International Renewable Energy Partnerships

David J. McMillan
Executive Vice President-Minnesota Power
U.S. Hydropower Today

What is the primary purpose of U.S. Dams? (Hint: its not electricity production)

Only two percent of the dams in the U.S. produce hydropower.

- Recreation: 35%
- Flood Control: 15%
- Stock Farm: 18%
- Other: 7%
- Irrigation: 11%
- Water Supply: 12%
- Recreation: 35%
U.S. Hydropower Today

- Approximately 2,400 facilities with 96,000 megawatts (MW) of generation capacity
  - 67 percent of U.S. renewable energy generation
  - 7 percent of total U.S. electricity generation capacity

- Only one country has more new hydropower potential than the United States
**Minnesota Power**
- Regulated electric utility. 144,000 customers in NE MN and NW WI. Serves some of the largest electric customers in the U.S. Also serves 16 municipal systems.
- Significant new transmission and renewable investments.

**Superior Water, Light & Power**
- Regulated electric, natural gas and water utility.
- Serves 15,000, 12,000 and 10,000 electric / natural gas water customers in northwest Wisconsin.

**BNI Coal**
- Low cost lignite coal supplier. Mines about 4 million tons of coal a year, annually reclaims 200 acres of mine land.
- 600 million tons of lignite coal reserves

**ALLETE Clean Energy**
- Develops or acquires clean energy capital projects for electric utilities, cooperatives, municipalities, independent power marketers and large end users.

**American Transmission Company Investment**
- Stand alone electric transmission company with operations in WI, MI, MN and IL.
- ALLETE has 8% ownership of ATC—over $90M invested to date

**CapX2020 Investment**
- Joint initiative of 11 utilities to ensure upper Midwest electric transmission and distribution reliability
- ALLETE investing $100-$125M in three CAPX2020 projects.
Minnesota Power at a Glance

- Large Industrial Customers
- High Load Factor
- 16 Municipal Wholesale Customers
- 141,000 Electric Customers
- Only utility interconnected with Manitoba and Ontario

Pie chart showing:

- Taconite: 34%
- Paper & Pulp: 12%
- Other: 52%
- Pipeline: 2%
• Minnesota Power was 100% hydroelectric until 1931
• Today, Minnesota Power operates the largest hydroelectric system in Minnesota with ~120MW, supplying approximately 5% of our annual sales
Setting the Stage: Energy Industry Trends
Power Supply Principles

Results in a competitive, compliant and socially responsible regional power supply
Reshaping for Long-Term

MP Energy Sources in 2012

Market Purchases 11%
Manitoba Existing 1%
MHEB ShortTerm 1%
Wind 6%
Hydro 4%
Biomass 2%

MP Energy Sources in 2024
Latest Integrated Resource Plan

Coal 53%
Expanded Conservation 1%
Manitoba LongTerm 11%
Wind 21%
Hydro 4%
Biomass 2%
Market Purchases 8%
Access to Canadian Hydro Generation

- New 250 MW contract with Manitoba through 2035
- Power Purchase Agreement ~ Under MPUC Review

Access to quality wind sites in U.S.

- Capacity factor 43-45%, double the U.S. average
- 60,000 acres
- Bison 1 ~ Phase I Implemented
- Bison 2 ~ Approved
- Bison 3 ~ Approved
Manitoba Hydro Purchase

- Long term power purchase agreement with Manitoba Hydro for carbon free hydroelectric energy
- Leading the industry with a “wind storage provision”
Manitoba Hydro Purchase & MP’s Power Supply

• 1.5 Million MWhs of Energy and 250MW of capacity annually

• 15 year term: from 2020 - 2035

• Largest power purchase since 1974

• Manitoba Hydro Transaction Provides:
  – Low Cost
  – Block of on-peak renewable energy
  – Certainty for future power supply expense
New Transmission from Manitoba Required
Questions