

## Energy Development and Transmission Committee



### *Energy Issues – Facing the Future*

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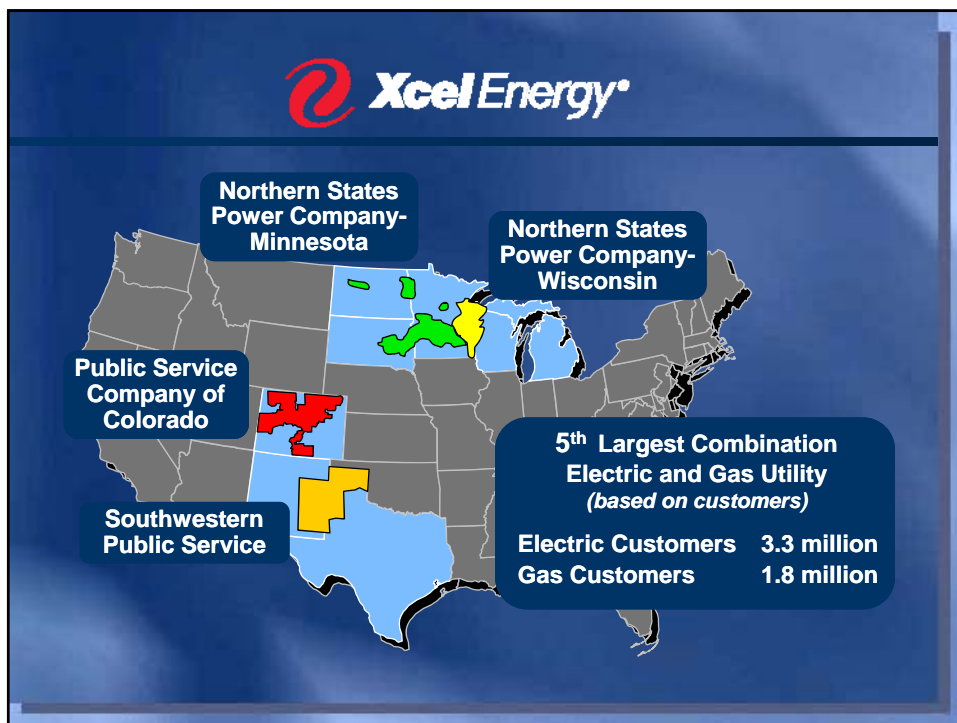
December 6, 2007

## Increased Electricity Use

- Economic vitality depends on reliable electricity supply
- Electric consumption has doubled since 1980 but with few transmission upgrades
  - Average Midwest home 40% larger today than in 1976
  - Homes with central air conditioning more than doubled in the last 25 years
  - In 1997, about 40% of homes had a computer... today more than 75% have a computer
  - In 1975, about half of all homes owned one TV... today about half of homes have three or more TVs

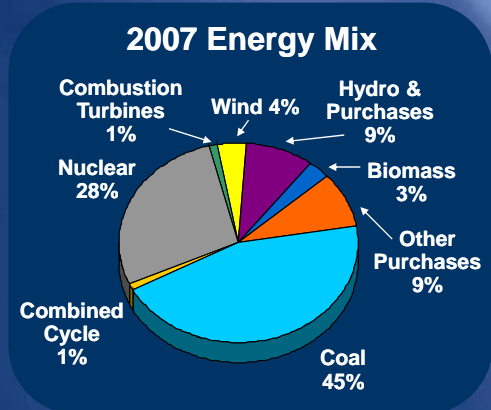
## Preparing for the Future

- Plant rehabilitations
- Emissions reductions
- Transmission investments
- Effective demand-side management
- Increased energy conservation measures
- Utilization of renewables



## NSP's Current System

- More than 10,000 MW
- Most energy from nuclear and coal
- Increasing wind and natural gas
- Projected load growth at 1.6%
- Projected energy growth at 1.3%



## Coal Plant Rehabilitations

- Extends life of facilities at least 25 years
- Provides more than 400 MW additional dependable capacity
- Dramatically reduces air emissions
- Investment: \$1 billion



## Emission Reductions

	Sulfur Oxide	Nitrogen Oxide	Particulates	Mercury
King	91%	89%	20%	20%
High Bridge	99%	97%	100%	100%
Riverside	100%	99%	100%	100%

## Electric Transmission Capacity Expansion

### *CapX 2020 - Meeting Current & Future Needs*

- Serves MN, and portions of ND, SD and WI
- Delivers reliable affordable electricity to meet local needs
- Supports job and population growth
- Increase access to renewable energy sources
- Provides first major upgrade in 25 years

## CapX 2020 – Participating utilities



- Central Minnesota Municipal Power Agency
- Dairyland Power Cooperative
- Great River Energy
- Minnesota Power
- Minnkota Power Cooperative
- Missouri River Energy Services
- Otter Tail Power Company
- Rochester Public Utilities
- Southern Minnesota Municipal Power Agency
- Wisconsin Public Power Inc
- Xcel Energy

## CapX 2020 Group 1 Projects

Nearly 700 miles and \$1.4 to \$1.7 billion in new transmission infrastructure:

- |   |                   |
|---|-------------------|
| ■ Brookings, SD – SE Twin Cities                  | 200-miles, 345-kV |
| ■ Fargo, ND – Alexandria – St. Cloud – Monticello | 250-miles, 345-kV |
| ■ SE Twin Cities – Rochester, MN – La Crosse, WI  | 150-miles, 345-kV |
| ■ Bemidji – Grand Rapids                          | 68-miles, 230-kV  |



## Estimated CapX Timeline

- 2007
  - Certificate of Need in MN for 3 345-kV lines
- 2008
  - Certificate of Public Convenience & Necessity (ND)
  - Route Applications filed (MN, ND, SD, WS)
  - State/Federal Environmental Impact Statements (EIS) processes begin
  - Commission decisions on Need in MN, ND
  - Route hearings held

## Permitting - Need and Routing (cont.)

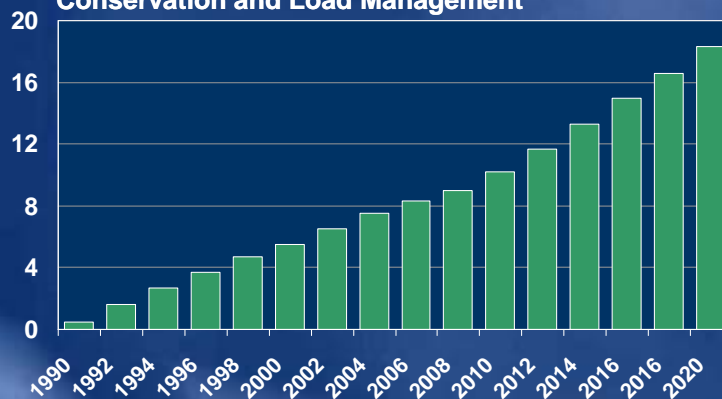
- 2009
  - Routing decisions made by Commissions
  - Federal process completed, permits issued
  - Construction permits obtained
- 2009 - 2012
  - Easement negotiations held with landowners
- 2010 - 2014
  - Transmission line construction

## Public Outreach and Communication

- Notice Plan implementation
  - 100+ meetings with local governmental units, news media, and civic groups;
  - Letters to 73,000 MN landowners, local government officials; 6,000+ letters to ND,SD and WI landowners
- First round of open houses (Sept/Oct 07)
  - 24 meetings held, approximately 1,800 attendees
  - Direct mail / newspaper ads / govt. officials
  - Public information materials – fact sheets, video on construction
- Future outreach
  - Additional rounds of open houses
  - District meetings and state conferences
  - Newsletter and email alerts

## Effective Demand-Side Management (DSM)

Number of 250 MW Plants Avoided through Conservation and Load Management





## Energy Conservation Programs

### Natural Gas Programs (Implemented Sept., 2007)

#### Residential:

- Furnace rebates
- Water heater rebates
- Home energy audits
- Energy efficient showerheads

### Electric Programs (Plan to file Jan. 2008)

#### Residential:

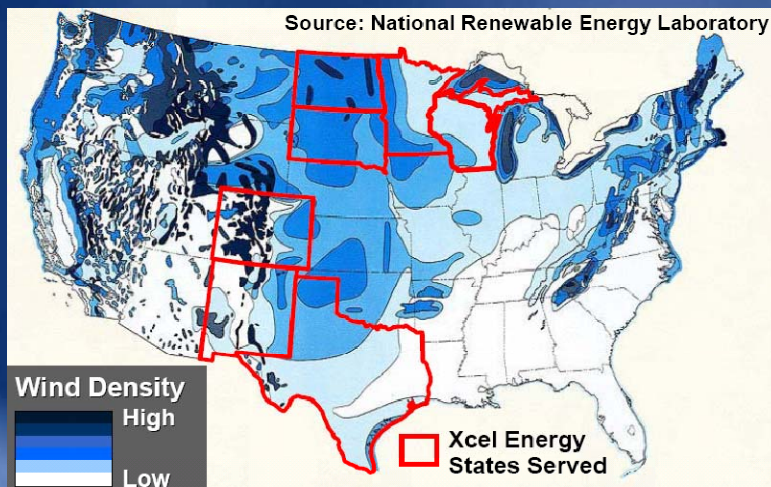
- Home Lighting
- Home Energy Audits
- Consumer Education

#### Commercial:

- Lighting
- Motors
- Cooling

## Wind and Xcel Energy

Source: National Renewable Energy Laboratory



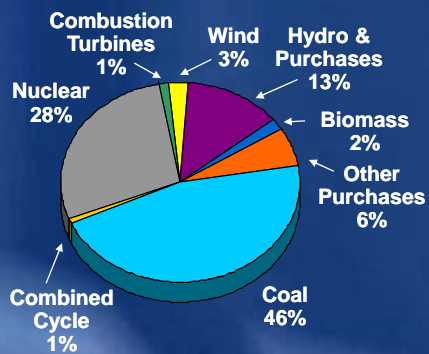


## Xcel Energy Projected Wind Generation

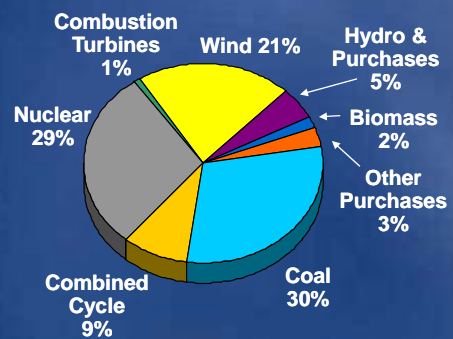


## NSP Energy Mix

2005 Energy Mix



2020 Energy Mix



Questions?