Financing Energy Efficiency Retrofits:
No Money Down Programs that Use Utility Bills to Pay Back the Cost of the Retrofit Through Energy Savings

INTRODUCTION

On-Bill Financing programs and Pay As You Save (PAYS) are two working models of programs which aim to overcome some of the typical barriers to implementing energy efficiency retrofits, such as the large up-front capital cost and the hassle of trying to understand a technical and disorganized market. On-Bill Financing programs are run by a number of utilities around the United States and Canada. The PAYS model is a registered trademark of PAYS America, Inc. and currently operates in New Hampshire and Kansas utiltities. Both models do not require the customer to provide any upfront capital, and allow the customer to pay back the cost of the retrofit, including financing charges on their utility bill by taking advantage the energy savings generated by the retrofit as the source of payment.

Comment [RU1]: This is overstated as it is quite common for energy savings not to materialize, esp. in residential buildings as customers use more energy to take advantage of the increased comfort and cost savings

Both On-Bill Financing and PAYS have typically been targeted toward customers that may have difficulty accessing capital: residential households, small businesses and municipalities.

Despite these similarities, the two models are conceptually different:

- **On-Bill Financing** – is an *incentive based program model*. Existing programs have largely been based on the United Illuminating (CT) program whereby rebates and other incentive programs are bundled with the on-bill program. Many On-Bill Financing programs are funded by monies allocated through public benefit charges that are charged to all ratepayers on their utility bills (and require regulatory or legislative authority to implement); at least one program run by First Electric Cooperative (AR) has been financed with third party financing. The programs are typically just one of many energy efficiency programs offered by the utilities.

  Common features of on bill financing programs include:
    - Subsidized, low cost financing for portion of project cost—0% interest in some cases
    - No obligation, free energy audit
    - Payback periods relatively short (typically range from 2 to 5 years)
    - Obligation to pay is attached to the customer
    - Relatively small project size (from $5,000 to $50,000)

  Programs differ from each other in the following ways:
    - Recourse:
        - Unsecured – San Diego Gas & Electric and Southern California Gas offer unsecured loans; if a customer does not pay their bill

then the only recourse the utility has is to disconnect them from utility service;

- Collection Agent – in the National Grid program, if a customer does not pay their bill then they are referred to a collection agent;
- Liens and Mortgages – in the First Electric Cooperative program, loans between $500 and $2,500 are secured with an equipment lien and loans over $2,500 are secured with a property mortgage and equipment lien.

Comment [RU2]: What does the security require in regards t credit worthiness and underwriting requirements?

- Underwriting:
  - Proxies for good credit such as being a customer of good standing and being a customer for certain amount of time are used by San Diego Gas & Electric (must be a customer for 2-years with no disconnect notices in past 12-months and no deposit on hand or pending), Southern California Gas (must be a customer for 2-years with no disconnect notices in past 12-months and no deposit on-hand or pending), and United Illuminating (must have been a customer for 6-months, one occurrence of 60-day arrear allowed, but not in last 6-months)
  - Credit checks are used by First Electric Cooperative (which funds its program using 3rd party financing)

The utilities operating On-Bill Financing programs often RFP for contractors to deliver energy audits and retrofits—this is the case with National Grid and United Illuminating.

Comment [C3]: Do the contractors offer performance guarantees of any kind? Or is this part of the new territory that Rob Bennet is trying to charter with Home Depot, Green homes, and others?

- **PAYS** – is a particular type of *tariff installation model*. PAYS is not a financing program, but rather a market-based system. The three key elements of the PAYS model are:
  - Obligation to pay attached to the meter – a tariff charge is approved by a regulator and assigned to a meter location, not an individual customer—the tariff charge stays with the meter even when customers move. The tariff charge is not a loan and does not count towards consumer debt.
  - Billing and payment on utility bill with disconnection for non-payment
  - Independent Certification that products are appropriate and savings estimates exceed payments

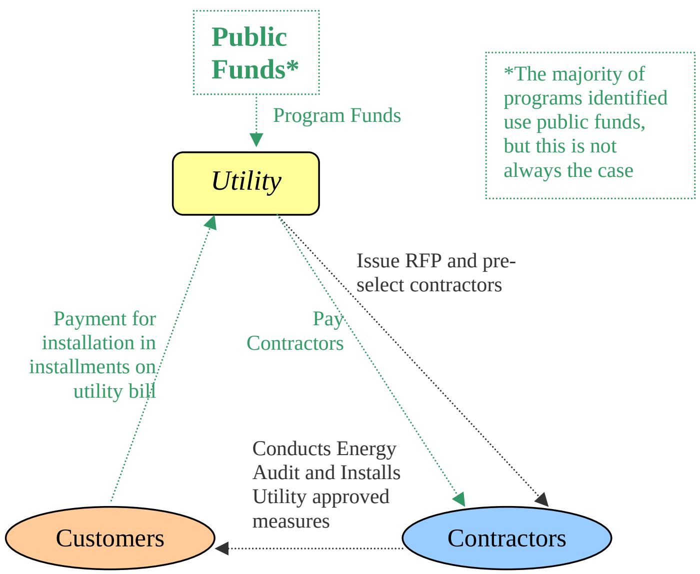
Comment [C4]: Provided by whom? If savings don't meet estimates, what happens? Does anybody cover the difference?

Pre-qualified PAYS contractors essentially deliver the program. PAYS relies on independent certification that products are appropriate and savings estimates exceed payments. Eligible measures are those for which payments equal no more than 3/4 of the estimated savings over 3/4 of the estimated life of such measure. By design, utilities are meant to perform only billing and collection functions. In New Hampshire the utilities coordinate the SmartSTART program (the PAYS program) and directly pay the contractors. The utilities are allowed to earn an incentive payment of 6% of loans repaid.

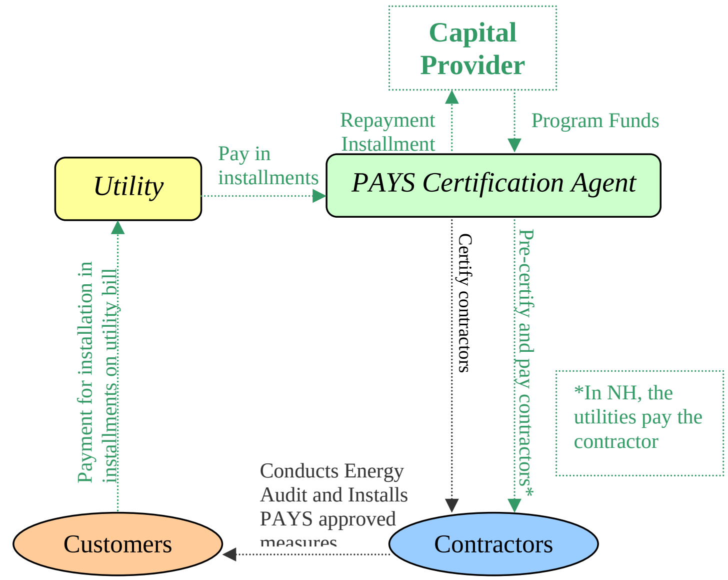
Comment [RU5]: What are the financing terms?

STRUCTURE OF ON-BILL FINANCING AND PAYS MODELS – both On-Bill Financing programs and PAYS are somewhat flexible models and can be structured in different ways. The diagrams below depict typical structures, but do not represent the only structures that exist or are possible.

On-Bill Financing



PAYS



WHERE HAS ON-BILL FINANCING BEEN IMPLEMENTED?

Examples of existing on-bill financing programs in six states are outlined below. A more comprehensive spreadsheet of fifteen programs operating in the United States and Canada is provided in the appendix.

Comment [RU6]: Need case study of PAYS pilot as the components –t he pre-qualified measures, the financing rates and terms, the general mechanics are not clear.

a) Small Business Energy Advantage program operated by both United Illuminating Company, an electric transmission and distribution utility located in New Haven, Connecticut and serving 35% of Connecticut's total population, and Connecticut Light & Power, Connecticut's largest electric power distribution company;
b) Small Business Program offered by National Grid in Massachusetts, New Hampshire and Rhode Island;
c) On-Bill Financing Programs funded by the California utility ratepayers and administered by Southern California Edison Company, Southern California Gas, and San Diego Gas & Electric under the auspices of the California Public Utilities Commission.
d) The Home Improvement Loan Program, administered by the First Electric Cooperative in Arkansas

Small Business Energy Advantage, Connecticut

The Small Business Energy Advantage program is operated by two electric power distribution companies in Connecticut: United Illuminating (UI) and Connecticut Light & Power (CL&P). Funding for the program is provided by the Connecticut Energy Efficiency Fund, which in turn receives funding from the Combined Public Benefits Charge on all UI and CL&P customers' monthly electric bills (billed at 3/10ths of a cent per kWh). In the case of United Illuminating, the Connecticut Energy Efficiency Fund provides for 30% to 40% of the project cost and United Illuminating, itself, provides the balance of funds for the 0% financing (which are guaranteed by the Connecticut Energy Efficiency Fund). A total of 1,522 projects were completed under the Small Business Energy Advantage program in 2006 at a cost of $9.1 million—these completed projects generated annual customer energy savings of 38.3 MWh.

Features of the Small Business Energy Advantage program include:

- Free energy audit
- The Connecticut Energy Efficiency Fund may pay between 25% to 50% of the cost of the installation
- Maximum 0% financing loan term of 30 or 36 months
- Eligible participants must be in good credit standing and must be:
  - Small business customers with an average 12-month peak demand up to 150 kW (UI) or 200 kW (CL&P)
  - Municipal or government agency facilities that meet the above criteria
- If customer does not qualify for 0% financing or chooses not to participate in the 0% financing offer the customer may pay the contractor directly for the work (CL&P)

- CL&P offers a separate bill to repay the 0% financing loan; UI offers it as line item on regular energy bill

The Small Business Energy Advantage program has been promoted as a model by the Center for Small Business and the Environment, a non-profit organization that helped the California Public Utilities Commission launch the on-bill financing pilot programs by three large-investor owned utilities discussed in detail below: Southern California Edison Company, Southern California Gas Company and San Diego Gas & Electric. The program was also identified as exemplary by the American Council for an Energy-Efficient Economy in its *2nd National Review and Recognition of Exemplary Energy Efficiency Programs*.

Small Business Program, Massachusetts and Rhode Island

National Grid of Massachusetts and Rhode Island, a wholly owned subsidiary of National Grid plc, one of the world's largest utilities, has offered a Small Business Program with an on-bill financing component since 1990. A total of 1,625 projects were completed in 2006 at a cost of $9.7 million—these completed projects generated 23,000 MWh in annual energy savings.

Features of the Small Business Program include:

- Free energy audit and recommended energy efficiency improvements
- National Grid pays 75 to 80% of the cost of the installation of energy efficient equipment
- Maximum 0% financing loan term of 24 months *or* customer can pay for 85% of the balance-owed (the 20% to 25% co-pay)
- Eligible participants are business customers with an average demand use of 200 kilowatts or less (or 40,300 kilowatt-hours or less) per month
- Cost for either financing option (0% financing or 15% reduction in bill) appears on monthly electric bill

The Small Business Program was identified as exemplary by the American Council for an Energy-Efficient Economy in its *2nd National Review and Recognition of Exemplary Energy Efficiency Programs*.

On-Bill Financing Programs, California

The Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company all currently offer On-Bill Financing programs for energy efficiency retrofits. The On-Bill Financing programs in California have been championed by Small Business California, a non-partisan business advocacy organization. The On-Bill Financing programs are funded through Public Purpose Funds that are charged to energy consumers on their energy bills.

Features of the Southern California Edison Company On-Bill Financing program include:

- Free energy audit

- Maximum 0% loan financing of 60 months
- Loan appears on monthly bill

Features of the Southern California Gas Company On-Bill Financing program include:

- Free energy audit (for qualified projects)
- $5,000 to $50,000 interest free (0%) unsecured loan per meter with a maximum term of up to 5-years
- Non-transferable
- Eligible participants meet the following criteria:
  - Active account for past two years
  - Account must be in good standing (no disconnect notices in past 12 months)
  - No deposit on hand or pending
  - A five-year or better project payback based on projected annual energy savings
- Target market is non-residential customers, including government, and owners of multi-family units who do not reside on premises
- Loan is included as line-item on monthly utility bill

Features of the San Diego Gas and Electric Company On-Bill Financing program include:

- On-Bill Financing Program works in conjunction with select SDG&E rebate and incentive programs
- $5,000 to $50,000 interest free (0%) loan per meter with a maximum term of up to 5-years (the loan term for the project is determined by the repayment period of the equipment selected through the eligible programs and is calculated based on estimated annual energy savings not to exceed the maximum loan term)
- Eligible participants must meet the following criteria:
  - Receive a rebate or incentive through an SDG&E energy efficiency program
  - Have an active SDG&E account for the past two years for the same business
  - Account must be in good standing
  - No deposit on record
  - No disconnect notices in the past 12-months
- Loan is included on monthly utility bill.

Home Improvement Loan Program, Arkansas

The First Electric Cooperative is a small, member-owned electric utility, providing electricity to 17 (out of 75) counties in Arkansas. They administer an on-bill program, the Home Improvement Loan Program, for which the eligible participants are single-family dwellings that are primary or secondary residences and are served electric power by FECC. Consumers who borrow from this program are required to own and operate the property. It is the only example covered in this summary of an on-bill program financed by a third party lender.

Features of the First Electric Cooperative's On-bill program include:

- Possible measures include: heat pumps, Marathon Electric water heaters, surge and lighting protection, portable home generators, duct systems and sealing, thermal improvements, windows and doors, and general electric service upgrades
- Customers can borrow anywhere from $500-15,000, with terms from 12-60 months (maximum of five years).
- The interest rate remains fixed for the life of the loan
- There is no pre-payment penalty
- Payments are included on the monthly electric bill
- Loans between $500 and $2500 secured with an equipment lien
- Loans over $2500 secured with a property mortgage and equipment lien

Comment [RB7]: More details on on-bill financing mechanisms

STRENGTHS AND WEAKNESSES OF ON-BILL FINANCING AND PAYS MODELS

On-Bill Financing

Strengths

- Comprehensive program design and ease of customer use – utility manages energy audit and provides complete package of services (including recycling in the National Grid program)
- Buying power – utilities go out to bid for contractors helping to ensure low cost to customer

Comment [C8]: Maybe add something here about the possibility of amortizing full program cost across multiple ratepayers through public benefits charge?

Weaknesses

- Non-core program – Utilities implementing the programs do not see them as a core part of their business, which disinclines them to scale on-bill programs
- Split incentives problem – Landlord gets little return, and therefore has little incentive to make investment that reduces tenant's energy cost and tenant has no incentive to invest in landlord's building
- Relatively short payback periods – Utilities do not see themselves as a bank and therefore do not want to extend financing for lengthy periods of time (which drives up their administrative costs and potentially their default rates)
- Misaligned incentives – Utilities may not want to implement energy efficiency programs if they reduce profits
- Limited to utility customers with accounts
- Not fuel blind

Comment [C9]: Could we flesh this one out a little? I'm having a hard time digesting it myself. I thought the point was that on-bill requires no up-front investment…so why does it say here that the landlord/tenant has to make the investment? Is this an issue because unlike with EPC, the savings generated might not be guaranteed to be less than re-payment?

PAYS

Strengths

- Overcomes split incentives problem as payments are assigned to meters—therefore tenants may invest even when there is a possibility of moving
- Inexpensive—A "bare bones" PAYS program should be administratively less expensive to operate

Comment [C10]: Why?

Weaknesses

- Potential consumer hassle – PAYS is a market-based system and relies on PAYS certified contractors and word of mouth to promote customer uptake
- Buying power – how does the PAYS Certification Agent ensure that customers are getting the best price?
- Difficulty of measurement – with a decentralized model it may be difficult to keep track of program success
- Assignment to meter potentially creates new limiting factor—weak real estate markets with high vacancy rates may present new barrier to uptake