

Save
ENERGY
Now



Utility Partnerships Webinar Series:

Electric Utility Energy Efficiency Programs

October 5, 2010

Speakers and Topics:

- **Consortium for Energy Efficiency (CEE), Industrial Program Manager, Kellem Emanuele**, will discuss national trends in electric energy efficiency programs for industrial customers.
- **Xcel Energy, Trade Relations Manager in Colorado, Bob Macauley, and Trade Relations Manager in Minnesota, Brian Hammarsten**, will provide insight from a large investor-owned utility with a multi-state service area, and will compare the Xcel-Colorado and Xcel-Minnesota's electric energy efficiency programs for industrial customers.
- **Black Hills Energy, Director of Economic Development and Customer Relations, Dan Smith, and Demand Side Management Manager, Gene Mantei**, will provide insight from a small investor-owned utility with a multi-state service area, and will discuss its energy efficiency offerings for electric, industrial customers.
- **National Rural Electric Cooperative Association (NRECA), Southern Regional Manager, Commercial and Industrial Business Development, Alan C. Shedd**, will discuss the trends and developments in industrial energy efficiency among electric cooperatives around the United States.

Questions?

Email: mdunkle@bcs-hq.com

Presentations: <http://www1.eere.energy.gov/industry/utilities/>



Consortium for Energy Efficiency

Industrial Electric Efficiency Programs 2011 DOE ITP Utility Partnership Webinar

Kellem Emanuele
Industrial Program Manager
Consortium for Energy Efficiency

Presentation Outline

▼ Overview

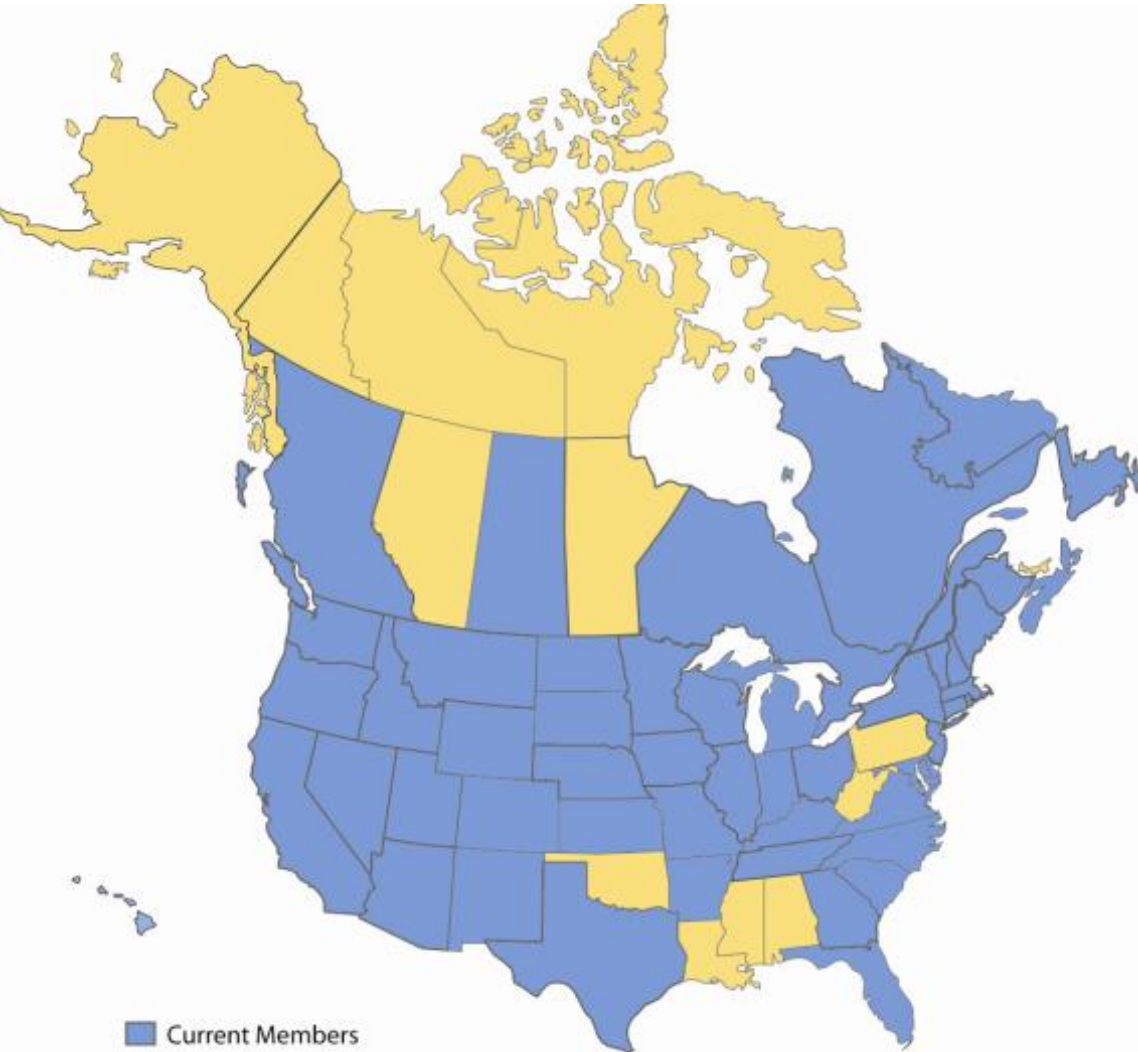
- Consortium for Energy Efficiency (CEE)
- Efficiency program industry

▼ Industrial Efficiency Programs

- Current CEE work areas
- Summary of program focus and design strategies

▼ Current challenges

CEE Today



CEE Members:

Efficiency Program Administrators

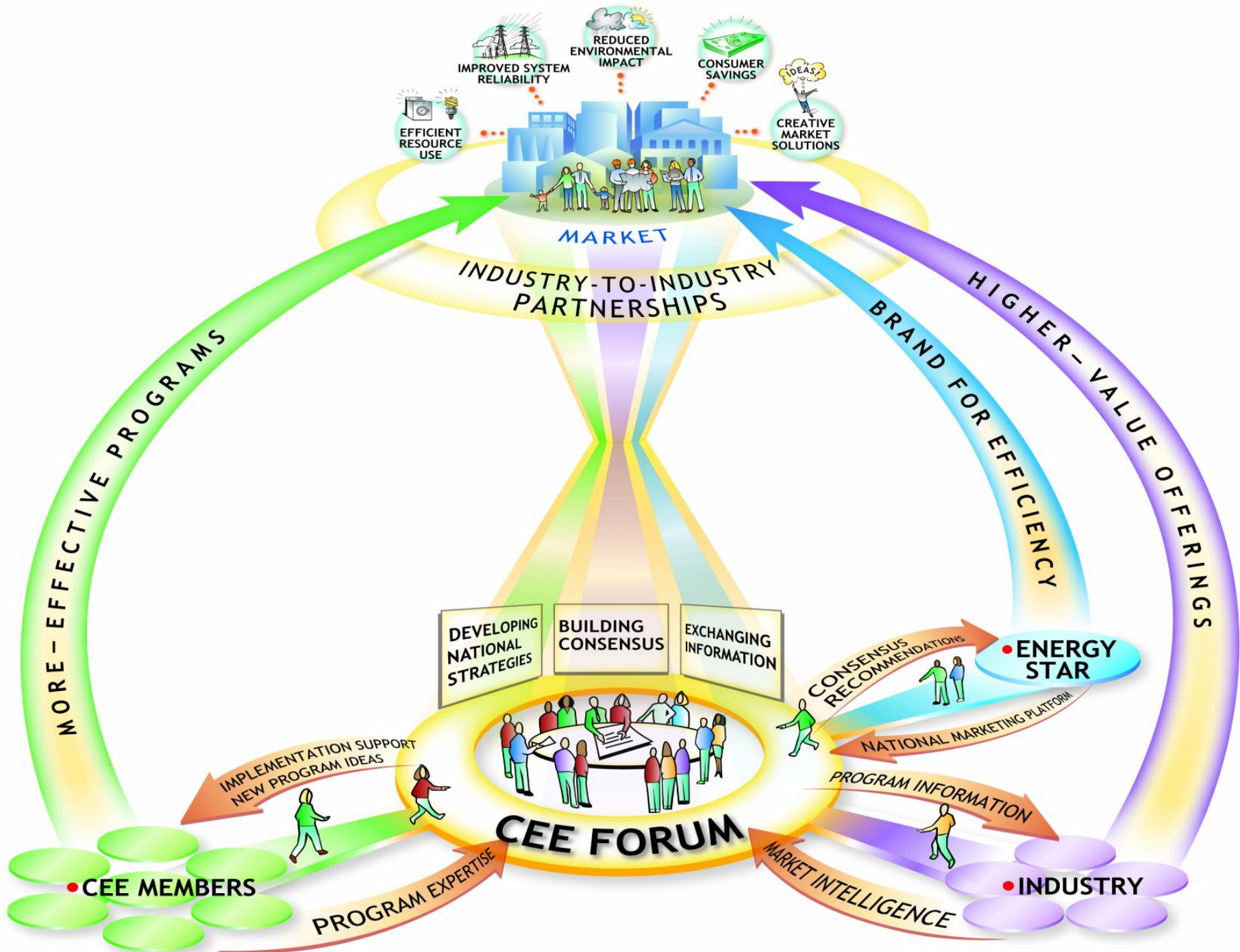
utilities and nonutilities with ratepayer funded programs

Public Stakeholders

national labs, state and provincial energy offices, government energy research agencies, regional and national efficiency organizations

Efficiency Program Industry

- ▶ \$6.1B budget for efficiency programs
 - Commercial and industrial electric efficiency
 - U.S.: \$1.5 billion
 - Canada: \$295 million
- ▶ At CEE, members work as an industry to
 - Align program approaches
 - Engage other industries
 - Form industry to industry partnerships



Key Criteria for CEE Initiative

- ▼ Member interest and program suitability
- ▼ Efficiency opportunity
 - Overall magnitude
 - National or regional relevance
 - Timing and permanency of savings
- ▼ Market opportunity
 - Complexity of marketplace
 - Consistency across regions
- ▼ Resource assessment
 - Identify decision-makers
 - Resource availability

Current CEE Industrial Work Areas

Work Area	Approved / Launched	Approach
Industrial Motors and Motor Systems	1996	Equipment (1-500hp), brand, and system optimization
Motor Management	2001	Education/Awareness (in partnership with motor industry)
Municipal Water-Wastewater	2005	Sector Approach (raising awareness and identifying program measures & strategies)
Distribution Transformers	1998	Equipment (low & medium voltage, single & three phase)
Industrial Program Planning	2007	Exploration – program framework in development

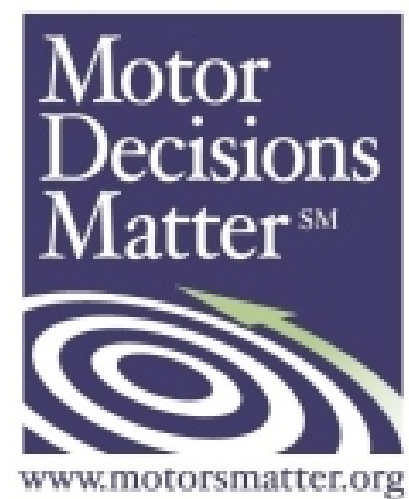
Industrial Program Planning

- ▼ Explore innovative program designs to achieve industrial savings, including
 - Identify opportunities for electric and natural gas efficiency
 - Targeting industrial sub-sectors
 - e.g. food processing, foundries, pulp & paper
 - Cross-cutting technologies
 - e.g. large refrigeration systems, heat recovery, steam and boiler optimization
 - Cross-cutting strategies
 - e.g. energy management, continuous improvement

Municipal Water-Wastewater

- ▶ Sector based approach to increase awareness and accelerate demand for energy efficient products and services
- ▶ Identify nationally consistent tools and messages for incorporation into programs:
 - RFP/RFQ Guidance for municipalities
 - Outreach, measure identification strategies
 - Facility benchmarking with ENERGY STAR®
 - Energy intensive systems: pumping, aeration, solids handling

Motors, Motor Systems & Motor Management



- ▶ 1-200 hp Common Specification
 - Aligns with NEMA Premium® for 1-200 hp
 - Basis for 50+ member programs
 - Exploring transition strategies for programs beyond Dec. 2010

- ▶ 250-500 hp Guidance Specification
 - Aligns with NEMA Premium
 - Outlines technical and other considerations with these motors

- ▶ *Motor Decisions Matter*SM (MDM): www.motorsmatter.org
 - Outreach campaign to promote motor management
 - Sponsored by efficiency programs, manufacturers, EASA, and other industry experts
 - Provides calculation tools and educational materials to simplify life cycle cost analysis and promote motor management strategies

Common Industrial Program Focus Areas

1. End Uses

- ▼ Motors, drives, lighting
- ▼ Compressed air
- ▼ Steam, boilers

2. Market Sectors

- ▼ Water-wastewater
- ▼ Agriculture

3. Facility and Corporate Management

- ▼ Continuous improvement
 - Commitment, goals, action plan, measurement

Typical Industrial Program Offerings

▼ Customer Outreach, Education and Training

- Fact sheets, calculators
- Classroom, online

▼ Audits/Assessments

- System or facility
- Partial or full funding

▼ Project Incentives

- Deemed
 - Motors, lighting
- Calculated
 - Drives, fan systems
- Custom

▼ Delivery

- Downstream (customers)
- Upstream (vendors)
- Both

Preliminary 2010 CEE Member Industrial Programs Profile

PROGRAM TYPE	# MEMBERS
Offer Industrial Programs Overall	90
Offer Water-Wastewater Programs	23
Offer Motors & Motor Systems Programs	70
Prescriptive Motors Programs Total	58
Motors: Upstream (vendor) only	5
Motors: Downstream (end user) only	32
Motors: Upstream and Downstream	13
Prescriptive Drives Programs	61
Targeted Compressed Air Programs	46
Targeted Pump Systems Programs	34
Targeted Fan Systems Programs	26

CEE Industrial: www.cee1.org/ind/programsummary/index.php

CEE M&MS: www.cee1.org/ind/mot-sys/mtr-ms-main.php3

Challenges for Program Administrators

- ▶ Increasingly higher savings targets require that program resources:
 - Accelerate and deepen project savings using limited program budgets
 - Address multiple objectives
 - e.g. capture energy & demand savings and renewable, self generation opportunities
- ▶ Customer barriers to participation
 - lack of awareness
 - reluctance to consider changes to processes



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advanced technology. energy efficiency. business innovation.



Trade Relation Managers

Bob Macauley: Colorado

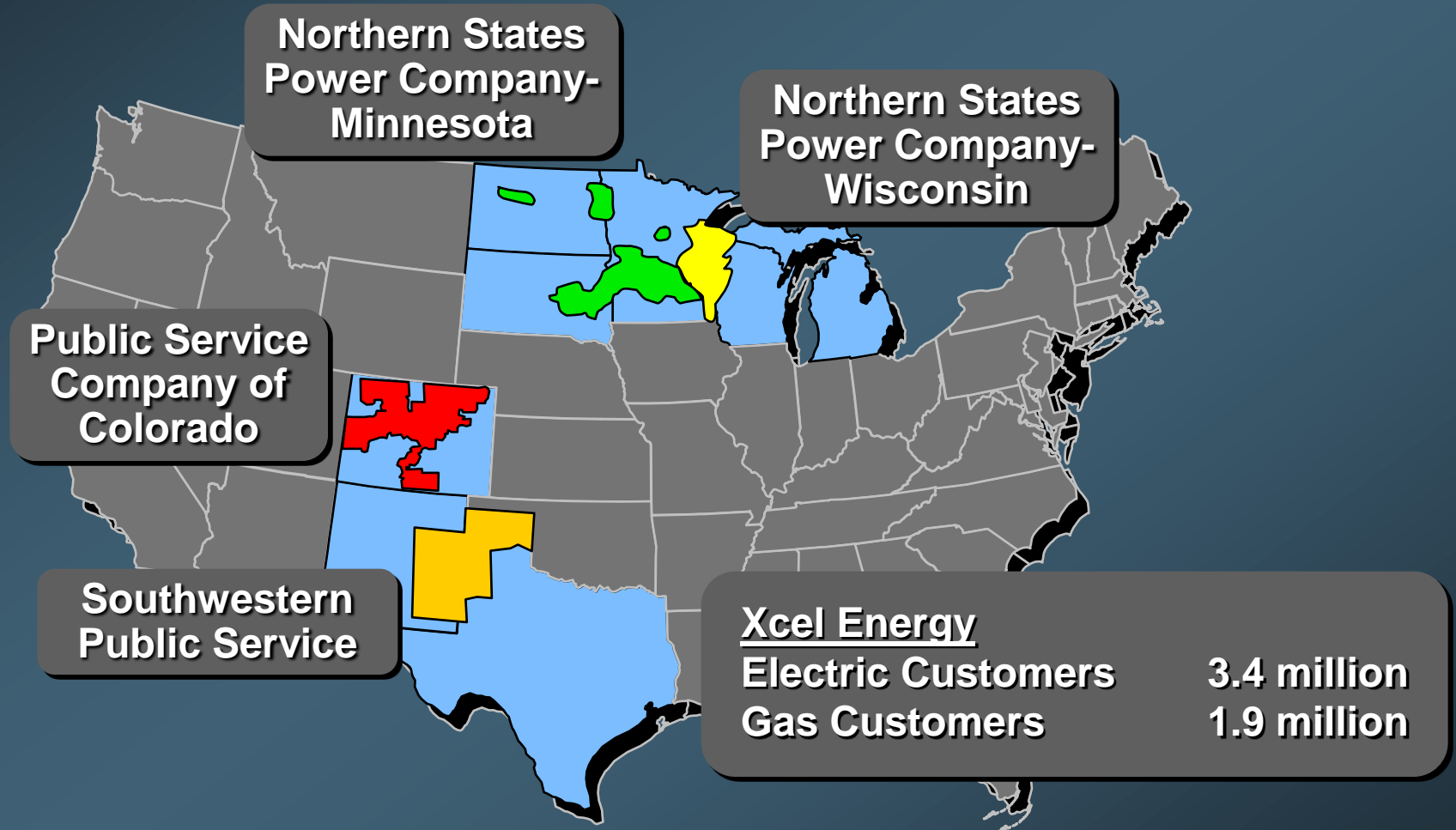
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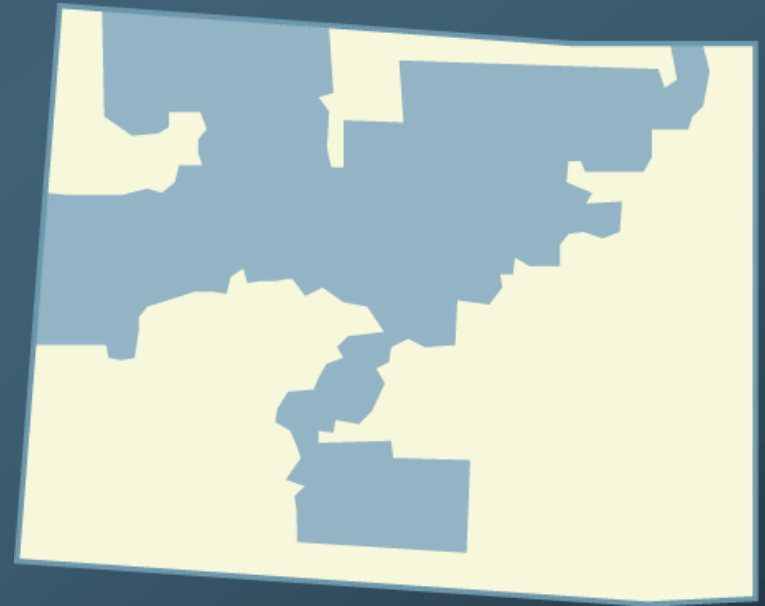
Leadership

- ▶ #1 wind energy provider
- ▶ #5 in U.S. for solar capacity
- ▶ Member, Dow Jones Sustainability Index for North America three consecutive years for our economic, environmental and social commitment.



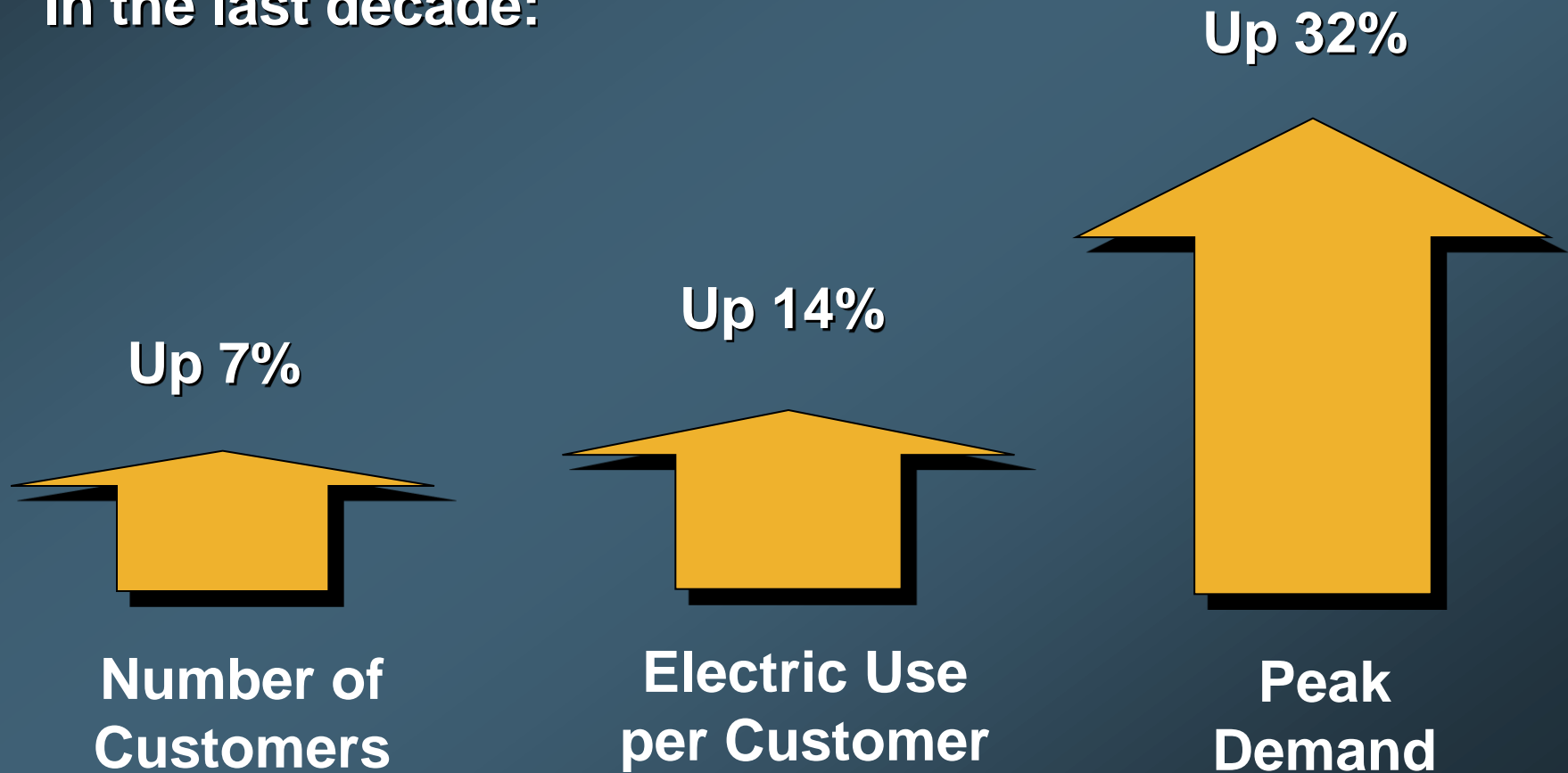
Public Service Company of Colorado

- ▶ **Customers:**
 - ▶ **Electric – 1.35 million**
 - ▶ **Gas – 1.29 million**
- ▶ **Employees: 3,960**
- ▶ **Communities Served: 240**
- ▶ **Regulated by Colorado
Public Utilities Commission**



Colorado's Energy Needs

In the last decade:



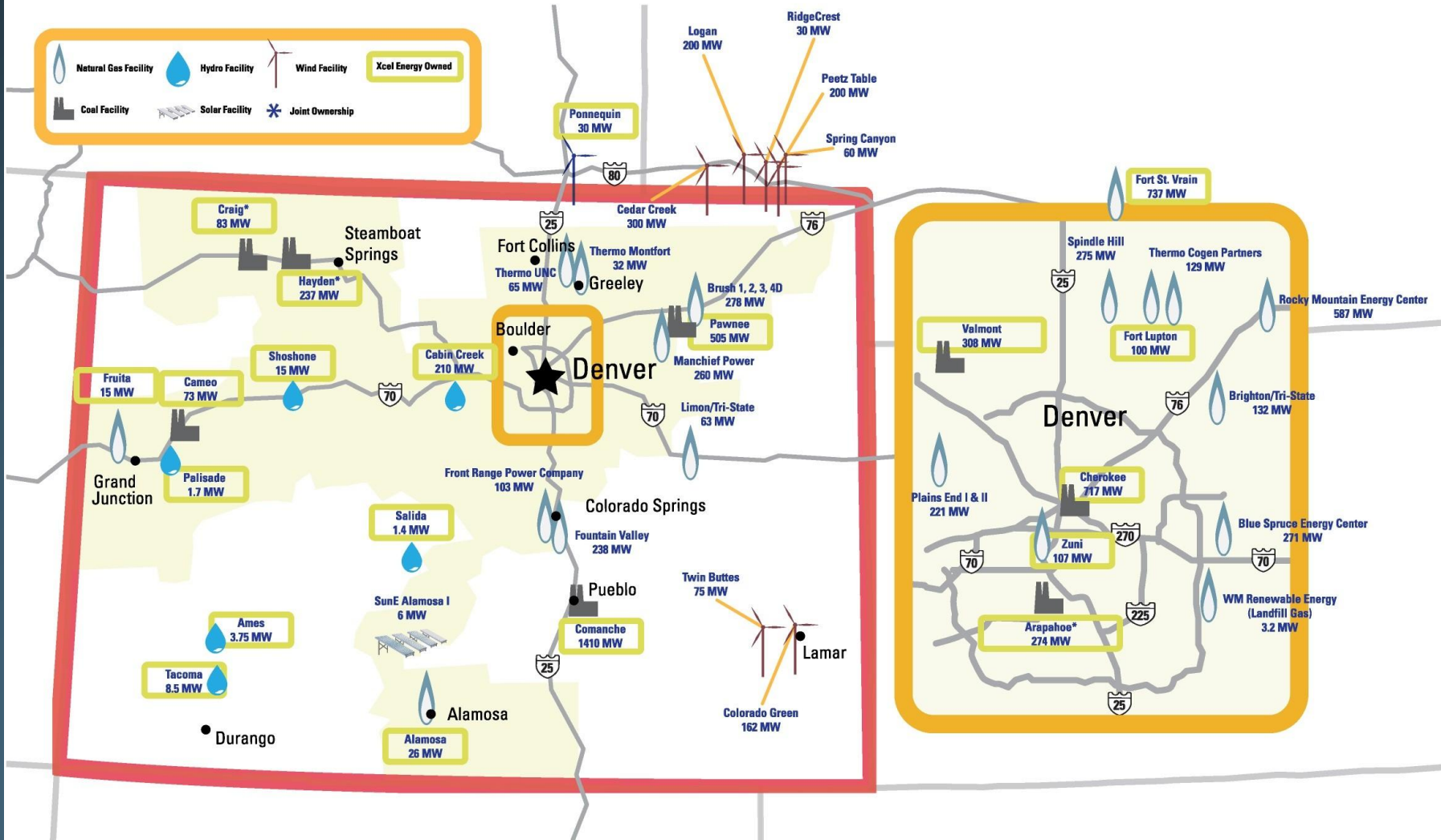
Generation Resources | Colorado



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Natural Gas Facility
 Hydro Facility
 Wind Facility
 Xcel Energy Owned

Coal Facility
 Solar Facility
 Joint Ownership



Energy Efficiency - CO



- ▶ Up until 2006, Colorado programs were handled on a bid basis using third parties, similar to how it is still handled today in our Texas service area.
- ▶ In 2005, as part of our settlement agreement to build the 3rd unit of our Comanche Power Plant, we offered to bring a full portfolio of EE Programs to Colorado.
- ▶ In 2009, as part of our corporate initiative in environmental leadership, we expanded our programs beyond our original agreement.
- ▶ The programs help reduce the need for new power plants:
 - ▶ Since 1992, conservation has prevented 12 new plants from being built across all territories.
- ▶ Customers pay into a DSM Rider of approx 2% of their monthly bill.
- ▶ In 2010 our CO Electric EE Budget is \$32 million with a goal of 166 gWh

Energy Efficiency – CO Program Benefits

- ▶ Provide incentives to customers to invest in energy-efficient technologies
- ▶ Energy efficient equipment reduces overall energy consumption and lowers their energy bills
- ▶ Incentives reduce the initial project cost & with lower energy bills reduces overall payback period
- ▶ Rebates provide trade partners a tool to promote energy efficiency in the marketplace
- ▶ The Xcel Energy brand name which provides a neutral 3rd party endorsement and confidence that the rebates will be paid
- ▶ **Rebates can go to end customer or they can assign rebate to alternative recipient**



Xcel Energy's Efficiency Programs in CO

- ▶ **Cash rebates (not bill credits)**
- ▶ **Existing facilities or new construction**
- ▶ **Colorado business customers who buy their electricity and/or gas directly from Xcel Energy**
- ▶ **Customers must pay into the monthly Demand Side Management Cost Adjustment (DSMCA)**
- ▶ **Payback periods must be between 1 – 15 years**
- ▶ **Maximum rebates are 50-60% of project cost**



Detailed Two-Year Plan for CO

- ▶ **Approved December 2008**
- ▶ **Covers 2009 and 2010**
- ▶ **Extension filed for 2011**
- ▶ **Possible change to a 3 year plan going forward**
- ▶ **Rebate programs are subject to 60 days notice of change or cancellation.**
- ▶ **Refer to XcelEnergy.com to verify program status**
- ▶ **Trade Ally mailing List for updates**



Three Types of Programs - CO

- 1. Prescriptive programs**
- 2. Non-prescriptive (CUSTOM) programs**
- 3. Studies / Audits**



2010 Current Programs - CO

- ▶ **35 enhanced or new electric and natural gas efficiency and conservation programs**
 - ▶ **Businesses** – new rebates, enhanced program customization and natural gas equipment rebates
 - ▶ **Residential** – incentives for saving natural gas and electricity
 - ▶ **Low-income customers** – special programs to provide rebates and help with in-home weatherization

Business Programs - CO

▶ New programs (2009)

- ▶ Boilers
- ▶ Behavioral change
- ▶ Data centers
- ▶ Furnaces
- ▶ New construction
- ▶ Process efficiency
- ▶ Small business lighting
- ▶ Self-direct
- ▶ Segment-based
- ▶ Standard offer

▶ Enhanced existing programs

- ▶ Compressed air
- ▶ Cooling
- ▶ Custom
- ▶ Energy Analysis
- ▶ Energy Management Systems
- ▶ Lighting
- ▶ Motors and drives
- ▶ Recommissioning



**MINNESOTA
NORTH DAKOTA
Programs**

Brian Hammarsten

Energy Efficiency - MN



- ▶ Cost effective way to reduce emissions
- ▶ Eliminates need for new peaking power plants
 - ▶ Since 1992, conservation has prevented 11 new plants from being built across all territories.
- ▶ Customers pay into a DSM Rider (Resource Adjustment) approx 2% of their monthly bill.
- ▶ 2010 Budgets/Goals:
 - ▶ electric EE Budget is \$55 million with a goal of 310 GWh
 - ▶ gas EE budget is \$13 million with a goal of 7,860,000 therms

Energy Efficiency - MN

- ▶ Provide incentives to customers to invest in energy-efficient technologies
- ▶ Energy efficient equipment reduces overall energy consumption and lowers their energy bills
- ▶ Incentives reduce the initial project cost & with lower energy bills reduces overall payback period
- ▶ Rebates provide trade partners a tool to promote energy efficiency in the marketplace
- ▶ Xcel Energy brand name and neutral 3rd party endorsement
- ▶ **Rebates can go to end customer or they can assign rebate to alternative recipient**



Detailed Three-Year Plan - MN

- ▶ **Approved by MN Office of Energy Security in December 2009**
- ▶ **Covers 2010 thru 2012**
- ▶ **Rebate programs are subject to 60 days notice of change or cancellation.**
- ▶ **Call or check XcelEnergy.com to verify program status**



Xcel Energy – MN Efficiency Programs

- ▶ **Cash rebates (not bill credits)**
- ▶ **Existing facilities or new construction**
- ▶ **MN business customers who buy their electricity and/or gas directly from Xcel Energy**
- ▶ **MN customers must pay into the monthly Resource Adjustment to be eligible for rebates (There are only 3 customers in MN who are exempt)**



Current MN Programs

- ▶ **Businesses** – new rebates, enhanced program customization and natural gas equipment rebates
- ▶ **Residential** – incentives for saving natural gas and electricity
- ▶ **Low-income customers** – special programs to provide rebates and help with in-home weatherization



Three Categories of Business Programs in MN

- 1. Prescriptive programs**
- 2. Non-prescriptive (CUSTOM) programs**
- 3. Studies / Audits**

Business Programs - MN

▶ Electric Programs

- ▶ Cooling Efficiency
- ▶ Commercial Real Estate Efficiency
- ▶ Compressed Air Efficiency
- ▶ Custom Efficiency
- ▶ Data Center Efficiency
- ▶ Efficiency Proposal
- ▶ Electric Rate Savings
- ▶ Energy Analysis
- ▶ Energy Design Assistance
- ▶ Energy Efficient Buildings
- ▶ Efficiency Controls
- ▶ Lighting Efficiency
- ▶ Motor Efficiency
- ▶ Process Efficiency
- ▶ Recommissioning
- ▶ Saver's Switch

▶ Natural Gas Programs

- ▶ Commercial Heating Efficiency (boilers & furnaces)
- ▶ Commercial Real Estate Efficiency
- ▶ Custom Efficiency
- ▶ Efficiency Proposal
- ▶ Energy Analysis
- ▶ Energy Design Assistance
- ▶ Energy Efficient Buildings
- ▶ Efficiency Controls
- ▶ Natural Gas Rate Savings
- ▶ Process Efficiency
- ▶ Recommissioning



Challenges for MN/CO

- ▶ **Working within State regulatory guidelines:**
 - ▶ **Preapproval before purchase or install needed for custom efficiency project**
 - ▶ **Complexities due to Measurement & Verification requirements**
- ▶ **In order to minimize free ridership, we need to make sure we are not rewarding customers for choosing energy efficiency but are influencing their decision making process.**




Energy Efficiency Rebates – ND

- ▶ **Limited time rebates available for business and residential customers.**
- ▶ **Fund made available thru the American Recovery and Reinvestment Act (ARRA) – utilities administer programs and then gets reimbursed**
- ▶ **Rebates are limited to heating systems (boiler or furnaces) and lighting system upgrades.**

Commercial Website

www.xcelenergy.com/rebates

[Privacy & Security](#)
[Investor Information](#)
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[Site Map](#)
[Contact Us](#)


Company
Residential
Business
Energy Partners
Customer Service

[Home](#) > [Colorado](#) > [Business](#) > [Programs & Resources](#) > [Conservation Rebates & Incentives](#) > Boiler Efficiency

Colorado ▾

- Conservation Rebates & Incentives ▶
- Energy Prices (Rates & Tariffs)
- Energy Savings Guide
- Energy Solutions Newsletter ▶
- Rate Savings ▶

QUICKTOOLS

- Careers
- Contact Us
- How Are We Doing?
- Safety
- Power Outages

Boiler Efficiency

How has your boiler performed this winter?

Get your system ready today and avoid costly service calls! Take advantage of huge rebates and improve your heating system to combat high energy costs.

- Lower out-of-pocket costs
- Shorter paybacks
- Increase your Return On Investment

Boiler projects that can earn an Xcel Energy rebate include:

Replacing or installing new boiler	Rebate
Plan A - Replace a non-working hot water boiler or install a new boiler where none existed before	
Non-condensing: 85% min efficiency	\$1,000 per MMBTUH *
Condensing: 92% min efficiency	\$4,000 per MMBTUH *
Plan B - Boiler being replaced must be less than 25 years old and still functioning (provide CO State inspection report with application)	
Condensing: 92% min efficiency	\$14,000 per MMBTUH *

Hot water heaters	Rebate
<i>greater than 150,000 BTUH and 92% efficiency</i>	
Tankless	\$350 per unit *
Unit with storage	\$350 per unit *

Search



Trade Relation Managers

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HOW TO SAVE MONEY

through Demand Side Management

The Black Hills Energy Industrial DSM Program

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[COLORADO ELECTRIC] At a Glance



[PHYSICAL SYSTEM]

- ~2,700 miles of distribution
 - ~2,300 miles of overhead
 - ~650 miles of underground
- ~500 miles of transmission
 - ~200 miles of 115kV
 - ~300 miles of 69kV
- 7 transmission substations
- 53 distribution substations

[FAST FACTS]

- Total Customers: ~93,300
- Communities Served: ~22
- Employees: ~200

[LARGEST COMMUNITIES]

- Pueblo
- Rocky Ford
- Cañon City
- Cripple Creek

The Colorado territory is about 120 miles long and follows the Arkansas River valley

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Customer Base

Black Hills Energy – Colorado Electric serves a diverse commercial/industrial customer base.

Key customers include:

- Cement Manufacturer (35 MW)
- Gold Mine (13 MW)
- Wind turbine tower manufacturer (8 MW)
- Aircraft brakes (6 MW)
- Railroad test facility (5 MW)
- Corrections: Six prison complexes ranging from 1-6 MW each, some campuses as large as 4,000 acres.
- Airport Industrial Park with 10 manufacturers including plastic extrusion, chemical manufacturing, HVAC manufacturing, sheet metal and machining.

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NOTE: This bill has been prepared for the signature of the appropriate legislative officers and the Governor. To determine whether the Governor has signed the bill or taken other action on it, please consult the legislative status sheet, the legislative history, or the Session Laws.

An Act

HOUSE BILL 10-1001

BY REPRESENTATIVE(S) Tyler, Apuan, Court, Ferrandino, Fischer, Frangas, Gagliardi, Hullinghorst, Kagan, Kefalas, Labuda, Levy, McCann, Merrifield, Middleton, Miklosi, Pace, Pommer, Rice, Ryden, Scanlan, Schafer S., Soper, Todd, Vigil, Carroll T., Benefield, Kerr A., Solano; also SENATOR(S) Schwartz and Whitehead, Bacon, Boyd, Carroll M., Foster, Gibbs, Heath, Hudak, Johnston, Keller, Morse, Newell, Romer, Shaffer B., Steadman, Tochtrop, Williams.

CONCERNING INCENTIVES FOR THE INSTALLATION OF NEW DISTRIBUTED RENEWABLE ENERGY GENERATION FACILITIES IN COLORADO, AND, IN CONNECTION THEREWITH, INCREASING THE TARGET PERCENTAGES UNDER THE ELECTRIC UTILITY PORTFOLIO STANDARD TO ENCOURAGE COLORADO UTILITIES TO GENERATE THREE PERCENT OF THEIR RETAIL ELECTRICITY SALES FROM DISTRIBUTED RENEWABLE SOURCES BY THE YEAR 2020, ADOPTING STANDARDS FOR THE INSTALLATION OF DISTRIBUTED SOLAR ELECTRIC GENERATION EQUIPMENT, AND MAKING AN APPROPRIATION THEREFOR.

Be it enacted by the General Assembly of the State of Colorado:

SECTION 1. The introductory portion to 40-2-124 (1) and 40-2-124 (1) (a), (1) (c) (I), (1) (c) (II), (1) (c) (III), (1) (c) (IV), and (1) (c) (VIII), Colorado Revised Statutes, are amended to read:

Capital letters indicate new material added to existing statutes; dashes through words indicate deletions from existing statutes and such material not part of act.

Background

- Colorado HB-1037 requires that 5% of 2006 peak electricity demand (MW) and electricity sales (MWh) must be achieved by 2018 for all Investor-Owned Utilities.
- In BHE-COE territory, that equates to 96,000 MWh and 17 MW demand.
- By 2012 DSM will account for 2% of the BHE-COE portfolio and by 2018, it will be 5%.
- DSM incentives are paid from a 1.38% line item adder (DSMCA) to the electric bill — Increasing to 1.62% in 2011.

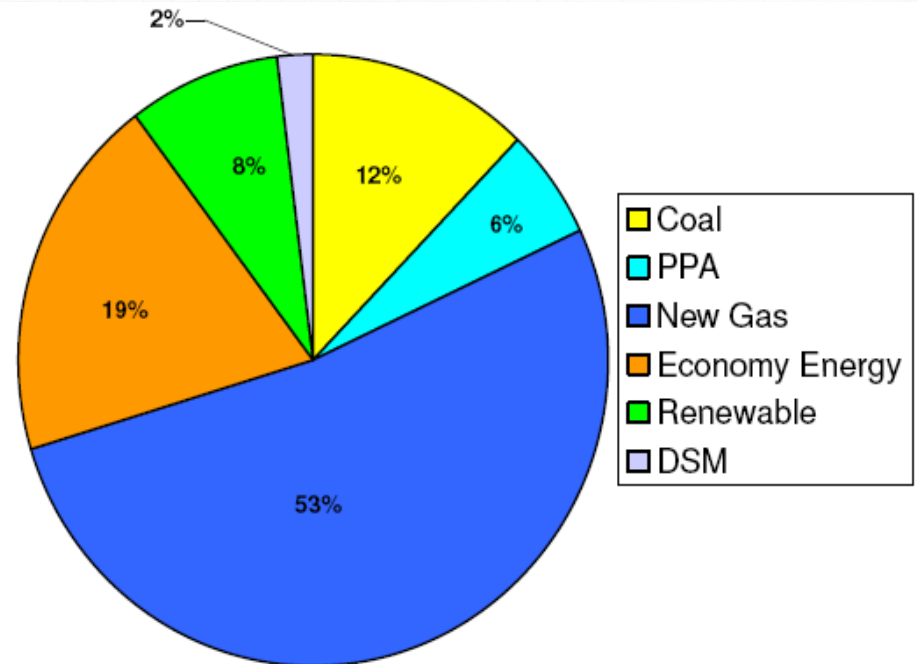
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From Portfolio Perspective

- **Energy Efficiency is an asset that will offset generation and is an energy resource**

As stated in BHE-COE's 2008 Resource Plan, DSM will account for 2% of expected resources by 2012 and will be 5% by 2018.



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DSM Programs



BHE-COE has 12 DSM programs that reach all customer classes, with five programs dedicated to industrial customers:

- Prescriptive
- Custom
- Re-Commissioning / Retro-Commissioning
- New Construction Program
- Industrial Energy Efficiency

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Prescriptive Rebate Program

Standardized pre-determined rebates for commercial customers that install replace or retrofit electric saving measures of pre-qualified performance.

Prescriptive rebates provide incentives for:

Energy Efficient Lighting

T5 fluorescent, high performance T8 and ballast, high bay fluorescent, pulse start metal halide.

- Rebates from \$5.00 to \$125.00 per fixture

Energy Efficient HVAC Equipment

HVAC, water source heat pumps, geothermal

- Rebates from \$70.00 to \$480 per ton

NEMA Premium Electric Motors

- Rebates from \$10.00 to \$600.00 (depending on efficiency & HP)

Variable Frequency Drives (VFD)

- \$30.00 per HP

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Custom Rebate Program

All equipment that does not qualify for a prescriptive rebate may be eligible for a custom rebate. The Custom Rebate program evaluates the cost and benefits of individual projects against program benchmarks, rebates are paid based on the lesser of:

50% of the incremental cost
or
\$0.25 per kWh savings

Program Limitations

- A \$40,000 cap is imposed per facility or building for the first nine months of each program year cycle. However, if funding is available in the last three months of the program year, the cap may be exceeded.
- The rebate cap prevents one large customer or group of companies from depleting the rebate fund and limiting participation.

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Custom Rebate Program



Program Limitations Continued:

- The cost per kWh criteria provides a cap on incentives for projects that are relatively expensive for the amount of kWh and kW saved.
- Customer participation is not limited; customers can participate numerous times throughout the program year.
- Different end-uses have different potential participation levels e.g., lighting equipment can be replaced at any time, whereas HVAC or motors are replaced at the end of their life cycles.

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Re-Commissioning Retro-Commissioning Program

Re-Commissioning – The goal is to take a building that was commissioned when built and re-commission it to ensure that the building is once again running at optimal performance.

Measures covered through the Re-Commissioning Program

- Optimize HVAC equipment operations.
- Fine-tune time of day schedules.
- Improve indoor air quality.
- Suggest new and advanced equipment control strategies.
- Preventative maintenance strategies reducing equipment wear and tear.
- Typical re-commissioning projects result in savings of 5 to 20 percent of total building energy costs, with many measures having simple paybacks of less than one year.

Re-Commissioning Retro-Commissioning Program

Re-commissioning is a two step process

Step 1 - Diagnosis

- BHE-COE will fund up to 50% of the cost not to exceed \$4,800.
- Customer selects their own contractor or can choose one from our providers list.

Study includes:

- Assessment of operating mechanical systems.
- Written report that includes energy-saving recommendations.

Re-Commissioning Retro-Commissioning Program

Step 2 - Implementation

- Customer chooses which measures to implement.
- Customer can receive prescriptive and custom rebates to help offset the cost of recommended measures.
- BHE-COE provides advanced training for facility staff, which leads to increased knowledge of efficient building systems operations by working with expert engineers.

New Construction

LEED Green Building Program

The New Construction program is designed to promote energy efficiency in the new construction and major renovation markets. The program targets buildings that are seeking certification as Green Buildings through the U.S. Green Buildings Council (USGBC).

LEED promotes a whole building-approach to sustainability by recognizing performance in five key areas of human and environmental health:

- Sustainable site development
- Water savings
- Energy efficiency
- Materials selection
- Indoor environmental quality

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New Construction LEED Green Building Program

BHE-COE rewards energy efficiency that is achieved through the LEED design and construction process. Incentives for this program are divided into two categories:

Design Incentives – paid to design teams that use the services of an independent building energy modeler who is not part of the design team of record. The incentives are designed to cover approximately 50% of the energy modeling cost.

Construction Incentives – paid to the building owner based on kWh savings modeled and verified as installed by the independent building energy modeler. A minimum of 14% higher than ASHRAE Standard 90.1-2004 are required to be eligible to participate in the construction incentives.

Industrial Energy Efficiency Program

Designed to promote energy efficiency to industrial customers who are characterized by their complex operations, specialized processes and diverse end uses. BHE-COE uses a three-tier approach:

Tier 1 – Energy Efficiency and Outreach

The program addresses common educational needs for industrial customers through workshops, websites, mailings and other information mediums. Outreach is conducted through a partnership with existing state and federal programs, such as:

- Colorado State University's Industrial Assessment Center
- The U.S. Department of Energy's Industrial Technologies Program

The U.S. DOE operates "Best Practice" programs for industrial energy users, and helps provide training to identify efficiency opportunities in the most common industrial energy end-uses including motors, compressed air, process heating, pumping systems and others.

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Industrial Energy Efficiency Program

Tier 2 – Energy Auditing

The second part of the program offers free energy audits

- A comprehensive energy-audit is conducted through a partnership with the Colorado State University Industrial Assessment Center and consists of the following categories:
 - Compressed air leak
 - Processes
 - Motors and drive belts
 - HVAC
 - Lighting
- Free industrial audits are limited and offered to customers on a first come first served basis. (6 to 10 audits per year)
- BHE-COE also provides energy audits on a cost shared basis.

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Industrial Energy Efficiency Program

Tier 3 – Incentives

Rebates are commonly used to encourage utility customers to purchase high efficiency equipment and to improve overall process efficiency. The wide variety of processes and end-uses in the industrial sector necessitates using a custom rebate approach.

The program evaluates the cost and benefits of individual projects against program benchmarks. and rebates are calculated as the lesser of:

**50% of incremental Cost
or
\$0.25 per kWh savings**

One customer may submit multiple custom rebate applications for different measures. Each individual measure will be evaluated on its own merits. Similar measures that are proposed in different facilities or buildings will be evaluated separately.

Improving life with energy



Questions ?

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Department of Energy Industrial Utility Webinar

October 5, 2010

Electric Co-op Energy Efficiency

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**National Rural Electric
Cooperative Association**

A Touchstone Energy* Cooperative 

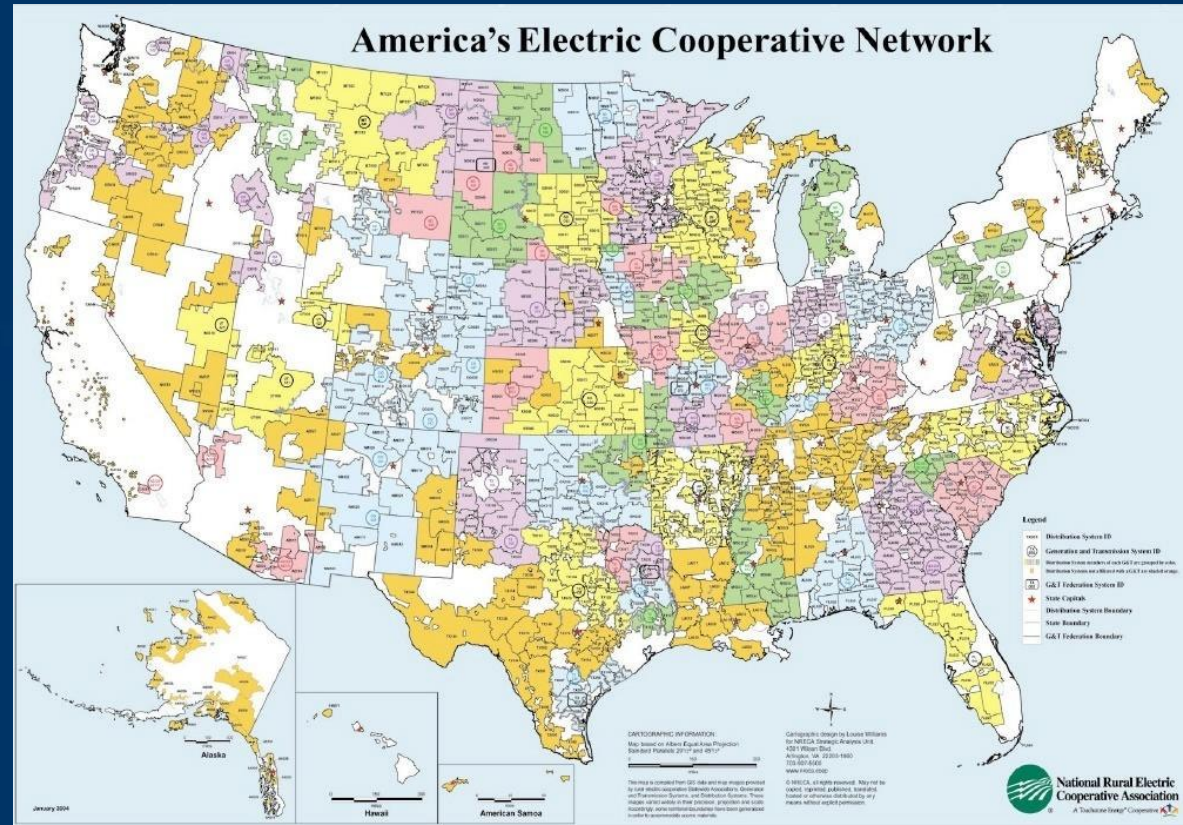
What is a co-op?

- Private, independent electric utility owned by the members they serve.
- Not-for-profit corporation
- Rural Electrification Administration created in 1935 to bring electricity to underserved areas.
- Nationwide service area - from Alaskan fishing villages, dairy farms in Vermont and the suburbs and exurbs in between.

Who are we?

Electric cooperatives

- 80% of counties
- 75% of land mass
- 930 systems in 47 states
- 40 million member-owners
- \$97 Billion assets



Large C&I Members

- 650 Electric cooperatives serve 18,000 large C&I members
- 78 million MWh sales
- 21% of retail sales
- Diverse industry types
 - Mining
 - Fuels, metals, forest products, textiles
 - Manufacturing – cars, tractors, computers
- Key accounts



Energy Efficiency

- Energy efficiency is integral to our way of doing business
- Touchstone Energy programs
 - TogetherWeSave.com national energy efficiency campaign
 - *Schools A+ Energy Efficiency Program*
 - Touchstone Energy Home Program
 - Business Energy Advisor
- Cooperative Research Network
- Programs at the local co-op level

General Approaches

- Key accounts program
- Energy audits
- Custom rebates and incentives
- Custom rates
- Green power



Specific Programs

- Energy audits – Oglethorpe Power Corp
- Energy Solutions – New Hampshire Electric Co-op
- Take Control & Save – Associated Electric Co-op
- Custom rates – South Mississippi Electric Power Association



Energy Audits

- Oglethorpe Power – nation's largest power supply cooperative with 39 Georgia co-ops serving 4.1 million people
- \$900k grant thru Georgia Environmental Facilities Authority (Stimulus funds)
- Co-ops work in partnership with key accounts, identify participants, manage process
- 99 industrial audits by Georgia Tech, University of Georgia, state agencies, and co-op staff
- Also includes poultry house lighting, training

Energy Solutions

- New Hampshire Electric Cooperative – serves 80,000 members in 10 counties of New Hampshire
- Large Business Energy Solutions program
- Prescriptive and Custom Rebates
 - Lighting – including LED traffic lights
 - Energy efficient motors
 - VFDs
 - Compressed air equipment and controls
 - Custom HVAC projects

Energy Solutions

■ Services

- Project review
- Audits
- Education programs & seminars
- Financing

■ Requirements

- Cost / benefit test
- > 1 year SPP



Take Control & Save

- Associated Electric Cooperative – provides wholesale power to 6 regional and 51 local electric co-ops in Missouri, Oklahoma, and Iowa
- Take Control & Save
 - Goal – 1.9 Million MWh reduction by 2032
 - Budgeted \$31.2 Million thru 2013
 - Industrial audits
 - Rebates
 - Training & information
 - Residential and agricultural programs

Take Control & Save

- 15 Custom pilot projects in 2009 - 2010
 - 6.3 million kWh savings
 - Manufacturing & ethanol plants
 - Lighting – including LED grow lights
 - Energy efficient motors
 - VFDs
 - Compressed air
 - HVAC
 - Ground-source heat pumps with solar assist



Custom Rates

- South Mississippi Electric Power Association – serves 11 distribution cooperatives representing 400,000 meters, 2,454 MW peak, 10 Million MWh
- Georgia Pacific plant
 - 191 Thousand MWh
 - 20 MWe wood waste boiler / steam turbine-generator
 - Purchased power less expensive except during peaks
 - Generation mix based on cost and efficiency
 - Looking for ways to control costs

Custom Rates

- Collaborative effort spanning months resulted in innovative rate / software solution
- Rate
 - Unbundled
 - Demand charges based on SMEPA's monthly coincident peak (CP) demand
 - Time differentiated energy charge
 - Significant savings by minimizing CP



Custom Rates

■ Predictive software

- Developed by 3rd party
- Uses hourly weather data, SMEPA historic load data, plant temperature threshold data
- Access to SMEPA's real-time data
- Predicts SMEPA's peak demand
- Plant responds by running onsite generation or curtailing batch loads



Custom Rates

■ Results

- Using software, Georgia Pacific mill can accurately predict SMEPA's peak.
- Mill can reduce coincident peak by 9 to 12 MW
- Saved nearly \$2M annually in demand charges



Custom Rates

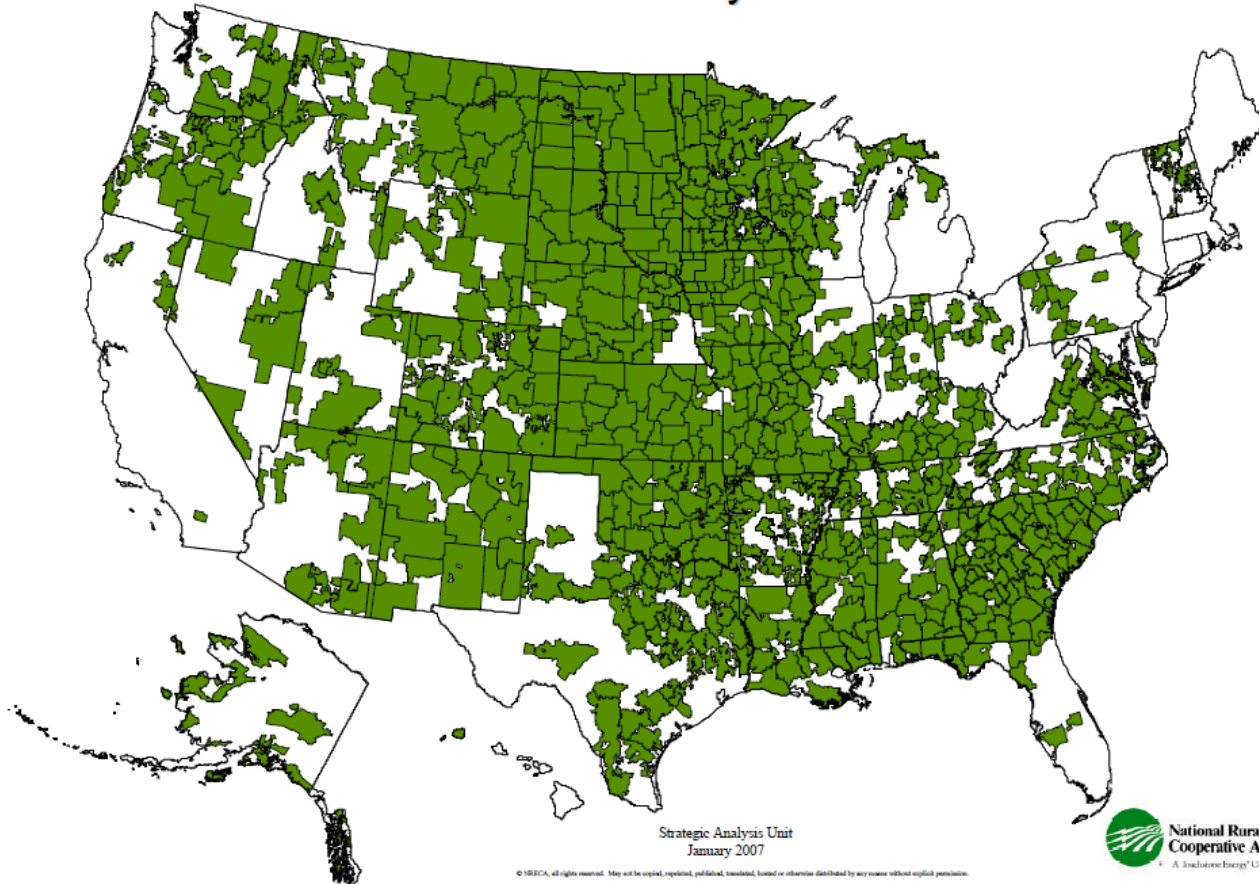
■ Program Impact

- Customer can manage demand
- Customer can customize strategy
- SMEPA reduced peak demand and increased kWh sales
- Rate administration is streamlined
- Rate can be applied to other qualifying loads
 - 3 additional large users on program
 - 50 MW demand reduction
 - Happy members

Green Power

Co-op Green Power

More than 750 rural electric systems offer Green Power



Strategic Analysis Unit
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For More Information:

DOE Industrial Technologies Program (ITP) Utility Partnerships

www.eere.energy.gov/industry/utilities

DOE ITP Utility Partnerships and Resources, including past webinar presentations:

http://www1.eere.energy.gov/industry/utilities/tools_and_resources.html

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**Utility Partnerships Webinar Presentations
are posted on the
ITP Utility Partnerships Resources and Tools webpage:**
[http://http://www1.eere.energy.gov/industry/utilities/](http://www1.eere.energy.gov/industry/utilities/)

Follow the above link to register for upcoming webinars.

The next webinar is on
Gas Utility Energy Efficiency Programs,
November 2, 2010 from 12-2pm EDT.