Meeting Notes
Evaluation Committee
April 23, 2010 10:06 AM – 1:10 PM

Attendees
- Debbie Kitchin, Board Member and Committee Chair
- Alan Meyer, Board Member
- Dan Enloe, Board Member
- Dan Davis, Board Member
- Phil Degens, Evaluation Manager
- Matt Braman, Planning Program Manager
- Sarah Castor, Evaluation Project Manager
- Steve Lacey, Director of Operations
- Peter West, Director of Energy Programs
- Oliver Kesting, Commercial Sector Lead (EB study follow-through discussion)
- Paul Sklar, Planning Engineer
- Lauren Gauge, Evaluation Manager Bonneville Power Administration
- Sarah Castor, Evaluation Project Manager
- Brien Sipe, Evaluation Project Manager
- Debbie Menashe, Senior Council (for CEWP discussion)

Topics covered:
1. Production Efficiency and Existing buildings technical study follow through rates
2. Ductless heat pump pilot
3. Clean Energy Works (CEWP) Portland
4. Evaluation schedule

1. Production Efficiency (PE) and Existing buildings (EB) technical study follow through rates

Phil presented work conducted by Matthew Taylor, evaluation contractor, regarding studies conducted by the PE and EB programs and subsequent implementation of energy saving recommendations. This work was prompted by program requests. Previously, no ongoing analysis has tracked this data.

Goals:
- Determine if follow through is an issue
- Develop follow up strategies if necessary

Key findings:
- Short study follow through have increased steadily over time, trending to over 50% follow through. Detailed studies hover around 50%.
- Waste water treatment had high follow through, low realization, contractor no longer performs studies.
- Pulp and paper had low follow through, and contractor who no longer performs studies.
    - Contractor was not a specialist in EE issues.

- Larger energy consumers have higher follow through.
- Stated follow through rates reported by the Program Management Contractor (PMC) in the past appear to have been higher than they were in actuality.
- Rates increased significantly after the program implementation changes (in house).

Energy Trust take:

- Studies are the beginning of potentially ongoing customer engagement
- Follow through is one of many metrics, and not the whole story
- Baseline studies like this can help set expectations for follow through rates
- Continue monitoring and gathering information on follow through without incentive payments
- Debbie asked about the distinction between short and detailed studies used by the PE program. Cost and loads of the buildings factor in, detailed studies tend to identify larger savings opportunities. Kim Crossman (Industrial and Agriculture sector lead), in discussions with Phil, indicated that the 50% follow through is a good number.

Discussion:

Steve felt that a 50% follow through rate is not optimum, and that contractors conducting studies should be pursuing those who are highly motivated. Debbie mentioned that industries with high users should be the focus of the Allied Technical Assistance Contractors (ATACs), where even if follow through rates may be low, savings payoffs are large.

Debates in the past have focused on customer buy in through partial payment. Issues were encountered when using co-pays. Participants were asked for payment, but it proved difficult to collect co-pays.

Dan E. asked about industrial customers and what incentive they have to implement a project sooner rather than later. Steve indicated savings are one motivator. Steve indicated Energy Trust pays full freight for studies. Dan E. offered the suggestion of issuing form 1099's to customers who fail to commit to projects as a means to get customers to move forward, the premise being that customers are receiving a financial benefit through the study.

Alan indicated that 50% does appear to be a good rate. He discussed situations where customers implement study recommendations slowly through O&M budgets, rather than in a one-time capital investment. Phil mentioned that evaluation will be pursuing ways to track study recommendations which resulting from this study recommendation implementation scenario, as customer reported influence of the study on projects is a legitimate means to claim savings.

Steve offered another suggestion to boost follow through rates by tying performance compensation to study follow through rates. Debbie indicated that this metric should be tied to the savings achieved, and not solely on the study follow through, given some industries may have lower rates but larger savings per study acted upon. Incenting contractors to go solely after follow through may create a shift to small studies/projects which don't offer the same magnitude of savings payoff.

Oliver mentioned that the EB program has begun issuing 'report cards' to ATACs on what the savings yield is from the studies they conduct.

Dan E. asked how studies are divvied out among the ATAC pool. Currently, the ATAC pool consists of those who are specialized for a particular area. Lockheed/Energy Trust staff then choose the ATAC from the pool, not the Program Delivery Contractors (PDC).

Lauren brought up Bonneville Power Administration (BPA) experience with follow through. The agency compared the percent of savings stemming from recommendations compared to those acted upon, with the resulting rate in the 50-60% range.

Steve asked about the potential to look at measure categories and follow through to get more in-depth. This is an avenue to explore, but depends on the level of detail that can be captured about PE and EB studies in the FastTrack (FT) database. Discussions have been held between evaluation and program staff on ways to get more data into FT. EB study recommendations may be more conducive to inputting into FT, and can be used to examine measure recommendations and subsequent measure installation.

Alan indicated that his company has had great experiences working with the BPA model for commercial studies and subsequent energy efficiency program incentives.

EB technical studies and follow through:

- Level 1, follow through trend of 20%
- Level 2 (more detailed), trends around 40-45%
- 15% of walk through studies led to level 1 or 2 study, 3% installed without a subsequent study
- 70% of scoping studies, led to level 1 or 2 study

Oliver mentioned that Lockheed Martin (EB PMC) is not satisfied with current follow through rates and is exploring ways to re-open older studies and close more current ones. Increasing incentives is one method to encourage potential participants to go back to old studies and act on recommendations.

Lockheed Martin will be reviewing studies where no activity has occurred. During the course of contacting these customers, they will be asking about potential implementation of projects without the incentive, which could yield savings under the guise of spillover. Evaluation staff have been involved in the planning of this process. Additional data collection will be added to FT to allow easier estimation and analysis of follow through

Energy Trust's take on EB study work

- Set expectations, past data can serve as a benchmark
- Monitor rates
- Examine the PMC process for exploring study status
- Determine follow through barriers
- Continue to explore study follow through without incentives

The question was raised about whether these customers would ever pay for any of these studies for themselves. Self directors pay for their own, and the Department of Energy also provides resources. Phil indicated for commercial customers, many do not know where they would go for this sort of expertise, and Energy Trust is seen as an expert in this area.

Bonuses for short turnaround times are one suggestion to move these projects sooner. Debbie and Dan asked how a reasonable time period can be determined (some customers may have a

one year budget cycle). Alan indicated that the bonuses on incentives can help to sell projects within companies.

2. Early ductless heat pump pilot field monitoring, lab testing, and process findings
Project conducted by Ecotope and Research into Action

Study overseen by the Northwest Energy Efficiency Alliance (NEEA), and has a large number of contributors. Over 4000 installs have occurred. Project Implementer is Fluid Market Strategies (Fluid). Debbie noted that the report doesn't identify Fluid as the entity running the program.

Goals:
- Evaluate achieved energy savings
- Provide technical evaluation of DHPs
- Develop cost/benefit analysis
- Assess market response from customers distributors and installers
- Evaluate program delivery and alternatives

Project timeline:
- Project kicked off in 2009
- 2010 lab testing, billing data collection
- 2011 field monitoring analysis report
- 2012 cost effectiveness analysis and final report

Dan E. asked about the schedule and expressed concern over having to wait till 2012 to get final results. Lauren and Phil highlighted the magnitude of the data collection, gathering utility bills from 100 utilities, and the report revision process. They noted that preliminary reports and findings are unlikely to change much from draft to final and implications can be used to inform program design prior to the final report in 2012.

Field monitoring approach:
- Quad metering of end uses: ductless heat pump (DHP), domestic hot water (DHW), resistance heat, total household use.
- No recent study has collected information on domestic hot water use in recent history.
- 15 minute interval data will be collected on these usage components.

Coefficient of performance (COP), the measure of the system efficiency, was calculated based on 35 of 95 metered installations spread throughout the participating regions. Phil presented a number of slides on single sites and clusters, initial results look promising. Committee members identified some sites as having seemingly inordinately large reductions in energy usage. As more data comes in for the large sample, a more normal distribution of savings is likely to show.

Willamette valley savings for 23 homes (heating energy use) were 56% (non weather adjusted). Matt indicated that given these early promising findings the program quota for DHPs was increased, with a boost to the incentive level as well. Energy Trust is cautiously optimistic.

Debbie was interested in what differences in the housing stocks between the different regions, as well as requirements for additional weatherization installation. Diversity of housing stock wasn't known off hand but as more data emerges more nuanced analysis will be possible. Also, there are no additional requirements for non-DHP weatherization measure installation.

Average costs for systems plus installation are ranging from $4-$5k. Debbie indicated this may be too expensive for multi-family applications. Matt mentioned that economies of scale could bring down costs in these applications where numerous systems are being purchased at one.

Energy Trust take on the early findings

- Metering systems allow a lot of nuance in analysis
- Very promising COP data
- Heat offsets should be robust after data cleaning
- Heating Savings estimates from original Monmouth study of 40% appear to be holding up.

Dan D. asked about applications and typical installation layouts with the average number of indoor condensing units. Phil indicated most installs are one zone, and costs mount quickly when moving to multiple zones. New single family construction isn't necessarily a good candidate either, as most are gas and have well sealed duct systems.

Dan D. also indicated that another benefit to utilities was the removal of some peak demand, as the preliminary metering data appears to show relatively little spiking in energy use from DHP use relative to resistance heat.

Dan E. raised the concern with the cost, when one can purchase a room air conditioner for so much less. Given that this technology has been around for some time, it appears that prices are inordinately high. The issue of current incentive levels and cost effectiveness was raised. Matt indicated that from a utility perspective the technology looks excellent, but it's close to 1 on the societal level due to the cost of installations.

Steve indicated that the technology is new for contractors and customers in the US market and prices should respond to program activity. Lauren raised questions about whether NEEA is pushing a market transformation model, and whether they are approaching manufacturers. Questions about the market demand were raised, Phil highlighted that, at a guess, around 50% of NW utility customers have electric heat.

Dan E. suggested the "Solarize" Portland model with a new technology like DHP by issuing an RFP and engaging in large scale purchasing. Peter indicated that the Solarize project may be encountering different market conditions than DHPs. With solar, manufacturer prices were coming down but Solarize was able to squeeze margin out of wholesale prices on the retail end. Despite the differences in the markets, Matt indicated that Klamath has issued a 180 unit purchase, but this project is supplanting wood heat, so Energy Trust was not involved. The grant came as a means to mitigate wood stove air pollution. But this does create a precedent for bulk buys for DHPs.

Dan E's research on pricing showed costs for Fujitsu products, in a mature market (Australia), of US $900. Prices in the US for comparable equipment from the same manufacturer (web based search) start around $1650. Dan D. also felt that some means of a bulk approach could help with pricing, by potentially coat-tailing on other regions' volume.

DHP process evaluation
Conducted by Research Into Action

- Survey of 235 consumers
- 30 contractors
- 20 manufacturers, distributors, reps

DHP customer profile
- Over half over 60
- 41% not satisfied with prior heating system
- 20% indicated interest in getting AC
- 60% had wall/baseboard heat
- 16% had electric radiant heat
    - Target was resistance heating replacements, but most utilities did not have restrictions on prior heating system

Few major concerns from customers prior to installation, but issues raised were:
- Price was a concern
- Operating price
- maintenance

Less frequent concerns:
- appearance
- effectiveness

Other consumer observations:
- Bill inserts were primary driver of customer awareness of the program
- Very high satisfaction levels
- Lowest satisfaction level (with 86% indicating satisfied or very satisfied) was the reduction in utility costs
- 75% consumers indicated that contractor had enough knowledge of technology
- 92% felt contractor did quality work
- 81% felt contractor provided enough information about maintenance and use of the system

Installer perceptions
- Differences in utility requirements caused confusion and added time to projects
- Felt that screening process disqualified some eligible consumers
- Contractors selected equipment brand based on availably and perception of quality. More trainings were offered for Fujitsu and Mitsubishi, LG was identified as most aesthetically pleasing.
- Overall indicated high satisfaction, contractors enthusiastic about new product to sell and potential customer base.

Reported non-energy benefits:
- Increased comfort
- Increased control
- Ease of use
- Interior air quality
- Addition of cooling capacity

- Offset of pollution from other generation/ heating source fuels

Program design implications:
- Electric utilities encouraged by pilot
- Consumers with wood heat need to be handled differently
- Web based intake interfaces great, but human to human interaction good when working with installers

Other recommendations:
- Prepare simple O&M guidelines for consumers
- Encourage utilities to maintain lists of preferred installers

3. Clean Energy Works Portland
Evaluation contractor: Research into Action

Evaluation Phase 1 components:
- Review documents
- Interviews
- Survey participants, and 'partial' participants (received audits but fell out of program)

Issues identified:
- Energy Advocates (BPI certified home energy auditors) were unclear about who they were advocating for
- Contractors – should the program have competitive bidding?
- Addressing existing conditions in old homes (knob and tube wiring)
- Fee disclosure, when and how?
- Process improvements: manage expectations and job pipeline, clarify program components

Approach for Phase 2 evaluation:
- Interviews
- Survey participants – successful test out projects. 8-9 Phase 2 projects.

Program changes following initial pilot
- More intensive pre-screening
- Energy advocate role more clearly defined
    - Re-defined energy advocate role to be an advocate for the efficiency project, not the customer or contractor
- Fees and costs clearly communicated
- 2nd bid offered to consumer
    - Phase 2 also incorporates more contractors
- Pre-screening
- Some interest rates increased
- Project caps increased
- Credit check run on all applicants accepted after screen on energy usage
- Fuel switching is not allowed within the pilot

- Participants not provided with measure level savings, just the complete savings estimate for the measure package

Phil indicated there is no full report on the project, given the evolving nature of the CEWP project. Current approach is a recurring update of process evaluation via presentations. A full report will be compiled to help feed into the design of the EEAST project. EEAST legislation mandates urban, rural, and commercial pilots, CEWP qualifies for the urban component.

Dan E. indicated that upon examining a neighbor's application for the CEWP project the program seemed very complicated. He indicated that it was easier to go to a bank, credit permitting, and have more control over the process/bids in an open market. He also expressed concern about the 4500 square foot home cutoff, and given the current schedule what's the timeline for completing the pilot. Staff indicated that large homes may exhaust the funding. Dan suggested that caps could be used per project rather than screening on the home sizes, which could enable a quicker filling of the queue to help meet the goal of 500 projects by Sept. 2010.

Steve indicated 200 projects are in the pipeline, which have passed the screening/assessments. Debbie M. mentioned that the size threshold was also incorporated as a means to minimize some of the dry hole phenomenon.

Loan statistics:

- Loan average is $10,700
- Low is $5k, high is $17.4k
- High end is driven by gas furnace replacements.
- Estimated annual dollar savings:
    - mean is $500
    - median $455
- Incentives cover about 5.8% of project costs on average, low is 0% and high is 17.7%.

Discussion abounded on the slide showing monthly payments and expected savings. Costs can be higher than bill savings, but many home owners would be replacing appliances/windows/heating systems anyway, whereas the cost included in the loan amounts incorporate the full replacement cost, rather than incremental costs for efficient appliances.

Phase II stakeholder interview findings:

- Stakeholders have many expectations that may not align: grow EE, support workforce development, customer service, demonstrate viability of large scale residential investment.
    - Alignment issues can occur due to competing priorities:
        - Energy Trust – resource acquisition
        - Shorebank – business
        - City – inclusivity, jobs
        - Feds – emphasis on delivery now.
        - Contractors – will program generate workload needed for hiring?
        -

Future concerns:

- Scaling up may exacerbate existing issues
- Can contractors meet the goals?
- What does financing look like in the future?

Federal grant stipulated that the workforce component was one of the criteria used to select Portland. So the diversity implications will be scaled up with the new grant.

Committee discussed some questions about prevailing wage and diversity requirements. American Recovery and Reinvestment Act (ARRA) funding to the Community Action Program (CAP) agencies resulted in Washington issuing prevailing wage requirements for residential weatherization work. The City of Portland has applied these prevailing wages to CEWP work. CEWP prevailing wage rates were higher in all cases than the EEAST legislation required, but that the difference varied from county to county.

Debbie indicated the diversity requirements indicate 20% of grant funds should go to minority/women/disadvantaged owned companies. 20-30% of the field workforce should consist of these groups as well. Jobs assigned based on a point system to these companies to help achieve the goals stipulated in the grant agreement. Workforce agreement and BPI certification will be providing training to these companies.

Dan E. indicated that he hadn't yet seen community colleges engaged with the project thus far. Debbie M. indicated that contractors need to hire from workforce development training courses, community college programs are one pipeline for this hiring mechanism.

Key barriers:

- Need a 'great product'
    - Attractive interest rates
- Stability of model requires loan portfolio attractive to the secondary market. Standardized/securitized, attractive rates.

Other issues:

- Will interest rate increase drive away participants
- Right of rescission
- Contractors
- High cost of carrying capital
- Data collection requirements
- Can program deliver on equity expectations?
- Economic implications – 10.5 jobs per million, LBNL 8 jobs/million

Program viability concerns:

- Cost effectiveness implications
- Energy usage modeling software

Contractor interviews

- 2 contractors left program in phase 2
- Program processes
- Complex transaction
- Multiple documents/steps
- Contractors felt 20% of requirements were about excellence in delivering weatherization effectively, while 80% was diversity and wage requirements.
- Ready to work – ready to ramp up, where are the jobs
- Will this be permanent?
- Want to avoid over selling

- Projects cost more – wages, time

Other contractor feedback:

- Hopeful
  project is great
- Amazing opportunity, works well for customers
- Innovation hard to forecast
- Several hope to make project a part of their business

CEWP Presentation will continue in the next evaluation committee meeting.

4. Evaluation schedule and Board input

Dan E. highlighted a number of emerging technologies and re-iterated the board's desire to see the Planning and Evaluation department as the intake group for emerging technologies. A number of technologies were mentioned as possible areas of exploration:

- House dashboards
- Fan walls for industrial
- Heat pump water heaters- staff indicated NEEA is working on spec
- Hybrid rail engines – braking energy recovery.

Fred Gordon has compiled a list of emerging technologies, staff responsible, and status, of a number of technologies and will be presenting to the board at some point in the near future.

Meeting adjourned at 1:10pm

Next meeting scheduled for June 18, 2010