

# **Levers of Control for Fine Tuning a Program: ROI for Efficiency Investment Decisions**

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## **ABSTRACT**

In corporate America the benchmark of success is return on investment (ROI) in dollars. However, for utility and system benefits administrators with efficiency programs the goal is to achieve the best therm or kilowatt-hour savings return per dollar invested. There are many methods of implementing programs to capture energy savings. How should energy efficiency programs structure delivery budgets, incentives and contracts to track more accurately the dollars invested, and their associated return in savings? How can contracts encourage cost-effective delivery? What needs to be in place to fine-tune and analyze ROI?

This paper will describe the Energy Trust of Oregon Inc.'s (Energy Trust) approach to energy efficiency program delivery. It will include a discussion of the various elements that are incorporated into processes and contracts that influence Energy Trust's ability to more accurately derive the value of return on public purpose dollars invested in its dual-fuel, multiple-funder energy efficiency programs. This includes the Energy Trust's energy efficiency program delivery model of implementation using Program Management Contractors (PMCs).

The capture of data around a project record that ultimately leads to savings in the form of either kilowatt-hours or therms starts from the point of first customer contact. While there are differences in the kinds of data captured on underlying project attributes for commercial, industrial or residential projects, there is more commonality than one might think in consistency of policy and processes that span all of the Energy Trust program efforts. Because this paper focuses on implementation of energy efficiency programs in the residential sector, the focus of examples portrayed within the paper will be oriented around residential energy efficiency program activities.

## **Who Is The Energy Trust?**

The Energy Trust is a nonprofit charitable organization established in March 2002 to fulfill a state mandate to invest "public purposes funding" for energy efficiency, conservation and renewable energy resources in Oregon. The mandate emerged from 1999 energy restructuring legislation, Senate Bill 1149 (SB 1149), which calls for a three percent public purposes charge to the rates of the two largest investor-owned utilities. All Energy Trust initiatives apply to both gas and electric with the exception of industrial projects because these NW Natural are under a tariff rate that does not participate in the public purpose charge contribution.

The Energy Trust and the PUC signed a grant agreement that defines and guides cooperative efforts and the ongoing approach to fulfilling the mandates provided by 1999 legislation SB 1149. A copy of the legislation can be found on the Energy Trust website at <http://www.energytrust.org/Pages/about/library/policies/sb1149.pdf>.

The key operating guidelines are:

1. Program funding will seek to encourage the development of competitive markets for energy efficiency services and renewables as a long-term goal.
2. Public purpose funding will be competitively bid except when circumstances warrant an alternative approach.
3. Individual conservation programs will be designed to be cost-effective and will be independently evaluated on a regular basis. This guideline should not restrict investment in pilot projects, educational programs, demonstrations or the like.
4. A majority of the conservation funds will be spent or committed in the year the funds are received.
5. All classes and geographic areas of funding consumers should benefit from the public purpose expenditures.
6. The organization will work to complement, not compete with, existing programs.

## **Program Management Contractor Structure**

Energy Trust energy efficiency programs are delivered through a sector based approach in which programs are designed by market sector i.e., industrial, business and residential. Within these sectors there are programs targeted specific sector activities, like existing commercial buildings and commercial new construction, both part of the commercial business sector activities.

Program Management Contractors (PMCs) are used to implement programs. This model allows the Energy Trust to maintain a lean staff internally while hiring specialty provider PMCs to execute the detailed implementation. PMC contracts are typically granted through a competitive RFP process and are for an initial 2 years with an optional 1 year extension, then a rebid process is conducted in which the incumbent PMC is eligible to re-compete. Bidding firms bring specialized expertise and experience in delivering targeted efforts to a particular industry segment. Often, they have efforts underway in the marketplace or include sub-contracting parties that allow Energy Trust programs to leverage existing market efforts for faster impact in savings generation.

Sometimes the firms have proprietary processes that can enhance delivery or streamline cumbersome processes making for more cost effective and efficient administration of a program. A good example of this is a software product used in the Home Energy Savings (HES) program for the Home Performance with ENERGY STAR initiative. Home Performance is an Environmental Protection Agency (EPA) sanctioned comprehensive diagnostic approach for making homes energy efficient. The software designed for this effort will reduce all the applicable efficiency measure input forms which will please implementing contractors and streamline incentive processing. An easily generated report is created from the software application utilizing the inputs that are captured by the Home Performance Certified contractor in the field during the in home analysis. Furthermore, the customer is provided a report with their home's current condition and a list of recommended measures including an analysis of the savings and payback for installation of the recommended efficiency measures. These features enhance the programmatic delivery process from both the end-user and program administration perspectives, plus they bring an element of professionalism and credibility to the contractor-base utilizing this tool for their customers.

The PMC model allows specific details of programmatic design to better fit the relevant industry structure and target specific consumer sub-sector groups (i.e., residential new construction, multifamily etc). This also allows innovation and greater achievement of energy acquisition in a shorter time frame. An example of this is a subcontractor to the PMC for the Efficient New Homes (ENH) program who was implementing the green building label “*Earth Advantage*” during the bid time frame. As a part of the implementation team they converted their already progressive builders with homes in progress, and with whom they had established relationships, to build homes that conformed to the ENERGY STAR specifications much quicker than otherwise would have been possible – these homes generated the first savings for ENERGY STAR labeled homes in this program.

## **Residential Structure**

In the residential sector there are currently three programs; Efficient Home Products (EHP), which targets retail based ENERGY STAR<sup>®</sup> product promotion with current emphasis on compact fluorescent light (CFL) bulbs, fixtures and clothes washers; Efficient New Homes (ENH), which provides residential new construction projects with ENERGY STAR labeled single family and manufactured homes being the dominant measure; and lastly, Home Energy Savings (HES), serving residential customers who live in existing built residential dwellings, including multifamily and mobile homes.

There are a couple of additional activities that fall under the HES umbrella. The first is an online home energy analysis tool where customers can evaluate their home energy use based on a profile that is generated using this tool. Customers who complete an analysis receive four CFLs sent by the EHP program. Second, there is another effort in collaboration with Oregon State’s Home Oil Weatherization (SHOW) program in which Energy Trust provides heat oil customers who live within the Energy Trust electric service with four compact fluorescent light bulbs in exchange completion of the State’s mail-in audit. This effort is done via a contract with the SHOW implementation contractor and funding built into the HES program, with savings for the CFLs accruing to the HES program. As EHP has the fulfillment infrastructure the PMC is compensated for fulfillment activity.

## **Under the Hood**

What’s under the hood? This is where elements in place make the difference on effective delivery and determine what can be booked for savings and the available data. This paper goes into great depth with one example of changing a measure, but will keep it at a higher level in this section.

## **Balancing the Load**

Because the Energy Trust is funded by three different utilities including two investor owned electric utilities and one gas utility, care is taken when developing budgets not only to make sure our desired impact is geographically dispersed but also that they are balanced according to the funding by utility service territory area. Energy Trust is a fuel neutral organization taking special care not to encourage fuel switching. There are incentives for both

electric and gas systems and do not make recommendations or skew incentives for fuel preference.

For any particular program, underlying assumptions about fuel type and usage patterns must be considered, the amount of budget allocated per utility is equivalent to the assumed savings generation profile for that particular program and this may include different percentage splits for sub program initiatives. For example the ENH program effort, targeting single family ENERGY STAR labeled homes, has a greater percentage of gas funding allocation because more homes are constructed with gas furnaces as the primary heat source. However the New Manufactured Home (NMH) initiative has a greater percentage of electric funding as more homes in this target sub-market are heated with electric heat pumps. The combined percentage allocation for each utility equals the full program percentage allocations and is a blended percentage based on the dollar's per market effort and the assumed fuel penetration by each measure. These assumptions are derived from market penetration models as well as a balancing of the available funds with the expected uptake of the particular market and the anticipated administration required for the effort.

### **Passing Muster**

As stated at the beginning of this paper under the operating guidelines with the Oregon Public Utilities Commission, all efforts the Energy Trust undertakes in a particular program must be cost-effective, i.e., the benefit divided by the cost must be greater than one for both utility perspective and societal perspective tests. I will not be describing the Energy Trust BCR tests or supply curves – this topic is exhaustive and complicated. However, if you have interest in this, please contact Fred Gordon, the Director of Planning and Evaluation who has oversight of this area of activity for the Energy Trust.

Just when you think you have a measure in the market that fills a niche of equity service, along comes evaluation and no longer are you able to provide that measure because it's either in violation of the PUC grant agreement or is so marginally cost effective it is viewed by the Board as a poor investment decision. A perfect example of tweaking a measure to make it work is our mobile home a duct sealing measure.

Sealing mobile homes is an important measure for the Energy Trust primarily for equity reasons because this measure is often provided to low to medium income families and is the only measure beyond CFLs and low flow water devices that we provide free of charge to our customers. Contractors delivering this measure hold a contract directly with the Home Energy Savings PMC to deliver this service at no charge to the customer.<sup>1</sup> Originally this service was reimbursed to the contractor at \$300.00 per manufactured home that was sealed. However, upon evaluation of the actual savings per home, the deemed savings value was reduced to a point where the measure became barely cost effective.

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<sup>1</sup>In this case Service Incentives are paid to the installation contractor. Service Incentives include contractor reimbursements for relevant program delivery to end participants and Home Energy Reviews (HER) in the home by HES staff. Financial Incentives are used for all customer participant reimbursements.

## Reengineering to Pass Muster

The deciding factor on whether to go forward with sealing a home is an initial blower-door test to determine if there is enough leakage to floor space. After that, the home is sealed and the contractor is paid \$300 and the Energy Trust books a deemed amount of savings which was 1200 kWh per home. This savings amount was reduced to 800 kWh post-evaluation. If the test determined that it was not cost-effective to seal the home, a Test-Only payment of \$100 was paid for virtually zero savings. This measure was marginal at best especially when \$300 is paid on a home where only 70 cfm reduction occurred.

This measure was revamped to get rid of the flat fee (\$300) approach, going instead to paying per cubic feet per minute (CFM) reduction which is \$1/cfm<sub>50</sub><sup>2</sup> reduced. In this case, where only 70 cfm reduction is achieved, only \$70 in incentive is paid out. This approach keeps the incentive paid out in line with the savings achieved. The minimum leakage to floor space was reduced to 25% from 50% so that more untapped savings could be captured. The Test Only payment was reduced to \$50 which encourages contractors to select good candidate homes in the first place. A further addition is the incorporation of air sealing to a minimum ACH<sup>3</sup> of 7. If the contractor is there with duct blaster and blower door set up its easy with a little training to include air sealing, which is paid out at \$.50/cfm<sub>50</sub> reduced. CFLs where burn time exceeds 2 hours are also installed. This new approach took some one-on-one training with the contractors to ensure quality of practices on air sealing and CFL placement. Now contractors are seeing a range of payment per home that can exceed \$300 and air sealing training has allowed some contractors to start serving the single family market where homeowners pay market rate and the Energy Trust reimburses the customer \$1/cfm<sub>50</sub> for the reduction.

## Measure Life

A few of the more obvious bottom line elements to look at within a portfolio of measures are in the measure life because this is what influences the length of time the savings will accrue. While measure lives are constantly a source of debate among the evaluators and implementers, most commonly installed measures have a variety of sources for which a documented measure life can be found. However, as technologies and construction practices evolve it can be argued that measure lives have changed, but the available documented measure lives are based on older methods and technologies. In addition, another complication regarding measure life is that the underlying installation specifications may or may not have been followed correctly by the installing contractor in the first place. Hence the more recent design enhancements by implementers to focus on how to ensure installation protocols are met. Measures commonly found to be subject to significant installation protocols are heating and ventilation and air conditioning equipment installations. The proper sizing and commissioning of equipment is a source of much attention in programs that want to verify that the installed measures are actually achieving the savings associated with that measure.

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<sup>2</sup>Cfm<sub>50</sub> means cubic feet per minute with the blower door (diagnostic equipment) set to 50 Pascals per minute of pressure, which is a unit of leakage as determined by the equipment.

<sup>3</sup>Air Changes per Hour.

## Modeling

When using modeling to establish measure savings, one of the rules that the Energy Trust requires its PMCs to follow is that when interactive effects are significant, the modeler must add the measures one at a time starting with the most cost effective measure first to establish a rolling baseline. The modeler also must make sure that the underlying calibration of the model includes the local weather and local code baselines so the appropriate settings built into the model assumptions can stand up to impact evaluation. For our existing multifamily projects that require modeling, a 35 percent reduction of savings is taken off the modeled value to ensure valid savings.<sup>4</sup>

## Integrated Data System

Starting with the first point of contact to when a check is issued, the Energy Trust's data capture system is one integrated system. It begins with the capture of contact information in Goldmine, a customer relationship management software, that connects to FastTrack, a custom project tracking software that integrates with Great Plains, the accounting system where all customer incentive checks are generated and all Energy Trust expenses paid. For reporting purposes we utilize Crystal Reports for project reporting and FRX reports for accounting purposes. This system is the core of what makes the Energy Trust tick and the quality of data input and communication of proper use of the assorted fields for consistency across the implementing PMCs is critical to its functionality.

## Forecasting

More recent additions to the integrated data system are features built into FastTrack to enhance project forecasting abilities for project commitments that are made for the future but not yet paid out to the customer. Because commercial and industrial projects take time and can span as much as two years before final payments, special forecasting abilities that take into account specific details of these larger projects are required. These quantify and make transparent future program obligations so that accurate budgeting can incorporate these obligations into future cash flow.

A key to effectiveness in leveraging the market is what we term the Trade Ally network. Each residential program has a Trade Ally application in which a contractor<sup>5</sup> provides relevant information. For example Home Energy Savings requires that their Trade Ally contractors have proof of a CCB<sup>6</sup> license, relevant insurance and adherence to administrative processes and installation protocols. In Efficient Home Products a retailer might have to agree to post point-of-purchase materials to be part of the Energy Trust incentive for efficient clothes washers. An HES Trade Ally gets from the Energy Trust cooperative marketing dollars, promotion on the Energy Trust web site, their name on a list of qualified installation contractors that is handed out at Home Energy Reviews, a special toll free number which connects them directly to assorted departments for support, participation in offers for Trade Allies where bonus measures are given

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<sup>4</sup>Post evaluation may then true up the savings or not reduce as significantly with a 35 percent factor built in.

<sup>5</sup>Typical residential contractors provide the following services insulation, HVAC equipment installation, windows and duct sealing and air sealing.

<sup>6</sup>Certified Contractor Board –State of Oregon registered

only for installations by Trade Allies, and access to weekly conference calls with the HES Trade Ally coordinator where feedback can be given, questions can be answered and timely program information can be disseminated.

## **More Measures More Savings**

It's no surprise that if more measures are installed in a home, greater savings are achieved, which ideally translates to greater customer satisfaction. Also, administrative overhead for one home with many measures is much lower than many homes with one measure. However, often programs focus on a single measure approach like standalone 90 percent efficiency furnaces and single rebates for energy-efficient clothes washers etc. Current emphasis in the residential existing home program has been to encourage multiple measure installation. This is done with the help of a few tools. One is a financing program, where HES offers financing through a lender (EFS)<sup>7</sup> in which the Energy Trust buys down financing rates in lieu of incentives that range from 6.49% - 9.9%. Another tool is a multiple measure bonus, meaning that a customer installing two or more measures receives \$50.00 bonus and for three or more measures a \$100.00 bonus. Minimum dollar requirements on the additional measure and a list of bonus qualifying measures had to be put in place to avoid a scenario where \$29.00 of insulation around the window was done to establish a third measure. Lastly, the addition of Home Performance with ENERGY STAR is underway with contractor certification training currently being conducted which includes training and equipment Service Incentive reimbursement. A public launch for the consumer base is slated for June.

## **Forms**

Often referred to as the dreaded "F" word are forms. However onerous and complicated forms are considered to be, their role in effective program delivery is critical. Forms are where the terms and conditions are communicated and installation obligations are conveyed.<sup>8</sup> They also hold vital measure detail on installation attributes that need to find their way into the data capture system. Currently HES is taking all forms and revamping them into a more simplistic system so that they are easier for a customer or a contractor to fill out. Today we have a form for weatherization measures, a form for HVAC equipment installation, a form for air ceiling or duct sealing and a form for a bonus and a form for a Home Energy Review.<sup>9</sup> One can see how a project with multiple measures can be overwhelming with respect to the required paperwork. Today HES has a form backlog of approximately 400 forms lacking either an account number, a signature, required measure detail or an adequate invoice, which represents about \$90,000 of unpaid incentives for work that has been installed but can't be booked due to missing information. This is administratively burdensome and requires a solution.

## **Forms Revamp**

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<sup>7</sup>Energy Financing Solutions, part of Wisconsin Energy Center specializing in energy efficiency project lending.

<sup>8</sup>Cooperation with evaluation and quality assurance, right to entry, indemnification, bill analysis, are just a few of the project obligations a customer signs off on.

<sup>9</sup>A Home Energy Review is when an Energy Specialist from the PMC goes to the customer's pre-qualified home to screen it for recommended energy efficiency improvements and this is provided by HES for no charge. CFLs and low flow water devices are installed during this visit and the cost is paid through Service Incentives to the PMC.

Current revamp of forms launched May 1 2006. By the time this paper is presented at ACEEE an update can be provided on the success or lack thereof with this new approach, which I believe will be much simpler. With the new process there are two forms needed for any project; a site registration application and a master project signatory terms and conditions page. The key for simplicity is replacement of the assorted measure forms with an invoice that contains the relevant pieces of information for each measure installed. To support education on the required invoice information for each measure, single measure cards in a consumer friendly step-by-step format outline the information required for a particular measure.

## **Contracts**

One of the areas where the Energy Trust has evolved significantly since its first programs is in its approach to contracting with PMCs. PMCs are typically larger organizations that specialize in energy efficiency program implementation and delivery and are responsible for everything from program activity forecasting, marketing, contractor recruitment, process documentation, program reporting, staffing events, quality control inspections and all data capture associated with their projects. Energy Trust's current PMCs include: Conservation Services Group, Lockheed Martin, PECI and SAIC.

The original PMC contracts did not allow for flexibility of moving funds from a particular effort within the same program to another. For example, if a PMC wanted to use unspent marketing dollars in incentives it had to go to the board for resolution to move the funding under the same contract. This was not efficient and slowed down the pace of implementation activities. Another element about original contracts is that they were perceived as punitive if goals were not achieved and held little reward to encourage cost-effective delivery of long life measures.

For the first two years, focus was on getting implementation contractors in place with good program design to approach the market and processes in place to track projects so that the public purpose dollars would go back to the rate payers. But today the energy efficiency market activities have ramped up in both project numbers and scope. Today, the Energy Trust is faced with an environment of competing market activities for a limited pot of funds. This necessitates the incorporation of elements, so that we can verify that we are getting the best money can buy. And to incorporate these elements, we utilize leveled costs of delivery.

## **Fixed Percentage Fee with Performance Compensation**

Today, our newest contracts utilize a fixed percentage fee cap with target performance compensation for reaching savings goals and for improving overall program achieving reductions in the leveled cost per therm and kWh for the combined PMC contract efforts. This might seem a little confusing, but let me explain how it works. First, for every annual calendar year an expected savings goal is established for each program, that contains both an annual kilowatt-hour goal and an annual therm goal, these are referred to as the "*Best Case*" goals. These goals are established utilizing measure penetration spreadsheets in balance with the allocated budget for a given year by fuel to determine the associated savings expected. Under each contract the fixed percentage fee cap is retained monthly from invoicing, which ranges from three to ten percent depending on the contract value. When 75 percent of the *Best Case* goal is achieved, which is referred to as "*Conservative*" goal because it is 75% of expected, or *Best Case*



goal for the year, a PMC must achieve the *Conservative* goal in order to receive the retained fixed percentage fee cap for that year.

### **Conservative Goal**

If only-electric or only-gas *Conservative* savings are achieved in an annual year then only the fixed percentage fee retained associated with those funding dollars is released. For example, if a three percent fixed fee is applied to \$3,500,000 of invoicing for one year but only \$1,000,000 was paid out of electric funding and *Conservative* goal for only kWh saving was achieved, then the retainage released would be three percent of \$1,000,000 or \$30,000, if only *Conservative* therm savings goal was achieved \$75,000 would be paid, however if both kWh and therm *Conservative* goals were achieved, \$105,000 or three percent of \$3,500,000 would be released.

### **Best Case Goal**

Once the *Conservative* goal(s) are met then the PMC becomes eligible to work towards attaining *Best Case* goal(s) performance compensation, which if met or exceeded, a lump sum amount of compensation is released annually. This amount is established at the beginning of a 2-year contract with half or 50% available for the first annual year *Best Case* performance compensation and the remaining 50% held for achieving *Best Case* goal at the end of year two. The allocation for each year's 50% is determined by the dollar split of funding paid out by gas vs. electric for the program. For example if \$100,000 was in the original 2-year contract for reaching *Best Case*, then annually \$50,000 would be eligible for achieving *Best Case* goals. In the example above 28% of the \$3,500,000 funds are electric so the bonus for achieving *Best Case* goal for electric kWh is \$14,000, or 28% of \$50,000 or the amount allocated for meeting *Best Case* gas is \$36,000, and it been achieved, but since *Conservative* goal for therm savings was not met in this example it is not available for this year and the \$35,714.29 is no longer available under the contract. However, the clock resets with the remaining \$50,000 available for achieving the next 12-months *Best Case* goals conditional on the *Conservative* goal(s) being surpassed.

### **Efficacy Compensation**

Now we move on to the new and exciting lever of control to encourage cost-effective program implementation. This component of the PMC performance compensation is associated with a levelized cost reduction in either therm or kWh from the PMC perspective. The ability to receive any of these performance dollars assumes surpassing Conservative Goal and meeting or exceeding Best Case. If those are both achieved, the PMC is eligible to receive up to a fixed dollar amount per year, again divided by the funding allocation split of dollars per fuel, for that year, just like the Best Case goal compensation. A baseline levelized kWh and levelized therm value are calculated using the expected annual dollars per fuel and best case goal for kWh and therm when all the operating values are plugged into our handy dandy contract "Appendix A" worksheet. This worksheet creates the baseline from which levelized cost is measured. Depending on a realistic expectation in levelized cost reduction and the dollar pot of funding allocated for the year for the fuel (i.e., gas vs. electric allocation of dollars) a dollar amount per

incremental levelized reduction is derived.<sup>10</sup> In the session I will have this tool on a lap top and can provide copies to those who bring thumb drives.

For example, say the total compensation cap for levelized reduction in a 2-year contract is \$200,000, this provides \$100,000 per year for levelized cost reduction and this is then split between fuels. For simplicity sake lets say the program is 60% percent gas and 40% electric funded. This would allow \$60,000 per year for reduction in levelized gas costs and \$40,000 per year for reductions in level kWh operation. In our scenario only \$40,000 in electric levelized kWh is available. Let's say the "Best Case" baseline levelized cost per kWh for the given year is \$.028 kWh and the realistic expectation is that the program couldn't do much better than \$.018 kWh since it's the first year of their effort and you want to leave a further achievable reduction for the following year. This allows \$40,000 which if paid out by each \$.001 reduction in levelized cost equates to \$4,000 per each unit of levelized reduction.

As for the handling of a fixed percentage fee cap that is retained if *Conservative* goal is not met, each annual year an amendment to the contract is negotiated to set the *Best Case* and *Conservative* goals and establish the levelized therm and kWh baseline values. These values depend on the budget allocation and fuel split for the program for the given year. During the amendment process failure to reach a *Conservative* goal(s) and how to handle retained dollars will need to be addressed. Again, using the example above, one option might be to establish a combined two-year *Conservative* goal for therms, which would trigger release of two years fixed fee retained. Another option is to allow the year-one retained money to roll forward with its release contingent upon achieving the *Best Case* goal in year two for therms, but allow the year-two fixed fee release to be subject to the *Conservative* goal, failure to meet *Best Case* therm goal in year two with this option would forfeit the fixed percentage fee associated with the only year-one gas goal in but year two gas fixed fee would be released as long as *Conservative* goal for therms was met in year two. Circumstances need to be taken into consideration and depend of what kind of situation took place in the market with the PMC in their delivery of the program over that time period.

## 2005 Savings Results

Final year-end results for the Energy Trust's 2005 energy efficiency program savings are attached on the last page, which includes incorporation of evaluation savings true-ups. While levelized costs are not a part of the savings report Table 1 below contains Energy Trust residential program savings goals for 2006 with both levelized cost targets and the utility benefit cost ratios.

Looking at levelized savings for specific measures in residential program activities for 2005, the best savings were associated with the regional retail based CFL buy down promotion which yielded a \$.009 per annual kWh savings. Note that this savings is only the incentive divided by savings for the measure and does not include and program administration or overhead allocation.

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<sup>10</sup>A copy of this worksheet will be covered in the presentation.

**Table 1. Levelized Savings Goals for 2006**

Program		Conservative Case		Best Case	
<b>Home Energy Savings \$10.8 M</b>	<b>kWh</b>	9,921,000	1.8 B/C	13,228,000	2.4 B/C
		\$0.026	levelized	\$0.019	levelized
	<b>Therms</b>	785,093	2.1 B/C	1,046,790	2.8 B/C
		\$0.038	levelized	\$0.029	levelized
<b>Efficient New Homes \$5.1 M</b>	<b>kWh</b>	5,354,000	1.8 B/C	7,139,000	2.4 B/C
		\$0.037	levelized	\$0.028	levelized
	<b>Therms</b>	228,509	1.4 B/C	304,679	1.9 B/C
		\$0.56	levelized	\$0.42	levelized
<b>Efficient Home Products \$4.0 M</b>	<b>kWh</b>	16,491,000	2.6 B/C	21,988,000	3.4 B/C
		\$0.024	levelized	\$0.018	levelized
	<b>Therms</b>	110,306	1.3 B/C	147,075	1.5 B/C
		\$0.60	levelized	\$0.45	levelized

## Conclusions

While there are many market based ways to impact the flow and delivery pace of incentives what matters to the utility or energy efficiency organization is the cost to capture the savings. Thinking about details that impact the structure of a program from initial contracting to the data capture on the forms that influence the cost of delivery can be complex. For this reason structuring implementation contracts to focus on the levelized cost to deliver savings forces program implementation contractors to think about all the details that influence efficiency in delivery and to design approaches to the market that encourage capture of multiple measures that possess longer lives. Changes made to simplify the program in the eyes of the end user, which result in efficiencies in the administrative processing of projects in a high volume program, are also a key area for cost-efficiency improvements. The forms revision process has been extremely well received by the contractors but it is still too early to have definitive feedback on if this new approach is lowering administration time in processing end paperwork. Having a good forecast of expected measure penetrations going into budgeting is also a key element in ensuring that the anticipated savings can be captured and equally important is an understanding of the administrative processing tasks and their expense is crucial.

Efficient implementation of energy efficiency programs is a continuing process of feedback and change that evolves over time in a learning organization. Communication and process documentation are also important to maintaining structure and to record decisions that influence the direction of a program. Lastly, designing programs to leverage existing market actors and their expertise is ideal. The extensive Trade Ally network that the Energy Trust has developed allows significant leverage of existing markets to deliver energy efficiency efficiently, thus maximizing the return on utility investment in energy efficiency.

**2005 Energy Efficiency Programs Progress Report**  
 Activity To Date  
 Estimated Energy Savings



Electric Energy Efficiency Savings				Natural Gas Energy Efficiency Savings				Key		
2005 kW h Energy Savings Goal		To Date kW h Energy Savings		2005 Therms Energy Savings		To Date Therms Energy Savings Goal		Estimate	Program Start	Program End
aMW	30.6	aMW	44.5			Therms	1,366,090			
kWh	268,160,000	kWh	390,227,358		146%	Therms	1,315,600			
								To Date/Yearly Total		
Unless noted all numbers are in kWh or Therms										

Month	Energy Efficiency Savings by Program																		
	Building Efficiency		New Building Efficiency		Building Tune-Up & Operations		LED Traffic Signal	Production Efficiency	Home Energy Savings		Efficient Home Products		Efficient New Homes		Solar Thermal		NEEA	Total of Programs by Month	
	kW h	Therms	kW h	Therms	kW h	Therms	kW h	kW h	kW h	Therms	kW h	Therms	kW h	Therms	kW h	Therms	kW h	kW h	Therms
January	1,813,838	20,856	224,986	428	0	0	0	3,599,785	1,107,004	86,240	1,086,294	0	58,441	9,679	2,991	0	3,038,890	10,932,229	117,202
February	3,425,773	9,335	1,079,285	43,931	0	0	0	1,264,134	1,255,748	85,080	1,445,863	471	2,368	5,037	5,652	0	3,038,890	11,517,713	143,997
March	2,612,638	19,263	903,557	15,431	0	0	0	10,713,202	1,519,911	134,473	562,548	6,068	8,260	7,372	17,502	0	3,038,890	19,376,508	182,861
April	4,195,454	11,640	166,762	0	0	0	0	7,179,627	1,473,662	79,084	473,738	8,044	17,656	4,206	12,509	0	2,935,834	16,455,242	105,268
May	4,125,647	14,579	90,095	0	0	0	0	2,128,614	1,634,009	57,953	534,305	8,798	35,827	4,806	11,078	0	2,935,834	11,495,409	88,149
June	2,922,957	36,491	197,665	0	0	0	0	6,543,559	3,747,126	60,439	659,051	11,785	28,924	6,099	45,690	0	2,935,834	17,080,806	117,958
July	1,775,832	11,230	2,787,197	0	0	0	0	8,085,959	58,911	16,748	597,471	9,608	10,863	2,192	3,766	0	0	13,319,999	43,180
August	3,722,227	54,290	85,406	4,140	0	0	0	3,192,254	791,884	36,527	588,441	10,521	18,002	4,751	7,608	0	0	8,405,822	110,802
September	2,675,850	46,996	285,338	1,528	0	0	0	5,429,781	507,102	56,331	728,938	13,388	415,732	12,480	0	0	5,839,556	15,882,297	133,566
October	2,052,834	45,592	90,127	0	0	0	632,049	3,659,976	925,569	37,604	618,251	10,556	49,311	7,918	11,886	0	0	8,040,003	101,813
November	7,490,467	21,959	1,377	0	0	0	70,267	2,450,823	470,663	65,962	5,001,953	13,039	242,080	13,798	3,102	0	0	15,747,107	114,758
December	-1,102,884	90,758	618,991	13,029	707,374	0	2,043,948	125,731,958	4,790,543	-15,729	3,129,179	3,282	169,720	15,198	24,075	0	115,721,993	241,974,223	106,537
<b>Total Savings</b>	35,710,633	382,989	6,530,786	78,485	707,374	0	2,746,264	179,979,672	18,282,132	700,711	15,426,032	95,559	1,057,184	93,536	145,859	0	139,485,721	390,227,358	1,366,090
<b>2005 Cons Goal</b>	24,165,000	282,600	4,673,000	55,000	3,251,000	62,000	1,828,000	170,836,000	21,632,000	714,000	9,321,000	21,000	3,639,000	163,000	175,000	18,000	28,640,000	268,160,000	1,315,600
<b>% of 2005 Goal</b>	148%	136%	140%	143%	22%	0%	150%	105%	85%	98%	165%	455%	29%	57%	83%	0%	487%	146%	104%
<b>2005 Best Goal</b>	32,220,000	376,800	6,231,000	73,500	4,335,000	82,300	2,437,000	192,555,000	28,843,000	953,000	12,428,000	27,375	4,850,000	217,500	233,000	24,155	35,800,000	319,932,000	1,754,630
<b>% of Best Goal</b>	111%	102%	105%	107%	16%	0%	113%	93%	63%	74%	124%	349%	22%	43%	63%	0%	390%	122%	78%