



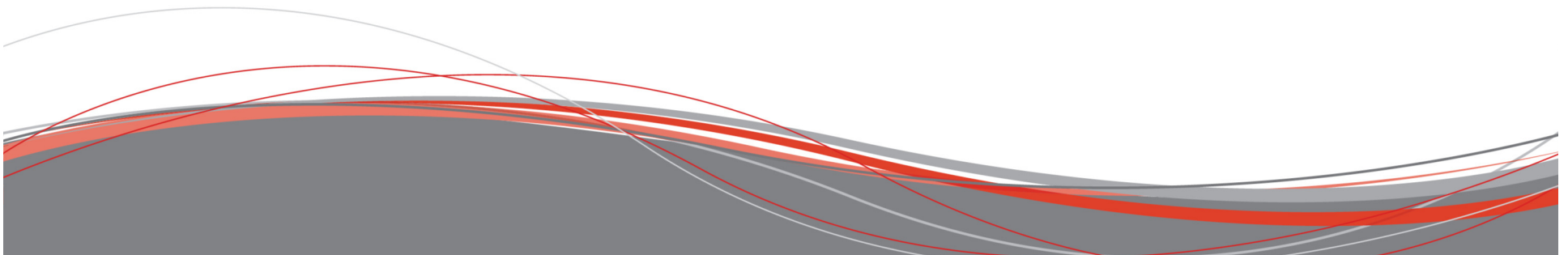
# Energy Efficiency Programs

## What Works? What Doesn't?

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**June 23, 2010**



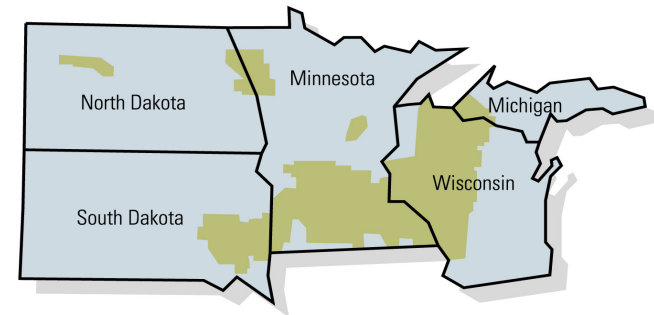
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# Agenda

- **Policies & Objectives**
- **Recent MN Statewide Electric Potential Study**
- **Study Elements**
- **The Results**
  - ◆ **Energy Savings Potential by Technology**
  - ◆ **Cost Effectiveness by Technology**

# Xcel Energy

- Service territory covers eight states
- Nationally recognized DSM programs
- Currently implement DSM programs in CO, MN, NM, ND, WI, and TX



# Overall DSM Policy Objectives

- States craft their overall policy objectives for DSM.
  - ◆ Do all *achievable* cost-effective DSM first.
    - Energy primary focus, capacity secondary focus.
    - Carbon reduction.
    - California, Colorado, Minnesota.
  - ◆ Alternative objectives for DSM.
    - Capacity reduction vs. energy reduction.
      - ◆ Delay need for new supply options (building new power plants).
      - ◆ Texas focus is on capacity growth, energy secondary.
    - Customer satisfaction and education.
      - ◆ Help customers reduce bills.

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# DSM Policies

## ❑ State Legislative Requirements

- Minnesota (1.5% annual sales, gas & electric, 2010).
- Wisconsin (Public Benefit State)
- Colorado (sets savings floor with PUC ability to increase).
- New Mexico (sets long term goals)
- Texas (percentage of five year growth in KW, voluntary for SPS)

## ❑ Resource Planning Requirements

- Minnesota, Colorado, New Mexico
- Competitive with supply options
- Balanced with achievable potential

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## DSM Plan Objectives

- Programs so all customer segments can participate.
- Treatment of low-income programs.
- Direct impact programs vs. indirect impact programs.

## Where to begin?

- **Undertake an Energy Efficiency Potential Study.**
  - ◆ Critical for developing energy efficiency programs and policies.
  - ◆ Assesses both short and long term savings potential.
  - ◆ Provides end use from a segment approach.
  - ◆ Completion may take up to a year and is expensive.
  
- **The MN Office of Energy Security just completed a statewide electric potential study.**

# Minnesota's potential study includes

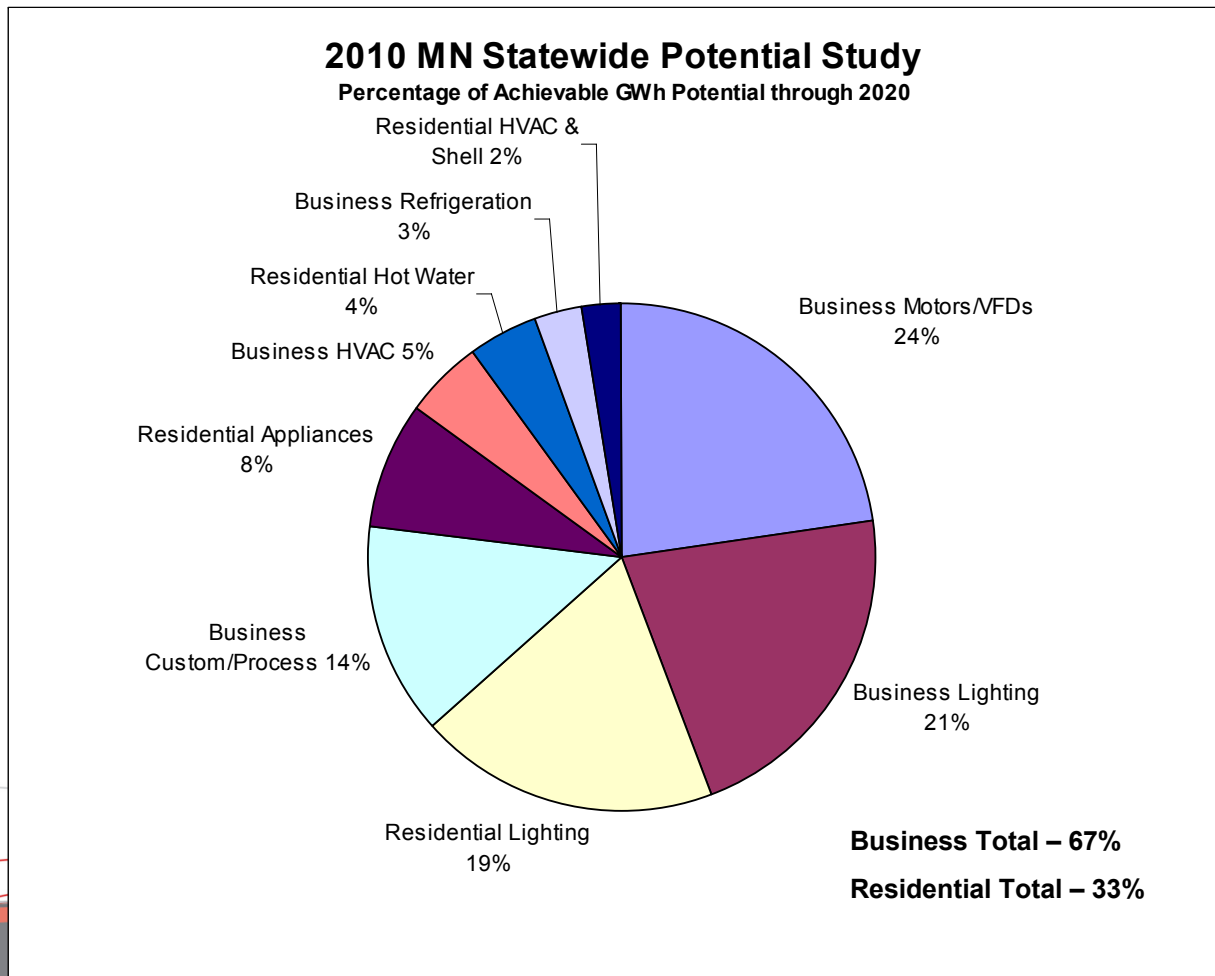
- An estimate of current saturations of electric energy efficiency measures, collected primarily through onsite survey methods;
- An estimate of the remaining DSM potential segregated into technical, economic and market (achievable) potential;
- Energy efficiency measures' (end use) energy and demand savings, costs and lifetimes
- “Best-Practice” results of residential and commercial programs across the Midwest and North America; and
- Three different market potential scenarios (low, base and high case).
- Does not give a breakdown of potential by utility.



## Study was based on building types

- **Residential (28 end uses analyzed).**
  - ◆ **Single family existing (built in 2000 or earlier).**
  - ◆ **Single family new (built after 2000).**
- **Commercial & Industrial (101 end uses analyzed).**
  - ◆ **Office**
  - ◆ **Retail**
  - ◆ **Restaurant**
  - ◆ **Manufacturing**

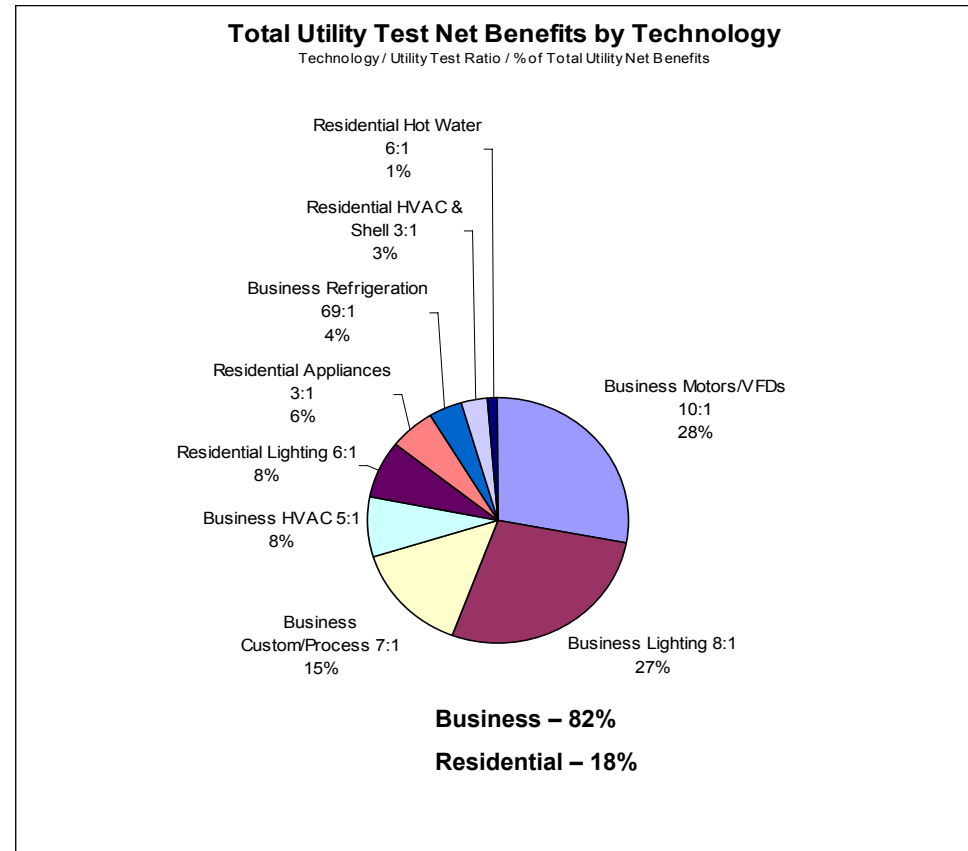
# Potential Energy Savings by Technology



# Relative Cost-Effectiveness by Technology

## • Utility Test

- Net Benefits approximate the bill savings resulting from DSM programs
- Measured over the lifetime of the end-uses
- Calculated as the avoided revenue requirements (avoided energy, T&D and capacity) minus utility spend to run DSM programs
- Ratio = \$ avoided revenue requirements : \$ Utility Spend



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# Combined, what does it tell us?

- **The top five programs that stand out for most energy saving potential & most cost effective or 'biggest bang for the buck'**
  - ◆ Business Motors
  - ◆ Business Lighting
  - ◆ Business Custom/Process
  - ◆ Business HVAC/Residential Appliances
  - ◆ Residential Lighting

