



CanWEA's WindVision 2025: Opportunities and Trends in the Canadian Wind Market

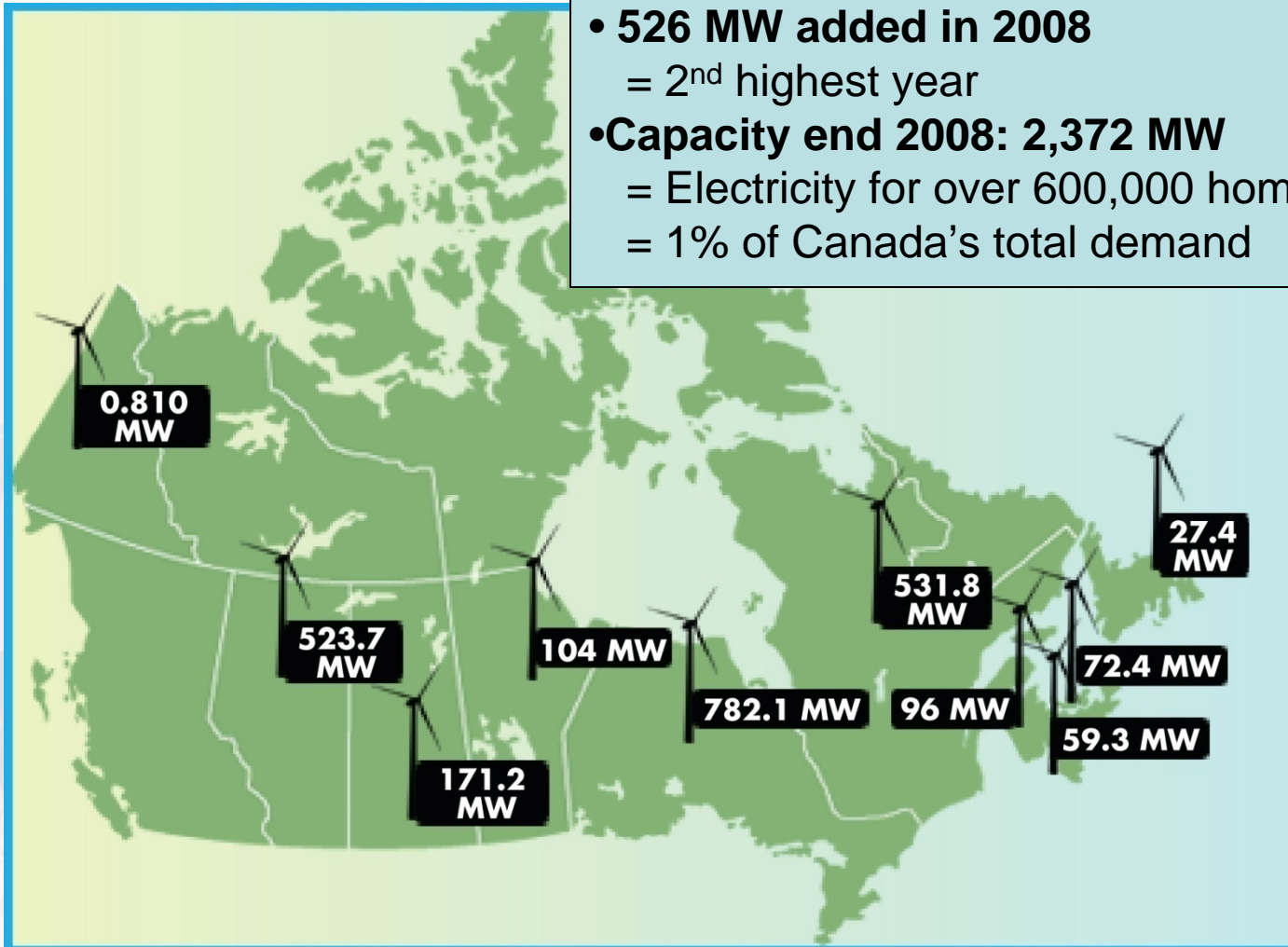
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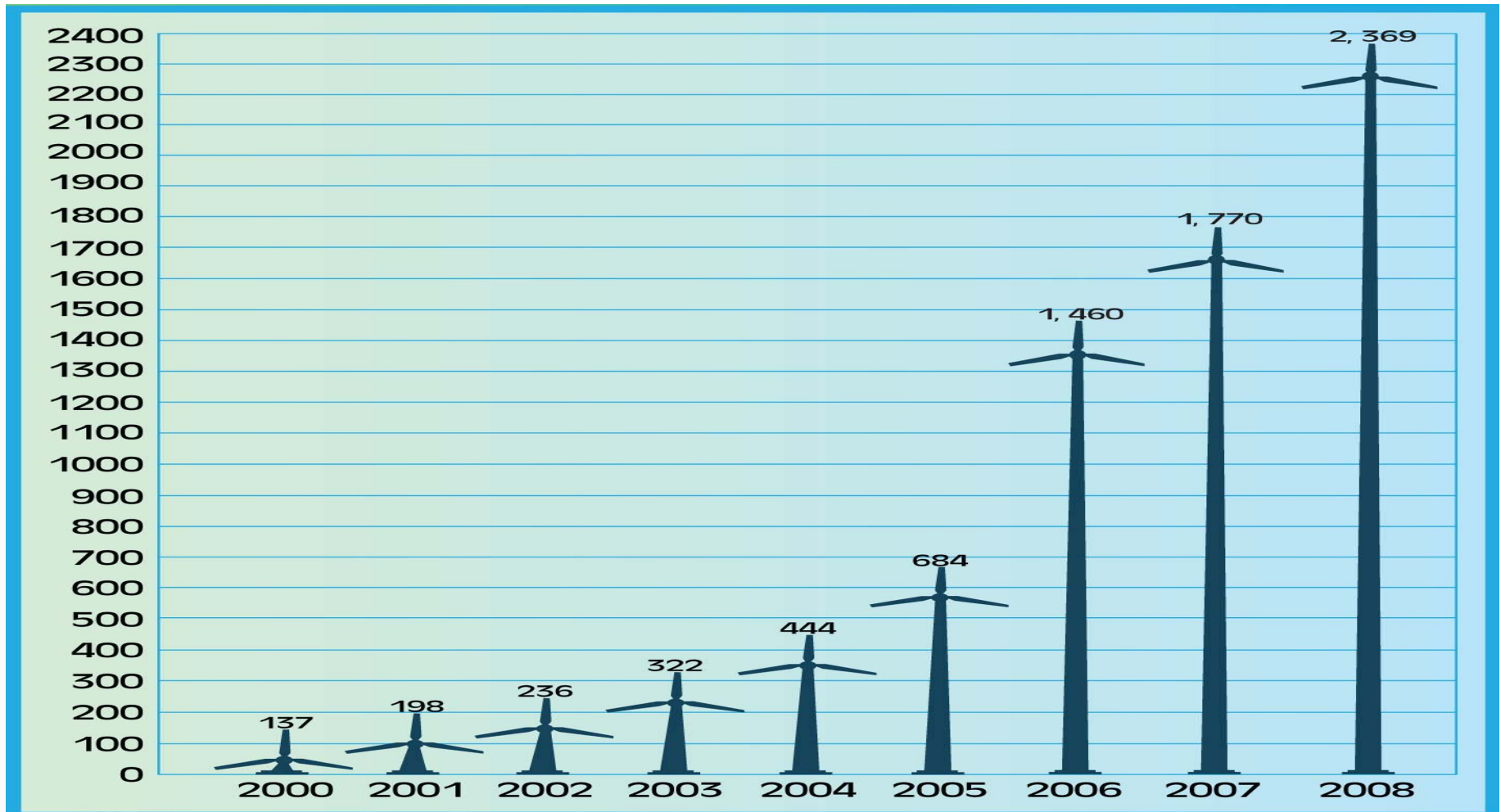
Wind Energy in Canada (2008)

- **526 MW added in 2008**
= 2nd highest year
- **Capacity end 2008: 2,372 MW**
= Electricity for over 600,000 homes
= 1% of Canada's total demand



Wind: Canada's infinite source of clean energy.

Wind Energy Growth in Canada (MW)



Wind: Canada's infinite source of clean energy.



Wind Energy in Canada (2009 and beyond)

- Current installed capacity (May 2009) – 2,550 MW
- Project a total of 650 MW to be installed this year (2nd best year ever), pushing Canada over the 3,000 MW mark
- An additional 5,000 MW of projects are either contracted or under construction
- Provincial government targets, if fully achieved, would result in 12,000 MW of installed capacity in Canada by 2015

Short-Term Challenges

- **Global Credit Crunch**
 - 2009 projections are lower than assumed one year ago
 - Some projects have been delayed, cancellations are possible
 - But the fundamental drivers for wind energy growth remain in place
- **Federal ecoENERGY for Renewable Power Program**
 - 1 cent / kwh production incentive (grant) paid over 10 years
 - Program funds expected to be fully allocated in 2009 – no commitment to extend and expand the program yet
 - CanWEA active on this issue (seeking extension to 2013)
- **Competitive Position vis a vis the United States**
 - Obama Administration initiatives have made Canada a relatively less attractive place to invest
 - Canadian governments will need to respond to prevent capital currently destined for Canada from flowing south

Longer-Term Challenges

- “Thinking Big” About Wind Energy – Breaking the 10% Myth
- Pricing Environmental Externalities
 - Wind energy can create GHG offsets in Alberta, two attempts at federal GHG regulation have failed, now a North American approach
- Improving Provincial Wind Energy Procurement Processes
 - Competitive tendering processes by Crown utilities create “boom and bust” procurement and marginal pricing
- Planning and Building Timely “Wind Friendly” Transmission
- Increasing Permitting and Approval Process Efficiency
- Building Active Community Support for Wind
- Developing the Canadian Wind Energy Supply Chain
 - Very strong manufacturing base that is keen to explore new opportunities

Why Address These Challenges?

WINDVISION 2025
POWERING CANADA'S FUTURE

- CanWEA released WindVision 2025 : 20% of Canada's electricity demand to be met by wind energy by 2025
- Opportunity:
 - Canada has a massive high quality wind resource, a large hydroelectric base, green energy export potential and a solid industrial manufacturing base
- Impacts:
 - 55,000 MW of installed wind capacity
 - Minimum \$79 billion investment in Canada
 - Creates minimum 52,000 new jobs
 - Reduces GHG emissions by 17 Mt annually



Wind: Canada's infinite source of clean energy.

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Some Examples of Thinking Bigger - Ontario

- Canada's largest province will end 2009 with 1,200 MW installed capacity and has set a target of 4,600 MW by 2020 (likely to be increased)
- Ontario's Green Energy and Economy Act (anticipated passage June 2009) proposed to facilitate this and is precedent setting legislation in Canada that includes:
 - Feed-in tariffs for on-shore and offshore wind
 - "Right to Connect" with an economic test
 - Streamlined permitting and approval processes with province-wide standards and municipal participation (not decision-making)
 - Local content requirements
- Caution: The details will matter and CanWEA actively working on the details of implementation

Some Examples of Thinking Bigger - Alberta

- Currently has 524 MW of installed capacity
- GHG regulatory framework in place that allows wind energy to create GHG offsets until 2014 (expected to be superseded by a federal / NA system)
- Alberta Electric System Operator (AESO) has moved from a position of a 900 MW cap on wind development to proposals for new transmission that would allow an additional 2,700 MW to connect to the grid
- Caution: AESO developing a market and operational framework for wind integration – the details (e.g., forecasting, curtailment, etc.) will matter – CanWEA will be actively involved

Some Examples of Thinking Bigger – PEI

- Canada's smallest province has 72 MW of installed capacity, and will reach 150 MW in 2009
- Wind energy production currently equivalent to more than 15% of electricity demand
- Peak load in PEI is only 200 MW
- The government of PEI has set a target of 500 MW of installed wind energy by 2013
- This is meant to provide wind energy production equivalent to 30% of electricity demand as well as significant exports to the North-Eastern US
- Caution: This will require unprecedented levels of regional cooperation – CanWEA keen to help facilitate this

Conclusion

- Canada has seen tremendous growth in wind energy and is poised for accelerating growth going forward
- Nonetheless, Canada is only scratching the surface of its massive wind energy potential
- Many short-term and long-term challenges must be overcome if Canada is to have wind energy production equivalent to 20% of its electricity demand
- A key short-term challenge will be Canada's ability to compete for project and manufacturing investment with the United States
- Some Canadian governments are starting to recognize and respond to these challenges and opportunities

Want to Learn More About Wind Energy in Canada?

- Visit www.canwea.ca
- CanWEA Annual Conference and Trade Show, September 20-23, 2009 in Toronto
 - More than 2,000 participants and 200 exhibitors
- Subscribe to WindLink, our biweekly electronic newsletter on wind energy in Canada (nataliemcclure@canwea.ca – Subject: WindLink)