



**Clean Energy Partnership
Q2 Board Meeting
June 17, 2019**



Agenda

1. Welcome and Introductions
2. Review and Approve Agenda and Q1 Minutes
3. EVAC Co-Chairs Update
4. Inclusive Financing
5. Other Partner Updates – Home Energy Squad Wait Times and Reduction Efforts



EVAC Co-Chair Update



Inclusive Financing



Energy Transition Lab introduction and Cadmus presentation of Minnesota Tariffed On-Bill Financing Feasibility Study

CADMUS

Minnesota Tariffed On-Bill Financing Feasibility Study

Clean Energy Partnership Briefing

June 17, 2019

CADMUS

Tariffed On-Bill Financing Overview

- **On-Bill Financing (OBF):** A common energy program, the utility bill is used as the mechanism to repay a home energy loan
- **Tariffed On-Bill Financing (TOBF):** Rather than a loan, the utility invests in home energy improvements and recovers costs through a tariffed charge
 - Investments calculated based on the amount that can be repaid by a portion (e.g. 80%) of expected savings
 - Considered an **inclusive financing approach** because of accessibility to low-income residents and renters
 - **Pay As You Save® (PAYS®)** is a branded TOBF program that is gaining popularity, in particular among rural electric cooperatives
- This study is assessing the **feasibility of tariffed on-bill financing in Minnesota**

Analysis Tasks

1. **Market Segmentation:** Comparison of low-income/rental building stock to overall building stock
2. **Measure Screening:** Identifying measures and packages that can be financed through a TOBF program
3. **Benchmarking Study:** Understanding program costs and participation rates of prior and similar programs
4. **Cost-Effectiveness:** Assessing costs and benefits from societal, utility, and ratepayer, and participant perspectives
5. **Report**

Stakeholder Advisory Group

- Study is supported by a **26-member advisory group**
- Group **advises** on approach and **vets** inputs and assumptions
- Members include:
 - Utilities (including Xcel and Centerpoint)
 - State and local government (including City of Minneapolis)
 - Community groups
 - Industry experts

Status

- **June 6:** presented preliminary results to advisory group for feedback
- **Currently:** collecting feedback from advisory group and preparing revised and final analysis and report
- **Week of July 15:** anticipated release of final results and stakeholder briefing

Initial Results: Market Segmentation

In Minneapolis, LMI and rental households disproportionately live in **large multi-family housing** and **electric-heated homes** (though majority uses gas)

		Statewide	Minneapolis	Minneapolis LMI	Minneapolis Rental
Total Households		2,382,845	183,682	78,500	87,944
Heating Fuel	Electricity	15%	19%	27%	32%
	Utility Gas	59%	71%	68%	63%
	Propane	9%	2%	2%	1%
	Other/Unknown	16%	9%	4%	4%
Building Type	Single Family	75%	48%	32%	16%
	2-4 Unit	4%	13%	14%	18%
	5+ Unit	17%	39%	54%	66%
	Other/Unknown	3%	0%	0%	0%
5+ Unit MF Home and Electric Heat		7%	14%	21%	25%

Initial Results: Measure Screening

Prior Programs

- **Existing TOBF/PAYS** programs tailor installed measures to cost-effective opportunity in a specific home
- **A typical TOBF/PAYS participant** is likely to:
 - Reside in a poor-efficiency, high-bill home, most commonly with electric resistance heat
 - Install a suite of insulation and air sealing measures, often in tandem with an ASHP or other heating system
 - Have strong opportunities for cost-effective energy improvements

Initial Results: Measure Screening

Measures Evaluated

HVAC Equipment

- ASHP
- GSHP
- Ductless mini-split
- Furnace
- Boiler
- Central AC

DHW Equipment

- Heat Pump Water Heater
- Gas Tank Water Heater
- Gas Tankless Water Heater

Envelope Measures

- Attic Insulation + Air Sealing
- Wall Insulation

Distributed Energy

- Solar PV

*Equipment measures evaluated both on **standalone** basis and in **combination** with envelope upgrades & small measures*

Initial Results: Measure Screening

Key Scenarios

Program Cost of Capital Scenarios:

- Market-Rate (base case): 4.99% (current CEE Home Energy Loan rate)
- Subsidized Rate: 0% (akin to Massachusetts HEAT Loan)
- Utility Commercial Rate: 9.05% (utility pre-tax WACC)

Household Energy Consumption Scenarios:

- Normal (based on utility averages and TRM EFLH)
- High (assumed larger system sizes and reduced existing insulation)

Cost and Participation Benchmarking

- **Substantially different benchmarks** sourced from:
 - Prior TOBF/PAYS programs (primarily from rural electric cooperatives)
 - IOU-run On-Bill Loan Programs (e.g. Centerpoint On-Bill Recovery Program)

	Prior PAYS Program	Centerpoint OBR Program
Participation Rate	Up to 5% participation over several years (e.g. OECC with 520 installs out of 8,500 residential meters)	500 participants/year (0.32% of residential accounts over 5 years)
Program Costs	Minimal upfront / admin costs; Implementation Costs ~\$1000 per participant	Startup costs of \$475,000; Annual administration of \$125,000; Implementation Costs ~\$1,000 per participant

Initial Results: Measure Screening

Indicative Results

Technology	Opportunity	Targeted Segments/Notes
Attic Insulation	Green	Strong opportunity for financing against electric and propane heat
Wall Insulation	Green	Strong opportunity for financing, even against gas heat in high-consumption / low-insulation cases
ASHP	Yellow	Potential option in electric resistance homes (unless home is charged at low all-electric tariff)
GSHP	Orange	Some possibility in all-electric homes, but large copayments still likely required
Ductless Mini-Split	Green	Better opportunity in all-electric homes, especially when paired with insulation package
Central AC	Red	Not viable for OBF
Furnace	Yellow	Could be useful in financing incremental cost of upgrade to efficient unit, or when paired with insulation or provided a low financing rate
Boiler	Orange	Limited opportunities, but could help financing incremental upgrade to efficient unit
HPWH	Orange	Limited opportunities, except when paired with insulation package
Gas Water Heater	Orange	Limited opportunities to finance full cost of unit
Solar PV	Green	Could finance a significant share of a system, especially when paired with existing subsidies

Notes:

Results are generalized here but vary based on heating fuel, geographic area, cost of capital, and other factors.

Results are preliminary and are currently being refined with stakeholder input.

Preliminary Conclusions

Measure Screening & Cost-Effectiveness

- Expected to be **numerous economic opportunities** for TOBF

Strongest opportunities:

- Homes with electric heat
- Homes with poor efficiency
- Insulation and air sealing measures

Targeted opportunities based on circumstance:

- Homes with gas heat
- Average-consumption homes
- Equipment measures
(e.g. combined with insulation & air sealing)
- Solar PV
(e.g. when paired with existing Solar Rebates)

Preliminary Conclusions

Cost of Capital

- **Impact of Cost of Capital:**

- For a majority of scenarios assessed, changing the cost of capital would have an **incremental impact** and not change the interpretation of results
- However, the program cost of capital has a **significant impact on measures with marginal TOBF feasibility**
 - For these measures, a low cost of capital may enable participation while a high cost of capital may preclude it
- Adopting a lower cost of capital for the program would **enable a broader set of feasible measures, but would also increase program costs**
 - Programs operated by rural cooperatives and municipal utilities may be able to secure low-cost financing from USDA as prior programs have done
 - A subsidy would be required to enable a below-market cost of capital for an IOU-implemented program

Preliminary Conclusions

Program Design

- **Program Cost-Effectiveness**

- Overall program **BCA would vary on a range of factors** that must be defined, including:
 - Eligible measures (e.g. solar and propane savings harm the UCT)
 - Program cost of capital
 - Participation rates

- **Program Planning Considerations**

- Several **factors regarding program cost and participation remain uncertain** due to lack of direct precedent
 - Prior program estimates are from loan-based programs implemented in large jurisdictions, and tariff-based programs implemented in small jurisdictions
- This analysis does not address key planning factors such as the program design for potential switching or propane-heat measures.
- A process is needed to reconcile home-specific savings estimation with the CIP process



State Energy Office-sponsored Cadmus Legal/Regulatory Analysis Update



Partnership Activity Pilot Program Status Update and Next Steps



Home Energy Squad – Current Wait Times and Reduction Efforts



Adjourn

Next Board Meeting

August 5, 2019

3:30 - 5:30 pm

Minneapolis Public Library, Doty Board Room