



Collaborative Goal Setting
**Climate and Energy Intensity
Reduction: The Northwest Food
Processors Challenge**

Sharon Peterson, NEEA

Pam Barrow, Northwest Food Processors
Association (NWFP)

November 2010

About NEEA: The Northwest Energy Efficiency Alliance is a non-profit organization working to maximize energy efficiency to meet our future energy needs. NEEA is supported by and works in collaboration with Bonneville Power Administration, Energy Trust of Oregon and more than 100 Northwest utilities on behalf of more than 12 million energy consumers. NEEA uses the market power of the region to accelerate the innovation and adoption of energy-efficient products, services and practices. Since its inception in 1997, NEEA initiatives have saved enough energy to power more than 450,000 homes each year. Energy efficiency can satisfy more than half of our new demand for energy, saving us money, and keeping the Northwest a healthy and vibrant place to live.

For more information, visit neea.org

About NWFPA: Founded in 1914, the Northwest Food Processors Association (NWFPA) serves as an advocate for the interests of food processors in Idaho, Oregon and Washington and as a resource to enhance their competitive capabilities. NWFPA is headquartered in Portland, Oregon and has more than 450 member companies including nearly 80 food processors with nearly 200 production facilities throughout the Northwest region. NWFPA focuses its efforts on the important issues impacting the industry in key areas of food safety and security, energy, environmental, innovation and productivity and governmental affairs.

For more information, visit nwfpa.org

Introduction

Reducing industrial energy intensity is essential to achieving local, regional and national goals for sustained economic, environmental and community prosperity. While commercial and residential energy programs have proliferated, industry has lagged behind, primarily due to the complexity and disparity of facility systems and processes.

‘One-size-fits-all’ efficiency programs are not practical in the industrial sector — requiring a new approach to generate desired energy outcomes.

Industry represents 38% of the total global opportunity to reduce carbon through energy efficiency. External factors create fresh urgency to better manage energy resources within the industrial sector: global competition, rising energy costs, industrial consolidation, growing customer demand and policy incentives for ‘sustainable practices.’ As a result, industry leaders are developing integrated business and energy strategies to enhance competitiveness and growth through increased energy productivity and innovation.

A collaborative model introduced by the Northwest Energy Efficiency Alliance (NEEA), in partnership with the Northwest Food Processors Association (NWFPA), U.S. Department of Energy and Northwest regional utilities convenes leadership and vision around common energy reduction goals. The outcomes of this model can impact carbon reduction, diffuse risk and maximize energy efficiency investment as a path toward energy management behavior change across an entire industry.

The NWFPA seeks enhanced productivity and competitiveness through a sustainable energy efficiency plan, as noted in an industry-wide energy intensity reduction goal of 25% in 10 years.

This paper summarizes key findings and recommended steps for achieving full potential of industrial collaboration in setting and achieving energy reduction goals.



“The NWFPA Energy Roadmap Program has been a spectacularly successful testament to all the partners involved. The flexibility, wisdom, trust and partnership demonstrated by NEEA has been instrumental in transforming our industry.”

Dave Zepponi,
NWFPA President

Executive Summary

In October 2008, The Northwest Energy Efficiency Alliance (NEEA) and the Northwest Food Processors Association (NWFPA) began an executive-level collaborative process that culminated in an NWFPA member-adopted goal to reduce member-wide energy intensity 25% in 10 years and 50% in 20 years.

In February 2009, the Northwest Food Processors became the first U.S. industrial sector to voluntarily commit to and work on such an ambitious and sweeping energy efficiency goal, and signed a memorandum of understanding (MOU) with the U.S. Department of Energy, the Bonneville Power Administration, the Idaho National Laboratory and the Pacific Northwest National Laboratory — agreeing to collectively work to achieve the 25% reduction goal.

NEEA's efforts began four years earlier, with the development of a Continuous Energy Improvement (CEI) framework specifically suited to energy-intensive industries, like food processing, in the Northwest. Modeled on proven manufacturing principles frequently found in quality or safety initiatives at most modern industrial plants, CEI set out to install a management system for energy with a set of recognizable steps. NEEA envisioned a ‘Plan-Do-Check-Act’ solution resulting in persistent energy savings for industrial companies by permanently embedding energy management throughout an entire organizational structure.

As NEEA introduced CEI plant-to-plant, they quickly realized the limitations to broader adoption, and the labor-intensive nature of the effort. To create greater economies of scale and a quicker rate of adoption by key industrial groups, they needed to work with a ‘reference partner.’ NWFPA became an organization that could work in tandem with NEEA to convene influential companies, set member-wide energy reduction goals and aggregate activities on a larger scale. A new collaborative model is born.

Executive-level collaboration and formal road mapping allow industry groups to customize a chosen energy efficiency pathway: from organizational behavior and infrastructure to technology development and climate policy influence. An energy roadmap guides industry behavior and allows utilities and government to decide when, how and where to support industry's energy efficiency goals.

When applied to an entire industry group, participants can scale solutions regionally, rather than facility-by-facility or company-by-company. Industrial companies can provide more cost-effective solutions, achieving economies of scale across rural and urban territories, yielding greater energy savings and lasting impact.

Energy efficiency is the first and least cost resource to achieving multiple business and corporate sustainability goals for NWFPA and their utility partners. For NWFPA, the 25% energy intensity reduction goal satisfies multiple needs to mitigate risk and enhance the industry vision of competitiveness and sustainability. The goal is industry-wide, voluntary, aspirational and sets achievable targets based on approximate milestones. The roadmap gives utilities a predictable pathway to ascertain appropriate levels of assistance — whether in the form of incentives, training or other resources for aiding in energy load reduction.

The collaborative model also reinforces NEEA's objective to embed energy management as a core industrial business practice and sets the stage to transfer successful strategies to multiple 'high energy user' industry segments, yielding long-term, persistent energy savings.


To date, the NWFPA is compiling results of four initial projects that will drive future industrial energy intensity reduction activities. They include:

1) Energy Roadmap Development A comprehensive industry-wide plan for achieving energy intensity reduction targets, addressing a range of focus areas; including operational improvements, operations management improvement, business & quality process improvements and by-product/natural resource utilization.

2) Industry-wide Energy Intensity Baseline Collecting energy intensity production data from disparate industry processing systems (e.g. from canning, to freeze drying to refrigeration) to determine comparable energy intensity numbers, or energy required per unit of output or activity. These numbers will be used to measure progress moving forward.

3) Access To Energy Data Document the process by which individual plants and companies access their energy consumption data in order to make meaningful decisions that have a positive impact on their energy efficiency efforts.

4) Energy Assessments & Mapping Evaluation of energy intensity reduction opportunities available — by coupling real world assessment data from various plants, with comparative analysis of historical data and conservation modeling. This process will also yield a common approach for conducting energy assessments in food processing industrial facilities, whereas this information is now collected based on the needs of the assessment provider (electric utility, natural gas utility, Bonneville Power Administration [BPA], Energy Trust of Oregon [ETO], etc.).



Five Phases to Energy Intensity Reduction

The NEEA/NWFPA collaborative model is a 5-phase approach to energy intensity reduction, incorporating a strategic mix of partner development, technological innovation, strategic communication, executive engagement and financing scenarios. NEEA's goal is to apply these principles, and the lessons learned throughout the NWFPA Energy Roadmap process, across multiple, energy-intensive industry clusters in the northwest region.

Program design considers needs and attributes across three levels of engagement, then applies necessary strategies and activities to meet varied needs.

A primary tool used throughout the Energy Roadmap process is cohesive, ongoing communication to maintain momentum, awareness and engagement of all stakeholders in various phases of implementation.

Industry Level: What does an industry group need to make energy efficiency a key component of their member's management and operations?

Company Level: What do companies need to make energy efficiency a key component of their company's management and operations?

Project Level: What does a project engineer/manager need to make energy efficiency a key component of a project?

Phase 1: Recruitment and Outreach

Establish industry partner criteria for greatest return on energy savings and collaborative process engagement.

The Northwest Power Planning Council's (NWPPC) 6th Power Plan notes that industrial electricity use tends to be concentrated in relatively few, very large users — a critical factor determining NEEA's focus on Food Processing and Agricultural 'clusters.'

Clusters represent a new way of thinking about national, state, and local economies, and they necessitate new roles for companies, government, and other institutions in enhancing competitiveness. In today's advanced economies regional clusters of related industries (rather than individual companies or single industries) are the sources of jobs, income and export growth.¹

Key factors determining successful industry collaboration include:

- Availability of executive leadership to push energy reduction as a priority
- Individual company energy 'champions' to maintain momentum, progress and ownership

¹ *Location, Competition and Economic Development: Local Clusters in a Global Economy*, Michael E. Porter, Harvard Business School

- Sufficient resources and outreach channels to provide continuous, relevant information and resources (frequently found in a ‘reference partner,’ such as NWFPA to the food processors)
- Industry willingness to correlate energy reduction to competitiveness, productivity, and sustainability.

In this phase, emphasis is placed on educating industry executives on the role, importance and relevance of energy to strategic business decisions, and for industry competitiveness as a whole. Vocal industry leaders set a direction (goal) for the industry group and begin to put in place the infrastructure that allows the next phase to succeed.

Communication Milepost: Communication strategies should center on answering the question, ‘Why are we setting an energy goal?’ — tying responses to the intrinsic values of participating organizations. In the case of NWFPA, ‘energy efficiency’ became a proxy for leadership, competitive advantage and risk mitigation (in response to energy cost volatility and pending climate change legislation).

Phase 2: Vision and Goal Setting

Articulate an industry-wide energy intensity reduction goal and gain commitment across whole industry and the enterprise, from ‘boiler room to board room.’

In October 2008, NWFPA convened an Energy Vision Executive Session that brought together their members with representatives from NEEA, the U.S. Department of Energy, BPA, state energy offices, utilities and the Energy Trust of Oregon. The objective of the workshop was to engage executive-level leadership in an energy vision for the entire food processing industry.

In essence, the meeting served as a ‘call to action’ for regional collaboration to lower energy intensity and leverage an aggressive goal setting vision to maintain competitive advantage and profitability. Working at the industry level unlocks greater buying power, shared knowledge & resources and the ability to tap into potential funding sources, like the U.S. DOE, which is actively recruiting participants in the federal ‘Save Energy Now’ leadership program.

The conclusion of the workshop netted an aggressive 25% energy intensity reduction goal in ten years, and 50% in 20 years, and a subsequent signing of a memorandum of understanding (MOU) with the U.S. Department of Energy, the Bonneville Power Administration, the Idaho National Laboratory and the Pacific Northwest National Laboratory — agreeing to collectively work to achieve the 25% reduction goal.

Communication Milepost: Outreach strategies focus on reinforcing value to executive teams — communicating a clear business case for embarking on collaborative energy reduction strategies.



Trends & Observations

From NWFPA Energy Roadmap Planning Workshop

» Awareness to Action

A fundamental shift in behavior from ‘awareness of the need’ for prioritized energy management to an ‘urgent and focused discussion of the tools’ required to design and implement a sustainable energy management plan.

» Leadership and Resources

Frequent disconnects between CEO-level ‘sustainability mandates’, and mid-level management implementation point to a strong need for clear and adequate resources to deliver on energy-efficiency goals. It is noteworthy that managers are now prioritizing energy management — they need the tools to implement. This includes knowledge of and access to fact sheets and other written materials guiding best practices as well as funding sources for implementation.

» Carbon Markets

Impending carbon market legislation (and creation) is a source of both concern and opportunity — as measuring and baselining energy use moves from a cost center to potential profit center.

» Fuel Mix

Perhaps the greatest opportunity for energy intensity reduction lies within industrial thermal processes — requiring focused attention on natural gas, waste heat recovery, co-generation and combined heat & power technologies.

» Collaboration

An unprecedented level of opportunities for co-operation among utilities, government, industry and academia could create new business practice implementation models to aid in energy efficiency goal delivery (e.g. fleet-sharing, research & technology development, best-practice sharing and energy management plan implementation).

» Strategic Partners

Tremendous support and regard for leveraging competitors and clusters to yield funding, intellectual capital, sustained regional competitiveness.

» Centralized Information Resource

A strong need for a central, credible clearinghouse of information and tools — where industry can come together to share knowledge, best practices and management solutions.

» New Technologies

Research, development and implementation of new technologies will be critical for reaching industrial energy-efficiency goals: CHP, super boilers, thermal processes, waste heat recovery, co-generation.

» ROI

Industry managers need credible, current economic analysis to demonstrate accurate ROI on energy productivity strategies.

» Culture Change

Discussion of changes in energy management requires a concerted shift in behavior and business practice implementation.

Phase 3: Planning and Infrastructure

Enhance executive support with engagement of technical staff and key partners to create a long-term strategy along with the internal and external support to implement it.

In December 2008, NWFPA member representatives, working with NEEA and DOE, began the process of defining projects, metrics and resources to help this industry reach its energy reduction goals. Insights and member-feedback yielded more than 500 distinct ideas that NWFPA could incorporate into an energy reduction roadmap.

Communication Milepost: Maintain regular, frequent and open communications. All participants should hear not only about progress-to-goals, but challenges encountered in establishing infrastructure.

Phase 4: Implementation

Develop, implement and fund initiatives that will lead to meeting the goal set by the industry group.

Initial outcomes of the NEEA/NWFPA partnership yielded four key projects:

1) Energy Roadmap Development A comprehensive industry-wide plan for achieving energy intensity reduction targets, addressing a range of focus areas; including operational improvements, operations management improvement, business & quality process improvements and by-product/natural resource utilization. Roadmap components can also be found at www.nwfpa.org/advocacy/energy.

2) Industry-wide Energy Intensity Baseline Collecting energy intensity production data from disparate industry processing systems (e.g. from canning, to freeze drying to refrigeration) to determine comparable energy intensity numbers, or energy required per unit of output or activity. These numbers will be used to measure progress moving forward.

3) Access To Energy Data Document the process by which individual plants and companies access their energy consumption data in order to make meaningful decisions that have a positive impact on their energy efficiency efforts.

4) Energy Assessments & Mapping Evaluation of energy intensity reduction opportunity available — by coupling real world assessment data from various plants, with comparative analysis of historical data and conservation modeling. This process will also yield a common approach for conducting energy assessments in food processing industrial facilities, whereas this information is now collected based on the needs of the assessment provider (electric utility, natural gas utility, Bonneville Power Administration (BPA), Energy Trust of Oregon (ETO), etc.).



As these projects unfold, clear challenges emerge that will be continually addressed as the hard work of implementation proceeds:

What is the current energy intensity of the NW Food Processing Industry?

How does the industry collectively achieve the 25% reduction goal?

What is the actual savings potential?

Where should the industry focus its efforts?

How can industry effectively measure reductions?

Where are the funding sources to realize energy savings?

What critical partnerships need to be established to work through the energy roadmap?

Communication Milepost: Project implementation creates an opportunity for peer-to-peer best practice sharing (in person dialogue; business forums; online networks) and ensures an ongoing feedback loop from ‘boiler room to board room’ leading to continuous program improvement.

Phase 5: Measurement

Create short and long-term milestone and metric infrastructure to monitor, assess and adjust progress.

The disparate nature of industrial processes (and the corresponding energy loads and measurements) necessitates a degree of flexibility in prioritizing, scaling and evolving ‘success’ indicators and a metric system that takes individual business objectives into consideration.

In the case of NWFPA, measurement practices needed to account for the following:

- Tying in measurements to projects supporting NWFPA Energy Roadmap
- Initially limiting metrics and staying focused within the flexible NWFPA Energy Roadmap framework.
- Accounting for varying audience metric definition (kWh, ROI, Output / Hr = revenue).
- Using metrics based on utility bill data to create awareness of plant energy use.
- Formalizing a measuring system — taking time to document process, data, and improvements.
- Measuring success through the number of utility customers asking for EE projects.



Moving forward in the Roadmap process, NWFPA anticipates innovation leading to energy reduction in four focus areas:²

Operational Improvements: Industry-wide energy intensity reduction 12% by 2020 and 19% by 2030

Operational Management Improvements: Industry-wide energy intensity reduction 8% by 2020 and 13% by 2030

Business & Quality Process Improvements: Industry-wide energy intensity reduction 3% by 2020 and 12% by 2030.

By-Product and Natural Resource Utilization: Industry-wide energy intensity reduction 2% by 2020 and 6% by 2030.

Communication Milepost: Celebrate results and accomplishments by promoting news, case studies and data points throughout multiple internal and external communication vehicles.

Next Industries

Just as the fully integrated collaborative approach is yielding early progress for the food processing industry, it can be transferred to holistically meet the diverse needs of other industry sectors across the region.

NEEA has begun work with the Oregon Association of Nurseries (OAN), and in September 2010, the OAN Board of Directors agreed to pursue an industry-wide energy intensity reduction goal of 25% in 10 years.

Significant trends impacting the Oregon Nursery industry range from tight margins; volatile ‘input’ costs on transportation, energy and raw materials; healthcare/labor/productivity issues; the influence of changing demographics on consumer demand for nursery products; competitive dynamics such as East Coast ‘buy local’ initiatives hindering West Coast growers market penetration ability.

OAN members clearly understand the energy imperative and industry drivers — with support from key partners such as NEEA, Energy Trust of Oregon, U.S. Departments of Energy and Agriculture, to name a few. Available resources from these organizations include, but are not limited to: technical training, incentives and promotional support.

The challenge for this industry cluster is not whether to reduce energy, but how to work together as an industry and where to prioritize to yield the greatest benefits to all members. To that end, OAN members identified roughly 100 strategies for approaching the energy reduction goal, including energy improvement financing, defined energy intensity units, creation of energy champions, peer-to-peer business forums on energy practices, pooled resources of information and finance, increased automation and controls, to name a few.

These ideas will become the building blocks for OAN’s next step: building a framework for implementing programs to reach the stated energy intensity reduction target.

² *Energy Roadmap*, Northwest Food Processors Association (NWFPA)

neea.org
nwfpa.org

