Save Energy Now
State and Utility Partnerships

February 5, 2009
Industrial Technologies Program
Webcast

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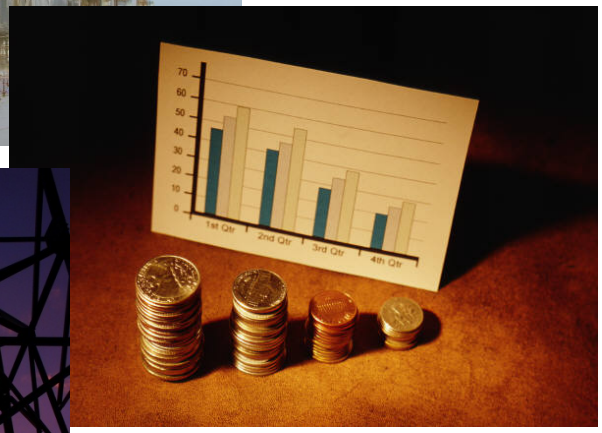
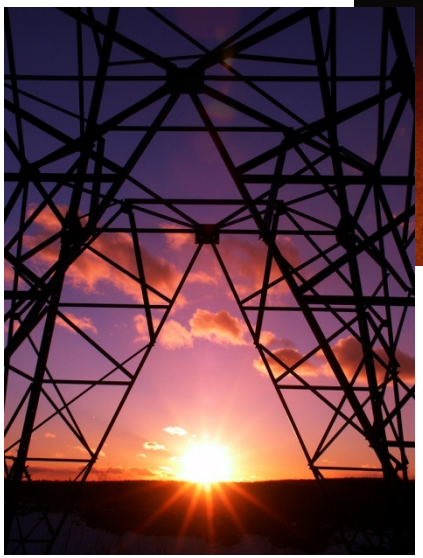
Industrial Technologies Program
U.S. Department of Energy

Agenda

- Challenges facing the Industrial Sector
- Why Industrial Technologies Program (ITP)
- What we do
  - Partnerships
- Partnerships: How we do more, faster, better

Challenges Facing in U.S. Industrial Sector





- *How can I stay competitive in the global marketplace?*
- *How can I save and create jobs?*
- *How can I better insulate my company from volatility in energy prices?*
- *How can I best leverage capital investments?*
- *How will I know which energy-efficient technologies to invest in?*
- *How can I plan for uncertainties in available financing?*
- *How can I stay ahead of new regulations?*

U.S. Industry: Energy Snapshot

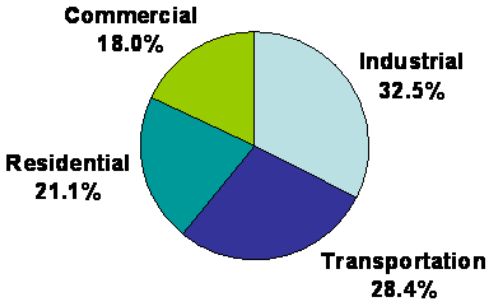
U.S. Industrial Sector

- >200,000 sites
- Consumes more energy than any other sector of the economy (~32 quads)
- Responsible for ~1,660 MMTCO2/year from energy consumption
- Manufacturing makes the highest contribution to U.S. GDP (12%)
- Produces nearly 1/4th of world manufacturing output
- Spurs job creation and investment in other sectors

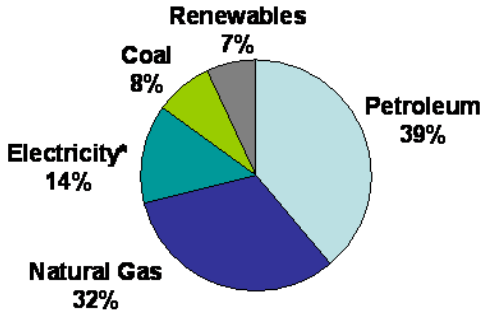
U.S Energy Consumption (2006)

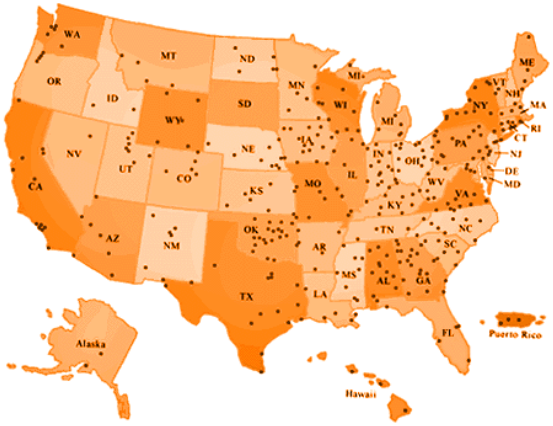
*Excludes electricity losses
Source: EIA AER 2006

Consumption by Sector*
(Total = 100 Quads)

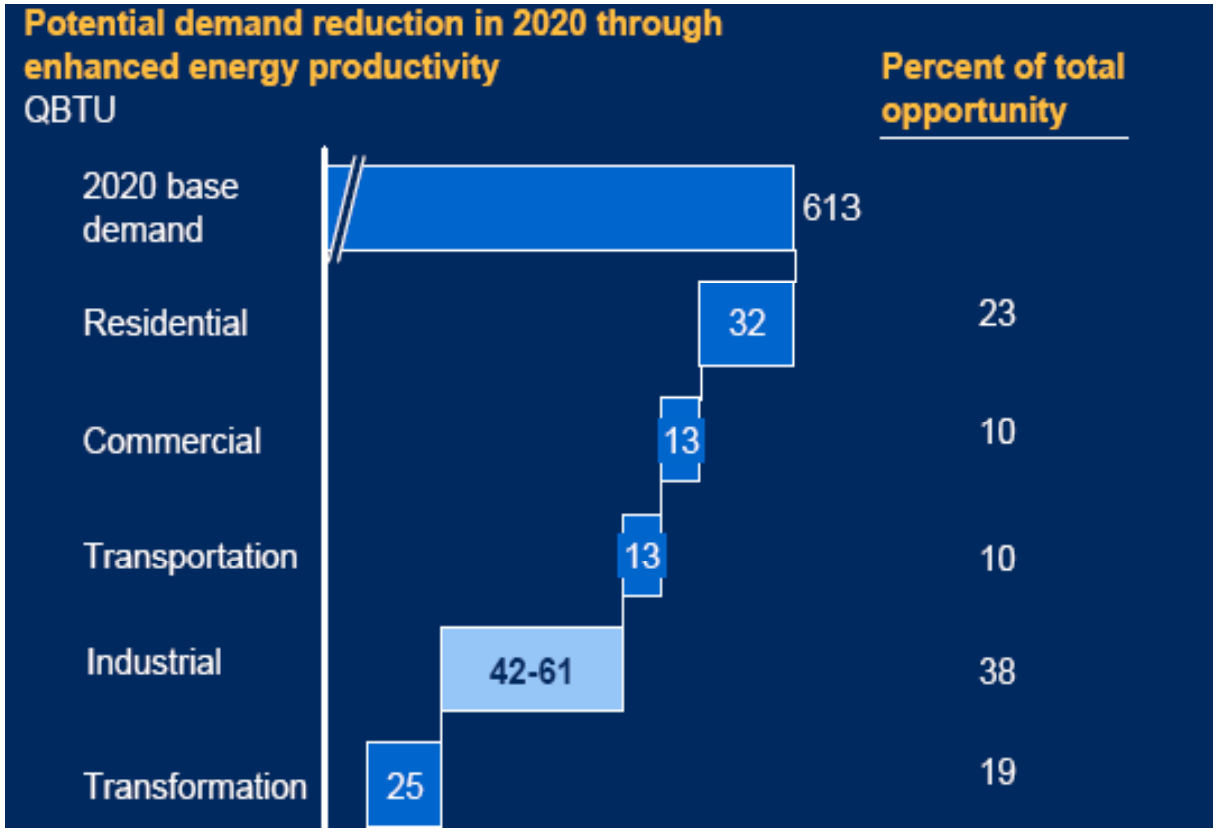


Industrial Consumption by Fuel Type
(Total = 25 Quads)





Industrial Energy Efficiency Opportunity



Source: McKinsey & Company, 2007.

- A recent McKinsey study stated energy efficiency is the most cost-effective carbon reduction option
- *Industry represents 38% of the total global opportunity for reducing carbon through energy efficiency*

The Answer?

Partner with states and local entities, utilities, associations and industrial end-users to leverage free resources to increase your energy efficiency and save energy and money!

What is the Industrial Technologies Program?

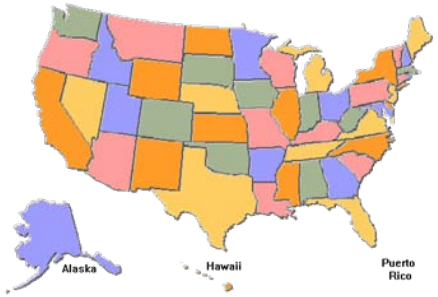
ITP is the lead program within DOE responsible for improving energy efficiency in the largest energy-using sector of the country.

ITP strives to:

- Accelerate adoption of the many energy-efficient technologies and practices available today
- Conduct vigorous technology innovation to radically improve future energy diversity, resource efficiency, and carbon mitigation
- Promote a corporate culture of energy efficiency and carbon management
- Reduce energy intensity through the *Save Energy Now (SEN)* Program

ITP's Goal: *Save Energy Now*

Save ENERGY Now



"25 in 10"

Drive a **25% reduction in industrial energy intensity by 2017**

Saving an amount of energy equal to that consumed in California (all sectors)—

8.4 quads each year.

Industrial Technologies: Save Energy Now

Save ENERGY Now

Technology Research & Development

Technology Pipeline

Best Practices

Technology Delivery

- Energy Management
- Plant Assessments
- Software Tools
- Training
- ISO/ANSI Standards
- Info & Resources

ITP Technology R&D Program Areas

Industry Specific Applications

- Aluminum
- Chemicals
- Forest and Paper Products
- Metal Casting
- Steel
- Information Technology

Advanced technologies for specific, energy-intensive industries

Crosscutting Technologies

- Materials, Sensors, and Combustion
- Energy-Intensive Process R&D
- Nanomanufacturing & Other Interagency Manufacturing R&D
- Fuel and Feedstock Flexibility
- Distributed Energy (CHP and Reciprocating Engines)
- Inventions & Innovations

Crosscutting technologies for diverse, energy-intensive manufacturing processes

Save Energy Now Energy Assessments

All Industries

- 3-day assessments focusing on a single energy system in largest U.S. plants
- 717 assessments completed since 2006
- 585 assessments with completed reports
- **Average plant found ways to reduce energy bill by about 8%**

  Identified energy cost savings:
  $937 million

  Total potential carbon dioxide emissions reduction:
  7.9 million metric tons

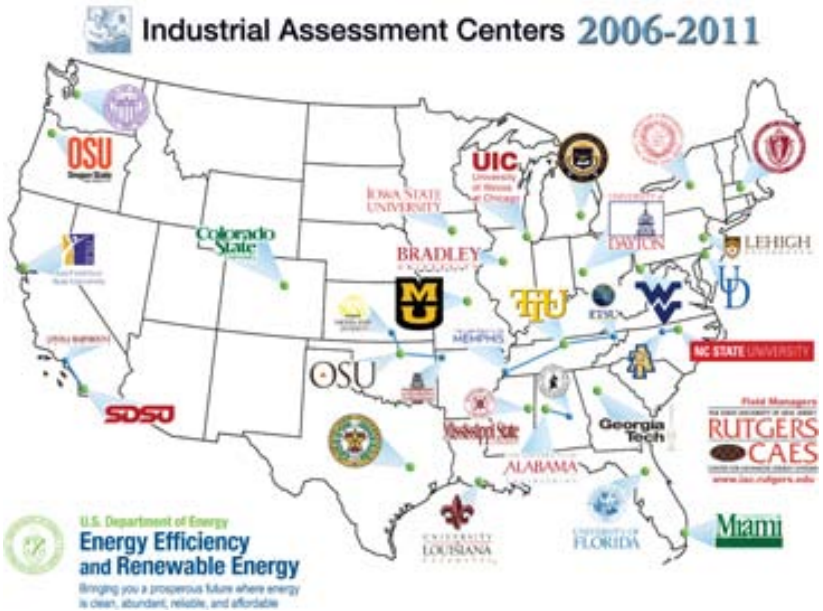
- Nearly 40% of recommendations implemented or in process

"*Save Energy Now* has helped us find creative ways to save energy and reduce carbon emissions in our manufacturing processes -- all while delivering the same great products our consumers love."

-- Dick Frohmader,
Program Manager for Global Energy, Kraft Foods

Industrial Assessment Centers

- DOE's 26 university-based Industrial Assessment Centers (IACs) train engineering students for careers in industrial energy efficiency
- IACs serve 300 plants per year (under .3 TBtu/yr) and typically identify savings of over $147,000/plant with average implemented savings of over $71,000/plant
- Database of over 14,000 assessment results: http://iac.rutgers.edu/database



Training

- System-wide training
- Component-specific training
  - Compressed Air Systems
  - Fan Systems
  - Motor Systems
  - Process Heating
  - Pumping Systems
  - Steam Systems
- Qualified Specialist
- Corporate Energy Management Program

http://www1.eere.energy.gov/industry/bestpractices/professional_development.html

Energy Management Standards & Certification

- Working with industry to facilitate development of recognized industrial energy management standard and certification program to:
  - Engage all employees in technically sound and sustainable process for improving energy efficiency (i.e., change corporate culture)
  - Make energy efficiency improvements part of existing industrial management systems (i.e., ISO, Six Sigma)
  - Help companies gain market value for accomplishments in energy efficiency
  - Provide way for companies to show they are part of the solution to climate change

ANSI Accredited Certification Program

SEN Leader "25 in 10" Pledge

Who are SEN Leaders?

- Proactive industry leaders in the areas of energy and environment

What is a SEN Leader?

- A voluntary pledge a company makes as part of its business strategy toward:
  - energy efficiency
  - carbon reduction

What is in it for them?

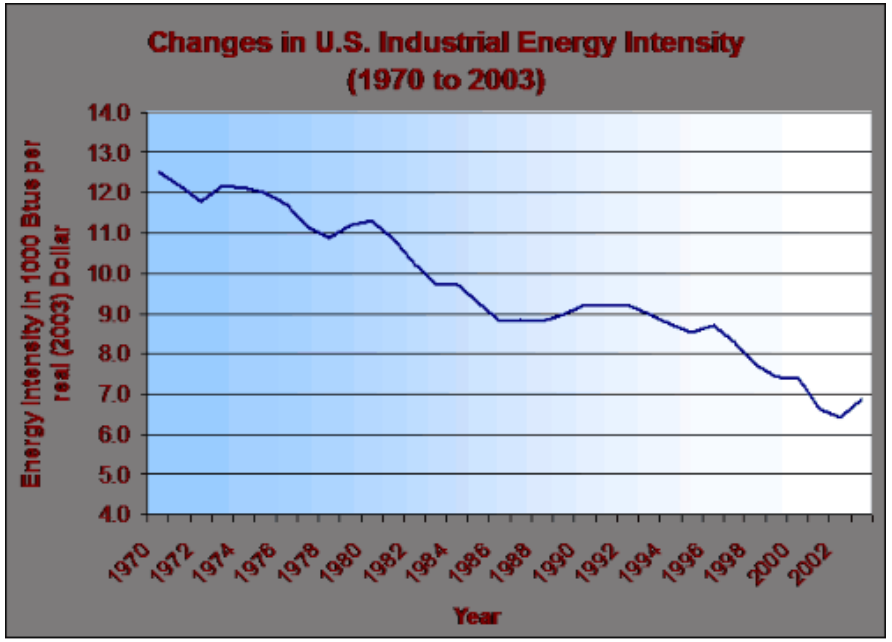
- Enhanced access to enabling resources
- Tailored technical assistance, training, and assessments
- High-level recognition for participation and achievements

To Drive a 25% Reduction in Industrial Energy Intensity by 2017

Why Partnerships?

ITP is engaged in a partnership strategy that will achieve "*25 in 10*". The purposes of these partnerships are to:

- ✓ **Expand Reach to the Customer:**
  - Volatile economy and energy prices limit what manufacturers can do on their own
  - Reach more manufacturers
- ✓ **Leverage Resources:**
  - Public and private sectors have finite resources
  - Combining resources (human/capital) enhances what can be accomplished
- ✓ **Commercialize:**
  - Developing targeted RDD&D pathways and technologies through partnerships



Sources: U.S. Department of Energy, Energy Information Administration; U.S. Bureau of the Census; U.S. Bureau of Labor Statistics

Strong Partnerships

ITP maximizes its impact through diverse partnerships:

- State energy offices
- Utilities
- Nearly 600 industry partners in 2008
  - Energy-intensive industries -- chemicals, petroleum, forest products, and metals
  - Major value-adding industries -- food processing, automotive, and fabricated metals
  - High-growth industries -- computers and electronics
  - New energy supply industries -- ethanol production and biorefineries
- Partners within DOE
- Other federal government agencies
  - DOC (particularly NIST)
  - EPA (ENERGY STAR for Industry)
- Trade associations
- Supply chain partners
- Interagency groups, NGOs, and other industry groups, such as USCAR

ALLIANCE TO SAVE ENERGY
Creating an Energy-Efficient World

NIST

ENERGY STAR

NATIONAL NANOTECHNOLOGY INITIATIVE

the green grid

USCAR

State SEN Partnerships

A partnership of state energy offices, utilities, regional energy efficiency organizations, academia, and private companies

- Provide state entities with expanded access to ITP resources and technical assistance
- Transfer energy-efficient technologies to the industrial market
- Reduce carbon emissions through energy efficiency
- Develop coordinated publicity to promote *Save Energy Now* in industry

Save ENERGY Now

State Funding Opportunity Announcement

- **Issue Date:** 7/29/2008
- **Close Date:** 10/16/2008
- **DOE received 35 proposals in the following activity areas:**
  - Development and delivery of regional, state, or local Industrial energy efficiency programs that target a 2.5% annual reduction
  - Creation of a clearly defined marketing and outreach strategy
  - Delivery of ITP training on a local/regional level
  - Perform energy assessments in plants
  - Partner with a manufacturer to perform technology demonstrations
  - Establishing a strategy for the commercialization of emerging technologies and a process for selecting which technologies should be supported by ITP.
- **Number of Awards:** Between 12 and 16 awards for a 3-year project period
- **Expected Award Date:** XX/XX/2009

ITP States Activities Webpage

Repository of state-level industrial resources and information, including:

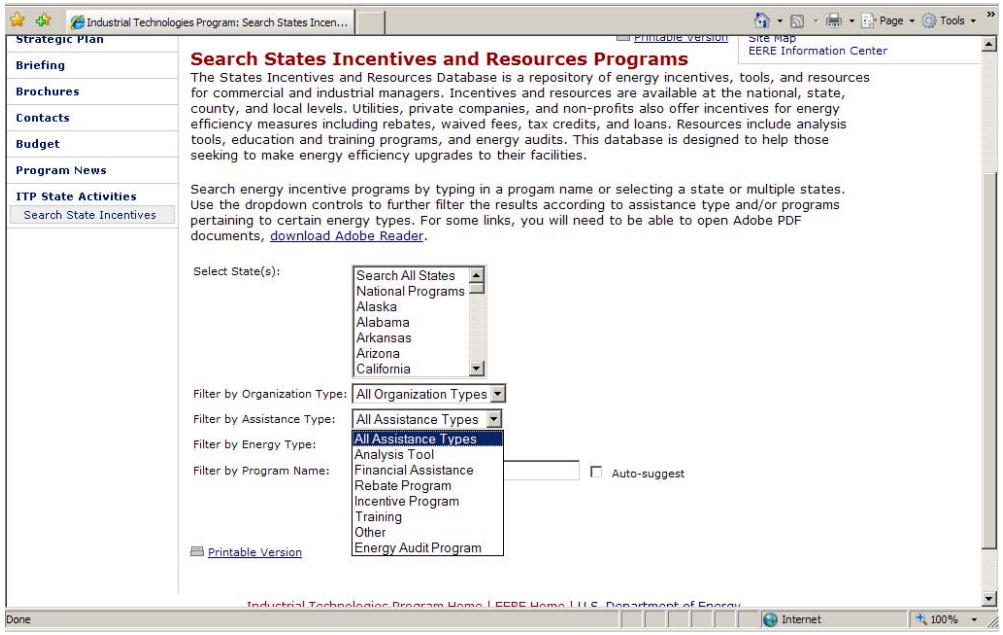
- ✓ Economic data, indicators, and activity
- ✓ Energy Savings Assessments, Industrial Assessment Centers, events and training, research and development
- ✓ ITP project successes
- ✓ Contacts
- ✓ State Incentives and Resources Database

www1.eere.energy.gov/industry/about/state_activities/main_map.asp

States Incentives and Resource Database

A repository of over 2,300 energy incentives, tools, and resources for commercial and industrial managers that are available at the national, state, county, local, utility, and non-profit levels – updated every six months. Sample incentives:

- Analysis Tools
- Energy Audits
- Loans
- Rebates
- Tax Credits
- Training and Education
- Waived Fees



http://www1.eere.energy.gov/industry/about/state_activities/incentive_search.asp

State Industrial Assessment Projects

Nineteen (19) states will conduct 96 energy assessments at local industrial facilities. To date, 30 have been completed. The assessments will help achieve local results while supporting national goals to reduce energy use and emissions

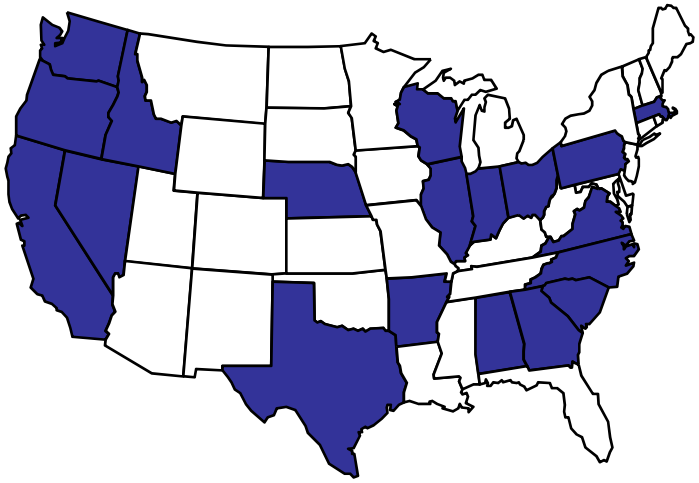
Awarded: November 2007

Recipients: Alabama, Arkansas, California, Georgia, Idaho, Massachusetts, Nebraska, Nevada, North Carolina, Ohio, Pennsylvania, South Carolina, Texas, Washington, West Virginia, and Wisconsin

Potential Energy Savings: 5.8 Trillion Btu

Potential CO_2e Savings: 390,000 Mt CO_2e

Completion: November 2009



NASEO

ITP has a formal working relationship with the National Association of State Energy Officials (NASEO). This relationship provides:

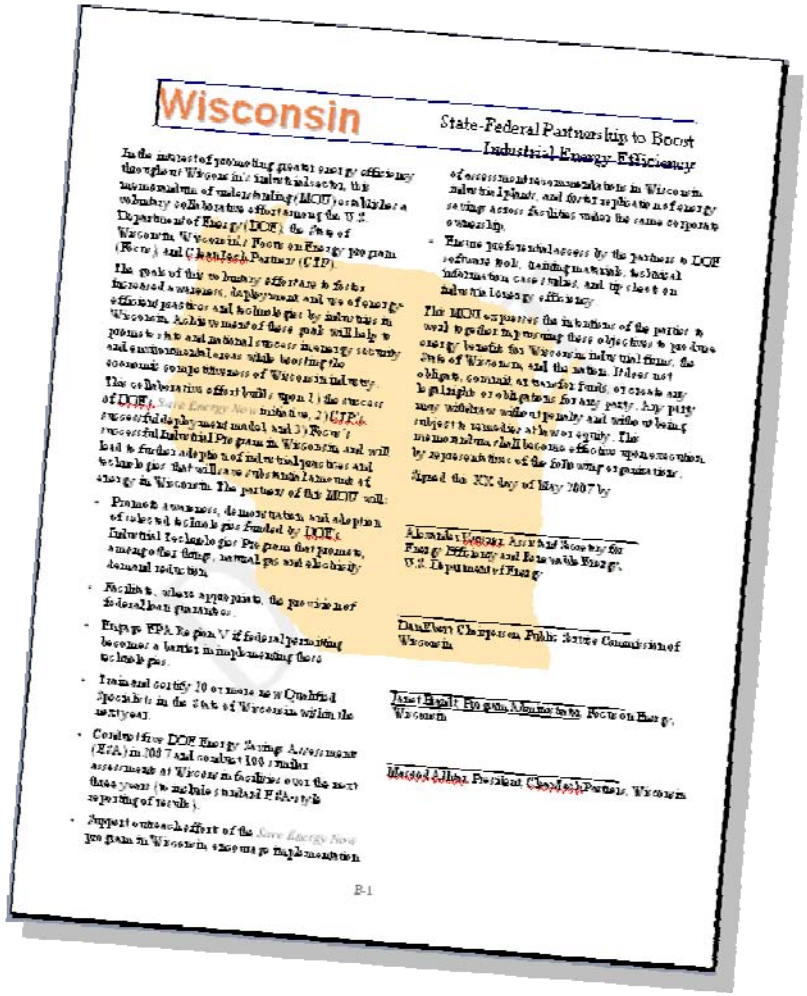
- Greater outreach across states
- Leveraging of federal and state energy project funds
- Informed federal and state legislative impacts
- Demonstrate efficiency technologies and uplift state economies
- R&D partnering

www.naseo.org

MOU with Wisconsin

In October 2007, DOE signed a Memorandum of Understanding (MOU) with the State of Wisconsin to:

- Promote awareness and deployment of ITP and SEN resources in Wisconsin
- Train and certify 20 or more Qualified Specialists in Wisconsin by 2009
- Conduct 15 SEN assessments in 2007 and conduct 100 similar assessments at Wisconsin facilities over the next 3 years
- Partner with the Northwest Wisconsin Manufacturing Outreach Center



Wisconsin

State-Federal Partnership to Boost Industrial Energy Efficiency

Utility SEN Partnerships

The utility community provides SEN tools and resources to their industrial customers to:

- Reduce energy costs and increase key industrial accounts competitiveness
- Utilize free government resources to expand their demand-side management programs for industrials:
  - Training, assessments, and technologies
- Maintain an informed voice and helping hand in national, regional, and local energy issues

ITP and Utility Synergies

ITP can provide:

- Technical tools and resources including assessments
- Non-biased technical assistance and information
- Portfolio of new and emerging energy efficiency technologies
- National goal to help industry stay healthy and competitive through improved energy and environmental performance

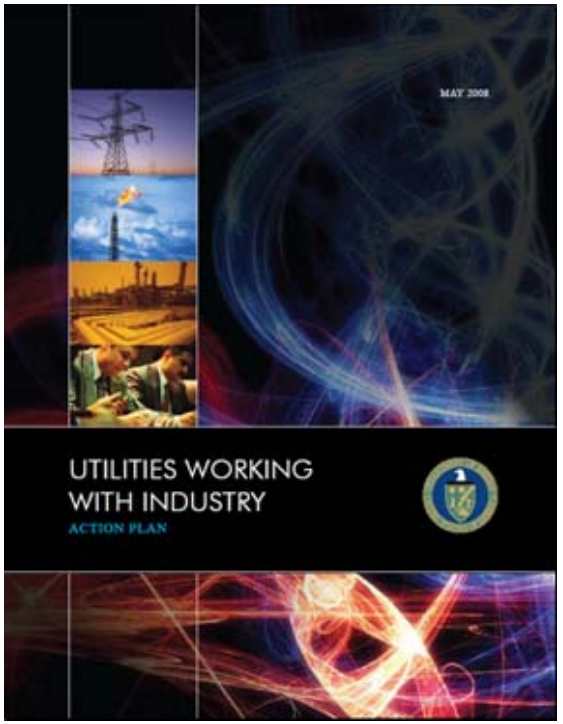
Utilities can offer:

- Close, long-term (sustained) relationships with customer base, including industrials
- Share local issues and priorities with customers
- Multiplicity of drivers; provide predictable, reliable, and affordable power
- Decoupling

Utility Action Plan

ITP and utility stakeholders came together for the *Utilities Working with Industry Workshop* in February 2008 to identify joint activities for ITP and the utilities. Examples of identified partnership activities include:

- Outreach
- Case Studies
- Training
- Assessment Participation
- Measurement and Verification

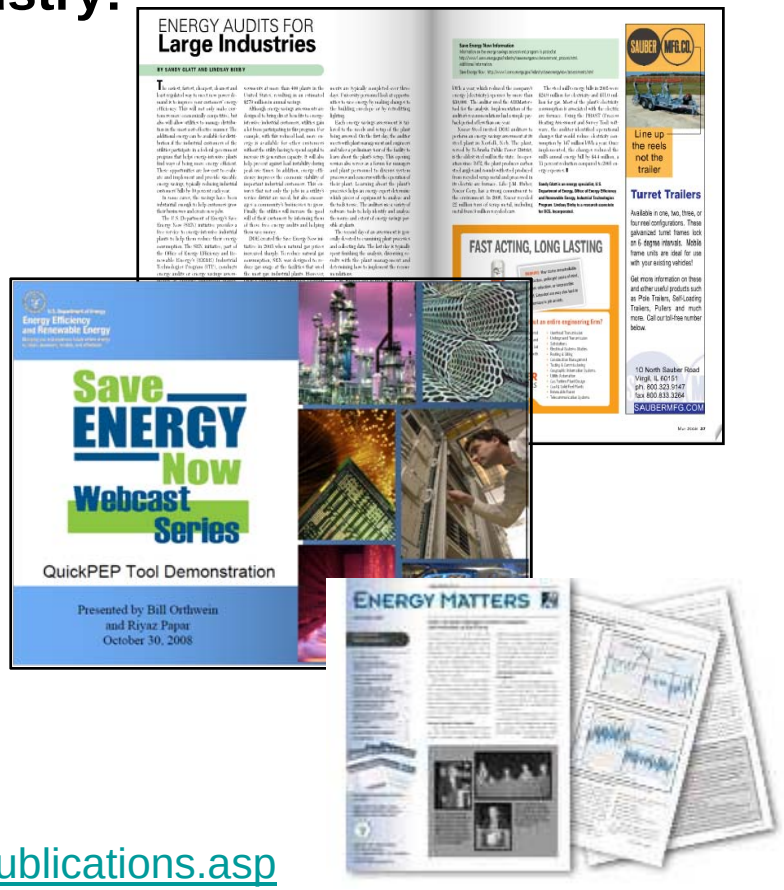


www1.eere.energy.gov/industry/pdfs/utilities_working_with_industry.pdf

Publications

ITP develops and provides a variety of free tools and resources to help educate states, utilities, and industry:

- **Journal Articles:** Publish articles in national utility trade journals to increase awareness
- **Case Studies**: Develop case studies that highlight how other utilities work with its industrial customers to improve energy efficiency, increase cost savings, and reduce carbon emissions
- **Webinars**: Continue to co-host Webinars to educate the utility community on the free tools and resources ITP has available

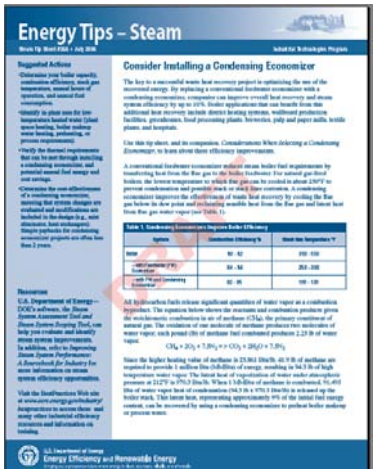


http://www1.eere.energy.gov/industry/bestpractices/publications.asp

Co-Branding

Co-branding allows ITP to integrate utility and utility associations' logos with ITP's into brochures and tip sheets for utilities to distribute to their customers/members. Examples of participants include:

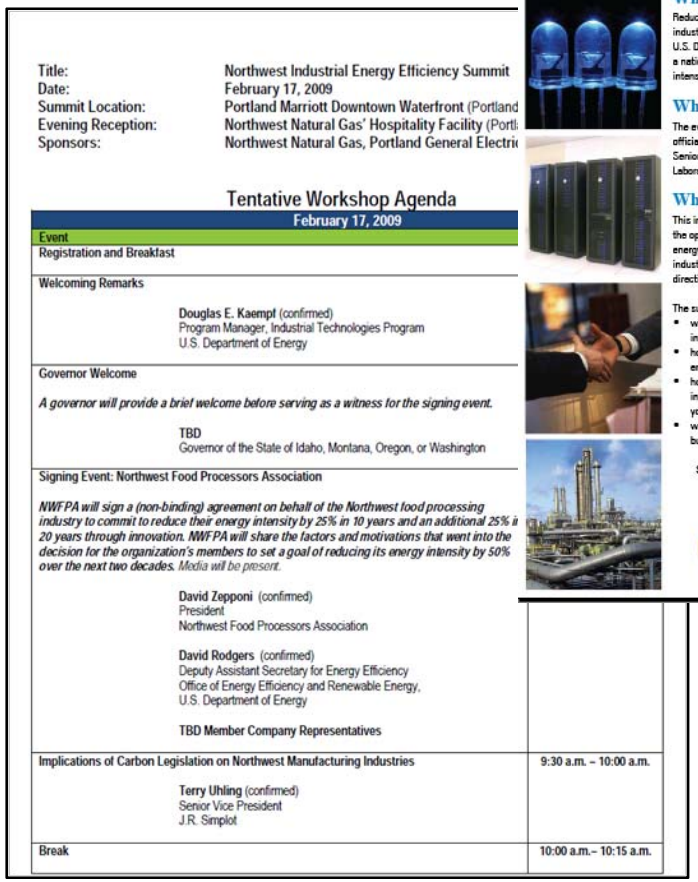
- The American Public Power Association
- Southern California Gas Company



Regional Coalitions

Goals:

- Create a series of industrial energy efficiency summits with associated industries, utilities, states, and other stakeholders
- Establish the foundations for a broad commitment to reducing industrial energy intensity



Title: Northwest Industrial Energy Efficiency Summit
Date: February 17, 2009
Summit Location: Portland Marriott Downtown Waterfront (Portland
Evening Reception: Northwest Natural Gas' Hospitality Facility (Portl
Sponsors: Northwest Natural Gas, Portland General Electri

Tentative Workshop Agenda

February 17, 2009

Event	
Registration and Breakfast	
Welcoming Remarks **Douglas E. Kaempf** (confirmed) Program Manager, Industrial Technologies Program U.S. Department of Energy	
Governor Welcome *A governor will provide a brief welcome before serving as a witness for the signing event.* TBD Governor of the State of Idaho, Montana, Oregon, or Washington	
Signing Event: Northwest Food Processors Association *NWFPA will sign a (non-binding) agreement on behalf of the Northwest food processing industry to commit to reduce their energy intensity by 25% in 10 years and an additional 25% i 20 years through innovation. NWFPA will share the factors and motivations that went into the decision for the organization's members to set a goal of reducing its energy intensity by 50% over the next two decades. Media will be present.* **David Zepponi** (confirmed) President Northwest Food Processors Association **David Rodgers** (confirmed) Deputy Assistant Secretary for Energy Efficiency Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy **TBD Member Company Representatives**	
Implications of Carbon Legislation on Northwest Manufacturing Industries **Terry Uhling** (confirmed) Senior Vice President J.R. Simplot	9:30 a.m. – 10:00 a.m.
Break	10:00 a.m.– 10:15 a.m.

SAVE THE DATE
Industrial Energy Efficiency Summit
June 5, 2008 | Oak Ridge, Tennessee

Bring Energy Savings to Your Bottom Line – Leverage the U.S. Department of Energy's Industrial Energy Efficiency Research to Save Money and Increase Productivity.

What is this event?
Reducing energy intensity in industrial facilities benefits industry and our nation. This summit, sponsored by the U.S. Department of Energy (DOE), will set the tone for a nationwide commitment to reduce industrial energy intensity by 25 percent in 10 years.

Who will attend?
The event will be attended by industry leaders, government officials, and utility executives from the Southeast Region. Senior officials from DOE and Oak Ridge National Laboratory will participate.

Why should you participate?
This invitation-only summit will afford industry leaders the opportunity to capitalize on DOE resources to increase energy efficiency. Participation in this summit will enable industry participants to guide energy policy and shape the direction of DOE activities.

The summit will provide invaluable opportunities to learn:
- why major companies are committing to reduce energy intensity and carbon emissions;
- how companies are saving energy and reducing emissions while lowering plant costs;
- how leveraging billions of dollars of DOE R&D investment at DOE's national laboratories can improve your bottom line;
- what programs and incentives utilities are offering businesses and manufacturers to reduce energy use.

Sponsored by the U.S. Department of Energy Industrial Technologies Program

OAK RIDGE National Laboratory

PRELIMINARY AGENDA
- Learn about DOE's expanding industrial energy efficiency initiatives to reduce industrial energy intensity by 25 percent in 10 years
- Guide DOE on future energy efficiency activities
- Hear how companies are successfully reducing energy intensity and lowering plant costs
- Learn about the programs of major utilities to benefit their industrial customers
- Discover how to engage ORNL to reduce your energy needs

For more information, contact:
Dr. Anthony Wright
Oak Ridge National Laboratory
e-mail: wrightaN@ornl.gov
phone: (865) 574-6878

www.eeindustrialsummit.org

Southeast Industrial Efficiency Summit

A *Call to Action* for industries, utilities, states, and regional organizations in the Southeast to work together and leverage resources to implement energy efficiency strategies to reduce energy intensity and carbon emissions

- **When**: June 5, 2008
- **Where:** Oak Ridge National Laboratory, Oak Ridge, Tennessee
- **Participants:** Over 75 participants from industry, utilities, states, and regional organizations

Industry	States	Utilities/Power Administrations	Organizations
Air Products Alcoa Cargill Corning Eastman Chemical GE Holcim LyondellBasell Owens Corning Shaw Industries	Alabama Arkansas Florida Kentucky Mississippi North Carolina South Carolina Tennessee Virginia	Covanta Piedmont Natural Gas Santee Cooper Southern Company Tennessee Valley Authority	Alliance to Save Energy Southeast Energy Efficiency Alliance

- **Initiative Underway**: A leadership group meeting was held on August 21, 2008 to provide structure and define mission, roles, and focus areas. An action plan was completed in September 2008.
- **Preliminary Focus Areas**: Technology development, energy efficiency, policy, and communications

Northwest Industrial Efficiency Summit

A *Call to Action* for industry, government, utilities, and supporting organizations in the Northwest to collaborate and overcome barriers to ensure industry's competitiveness through energy efficiency.

- **When**: February 17, 2009
- **Where:** Portland, Oregon

Industry	States	Utilities/Power Administrations	Organizations
Blue Heron Paper Cascade Engineering Del Monte Hewlett-Packard IBM JR Simplot McKinstry Engineering Siltronic Tree Top, Incorporated	Idaho Montana Oregon Washington	Bonneville Power Administration Northwest Natural Northwestern Energy PacifiCorp Portland General Electric	Energy Trust of Oregon Idaho National Laboratory National Association of State Energy Officials National Resources Defense Council NW Energy Efficiency Alliance Northwest Food Processors Oregon State University Pacific Northwest National Laboratory Portland State University

The Northwest Summit will lead to the development of an action plan that will help maintain competiveness and improve energy efficiency for industries in the Northwest.

http://www.nwindustrialee.govtools.us/

New Partnerships Web sites

Coming soon….

Questions about ITP Partnerships?

Contact Information:

Sandy Glatt, Golden Field Office
Phone: 303-275-4857
Email: sandy.glatt@go.doe.gov

Save Energy Now Web site:
http://www1.eere.energy.gov/industry/saveenergynow/

EERE Information Center:
1-877-EERE-INF(1-877-337-3463)
www1.eere.energy.gov/informationcenter/

Save ENERGY Now

Back-Up Slides

Energy-Intensive Industrial Processes Energy Efficient Options

Industrial Reactions & Separations

- Advanced Water Removal
- Advanced Gas Separations
- Hybrid Distillation
- Energy-Intensive Conversion Processes

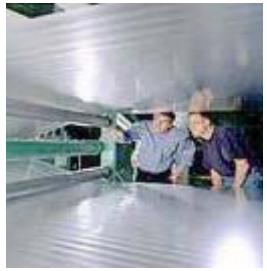
High-Temperature Processing

- Lower-Energy, High-Temperature Materials Processing
- New Materials Development
- Materials Processing for Enabling Emerging Industries

Waste Heat Minimization & Recovery

- Super Boiler
- Ultra-High Efficiency Furnace
- Waste Heat Recovery Systems

Sustainable Manufacturing



- Net and Near-Net Design
- Engineered Functional Materials and Coatings
- Advanced Forming, Joining, and Assembly
- Integrated, Predictive Manufacturing and Energy-Efficient Material Handling and Plant Operations

President Obama's New Energy for America:

- Invest $150 billion over 10 years; create 5 million new jobs
- Within 10 years save more oil than we currently import from the Middle East and Venezuela combined
- Ensure 10 percent of our electricity comes from renewable sources by 2012, and 25 percent by 2025
- Economy-wide cap-and-trade program – reduce greenhouse gas emissions 80 percent by 2050 (likely enacted in 2009 or 2010, with reductions to begin in 2012)
- Increase Fuel Economy Standards
- Establish a National Low Carbon Fuel Standard
- Deploy the Cheapest, Cleanest, Fastest Energy Source – Energy Efficiency

http://www.whitehouse.gov/agenda/energy_and_environment/

ITP is a key body for facilitating these national priorities
– regional efforts and coordination will be necessary

What ITP Offers

- **New and Emerging Technologies:** More than 142 emerging technologies from ITP R&D portfolio
- **Free Assessments:** Assessments for all sizes!
- **Best Practice Software Tools:** Free software tools to help identify, examine and quantify potential energy saving measures
- **Best Practice Training:** ITP provides Web and multi-day training sessions located throughout the U.S.
- **Publications:** From factsheets to tip sheets to technical manuals to detailed research reports
- **Partnerships:** ITP is expanding the reach of these resources…