



**CANADIAN COUNCIL ON
RENEWABLE ELECTRICITY**
**CONSEIL CANADIEN SUR
L'ÉLECTRICITÉ RENOUVELABLE**

Renewable Electricity Outlook

*2016 Canadian Energy Industry Updates and Insights
Energy Council of Canada*

February 2, 2016

HYDRO + WIND + ÉOLIENNE + SOLAR + SOLAIRE + MARINE + MARINES + CLEAN + PROPRE + AFFORDABLE + ABORDABLE + RENEWABLE + RENOUVELABLE + PRACTICAL + PRATIQUE + SCALABLE + ÉVOLUTIVE EXPORTS + EXPORTATRICE + RELIABLE + FIABLE + HYDRO + WIND ÉOLIENNE + SOLAR + SOLAIRE + MARINE + MARINES + CLEAN + PROPRE + AFFORDABLE + ABORDABLE + RENEWABLE + RENOUVELABLE + SOLAIRE



Sector Outlook

- Growth in renewable electricity will occur across Canada
- Will be driven by cost competitiveness, carbon pricing/policy, health benefits, economic & jobs benefits, export opportunities
- Different renewable electricity technologies offer different opportunities in different places—but are also complementary
- Decarbonizing electricity and increasing electrification (buildings, industry, transportation) is a key climate solution—**Powering Climate Prosperity**



Hydropower

- Canada is the world's 3rd largest hydropower generator and could still more than double its current installed capacity
- 4 out of 5 of Canada's largest infrastructure projects are hydropower projects (ReNew Magazine)
- A quiet—but significant—economic contributor (2013 figures):
 - >\$12 billion in hydroelectricity infrastructure investment & expenditures on production, transmission & distribution
 - >\$21 billion in revenues from production, transmission & distribution
 - >\$30 billion contributed to Canada's GDP
 - 135,000 jobs across Canada
- New opportunity: Obama's Clean Power Plan allows imported Canadian renewable electricity to qualify for compliance
- Canadian hydropower exports to the United States are significant to Canada but represent less than 1% of overall US electricity consumption – strong room for growth



Marine Power

- The marine renewable energy market is relatively new, but has strong growth prospects: estimated \$1,000 billion market by 2050.
- Canadian companies are poised to compete: aim to capture 30% of global industry by 2020; 50% by 2030—a \$2 billion opportunity
- Nova Scotia's Bay of Fundy has attracted world leading tidal energy developers
 - 5 utility-scale and 3 community-based projects under development with FIT approval for 25 MW
 - Engagement of over 150 local businesses; ~70% local content
 - \$175+ million in expenditures over next 3 years
 - Goal of 300 MW developed by 2020
- Strategic R&D is underway to realize untapped wave, river, and tidal energy opportunities
 - West Coast Wave Initiative in British Columbia
 - Canadian Hydrokinetic Test Centre in Manitoba





Wind Power

- Canada is 7th largest wind energy producer in the world
- Wind energy has been the largest source of new electricity generation in Canada over the last 5 years
- 1,500 MW of new wind energy in 2015 (36 projects in 5 provinces)
- Wind energy can now compete on cost with all forms of electricity generation in Canada
- Electricity demand growth is stagnant—new development opportunities will be driven by the phase-out of fossil fuels, clean energy exports and increased electrification
- Recent commitments:
 - Alberta is looking largely to wind energy to replace 2/3 of coal fired generation by 2030
 - Saskatchewan wants to increase wind energy generation 10-fold by 2030



Solar Power

- Fastest growing electricity generation technology in Canada
 - Approaching 3 GW of installed solar capacity
- Ontario in top three solar North American jurisdictions annually since 2013
 - Industry will invest over \$5.5 billion in the province of Ontario between 2010 and 2020.
 - Projects completed in Ontario in 2015 created equivalent of 12,000 job years.
- Capital costs have decreased by more than 65% since 2009
- Recent Commitments:
 - Ontario to contract 140 MW of utility and over 250MW of distributed solar in 2016.
 - Saskatchewan to begin to contract 60 MW of utility solar in 2016.



Leading the shift to renewable electricity



*With abundant and diverse renewable
electricity resources distributed across the
country, Canada has the potential to lead
the world.*

And when Canada leads, Canada wins.



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