

CIP

Looking toward 2012 & beyond

February 2, 2011



CERTs 2011
**Clean Energy
Convergence**



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Who we are



- **Office of Energy Security**

- Minnesota Department of Commerce

- **Providing energy information for over 30 years...**

- Energy conservation, efficiency, & renewables
- Through technology, analysis, grants, programs, & public outreach
 - Data, reports, publications, presentations, website, call center, training, public events
 - *Energy fairs, Eco-Experience at the Minnesota State Fair*

History of CIP

1980:

PUC directed to initiate a pilot to demonstrate the “feasibility” of investments in EE

1989: All Public utilities were required to operate conservation improvement programs. Oversight transferred from PUC, low-income requirements added.

1991:

A specific level of spending was required (1.5% electric, 0.5% gas) & munis and coops were included.

2007:

Next Generation Energy Act

1983: Utilities with revenues greater than \$50 million were required to operate at least 1 conservation program. Required “significant” investment.

1994: PI settlement required [Xcel] to spend 2.0% of their annual GOR. Programs began to be evaluated against a pre-set goal.

OES Utility CIP Program

- **Utility CIP Plans, Status Reports & Modifications for 130 Municipal Utilities, 44 Distribution Cooperatives, 11 Investor Owned Natural Gas & Electric Utilities**
- **Review Energy Savings Assumptions and Measurement & Verification Activities**

Energy savings – 1st yr

- **\$287 million in total spending for 2008 & 2009, which achieved energy savings of:**
 - 1.2 billion kWh of electricity
 - 3.4 billion cubic feet of natural gas
- **Since 2006 total first year savings are:**
 - 2.1 billion kWh of electricity
 - 7.4 billion cubic feet of natural gas

Cumulative savings

- **Since 2006 cumulative savings resulting from CIP expenditures have totaled:**
 - **4.8 billion kWh (7% of annual sales)**
 - **19 billion cubic feet of natural gas (4.7% of annual sales)**
- **Total utility expenditures have totaled \$494 million dollars.**

CIP Accomplishments

- **Plans meet the goal objectives**
- **Behavioral programs are underway**
- **MEI 1.5% EE Solutions Stakeholder Process**
- **Streamlined reporting for municipal utilities & cooperative associations**
 - www.mncipdata.com

An eye towards 2012

- **What is the sustainability of the 1.5% energy conservation goal?**
- **What are opportunities for cross fuel conservation?**
- **Where can infrastructure improvements be made?**
- **What will the impact be from increases in codes & standards?**

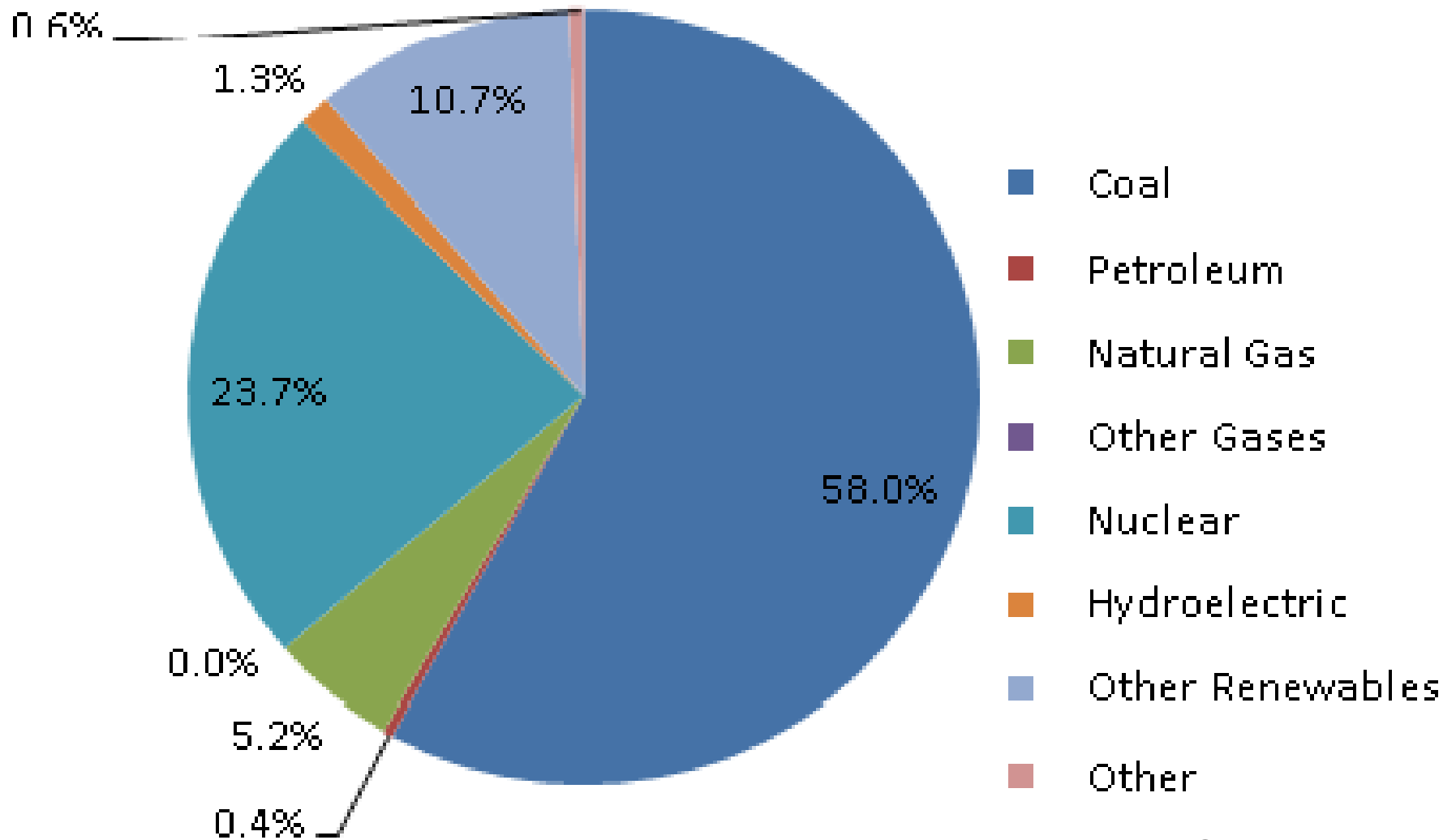
An eye towards 2012

- **Can we get to 30% reductions in buildings?**
 - Requires that buildings bundle measures
- **How do we get financing?**
- **Can cogeneration/CHP play a role for gas and electric utilities?**
- **What do we do about CFLs?**

An eye towards 2012

JOBS

MN's Electric Mix- 2008



Source: EIA

MN Electric & Natural Gas Expenditures

- **Electricity - \$5.3 Billion**
- **Natural Gas - \$3.8 Billion**
- **Only a small fraction of our electrical expenditures are generated in the state**
 - **Biomass, Wind, Solar, Hydroelectric**
- **Non-expenditures due to investments in energy efficiency are hard to quantify**

Minnesota's Fossil Resources *(Comprehensive Listing)*

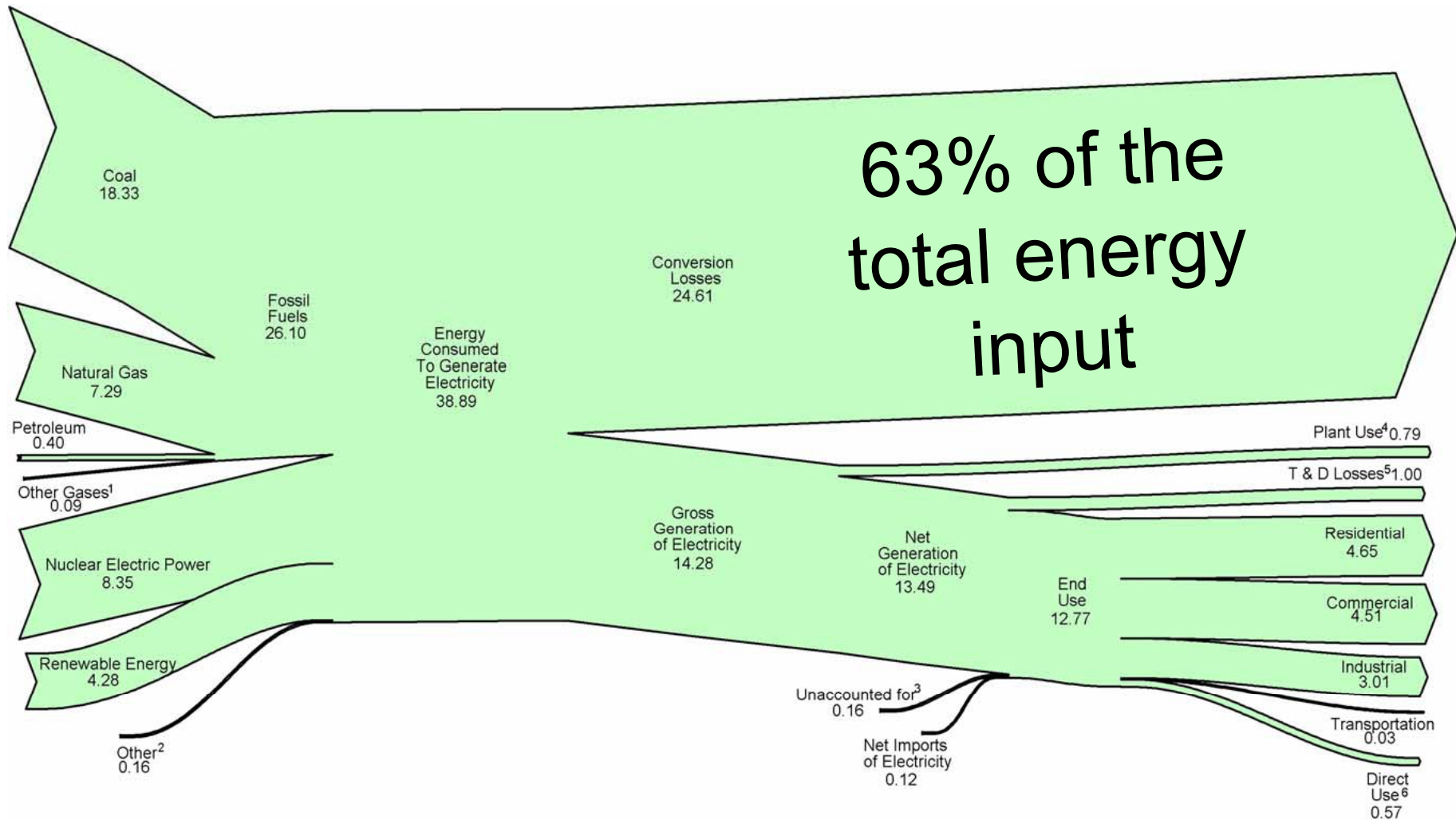
Map of Minnesota's Fossil Resources



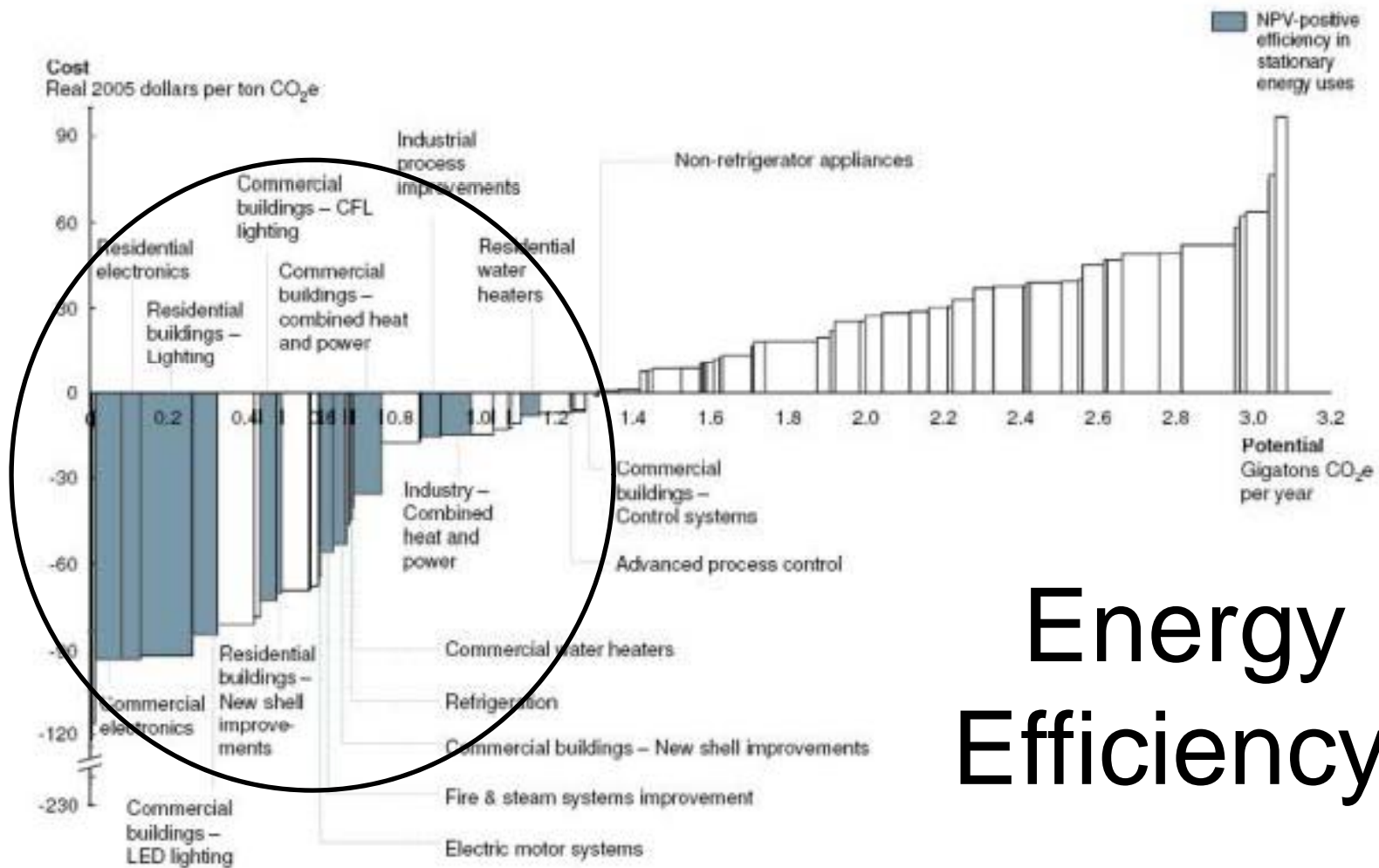
Legend

- : Minnesota's Fossil Resources

Value of Efficiency

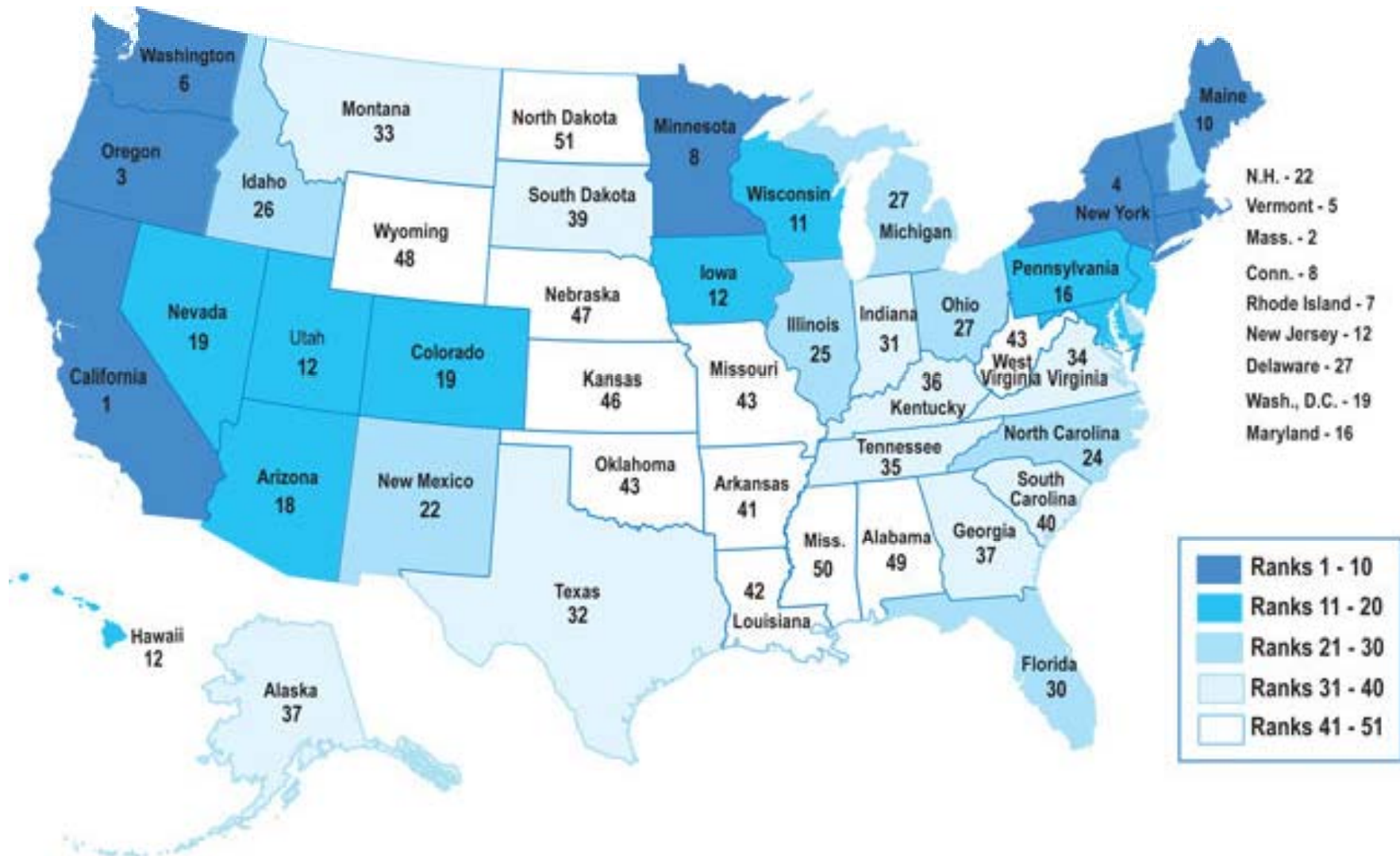


Ability to reduce CO₂



Energy
Efficiency!

How do maintain the momentum?



Understand the needs of customers

Do customers know how they are currently using energy – do they trust us to help them, or do they just want to be left alone?

Smart Grid



The New York Times

New Electricity Meters Stir Fears

January 30, 2011

<http://www.nytimes.com/2011/01/31/science/earth/31meters.html?partner=rss&emc=rss>

Assumptions

They are the building blocks of efficiency programs – do we know that they are correct?

Leverage new technologies?

Will LEDs save us?







**Energy efficiency
builds invisible
power plants**





Example: OSES Lighting Program

- **Minneapolis non-profit agency replacing more than 100 T-12 lamps with T-8 lamps**
- **\$6,900 total installed cost, rebates covered 53% (\$3,700) of the installation**
- **Savings are estimated at approximately \$112 per month. With an estimated payback of 2.9 years the agency will save approximately 8.5 kW and 18,827 kWh annually.**

Societal Benefits

- **Per kW Societal Benefit**
 - **Generation - \$1,004/kW**
 - **T&D - \$356/kW**
 - **Marginal Energy - \$2,472/kW**
 - **Environmental Externality - \$29/kW**
 - **Rebate - \$435/kW**
- **Total Societal Benefit - \$4,321/kW**

Average per kW Costs

- **Utility Project Costs**
 - **Product Delivery - \$668/kW**
 - **Utility Admin - \$7/kW**
 - **Project Admin - \$18/kW**
 - **Advertising & Promotion - \$157/kW**
 - **Evaluation / M&V - \$5/kW**
 - **Rebate - \$435/kW**
 - **Participant Costs - \$812/kW**

Is it worth it?

- Total Costs - \$2,102/kW
- Total Benefit - \$4,321/kW
- \$2.06 benefit for every dollar of cost

Is this the full story?

Review

- **Project has a life of approximately 15 years.**
 - Savings happen each year.
- **8.5 kW Saved**
 - Total Benefit of \$36,729 vs. Total Cost of \$17,867
- **\$1,344 in annual savings**
 - \$20,160 in lifetime savings – non-escalated
- **\$23,242 in lifetime savings, escalated @ 2%**

Review

- For a \$3,200 investment the customer realizes lifetime bill savings of \$20,160
- This is a 42% annual return on the initial investment... for 15 years.
- Total kWh savings from this project:

282,405 kWh

514,824 lbs. of CO₂

Priceless

Thank You!

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