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

The Parker Ranch installation in Hawaii

Financing Middle Income Energy Improvements

Lawrence Berkeley National Laboratory

March 6, 2012

Please join us again:

Title: **In-Person Middle Income EE Forum for Practitioners and Policy Makers**
Date: March 26, 2012
Time: 8:00am - 1:00pm at the Hilton Baltimore, MD

Title: **Policies to Drive Greater Energy Efficiency Market Penetration in Middle Income Households**
Date: April 4, 2012
Time: 3:00-4:30 EST

For additional resources, list serve sign-up and registration links, please visit LBNL's Middle Income Energy Efficiency page at :

http://middleincome.lbl.gov

Today's Presenters

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

Keith Canfield
Communications and Energy Manager, Clinton Climate Initiative
Home Energy Assistance Loan (HEAL) Program

Jeff Pitkin
Treasurer, New York State Energy Research & Development Authority (NYSERDA)
NYSERDA Green Jobs-Green New York Financing Program

Adam Zimmerman
Senior Vice President, Craft3 (formerly Enterprise Cascadia)
Clean Energy Works Oregon Financing Program

Delivering Energy Efficiency to Middle Income Single Family Households

Environmental Energy Technologies Division

Lawrence Berkeley National Laboratory

Authors:

Mark Zimring, Merrian Goggio Borgeson,

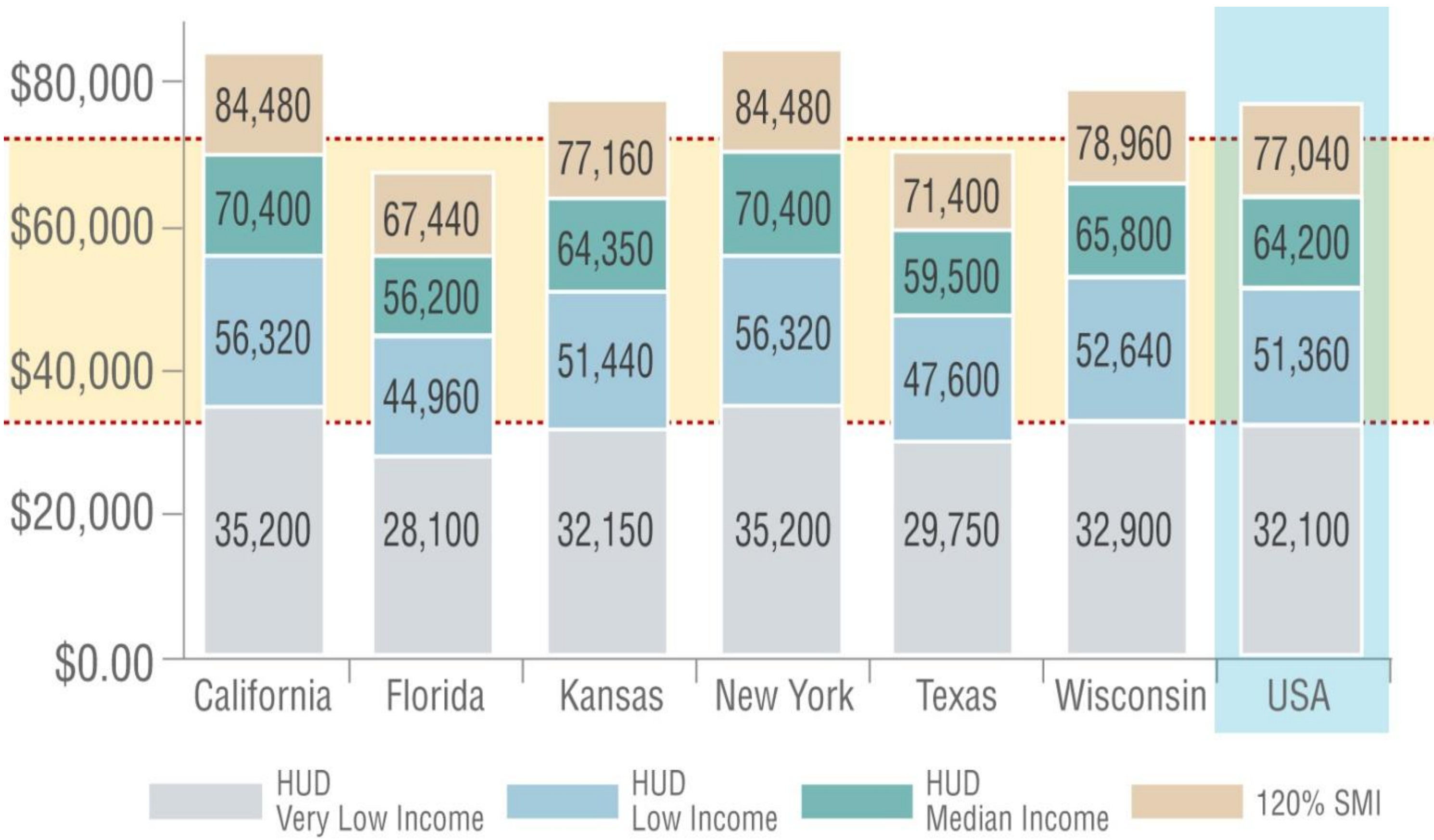
Ian Hoffman, Charles Goldman, Elizabeth Stuart,

Annika Todd, and Megan Billingsley

December 2011

Defining Middle Income (MI) Households

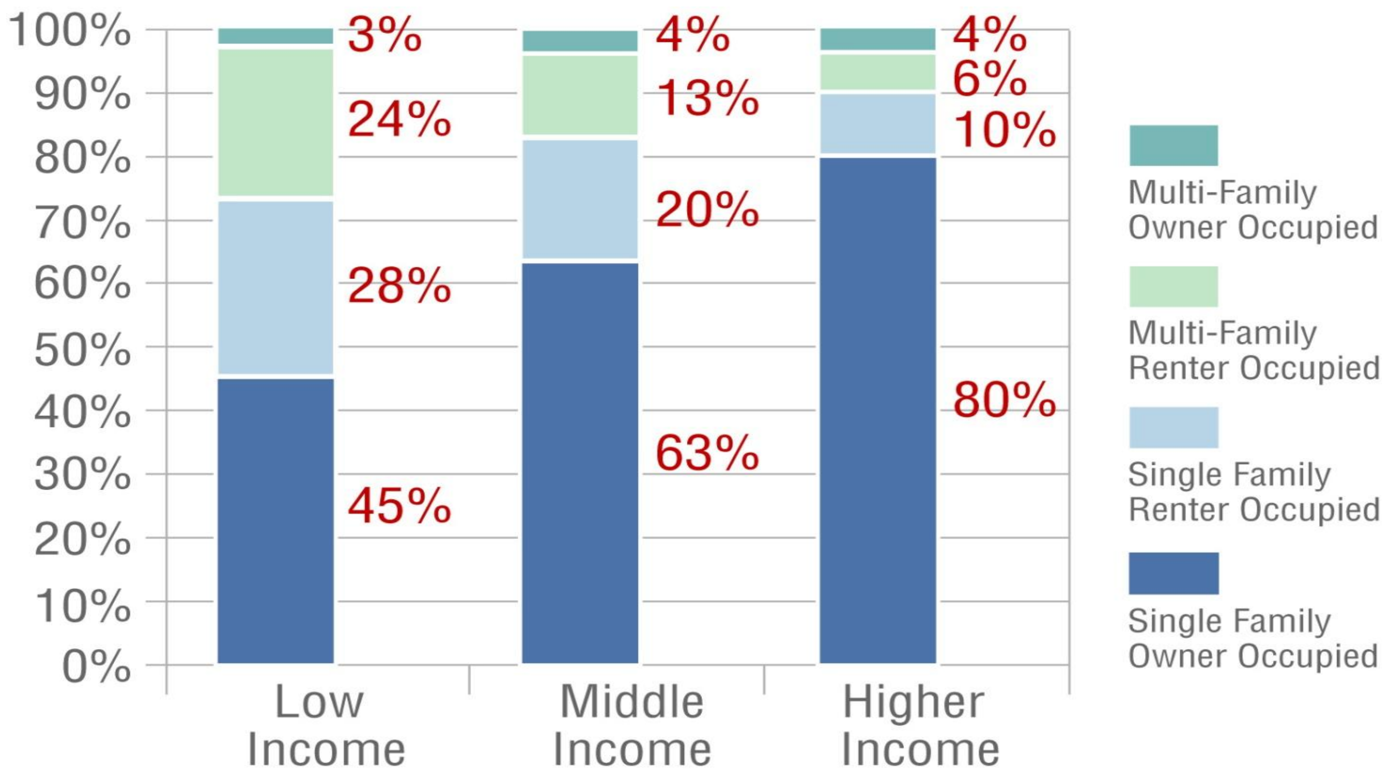
We define "middle income" as the middle third of U.S. households by income, who earn $32,500 to $72,500 annually.



Source: U.S. Census. Current Population Survey, Annual Social and Economic (ASEC) March 2011 Supplement

Targeting Middle Income Households

Most middle income (MI) households live in, and own, single family homes—single family homes are the focus of this report*

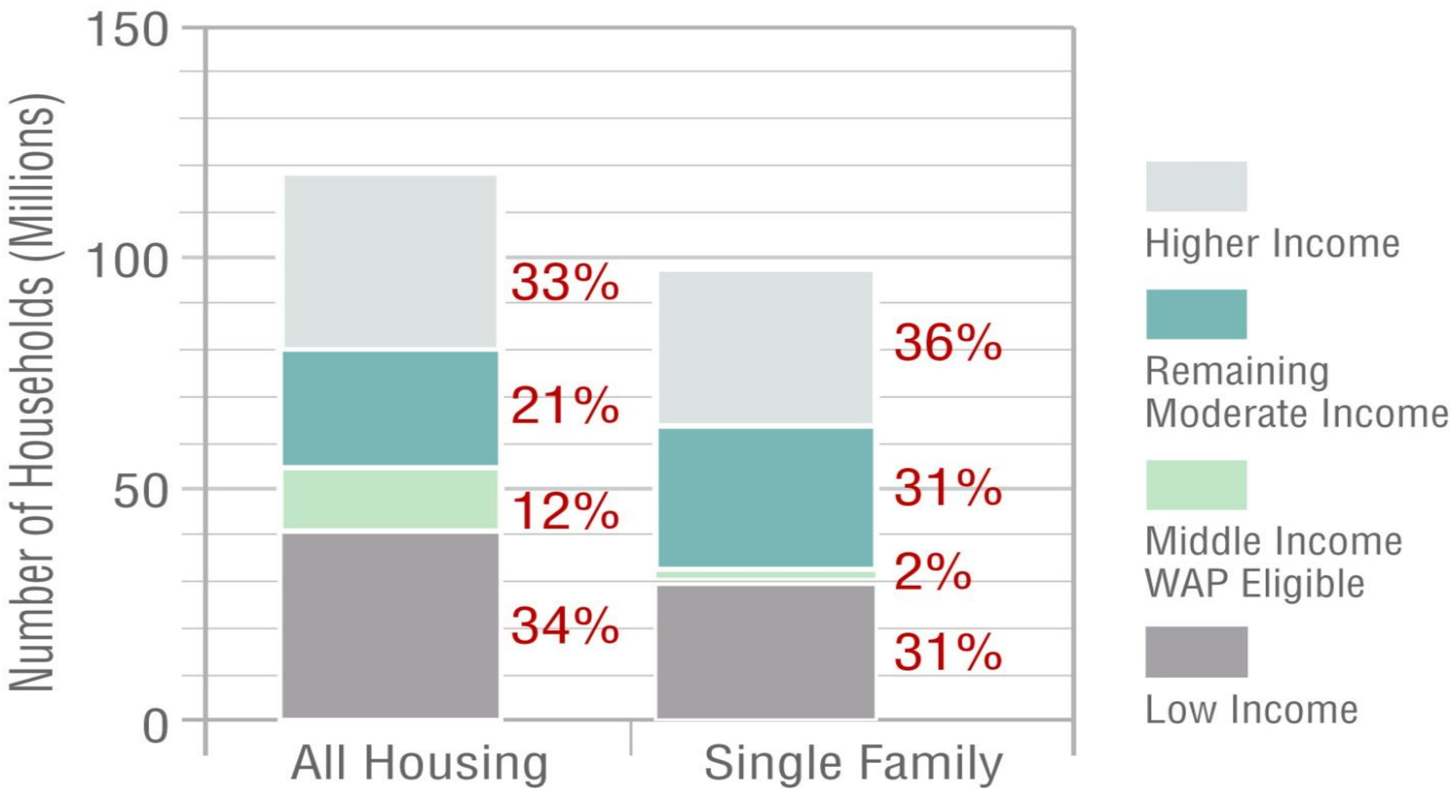


*** Single family homes include mobile homes and 1-4 unit dwellings**

Source: U.S. Census. 2010 Current Population Survey.

MI Households & Energy Assistance

Most middle income households do not qualify for energy assistance programs like the Weatherization Assistance Program (WAP)*.

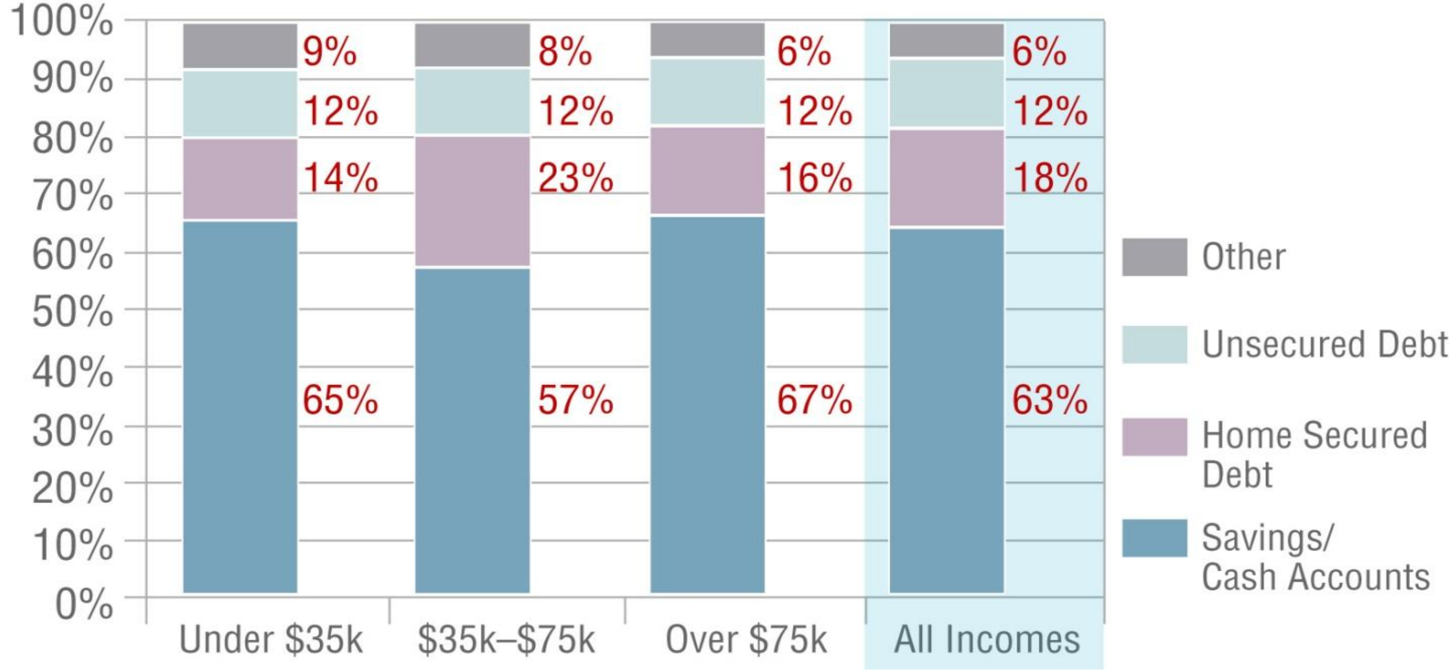


* The Department of Energy's Weatherization Assistance Program offers low income households free basic weatherization improvements.

Source: U.S. Census. 2010 Current Population Survey.

Financing to Address Upfront Costs

- **The upfront cost of home energy improvements is a significant barrier to investment - energy upgrades for just 1/3 of the 32 million MI single family households would require $30-$100 billion.**

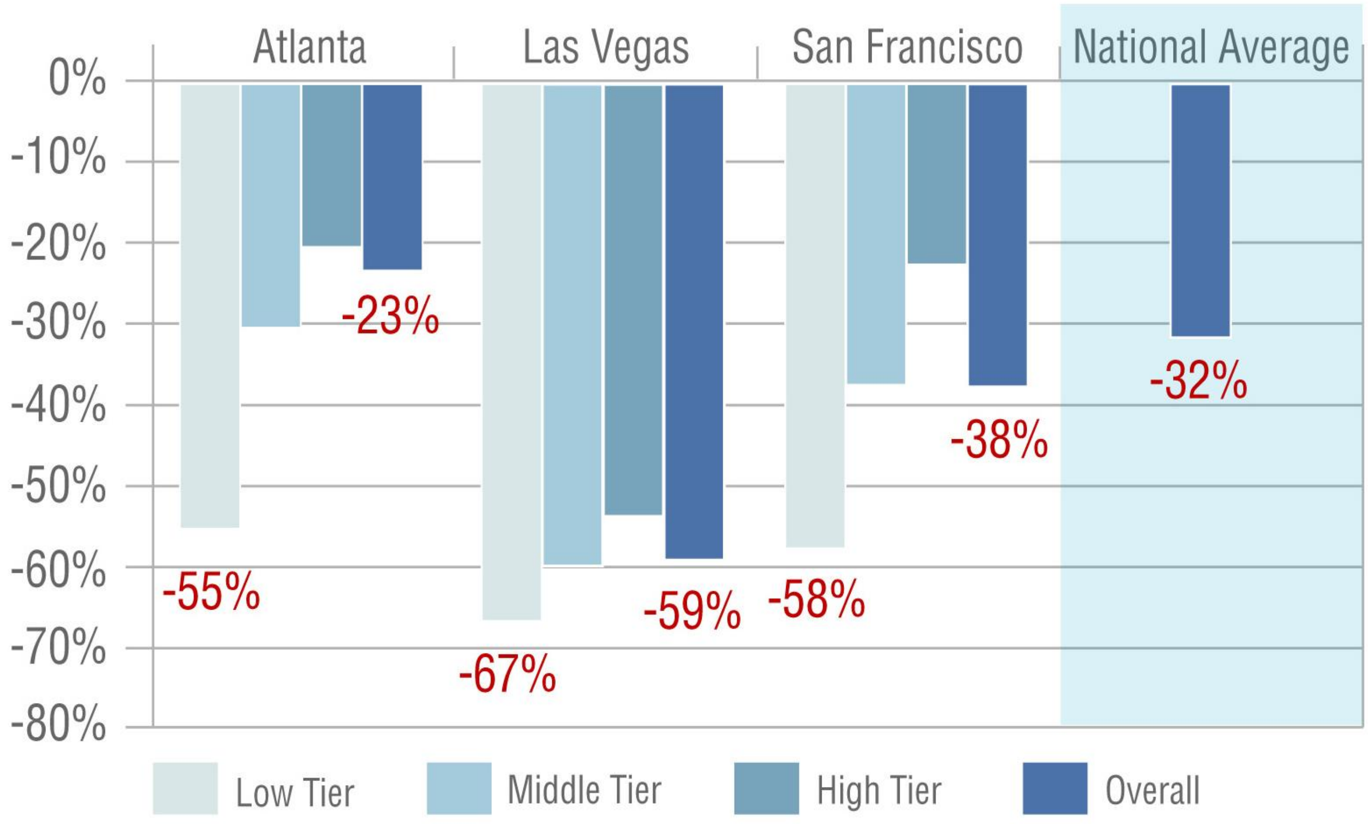


Home Improvement Financing Patterns by Income in 2001

Source: Guerrero, A. M.. 2003. *Home Improvement Finance.* Joint Center on Housing Studies, Harvard University.

Home Values Have Declined Dramatically

Single family home values—the primary vehicle for MI home improvement financing—have declined by 32% since the housing market's 2006 peak.



Source: ***Seasonally-adjusted S&P/Case-Shiller Home Price U.S. National Index Level Q2-2011***

Qualifying for Credit

At the same time that access to home-secured financing has declined, the largest energy efficiency loan programs are rejecting 20-50% of applicants.

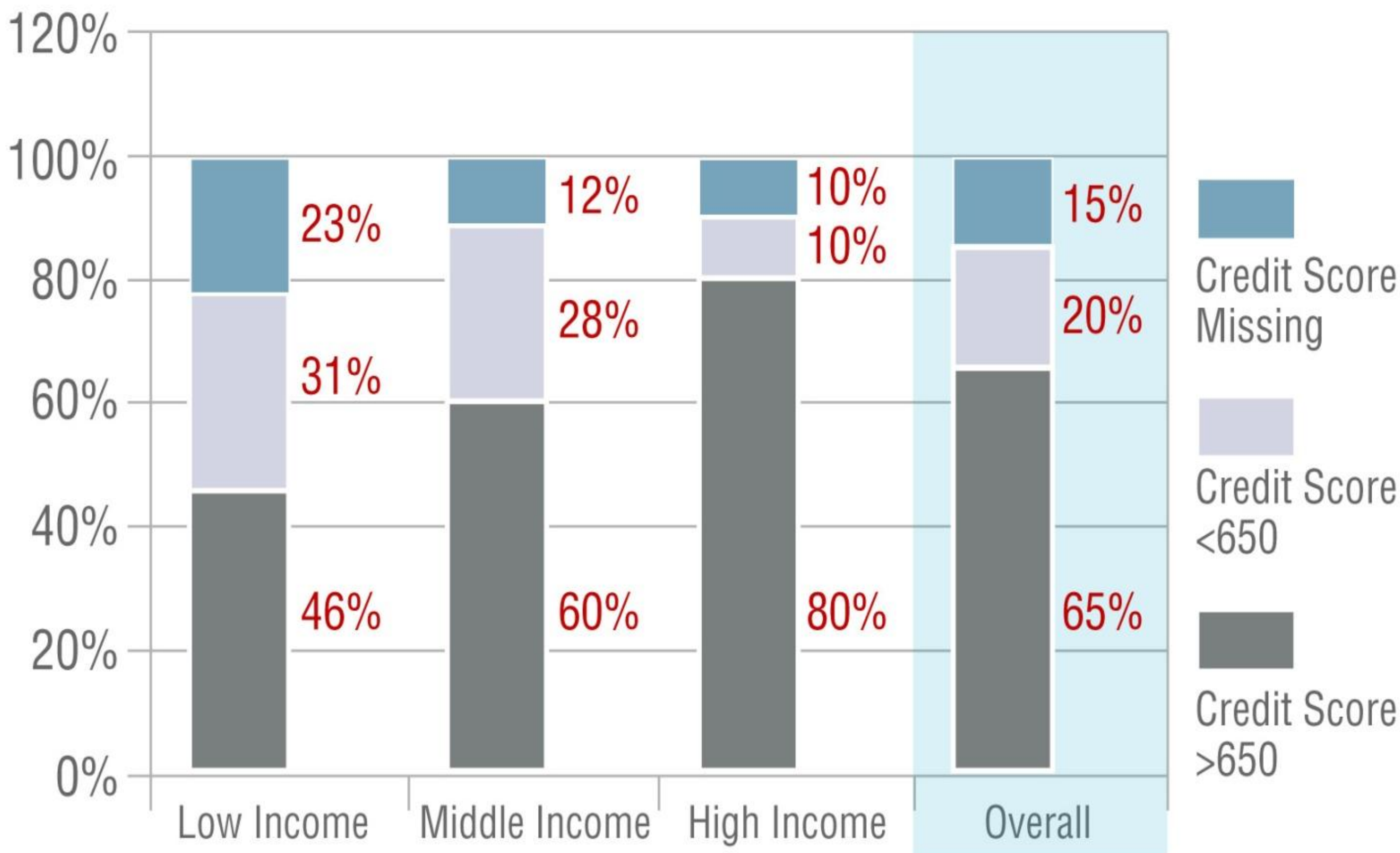
- MI households are rejected at higher rates than higher income households

Keystone HELP loan application, approval, funding and loan size rates (by income) – January 2010-August 2011

Household Income	# Applications (% of Total Applications)	Applications Approved (Approval Rate %)	Loans Funded (Approval → Loan Conversion Rate %)	Average Loan Size
<80% AMI	~4,000 (40%)	~1,720 (43%)	~1,000 (58%)	~$7,500
≥80%AMI	~6,000 (60%)	~4,140 (69%)	~3,000 (73%)	~$9,500

Qualifying for Credit

Credit scores are a key metric for lenders in evaluating creditworthiness.

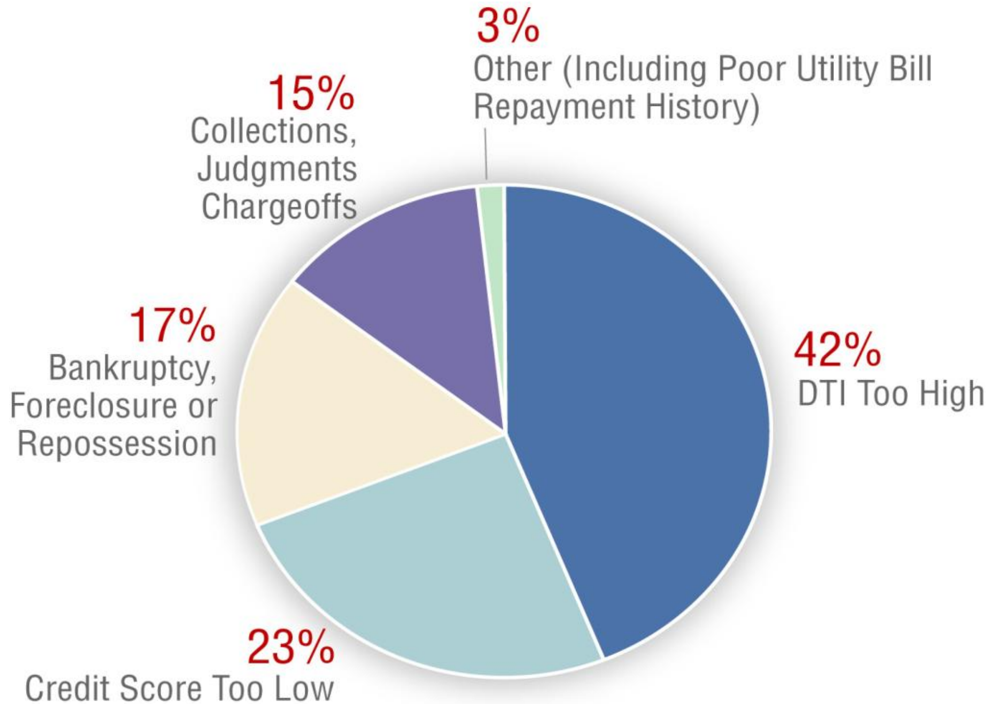


Source: Due to data limitations, for the purposes of the credit score analysis we use household income of $30,000 to $70,000 to define middle income. Credit score data from Energy Programs Consortium; based on analysis of TransUnion credit data from Intellidyn.

Qualifying for Credit

Loan underwriting may also include maximum debt-to-income (DTI) ratios—excessive DTIs are often responsible for more loan application rejections than credit scores.

Reasons for application rejection in NYSERDA's residential energy efficiency loan program November 2010-October 2011



Increasing Access to Capital

Middle income households need new ways of accessing affordable credit if they are to make home energy upgrades.

- But underwriting criteria exist for a reason—to ensure that those who get access to financing can and will repay it.

Credit Score and Corresponding Delinquency Projections

FICO Score Range	Delinquency Projection (% Likelihood)
300-499	87
500-549	71
550-599	51
600-649	31
650-699	15
700-749	5
750-799	2
800-850	1

Source: Transunion 2011

Strategies that may increase MI household access to capital include:

- Credit Enhancements
- Alternative Underwriting
- Innovative Financing Tools

Resources

Questions?

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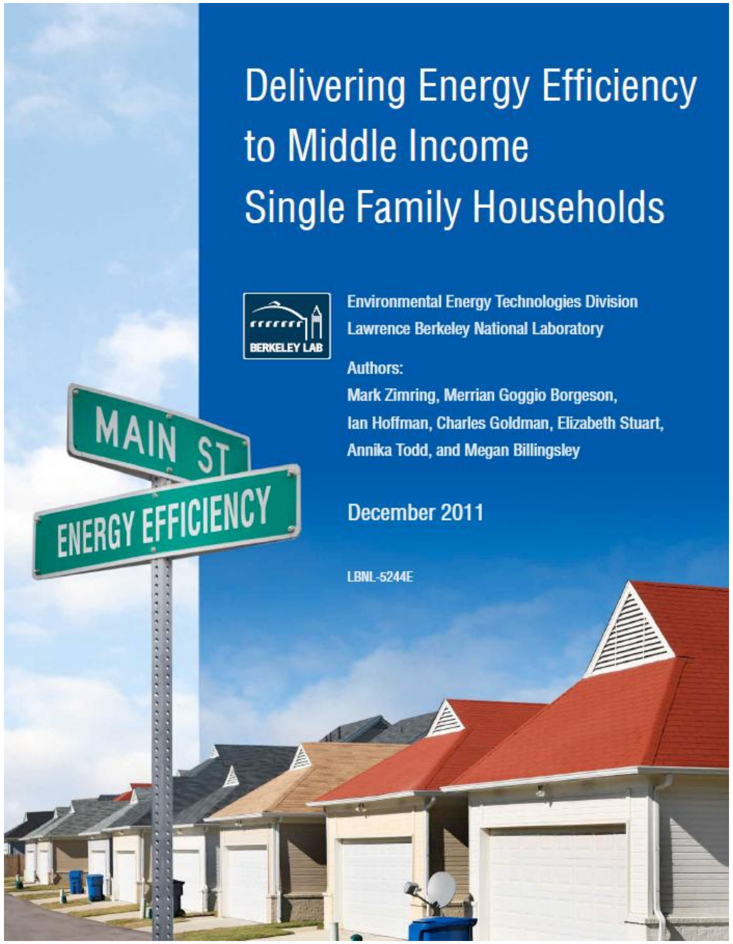
For the full report, webcasts, policy briefs and other information, please visit:

http://MiddleIncome.lbl.gov



Home Energy Affordability Loan
(HEAL)

HEAL AR
HOME ENERGY AFFORDABILITY LOAN

Heal

/hēl/: Verb

Cause (a wound, injury, or person) to become sound or healthy again.

Employer: Energy Upgrade Catalyst

- **Home Energy Affordability Loan (HEAL) provides the infrastructure that allows employers to offer Energy Upgrades in a turnkey manner**
  - HEAL works like an employee benefit provider
  - Marketing, signup, audit, consultation, Upgrade delivery facilitation/QA and finance facilitation/management
- **HEAL views Employers as:**
  - Credible platforms for presenting marketing and education opportunities to workforce en masse
  - Point source aggregators of Upgrade demand
  - Sources of Credit Agnostic financing

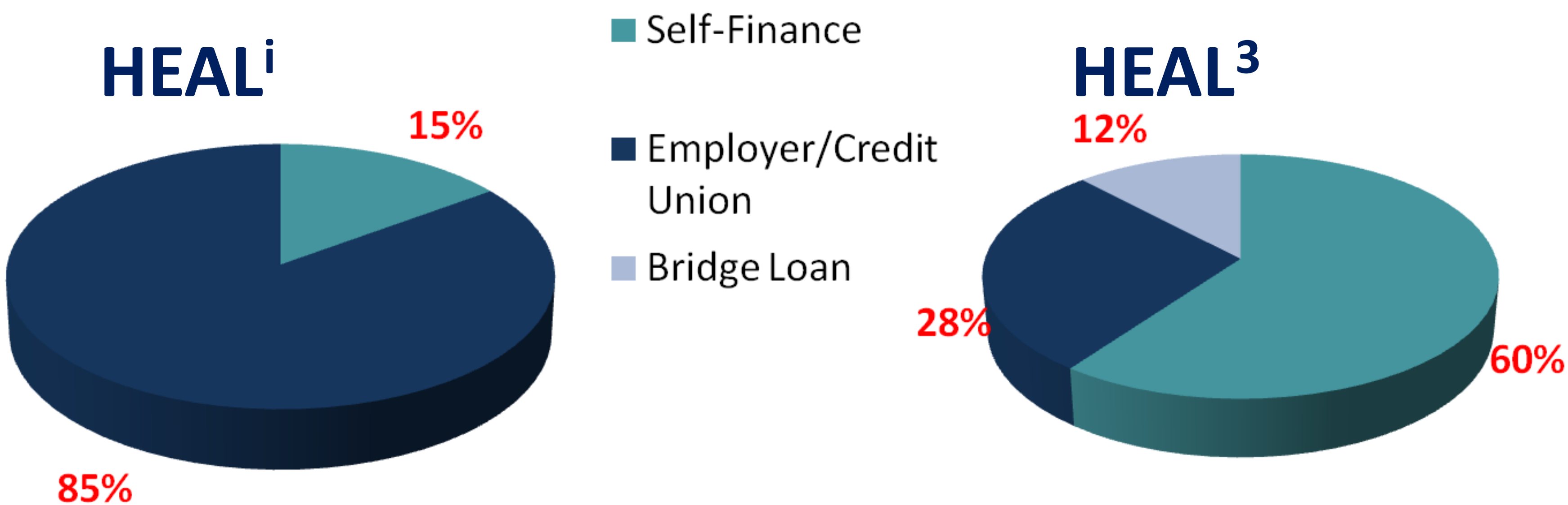
Credit Agnostic Financing

Two Models of HEAL

- **Industry Financed (HEAL^{i}): Original HEAL Model where employer provides Upgrade financing, with the loan pool often funded from facility EE retrofit savings**
    - Financing eligibility decision based on non-credit metrics (e.g.- Seniority, Employment History)
- **Third Party Finance (HEAL^{3}): For entities with lending restrictions, third party financing using a credit union is deployed**
    - Can be used in conjunction with a Loan Loss Reserve
    - For those unable to qualify with credit union, Bridge Loan Fund administered by Clinton Foundation to advance funds that are projected to be paid back through rebates/incentives
- **Both models use payroll deductions for repayment**
- **Neither model requires consideration of home value/equity for decision**

Reality Check

When faced with third party involvement, preferences change



EEM Frequency Metrics and Influence of Rebates

	Air Sealing	Duct Sealing	Insulation	Lighting	Appliances	Health/ Safety	HVAC	Door/ Window	Thermostat
All	84%	39%	65%	89%	22%	12%	13%	9%	22%
Industry 6	72%	97%	48%	83%	3%	10%	0%	0%	17%

Rebate Contribution is a primary determinate of uptake probability:

- Addition of rebates by Natural Gas provider has significantly impacted conversion ratio on affected EEMs
- 0% on bill financing offered by Electric Utility in lieu of rebates dramatically reduced conversion rates

Case Study: Home At A Glance

Location: Maumelle, AR
Project Type: Residential Retrofit
Home Size: 1,800 Square Feet
Built: 1975

Energy Savings (est): 25%
HERS Index before: 130
HERS Index after: 92
Annual Utility Savings (est)**:** $796
Average GHG Savings (est):
7,800 Pounds Annually

Employer Information:
Employer: L'Oréal USA
Location: North Little Rock, AR
Number of Employees: 650
Participating in HEAL: 90

Retrofit Cost:

Air Sealing:	$289
Insulation:	$524
Duct Sealing:	$271
Lighting:	$111
Appliance Replacement:	$641
Total Costs:	$ 1,836
AEO Appliance Rebate:	$275
Utility rebates:	$1,249
Total Incentives:	$1,524
Net Costs:	$ 312
Simple Payback:	4.75 Months

THANK YOU

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Financing Middle Income Energy Improvements

LBNL Webinar

March 6, 2012

Jeff Pitkin, Treasurer
New York State Energy Research and Development Authority

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Legislative Authority

Green Jobs-Green New York Act of 2009 (Oct 2009)

- Establishes a revolving loan fund and innovative financing mechanisms to provide loans to finance energy efficiency improvements for:
  - Residential 1-4 family dwelling (up to $25,000)
  - Multifamily buildings (program limit $5,000/unit or $500,000 per building)
  - Small business (<101 employees) and not-for-profit structures (up to $50,000)
- Unsecured residential loans launched Nov 2010

Power NY Act of 2011 (Aug 2011)

- Establishes an on-bill recovery charge for repayment of GJGNY loans
- Statewide - customers of Central Hudson, Con Edison, NYSEG, National Grid, Orange & Rockland, Rochester Gas & Electric, and Long Island Power Authority
- Tariff charge – subject to termination of service
- Unless satisfied prior to sale, on-bill recovery charge survives changes in ownership
  - Seller must provide notice to purchaser
  - Loan requires filing of mortgage – ensures notice, subordinated
  - Legislative amendment to replace mortgage with “Declaration”
- Annual repayment amount may not exceed estimated annual savings
- Utility feesto fund billing system upgrades; collections subordinated to utility charges
- Launched January 30, 2012 – no payments until June

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GJGNY Funding

- $112M Regional Greenhouse Gas Initiative auction allowance proceeds

Revolving loan fund -Residential -Small Commercial/NFP -Mulitfamily	 $25.7M $13.3M <u>$11.3M</u> $51.3M
Energy Audit Subsidies	$27.4M
Workforce Development	$8.0M
Outreach (constituency-based organizations) and Marketing	$10M
Program Admin & Evaluation	$15.3M

- $18.6M US DOE Better Buildings grant
  - $9.3M loan loss reserves – leverage private capital
  - $900k utility billing system upgrades to support on-bill recovery mechanism

Roles

NYSERDA – Administrator, capital provider

Utilities – Collects On-Bill Recovery Loan installments

Loan Originator

- Launched using single originator **Energy Finance Solutions (EFS)**
- Open up to multiple lenders in 2012
- Loans originated using NYSERDA loan underwriting standards
- Lender closes on loan and loan purchased by NYSERDA
- Lender paid $175 origination fee by NYSERDA; can charge additional fee (financeable) to borrower if needed to cover costs (EFS charges $150)

Master Loan Servicer (**Concord Servicing Corporation)**

- Performs billing and collection services, lockbox payments
- Responsible for data file transfer with utilities to support On-Bill Recovery Loans
- Monitors loan origination (15% sample) to ensure conformance with standards

Title Company (NY Title)

- Performs last owner search to verify ownership
- Records mortgage/declaration for On-Bill Recovery Loans

Loan Underwriting Standards

Two Loan Tiers:

- Tier1 loans: loans meet standards that can be financed in capital markets (FNMA standards)
  - These loans will be aggregated and financed through capital markets

- Tier2 loans: loans originated under alternate criteria (utility bill paying history) and slightly relaxed debt-to-income criteria
  - Loans held in revolving loan fund
  - Monitor loan performance over time (~3 yrs) and added to pool of loans financed through capital markets if satisfactory performance

Residential Loan Underwriting Standards

Standard	"Tier 1" Loans	"Tier 2" Loans
Minimum FICO or alternate	640 (680 self-employed 2yrs+) (720 self-employed <2yrs)	None - min score may apply based on debt-to-income ratio
Utility and mortgage payment history	None	• Current on all energy bills for at least 2 consecutive billing periods during each of the last 2 years • Current on any and all mortgage payments for the last year • No energy/mortgage payments more than 60 days late for last 2 yrs
Max Debt-to-Income ratio	Up to 50%	Up to 55% Up to 70% if FICO score of 680+ Waived for applicants who qualify for Assisted Home Performance with Energy Star subsidy (50%/up to $5,000 of cost)
Bankruptcy	No bankruptcy, foreclosure, or repossession within last 7 yrs	No bankruptcy, foreclosure, or repossession within last 5 yrs
Outstanding judgments	No combined outstanding collections, judgments or tax liens > $2,500	

Loan Terms

Loan Type	Unsecured Loan	On-Bill Recovery Loan
Eligible for financing	• Energy efficiency improvements by a BPI-accredited Home Performance with ENERGY STAR contractor. • Cost of financed improvements must be less than the estimated energy savings over the anticipated life of the improvements	Same, but in addition annual payments may not exceed estimated annual energy savings
Borrower eligibility	Owner or tenant	Owner and named on utility account
Loan Amount	Up to $13,000; $25,000 if payback period is 15 years or less	
Loan Term	5, 10, or 15 years; term may not exceed expected useful life of measures	
Interest Rate	3.99% 3.49% if repaid by automatic ACH payment	2.99%
Repayment terms	• Repaid through monthly statement billing or ACH payment. • Responsible for satisfaction upon sale or transfer of property • Nonpayment subject to judgment	• Repaid through charge on utility • Requires a mortgage/declaration to be filed • Remaining obligation may be assumed by purchaser upon sale of property. • Nonpayment may subject the borrower to termination of utility service

Capital Markets Financing Approach

- Loans funded from Revolving Loan Fund in first instance
- Aggregate loans and issue bonds using master trust structure
- Bonds supported by loan repayments and loan loss/debt service reserve
- Proceeds used to fund additional program loans
- First issuance $25M
- Subsequent issuances will increase scale
- Anticipate A rating; ~5.7% (300-400 bps over Treasury); ~10-12yr term
- On-Bill Recovery Loans may qualify for AAA rating
- Issue as Qualified Energy Conservation Bonds – 70% federal subsidy
  - Use limited QECB bond cap from state and amount reverted by local governments
  - Once exhausted, loan rates will be increased due to loss of federal subsidy

Unsecured Residential Loan Portfolio Status
2/29/2012

	Unsecured Loan (from 11/15/2010)		On-Bill Recovery Loan (from 1/31/2012)		Total	
Status	# Loans	Amount	# Loans	Amount	# Loans	Amount
Closed Loans	1,194	$10,655,174	-	-	1,194	$10,655,174
Approved	260	2,484,377	-	-	260	2,484,377
Subtotal	1,454	$13,139,551	-	-	1,454	$13,139,551
Pre-approved	593		105		698	
Total	2,047		105		2,152	
Applications Received	3,263		180		3,443	
Approval Rate	63%		58%		63%	

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Unsecured Residential Loan Portfolio Status

2/29/2012

Loans Outstanding	Tier 1	Tier 2	Total
Number of Loans	1,086	70	1,186
Weighted Avg FICO score	750	672	726
Weighted Avg Original Term (yrs)	11.9	13.3	12.0
Weighted Avg Term Remaining (yrs)	11.5	13.1	11.6
Weighted Avg Interest Rate	3.57%	3.54%	3.57%
Average Loan	$8,913	$10,039	$9,480
Current Balance of Loans	$9,292,231	$691,581	$9,983,812
% of Total	93.1%	6.9%	100.0%

Unsecured Residential Loan Portfolio Status

2/29/2012

	Tier 1		Tier 2	
Delinquency analysis	# Loans	% of $	# Loans	% of $
Current	1,085	99.8%	69	99.3%
31-60 days past due	0	0.0%	0	0.0%
61-90 days past due	0	0.1%	0	0.0%
90+ days	1	0.1%	1	0.7%
Total	1,086	100.0%	70	100.0%

Questions

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Unsecured Residential Loan Portfolio Status
2/29/2012

	Applications Approved (from 11/15/2010)	Loans Closed (from 11/15/2010)				
		Value	Total	Market Rate	Assisted	Assisted % of Total
Tier 1	1,602	$8,679,325	1,001	768	233	23%
Tier 2	119	$571,883	61	39	22	36%
Total	**1721**	**$9,251,209**	**1,062**	**807**	**255**	**24%**

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CRAFT3

Lending to people, Investing for resilience

info@craft3.org | www.craft3.org | facebook.com/Craft3org

Craft3 Is

- Community Development Financial Institution (CDFI)
- A non-profit and charitable corporation
  - Not a bank or credit union and does not take on insure deposits
- 17 years old (founded in 1995)
- A regional institution serving a diverse two state investment area
  - 45 people with *their feet on the ground* inside rural and urban communities
- Focused on three bottom lines

Economy

Environment

Equity

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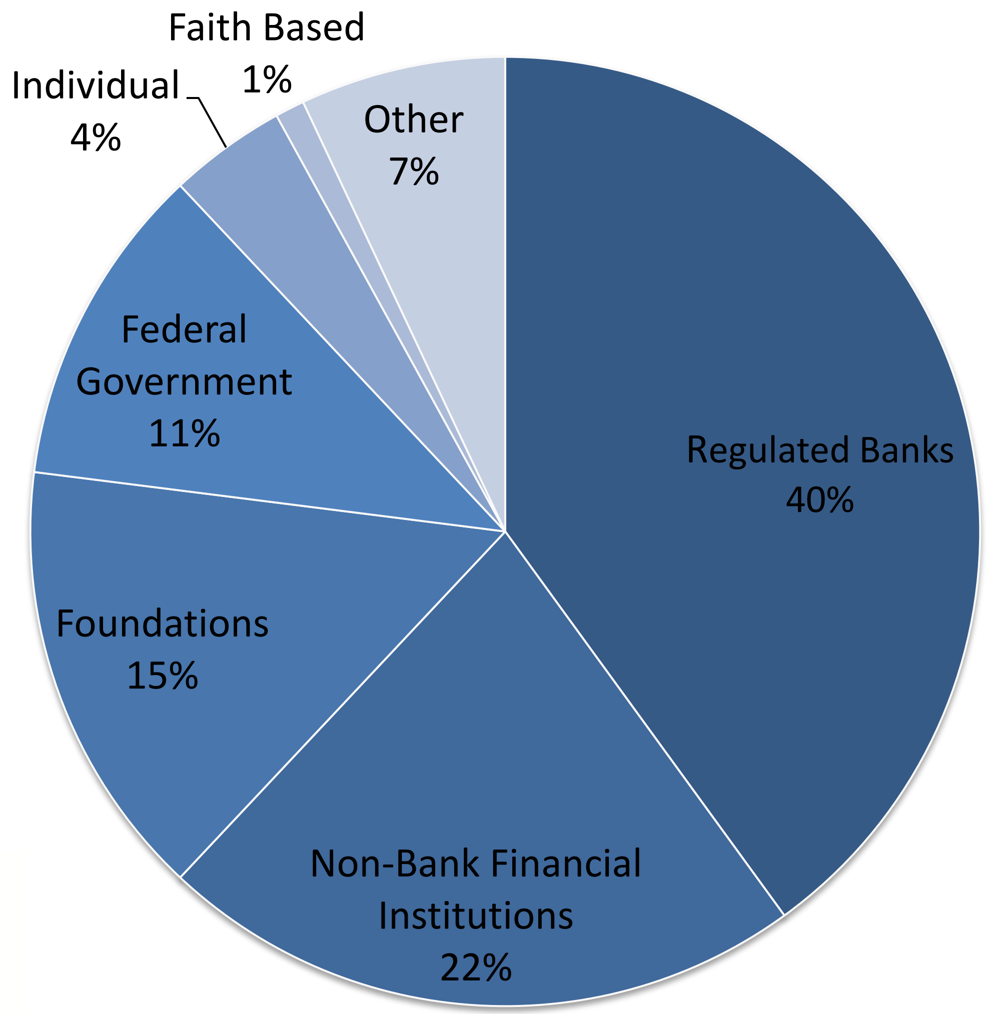
Craft3 Financial Resources



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Craft3 Loan Products

- Commercial Loans
  1. Business: for real estate, start-up and expansion of businesses;
  2. Non-Profit: for affordable housing, community development projects, health care, childcare, environmental conservation, and human services initiatives; and
  3. Conservation: for conservation organizations to acquire sensitive lands, restore habitat, and protect water quality are available.
- Consumer Loans
  1. Energy Efficiency: To property owners to reduce CO2
  2. Septic Repair: To property owners to repair or replace failing systems

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Craft3 Outcomes from Outputs

ECONOMY	ENVIRONMENT	EQUITY
Number of Jobs Created and/or Retained	Linear Feet of Functioning Riparian Zone	People of Color and Women Entrepreneurs Assisted
Leveraged Third Party Investment	Acres of Land in Sustainable Management	Number of Low Income Families Assisted
Added Value of Products Locally Manufactured	Gallons of Water Diverted from Waste Stream	Local Tenures Supported

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Single Family Residential Loan Product

- CO2 Matters: Energy reduction analysis
  - Recruit the greatest CO2 impact
- Low Touch Underwriting
  - Non-Traditional: Utility payment history, FICO >590
  - IT Platform: Linked to utilities and loan management
- Product Specifications
  - Rate: 5.99%
  - Term: 20 years
  - Security: subordinated lien on property
  - Servicing: on bill of utility providing energy for heat
  - Risk: Cash funded loan loss reserve: 10%
  - Affordable: Goal is net zero impact on the family budget

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Building the Market

*Goal: **Shift** the residential energy efficiency market to an environment where action to improve the efficiency of homes is as easy as buying a car with better gas mileage.*

- Standardized product offering with options
- Standardized & auditable performance rating
- Widely branded “outlets” for sales
- Affordable, easy to access financing terms
- Warranty and peace of mind (value proposition)

Ultimately, the product must remove obstacles to policy decisions that drive markets to “value” efficiency

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Clean Energy Works Oregon

John and Jennifer Williams

John and Jennifer Williams lived in an amazing house. But in the winter, gusts of cold wind blew into their bedroom. In summer, that bedroom became a sauna. Then, the couple discovered Clean Energy Works Oregon (CEWO), and handed their problems over to pros. The external walls and crawl spaces were now snug with insulation, and they upgraded from a gas to an electric water heater.

In April 2010; CEWO began as a pilot program in the City of Portland before receiving an award from the US Department of Energy to expand beyond Portland. This joint venture between Craft3, Energy Trust of Oregon and the City of Portland was modeled after Craft3's Septic Loan. It delivers financing at affordable rates to implement Energy Efficiency measures in Oregon homes, achieving reduced CO_2, increased 'green collar' jobs, reduced energy costs and increased home tenure.

Since inception, Craft3 has provided $14 million in Energy Efficiency Loans to homeowners in Oregon.

Triple Bottom Line Outcomes

Economy

- Green collar jobs created/retained

Environment

- Reduced CO_2

Equity

- Minority owned businesses assisted
- Women owned businesses assisted
- Low income families assisted
- Increased land tenure

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Outputs

July 2009 – February 2012
Homes Retro-fitted **1275**
Value of Loans Originated **$15,843,000**
Simple ROI **5.7%**
Participating Contractors **50**
% Criticized Assets **3.8%**

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Outcomes

Access to Credit (Inclusion)	Access to Opportunity (Jobs)
% Borrowers < Median HH Income **53%**	% of Loan $ Paid as Wages **65%**
% Borrowers Non-White **11.3%**	Average Wage **$24.65**
% Borrowers in CDFI Tracts **34%**	% of Employees Women/Minority **51%**
% Subordinated Debt **98%**	% of Employees with Health Care **65%**

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The Quest For Liquidity

- Mandate: Develop a high output product with quality outcomes and demonstrate a capital market
- Now: $12MM pilot, Q3 2012: Replicable, marketable
  - Tiered PRI/SRI/Market with guaranty options
  - Yield below market in the 5% range
  - Right regional players at the table
- Challenges: price point; portfolio performance; underwrite; maturities; market place
- Bottom Line: Liquidity must value the outcomes and the pace of achieving them

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Learn more about Craft3

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