Staff Subcommittee on Energy Resources and the Environment

NARUC Summer Policy Summit

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Energy Efficiency Financing for Low and Moderate Income Households

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Energy Efficiency Financing for Low- and Moderate-Income Households

Greg Leventis, Lawrence Berkeley National Laboratory

2017 NARUC Summer Policy Summit

July 16, 2017

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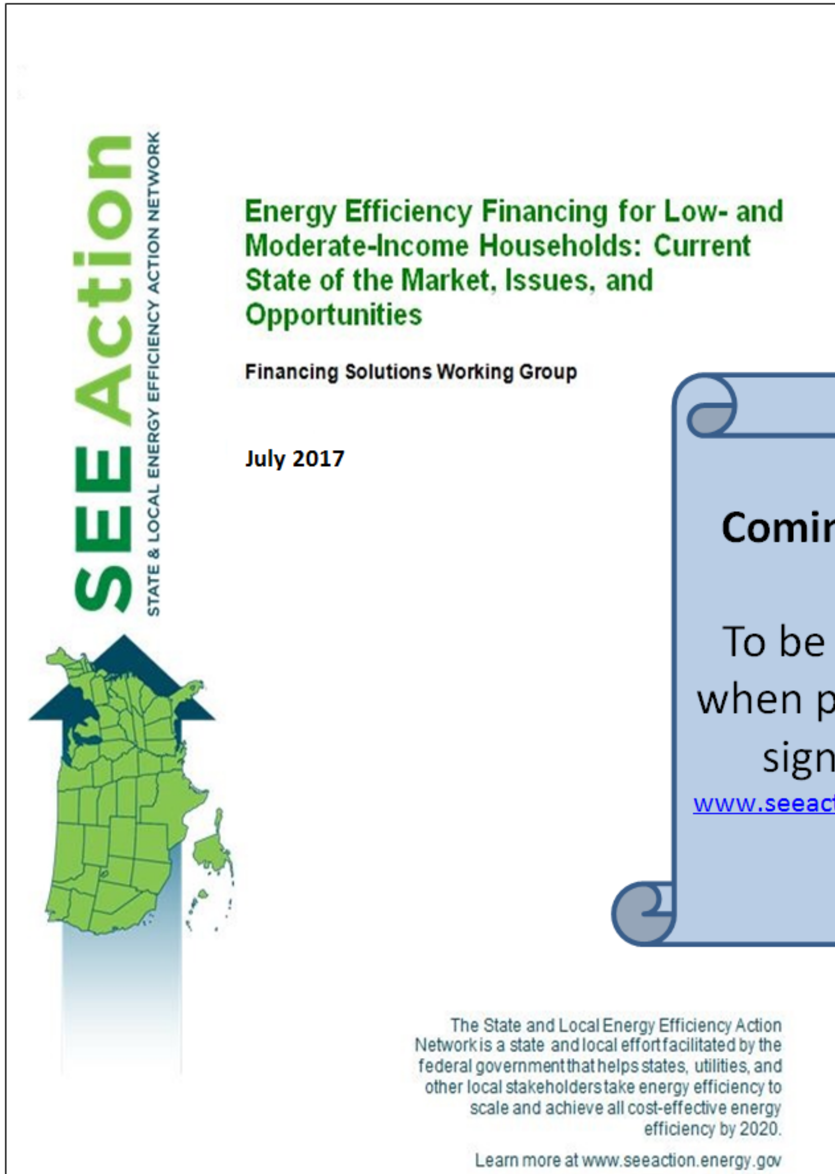
Coming soon!



SEE Action
STATE & LOCAL ENERGY EFFICIENCY ACTION NETWORK

Energy Efficiency Financing for Low- and Moderate-Income Households: Current State of the Market, Issues, and Opportunities

Financing Solutions Working Group

July 2017

The State and Local Energy Efficiency Action Network is a state and local effort facilitated by the federal government that helps states, utilities, and other local stakeholders take energy efficiency to scale and achieve all cost-effective energy efficiency by 2020.

Learn more at www.seeaction.energy.gov

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Programs examined

- Renew Financial (WHEEL, PACE)
- PosiGen
- NYSERDA
- Roanoke REC
- Ouachita REC
- NYCHA
- Fannie Mae (Multifamily Green Financing)
- Community Preservation Corporation (NY)
- Community Investment Corporation (Chicago)
- CT Green Bank
- PSE&G (NJ)

Agenda

- Takeaways
- Low- and moderate-income (LMI) sector overview
- Consumer protections
- Financing products
- Lessons learned

High-level takeaways

- Very diverse sector (with implications for using financing to promote efficiency)

- Program design and coordination with other stakeholders can be valuable for reaching LMI households

- A number of programs are overcoming some challenges to EE adoption in LMI households

- Strong consumer protections are needed when offering financing to LMI households

High-level takeaways

- **So…what works?**
- No ONE approach works for ALL LMI households
  - Must understand markets and their specific barriers to select appropriate financing products
- However, a set of traditional and specialized products have been used and are gaining momentum
  - Each has strengths and weaknesses
  - Often *accessed* by LMI, not *designed* for LMI
  - In Southeast, great interest in on-bill for LMI households
- Programs can collect data to help answer this question

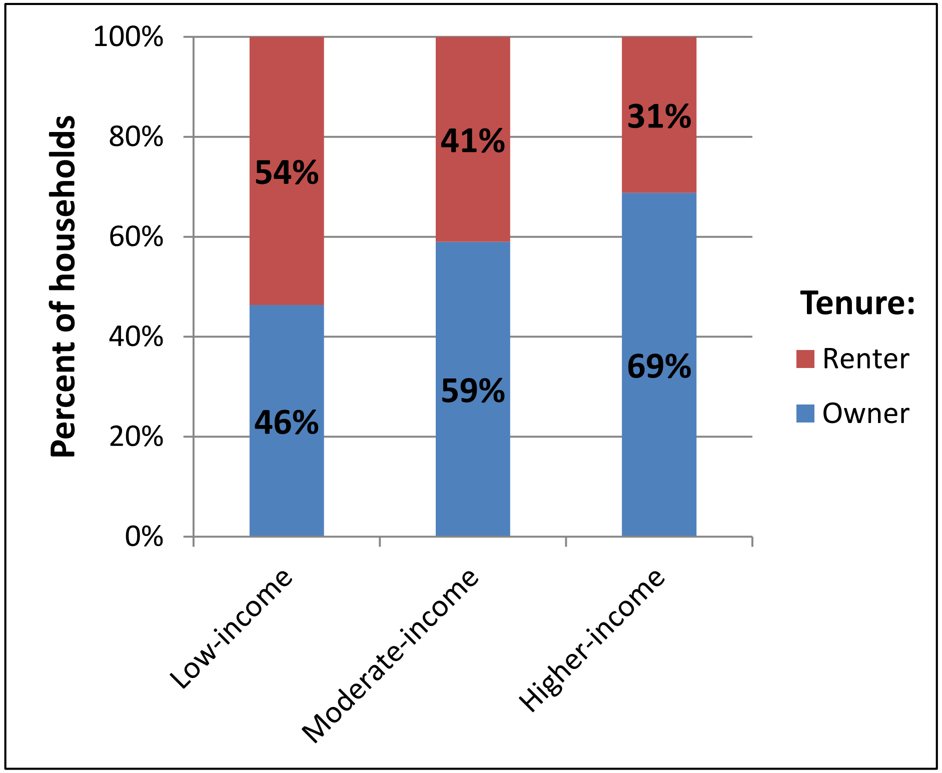
LMI sector overview:
Wide spectrum of LMI households

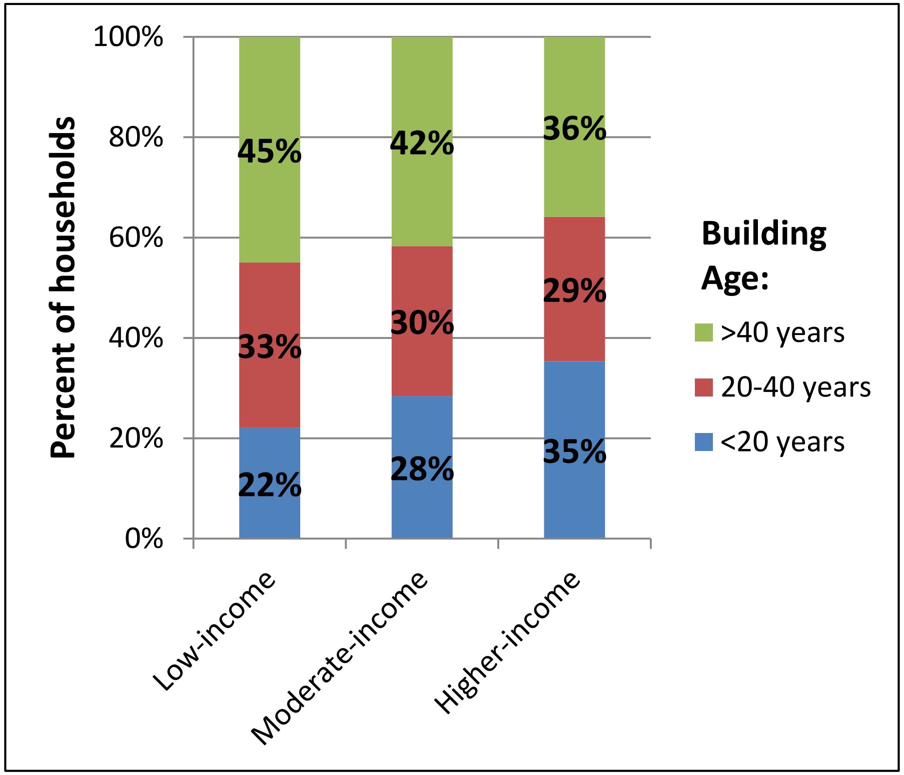
← Urban multifamily renters

Rural single family owners →

LMI sector overview

- More likely to live in older, less efficient housing
- Spend larger portion of income on energy (7.8% vs. 3% for all households)
- Less able to afford energy efficiency improvements
- Less likely to own their home, but ownership level still significant





Source: Bureau of Labor Statistics 2016, Energy Information Administration 2012

Consumer protections

From poor disclosure

- Costs of the loan
- Risks

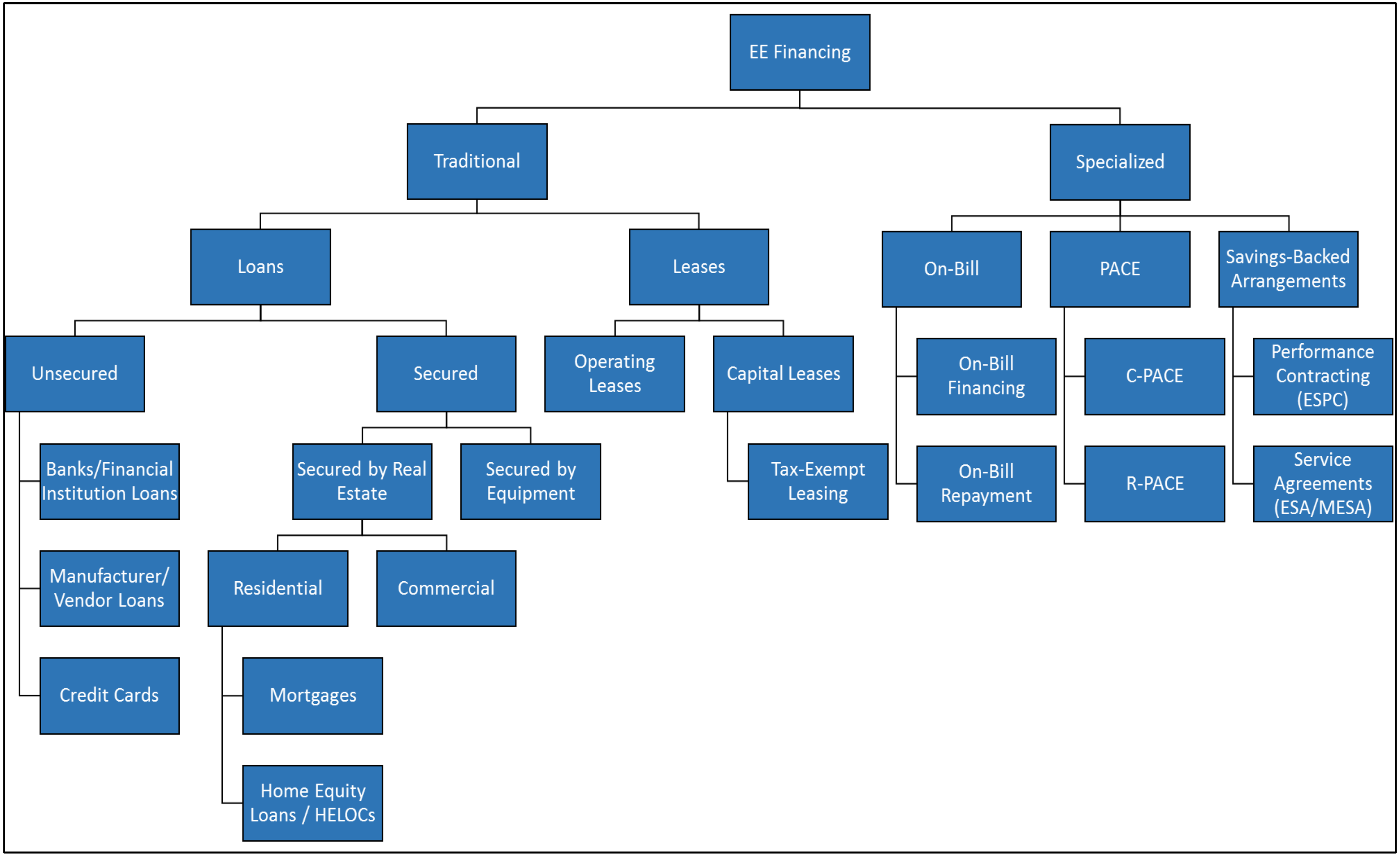
From abuse

- Fraud
- Predatory lending

Verifying ability to pay

- Potential loss of property
- Potential damage to credit
- Potential disconnection

Financing products



Source: Leventis, et al 2016: https://eta.lbl.gov/sites/all/files/publications/lbnl-1006406.pdf

Barriers and EE Financing Product Features

Potential advantage	Neutral or other considerations	Potential disadvantage

	Secured (First Mortgage)	Secured (Junior Lien)	Unsecured	OBF/OBR	PACE	Savings-Backed Arrangements
Qualifying for Financing	Standard underwriting	Standard underwriting	Standard underwriting	Alternative underwriting	Alternative underwriting	Alternative underwriting
Debt Issues (restrictions, aversion)	Sr. lien holders may object	Sr. lien holders may object	Debt instrument	May be structured as non-debt	Sr. lien holders may object	Uncertain
Inherent Risks	Potential loss of home or building	Potential loss of home or building	Damaged credit	Power shut-off (some programs)	Potential loss of home or building	Depends on the product
Transaction Costs	High	High	Low	Low	Depends on prog / sector	Depends on prog / sector
Affordability	Long terms, typically lowest rates	Long terms, low rates (but higher than 1st mortgage)	Shorter terms, lack of security = higher rates	Depends on program terms	Long terms, lower rates than unsecured	Structured as cash flow positive
Financing Cycles (MF)	Leverages fin. Cycles; hard for stand alone projects	Can leverage fin. Cycles; easier for stand alones	Easier for stand alone projects	Easier for stand alone projects	Easier for stand alone projects	Easier for stand alone projects

Lessons learned

- Financing products and product features
  - Know LMI needs and products that may address them
  - Focus on affordability
  - Consider alternative underwriting (careful about ability to pay)
- Stakeholder coordination and collaboration
  - Trust and awareness
  - Funding and capital
- Consumer protections
  - Leverage appropriate legal frameworks
  - Exercise useful industry and program practices

Lessons learned

- Collect LMI data
  - Program participation
  - Loan performance
  - Underwriting process
  - Measures implemented
  - Energy savings

- Considerations specific to MF borrowers
  - Debt restrictions
  - MF financing cycles

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Coming soon:

- The State and Local Energy Efficiency Action Network's (SEE Action Network) report:

  Energy Efficiency Financing for Low- and Moderate-Income Households by Lawrence Berkeley National Lab

- For more information on efficiency financing, please visit our website: http://emp.lbl.gov

Energy Efficiency Financing for Low- and Mod-Income Hhlds:

Protect Consumers AND Expand Access

A Presentation to the NARUC

Staff Subcommittee on Energy Resources and the Environment

NARUC Summer Policy Conference, San Diego, July 16, 2017

Nancy Brockway

Energy and Utility Consultant

Financing defined

"Financing stretches out the up-front costs of energy efficiency improvements into smaller monthly payments, which are repaid by the homeowner, and may be offset entirely or partially by energy cost savings."

So, may be loans/loan-like products/tariffed measures

Good financing protects consumers while allowing them to save…

What are the problems?

- ***Lots of EE left unharvested***
- ***Low- & moderate-income households face multiple market barriers:***
  - No cash for copays
  - Unable to get financing at all or on reasonable terms
  - Unwilling to take on more debt
  - Uncertain of vendors' promises
  - Unable to take risk that payback will be longer than remaining time in premises
    - Classic split incentive – landlord/tenant
    - No room for errors in projected usage/savings analyses
  - Lack information to evaluate deals
  - Little discretionary usage in many cases

Desiderata not all achievable at once?

- Make possible near-100% customer participation
- Get 100% of positive BCR measures in each dwelling served
- Get only measures that pass BCR (e.g not windows?)
- Make attractive to vendors
- Get lowest interest rate on financing
- Lower transaction costs of application
- Prevent LMI from paying anything for measures
- Ensure all non-program/free funds used first
- Maximize use of non-program funds by leveraging

ESCOs/OBF without more/private loans

- **Typically have more consumer-rights problems**
  - *Susceptible to consumer misunderstanding*
  - *Susceptible to abuse*
  - *No assurance of net savings*
- **Tend to leave much EE on table**
  - *Vendors go for low-hanging fruit*
  - *Tenants cannot participate*
- **Not favored by consumer advocates**

DOE PACE Best Practices:

- **Ensure borrowers can afford PACE assessments**
  - Underwriting that includes income and debt obligations
  - Include triggers for additional underwriting
  - Screen out all customers who could get same measures at no cost
- **Disclosures**
  - Require disclosures equivalent to Truth-in-Lending, additional disclosures specific to PACE transactions
  - Recorded phone call before ok - verify scope of work/PACE terms/repayment structure
- **Default and foreclosure prevention**
  - Rigorous underwriting, including thresholds for large projects for low-income
  - Recommend programs consider developing mechanisms to prevent foreclosure, including temporary forbearance and modification of the assessment
- **Consumer remedies in case of fraud, violation of contract/law**
  - Require customer complaint resolution procedures
  - Establish state regulatory oversight including contractor licensing and management

- Source: DOE Best Practice Guidelines for Residential PACE Financing: Consumer Protections, **NASEO Residential PACE Task Force,** October 2016

Solutions to some problems create others

PACE requirements severely limit participation

- Home ownership
- Program in place by property tax authority
- Substantial savings opportunities to attract vendors' and capital providers' interest
- Significant transaction costs

- **PACE requirements leave significant risks on household**
  - Dwelling subjected to risk of forced sale
  - Must wait until payback for bills to go down
  - Tenure may not be long enough to enjoy payback/net bill reduction
  - Poor quality, measure failure, inappropriate measures – savings not sufficient
  - Misrepresentation, fraud
  - Consumer loan collection practices

PAYS® re: barriers/consumer risks

- **Easy to Participate and Low Participant Risk**
  - No upfront participant costs
  - Savings not guaranteed but measures and installation independently approved
  - PAYS® charges significantly less than the estimated savings
  - If upgrade fails & is not repaired, or if participant moves, program charges end
  - No required landlord payments – tenants may participate fully
- **No Debt risk – Obligation "Runs with the Meter"**
  - The leaving-customers' obligations end – no debt follows them
  - Successor enjoys savings greater than utility program charges
- **Quality Assurance & Measurement & Verification**
  - Workforce development
  - Best DOE/NREL practices
  - Sample of projects are subject to post-audit and failure brings contractor consequences
  - Customer involvement
  - Preference for installations with good warranties

PAYS® Consumer Problems –

Still an offer good for customers?

- **Disconnection for non-payment?**
  - Bills guaranteed lower after treatment than before
  - Lower energy burden should be easier to pay
  - No reported disconnections for non-payment
  - Risk made clear to prospective participant
  - LI advocates oppose
- **No T-in-L Disclosures? Home ownership disclosures?**
  - Not a loan
  - No risk to home ownership
- **No pre-participation phone call?**
  - Terms set out in written agreement
  - Terms guarantee no payment if no savings
  - Consumer involved in upgrade decisions

POLICIES TO ENCOURAGE VENDOR INTEREST	**ESCO**	**PACE**	**PAYS®**
Focus on/limit participation to high-consumption hhlds	Y	Y	N
***Not* guarantee net savings**	Y	Y	Y
Allow disconnections for non-payment of charges	N	N	Y
Allow loss of home for non-payment of charges	?	Y	N
No upfront participant cost	Y	Y	Y

POLICIES THAT LIMIT LOW-INCOME PARTICIPATION &/OR TOTAL SAVINGS

Loan underwriting screens/rescreens for ability to repay

Underwriting screens out all LI customers with free alternatives

Measures limited to large-savings projects

Structure as personal debt

Loan underwriting screens/rescreens for ability to repay

No tenants need apply

WAYS TO INCREASE PARTICIPATION & PROTECT CONSUMERS	ESCO	PACE [1]	PAYS ®
Buy down costs to manageable levels/finance balance	N	N	Y
Require repayment charges = < monthly savings	N	N	Y
Guarantee projected bill savings	N	N	N
Limit measures to those with very robust cost/benefit	N	N	Y
Require quality work to ensure forecast benefits realized	N	N	Y
Contractor pay = f(verified proper measure installation, measure function)	N	N	Y
Require using networks of trained/certified contractors	N	N	Y
Require qualified, independent entities - choose measures	N	N	Y
Provide neutral and convenient dispute resolution	N	N	Y
Not allow disconnections for non-payment of charges	Y	Y	N
Not allow loss of home for non-payment of charges	?	N	Y
Allow simple transfer of payment obligation to successor	N	?	Y
Arrange measures so participant can afford payments	N	N	Y
Payments end if upgrade fails and is not repaired	N	N	Y
Full and understandable disclosure of risks	N	N	Y

[1] **As presently offered - - - - DOE Best Practices/consortium of consumer advocates call for *improvements to PACE*.**

REVISED EE FINANCING ISSUES: ONE LMI-CUSTOMER PERSPECTIVE

Potential advantage | Neutral or other considerations | Potential disadvantage

NET BENEFIT TO CONSUMERS?	Secured Loan (First Mortgage)	Unsecured Loan	Non-Utility Savings-Backed Arrangements	Other OBR	PACE [assuming Best Practices]	PAYS®
Attractive to Consumer	See risks	See risks	See risks	Depends	Homeowners only	Any residential consumer
Qualifying for Financing	Standard underwriting	Standard underwriting	Depends on offering	Depends on program	Alternative underwriting	Alternative underwriting
Debt Issues (restrictions, aversion)	Sr. lien holders may object; Debt so many averse	Debt, so many averse	Debt, so many averse	Depends on program	Sr. lien holders may object; Debt, so many averse	Structured as non-debt - tariffed offering with direct cost assignment
Risk of non-payment	Potential loss of home	Damaged credit	Depends on the product	Depends on program	Potential loss of home	Potential power shut-off
Other consumer protection risks	Risk of poor quality, abuse; pmts exceed savings	Risk of poor quality, abuse; pmts exceed savings	Risk of poor quality, abuse; pmts exceed savings	Risk of poor quality, abuse; pmts exceed savings	Risk of poor quality, abuse; pmts exceed savings	Quality controls; structured to produce positive cash flow
Return required by financiers	Backed by mortgage	Unsecured	Unsecured	May be backed by reserve	Backed by tax lien	Backed by DNP and by reserve

CONCLUSIONS

- No one program maximizes all desiderata
- Should not just borrow concepts from other consumer product/home ownership financing
- Programs without assured benefits should be discouraged
- Programs that leave significant risk on customers should be discouraged
- Some risks are compensated by level of rewards, others not.
- Programs that maximize participation should be encouraged
- Programs that maximize total harvest of EE should be encouraged

NARUC Summer Policy Summit

National Association of Regulatory Utility Commissioners Panel: Energy Efficiency Financing for Low– and Moderate–Income Customers

Dr. Katherine Johnson, Johnson Consulting Group

July 16, 2017

San Diego, CA

Johnson CONSULTING GROUP

The Arkansas Dilemma

- Arkansas was facing several major issues:
  - Large concentration of substandard housing (i.e., manufactured housing units)
  - Legal conditions that require targeting "hard to reach" customers based on energy usage criteria instead of income-qualifications
  - Inconsistent program offerings and poor program delivery targeting "energy inefficient homes"
  - Pressure to offer a weatherization program available to **all customer sectors.**

One Order: Two Objectives

- Order No. 7 in Docket No. 13-002-U directed:
  - The Parties Working Collaboratively (PWC) to develop a Consistent Weatherization Approach to focus on energy "inefficient" homes;
  - AND
  - Develop a third-party financing mechanism that would ***non-low-income*** residential utility customers to obtain or afford additional weatherization measures as needed.
- This order had a short timeframe and required collaboration and input from a large group of interested stakeholders

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PWC Relied on Combination of Approaches

- Careful review of current program activities of the seven investor owned utilities (IOUs),
- Identify gaps in program offerings
- Prepared a Situation Analysis summarizing the current challenges and opportunities in offering a financing program in Arkansas
- Held a Weatherization Technology Conference,
- Conducted two literature reviews
  - One for Weatherization Programs
  - One for Financing Program Offerings
- Outcome: PWC Weatherization developed an approach that is consistent across all utilities and a financing

The Consistent Weatherization Approach

- Income neutral
- Fuel Neutral
- Targets "energy inefficient homes" across all residential sectors
  - Program eligibility is based on the age of the house, or the cost per energy on a square foot basis, which varies based on fuel.
    - Homes must be at least 10 years old
    - Minimum energy usage is 5¢/sq.ft for natural gas OR
    - 10 ¢/sq. ft . for electricity costs for past 12 months

Key Program Elements of Consistent Weatherization Approach

Key program elements of this approach are:

- ***Comprehensive assessment*** of the customer's home;
- ***Direct installation*** of immediate (low-cost) energy saving measures;
- ***Installation*** of a set of weatherization measures, including insulation and air sealing, based on the funding levels provided by the utilities; and
- ***Management*** of the contractors that deliver the home assessments and installations, requiring standardized protocols, energy assessment tools and quality control.

Core Measures

- Ceiling (Attic) Insulation
- Wall Insulation
- Air Infiltration
- Faucet Aerators (Direct Install)
- Low-Flow Showerheads (Direct Install)
- Advanced Power Strips (Electric Only-Direct Install)
- ENERGY STAR CFLs (Electric Only-Direct Install)
- ENERGY STAR LEDs (Electric Only- Direct Install)
- Duct Sealing

Other Utility Offerings (OUO)

- Central Air Conditioner Tune-Ups
- Window Film
- HVAC Equipment
- Window Repair
- Door Repair/Replacement
- Roofs-Minor Repair

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EM&V Results-First Year of Operation PY2016

Each utility incorporated the Consistent Weatherization Approach into its program offerings differently.

- AOG/OG&E continued their ***joint collaboration*** for their Weatherization Program, which remains highly successful;
- SWEPCO expanded the focus of its Home Performance with ENERGY STAR (HPwES) program to ***include elements*** of the Consistent Weatherization Approach;
- CenterPoint included the building envelope measures in its Savings Home Weatherization Program, which ***has improved CenterPoint's building envelope offerings*** and successfully applies the Consistent Weatherization Approach; and
- EAI and CenterPoint worked together to ***deliver the program offerings*** through contractors already engaged in EAI's HPwES Program.

But Traditional Financing Remains a Barrier in Arkansas

- Conducted an Assessment of Potential Financing Program Designs
  - Issued a Request for Information (RFI) to solicit responses from energy efficiency financing organizations throughout the United States;
  - Prepared a Situation Analysis summarizing the current challenges and opportunities in offering a financing program in Arkansas;
  - Conducted a "Gap Analysis" identifying where barriers still remain to implementing a successful statewide financing approach; and
  - Reviewed financing program best practices to inform any future program design.

Key Findings

- ***Residential financing programs are complicated to administer and deliver.*** Therefore, most energy efficiency organizations rely on third-party administrators or other non-utility entities to offer these programs.
- ***None of the current programs reviewed in this assessment met all of the Commission requirements***. However, the financing programs offered by the electric distribution cooperatives in Arkansas do contain some of the features that are included in the Commission orders.
- However, the Consistent Weatherization Approach targets energy “inefficient” homes, thereby ensuring that the energy efficiency measures are targeted at the homes most in need of them.
  – This “leap frogs” the income eligibility requirements and constraints of traditional programs
  – Offers financing options to customers who can afford to make the improvements through qualified third-parties

Overall Conclusions

Consistent Weatherization Approach has led to:

- ***Increased collaboration*** among the electric and gas utilities
- ***Increased cross-promotion*** of gas and electric measures targeting energy inefficient homes; and
- ***Demonstrates*** flexibility and creativity by the utilities in complying with the Commission Order.

Everyone "wins" in Arkansas

- The Commission achieves a socially desirable outcome by reaching out to customers who are previously underserved

- The utilities can claim savings for making improvements (even dual fuel savings) which help them claim incentives, thereby making traditionally non cost-effective program offerings more cost-effective.

- The program implementers are able to offer a comprehensive, tiered approach that reaches a larger group of customers.

- Customers are able to take advantage of a nimble third-party approach, and also able to access financing for OUOs as appropriate/needed.

Questions?

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