REPORT OF FINDINGS FOR THE SUSTAINABLE ENERGY SYSTEMS FOR WASTEWATER TREATMENT PLANTS

Report One

Prepared for:
Energy Trust of Oregon

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Introduction

Energy Trust of Oregon (Energy Trust) engaged Navigant Consulting to conduct an evaluation of the Sustainable Energy Systems for Oregon Wastewater Treatment Plants (SES). The SES was a series of workshops conducted to provide training and robust tools to Oregon wastewater utilities. The goal of the SES is for Oregon wastewater utilities to become energy independent through application of energy efficiency and renewable energy technologies, while achieving excellent environmental and water quality standards.

The Oregon Association of Clean Water Agencies (ACWA) organized and implemented the SES in collaboration with its partners, Energy Trust, Environmental Protection Agency (EPA) – Region 10 Sustainable Water Infrastructure Strategy, EPA – Office of Water, Bonneville Power Administration, Zero Waste Alliance and EPA Region 10 PEER Center, and Oregon Department of Environmental Quality (DEQ).

Seven workshops were held over a 12 month period, from April of 2010 to May of 2011. Participating utilities were required to contribute to the funding of the project on a sliding scale basis, based on the size of their wastewater treatment plant. Each community was asked to sign a letter of agreement that outlined their interest in the project at the plant and public works director level.

Participant requirements included spending seven full days (plus travel) to attend each of the workshops plus conducting work assignments between each workshop session. At the conclusion of the workshop series, participants were to complete and submit a final, written report.

The workshop participants included thirteen wastewater utilities plus the Oregon DEQ. Twelve of the participants, including the DEQ, submitted final written reports. Navigant Consulting reviewed each final report then contacted the participants to request a telephone interview. Interviews were able to be conducted with ten of the fourteen participants. Interviews were conducted between July of 2011 and January of 2012.

Conclusions and Recommendations

Conclusions

Participants are mainly motivated to undertake the SES training by the potential for energy and cost savings. Other key motivating factors include learning about energy efficiency and production, and seeing what other facilities are doing for energy management.

Participants reported undertaking a vast array of O&M and capital projects as a result of the SES program. Capital projects included both energy efficiency and energy production, although production projects were reported mainly by larger facilities.

Nearly all participants interviewed said that they had some type of energy team in place since taking part in the SES, and over half of all participants reported having an energy plan or policy in place.

Participants indentified the facility tours, consultant talks, and networking as some of the most valuable aspects of the training. The organization and leadership of ACWA's Executive Director and team were highly valued by all participants.

The most common challenge reported by participants was issues related to managing and administering the various SES projects, such as completing proper forms, hiring outside help to determine project feasibility, and planning a systematic program. Travel to facility sites was also a common challenge reported by participants because of the time involved.

Participants are confident in their ability to continue implementing the SES in the future. Some participants have built principles learned from the SES into their energy teams or regular facility meetings to ensure future compliance.

The majority of participants indicated that the workshops had a good balance between talks by technical experts and group work. All participants said that the SES training materials were clear and useful, but a few offered suggestions for improvement.

Participants said that the time spent on the SES was reasonable; however, nearly all agreed that a shorter duration would be better.

Most participants said that a more regional SES would be fine, as long as the networking aspects of the training and diversity of facility tours were not lost. In

addition, most said that a greater focus on energy efficiency rather than energy production would be more beneficial.

The SES was considered a success by all participants and has made them more likely to undertake initiatives with Energy Trust in the future.

Recommendations

Energy Trust should continue to sponsor the SES training implemented by ACWA. The SES should remain largely in its current form but Energy Trust should consider making the following changes:

- To increase facility participation, consider making the program shorter in duration (three to four months), having more focus on energy efficiency, and reducing the amount of travel required, as the vast majority of participants interviewed were in favor of this approach.
- Begin to tailor the content to apply to technologies used at smaller plants. The first cohort included most of the larger facilities and subsequent sessions will need to recruit smaller, regional plants.
- Leverage participants enthusiasm and their plans to continue their activities by:
    - Asking past participants to speak at current trainings; and
    - Hosting annual follow up meetings to discuss progress with initiatives.
- Continue the networking aspects of the training as these are highly valued by participants. If overnight stays are eliminated from the training, consider offering other networking opportunities for participants.
- Have participants begin metering and recording energy consumption prior to the start of the program to establish a baseline. Make this a clear expectation in program recruitment materials;
- Consider other ways to structure the training in addition to recommendation one, including:
    - having a main training session track which focuses on efficiency and an additional renewable training session for those who are interested. The renewable track could be offered every other year instead of annually.

  - focusing the renewable training sessions on modest projects that smaller facilities could realistically undertake, such as photovoltaic arrays or methane capture for running boilers.
  - keeping the majority of training sessions regional to increase participation, but offering statewide sessions once every six months to a year to broaden the diversity of facility tours and networking experiences.
  - allowing participants to join some sessions remotely via web conference, if appropriate.
- Program recruitment materials discussions should convey that participation is a significant commitment in time and resources, both to travel to and attend the workshops and to complete the assignments outside of the workshops.
- Consider facilitating ongoing support after the SES training, such as follow up events or an online communication group.

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MEMO

Date: April 20, 2012
To: Board of Directors
From: Philipp Degens, Evaluation Manager
Kim Crossman , Sr. Industrial Sector Manager
Subject: Staff Response to the Sustainable Energy Systems for Wastewater Treatment Plants Report

The Sustainable Energy Systems for Wastewater Treatment Plants (SES) initiative, run by the Oregon Association of Clean Water Agencies (ACWA), is a wonderful example of strategic energy management services provided by an organization other than Energy Trust. Energy Trust sees the promotion of such services by an industry trade organization as a positive step towards fostering broader adoption of SEM practices.

Partnering with ACWA allowed Energy Trust to engage with participating plants and help foster efficiency and renewable energy projects. ACWA is offering these services again in 2012 and is utilizing the same contractor that Energy Trust engaged for the Industrial Energy Improvement (IEI) pilot. As before, Energy Trust anticipates working with this next set of participants to develop efficiency and renewable energy projects.