Efficiency Vermont

BBD

BETTER BUILDINGS BY DESIGN

CONFERENCE THEME:
Trends in Cold Climate Construction

FUNDING ENERGY-SAVING RETROFITS IN THE VERMONT CLIMATE

February 5, 2015

AGENDA:

1. Brian Buckley
   - High Performance Buildings Associate, Northeast Energy Efficiency Partnerships
     Financing Energy Upgrades Overview

2. Chris Burns
   - Director of Energy Services, Burlington Electric Department
     On-Bill Financing

3. Craig Ferreira
   - Innovation Champion, Green Mountain Power
     E-Home Initiative

4. Mark Kelley
   - Financing Program Manager, Vermont Energy Investment Corporation
     Property Assessed Clean Energy Program

NORTHEAST ENERGY EFFICIENCY PARTNERSHIPS

Better Buildings by Design 2015

FUNDING ENERGY-SAVING RETROFITS IN THE VERMONT CLIMATE

1.22.15

Overview of Business Model Innovations and Funding Options

PRESENTATION SUMMARY

1. About NEEP
2. Setting the Stage
   - 2.1. Efficiency Programs
   - 2.2. Net Metering
3. Business Model Innovation
   - 3.1. Performance Contracting
   - 3.2. Power Purchase Agreement
   - 3.3. Community Solar
   - 3.4. Crowd Funding
4. Resources

WHY DOES THIS MATTER TO YOU??

1. ABOUT NEEP

NORTHEAST ENERGY EFFICIENCY PARTNERSHIPS

"Accelerating Energy Efficiency"

MISSION

Accelerate the efficient use of energy in the Northeast and Mid-Atlantic Regions

APPROACH

Overcome barriers to efficiency through
Collaboration, Education & Advocacy

VISION

Transform the way we think about
and use energy in the world around us.

One of six Regional Energy Efficiency Organizations (REEOs) designated by U.S. Dept. of Energy to work collaboratively with them in linking regions to DOE guidance, products

2. SETTING THE STAGE

1. Efficiency Program Incentives
2. Net Metering
3. Tax incentives

You may already know… but once more for good measure

SETTING THE STAGE: EFFICIENCY PROGRAM AND STATE INCENTIVES

Efficiency Vermont

EVERSOURCE ENERGY

Public Service of New Hampshire
A Northeast Utilities Company

DC SUSTAINABLE ENERGY UTILITY

Western Massachusetts Electric
A Northeast Utilities Company

Sponsored by: nyserda
Energy. Innovation. Solutions.

Liberty Utilities

Connecticut Light & Power
The Northeast Utilities System

your NEW HAMPSHIRE Electric Co-op
A Touchstone Energy® Cooperative

Unitil

NSTAR ELECTRIC GAS

VERMONT CLEAN ENERGY DEVELOPMENT FUND

$2,000 base incentive for pellet heating systems

SETTING THE STAGE: NET METERING

- Net metering comes to Vermont in 1997 (rules)
- "Avoided costs" allows utility to credit customer bill for on-site generation at rate higher than standard generation charge.
- Generation installations require certificate of public good
- Accelerated certificate of public good process for small arrays (15kW or less)
- Vermont only state in New England that doesn't retire RECs. BUT… ACT 99 now allows net metered customers to assign green attributes to utility for retirement
- Equipment exempt from state sales tax 6%

Self-finance often the best deal (savings, home equity, etc.) after accounting for net metering and other incentives

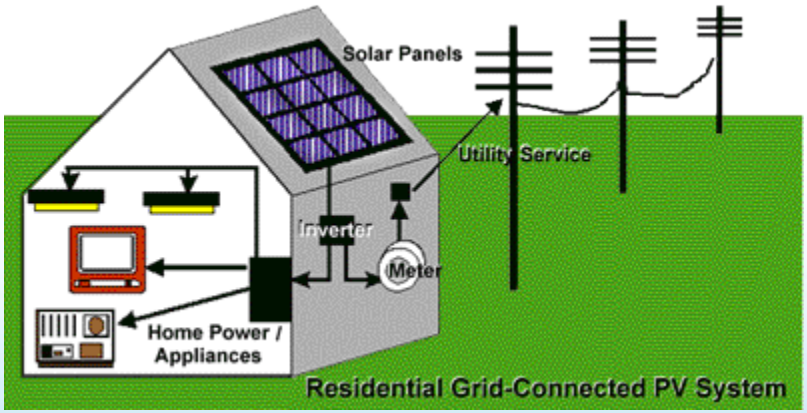
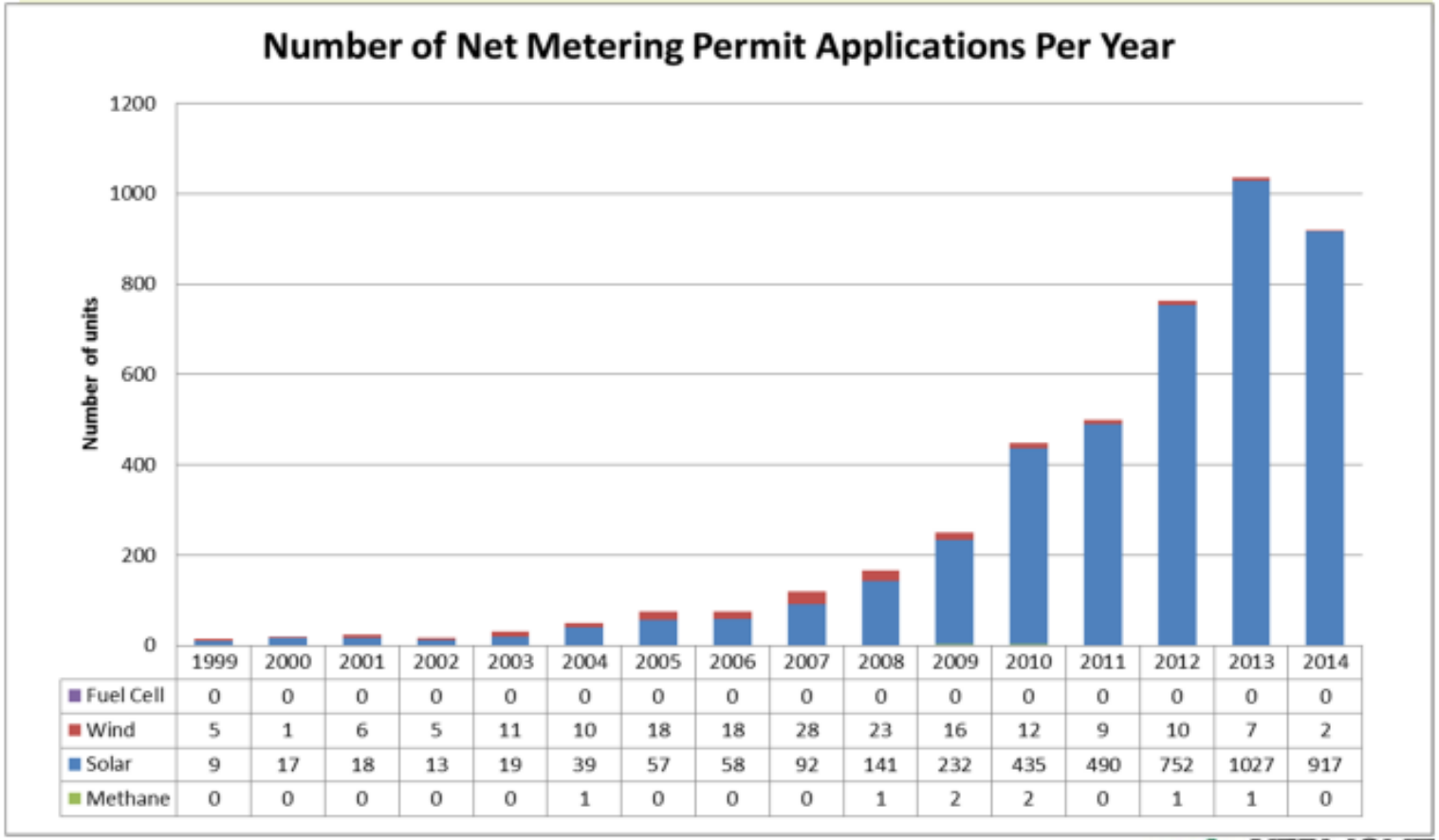


Photo Credit: Vermont Public Service Board

SETTING THE STAGE: NET METERING

Net Metering Status as of 9/24/14



	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Fuel Cell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wind	5	1	6	5	11	10	18	18	28	23	16	12	9	10	7	2
Solar	9	17	18	13	19	39	57	58	92	141	232	435	490	752	1027	917
Methane	0	0	0	0	0	1	0	0	0	1	2	2	0	1	1	0

VERMONT
DEPARTMENT OF PUBLIC SERVICE

3. BUSINESS MODEL INNOVATION:

1. Performance Contracting
2. Power Purchase Agreements
3. Community Solar
4. Crowd Funding

“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

- VSECU Vgreen/Vbiz Loan Programs ($12 million, 750 projects)
- 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

- Infrastructure as a service (ex. Generate Capital)
- Vehicle Fleets as a service
  (ex. Vision Fleet deploys 425 plug in vehicles in Indianapolis)

BUSINESS MODEL INNOVATION: COMMUNITY SOLAR

Group Net Metering allows individuals and businesses to purchase a percentage of an installation, with credit showing up in their individual electric bill

- Opens Photovoltaic options to all
- (Ex. Suncommon, Soveren, Clean Energy Collective, etc.)

Energy Clinic at Vermont Law School, helping localities develop energy projects.

Thanks to net metering, last month's project completion at three state facilities (St. Johnsbury, St. Albans, and Windsor) can provide energy to twelve state facilities.

BUSINESS MODEL INNOVATION: "CROWDFUNDING"

Mosaic

- Offers "crowdfunding" opportunities, but not under the "JOBS Act"
- $10 million worth of projects funded

CT Green Bank (CEFIA)

- Partnered with Mosaic and the Hampshire Foundation to provide credit enhancement and bring crowdfunding to their state.

Solar City Solar bond issuance

- Bonds invest in photovoltaic installations
- $1,000 Minimum buy-in

SETTING THE STAGE: VT STATE ENERGY PLAN

"Vermont's size and its relatively limited financial resources must be deployed effectively to encourage progress. Among the finance and funding actions recommended in the plan are:

- "Expand focus on **Property Assessed Clean Energy** program deployment; and
- Develop **on-bill utility payment** for small-scale renewable generation and thermal projects for customers."

Why does it matter to this audience?

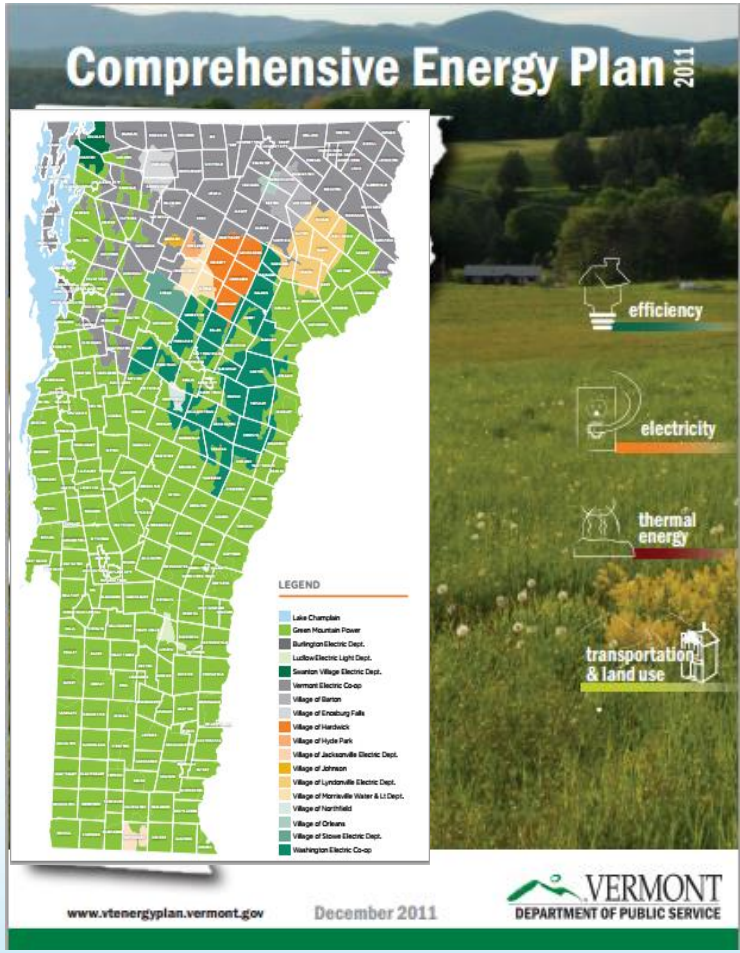
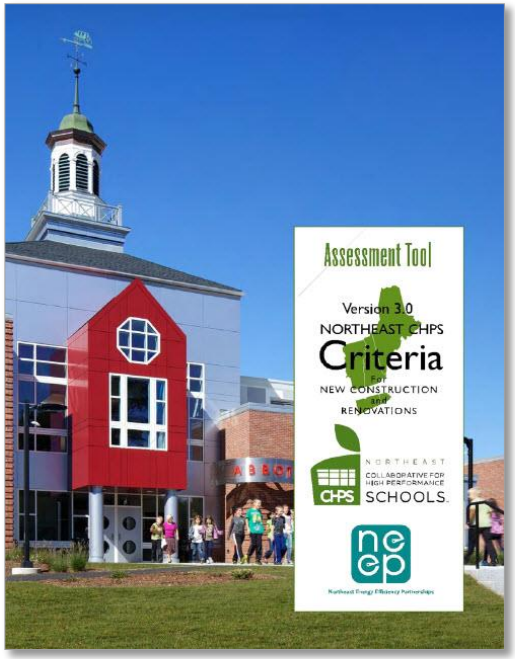
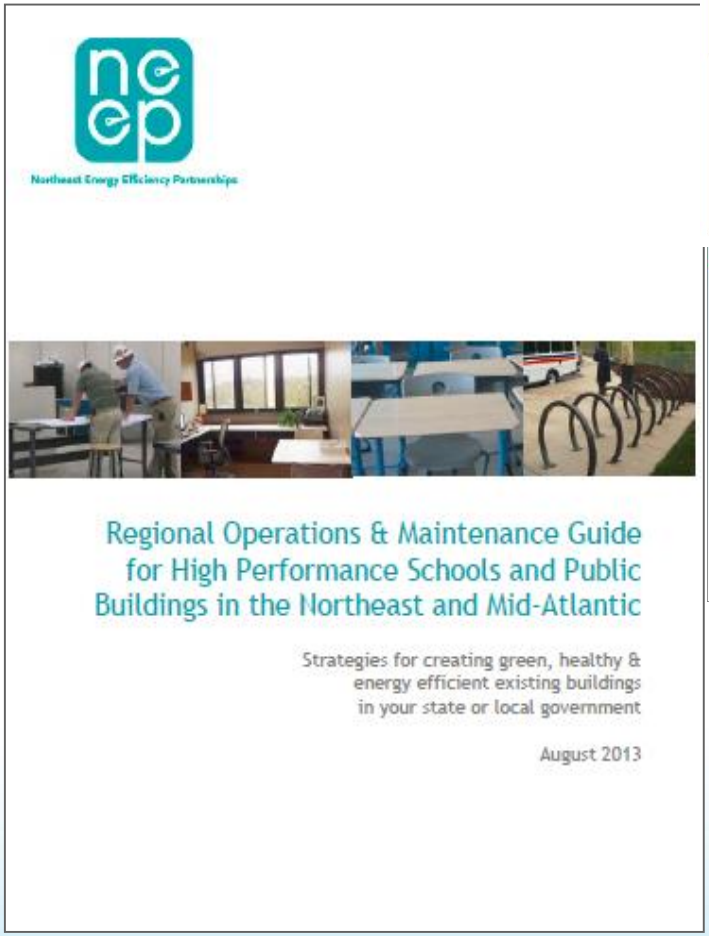


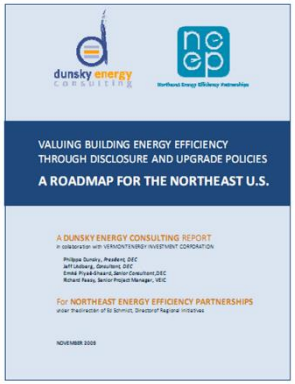
Photo Credit: Vermont Department of Public Service

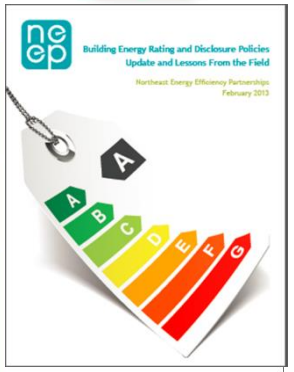
OTHER RESOURCES
AVAILABLE AT WWW.NEEP.ORG

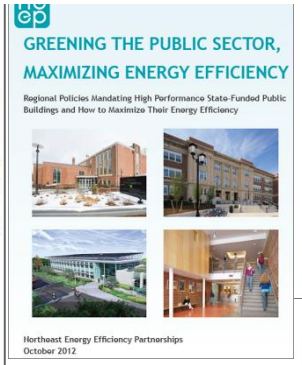
Contact:
Brian Buckley at bbuckley@neep.org

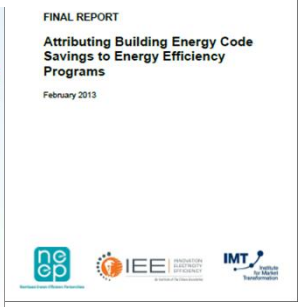


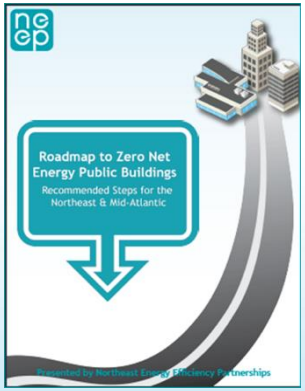


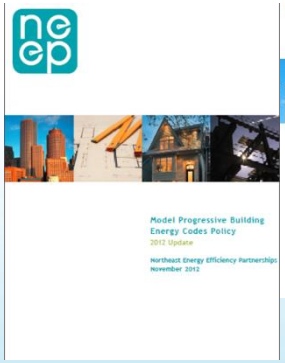












BURLINGTON ELECTRIC DEPARTMENT

Better Buildings By Design Conference
Funding Energy Savings Retrofits in Vermont Climate
BED On-Bill Financing
February 5 , 2015

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

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

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 not always available to move forward with recommended efficiency projects. This was particularly true during the recent recession.

- BED is pleased to report that it has solved *a portion* of this problem with the start of an On-Bill financing (OBF) service in 2014 for business customers to make electric energy efficiency upgrades.

- 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 2.44%.
  - $2,500 loan minimum and $50,000 loan maximum.

BED –On-Bill-Financing (OBF)

- 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.
- 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, 6 projects have been completed to date using $70,000 of the loan fund.
- There are 15 proposed projects under development that could utilize about $360,000 of the loan fund.
- $430,000 spent and committed funds to date.
- Project example

The Project — Leonardo's Pizza, Burlington, VT

"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 BEDinfo@burlingtonelectric.com

BED – PACE (Residential Thermal Projects)

- BED offers PACE loans to eligible residential customers; 1 to 4 unit owner occupied dwellings.

- BED follows the statewide program with the one exception being that customers can repay the loan on their monthly electric bill; currently at a 4% fixed rate.

- To date, 2 projects have been completed and a 4-unit building has submitted a formal loan application.

- A single-family home is currently going through the energy analysis process.

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!

GREEN MOUNTAIN POWER
Generating Possibilities Together

February 5, 2015

GMP eHome

Energy Efficient Home of the Future - Today

Craig Ferreira, Energy Innovation Center

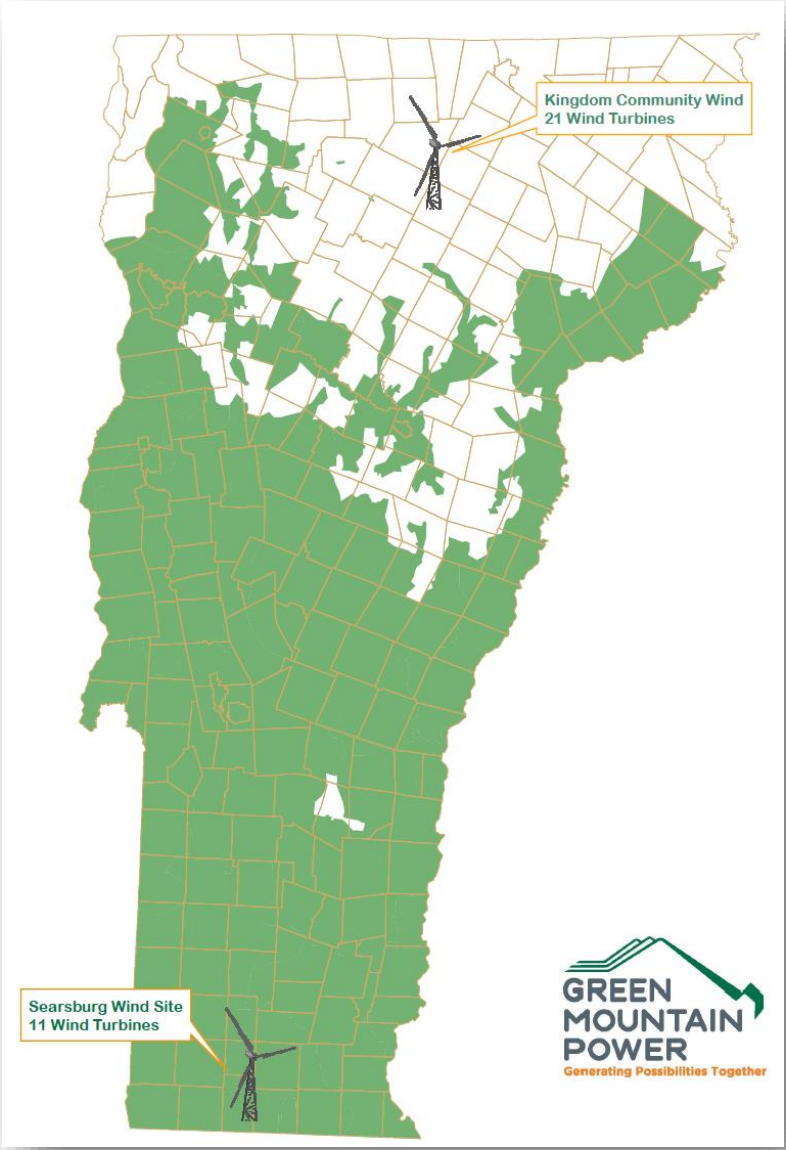
OVERVIEW OF TODAY'S DISCUSSION

- Who is GMP?
- What is an eHome?
- Finance Partners
- Discussion

GREEN MOUNTAIN POWER
Generating Possibilities Together

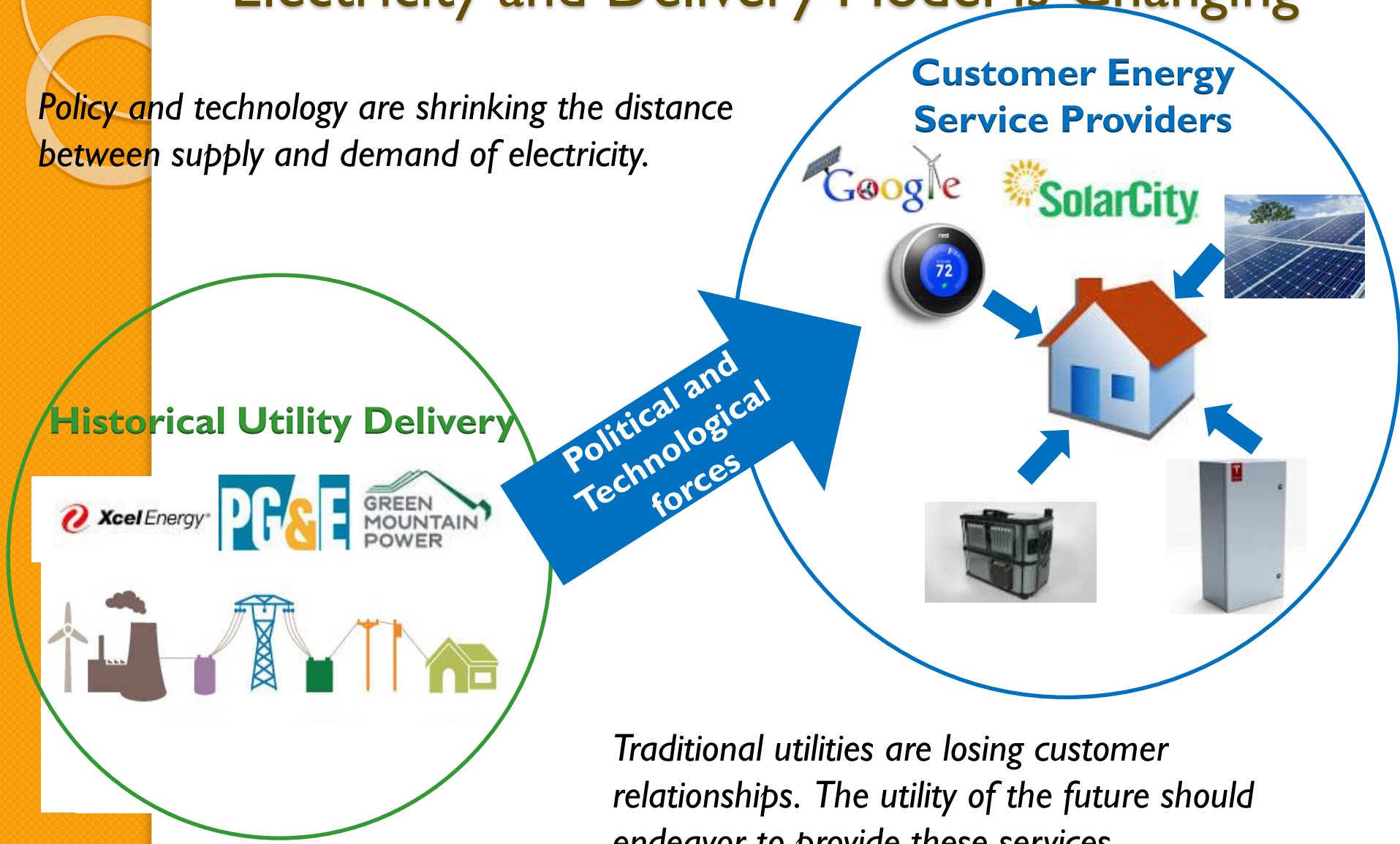
Who is GMP?

- Vertically integrated Vermont utility
- We serve
  - 260,000 Customers
  - 202 towns covering 7,500 square miles of service territory
- We operate
  - 32 Hydro Plants
  - 6 Peaking Plants
  - 12 Solar Projects
  - 2 Wind Farms
  - 2 100KW Wind Turbines
  - 1 Joint-Owned Biomass Plant (McNeil)
- We maintain
  - 976 miles of transmission lines
  - 11,273 miles of distribution lines
  - 185 substations



Electricity and Delivery Model is Changing

Policy and technology are shrinking the distance between supply and demand of electricity.



Traditional utilities are losing customer relationships. The utility of the future should endeavor to provide these services.

What's an eHome?

- Home/business owners have many opportunities to save money and energy
- However, there's a major hassle-factor
  - Multitude of products, technologies, applications, service providers
- Enter eHome
  - Bring Energy Efficient Home of Future to Home/Business owners TODAY
  - Holistic approach to addressing entire energy picture
  - Strategically partner with vendors and contractors for a one-stop shopping experience

Integrated Smart Home/Business

- ***Bundle a whole home/business energy solution through key partnerships.***
- ***Garner new revenue from equipment financing and partner fees***
- ***Create customer "stickiness" through deeper involvement and commitment***

Future Potential GMP Solar

Weatherization

GMP Billing/ Automation

GMP Financing

Efficiency Vermont Rebates

Finance Partners

	Neighborworks	VEDA	VSECU
On Bill	✓	✓	
Max Term	10	10	15
Max Limit	$15,000	$350,000	$30,000
Fixed Rate*	5.25%	1.5%**	5.90%
Residential	✓		✓
Commercial		✓	
***Interest rates subject to change**			
****1.5% for 5 years, then adjusting to variable Small Business Index**			

On-Bill Financing

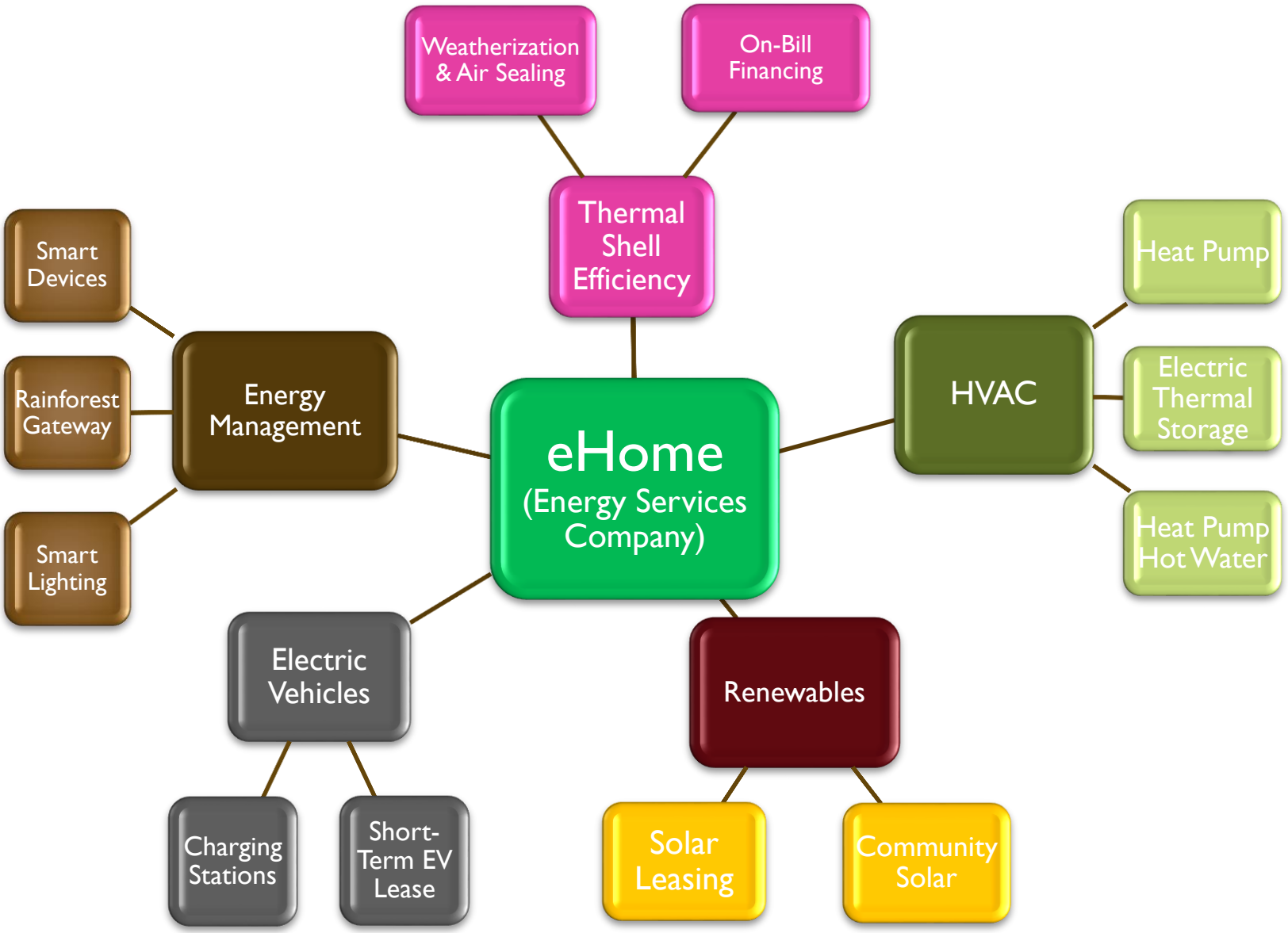
Account Summary	
Previous Account Balance	494.16
Payments Received	-216.00
Balance Forward	278.16
New Charges/Adjustments	286.49
Total Balance Due	**564.65**

	Amount Due	Account Balance
Balance Forward	278.16	278.16
Residential	180.49	180.49
Heat Pump	106.00	106.00
New Charges/Adjustments	286.49	286.49
TOTAL	**564.65**	**564.65**

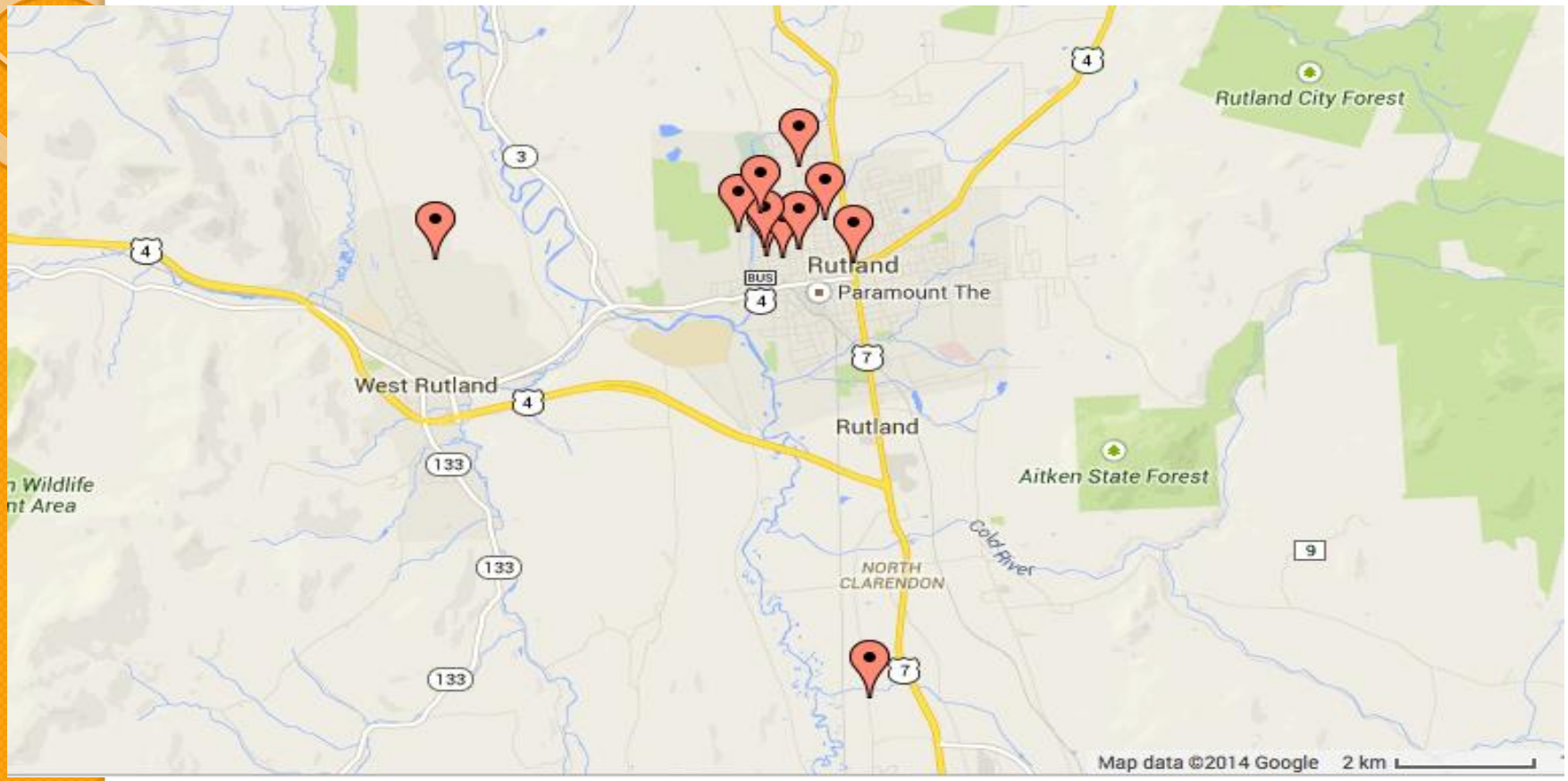
Account Summary	
Previous Account Balance	410.54
Payments Received	-410.54
Balance Forward	0.00
New Charges/Adjustments	463.25
Total Balance Due	**463.25**

	Amount Due	Account Balance
Balance Forward	0.00	-5.87
Neighborworks Loan	159.02	0.00
Residential Net Metering	312.99	312.99
Interconnected Generation Residential	-8.76	-8.76
New Charges/Adjustments	463.25	304.23
TOTAL	**463.25**	**298.36**

GMP eHome Unplugged



Completed eHomes



"I just want to say how warm and comfortable we are all the time now in our home. I think the insulation made a huge difference and the heat pump is a dream. It's because we were led through the process by the energy team that this all happened. We're very grateful." **– Tish Lynch**

What a Successful eHome Project Looks Like!

Energy Home of the Future

QUESTIONS

Property Assessed Clean Energy (PACE) Financing

Administered by Burlington Electric Department and Efficiency Vermont

- The goal of PACE is to make energy improvements more affordable and to promote their installation
- PACE is available in municipalities that have voted in favor of and adopted the PACE program
- Currently 30 Vermont municipalities including Burlington offer PACE

PACE Provides

- Transferability of the PACE lien to the next homeowner – aligning payments with energy savings
- Up to 20 years to pay back, keeping monthly payments low
- Up to $30,000 for energy efficiency and renewable energy improvements (minimum $3,500).

PACE Provides

- Simple underwriting with no credit score requirements
- free analysis to determine the cost effectiveness of each project
- Low interest rates for income-qualified Vermonters

Other PACE Benefits

- Up to 50% of funds available for down payments (in EVT administered PACE towns)
- Minimal closing costs with no down payment required
- Great for self-employed and retirees– no W-2's or credit scores required
- Can be used for electric efficiency, thermal efficiency and renewable energy

PACE Borrower Eligibility

- The borrower must be a resident of a town that has formally adopted the PACE program – see list of participating towns at www.efficiencyvermont.com/PACE
- Mortgage and tax payments must be up-to-date with no delinquencies in the past 3 years, and the property must be free from involuntary liens and in good standing. The property owner is not in bankruptcy
- If you have town-operated water and sewer systems, these utility bill(s) must be in good standing
- The debt-to-income ratio of outstanding mortgage(s) and PACE assessment must stay equal to or below 41%*
- The loan-to-value ratio of outstanding mortgage(s) and PACE assessment must be equal to or less than 90%*

** Free on-line tools to help with these calculations.*

PACE Property Eligibility

- Residential structure or mobile home which contains 1 to 4 family housing units, or individual units of condominiums or cooperatives
- Property taxes are being paid on the dwelling by the owner of the dwelling
- The property cannot be an asset in any pending bankruptcy proceeding

Eligible Improvement Examples

- Thermal Efficiency
  - Blower-door assisted Air sealing, building envelope insulation, doors, windows, health and safety, etc.
- Efficient Equipment
  - Efficient heating/cooling, hot water, whole-home ventilation, etc.

Eligible Improvement Examples

- Renewable Energy
  - Solar electric (photovoltaic) system
  - Solar hot water system
  - Small scale wind system
  - Micro hydro electric system
- Electric vehicle charging stations

PACE Process

- STEP 1: Determine eligibility
- STEP 2: Find certified contractor
- STEP 3: Project review
- STEP 4: Submit PACE loan application
- STEP 5: Complete Work

QUESTIONS AND DISCUSSION