

## **(7) Western U. S. Food Processing Efficiency Initiative**

### **Publications/Presentations:**

Presentations by FIRE team members were given at the California League of Food Processor (CLFP) Expo in February and Northwest Food Processors Association (NWFPA) conference in January. Two of these presentations, one by the Oregon Department of Energy and the other by Lawrence Berkeley National Laboratory, are attached for reference. A tabletop exhibit for use by FIRE team members was developed, printed, and used at the two conferences noted above. Case studies were written and printed for use and distribution by the FIRE team. A "save the date" flyer was distributed at the NWFPA conference for the upcoming satellite teleconference. The FIRE project received some press mention in the Business Journal of Portland on February 11, 2005. Copies of all of these items can be obtained by contacting the STAC project lead.

**Patents:** None:

### **Progress in Past Quarter and Current Status:**

The task descriptions are included below followed by descriptions of specific progress. Appendices supplement the progress descriptions.

#### **Task 1: Form Network/Planning**

Develop a collaborative network of stakeholders, including industry associations, universities, industry leaders, state and regional agencies, energy-efficiency organizations, and national laboratories through the following activities:

- (1) All participants will identify key food processing companies in the western states region, beyond the participants described in this proposal, and invite them to participate in ongoing planning and implementation.
- (2) Industry associations will facilitate industry participation in the project.
- (3) NWFPA and CLFP will use their energy task forces of company executives to identify effective strategies to reach decision makers in industry for transfer of best practices and emerging technologies.
- (4) WSU Energy Program will schedule two face-to-face participant meetings at annual conventions and/or video conferencing broadcasts to provide opportunities for industry and partner participation.
- (5) The NWFPA and CLFP will convene member advisory groups to provide input on best practices, technology experiences, and needs. (6) WSU Energy Program will lead development of the strategic plan for the participants and facilitate the project Industry Advisory Group.
- (7) WSU Energy Program will lead recruitment of regional and national industry executives for policy development and long-range strategic planning. This will include site visits to seven key regional corporate offices or plants to identify and document priority needs, standards of practice, and new or emerging technologies in use.
- (8) LBNL will lead evaluation of the California Food Processing Road map for applicability to the western states research agenda and needs identified through association data gathering. All participants will detail outcomes of the projects to include energy savings, emissions reductions, products produced and value added for the industry.

Two conference call meetings were held this quarter, and the NWFPA conference events provided the opportunity an additional extended meeting of all partners in person. Summaries of the conference call meetings are attached. The two conference meetings provided an opportunity for the NWFPA and CLFP steering committees to meet with the FIRE project partners and provide advice and guidance to the TEAM. These meetings were held at the NW Food Processors Convention on January 18th and at the California League of Food Processors meeting on February 2. In both the NWFPA and CLFP events industry representatives provided a large amount of constructive criticism and useful feedback to the

FIRE team members as they commented on the group's work plan, outreach methods, and internet web interface.

### **Task 2: Best Practices Portfolio**

All participants will assemble an initial portfolio of best practices already known to the organizations and share the information throughout the region. All participants will develop relationships with industry contacts, EERE, state energy offices, national laboratories, associations, suppliers, Industrial Assessment Centers, and universities to gather information, identify promotion leveraging opportunities, and collaborate on demonstrations or case studies. All participants will provide content input and Web links to the NWFPA's newly developing Web portal with the Best Practices Programs available to food processors. This is being planned under recent DOE funding. WSU Energy Program will coordinate this material. Resources will include solutions to key issues such as: applicable technologies, best practices, productivity, financial incentive programs, and homeland security supply chain/regulatory issues. NWFPA and the CLFP will identify members with active best practice capability or programs and identify which have published findings or data to share.

Much of the web content for the "Energy Portal" site containing the best practices material has been developed in draft form. The entire web structure has been completed and is operable within a password-protected test site. The look and feel of the "Energy Portal" web site has been finalized. A fully-functional version of the web site has been demonstrated to numerous stakeholders at the NWFPA convention. The FIRE steering committee has been introduced to the "Energy Portal" web site and has provided feedback on its design and desired content. Other best practices material has been developed as well. For example, the NW Energy Efficiency Alliance has finished and published its best practices manual for refrigeration as a handbook that was released at the NWFPA convention in January.

The FIRE team worked with Ken Ecklund, Idaho Department of Water Resources, and Mark Stephens, EPRI/PEAC on a workshop on the draft Guidelines for Protection of Programmable Logic Controlled Systems; prepared workshop announcements and materials and worked with NWFPA members. The workshop was held on January 18, 2005 at the NWFPA Convention and Expo. Fourteen experts from the food processing industry, electric utilities, and energy service providers attended and recommended that NWFPA approve the guidelines. Worked with Ken Ecklund to prepare a report on the workshop (attached for reference).

### **Task 3: Emerging Technologies**

A portfolio of emerging technologies that show promise for efficiency, productivity, or emissions improvement for the food processing industry will be created. WSU Energy Program will compile data and case studies on emerging technologies being applied in the food processing industry for productivity improvement, energy efficiency, quality enhancement, or waste minimization. CEC will develop six case studies of their Public Interest Energy Research (PIER) projects that demonstrate commercial application of emerging technologies that may benefit food processors. WSU Energy Program will identify specific services of WSU's Food Science Department and the Impacts Center with ties to the Manufacturing Extension Network for developing marketing or delivery strategies for emerging technologies. CEC will inventory emerging technology demonstration sites and identify which incorporate widespread best practices to identify case examples for write up. Idaho will lead development of best practice guidelines for specifying and protecting programmable logic controllers resistant to interruption from voltage drop. WSU and Oregon will research combined heat and power applications in food processing and identify barriers and opportunities. LBNL will compile an inventory for food processing of the best available commercial and emerging technologies and sort by end use (hot water, steam, motors), process (washing, cutting, freezing, refrigeration, canning, conveying...) or system type (boilers, chillers, refrigeration compressors...). The Alliance will target the fruit and vegetable (NAICS 3114) and dairy products (NAICS 3115) sub-segments with a combination of technology and business-related solutions.

Lawrence Berkeley National Laboratory is continuing work on the emerging technologies section. LBNL has received data from WSU and DOE. In addition, LBNL has been collecting case study data and information on the beer, dairy, food processing, fruit and vegetable, and wine industries from the International Energy Agency's Center for Analysis and Dissemination of Demonstrated Energy Technologies (Caddet) and from academic journals. Staff from LBNL met with Oregon Department of Energy staff to finalize arrangements involved in integrating the emerging technology section into the "Energy Portal" web site at the California League of Food Processors convention in February.

**Task 4: Prepare and Deliver Content for use through the associations' web sites, e-newsletters, workshops, video-streaming, and other conferences and promotions.**

NWFPA will facilitate a teleconference workshop for food processing maintenance personnel in energy efficiency training with assistance from all partners. The workshop will be available to interested parties in up to 15 other Western states. CEC will research their experience with video streaming and educate the partners on how to prepare materials for use in that context for satellite conferences, Web, or e-mail delivery. CEC, Oregon and WSU Energy Program will develop a format for compiling, crediting, publishing and delivering reports useful to the industry. NWFPA and CLFP will identify graphic content needs for presentations, case studies, and Web sites and will manage partners contribution to meet those needs. A case study format was agreed upon and the Motor Challenge two page, four-sided format was selected. A format guide and questionnaire was developed to assure that there is continuity of content in each of the sections of the case studies. Elements of the case study (tables, graphs, photos, headers) are included in the format guide (attached). CEC will develop and distribute streaming video training or promotion clips regarding thermal systems. CEC will provide training or guide other partners to develop similar capabilities. Planning continues on the satellite teleconference event. During FIRE team meetings a decision was made to reschedule the satellite conference to November of 2005. A draft agenda for the satellite event has been developed. Discussions on potential speakers are ongoing among FIRE team members, with several of the key speakers already identified. Negotiations with the host facility are well underway and logistical planning continues.

FIRE team members staffed booths at both the NWFPA and CLFP conferences. Numerous contacts were made with a large range of stakeholders. The "Energy Portal" web site was demonstrated at the NWFPA event. FIRE case studies were distributed at both events, as well as a range of PIER case studies related to the FIRE project. A "Best Practices" side event was held at the NWFPA convention and was highly successful. Attendance overwhelmed expectations and exceeded the registered number, with estimates of 175-200 people attending. The program featured several case studies on industrial energy efficiency projects. Feedback from attendees indicated that the speakers were excellent and that the Conference was one of the most informative they have attended. There is significant interest in another conference in January 2006. An agenda from that event is attached. A sample of the feedback is attached as well.

A dedicated session to promote FIRE was held at the CLFP convention. FIRE team members from Oregon, LBNL, DOE, Del Monte, and California all spoke at the event. FIRE team members also gave presentations to the energy advisory committee of the CLFP. Copies of those presentations are attached for reference. A session on refrigeration was held at the NWFPA convention. The Northwest Energy Efficiency Alliance released their refrigeration best practice manual at the event. The Oregon Department of Energy gave a presentation on regional incentives available to NW Food Processors at the same event.

**Task 5: Utility/Management Demonstration**

Del Monte will demonstrate the best available technology and applications of Utility Management Systems (UMS) integrated with Enterprise Asset Management (EAM) technologies. Del Monte and LBNL will conduct research, literature search and technology overview of the state-of-the-art of utility management and enterprise asset management tools. The multiple product features, integration

capabilities, systems requirements and other characteristics of those tools will be identified so industry can readily conduct comparative analysis. LBNL will outline the scope necessary to study in detail the standards of production, water and energy efficiency practice for one of the largest food processing sectors.

A kick-off meeting for the Enterprise Asset Management project was held in February. Implementation is underway on preparing for the open house in the fall. The open house has been scheduled for November. LBNL has been actively providing technical assistance to Del Monte Foods for the purpose of developing a project specification and vendor capabilities guidelines for a state-of-the-art of utility management and enterprise asset management system demonstration at their Modesto, CA plant.

### **Plans for Next Quarter**

Key focuses for the upcoming quarter include:

1. Edit existing content and post new content to the Energy Portal. The FIRE teams hopes to have a preliminary draft web site up and running by the end of the quarter.
2. Distribute the Guidelines for Protection of Programmable Logic Controlled Systems to the NWFPA Energy Committee for review and recommendation of approval. Facilitate NWFPA review and approval of the guidelines. Work on two demonstration projects of PLC protection using the guidelines.
  - LBNL will continue work on the emerging technologies section.
  - Continue work on case studies and outreach materials.
  - Complete planning for the Satellite Teleconference, including finalizing the program.
  - Continue conference calls and team networking activities.