Models for Financing Clean Energy

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Published numerous papers on clean energy finance – including most recent one for SWEEP.

Clean energy finance clients include states, lenders, national and regional associations and advocacy organizations. Working with these clients to set up new financing programs.
Presentation Objective

- To review several potential financing models as they are now occurring in several states.
- To provide an assessment of the types of the functions and types of markets that these models serve.
- The focus is on efficiency or small scale renewable energy -- not utility scale projects.
Outline

- A quick review of the major types of financing models available.
- A deeper look into financing models in:
  - Pennsylvania
  - Manitoba, Canada and Connecticut
  - Kansas
  - Berkeley, CA and Boulder, CO
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 Models
Considerations for Successful Financing

- Remember how much most people really care about their energy bill.
  - (Unless you’re a big industrial company, not that much, really)
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

- Sources of Capital
  - Loans -- CRA/PRI investments
  - Federal funds – EECBG, SEP
  - Treasury or Pension funds
  - Bonding
  - Utility Public Benefit Funds
  - Private investor capital
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

<table>
<thead>
<tr>
<th>Hypothetical Project</th>
<th>16 Month Term</th>
<th>24 month Term</th>
<th>36 Month Term</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Annual Energy Savings:</strong> 42,301 kWh</td>
<td>$8,835</td>
<td>$8,835</td>
<td>$8,835</td>
</tr>
<tr>
<td><strong>Annual Energy Cost Savings:</strong> $6,927</td>
<td></td>
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<td></td>
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<tr>
<td><strong>Monthly Energy Cost Savings:</strong> $577</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Project Cost (net of $7,800 rebate)</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Monthly 0% Loan Payment</strong> $552</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Net Savings (Between Energy Cost Savings and Monthly Principal &amp; Interest)</strong> $25</td>
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</tr>
<tr>
<td><strong>Net Savings (Between Energy Cost Savings and Monthly Principal &amp; Interest)</strong> $209</td>
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</tr>
<tr>
<td><strong>Net Savings (Between Energy Cost Savings and Monthly Principal &amp; Interest)</strong> $332</td>
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</table>

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.
## Considerations for Successful Financing

- Manage credit and default rates.

<table>
<thead>
<tr>
<th>Program</th>
<th>Default Rate</th>
<th>Criteria Used to Assess Credit Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keystone HELP</td>
<td>1.5%</td>
<td>Credit score of 640 minimum. Average score is 720</td>
</tr>
<tr>
<td>Manitoba Hydro</td>
<td>&lt;1%</td>
<td>Current on utility bill for at least 12 months; credit score considered</td>
</tr>
<tr>
<td>Midwest Energy</td>
<td>0%</td>
<td>Current on utility bill for 12 months</td>
</tr>
<tr>
<td>United Illuminating Sempra</td>
<td>&lt;1%</td>
<td>Current on utility bill. In business for at least six months.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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.</td>
</tr>
</tbody>
</table>
Companion Bill Example

- Pennsylvania Keystone HELP
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:

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<tbody>
<tr>
<td>Whole-House</td>
<td>10%</td>
</tr>
<tr>
<td>Windows/Insulation</td>
<td>30%</td>
</tr>
<tr>
<td>HVAC</td>
<td>60%</td>
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</table>
On-Bill Financing: Tariffs and Loans

- Utility acts as finance program administrator, collection agent. May act as Capital Provider.
- Designed for either renewable energy or energy efficiency.
- Collections are through the utility bill.
  - A single bill for all energy/efficiency program payments.
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.
Why Not On-Bill Financing?

- Needs the utility to truly want to participate.
- Utilities can have legitimate concerns
  - Billing and collections systems may not be set up for a loan program.
  - Concerns about bad debt
- These issues can be resolved.
Why Not On Bill Financing?

- In cases where lenders provide capital
  - Lenders may be reluctant to give up servicing and collection
    - Contact with borrower and ability to upsell
    - Risk – lender capital at risk and utility collection
      - What is the definition of default??
- If a significant loss reserve is unavailable, then lender may be unwilling to participate.
Why Is On-Bill Financing Attractive?

- Simplicity
- Can provide a secure payment stream.
- Leads to lower cost of capital and lowers cost of borrowing.
- Can be combined with a rebate program.
- Utilities can have a vested interest in making this work, if they have strong incentives to make energy efficiency programs work.
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.
Connecticut: On-bill loan

- United Illuminating (UI) program is one of the most successful on bill loan programs in the small commercial sector. Has reached nearly 1/3 of eligible customer base.

- UI offers a 0% loan that is paired with rebates.

- UI-certified contractors conduct an audit and provide results to the utility. Customer/borrowers apply for loans and are screened for credit worthiness.

- Default rates on loans have been less than 1%.
Connecticut: On-bill loan

- UI is now bumping up against its $4.5 million program maximum and has asked the utility commission to increase loan maximum to $7 million.
- Lighting upgrades and refrigeration make up the majority of the installations. Typical loans are $8-12,000.
- The combination of rebates and on bill loan always give the customer a net positive cash flow from day one.
- Relationship with contractors has been absolutely critical to program success.
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.