Final Report
Pacific Power-Energy Trust Targeted Load Management
Medford Pilot
Process Evaluation – Post Implementation

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Executive Summary

Introduction

Energy Trust of Oregon (Energy Trust) and Pacific Power sponsored two innovative Targeted Load Management (TLM) pilots within the geographic areas and timelines shown in Table 1. The Oregon Public Utility Commission (OPUC) is also an interested party. The process and results of these TLM pilots intend to help these parties assess to what extent energy efficiency and renewable energy projects can result in peak load reduction (load reduction)[1] within a compressed timeframe in an area facing capacity constraints, and whether these resources are a reliable, less expensive solution than traditional utility infrastructure improvements under the same conditions.

Table 1 Energy Trust and Pacific Power TLM Pilots: Overall Timelines

Geographic Area	Planning	Implementation	Evaluation
North Santiam Canyon	2016	2017-2018	2017-2019
Medford Area (includes some of Medford + Phoenix and Talent, OR)	2018	2019-2020	2019-2021

This report is a post-implementation process evaluation of the Medford area pilot only. It is based on an earlier process evaluation[2]; a December 2020 Energy Trust progress report[3], which included a billing analysis; final statistics from Energy Trust's TLM Power BI tracking system; and 19 in-depth interviews with key stakeholders: two with Pacific Power staff members, one from the OPUC, and sixteen from Energy Trust or their implementation contractors.

The sponsors designed the Medford area TLM pilot for fast and targeted deployment of energy efficiency and solar projects to reduce summer load (weekdays, June through August, 1-9 pm). The pilot had two phases:

- Phase 1 increased local outreach and marketing impressions (April to December 2019)
- Phase 2 increased local outreach, added marketing, and offered higher project incentives, within current cost-effectiveness guidelines, for load reduction measures (January – December 2020)

Notably, Phase 2 collided with two extreme external challenges: the COVID-19 Pandemic (Pandemic) in March 2020, and destructive wildfires in the target area in September 2020.

Overall Assessment

Stakeholder interviews and secondary sources show the Medford area pilot added valuable tools, experience, lessons, and results to inform future TLM efforts. The pilot:

[1] **Note on terms:** This report uses the term "load reduction" (and variations such as reduced load) to refer to the aggregated average measure level load reduction, due to both energy efficiency and solar measures, occurring during system level peak. Quotes from respondents and documents may contain alternate terms such as peak demand reduction.

[2] A retrospective assessment of the North Santiam pilot and an early process evaluation of the Medford area pilot can be found in this report: *Pacific Power Targeted Load Management Projects: Medford – Early Process Evaluation; Santiam – Retrospective Process Evaluation*, December 19, 2019

[3] Energy Trust and Pacific Power Targeted Load Management Pilot 2020 Progress Report (July 2019-July 2020), October 2020.

- Increased Energy Trust's ability to reduce load, compared to baseline program efforts in the area, by 36%. Reduced load resulted from both efficiency and solar projects, with an outsized portion coming from solar projects.
- Developed a method to select measures targeted to reduce load.
- Put in place tracking, budget management, and evaluation tools.
- Provided lessons about fast-paced targeted marketing, outreach, and services in an area where customers were less aware of Energy Trust, had a low and mostly rural population, was geographically irregular, and was less familiar to Energy Trust and its Program Management Contractors (PMCs).
- Nimbly adjusted approaches when implementation hiccups and extreme events arose, including adding new load-reduction measures or not pursuing planned measures; changing marketing and outreach strategies; and providing continuous support to trade allies (TAs) and contractors.
- Improved the working relationship between the sponsors.

At the time of this evaluation, the viability of the TLM approach for electric system planning was uncertain. The Pandemic and wildfires make it difficult to know if the pilot's trajectory and results are representative of what would happen if similar solutions were employed elsewhere to reduce loads.

Energy Trust and OPUC stakeholders are enthusiastic about TLM's lessons and its potential to reduce load (based upon its calculations). Pacific Power, while satisfied with the learning and relationship-building aspects of the pilot, voiced limited interest in future TLM projects. It also has not analyzed its metered data to assess load reduction, an activity that would add insight about the pilot's effectiveness.

The remainder of this section summarizes the findings behind these overall conclusions and provides recommendations for future TLM efforts based upon the lessons learned. Chapter 5 provides more detail on the topics presented here.

Effectiveness of the Pilot in Meeting Its Goals

1. Reduce Load Through Energy Efficiency and Renewables[4]

Tables 2 and 3 are based upon Energy Trust's calculations. The tables, along with feedback from the field, suggest the following conclusions about the pilot's effectiveness in reducing load:

- The pilot's extra and targeted efforts and incentives succeeded in prompting more efficiency and solar projects and reduced load by 36% compared to the baseline.
- Many more customers took energy efficiency actions during the pilot compared to the baseline. On average these actions were smaller and had less impact on load reduction.
- An outsized portion of the reduced load came from a small number of larger solar projects. It's likely the pilot tapped into pent-up demand from customers already considering solar.
- Customers likely encountered these barriers to taking action:
    - Financial uncertainty, supply chain delays, and loss or damage to homes and buildings due to wildfires.

[4]These data are derived from Energy Trust's tracking dashboard which reports both on annual kWh savings and kW load reduction. Only kW load reduction is used in this report since that is the focus of the TLM pilot.

- Low availability or interest of local trade allies to promote some measures.
- A time frame too short for larger efficiency projects to be identified and installed unless they were already planned prior to implementing the pilot.

Table 2 Baseline to Pilot Comparisons: Load Reduction and Project Counts

Sector	Baseline kW Load Reduction	Pilot kW Load Reduction	% of Baseline kW Load Reduction	% of Pilot kW Load Reduction	Pilot Minus Baseline kW Load Reduction	Rate of Change: Baseline Compared to Pilot kW Load Reduction
Residential	42	50	19%	16%	+8	+19%
Commercial	94	75	42%	25%	-19	-20%
Industrial	43	17	19%	6%	-26	-60%
Renewables	44	162	20%	53%	+118	+268%
Totals	**223**	**304****	**100%**	**100%**	**+81**	**+36%**

Sector	Baseline Project Counts	Pilot Project Counts	% of Baseline Projects	% of Pilot Projects	Pilot Minus Baseline Project Counts	Rate of Change: Baseline Compared to Pilot Project Counts
Residential	125	236	86%	70%	+111	+89%
Commercial	10	80	7%	24%	+70	+700%***
Industrial	1	9	1%	2%	+8	+800%***
Renewables	9	12	6%	4%	+3	+33%
Totals	**145**	**337**	**100%**	**100%**	**+192**	**+132%**
	*Households only receiving Energy Saver Kits, which do not reduce load, are not included in project counts. **Due to rounding, the total displayed in the pilot dashboard is 303 kW. ***Note the small number of projects in the baseline.					

Table 3 Baseline to Pilot Comparisons: Average Project kW Load Reduction

Sector	Baseline Average Project kW Load Reduction	Pilot Average Project kW Load Reduction	Rate of Change: Baseline Average Project Load Reduction Compared to Pilot Project Average
Residential	0.34	0.21	-38%
Commercial	9.40	0.94	-90%
Industrial	43.00	1.89	-96%
Renewables	4.89	13.50	176%
Total	**1.54**	**0.90**	**-42%**

2. Learn About Rapid Deployment of Energy Efficiency and Renewables

The pilot team developed and executed these important tools and capabilities for future TLM efforts:

- Methods to select measures with maximum ability to reduce load.
- An up-front local market analysis to inform marketing, outreach and design.
- An initial marketing campaign to build local awareness of Energy Trust and its offerings.
- The ability to quickly adjust program delivery and measures to respond to the local market.
- Methods to map and reach customers within a target area.
- Processes to appease or serve customers outside the target area who wanted to participate.

- Improved initial and ongoing training and involvement for local TAs.
- Test marketing to inform a community-based solar campaign and offer (Solarize)[5]
- The ongoing capture of marketing reach (the estimated number of customers reached with marketing efforts)
- A dynamic dashboard within the PowerBI platform to capture and integrate key pilot data.
- Approaches to make the customer journey as easy as possible.

3. Develop Processes for Sponsoring Organizations to Work Together

Stakeholders from both Energy Trust and Pacific Power agreed that their collaboration on the pilot built a sturdier and more trusting relationship between the sponsoring organizations. Several praised the ability of the project manager to organize and communicate effectively with its many team members internally and across organizations. Stakeholders also noted that more could be done to formalize processes, equalize the level of investment of the two sponsors, and improve collaboration for community selection, marketing and outreach, and assessment of impacts.

4. Contribute to Electric System Planning

None of the stakeholders, when interviewed, were aware of the final load reduction figures based upon the dashboard data (see Table 2 and Table 3). At that time, the kW reduction was below baseline and the eventual outcomes were uncertain, which may have affected perspectives. Opinions among the stakeholders varied about the ability of TLM to be used as tool in future electric distribution system planning. Energy Trust stakeholders were optimistic about TLM's ability to affect decisions about the strategies used to manage load.

Pacific Power stakeholders said the pilot had produced key learnings about collaborating with Energy Trust and about pursuing TLM. However, they voiced limited interest in future similar projects and had not analyzed their metered data to assess the level and adequacy of load reduction. The OPUC representative asked for more interpretation of the results and a summary of lessons learned from the pilot.

5. Develop Assessment Tools to Value TLM

The PowerBI dashboard; the billing analysis and the two-stage process evaluation; and Pacific Power's efforts to model load reduction using their metered data, are all very useful tools to track and assess the value of TLM. The incomplete load reduction analysis from Pacific Power limits the assessment of the pilot's load reduction value.

The tools listed above, along with progress reports, captured data and insights to assess TLM's value aside from load reduction. They provided key information and insights about TLM planning, delivery, and outcomes, costs, and success in fostering a stronger working relationship between the sponsoring organizations.

[5] A Solarize campaign, which relies upon motivating and incenting an entire community of customers to install solar panels on their homes and businesses, was planned for, but not implemented, during the pilot due to the Pandemic.

Lessons Learned and Recommendations

This section takes the lessons learned from the pilot and integrates them into recommendations for future TLM efforts. They fall into three categories of improvement: TLM Design and Implementation; Teamwork and Collaboration; and Tracking and Validation.

TLM Design and Implementation

- Future TLM efforts should cautiously apply these lessons about reducing load:
    a. Solar projects offer substantial load reduction opportunities even for short-term TLM efforts in areas ripe for solar.
    b. A community-based Solarize campaign should be offered in a future TLM project where solar installations are likely to be popular.
    c. Greater marketing and outreach, along with incentive increases, influenced a higher number of load reduction actions but these actions results in smaller average reductions in load (compared to the baseline).
        i. The larger base of residential customers, who also have a larger menu of smaller load reduction options than commercial and industrial customers, are more likely to take action.
        ii. Commercial and industrial customers are less likely to act on capital projects to reduce load within the short timeframe of a pilot, due to their longer planning and budgeting horizons.

- Future TLM efforts would likely benefit from greater support from and involvement with local government and community-based organizations who can influence customer attention and behavior.
- Overlapping or similar offers to those available through the TLM pilot should be minimized when possible because they confuse TAs and customers.
- The mechanisms already developed to Identify and reach eligible customers and to deal with customers just outside of TLM boundaries should be applied in future projects.
- TAs will not necessarily become involved with TLM efforts based upon increased incentives alone. Ongoing encouragement of TAs is needed to keep them active throughout TLM projects.
- Appealing prescriptive measures (such as the TLED offer) are needed in outreach to reach all business customers; these offers smooth awkward cold calls and, where load reduction options do not fit, can lead to energy efficiency savings.
- Greater standardization of TLM management and decision-making tools would make project management more efficient, more useful for evaluators and regulators, and help mitigate the effects of staff turnovers. (See specific suggestions in Chapter 5.)

Teamwork and Collaboration

- Ensure sponsors share the same priorities and are equally invested in TLM processes, decisions, outcomes, and assessment of value. Energy Trust was more focused on measurable load reduction outcomes, and Pacific Power was more focused on learning and relationship building, resulting in different assessments of the pilot's usefulness and future.
- On an ongoing basis remind team members of all project goals so that they can actively work toward meeting them.

- Consider how to make working on TLM efforts more visible and desirable to encourage staff to stay with TLM efforts and avoid loss of commitment and institutional memory.

Tracking and Validation

- Future TLM pilots should consult key audiences, including the OPUC, to ensure the contents of pilot reports and their timing meets their needs and keeps them up to date. For instance, the dashboard summaries would benefit from being more frequent and having a brief narrative that interprets their meaning and provides lessons learned.
- Subsequent TLM projects should compare the costs and benefits of the TLM approach to the costs and benefits of conducting business as usual. This metric will provide further understanding of the value of TLM.
- TLM results, lessons learned, and recommendations for future TLM efforts should be presented to and socialized with the larger Energy Trust staff, Pacific Power, and OPUC staff.
- Pacific Power's analysis of its metered data needs to be completed to assess the level and adequacy of load reduction achieved and TLM's future value.
- The Pandemic and wildfires affecting the target area suggest another TLM pilot would be useful to clarify the potential of TLM in managing load reduction.

Chapter 1: Introduction and Evaluation Approach

Context

Energy Trust of Oregon (Energy Trust) and Pacific Power collaborated on two innovative Targeted Load Management (TLM) pilots within the areas and timelines shown in Table 4. While the Oregon Public Utility Commission (OPUC) did not require or oversee these pilots, they are tracking their outcomes. These and other TLM pilots will help all three parties determine if and how energy efficiency and renewable energy resources can result in peak load reduction (load reduction) in a specific area of the utility distribution system within a compressed timeframe. If successful, such projects could be deployed to delay, reduce, or avert the need for traditional utility infrastructure improvements when targeted areas face potential capacity constraints.

Note on terms: This report uses the term "load reduction" (and variations such as reduced load) to refer to the aggregated average measure level load reduction, due to both energy efficiency and solar measures, occurring during system level peak. Quotes from respondents and documents may contain alternate terms such as peak demand reduction.

Table 4 Energy Trust and Pacific Power TLM Pilots: Overall Timelines

Geographic Area	Planning	Implementation	Evaluation
North Santiam Canyon	2016	2017-2018	2017-2019
Medford Area (includes some of Medford + Phoenix and Talent, OR)	2018	2019-2021	2019-2021

Pivot Advising conducted a retrospective assessment of the North Santiam pilot and an early process evaluation of the Medford Area pilot, covering the planning and increased marketing and outreach activities through August 2019.[6] This report is a post-implementation process evaluation of the Medford Area pilot covering marketing and implementation activities from September 2019 to the end of the pilot in December 2020.[7]

The pilot was designed to spur fast and targeted adoption of energy efficiency and solar energy to reduce peak load (weekdays, June through August, 1-9 pm) in the Medford area, which included a small portion of Medford, and most of Phoenix and Talent, Oregon. Pacific Power identified this area as facing future load constraints.

The pilot team increased the number of digital impressions distributed through existing marketing campaigns in the localized area, to encourage adoption of efficiency and solar load reduction technologies in Phase 1 (through December 2019). In Phase 2, beginning in January 2020, it increased marketing activities beyond existing campaigns and coupled them with higher incentives for the load reduction technologies (up to the maximum allowed under current avoided costs). Other standard Energy Trust offers were still available in the area as were some other special offers outside of the pilot.

[6] See *Pacific Power Targeted Load Management Projects: Medford – Early Process Evaluation; Santiam – Retrospective Process Evaluation*, December 19, 2019.

[7] Some background information prior to implementation is provided for continuity

When the Pandemic hit early in 2020, Energy Trust also offered statewide Pandemic bonuses to help businesses save money and energy. These incentives matched the load reduction incentives for measures in the Medford pilot as well as offering bonuses for other measures.

Evaluation Approach

This process evaluation is based upon program documents[8] and an analysis of in-depth qualitative interviews[9] with 19 TLM stakeholders:

- 2 from Pacific Power – including the pilot sponsor and local business representative
- 13 from Energy Trust – including the pilot sponsor and project manager, sector program managers, planners, data and operations analysts, marketing managers, trade ally/customer service manager, and the local area outreach manager
- 3 from Energy Trust's Program Management Contractors (PMC) – residential and commercial (including multifamily)
- 1 from the Oregon Public Utility Commission (OPUC) with oversight for Energy Trust activities

Stakeholder interviews were conducted between March 17th and May 6th, 2021. Table 5 lists the process research topics and questions for the Medford Area pilot.

Table 5 Research Topics and Questions

Topic	Research Questions
Stakeholders, Goals, and Pilot Narrative	Who is speaking? What are the roles of various stakeholders? How well did stakeholders understand pilot goals? How did the pilot unfold?
Effectiveness of Pilot Implementation	How were measures chosen? How appealing were the measures? How effective was outreach and marketing? How effective were increased incentives? What challenges emerged? What lessons have been learned?
Pilot Outcomes	How successfully did the pilot meet its goals? What lessons have been learned? What is the future for TLM projects in Oregon?

Assessment Notes

Assessing the TLM pilot had some notable challenges:

- A complex design covering all sectors, with multiple goals, and many measures and evolutionary changes.

[8] Key documents used for this report included: the 2019 process evaluation report; the pilot's implementation plan; and the October 2020 Energy Trust and Pacific Power Targeted Load Management Pilot 2020 Progress Report (July 2019 to July 2020). The initial draft of this report relied on tracking data and a billing analysis (Phoenix area only) in the 2020 progress report. Final pilot statistics from the PowerBI dashboard became available after Energy Trust's review of the draft report, resulting in a clearer and more optimistic assessment of the pilot.

[9] See Appendix A for the interview guide.

- A large and changing team roster, resulting in somewhat piecemeal views of the pilot. Key stakeholders left and could not be interviewed. Others joined partway or changed positions. The Energy Trust PM cited staff changes as a top challenge because it was "a large effort to bring folks up to speed each time and people were not always engaged."
- Limited or out-of-date documentation for the initial process evaluation report, including final statistics about measures, project numbers, and load reduction.
- The unknown effects of the Pandemic and wildfires on pilot outcomes.

Report Organization and Use of Quotes

The following chapters in this report are both descriptive and evaluative. They include:

- Chapter 2: Pilot Goals and Narrative
- Chapter 3: Effectiveness of Implementation
- Chapter 4: Pilot Challenges and the Future of TLM
- Chapter 5: Conclusions, Lessons Learned, and Recommendations

Throughout the reports' quotes are used to illustrate the points respondents made; all quotes have been double-checked through listening to recordings of the interviews. Some have been edited for length using an ellipsis (. . .) to show the gaps, or for clarity, adding missing words within these brackets [ ]. Shorter quotes, embedded in the narrative, are in quotation marks. Longer quotes are centered and in italics.

Chapter 2: Pilot Goals and Narrative

This chapter outlines pilot goals and explores stakeholders' understanding of them. It also describes the pilot's timeline and key events.

Summary: When asked to describe project goals, most understood the pilot intended to reduce peak load in a capacity-constrained area through energy efficiency and renewable energy projects. Fewer mentioned other stated goals of the pilot: to provide feedback on rapid deployment; develop processes for Pacific Power and Energy Trust to work together; contribute to electric system planning; and develop assessment tools to value TLM. Finally, some stakeholders said they were uncertain about the pilot's goals or mentioned goals outside the stated purview of the pilot.

Stakeholders and secondary sources provided the ingredients for the pilot's narrative presented in this chapter. After an enthusiastic Phase 1 launch, and an optimistic launch of Phase 2, the pilot faced significant external challenges dealing first with the Pandemic and then destructive wildfires.

Understanding of Pilot Goals

Based upon the 2019 Implementation Plan and stakeholder responses to the earlier process evaluation, the Medford area pilot intended to build and expand upon the results of the North Santiam pilot. The pilot sought to meet these goals:

1. Reduce summer peak load in a capacity-constrained area through energy efficiency and solar energy projects
2. Provide feedback about how to rapidly deploy targeted energy efficiency and renewables projects.
3. Develop processes for Pacific Power and Energy Trust to work together on TLM projects.
4. Contribute to electric system planning.
5. Develop methods to assess the value of TLM projects.

Overall, stakeholders who were more involved throughout the pilot gave deeper answers and included more goals, although no one mentioned all five goals and only a few mentioned more than the first two goals. Those who were less active throughout, who joined mid-stream, or who had more narrow purviews often spoke in less depth, named fewer goals, or were more uncertain.

Stakeholders most often mentioned Goal #1, using efficiency and solar energy to mitigate constrained grid capacity during peak periods. They described this goal with various levels of detail, as these quotes show:

To see if short-term change can have short-term impact in the pilot area. – Pacific Power Sponsor

Pacific Power asked Energy Trust to do a pilot. . .[exploring] energy efficiency and renewables to address demand. – OPUC Staff

There's a constrained feeder network where we're applying energy efficiency and solar measures that reduce demand on the system. – Energy Trust Sponsor

Reduce peak demand to limit the need for additional capacity. What role would energy efficiency play to solve a potential constraint while continuing to provide the lowest cost to ratepayers – PMC, Existing Buildings

Respondents who mentioned more than Goal #1 tended to mention Goal #2 more often – to provide feedback about how to rapidly deploy targeted energy efficiency and renewables:

To come up with a menu of what we can offer depending upon the circumstances – Energy Trust Sponsor

Learned what we could achieve using. . .marketing and increased incentives. . . testing those concepts. – Energy Trust Planning

A few stakeholders in management positions mentioned Goal #3, developing a process for Pacific Power and Energy Trust to work together on TLM projects. As one sponsor put it:

Can we build better ways to communicate with Energy Trust, to work together with communities when opportunities arise? – Pacific Power Sponsor

Very few stakeholders mentioned Goal #4, to contribute electric system planning and Goal #5, to develop ways to assess TLM project value, but the following comment hit both goals.

Set a target and achieve it with certainty [showing] distribution engineers that they didn't need to make that [infrastructure] investment. – Energy Trust Solar

Stakeholders cited additional but related goals, including to reduce energy use and costs for customers in the "heart of Pacific Power's service territory" (Pacific Power)*;* to have the pilot be a "stepping-stone" to learn more (Energy Trust and Pacific Power); to "leverage conversations with people who would not normally engage [with Energy Trust programs]" (Pacific Power); and "to meet diversity, equity, and inclusion goals" (Energy Trust).

The OPUC staff member emphasized they will continue to track TLM pilots because they want to see energy efficiency and renewable energy used as a first choice to relieve load constraints. However, the OPUC does not currently require these sources to be considered by electric utilities.

Pilot Location, Phases, Timing, and Key Events

In its annual review of system constraints Pacific Power identified five to seven candidate areas for a TLM pilot. They then worked with Energy Trust to determine which areas had the most potential for pilot success, both in terms of mitigating peak load and expanding insights about TLM efforts beyond the North Santiam pilot. The Medford Area pilot represented a potentially constrained area for two sub-stations. It also was a growing area with a larger and more representative mix of customers, many of which had not previously participated in Energy Trust programs. It also had active local utility and Energy Trust representatives in the area. All these factors made the sponsors hopeful that the pilot's results could support the TLM "proof of concept" and suggest how TLM efforts could become a more regular offering in the future.

Most eligible sites were within the city of Phoenix.

The targeted area is shown in Figure 1. When it was selected[10], according to the Existing Buildings PMC, the area included ~600 eligible commercial, industrial, and agricultural sites. These included a variety of local small to medium-sized businesses housed in older commercial buildings or small shopping areas and a few newer businesses, institutions, or small industrial sites. Based upon other pilot information, the area also included ~5,800 residential sites, although many fewer were suitable for some measures, such as heat pumps. Residential buildings included many mid-century ranch-style homes, one- and two-story multifamily complexes, and manufactured homes of various ages and states of repair. Compared to statewide statistics, the area included a larger share of Hispanic residents (16% compared to 11%) and a lower proportion of homeowners.

Figure 1 Targeted Area

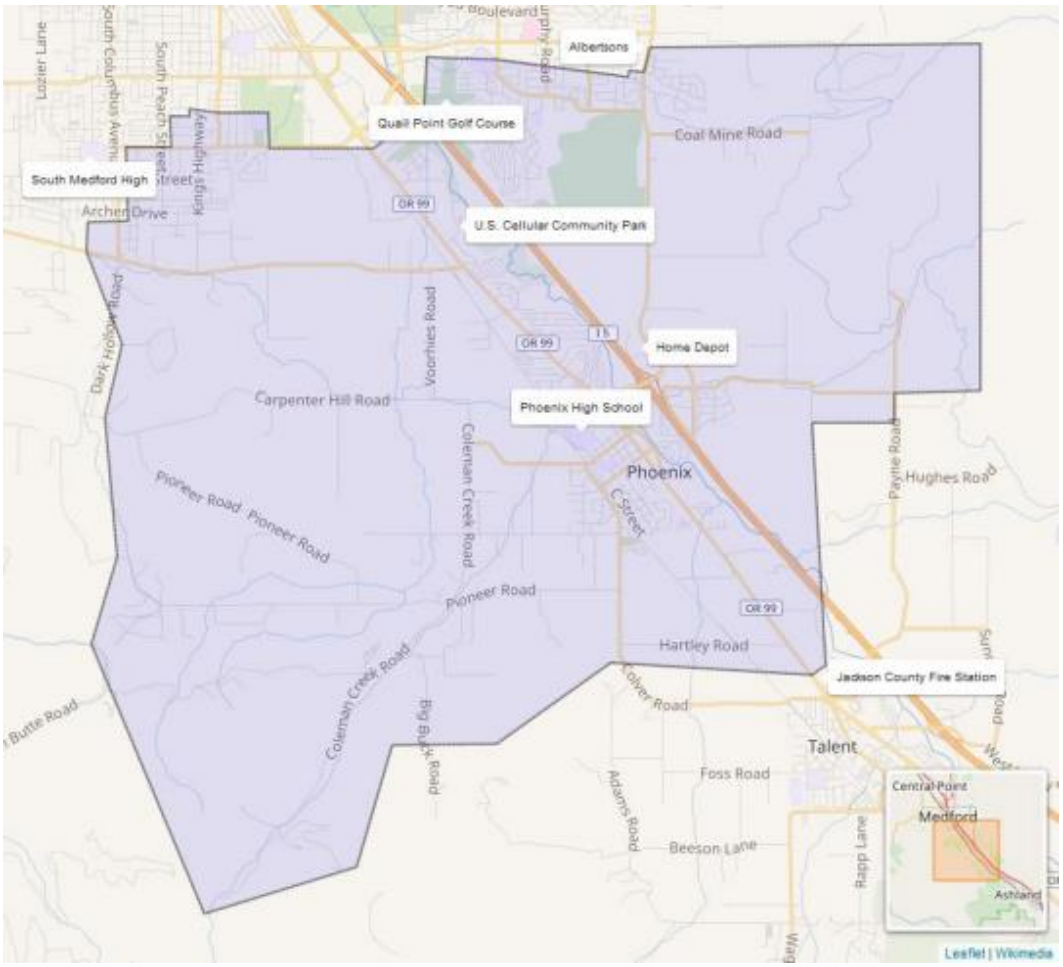
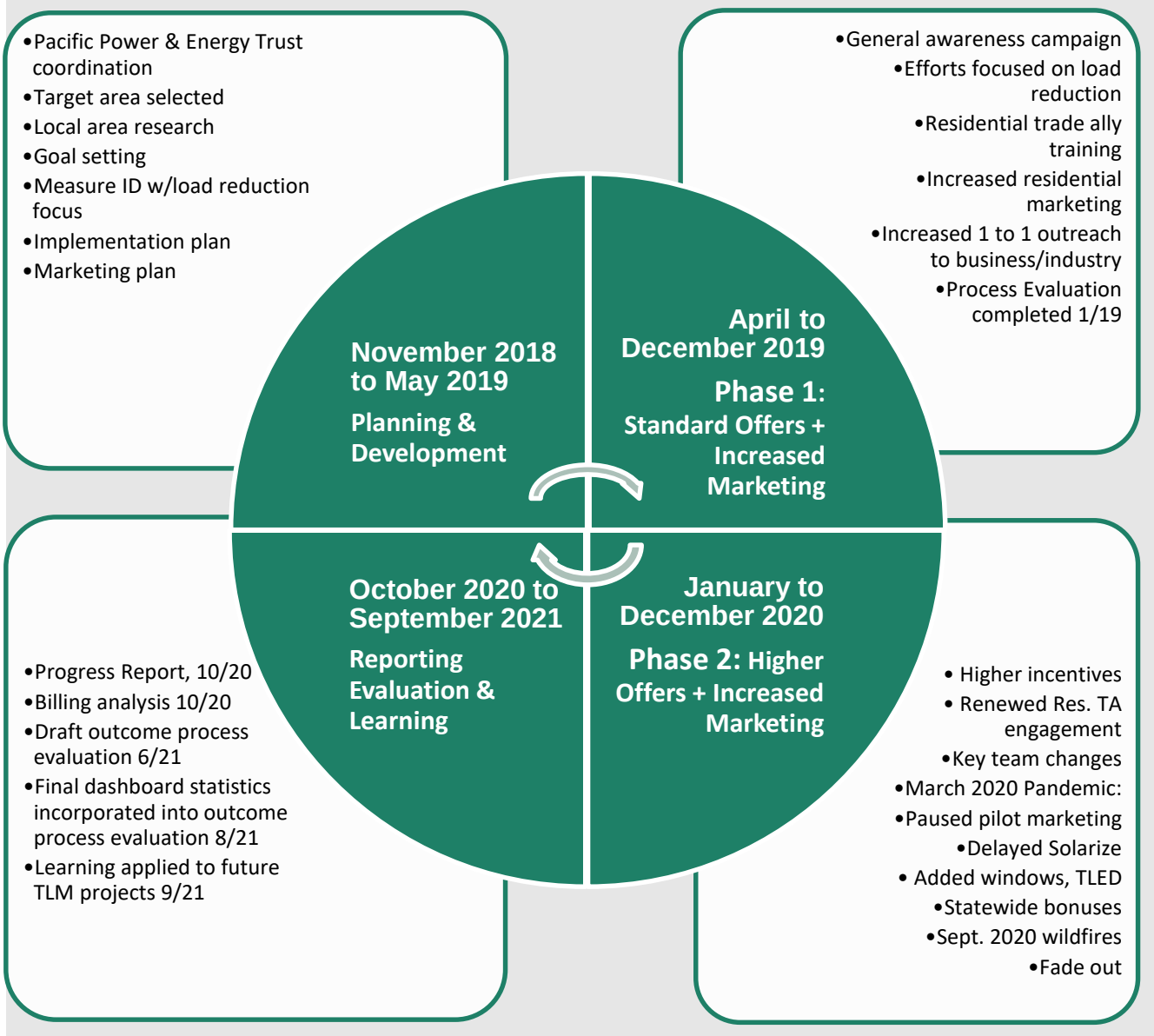


Figure 2 shows the Medford Area timeframe, phases, key activities and intervening events. Planning began in November 2018 and execution in April 2019. The pilot ran through December 31, 2020.

[10] Note the wildfire damage to the area changed these statistics significantly.

Figure 2 Pacific Power Medford Area Pilot: Phases, Timing, and Key Events [11]



Planning and Development – November 2018 to May 2019

Initial pilot planning and coordination between Energy Trust and Pacific Power took place over seven months, although it is important to note that coordination and adjustments to the pilot continued through implementation. Pacific Power identified areas with potential load constraints and the two

[11] The graphic was constructed from stakeholder interviews and various documents.

organizations worked together to select the best area to target. Other planning efforts defined: the pilot's goals and desired outcomes, the array of load-reducing efficiency and renewables measures, and the marketing and implementation plan. At the close of the planning phase, Energy Trust conducted an interim process evaluation, with data gathered in July and December 2019 and reporting completed in December 2019. Energy Trust staff chose energy efficiency and solar measures for the pilot based on analysis that identified these measures would most likely reduce load.

Phase 1 Implementation – April to December 2019

Phase 1 of the pilot included increased marketing and outreach for targeted load reduction measures; it used the same incentive levels as the statewide programs. It operated in parallel with statewide programs and some pilot programs that offered higher incentives for measures and audiences similar to those in the pilot.

Residential

Energy Trust, in concert with Pacific Power, in April and May 2019, launched an increased digital information and education campaign to raise awareness of Energy Trust and the upcoming pilot launch in June. Another early key residential activity, conducted by the Residential PMC, were two webinars to familiarize TAs with the pilot and its energy saving offers for customers in the target areas. The intent was to have TAs drive market uptake.

Phase 1 marketing, in the summer of 2019, focused on "business as usual" marketing with increased digital impressions, along with bill inserts, direct mail, and social media marketing to promote technologies that can reduce load.[12] The pilot's marketing encouraged customers to adopt high or higher efficiency models of these technologies:

- Weatherization measures (i.e., wall, ceiling, floor insulation)
- Smart Thermostats
- Heat Pumps
- Central Air Conditioning (new offering)
- Energy Saver Kits (ESKs) – although not targeted to load reduction, kits introduced Energy Trust and smoothed entry to other energy efficiency improvements.

Commercial

In Phase 1, the Commercial Existing Buildings PMC targeted increased outreach through its internal team who did door-to-door "blitzes" of small and medium-sized businesses. The pilot plan called for a special focus on restaurants, retail shops, convenience stores, small grocery and hotels/motels. The PMC, in concert with Energy Trust, also increased marketing to promote pilot offerings, using digital, radio and print ads, bill inserts, and direct and targeted mail. For some measures, TAs were also involved in outreach. In addition, direct contact with the ~60 largest commercial customers increased. The PMC reported they arranged meetings with over 40 of these customers to offer help in scoping larger or more complex energy efficiency improvements.

All outreach and marketing efforts offered standard incentives for installing efficient levels of the following technologies:

- Lighting

[12] See the October 2020 Progress Report for June 2019 to July 2020 residential, commercial, and solar marketing details.

- Foodservice equipment
- Weatherization (e.g., insulation)
- HVAC systems, controls and operations and maintenance (e.g., heat pumps)

Industrial

The Industrial Program increased its one-on-one personalized outreach to industrial sites within the pilot boundaries using its program delivery contractor account managers.

Solar

The Solar Program used propensity modeling to identify and target eligible residential customers for its solar offerings. It ran a targeted ad campaign focused on solar plus battery storage systems and did significant planning for a Solarize campaign, which relies upon motivating and incenting an entire neighborhood or community of customers to install solar panels on their homes and businesses. The Solarize campaign was not implemented during the pilot due to the Pandemic.

Phase 2 Implementation – January to December 2020

In January 2020, the pilot added increased incentives for targeted load reduction offerings, up to the maximum level allowed under current avoided costs. The pilot continued to conduct increased marketing and outreach activities to support the new incentive levels until March of 2020, when the Pandemic struck. While planning and strategy work continued, the pilot briefly paused outreach efforts to regroup and to respect the pandemic restrictions. Then, in April 2020, those efforts resumed, with outreach and delivery mechanisms designed to operate within the pandemic lockdown restrictions. At the same time, Energy Trust offered and marketed a suite of statewide bonuses for both residential and commercial customers which also applied to the Medford area pilot.

Then, in September 2020, the Almeda Fire damaged or destroyed many homes and businesses in the target area, changing the pilot operations and trajectory. While the offers continued to be available to customers through to the original December 2020 end date, the pilot halted outreach and marketing. In a separate effort, Energy Trust provided support for recovery and rebuilding activities in the area.

Residential

In early 2020, prior to the pandemic lockdown, the Residential PMC noticed TA interest had waned, despite increased incentives and new offers, and increased their engagement with them. A new offer focused on promoting central air conditioners through a variety of channels. After the pandemic marketing and outreach pause, marketing for some measures increased (e.g., heat pumps and ductless heat pumps), but the pilot delayed sending marketing for insulation and a general promotion for all measures due to Pandemic restrictions. Statewide limited-time bonuses also became available to area customers for many measures including a new windows incentive and special offers targeted to low-to-moderate income customers.

Commercial

The Tube LED (TLED) promotion and incentive bonus for small commercial low-to-no cost LED replacements became available in the pilot area in Phase 2.[13] In addition, due to the Pandemic, Energy

[13] Evergreen Consulting Group, Energy Trust's C&I lighting program delivery contractor, developed the TLED bonus outside the pilot, and three TAs spearheaded the installations in the pilot area. The TLED bonus had a separate budget from the Medford TLM pilot.

Trust offered a wider set of statewide bonuses for commercial efficiency measures (including weatherization, food service, heat pumps) that began in April 2020 to respond to the pandemic. The Existing Buildings PMC continued increased marketing and outreach campaigns to small and medium businesses for all targeted measures through its outreach team.

Industrial

One-on-one outreach continued, as warranted, to industrial customers.

Solar

The Solar Program planned to launch a Solarize 2.0 offering in early 2020, but due to the Pandemic that effort was delayed to the second half of the year. The wildfires in September 2020 delayed the launch of Solarize 2.0 further, to 2021, placing its implementation outside of the pilot's end date of December 2020.

Chapter 3: Effectiveness of Implementation

This chapter explores the effectiveness of the pilot's implementation, using stakeholder feedback and the October 2020 Progress Report. It presents insights from three interrelated factors that were central to the pilot design: the measures selected; the Phase 1 increased outreach and marketing; and the Phase 2 addition of increased incentives.

Summary

As typical for many pilots, this pilot's implementation was a mix of successes, challenges, and adjustments made to meet those challenges. Energy Trust stakeholders spoke about lessons learned from the implementation, as described below.

1. In addition to load reduction, measure selection would benefit from considering these factors: community characteristics and support; the appeal of measures offered; the availability, interest, and skills of local TAs; and the time needed for decision-making for various audiences.
2. Modest incentive increases, alone, likely won't ensure active support from TAs and greater adoption by customers. The pilot found it also needed to continue to market; support TAs; reduce "friction" for both TAs and customers; and add new measures.
3. Support of local governments, community organizations, and local representatives would likely increase the TLM credibility and uptake from TAs and customers. Stakeholders said smaller, tight-knit communities rely on word-of-mouth and local intelligence.
4. If door-to-door blitzes are planned for small to medium businesses, they should include easy, appealing prescriptive measures that apply to all customers. The addition of the TLED promotion was a key ingredient in meeting this challenge.
5. Facilitate ways to reach eligible customers, especially when feeder lines do not conform to zip codes or natural boundaries. Energy Trust flagged eligible customers in their database for PMCs. The commercial PMC used a smart phone mapping application to pinpoint and track visits to commercial customers.
6. Have a process to handle customers who are outside the target area but who want to participate in pilot offers. The pilot developed these processes even though they were rarely used.
7. When possible, minimize competing Energy Trust offers in the target area since they can confuse both customers and TAs.
8. A dynamic tracking system is essential to track TLM progress in a unified, consistent, concise form. The pilot developed a PowerBI dashboard to meet that need.
9. Key stakeholders, such as the OPUC representative, would benefit from short, analytical updates about pilot progress at key milestones. One approach would be to develop a summary sheet to interpret the dashboard data.

Measure Insights

Many stakeholders had limited involvement with measure selection, which relied on an analysis of existing cost-effective energy efficiency measures and ranked their contribution to load reduction. However, these stakeholders thought the energy efficiency and solar measures would meet the pilot's

load reduction goals and that the increased incentives in Phase 2 would make these measures attractive. The Energy Trust Sponsor cautioned that the organization's "*primary mission has not been demand reduction, just energy use reduction"* and that the organization "*probably needs to further our expertise and capabilities to portray demand reduction."*

The few stakeholders closer to the selection process said the choice of measures largely rested upon a pragmatic analysis of what measures could be delivered that would best reduce load:

> *[It was] a function of engineering. . .to address utility needs at peak load – heating, cooling, weatherization. Strategies were [then] developed to deliver the measures (Energy Trust Planner).*

Another stakeholder explained the strategy this way:

> *Going in for the first time and having one to two years in the community, we had to approach it from what we can do rather than . . .have them tell us . . .what they need. Because peak demand reduction is a utility/energy thing, I don't know how else we could have approached it. . .I think it worked well. (Energy Trust – Commercial)*

The next sub-sections describe measure insights for each market segment.

Residential

These insights are based upon reports from the PMC, preliminary information on measure adoption contained in Energy Trust's billing analysis, and measure data from the PowerBI dashboard.

Weatherization. Weatherization measures did not have a strong market uptake largely due to the lack of insulation-focused TAs in the area. As one stakeholder explained:

> *Insulation is a tricky one to promote because not too many trade allies focus on this. Even when we really spiked attic, floor and wall insulation incentives, they were hard to get off the ground. They were [almost] free but restricted by contractors in the area and the work they performed. (Residential PMC)*

Smart Thermostats. This measure dominated the residential installations and increased notably between the pre-TLM and TLM periods shown in the billing analysis (from 13 to 31). This measure appeared to fit well with both market and load reduction needs.

Ductless Heat Pumps. The PMC, who expected heat pumps to be popular, said the offer brought tepid results because TAs were confused by other Energy Trust pilots offering a similar $3,000 incentive, and that the pilots had small differences.

Central A/C. Stakeholders reported that the increased incentives couldn't overcome the barrier that most people needed more time to decide about and buy A/Cs and the incentive couldn't be raised much because it was already close to its maximum level.

Energy Saver Kits. The distribution of free ESKs did go up markedly from the baseline, suggesting the increased marketing prompted more requests. However, while ESKs may build awareness and goodwill toward Energy Trust, they do not contribute to load reduction.

Windows. Windows were not on the list of measures during 2019 and much of 2020. They were reassessed in mid-2020 and with strong support from the PMC, a windows offering was launched in August 2020. Two local TAs in the area actively pursued it. The PMC and an Energy Trust planner both felt this offering could have been more successful had the wildfires not quashed it. The PMC cited a small but surprising resurgence in October when one TA sold some new projects but was facing Pandemic supply problems. The TA asked for, and was granted, an extension. Uptake of window replacements between pre- and post TLM periods in the billing analysis showed an increase of 10 to 13 projects.

Commercial

As with residential measures, an Energy Trust planner said the driving forces behind commercial measure selection were the "*top coincident peak reduction and other information as it related to peak times [and] what offers were available to us.*" Planners also applied their general commercial market experience in selecting measures. These steps resulted in prescriptive and custom offerings for lighting, food service equipment, weatherization, and HVAC measures.

Implementers noted some tension existed between promoting TLM and serving all customers. The number of commercial customers was fewer than 500, and PMC outreach staff went door-to-door with TLM pilot offerings. They discovered they needed prescriptive measures that they could offer to everyone, even though the focus was on electric savings to reduce load. The TLED promotion and bonus was adopted to serve this gap, since lighting applies to all customers.

We quickly realized that trying to serve single fuel customers with prescriptive measures was hard. . . Only so many measures apply to them and it didn't span all. . . market types. (PMC Existing Buildings)

In addition to the technical analysis, stakeholders suggested adding in available information about customer preferences, the time of the technology in the market, and other market conditions. For instance, the PMC said they found that most multi-family property owners in the area have a "if it's not broken" mentality and many tenants pay their own electric bill. Thus, many were not motivated to make an upgrade.

Lighting upgrades. Lighting has long been a mainstay of energy efficiency programs and the technologies continue to evolve. When the pilot added the 2020 TLED promotion and bonus to its roster of offers, stakeholders agreed it was very successful. They also commented it was somewhat costly, although not outside the parameters of the pilot.

The number of lighting projects shown in the Phoenix billing analysis support PMC comments (33 projects pre-TLM and 72 during the pilot). Stakeholders said the TLED promo was the type of commercial offer that was crucial to attracting customers because it:

- Did not require a lot of lead time
- Applied to all small business customers
- Was fast and hassle-free
- Provided free replacements (i.e., no capital budget decisions)
- Had a turnkey and local operation using three active and local TAs

Foodservice equipment. Although these measures have been successful elsewhere, their uptake was small in the TLM area due to the limited number of potential businesses that could use them and the Pandemic restrictions that made these restaurants and hospitality businesses financially uncertain.

Weatherization. Adoption of weatherization measures was limited despite added incentives In Phase 2. The same lack of TAs available to do weatherization installations may have also affected uptake of these measures among commercial customers.

HVAC systems, controls and operations and maintenance. Stakeholders reported the packaged terminal heat pump offer was specially developed for the TLM pilot and stakeholders reported it was successful. The response to this offer is not separately tracked in the billing analysis or in other data provided to the evaluator, but some customers did adopt HVAC measures.

Custom Offers. The targeted area had about ~60 medium sized commercial customers (and no large ones). Stakeholders said custom projects require more lead time because of needed pre-project analysis (studies), higher costs, and procurement requirements for customers. The PMC for Existing Buildings said they identified several custom projects, but none were realized; they said customers did not move forward because projects didn't appear cost-effective or because they delayed their decisions. The PMC added some lighting projects were installed at customer sites that were not part of the TLED promotion and bonus.

Industrial

Custom Offers. All offers for industrial customers in the area would have been customized for them. Stakeholders said the short time frame, lack of interest, lack of money, and Pandemic-related slow-downs affected uptake. The Energy Trust Industrial stakeholder summed up the situation this way:

All [offers were] customized, but no one was interested. There were very few eligible customers in this area. One is on the east coast and things don't move quickly, if you can reach them.

Solar

Initially the pilot did not include solar options, but Energy Trust staff added them due to good potential in the area and their ability to reduce load. The Solar manager described the process this way:

We analyzed what would work best. . .depending on the size of the system. [The peak load period] was an easy time [period] to cover. We have 30 years of data and can predict with some accuracy. . .how many systems will be needed to meet the goals.

Staff planned a "Solarize" option that relies on a community-based in-person educational and involvement approach, identifies interested and income-qualified customers, and employs a small number of contractors who agree to install solar panels for less. The Pandemic, the wildfires, and potentially some Pacific Power reservations quelled the Solarize plans.[14] The existing Solar Plus Battery

[14] Energy Trust staff commented that Solarize is premised upon "*a whole community coming forward that wants to increase solar.*" This premise, they said, may make it harder to fit installations within "*octopus feeder shapes"* and to avoid talking about potential supply constraints.

and Solar Within Reach programs were added and prompted a small number of projects. On average the projects produced large load reductions, including a substantial project for the Phoenix School District.

Outreach and Marketing Insights

The 2020 Progress report described the general marketing approach this way:

The marketing team identified audiences with the most potential to reduce summer peak demand and engaged with those customers to promote participation in Energy Trust programs and offerings. They worked with the Pacific Power marketing team to coordinate delivery of a unified message to customers.

Stakeholders agreed with this description and further clarified the genesis and execution of marketing activities. Energy Trust and its PMCs had somewhat limited experience with customers in the target area and wanted to build awareness and interest in participating, especially during Phase 2 when incentives increased.

Energy Trust formed a small team to focus on marketing. Some toured the target area to assess the types of residential and commercial building stock. They also did background research on the area's demographics and some A/B testing to develop unified messaging, to have the right talking points, and to inform the development of a marketing plan. The plan called for increased impressions targeted to residential customers and more direct outreach to commercial and industrial customers.

Stakeholders complimented the increased marketing and outreach efforts for being organized, unified, and for alerting TAs and customers to the pilot offers. They were also positive about specific marketing and outreach efforts.

Things can't happen organically. I think marketing is one of our stronger [areas]. Seeing a list by quarter and by season of all the things that we were going to do was appropriate and well done. – Pacific Power Sponsor

Marketing is key. . .reinforcement that timing does matter – when you do it and who you are targeting. – Energy Trust Sponsor

Marketing did work pretty well. We had a decent amount of web traffic. . .[and a] campaign ally approach on the residential side that worked really well. – Energy Trust Marketing

The TLED promo which we cross-promoted got great results. – PMC Existing Buildings

Stakeholders also talked about these marketing challenges and how they approached them.

- The need to identify and coordinate a unified message across the many actors (Energy Trust, Pacific Power, PMCs, TAs) and offers (residential, commercial, industrial, solar). Pacific Power did not want to alarm customers about supply constraints in an area where none existed, even though the pilot's aim was to reduce load. Local area representatives cautioned against using inflammatory language and jargon, and to focus on benefits. Marketers said they held tight reins

on the efforts, with one saying, "*It was difficult to keep everyone interested and up to speed and making it a priority, but we still did it."*

- Developing targeted marketing and outreach for a specific and more rural geographic area instead of a more generalized, statewide approach. The pilot developed marketing and outreach required area-specific customer approaches to identify and reach the right customers; respected residential customer privacy concerns; stayed within pilot boundaries and prevented spillover outside the pilot area; and appealed to less urban customers.
- Ensuring approval from Pacific Power, who had the final say about marketing. Stakeholders reported some hiccups in getting final approvals, but the process improved over time.
- More than marketing is needed to overcome a resistant market.

If your customers are not ready to move on projects, you can show up as often as you like, and you can send as many flyers as you want, and nothing will happen. . .[we need to] think more about the position of the market, the time of technology in the market, and what customers are likely to do. – PMC Existing Buildings

Residential

The PMC thought the initial training with TAs during Phase 1 was positive and adequately set the stage for higher TA involvement throughout the pilot. They also thought higher incentives *"would speak for themselves"* to push TAs to greater action during Phase 2.

TA engagement did enhance the uptake of free and lower-cost measures (kits and thermostats) during Phase 1. However, the higher incentives did not prompt continued and greater TA involvement. As a result, the PMC began an active and regular re-engagement process with TAs, noting they needed to connect *"with everyone in the company"* to ensure support.

Sometimes you need to work with the salesperson, sometimes the technician, and then the owner has to be on board. I can't stress this enough [for any future efforts]. – PMC Residential

Even with greater engagement, Energy Trust and the PMC said TAs found it hard to market and sell heat pumps, insulation, and other measures due to problems identifying the right customers within the target area and without specific customer lists. They added marketing efforts in Phase 2 were less frequent and "*didn't make much of a dent despite*" instituting geofenced campaigns that pinpointed customer locations.

The PMC did develop a process turning potential participants down who lived just outside of the pilot boundaries, but this turned out to be a rare occurrence.

Commercial

Energy Trust and the PMC used the following outreach strategies:

- Meeting with many large customers to discuss custom projects ("*everybody answered their phones").*
- Developing lists of eligible customers based upon flags in Energy Trust's customer database.
- Using a mapping software application for smart phones (Siteline) which allowed them to pinpoint customer locations and add notes about customer response and interest.

- Defining a gray area around the pilot boundaries to serve customers technically outside the pilot boundary.
- Developing direct mail pieces with a special URL for those within the pilot boundaries.

Despite strong outreach, the PMC reported mixed results among commercial customers, including multi-family owners. Except for the TLED promotion, where they employed the use of three motivated local contractors, higher incentives, and a desirable technology to "*fill the pipeline,"* commercial customer interest was low.

Industrial

The direct outreach to the few industrial customers through account managers did not realize results. The program manager worked with the planning team to identify industrial customers in the TLM area and provided lists to the PDC to conduct outreach. All parties were concerned about contacting these customers too often, and they settled on *bugging them once a month, [which they did] up until the fires.* The industrial stakeholder said there were not any *big baseloads to focus on [unlike North Santiam]* and wondered *how much effort . . .to give to this minute opportunity?* They emphasized that industrial customer outreach is personal and custom and that bonus incentives were less important than customer need, bandwidth, and relationships.

Solar

Marketing efforts were planned but not put into action for the Solarize offering. The solar program manager worked with marketing staff to develop propensity modeling and to test existing creative content. The credit for the success of greater adoption through the regular solar programs is unclear. In Phase 2, with greater incentives, the activity rose and had several notable spikes in September and November. As the Energy Trust Solar manager put it:

> *Not sure who gets credit – the solar industry had a significant year last year [and we also had] our highest submissions. We have more contractors, technology, it's more familiar and continuing to grow. We ran ads in the area to drive adoption . . .but [does that mean] they filled out the form, installed the system? We weren't expecting too much – but it happened. – Energy Trust Solar*

Increased Incentives Insights

The pilot installed a greater number of projects in Phase 2 than in Phase 1 and realized a higher reduction in kWh. These indicated that the higher incentives, at least in part, prompted this increase, especially given the Pandemic and wildfire disruptions. Still, other factors may have influenced the uptick, such as the introduction of new offers (e.g., TLED and solar options) and residential customers pursuing home improvements because they were spending more time at home.

Chapter 4: Pilot Challenges and the Future of TLM

At the close of the interview, stakeholders were asked to summarize the pilot's greatest challenges, how well the pilot met its goals, and the future of TLM projects. Their thoughts are presented in this chapter.

Summary

At the time of the interviews, stakeholder knowledge about the pilot's outcomes varied. Stakeholders were not aware of the pilot's final outcomes, including indications that it had overall reduced load substantially. These factors likely affected their views about effects of the challenges and TLM's future.

Pilot Challenges

Stakeholders described these six broad challenges to the pilot's effectiveness, which the project team worked diligently to overcome:

- The Pandemic and wildfires: loss of momentum and eligible buildings
- Team changes and continuity of involvement: loss of history and commitment
- TAs and contractors: lack of interest and the right contractors for the job
- Customer eligibility: locating targeted customers and having the right measures available to attract them
- Scale and timing of opportunities: not having enough customers in the pool and limited time for customers to decide and execute larger projects
- Replicating and scaling TLM efforts: the Pandemic and wildfires made the pilot more unique than anticipated and the interpretation of results more complicated

Future of TLM

Energy Trust and PMC stakeholders remained strongly optimistic about the potential to use energy efficiency and renewables to manage load. Pacific Power stakeholders valued the lessons learned from the pilot and their stronger relationship with Energy Trust but did not commit to further TLM pilots. The OPUC representative expressed strong support for efforts to use efficiency and renewables to reduce load; however, the OPUC does not require electric utilities to use these options.

Greatest Challenges to Pilot Performance

The Pandemic and Wildfires

Many mentioned the Pandemic and wildfires as game changing for the community and the pilot. For some stakeholders, these calamities outside of the pilot's control were the only major challenges or overshadowed every other consideration. For others, especially those more directly involved with the implementation, their effects were not clear, only part of the picture, or obscured other challenges.

The Pandemic hit just when the pilot should have been in high gear. It slowed momentum and precipitated statewide bonuses so that, as one marketer put it, the pilot *"was not offering anything special anymore."* Some stakeholders thought more residential customers worried about their budgets and more commercial customers worried about staying in business.

The wildfires decimated homes and business buildings just as the pilot was ramping back up from the Pandemic lockdown, again slowing its momentum. In addition, Pacific Power stakeholders and local area representatives needed to shift their attention to more pressing community needs, diluting the pilot's collaborative approach.

Despite these calamities, stakeholders emphasized the pilot adapted and forged ahead. It offered new measures and changed its outreach and marketing. Some even felt, in the long run, the Pandemic may have boosted home improvements and commercial investments in efficiency.

Team Changes and Continuity

Key members of the pilot team changed at Energy Trust. TLM's key champion at Pacific Power left and the replacements were short lived or less invested. Energy Trust also selected a new commercial PMC to manage the program starting in 2021. Several stakeholders named team changes among the pilot's greatest challenges because:

- On-boarding new members took significant time and added to already heavy workloads;
- New people tended to be less invested and less engaged; and
- Team changes reduced overall expertise, continuity, and institutional memory.

TA and Contractor Issues

Several stakeholders mentioned local TA and contractor issues as key challenges, including:

- Attracting and sustaining their interest and commitment to the offers
- Communicating with them effectively, including reaching the right contact person
- Having local TAs and contractors available and able to do the work[15]

Communicating with TAs. [That's the] thing with TLM projects in general. [You] pick a spot on the map, and you're at the mercy of who does work there. – Residential PMC

On the residential side, the PMC said they didn't have the best TA pool to choose from, both in terms of low past involvement of local TAs in Energy Trust offerings and the types of services they could supply, especially for HVAC and weatherization measures. They said their biggest misstep – which they corrected -- was to think that increased incentives would be enough to have TAs lead sales without their prompting and support. On the commercial side, stakeholders said it was a challenge to mobilize contractors "*to do a lot of semi-complex to more complex efficiency upgrades and retrofits in a short amount of time*."[16]

Customer Eligibility

Stakeholders mentioned initial concerns related to finding and involving the right Medford Area customers, including:

- Having a method to clearly delineate the targeted area and identify eligible customers. PMCs and Energy Trust solved this issue through better mapping and customer management information.

[15] Other evaluations have shown that customers prefer local contractors to install energy efficiency and solar measures.

[16] Other evaluations have shown that capital projects for commercial and industrial customers can often take 2-3 years if they are not already earmarked in their plans and budgets.

- Handling customers who see pilot offers, want to participate, but were not eligible. Both residential and commercial PMCs came up with processes to handle this situation, but said it happened infrequently and did not turn out to be a significant problem.
- Making a quick impact in a less affluent community that had less exposure to Energy Trust and its PMCs.

Opportunities/Scale/Time Frame

These challenges affected all sectors but in somewhat different ways:

- **Industrial.** The pool of industrial customers was small and had limited interest, despite personal and consistent outreach prior to and during the pilot.
- **Commercial**. Stakeholders noted the short time frame (only 1 or 2 budget cycles) for these customers to make capital investment decisions. As one noted, "*It took a lot of measure build-ups and planning – guessing at what uptake would be." [Energy Trust Commercial]*
- **Both Commercial and Residential**. Stakeholders noted tension between meeting statewide savings goals and the effort and budget needed to focus on a small group of customers: *"We're always looking at the benefit/cost ratio – part of the [TLM] challenge. Often [we don't have] a ton of headroom on the level of [market] investment [that's needed]" [Energy Trust Residential]*
- **Solar.** Some stakeholders mentioned the great opportunity in solar technologies to help manage load but that negotiating the role of renewables could raise sensitive issues with utilities.

Replicability and Scaling

Going forward, some stakeholders saw these challenges in replicating and scaling TLM projects:

- The Santiam experience, while encouraging, was small and unique.
- The Medford area pilot yielded valuable tools, lessons, and load reduction outcomes. However, the Pandemic and wildfires also made it less informative about TLM than originally hoped.
- Energy Trust analyses, while encouraging, are based on non-area-specific load curves. The Pacific Power analysis is needed for greater insights into and validation of the potential of TLM to reduce load.

The Future of TLM Projects

The post-pilot views of TLM's future with Pacific Power are based on interviews prior to the pilot's final effect on load reduction.

Energy Trust and PMC stakeholders, nonetheless, were hopeful the pilot would exceed the load reduction baseline and, with further validation, became a viable approach to managing peak load. They pointed out the pilot peak load reduction progress was well on its way to exceeding the baseline despite all its challenges, and they hoped the NW Natural TLM GeoTEE Pilot would produce clearer results.

Pacific Power stakeholders valued the lessons from the pilots and that working with Energy Trust on the pilot had forged a stronger relationship but were uncertain about the pilot's outcomes and doubtful about future TLM efforts with Energy Trust. While the OPUC wants to avoid new electric infrastructure, and hopes efficiency and renewables can become the top choice to manage load, considering and choosing this option is not a current requirement for electric utilities.

The following quotes illustrate the diversity of opinions about TLM's future:

Seems like it is scalable and replicable if there are other electric utilities that are anticipating. . . constraints. – Commercial PMC

I see it as another component of our portfolios; we will offer these services as another value for ratepayers. [Our] same mechanisms can be focused on capacity management. – Energy Trust Sponsor

I think there will be no hesitancy to continue to work together to serve customers. . .where we can make a difference. I'm not sure we want to do another TLM. It's valuable to know we can do it – how it matures, we're not quite sure. – Pacific Power Sponsor

I know we're open to working on anything that benefits the customer in the long-run – that builds a strong network and fabric. – Pacific Power Regional Representative

OPUC staff interest in this is going to continue. I don't know what Pacific Corp's opinion is going to be. — OPUC Representative

Chapter 5: Conclusions, Lessons Learned, and Recommendations

This chapter explores how well the Medford Area TLM pilot met its five stated goals, the lessons learned, and recommendations for future TLM efforts.

Effectiveness of the Pilot in Meeting Its Goals

1. Reduce Load Through Energy Efficiency and Renewables[17]

Tables 6 and 7 based upon Energy Trust's calculations, along with feedback from the field, suggest the following conclusions about pilot's effectiveness in reducing load:

- The pilot's extra and targeted efforts and incentives succeeded in prompting more customers to adopt efficiency and solar improvements, reducing load by 36%, compared to the baseline.
- More customers in the pilot, compared to the baseline, took energy efficiency actions, but, on average, they were smaller and produced smaller load reductions.
- An outsized portion of the increase in reduced load came from a small number of larger solar projects. The pilot would not have succeeded in outstripping baseline load reduction without them.
- Given the usual decision-making time for investing in larger solar projects, it's likely the pilot tapped into pent-up demand from customers who had already been considering them. These results suggest solar projects may have strong potential for future TLM efforts in areas where solar options are already part of customer thinking.
- Customers likely encountered these barriers to action:
    - Financial uncertainty, supply chain delays, and loss or damage to homes and buildings due to the Pandemic and wildfires.
    - Low availability or limited interest of local trade allies to promote some measures.
    - A time frame too short for larger efficiency projects unless already planned, especially for commercial and industrial customers that need 2-3 years for capital improvements.

Table 6 Baseline to Pilot Comparisons: Load Reduction and Project Counts

Sector	Baseline kW Load Reduction	Pilot kW Load Reduction	% of Baseline kW Load Reduction	% of Pilot kW Load Reduction	Pilot Minus Baseline kW Load Reduction	Rate of Change: Baseline Compared to Pilot kW Load Reduction
Residential	42	50	19%	16%	+8	+19%
Commercial	94	75	42%	25%	-19	-20%
Industrial	43	17	19%	6%	-26	-60%
Renewables	44	162	20%	53%	+118	+268%
Totals	**223**	**304****	**100%**	**100%**	**+81**	**+36%**

[17] These data are derived from Energy Trust's tracking dashboard which reports both on kWh and kW. Only kW load reduction is used in this report due to the focus of the TLM pilot.

Sector	Baseline Project Counts	Pilot Project Counts	% of Baseline Projects	% of Pilot Projects	Pilot Minus Baseline Project Counts	Rate of Change: Baseline Compared to Pilot Project Counts
Residential	125	236	86%	70%	+111	+89%
Commercial	10	80	7%	24%	+70	+700%***
Industrial	1	9	1%	2%	+8	+800%***
Renewables	9	12	6%	4%	+3	+33%
Totals	**145**	**337**	**100%**	**100%**	**+192**	**+132%**
	*Households only receiving Energy Saver Kits, which do not reduce load, are not included in project counts. **Due to rounding, the total displayed in the pilot dashboard is 303 kW. ***Note the small number of projects in the baseline.					

Table 7 Baseline to Pilot Comparisons: Average Project kW Load Reduction

Sector	Baseline Average Project kW Load Reduction	Pilot Average Project kW Load Reduction	Rate of Change: Baseline Average Project Load Reduction Compared to Pilot Project Average
Residential	0.34	0.21	-38%
Commercial	9.40	0.94	-90%
Industrial	43.00	1.89	-96%
Renewables	4.89	13.50	176%
Total	**1.54**	**0.90**	**-42%**

2. Learn About Rapid Deployment of Energy Efficiency and Renewables

The pilot team developed important tools and capabilities that will be useful for future TLM or other projects that require fast and nimble deployment, including the following:

- Developing methods to select measures with maximum ability to reduce load.
- Conducting an up-front local market analysis to inform marketing and outreach and to direct measure selection and other aspects of project design.[18]
- Executing an initial marketing campaign to build local awareness of Energy Trust and pilot offerings.
- Adjusting program delivery and measures to respond better to local market needs and opportunities. Examples include solar offerings, adopting the Tube LED (TLED) Promotion, and adding residential windows and air conditioning.
- Developing methods to map and reach customers, especially within a target area where boundaries do not conform to zip codes or natural boundaries.
- Developing methods to appease or serve customers outside the target area boundaries who want to participate.
- Conducting improved initial training for local TAs, and, when interest waned despite increases in incentives, ongoing support to increase their involvement.
- Conducting test marketing to inform a potential Solarize offering.

[18] Note that several Energy Trust stakeholders thought the local analysis should be more in-depth and carry more weight in decision-making than the one done for the Medford Area pilot.

- Capturing marketing results, as they occurred, to gauge their reach (the number of customers reached with marketing efforts).
- Developing a dynamic and interactive function within PowerBI platform to capture and integrate key pilot data, along with a dashboard to present visual results for specified time frames.
- Developing approaches to make the customer journey as easy as possible.

3. Develop Processes for Sponsoring Organizations to Work Together

Stakeholders from both Energy Trust and Pacific Power agreed that collaborating on the pilot built a sturdier and more trusting relationship between the sponsoring organizations. Several praised the ability of the project manager to organize and communicate effectively with its many team members internally and across organizations. They noted that closer coordination between the sponsors would help serve customers better each entity would be more aware of the other's services. Stakeholders also noted that still more could be done to formalize processes, equalize the level of investment of the two sponsors, and improve collaboration for community selection, marketing and outreach, and assessment of impacts.

4. Contribute to Electric System Planning

None of the stakeholders, when interviewed, were aware of the final level of load reduction over baseline, based upon the dashboard data (see previous tables in this chapter). At the time of the interviews, the kW reduction was below baseline and the eventual outcomes were uncertain, which may have affected their perspectives.

Opinions among the stakeholders ranged from optimistic to uncertain about whether TLM results would become an input to electric system planning. Energy Trust stakeholders were optimistic about the future of TLM and its ability to affect decisions about strategies used to manage load. Despite the pilot's challenges, they described the project as being on track to meet or exceed baseline demand reduction through its efforts.

Pacific Power said the pilot had produced key learnings about collaborating with Energy Trust and about pursuing TLM, but they voiced limited interest in future similar projects and were not pursuing their own analysis of load reduction based on metered data. This analysis would help validate results and determine if the reduction levels were adequate. The OPUC representative asked for more interpretation of the results and a summary of lessons learned from the pilot.

5. Develop Assessment Tools to Value TLM

The project tracking and dashboard within the PowerBI platform; the billing analysis and the two-stage process evaluation; and Pacific Power's efforts to model load reduction using metered data, are all very useful tools for assessing the value of TLM. The completed analysis from Pacific Power is needed to complete the assessment.

The tools listed above and the pilot's progress reports captured data and insights to assess the value of TLM aside from its ability to reduce load. The tools provided key information and insights about TLM planning, delivery, and outcomes, its costs, and its success in fostering a stronger working relationship between the sponsoring organizations.

Lessons Learned and Recommendations

This section takes the lessons learned from pilot and integrates them into recommendations for future TLM efforts. They fall into three categories of improvement: TLM Design and Implementation; Teamwork and Collaboration; and Tracking and Validation.

TLM Design and Implementation

1. Future TLM efforts should cautiously consider these lessons learned about reducing load given the unknown effects of the Pandemic and wildfires.
    a. Solar projects could offer substantial load reduction opportunities even for short-term TLM efforts. Where customers – both residential and non-residential – are already thinking about adopting solar, they will likely respond to an incentive push.
    b. The Solarize community approach, while not possible to implement during the pilot, is ready for testing and deserves to be offered as part of another TLM effort.
    c. Greater marketing and outreach, along with incentive increases, influenced more customers across all sectors to take efficiency actions that reduced load. On average, the actions they took were smaller and had smaller load reduction impacts actions compared to the baseline.
        i. Load reduction beyond baseline (business as usual) levels are most likely to occur with the larger base of residential customers who can choose from a larger menu smaller investments.
        ii. Load reduction beyond baseline for commercial and industrial customers is less likely due to longer planning and budgeting horizons for capital projects.
2. Future TLM efforts in smaller communities would likely benefit from greater involvement with local governments and community-based organizations. These entities can provide local insight, support, connections, credibility, and influence, and can help ensure diversity, equity, and inclusion. Relationships with these entities are also valuable for future efforts in the area and elsewhere, since these entities influence one another.
3. Overlapping or similar offers to those available through the TLM pilot should be minimized as much as possible since they can confuse both TAs and customers.
4. The mechanisms developed in the pilot to help identify customers, such as Energy Trust flagging sites in their customer database and using smart phone mapping tools, should be applied, as needed, to future TLM efforts. These mechanisms are especially valuable when feeder and substation boundaries do not align with natural community geography or easy identifiers, such as zip codes, do not conform to the target area.
5. Preserve the procedures set up to deal with customers who want to participate but are outside of target area boundaries. These procedures received limited use in this pilot but they may be useful for future TLM projects.
6. Ensure ongoing contact with and encouragement of TAs to keep them active. Higher incentives, alone, do not provide adequate motivation for TAs to stay involved or lead customer engagement.
7. Where door-to-door blitzes are used to reach small to medium businesses, ensure easy, appealing prescriptive measures (like the TLED promotion) are available to all businesses even if

they are not eligible for demand reduction measures. This approach creates minimizes awkward cold calls, creates good will, and produces kWh savings.

8. While the pilot developed several strong TLM decision-making and management tools, consider making them more standardized and documented. Improved tools will make project management more efficient and provide better information for evaluators and regulators. Good documentation also will help mitigate the effects of staff turnovers, which are unavoidable for multi-year efforts. Specific suggestions for improving tools include the following:
    - Fully document the rationale and methods used to select communities and measures.
    - Standardize the format and content of implementation plans, marketing plans, and progress reports, and ensure they are complete and up to date with key changes noted.
    - Consider more frequent and analytical progress reports, to foster faster preparation, better chronicle the pilot's evolution, and update interested parties.
        - Add an executive summary to give interested parties a snapshot of the pilot's progress and key insights for the period covered.
        - Focus the report on the pilot's primary goal: achieving load reduction. KWh data, for instance, distracts from the primary goal and should be relegated to an appendix or reported on elsewhere.
        - Provide more interpretation of what the data mean, especially for the demand reduction and participation tables and the graphic output of the PowerBI dashboard.

Teamwork and Collaboration

9. Initial steps in collaboration should ensure project sponsors share the same goals. Energy Trust's greater focus on achieving measurable outcomes and Pacific Power's greater focus on learning resulted in different viewpoints about the success of the pilot and the usefulness of its results.
10. Frequent changes in the team roster were time-consuming and compromised TLM enthusiasm, understanding of pilot goals, and institutional memory. Consider how to make working on TLM efforts more visible and desirable through, for instance, greater notice from upper management in all staff meetings. In addition, consider using understudies for key stakeholders. Clear and complete documentation of TLM goals, tools, progress, and processes also will aid in the on-boarding of new staff.
11. The sponsoring agencies would benefit from deepening and formalizing their collaborative TLM approach, to ensure both parties are equally invested in TLM's processes, decisions, outcomes, and assessment of value.

Tracking and Validation

12. Future TLM pilots should continue to develop the capabilities of tracking and reporting using the PowerBI platform, to ensure disparate data sources are combined into easy-to-understand reports. Key stakeholders should be consulted about their preferences for the type and frequency of reporting that would be most useful to them. At the least, reports at key milestones (e.g., at the end of each phase and after project completion) should include a narrative that interprets the results.
13. Subsequent TLM projects should compare the costs and benefits of the TLM approach to the costs and benefits of conducting business as usual.

14. TLM results, lessons learned, and recommendations for future TLM efforts should be presented to and socialized with the larger Energy Trust, Pacific Power, and OPUC staff.
15. Pacific Power's analysis of load reduction based upon their own data needs to be completed. Without it, sponsors cannot agree on the level of reduction achieved and on TLM's value as a resource in integrated resource planning.
16. The Pandemic and wildfires affecting the target area suggest another TLM pilot would be useful to clarify the potential of TLM.

Appendix A: Interview Guide

Energy Trust of Oregon Targeted Load Management Project Interview Guide – Medford (Round 2)
3-29-2021 [Interviewer: Fill in background information about respondent below]

Name **Date**

Telephone **Email**

Respondent Type (indicate one):

- **Energy Trust Staff**
- **PM/PDC**
- **Pacific Power**
- **OPUC**

Table 8 Correspondence Table Of Desired Outcomes, Research Questions, Interview Items, Respondents

Topic or Desired Outcome	Research Questions (abbreviated)	Items	Location
2. Background, Goals, and Understanding	Who is speaking? What are the roles of various stakeholders? How well did stakeholders understand pilot goals and desired outcomes? How did the pilot operate and unfold?	Section 2	Medford
3. Effectiveness of Measures	How appealing were the measures to customers? What lessons have been learned about measures?	Section 2	Medford
4. Effectiveness of Implementation	How effective was implementation (marketing, delivery)? What challenges emerged? What lessons have been learned?	Section 3	Medford
5. Outcomes	How successfully did the pilot meet its goals? What is the future for TLM projects in Oregon?	"For All" Questions	Medford

Section 1: Introduction *(Not verbatim)*

I'm talking with you today as part of the second round of the process evaluations for the Targeted Load Management Project(s). The first round of interviews focused mostly upon the planning process, up to the launch. This interview will focus mostly upon the implementation phase and, to the extent possible, the outcomes of these projects. Overall, evaluation efforts for TLM projects hope to determine to what extent these projects can complement electric and gas system planning.

If you have any documents or resource that will help me understand the TLM project(s), please let me know. I have specific questions to ask you, and I would greatly appreciate your help in answering each of them.

This interview is confidential. Your name will not be used in any reporting. Feel free to give me your honest opinions, to ask me to clarify questions, and tell me if you don't know the answer to any question.

I would like to record this conversation so I can accurately report what you tell me. Is that okay with you? **YES NO** Also I will be taking some notes as we talk.

Do you have any questions before we begin? **YES NO**

[If questions, record here and answer, then continue to Section 2]

Previously Andrew Hudson was leading, was peripherally involved – have been more involved in the past year or so.

Section 2: Respondent Background/Understanding of Project

Look into what I have – and get back to him. . .

First, I'd like to know more about your background with the Targeted Load Management (TLM) projects. *(**Interviewer:** Select the right project(s); adjust language as needed to match respondent. Ask all questions unless otherwise noted.)*

1. Briefly, what are your job title and overall responsibilities?
2. Have you been involved only with the Medford (Phoenix/Talent) TLM project with Pacific Power, only with the Cottage Grove (Creswell) GeoTEE project with Northwest Natural, or both projects?

    - Medford only
    - Cottage Grove only
    - Both Medford and Cottage Grove

    *(**Intrv:** If in both, explain we will cover each project separately.)*

Section 3: Medford Design Questions

3. Let's talk about the Medford project. What was your role on the Medford TLM project?

4. **All:** How would you describe the purpose and desired outcomes for this project?

5. **All:** Who did you work with most closely on this project?

6. **All:** What is your understanding of the reasons behind choosing the Medford area for a TLM project?

Now I'd like to go over some more specific aspects of the project's design and implementation. These questions are based upon the July 2019-July 2020 Progress Report and other project information. (***Interviewer:*** *Report sections are copied here in italics.)*

7. First let's talk about measure selection. How have you been involved (if at all) with that? These items as the project's key customer offerings for *(Residential; Commercial; Solar; Industrial)* customers*. (Read)* If appropriate for each: Does this sound correct?

   A. Residential Efforts *Weatherization measures*
   - *Smart Thermostats*
   - *Heat Pumps*
   - *Central Air Conditioning*
   - *Energy Saver Kits*
   - *Windows*

   Follow-up Questions:
   - How were these customer offerings chosen?
   - Did the offerings change over time? Why?
   - What lessons have been learned about measure selection? How successful were they?

   B. Commercial Efforts *Lighting upgrades (through the lighting Trade Ally network)*
   - *Foodservice equipment*
   - *Insulation*
   - *HVAC systems, controls and operations and maintenance*

   Follow-up Questions:
   - How were these customer offerings chosen?
   - Did the offerings change over time? Why?
   - What lessons have been learned about measure selection? How successful were they?

   C. Solar -- What were the offerings here?

   Follow-up Questions:
   - How and why were these customer offerings chosen?
   - Did the offerings change over time? Why?
   - What lessons have been learned about measure selection? How successful were they?

   D. **Industrial –** What were the offerings here?

Follow-up Questions:

- How and why were these customer offerings chosen?
- Did the offerings change over time? Why?
- What lessons have been learned about measure selection? How successful were they?

Overall/High Level Involvement: How well has measure selection worked? What lessons have been learned?

8. (**Overall Marketing)** Now let's move to marketing. How have you been involved with that area (if at all)? *If helpful*: The Progress Report describes the overall marketing efforts this way:

   The marketing team identified audiences with the most potential to reduce summer peak demand and engaged directly with those customers to promote participation in Energy Trust programs and offerings. They worked with the Pacific Power marketing team to coordinate delivery of a unified message to customers.

   a. Is there anything you'd like to add to this description of the marketing strategy for the Medford TLM to ensure I fully understand it?
   b. How effective was this strategy in guiding marketing choices? Are there any changes or improvements you would make?
   c. How effective was the coordination with the Pacific Power marketing team? What could be changed or improved?
   d. Were any other actors involved in marketing and outreach? How did that go? What could be changed or improved?
   e. Overall/high level: How well have marketing efforts worked (including coordination and results)? What lessons about marketing an outreach did you learn over the course of the project?

9. **(For those with greater involvement in marketing)** The report has more details about marketing for each sectors. I'd like to ask first about Residential marketing. The Progress Report describes residential efforts this way, focusing on weatherization, smart thermostats, heat pumps, central air conditioning, and Energy Saving Kits.

   The Residential team completed targeted marketing efforts and provided two webinar trade ally trainings focused on the specific offers available to the targeted area for trade allies who serve the area. Energy Trust also promoted several residential offers with increased incentives (within our current cost-effectiveness framework) that have a high impact during the peak period.

   a. How effective were the marketing efforts to engage trade allies?
   b. How effective were the initial marketing campaigns with residential customers (prior to those that supported increased incentives)? What lessons were learned?

c. How effective were the campaigns that supported increased incentives? What lessons were learned?

10. The Progress Report describes commercial marketing efforts this way, focusing on lighting upgrades delivered through the lighting Trade Ally network, foodservice equipment, insulation, and HVAC system control, operation, and maintenance:

The Existing Buildings program increased their outreach to restaurants, retail shops, convenience stores, small grocery and hotels/motels with standard incentive offers. They also increased one-on-one customer engagement through local Energy Trust account managers and allied technical assistance contractors (ATACs) to help larger commercial sites scope more complex projects.

a. How effective was the increased outreach to the targeted businesses?
b. How effective was the use of the lighting Trade Ally network in reaching customers?
c. How effective were Energy Trust account managed and ATACs in reaching larger commercial sites?
d. What lessons were learned?

11. The Progress Report describes solar marketing efforts this way:

The solar program deployed targeted marketing based on customer propensity modeling. They also planned to primarily target residential customers by increasing engagement through a Solarize campaign. The Solarize effort was scheduled to launch in early 2020 but was delayed due to COVID-19 until the second half of the year and has now been delayed until 2021 as a result of the wildfires in the area. Below is a list of strategies planned to support the effort:

- *Advertising, messaging and education that encourages customers to consider installing solar plus battery storage*
- *"Solarize" outreach and education (in-person events) campaign to increase adoption*
- *Promote an income qualified "Solar Within Reach" offer*

a. How effective did you find propensity modeling for targeting solar efforts?
b. What informed the choice of using a "Solarize" campaign?
c. Do you have any updates on solar marketing efforts?

12. The Progress Report describes Industrial marketing this way:

The program increased one-on-one account manager support to the industrial sites within the pilot boundary but found that there was minimal interest in participation at this point. Energy Trust account managers have maintained contact with the sites but are not hopeful that projects will materialize.

a. Please tell me more about the challenges in marketing to industrial sites. What lessons have been learned?

b. How might these challenges be overcome in the future?

13. **For all:** I have some final questions about the Medford project. How effective was the project in terms of:

    a. Complementing electric system planning? What could be changed or improved?

    b. Reducing peak demand? What could be changed or improved?

    c. Providing feedback about how to deploy energy efficiency and renewable energy projects with existing delivery options and within program budgets. What could be changed or improved?

    d. Developing processes for Pacific Power and Energy Trust to work together on these types of projects?

    e. Helping to develop ways to assess the value of TLM projects? What could be changed or improved?

14. **All:** What have been the biggest challenges for this TLM project? How could those challenges be addressed for future projects? **Probe if needed:** How did the wildfires affect the project? How did COVID-19 affect the project?

15. **All:** What would you say are the major lessons learned or key takeaways from the Medford TLM project?

16. **All:** How do you see the future of TLM projects with Pacific Corp or other electric utilities?

Thank you for your time and insights today!