

Financing Energy Efficiency: Overview and Lessons

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Harcourt Brown LLC

- Consulting firm with a specialty in financing for clean energy & environmental strategy.
- Domestic and International government, non-profit and private clients.
- Published numerous papers on clean energy finance.
- Clean energy finance clients include states, lenders, national and regional associations and advocacy organizations. Working with these clients to set up new financing programs.

Outline: 2 Major Topics

- The Challenge and the Role of Financing
- The Use of Leverage and Private Capital

Where are we today?

- EE resource standards requiring reductions in energy use now imposed in 20 states.
- Greenhouse gas emissions reduction requirements and goals in Northeast, West, nationally(??).
- Energy security and jobs goals rely on big gains in efficiency.
- The Massive Deep Retrofit is the talk of the topic of the day, month, year.

These Goals, and the Cost of Meeting These Goals, is Far Beyond What is Possible Through the Means of Funding We Have Used to This Point.

Why Financing?

- It's all about going to scale:
 - 100 million households in the United States.
 - Typical basic-only efficiency installation investment is \$7,500, including HVAC, duct sealing, insulation -- but can range higher, up to \$10,000.
 - Total market, on this basis is \$750,000,000,000-\$1,000,000,000,000.
 - Private investor capital is critical.
 - Leverage through Credit Enhancements will be Critical.

Challenges Facing the Efficiency Finance Industry

- In some cases, average loan size is small and per loan transaction costs high.
- Liquidity: Barely developed 2ndary Market.
- Scale – growing but still many programs with slight-large differences.
- Conformity: No standard loan product.
- Credit enhancements still being structured.
- Pricing hard to match to market.

A Definition: What are we investing in?

- Energy efficiency investments consist of:

Market	Measures	Typical Per-Installation Cost
Residential	HVAC systems, insulation, duct sealing, appliances, water heaters, windows, doors	\$7,500
Commercial	Lighting, HVAC, Motors	\$10,000 and up
Industrial	Motors, Customized Improvements	\$100,000 and up

Our Primary Focus for this Mtg.



Example: Residential Loan Product Structures

Product	Characteristics
Unsecured	High volume, low value loans. Consumer credit model. Underwriting typically based on credit score, debt-income ratios. Fast-response loan evaluation. Conforming product draft in development. Limited 2ndary market.
Secured	Higher value (>\$12,500-\$30,000) loans. Tax or other lien typical. Often for “whole house” renovations or solar. PACE model is getting attention. Limited 2ndary market.

Default Rates Tend to be Low

- It's not the HDTV purchase...

<i>Program</i>	<i>Default Rate</i>	<i>Criteria Used to Assess Credit Quality</i>
Keystone HELP	1.5%	Credit score of 640 minimum. Average score is 720
Manitoba Hydro	<1%	Current on utility bill for at least 12 months; credit score considered
Midwest Energy	0%	Current on utility bill for 12 months
United Illuminating	<1%	Current on utility bill. In business for at least six months.
Sempra	<1%	Account in good standing with non disconnect in previous 12 months; applicant must have been a utility customer for at least 24 months. Default leads to disconnection.

Who are the lender partners?

- Credit unions: Understand small loans, community-minded.
- Specialty Lenders: Know energy finance very well
- Community Development Financial Institutions (CDFI) lenders: low cost, but limited amounts of capital
- Public lenders (state or municipal bonding authorities such as housing finance agencies): low cost capital availability

A quick breakdown of costs

- Servicing: \$7-\$15/month.
- Origination: \$300-\$600/loan is typical for a mortgage loan.
- On a \$5,000 loan, it's really important to reduce these costs.
- And...typical mortgage lenders will not be interested in these loans. They aren't set up to do a lot of small unsecured loans.

What will bring these lenders to the table?

- A market for loans – deal flow. (Many lenders hungry for good quality loans).
- Good quality borrowers with good credit.
- A secondary market for loans (a place to sell the loans).
- Credit enhancements.

Credit Enhancements

- Loss Reserves or Guarantees
- Interest rate buydowns sometimes fall into this category
- Subordinated Debt
- Loan Insurance

Michigan Example of Credit Enhancement (proposed)

- 5% loss reserve based on the total portfolio of loans that lender holds = 20x leverage ratio. \$3 million=\$60 million.
- Lender be able to recover up to 80% of defaulted amount (skin in the game).
- Unsecured loan – although possibly tied to a meter and disconnection threat.
- For this, lenders willing to offer 7% loans. (about 1/2 market rate).

Michigan Example of Credit Enhancement (proposed)

- Can be on bill or companion bill
- Loan tenor goes out to 10 years for loan value > \$5,000.
- Transaction costs are kept low through out-sourcing of loan origination.
- Speed of approval addressed through standardization of application procedures and underwriting terms. (Approval within seconds).

Standardized FNMA Energy Loan Program w/buydown

- Approved FNMA Lenders make loans according to FNMA rules.
- Lenders sell loans on a daily basis at pre-set rates and terms to FNMA.
- Creates streamlined and ready market for unsecured energy loans.
- Cost is high (13.99%) and generally requires a buydown, costing about \$1,200/loan.

To Summarize

- Without financing we can't make our climate, energy independence or other goals.
- Financing requires working with financial institutions in new ways.
- The fundamentals of a good product exist, but big gaps remain –
 - Secondary markets
 - Credit enhancement structures.

The Goal of Many New Financing Programs is to:

- Move beyond the small scale pilot to large scale implementation of efficiency.
- Make the programs simple to use, with a low hassle factor.
- Remove the first-cost barrier to energy efficiency.
- Balance credit management with amortization period: longer loan terms = smaller monthly payments.
- Attract low cost capital to finance the program.

A Quick Review of Models

- 3rd Party Loans
 - Personal/business loans originated and serviced by a non-utility/non-gov't lender.
- On-Bill Loans
 - Personal/business loans originated and serviced by a utility.
- On-Bill Tariffs
 - Financing (not loans) originated by a utility, attached to meter.
- Property Tax/Local Gov't Fees
 - Loans or financing originated and serviced by local gov't. Attached to tax or gov't charge.

Considerations for Successful Financing

- Remember the financing alternatives
 - Home equity line of credit
 - Typically variable rate product.
 - Assumes that one has equity in the home.
 - More difficult to access now than 2+ years ago.
 - Consumer credit
 - Typical of a Home Depot/Loews credit card.
 - Often with a discounted teaser rate that increases dramatically.
 - SBA 7(a) loans:
 - May often be for larger amounts than typical business retrofits.
 - Personal guarantee required of the business owner.

Considerations for Successful Financing

- **Simplicity** Appropriate to the Need
 - Different market and submarkets need different levels of complexity. For example:
 - Mortgage loans require much greater due diligence than a small \$5,000 loan or credit card.
 - Small business needs for energy retrofits differ greatly from residential energy retrofits or emergency appliance replacements.

Considerations for Successful Financing

- Consider the influence of loan term on monthly payments.
 - Shortest term loans are often for personal or business loans.
 - Mid-length term loans often occur with on-bill tariff programs.
 - Longest terms occur with efficiency/solar loans that are tied to mortgages.

Influence of Loan Term on Payments

Hypothetical Project

Annual Energy Savings:	42,301 kWh
Annual Energy Cost Savings:	\$6,927
Monthly Energy Cost Savings:	\$577

	<i>16 Month Term</i>	<i>24 month Term</i>	<i>36 Month Term</i>
Project Cost (net of \$7,800 rebate)	\$8,835	\$8,835	\$8,835
Monthly 0% Loan Payment	\$552	\$368	\$245
Net Savings (Between Energy Cost Savings and Monthly Principal & Interest)	<u>\$25</u>	<u>\$209</u>	<u>\$332</u>

Source: United Illuminating Company, 2008.

Considerations for Successful Financing

■ Interest rate

- Low interest rates are not necessary for all sectors.
 - Some of the highest participation programs (Manitoba Hydro, Keystone HELP) are not the lowest rate programs.
 - Interest rates and low-as-possible monthly payments are likely most important for residential or small business audit-based energy retrofits.

Pennsylvania: 3rd Party Lender

- Among most successful ee financing: simple and effective with an innovative capital source.
- Keystone HELP offers unsecured personal loans at rates ranging from 4.99%-6.99%.
 - 4.99% for whole-house, audited measures.
 - 5.99% for advanced measures.
 - 6.99% for straight-up ENERGY STAR® measures
- Administered by a 3rd party lender that specializes in energy lending.
- Delivered through a certified contractor network & 1-800 number.

Pennsylvania: 3rd Party Lender

- Typical loans are from \$5,000-\$7,000 over a 4-5 year term.
- Capitalized with \$20 million + from State Treasurer.
- Distribution of ~3,500 installations:

Whole-House	10%
Windows/Insulation	30%
HVAC	60%

Two Variants on On Bill Finance: Tariff-based systems

- PUC allows the utility to put an “energy service charge” on the bill.
 - One specific program is known as PAYS (Pay As You Save)
- The charge is actually a rate approved by the PUC.
- Energy savings will always exceed P&I payments.
- Failure to pay could result in disconnection in extreme circumstances.
- Obligation to pay passes to the next owner -- it stays with the meter.

Two Variants on On Bill Finance: Loan based systems

- Utility sets up a loan that is usually offered at a subsidized rate and at a term of up to 5 years.
- Customer pays for the loan through the utility bill.
- Energy savings typically exceed P&I.
- Obligation typically stays with the customer.

Manitoba Hydro: On-Bill Loan

- Most successful loan program in the country with \$200 million through 50,000 loans. Residential sector only.
- 4.9% rate for all loans is subsidized by utility (non-subsidized rate would be 5.9%). Maximum loan size is \$7,500.
- Covers insulation, lighting HVAC, windows, doors + others.
- Program administered by utility.
- But delivered through a strong network of contractors.

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- Covers insulation, lighting HVAC, windows, doors + others.
- Program administered by utility.
- But delivered through a strong network of contractors.
- The program uses a streamlined application process.
 - Borrowers know within minutes if they are approved.

MidWest Energy: On-Bill Tariff

- One of the more successful on-bill tariff programs, designed for the residential sector, primarily.
- A PAYS-like program; many elements are modeled after the Pay As You Save Model.
- Customers agree to make a payment on their energy bill that covers efficiency measures identified in an energy audit.
- Customers pay 4% for this financing. This is a subsidized rate that would otherwise be 8% absent a buydown from the KHRC.

MidWest Energy: On-Bill Tariff

- This energy charge is not considered a loan.
- Any unamortized portion of the remaining balance is passed on to the next building occupant. This allows for an extended repayment period.
- Repayment term is capped a 180 months for residential and 120 months for the commercial sectors.
- Program requires that energy \$ savings must exceed financing charge, and financing charge be no larger than 90% of the energy savings.
 - In some cases, this means that the customer must make a financial contribution to bring down the size of the loan.
 - Typical projects have resulted in financing = to 82% of the energy savings.

MidWest Energy: On-Bill Tariff

- After 20 months of operation, the program had ~450 projects completed or in the queue. Substantial interest in the program existed. It may be taken state-wide as well.
- 1/2 of projects were thermal shell improvements in addition to HVAC measures. Typical projects cost is \$4,500.
- 14% of the projects are on rental locations. Almost all are in the residential sector.