



TIP 140: Energy Efficiency Emerging Technologies (E3T): Assessments and Demonstrations

Context

BPA is committed to achieving the Northwest Power and Conservation Council's Sixth Power Plan goal to offset 85% of the region's load growth over the next 20 years through energy efficiency. It is widely accepted that the currently technologies will not achieve this goal. To ensure success, BPA needs to identify and evaluate new technologies to create new measures for increased savings. The TIP 140 project supports this goal through the implementation of a multi-year program to identify, assess, develop and transfer energy efficiency technologies and solutions to EE Programs and customer utilities.

The investment in TIP 140 has resulted in significant progress being made in bringing emerging technologies to the region in collaboration with the Northwest Energy Efficiency Alliance (NEEA). In October 2012, NEEA and BPA reported that the two organizations had invested \$6.5M in 50 technologies to kick-start the region's emerging technology research portfolio. This effort represents roughly 3000 aMW of 20-year achievable energy savings potential to address future needs throughout the region.

Description

The Energy Efficiency Emerging Technology (E3T) team identifies technologies to validate their energy savings performance and then works with EE Programs to define participation incentives. These products are readily available in the market, but have low market share. The team is responsible for designing and executing assessments and demonstrations to evaluate new technologies. In 2013, 8 new measures were added to BPA efficiency programs as a result of this project.

During 2014, E3T will focus research in five areas including:

- Variable capacity heat pumps
- Heat pump water heater applications
- Advanced lighting innovations including LEDs
- HVAC Rooftop Units (RTU) both retrofits and new equipment
- Energy Management, including behavioral-based savings

Collaboration – Catalyst for Innovation

Collaboration is the key to bringing new technologies to market more quickly and efficiently. By working together industry leaders can reduce the costs and shorten the time to bring new technologies to the marketplace. E3T has focused on building bridges with EE industry leaders to work together to identify research opportunities.

In addition to researching specific technologies, collaboration activities also focused on finding easier ways to share information regarding research studies and results to avoid duplication of efforts and share research costs. In 2013, a number of projects involved working closely with BPA's customer utilities including research for Engine Generator Block Heaters, Energy Management in Data Centers and Behavioral Based initiatives for both residential and commercial applications.

Why It Matters

To meet future energy demands and avoid the enormous investment in time and money to build new transmission lines and substations, it is imperative that the Region continue to identify and demonstrate the reliability of energy saving technologies and practices. E3T designs and implements research to ensure that there is a variety of new products and services to deliver energy savings across all sectors. Without this TI project, BPA would not fulfill its energy efficiency savings commitment to the region.

Goals and Objectives

The goal for TIP140 is to collaboratively “fill the pipeline” with innovative energy efficiency measures that promise significant energy savings. The E3T team works with customer utilities, EE industry experts, and regional policy makers to meet Sixth Power Plan goals as well as improve utility customer satisfaction. Program objectives include the following:

1. Identify and screen emerging energy efficiency innovations for assessment and development as EE measures.
2. Select and manage a portfolio of emerging technology assessment projects that bridge targeted emerging technologies into BPA energy efficiency programs.
3. Increase the speed of development, quality, and impact of new energy efficiency measures
4. Decrease the cost to identify, develop, and implement new measures.

Deliverables

- Deliver 10 BPA Qualified or RTF Provisional Unit Energy Savings (formerly deemed measures) to EE Programs
- 7th Power Plan Technical Support Activities

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Project Start Date: October 1, 2007
Project End Date: September 30, 2015

Links

BPA E3T page

http://www.bpa.gov/Energy/N/emerging_technology/index.cfm

BPA Emerging Technology Database

<http://www.e3tnw.org>

Reports & References

BPA Reports and Publications

http://www.bpa.gov/energy/n/emerging_technology/projects.cfm

Participating Organizations

- › Northwest Power and Conservation Council
- › Regional Technical Forum (RTF)
- › Northwest Energy Efficiency Alliance (NEEA)
- › NW Energy Efficiency Task Force (NEET)
- › Regional Emerging Technology Advisory Committee (RETAC)
- › Energy Trust of Oregon
- › Customer Utilities
- › Electric Power Research Institute (EPRI)
- › Consortium for Energy Efficiency (CEE)
- › ESource
- › Washington State University Energy Program
- › UC Davis University of California
- › Southern California Edison
- › Sacramento Municipal Utility District

Funding

Total Project Budget: \$5,897,380
BPA Share: \$5,897,380
External Share: \$ 0
BPA FY2014 Budget: \$1,000,000

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- › Pacific Gas and Electric
- › Northeast Energy Efficiency Partnerships (NEEP)
- › BC Hydro
- › Pacific Northwest National Laboratory
- › Oak Ridge National Laboratory
- › Lawrence Berkeley National Laboratory
- › National Renewable Energy Laboratory
- › West Coast Utility Lighting Team (WCULT)
- › Western Cooling Efficiency Center (WCEC)
- › Centre for Energy Advancement through Technological Innovations (CEATI)

