term	
	Up to 5 Years	From 5 to 15 Years
Over \$96,240	3.99%	4.99%
Between \$64,161 - \$96,240	1.99%	2.99%
Below \$64,160**	0.0%	1.99%

PACE Improvements

To make PACE more attractive and easier to access we now:

1. Offer interest rates of 0%, 0.99% and 1.99% to income-qualified Vermonters
2. Take applications on any business day
3. Schedule closings any week
4. Provide project cash-flow analysis free of charge
5. Allow 50% of funds at closing for contractor deposits
6. Waive application fee of \$350 thru end of 2016
7. Allow partial pre-payments in addition to full early payoff

For More information

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www.efficiencyvermont.com
www.heatsaverloan.com

QUESTIONS/DISCUSSION