

Charging Ahead With Electric Vehicle Technology

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Canada is a clean energy superpower



- World's biggest producer of hydropower
- Access to more biomass resources, per capita, than any other country in the world
- Canada's wind energy sector grew at an unprecedented rate of 51% between 2000 and 2006
- World leader in solar air collector development and commercialization
- Highly skilled and highly educated population



...but status quo is not good enough

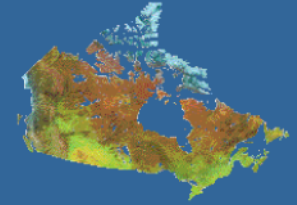


- Reliable/cost-effective energy is fundamental to our economy and way of life.
- Cheap fossil fuels have helped sustain growth for decades.
- Fossil fuels will continue to dominate - representing 80% of primary global energy mix in 2030 – including rise in coal use
- However, current global trends are unsustainable

Opportunity for low and zero emission vehicles!



We need to work together.....



Business

- Develop and bring innovative products and services to the marketplace
- Increase productivity through advanced processes and systems

Academia

- Prepare the next generation of highly skilled personnel
- Create/disseminate knowledge to drive innovation through basic and applied research
- Spur collaboration through national / international networks

Government

- Encourage RD&D through policies, regulations, standards - enabling conditions
- Fund/perform RD&D in strategic areas of local/regional/national importance
- Coordinate research activities of other players & provide research infrastructure and services
- Assist global market penetration of Canadian technologies



Collaborative government partnerships

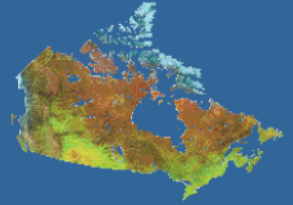


Canada-US Clean Energy Dialogue

- Announced during President Obama's visit in February 2009
 - Aims to enhance collaboration in developing clean energy solutions to reduce GHGs and combat climate change
- Collaboration focussed in three areas:
 - developing and deploying technologies such as carbon capture and storage;
 - expanding clean energy research and development; and
 - building a more efficient electricity grid based on clean and renewable generation



An important example

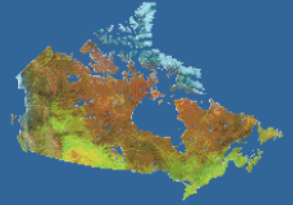


Canada-US Collaboration on Automotive Clean Energy R&D

- Hybrid and vehicle systems
- Lighter weight and/or sustainable materials
- Advanced powertrain
- Energy storage
- Application of alternative fuels, including biofuels
- Power electronics and electrical machines
- Intelligent transportation systems



Ministerial Roundtables



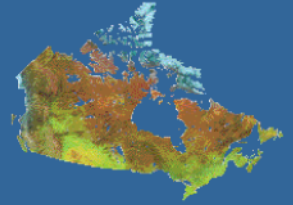
- Clean Energy Research and Development
 - Bring together diverse activities of multiple players
 - Leverage resources, facilities, skill sets

- Integrated Community Energy Solutions (Oct 23)
 - Builds upon recent ICES roadmap developed by federal/provincial/territorial governments;
 - Complements House of Commons report (*Combining our Energies – Integrated Energy Systems for Canadian Communities*)

- Renewable Energy
 - Build on dramatic upswing in renewable power development; determine how to create opportunities



Government of Canada R&D



R&D in EV's

- Aided the formation of Electric Mobility Canada
- National Electric Drive Transportation Initiative
- Past few years GOC departments have worked together on electric mobility, forming the Interdepartmental Working Group on Electric Mobility



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Connecting R&D to policy & investment

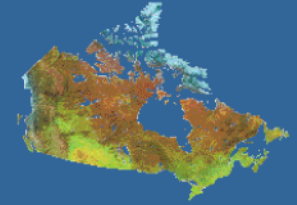


Technology Roadmaps

- Provide crucial S&T input to government policy.
- Guide technology R&D decisions;
- Identify technologies that will most likely be required;
- Chart multiple pathways for commercialising the right technologies;
- Build new partnerships and R&D collaborations, both within Canada and internationally;
- Help industry seize new market opportunities for economic growth.



evTRM is a good example

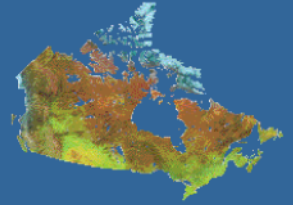


VISION:

“By 2018 there will be at least 500,000 high-way capable plug-in electric-drive vehicles on Canadian roads, as well as what may be a larger number of hybrid-electric vehicles. All these vehicles will have more Canadian content in parts and manufacture than Vehicles on the road in Canada in 2008.”



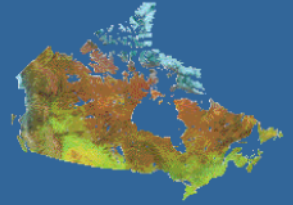
evTRM



- Electric vehicles offer the potential to reduce greenhouse gas and regulated emissions
- Advances in low emission vehicles help assure the long term competitiveness of the Canadian automotive sector.



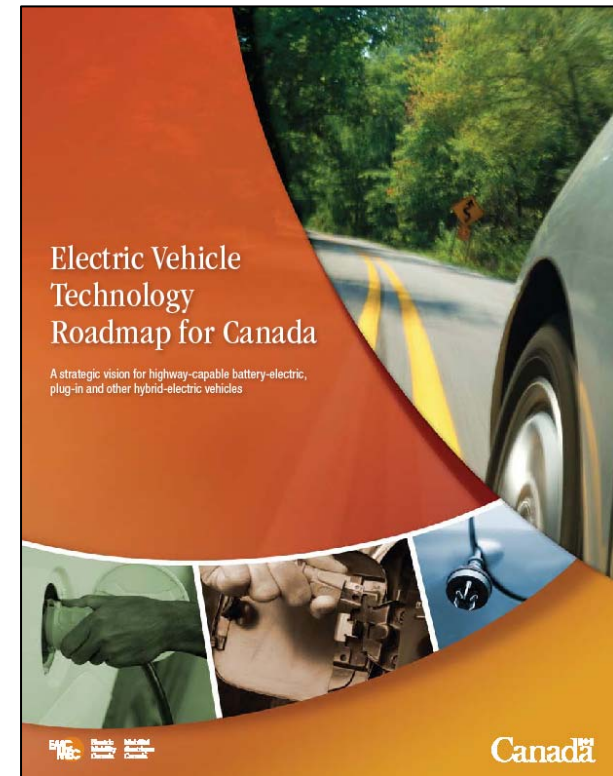
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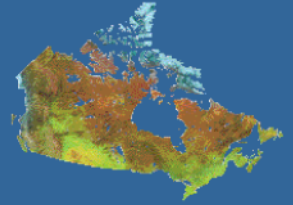
- Full report undergoing final approvals with translation and publication expected before the end of 2009

Next Steps:

- Government of Canada Response
- Expansion of the National Electric Drive Transportation Initiative
- Evaluation of evTRM's strategic initiatives and identification of funding and policy requirements
- Link technology projects to existing government programs to acquire collaborative R&D.



Recognition



Thanks to:

- Mike Elwood, who chaired the Steering Committee;
- Al Cormier of Electric Mobility Canada; and
- All of the Steering Committee members that worked so hard to move this project forward and bring us to this point.

