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Minnesota Power

EnergyForward Fleet Transition

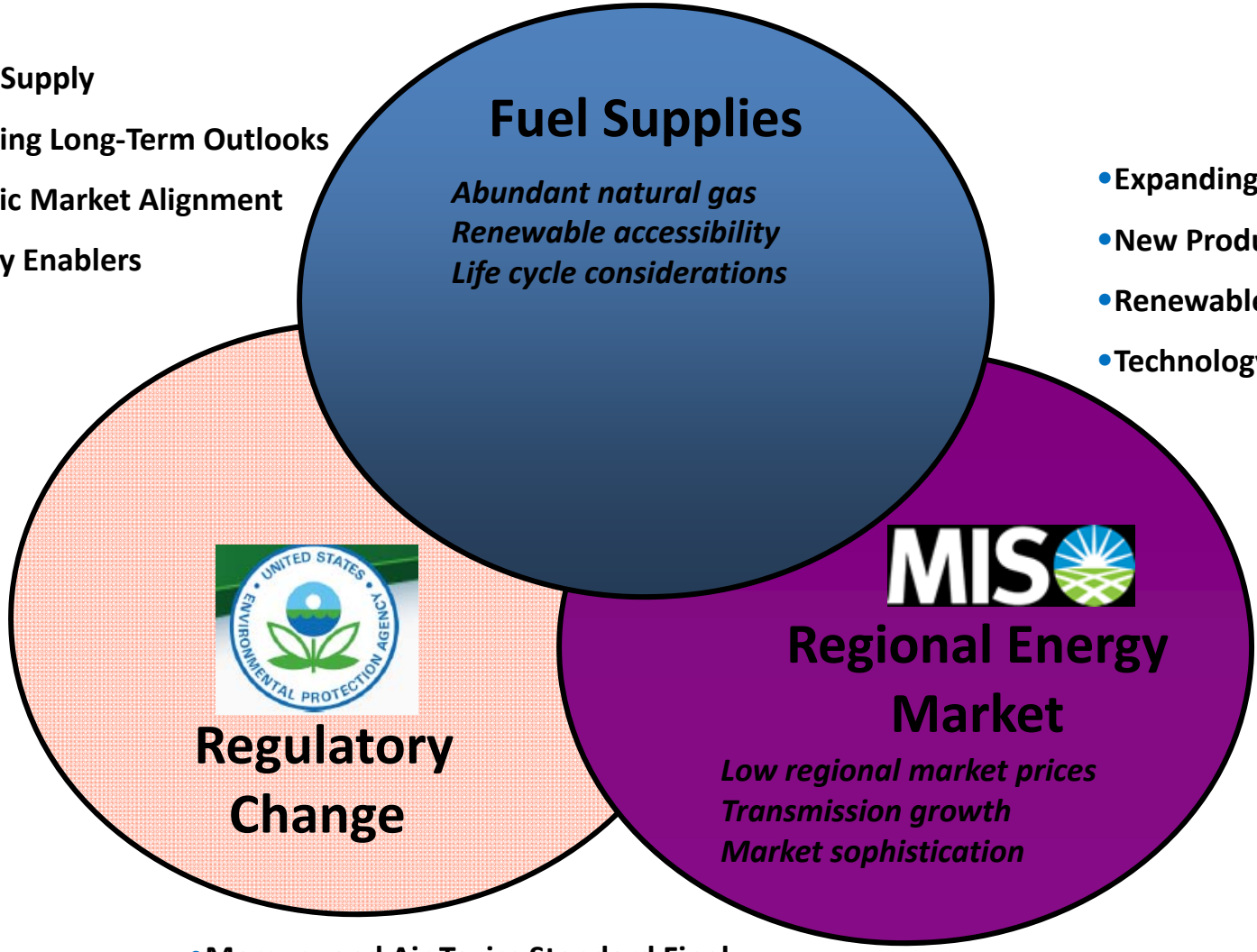
2014 International Legislators Forum

June 26, 2014

Margaret Hodnik, Vice President,
Regulatory and Legislative Affairs

Power Industry in Transformation

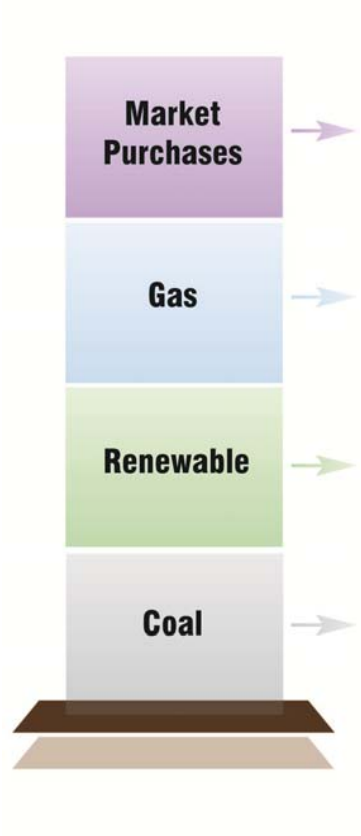
- Shale Gas Supply
- Transforming Long-Term Outlooks
- Gas-Electric Market Alignment
- Technology Enablers

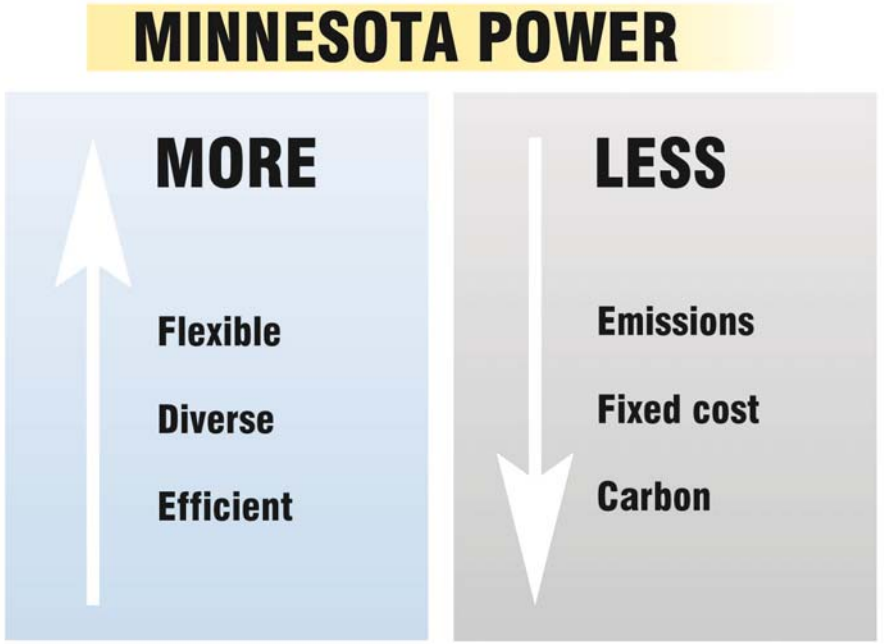


- Expanding Footprint
- New Products
- Renewables Expansion
- Technology Evolution

- Mercury and Air Toxics Standard Final
- Carbon Regulation Unfolding
- Ongoing uncertainty

MP's Fleet Transition Goals





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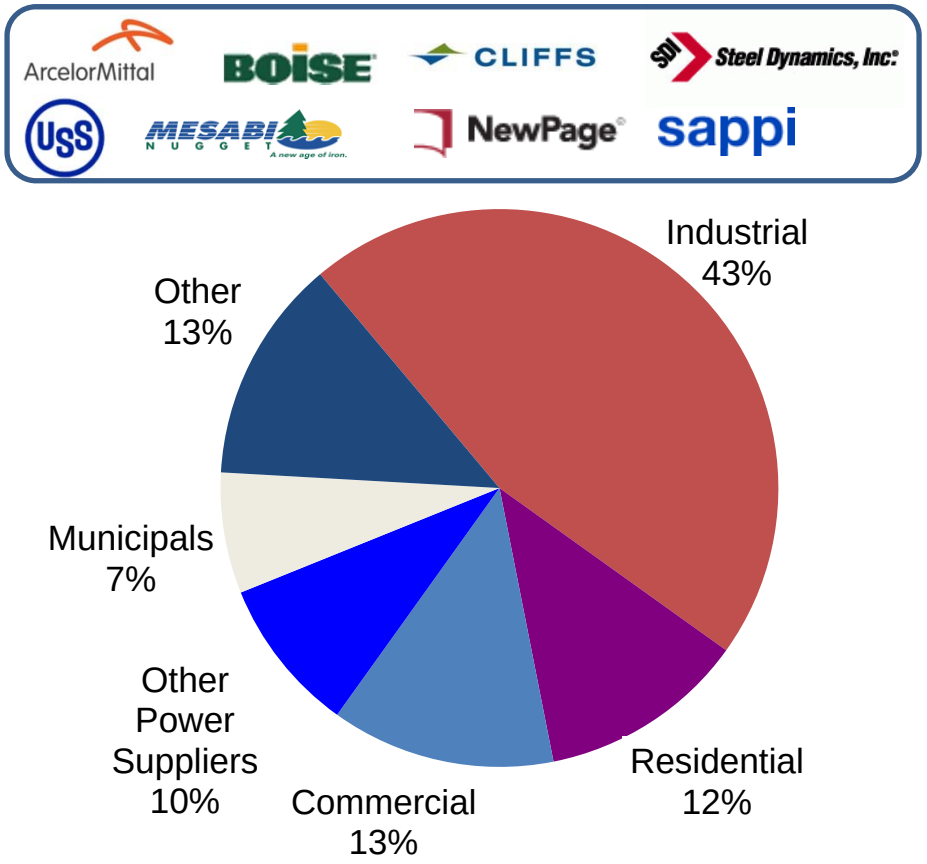
EnergyForward and MP's Customers

Large industrial impacts on MP:

- Significantly influence MP's system needs
- Strongly reinforce a focus on cost in balance with stewardship and reliability
- Have led to innovative thinking and action about energy supply and partnerships for years
- Cost based rate issues for industrial customers are real



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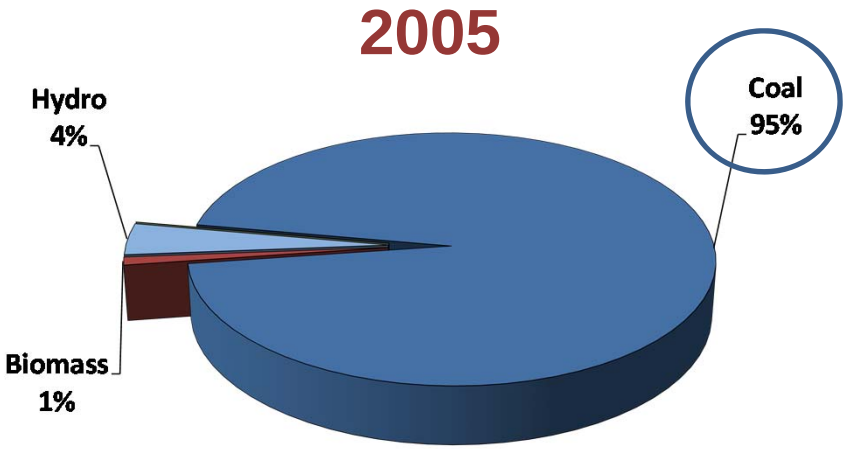
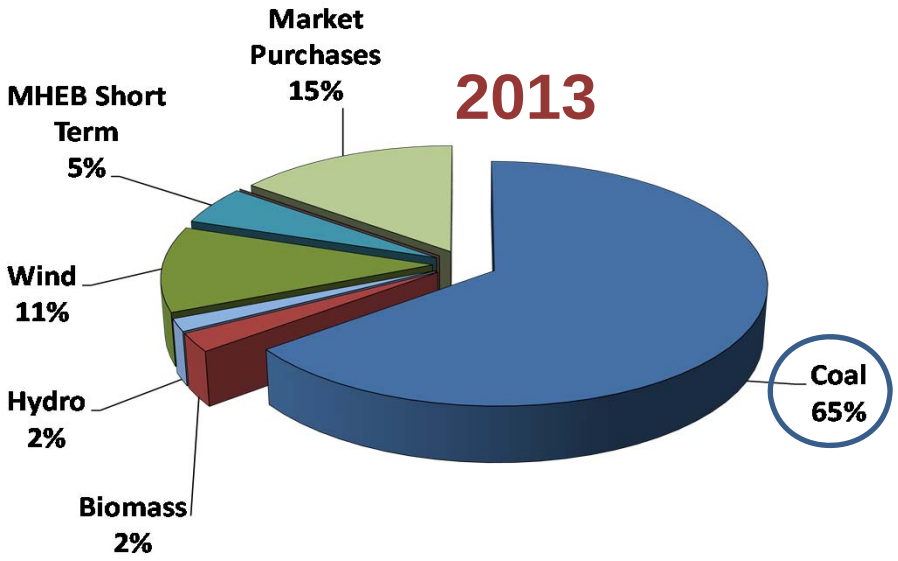
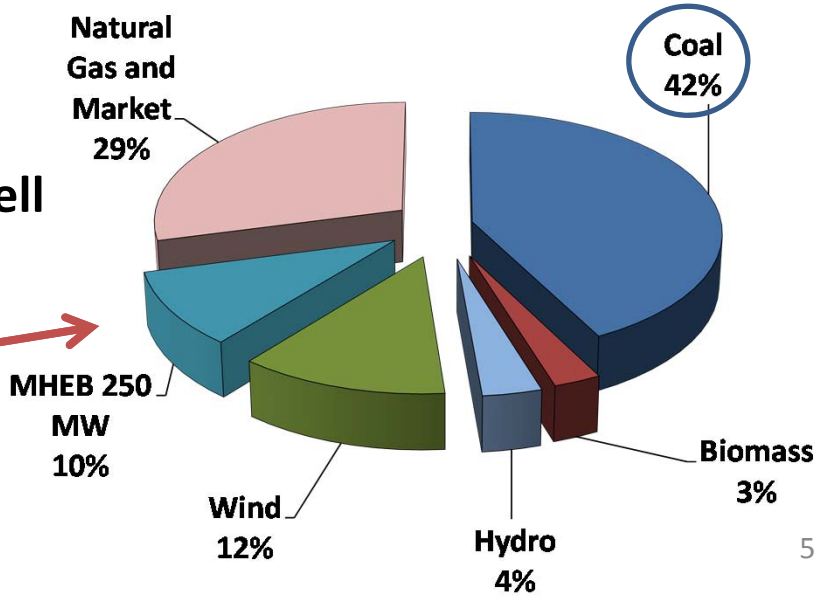
EnergyForward Resource Transformation





- **Long Term Direction:**
  1/3 renewable, 1/3 coal, 1/3 natural gas
- **This is an aspirational goal and we are well on our way to it**

Current Long Term Planning Line Up



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EnergyForward Manitoba Hydro Purchase

Manitoba Hydro is constructing:

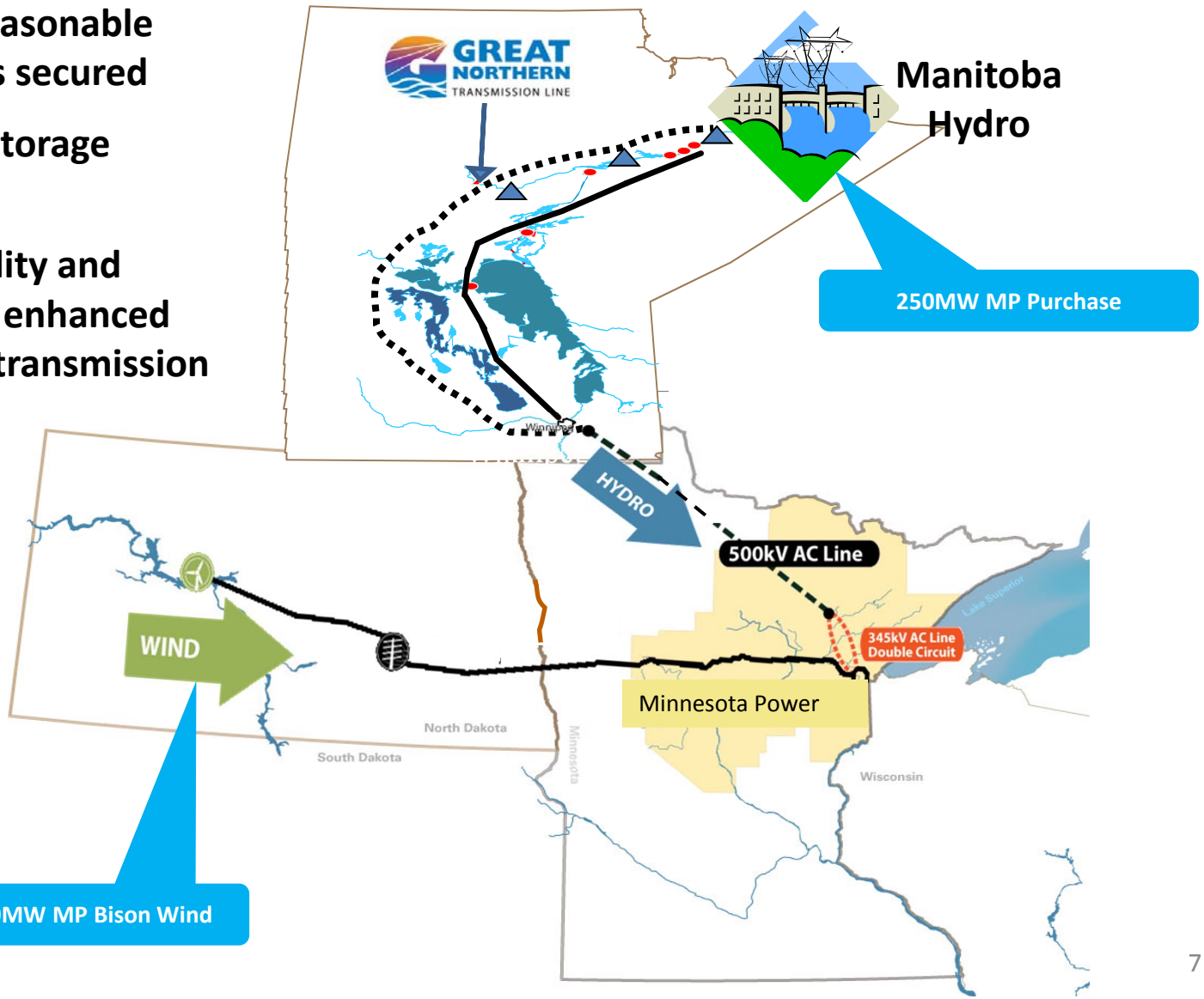
- 695MW Keeyask Hydro Project (by 2019 ~ $6.5 billion)
- 1485MW Conawapa Hydro Project (as early as 2026 ~ $10.7 billion)
- BiPole III HVDC Reliability Project - $3.3 B

Minnesota Power and Manitoba Hydro are constructing:

- 500 kV Great Northern Transmission Line (GNTL) transmission line to deliver hydro to upper Midwest from north of Winnipeg to the Iron Range (by 2020)
  - ~ $0.35 billion in Manitoba
  - ~ $0.5-$0.65 billion in Minnesota
- Will enable ~ 900MW hydro export to US
- 250 MW purchased for MP retail customers

EnergyForward Creative/Regional Solutions

- High volume, reasonable cost renewables secured
- Wind to hydro storage enabled
- Regional reliability and energy markets enhanced through added transmission



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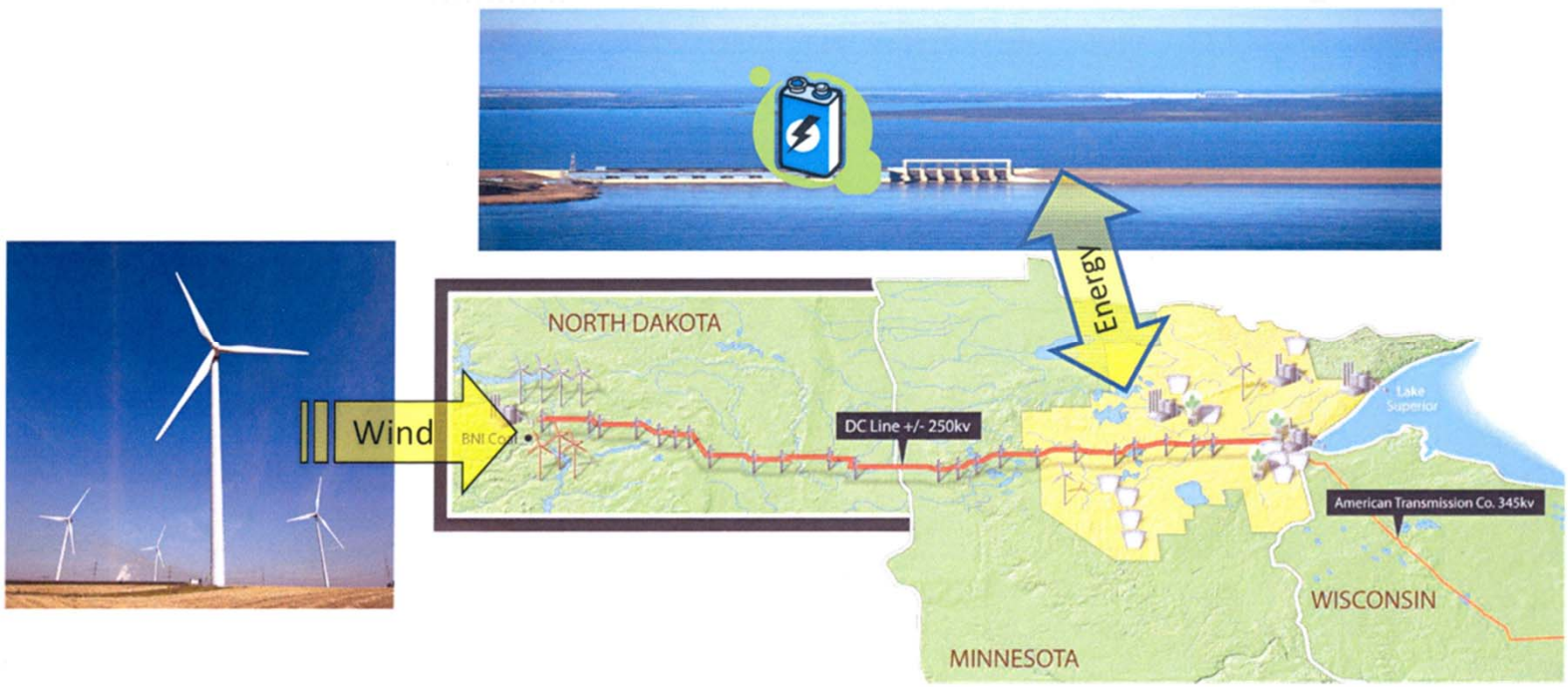
Wind / Hydro Synergy



- **"Excess" wind energy from MP Bison system in North Dakota able to be stored in MH's system.**
- **GNTL facilitates "storage of wind energy."**
- **MH and MP systems operate independently; i.e., typically dollars not MWhs exchanged.**

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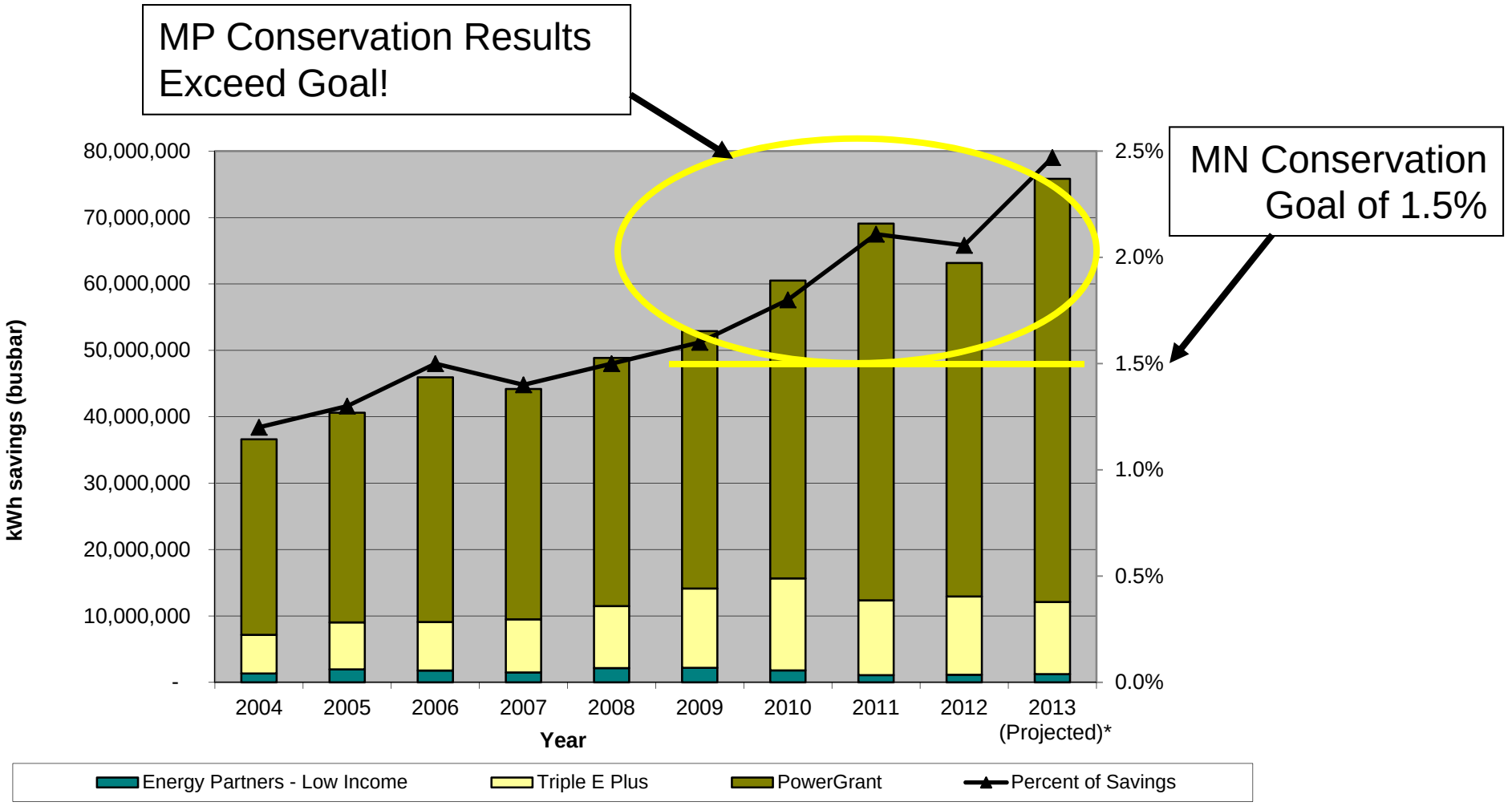
Delivering Energy Savings



power of one ... it begins with you

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Proposed EPA Carbon Rule Issues

- Rule appears to discount or ignore “early” actions taken between 2005-2012 (renewables, plant efficiency, conservation, etc.)
- Cross-border ownership not recognized (e.g., ND wind serving MN customers)
- As a result of the first two bullets, Minnesota is asked to do more than its share
- Forced fuel switching will affect power markets
- Forced coal to gas switch brings price volatility and reliability risk
  - Base NGCC capacity and energy production assumptions questionable
- Uncertainty calculating reduction goals and crediting action

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Thank You!