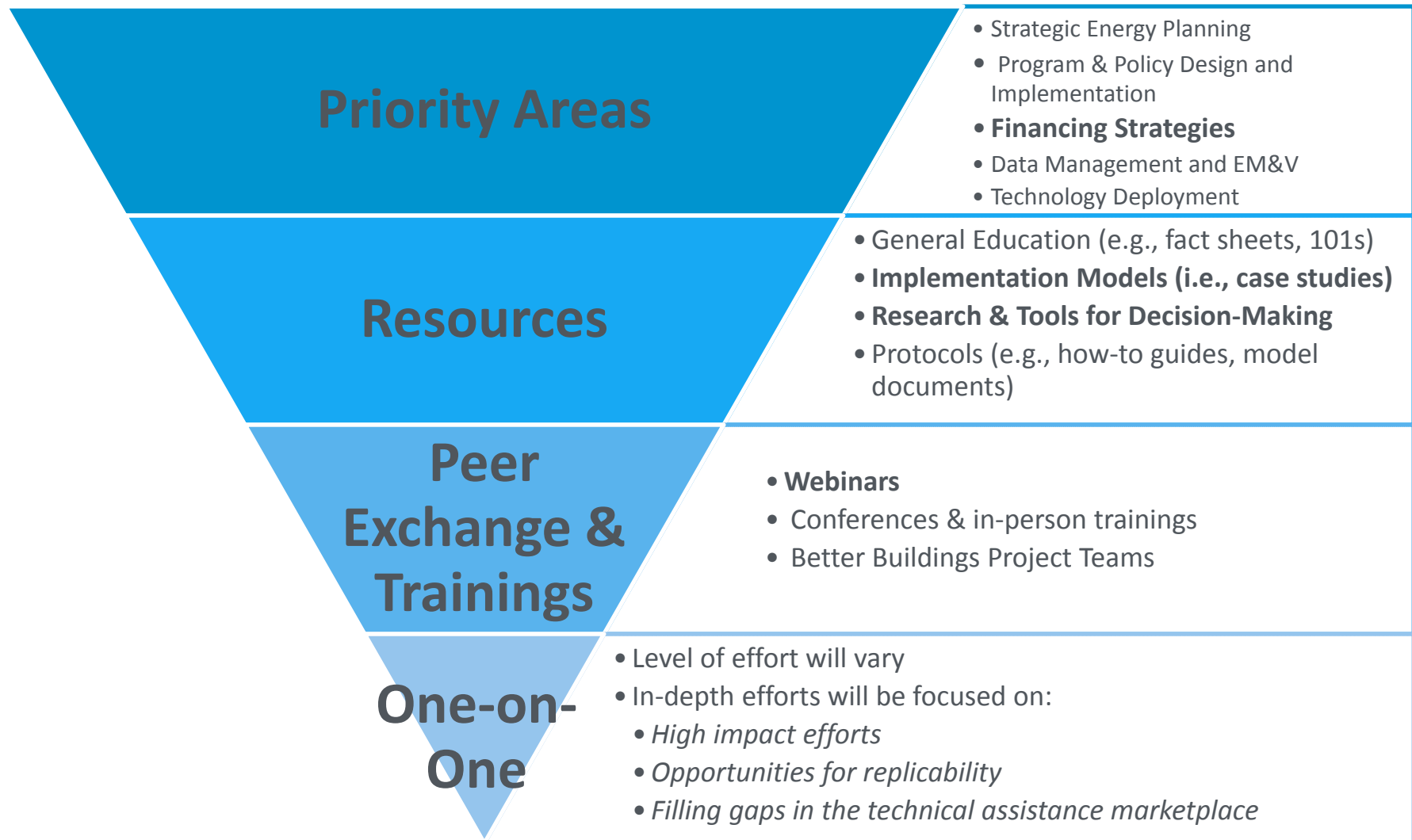


Financing Energy Improvements on Utility Bills: Case Studies from the Field

June 11th, 2014

Eleni Pelican
Finance Lead, DOE's State
and Local Technical
Assistance Team

DOE's State & Local Technical Assistance



Accessing State & Local Finance Offerings

- Resources – including the SEE Action on-bill report – can be accessed at the Solution Center Finance Portal (updates coming in June!)
www.eere.energy.gov/wip/solutioncenter/financing.html
- Training and peer exchange opportunities – including our webinar archive – can be accessed on our Events page
www.eere.energy.gov/wip/solutioncenter/wip_events.html
- Targeted one-on-one assistance for states & locals – including for design of on-bill programs – by application
 - Applications reviewed and evaluated to determine *level of effort* we will be able to provide based on: 1) near-term and long-term impacts, 2) replicability for other jurisdictions
 - Applications can be submitted online (www.eere.energy.gov/wip/solutioncenter/technical_assistance.html) or by emailing us at TechnicalAssistanceProgram@ee.doe.gov

State Energy Efficiency Action Network (SEE Action Network)

- Network of 200+ leaders and professionals, led by state and local policymakers, bringing energy efficiency to scale
- Support on energy efficiency policy and program decision making for:
 - Utility regulators, utilities and consumer advocates
 - Legislators, governors, mayors, county officials
 - Air and energy office directors, and others
- Facilitated by DOE and EPA; successor to the National Action Plan for Energy Efficiency



The SEE Action Network is active in the largest areas of challenge and opportunity to advance energy efficiency



Priority Solutions and Actions to Achieve Goals

Long-term Goal

Increase EE financing program confidence, capital and convenience by providing state and local government decision makers and financial institutions the tools and information needed to create, implement and sustain successful financing programs.

Five Pillars

Facilitate EE Financing Performance Data Collection & Access

Identify Specific Financing Gaps & Program Targeting Opportunities

Support Testing the Efficacy of Novel Financing Tools & Capital Sources

Identify Opportunities to Test Financing's Ability to Deliver Program Leverage

Identify Opportunities to Facilitate Resolution of Regulatory Issues

Priority Solution Areas

- 1. Data taxonomy & collection protocols:** develop a list of data fields for EE financing program administrators to collect, and protocols for data collection and protection.
- 2. Data library:** explore the development of a national, public library of EE loan performance data.

- 3. Improve alignment of program strategies with customer needs:** develop suite of "how to" briefs – overviews of EE financing program strategies and benefits, design considerations, and how to get started.

- 4. Explore whether new financing tools and capital sources are needed:** develop resources on the effectiveness of emerging finance tools and models in meeting the unique barriers of EE financing.

- 5. Share lessons learned through experimental design:** facilitate testing of the opportunities and limits of EE financing through experimental program design, and share lessons learned.

- 6. Clarify the regulatory treatment of ratepayer-funded EE financing initiatives:** identify how state PUCs are treating financing initiatives under the regulatory framework, share lessons learned and best practices.



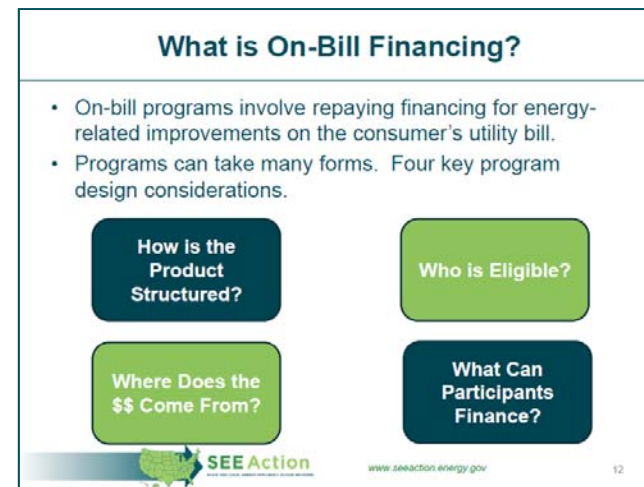
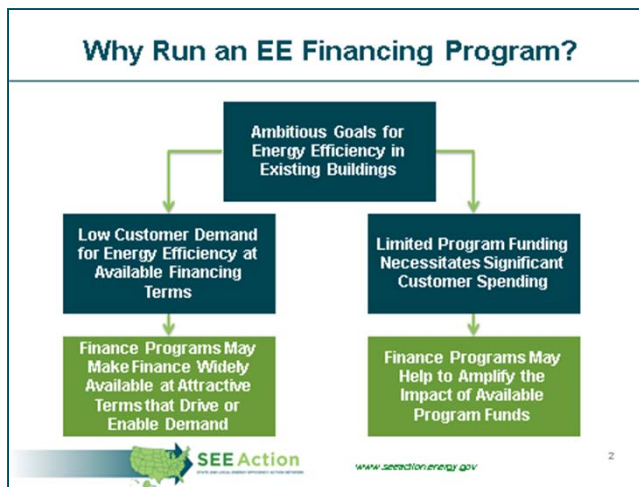
In Case You Missed them...

2014 Financing Solutions for Energy Efficiency Webcasts:

From Policy to Practice

Credit Enhancements

Financing Energy Improvements on Utility Bills



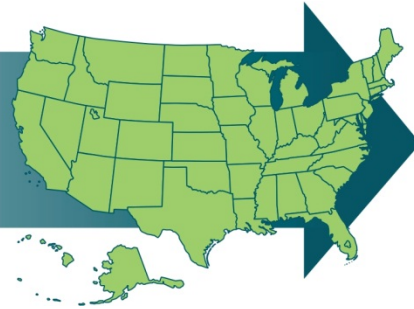
Access the Webcasts via Vimeo or iTunes here:

<http://cbey.yale.edu/academics/blueprint-for-efficiency>



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**Financing Energy Improvements on Utility Bills:
Market Updates and Key Program Design Considerations for
Policymakers and Administrators**

Mark Zimring

**Greg Leventis, Merrian Borgeson, Charles Goldman,
Peter Thompson and Ian Hoffman**

Lawrence Berkeley National Laboratory

June 11, 2014

Today's Agenda

- Background
- 4 Key On-Bill Program Considerations
 - How is the Product Structured?
 - Where Does the \$\$ Come From?
 - Who is Eligible?
 - What Can Participants Finance?
- 3 Case Studies
 - Manitoba Hydro [Becky Radtke]
 - New York [Jeff Pitkin]
 - California [Yuri Yakubov]
- Discussion



What is On-Bill Financing?

- On-bill programs involve repaying financing for energy-related improvements on the consumer's utility bill.
- Programs can take many forms. Four key program design considerations.

How is the Product Structured?

Who is Eligible?

Where Does the \$\$ Come From?

What Can Participants Finance?



On-Bill Program Landscape

Sector	# Participants	Lifetime Volume (\$)	n	Average Loan Size (\$)	Median value and range of default rates	n
Res	182,324	\$1.055B	20	\$5,787	0.08% (0 to 3%)	15
Non-Res	50,339	\$775M	7	\$15,400	0.9% (0.6 to 2.9%)	7
Total	232,663	\$1.83B	27	\$7,867		22

^[1] Three programs discussed in this report (California’s emerging on-bill pilots, Hawaii’s emerging on-bill pilot and Oregon’s just-launched MPower pilot) are not included in the summary statistics because data was not available as of December 2013.

^[2] Default rates are not included either because programs have yet to launch (2), or have less than one year of data (5), or failed to provide data (1).



How is the Product Structured?

How is the Product Structured?

- Line Item Billing No threat of disconnection, not attached to the utility meter
- Loan with Disconnection Disconnection permitted, not attached to the utility meter
- On-Bill Tariff Disconnection permitted, attached to the utility meter.



How is the Product Structured?

Key Findings

- The threat of utilities disconnection has uncertain benefit in reducing consumer default rates—all products had low default rates
- Despite increasing attention, substantial uncertainty remains about the effectiveness of on-bill tariffs
- The threat of disconnection may be an important feature for accessing secondary markets as rating agencies and investors may otherwise be reluctant to rely on historic utility bill payment trends



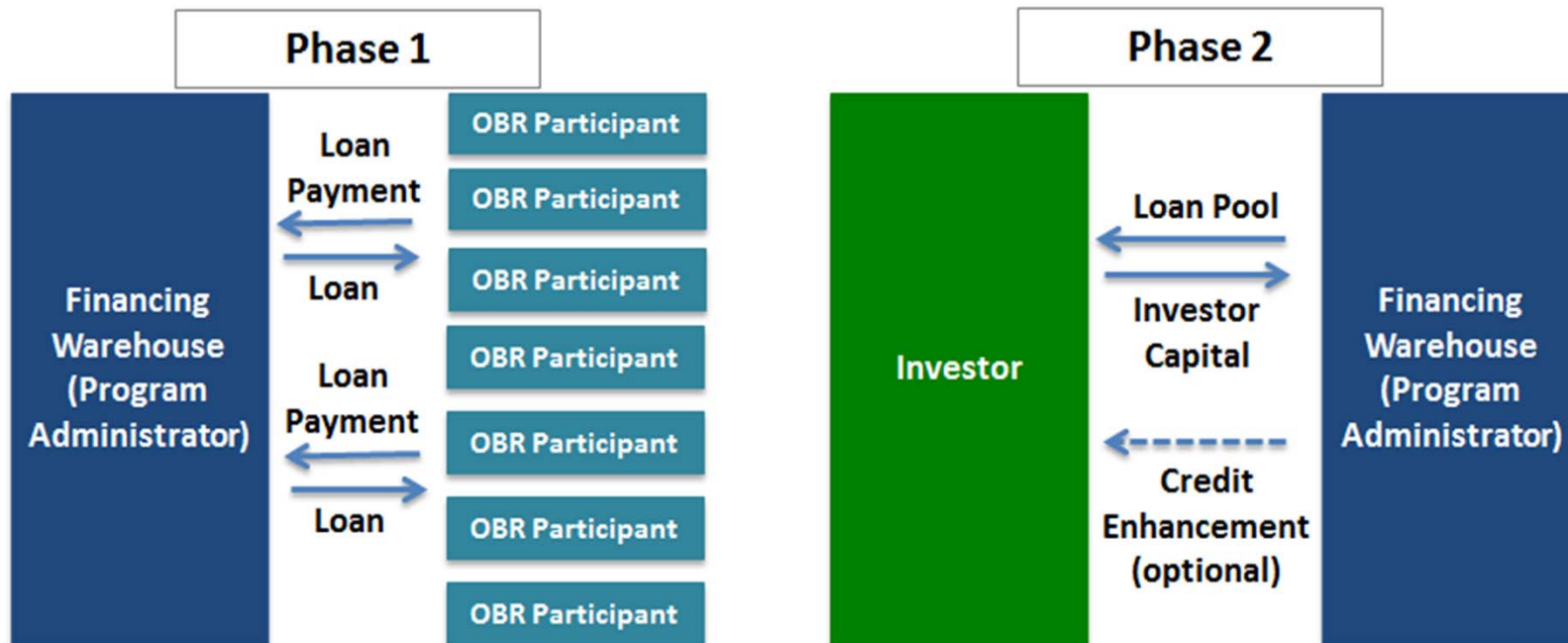
Where Does the \$\$ Come From?

Where Does the
\$\$ Come From?

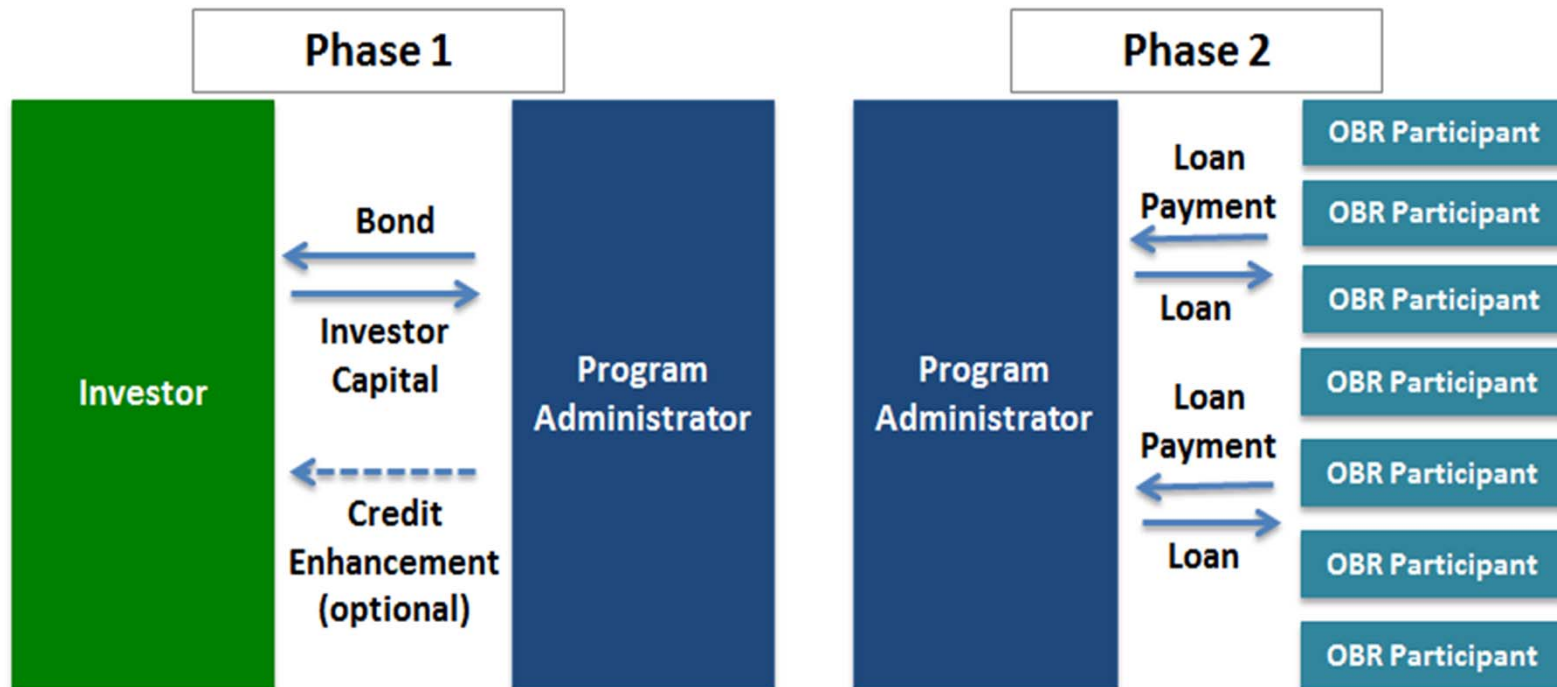
- **On-Bill Financing (OBF).** Public, Utility or Ratepayer Capital
- **On-Bill Repayment (OBR).** Non-Utility Investor Capital
- Several OBR Variations
 1. Warehousing Model
 2. Up-Front Capital Raise Model
 3. Open-Market Model



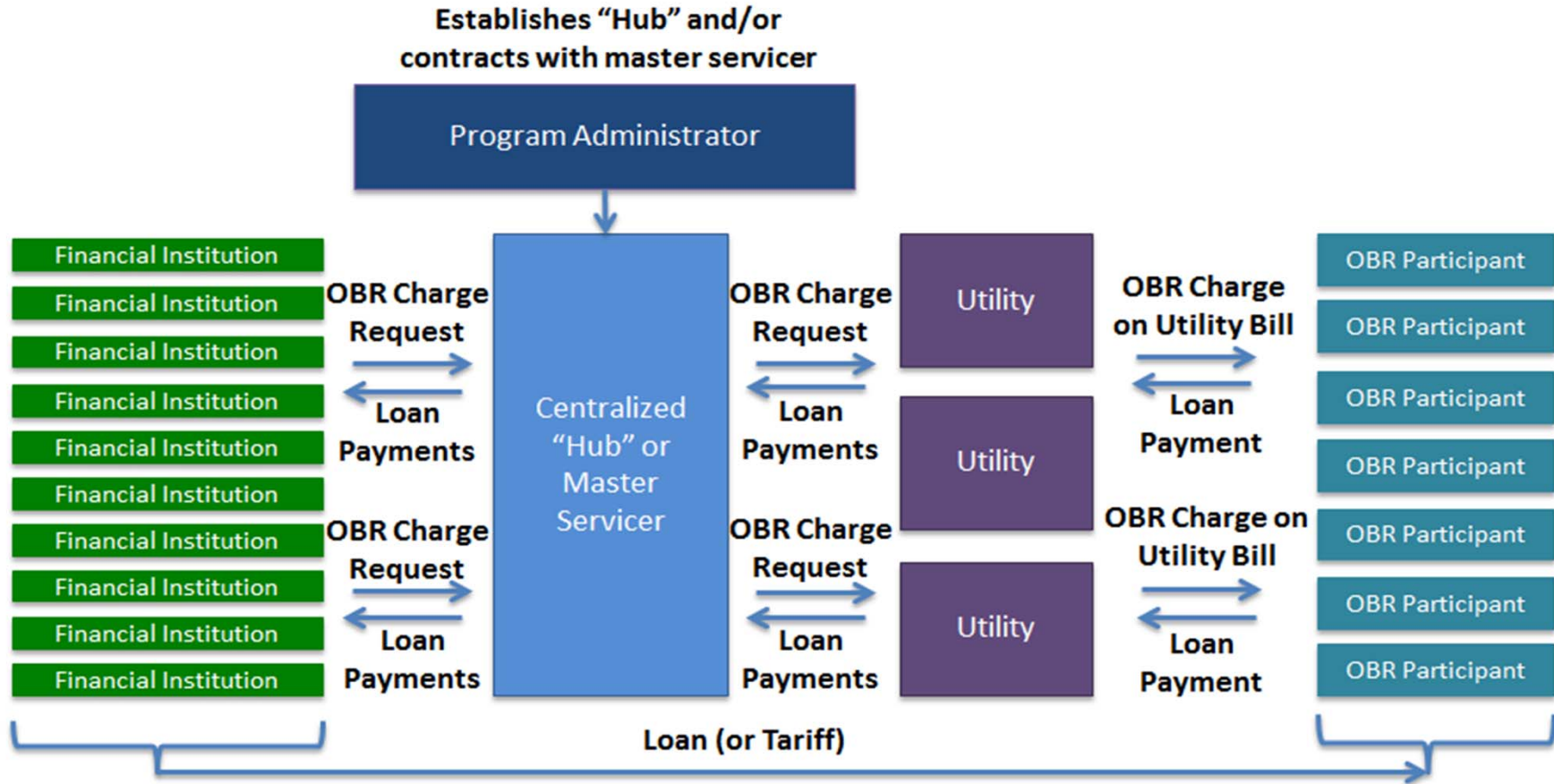
Warehouse Model



Up-Front Capital Raise Model



Open-Market Model



Where Does the \$\$ Come From?

Underlying Security	Source of Capital	Number of Programs	Percent of 2012 On-Bill Volume (by number of Loans)
Line Item Billing	OBF	6	19%
	OBR	4	8%
On-Bill Loan with Disconnection	OBF	10	45%
	OBR	3	25%
On-Bill Tariff	OBF	5	3%
	OBR	2	0%



Where Does The \$\$ Come From?

Key Findings

- OBF
 - Maximizes program design flexibility
 - Relying on utility shareholder funds may be an effective pathway for achieving scale [but can be expensive]
- OBR
 - Multiple pathways to tapping private capital
 - Each model has different types of risks
 - Credit enhancements may be a powerful tool for both tapping private capital and maintaining program design flexibility



Who is Eligible?

Who is Eligible?

- **Traditional Underwriting Standards**
 - Example: Min 640 FICO, Max 50% DTI
- **Expanded Underwriting Standards**
 - Example: Min 600 FICO, Max 70% DTI
- **Alternative Underwriting Standards**
 - Example: Strong Utility Bill Repayment History
- **Hybrid Underwriting Standards**
 - Example: Min 600 FICO, Strong Utility Bill Repayment History



Who is Eligible?

Residential On-Bill Programs		
Underwriting Criteria (n=21)	Median and Range of Application Decline Rates (n=15)	Range of Participant Default Rates (n=15)
Traditional Underwriting (n=1)	49%	0%
Expanded Underwriting (n=3)	25% (n=1)	3% (n=1)
Hybrid Underwriting (n=8)	4%-33% (median 10%)	0%-0.9% (n=7)
Alternative Underwriting (n=9)	2%-25% (median 6%) (n=5)	0%-0.9% (n=6)



Who is Eligible?

Key Findings

- Choice of underwriting criteria appears to influence application approval rates
- No clear association between underwriting and participant default rates
- Choice of underwriting criteria may influence ability to attract private capital providers



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What Can Participants Finance?

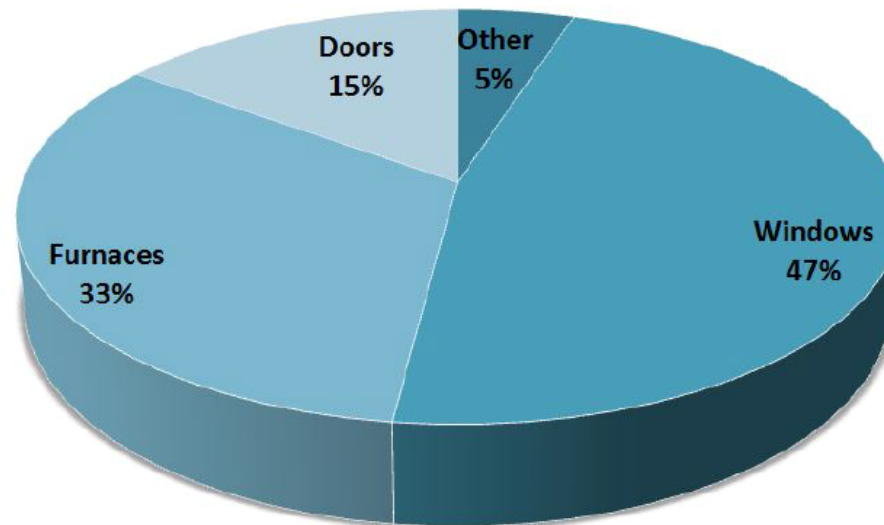
What Can Participants Finance?

- Types of Measures (e.g., EE/RE)
- Single Measure v Comprehensive Upgrades
- Utility Bill Impacts (e.g., bill neutrality)



What Can Participants Finance?

Measures Financed in Manitoba Hydro's Power Smart Residential Loan Program



Note: "Other" includes multi-measure improvements. All other improvements involve only a single measure



What Can Participants Finance?

Program Trends & Key Findings

Bill Neutrality: Requirement that over the loan term [or expected life of improvements, depending on the program], expected energy savings from improvements cover the loan repayment cost

- Bill-neutral and non-bill-neutral programs have **both exhibited strong loan performance trends.**
- Bill neutrality features may raise practical challenges that constrain consumer program participation or deep energy savings
- Expected bill neutrality requirement may be an effective tool for rationing limited program funding



Case Studies

- Becky Radtke (Manitoba Hydro)
- Jeff Pitkin (NYSERDA)
- Yuri Yakubov (PG&E)



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Manitoba Hydro Financing Programs

Manitoba Hydro Financing Overview

- Power Smart Residential Loan
 - Launched March 2001
 - Residential homeowners
 - Loan maximum \$7 500
- Eligibility – energy efficient measures
- Source of Capital – internally generated funds
- Underwriting – Hybrid
- Default rate - 0.48%
- Over 76,000 Customers Served
- Over \$319 million financed

Manitoba Hydro Financing Overview

- Power Smart PAYS Financing
 - Launched November 2012
 - Residential homeowners
 - Bill neutral
- Eligibility – energy efficient measures
- Source of Capital – internally generated funds
- Underwriting – Alternative
- Default rate – too early to measure
- 337 Customers Served
- \$2.15 million financed

Key Factors for Success of PSRL

- Relatively low interest rate
- Quick turnaround time for approvals (within 48 hours)
- Convenience of on-bill financing
- Power Smart brand equity (highly trusted)
- Supplier Buy-in

NY On-Bill Recovery Program

SEE Action/LBNL/DOE webinar – Financing Energy Improvements on Utility Bills

6/12/2014

Jeff Pitkin, Treasurer

New York State Energy Research and Development Authority

On-Bill Recovery Financing Program

- Green Jobs-Green New York Act 2009; unsecured loan launched Dec 2010
- OBR Legislation enacted Aug 2011; program launched Jan 2012
- Statewide program – 7 utilities
- Energy efficiency improvements and net-metered renewable energy systems (eff. Jan 2014) for owned residential 1-4 family, small businesses (≤ 100 employees) and not-for-profits
- Transferability
 - Unless satisfied prior to sale (allows purchaser to require seller to payoff)
 - Program Declaration filed in clerk's office – not a lien; ensures notice to prospective purchaser
- Installment charge is tariff charge
 - Consumer safeguards - termination of service; deferred payment arrangements
 - Installment charge subordinated to utility collection of service charges
 - Establishes process for off-bill billing if customer account is terminated without transfer
- Bill neutrality
 - Installment charges can't exceed $1/12^{\text{th}}$ of estimated energy cost savings from all energy sources (allows oil/propane), including anticipated price escalations over loan term
- Fees paid to utilities to offset billing system changes & administration

Residential Loan Terms & Underwriting

Terms: 5, 10, 15 yrs, up to \$26,000, 3.49%

Loan Underwriting:

➤ Tier1 loans

- Traditional FNMA standards
- FICO 640+, DTI < 50%, No bankruptcies 7 yrs, No judgments/collections > \$2,500
- Aggregated and financed through capital markets

➤ Tier2 loans

- Current on mortgage for last 12 months; current on utility bill for at least 2 consecutive months in each of last 2 years; Max 70% DTI (100% if customer is eligible for Assisted 50%/\$5,000 subsidy); No bankruptcies 5 yrs; No judgments/collections > \$2,500
- Held in revolving loan fund until performance allows securitization

Third Party loan origination and servicing:

- Loan Originator: Energy Finance Solutions
- Master Loan Servicer: Concord Servicing Corporation

Financing OBR in Capital Markets

Fall 2012:

- Approached markets with traditional ABS structure/ratings process
- Insufficient payment performance data
- Minimum investment grade “achievable”

\$24.3 million Residential Energy Efficiency Financing Revenue Bonds

- Closed August 2013
- Secured by 3,263 Tier 1 residential EE loans (\$29.2M)
 - Includes 879 OBR loans (\$9.2 million)
- Guarantee from NYS Environmental Facilities Corp State Revolving Fund
 - Demonstrated nexus clean energy – clean water programs ; US EPA concurrence
 - Resulted in AAA rating based on EFC SRF rating
- Also used State Qualified Energy Conservation Bond interest subsidy
- Taxable interest rate 3.2%; net rate after QECCB < .5%
- Replicable national model
- Recognized as *The Bond Buyer* Small Issuer Deal of the Year

Residential Loan Portfolio Status 9/30/2013

	<u>Unsecured Loan</u>		<u>On-Bill Recovery Loan</u>		<u>Total</u>
	<u>Tier 1</u>	<u>Tier 2</u>	<u>Tier 1</u>	<u>Tier 2</u>	
<u>Loans Issued/Outstanding</u>					
Number of loans issued	3,226	352	1,344	146	4,570
Amount of loans issued	\$29,839,130	\$3,310,412	\$14,497,713	\$1,458,024	\$49,105,279
Average Loan	\$9,251	\$9,394	\$10,792	\$9,934	\$9,689
Avg Original Term (months)	149.1	162.4	174.6	172.1	157.4
Number of loans outstanding	3,036	334	1,294	143	4,807
Current Balance of Loans	\$24,893,155	\$2,848,701	\$13,500,672	\$1,392,602	\$42,635,130
Avg Term Remaining (months)	131.2	145.7	165.5	164.9	142.4
<u>Delinquency Analysis</u>					
Current	96.5%	97.2%	90.9%	90.4%	95.7%
Past Due	3.5%	2.8%	9.1%	9.6%	4.3%
<u>Chargeoff Analysis (> 120 days past due)</u>					
Amount	\$179,368	\$76,660	\$96,026	\$0	\$352,054
% of loan \$ issued	.6%	2.3%	.7%	0%	.7%
Annualized	.4%	1.7%	.9%	0%	.6%
Accts on deferred payment plan			\$62,766	\$3,353	
% of loan \$ issued			.6%	.2%	

Questions

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PG&E

On-Bill Webinar



6/11/14



Background of On-Bill Program

Background

- California IOU programs originally authorized by CPUC and kicked off by SDG&E in mid-2000s
- PG&E's On-Bill Financing Program launched in late-2010

Structure

- Program is funded from Public Goods Charge
- Qualifying customers
 - All PG&E customers with non-residential meters
 - Pass Payment History Screening
- Loan repayments is set to be “bill neutral”
- Project financing loans to customer
 - Business: \$5k - \$100k with up to 5 year term
 - Government: \$5k - \$250k with up to 10 year term



PG&E OBF Status Report as of 5/31/14

Key Stats

- \$29.5M loaned on 704 loans as of 5/31/14
 - 2013: \$14.3M on 300 loans
 - 2014: \$5.8M on 212 loans
- 230 (\$16.0M) loans reserved
- 30% of loaned amounts have been repaid with no defaults
- Average Loan \$42k (SMB \$24k, Gov't Agency \$111k)

Cust. Type	Loaned				
	#	%	\$	%	Avg. \$
SMB	456	65%	\$10,891,102	37%	\$23,884
Gov't Agency	123	17%	\$13,601,764	46%	\$110,583
LCIA	125	18%	\$5,003,708	17%	\$40,030
Total	704	100%	\$29,496,574	100%	\$41,899

As of December 31, 2013, California statewide IOUs had lent \$84.2 million on over 2,500 loans



OBF Best Practices and Lessons Learned

Best Practices

- Integration with existing Rebate/Incentive programs and utilization of existing channel partners
- Ensuring that an account rep is involved in each project
- Clear concise information and trainings for contractors, customers, account reps

Lessons Learned

- Early missteps can have long lasting negative impact
- Contractors are integral part of utilizing EE financing



Future of PG&E On-Bill Programs

OBF is growing in volume and is expected to continue into the foreseeable future, potentially with changes

- Revolving Loan Fund with repaid funds lent out for new projects
- Certain restriction placed on program by CPUC in late-2013

New Financing pilots are currently in process of being implemented by California IOUs

- 7 pilots allowing 3rd party financing firms to offer financing to CA IOU customers
- 5 pilots will have an On-Bill Repayment feature
- 4 pilots are targeted at business customers
- 3 pilots are targeted at residential customers

Roll out of pilots expected to begin in late-2014 for off-bill pilots and continue into mid-2015 for on-bill pilots

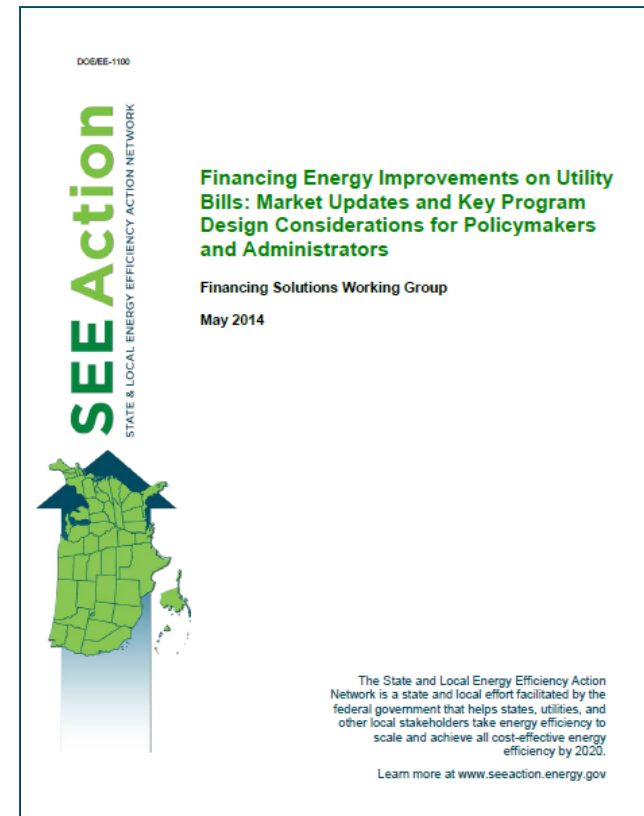
Download the Report

Download the Report Here:

www.seeaction.energy.gov/financing_improvements

Separate Downloads Available For:

- 16 Page Executive Summary
- 13 Detailed Case Studies, including on the UK's Green Deal



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