Manitoba Clean Environment Commission



Presentation Notes

Robert Hornung
President
Canadian Wind Energy Association

Presented April 7, 2004

Context



- I hope to provide you with information on the wind energy industry that will be useful in your deliberations
  - Status of wind energy globally
  - Status of wind energy in Canada
  - Why wind energy makes sense for Canada
  - Future prospects for wind energy in Canada
- I have not reviewed any of the materials associated with this hearing and I am in no position to comment on the specific project under review

Wind Energy – Global Status



- Fastest growing source of electricity in the world – making a substantial and growing contribution to electricity supply
- 2003 – 39,000 MW installed capacity up from 13,500 MW 5 years ago. (540 MW offshore)
  - 8,000 MW installed globally in 2003
  - 50 MW / week installed in Germany in 2003
- Distribution of Installed Capacity in 2003 (MW): GER – 14,600, US – 6,300, ESP – 6,200, DK – 3,100, IND – 2,000
- $US 6 billion industry in 2003
  - 70,000 jobs (DK – 21,000, GER – 14,000, ESP – 10,000)

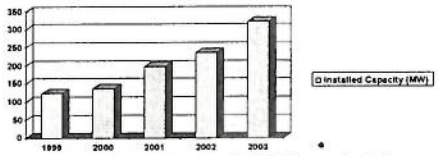
Wind Energy – Global Trends

- Leading Nations have aggressive targets (IEA; Wind Power Monthly)
  - Germany 3,000 MW offshore X 2010
  - Spain 13,000 MW X 2010
  - India 5,000 MW X 2012
- Other nations moving forward as well (IEA; Wind Power Monthly)
  - Japan 3,000 MW X 2010
  - China 4,000 MW X 2010; 20,000 MW by 2020
  - France 6,000 MW by 2007
  - UK 6,000 MW offshore by 2010
  - Italy 2,500 MW by 2010
- Globally (BTM Consulting)
  - 95,000 MW X 2008
  - 194,000 MW X 2013

Installed Wind Energy in Canada

February 2004: Canada has 327 MW of installed wind energy capacity, ranking Canada 13th in the world

Wind Energy Growth in Canada



•Average annual growth rate of 27.5% over last 5 years
•2003 a record year – 86 MW installed in Alberta, Saskatchewan, Ontario, Quebec, Prince Edward Island.
•2004 will likely break the record – high probability that a minimum 140 MW will be installed (43% over 2003) in Alberta, Quebec, Saskatchewan and Nova Scotia – could be significantly higher.

Why Wind Energy in Canada?

- Excellent wind resources in all regions (large land mass and long coastlines)
  - No national wind resource map at this time (coming fall 2004)
  - Canada has no shortage of wind resource (Environment Canada says 100,000 MW of potential in northern Quebec alone) – the issue is what is practical given transmission and interconnection issues
  - Countries have already demonstrated that wind energy can provide significant amounts of electricity (Denmark – 15-20%; Spain 4 – 6%; Germany 3-5%)
  - CanWEA has advocated an initial target of 10,000 MW by 2010 (4-5%)

The Wind / Hydro Link

- Wind is an intermittent resource
- Hydro an excellent match for wind
  - Energy storage (when blows or not – optimize use of wind)
  - Peak production in winter (wind and density) when hydro weakest
- Understanding what "intermittent" means
  - Wind turbines produces energy more than 85% of the time (capacity factor does not equal production time), it's just that the level of production varies
  - If wind energy produces 10% of the electricity in the grid, the variability associated with wind energy production is still much smaller that the regular changes in demand for electricity the grid must already account for
- Variability can be managed through:
  - Distributed generation
  - Wind forecasting

Why Wind Energy in Canada

- Increasing electricity prices (natural gas) make all electricity alternatives more attractive
  - Wind one of the few where cost is projected to continue to decline (3-5% / year) for at least another decade
  - Domestic manufacturing could further reduce costs (5-10%)
  - Wind has no fuel cost – growing attractiveness as a hedge
- Shortages of supply (Ont, Que, Atl)
  - Modular and quick to put in place

Economic Benefits of Wind

- Every 1 MW installed produces:
  - $1.5 million in investment
  - 2.5 direct job-years and 8 indirect job-years of employment
  - Tax revenue for governments
  - Many of these benefits in rural areas

Economic Benefits of Wind: Pincher Creek Case Study

- Small rural community (pop. 6,810) - historically agriculture/ beef industry economy
- First wind farm – 1993, today 30% of Canada's wind energy capacity (145 turbines, 96 MW)
- Tomorrow: 68 MW under construction and 3 new projects approved - 155 MW

The Benefits:

- $10 million directly into local / regional economy
  - Electricians, labourers, concrete, cranes, etc
  - Purchase/rental of equipment, supplies, meals, etc
- 3 wind companies => head offices/field offices
- 21 FT jobs in Municipality, $1.4 M payroll
- $900,000 in annual taxes to municipality
- Annual lease payments to landowners - $3k/turbine
- Boost to local tourism industry

Current Policy Framework

- Federal Wind Power Production Incentive
  - 1.2 cents – 0.8 cents / kwh payment for 10 years
  - 1,000 MW target by 2007
- 6,300 MW of projects have submitted letters of intent
- Federal Government projects that its Wind Power Production Incentive (1,000 MW) will be fully subscribed by 2006

Future Policy Framework – Grounds for Potential Growth

- Proposed Renewable Portfolio Standards
  - Ontario (10% by 2010) – 300 MW RFP to be released shortly
  - PEI (10% by 2010)
  - NS (3.75% new by 2011)
  - Alberta (3.5% new by 2008)
  - NB expected to develop this year

Future Policy Framework – Grounds for Potential Growth

- Requests for Proposals
  - Quebec (1,000 MW wind energy)
  - Saskatchewan (150 MW wind energy)
  - New Brunswick (100 MW wind energy)
- Pursuing First Projects
  - Manitoba (100 MW)
  - Newfoundland (25 MW)
  - British Columbia (50 MW)

Summary of Potential Provincial Wind / Renewable Energy Framework Initiatives

- If implemented, provincial framework initiatives projected to lead to minimum of 3,600 MW of wind energy by 2010
- CanWEA (and provincial governments including Manitoba) have asked the Federal Government to expand the Wind Power Production Incentive to support a 4,000 MW target by 2010