Hydrogen & Fuel Cells in Canada – Country Update

Policy Framework

- Canada continues to support the HFC sector through various programs, services & a tax credit
  - Natural Resources Canada (NRCan);
  - National Research Council of Canada (NRC);
  - Sustainable Development Technology Canada (SDTC) ;
  - Natural Sciences and Engineering Research Council of Canada (NSERC); and,
  - Scientific Research & Experimental Development (SR&ED) tax credit.
- Industry continues to fund the vast majority of R,D&D

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Industry Activities

- Whistler FC Bus Fleet (Completed March, 2014)
  - Up for sale: http://www.bcbid.gov.bc.ca/open.dll/welcome
  - Closing date: December 19, 2014
- The Canadian FC Supply Chain Alliance
- Daimler, Ford & Renault-Nissan FC Alliance
- Current HFC projects include
  - Hydrogen energy storage projects (see PtG slide)
  - Canadian Hydrogen & Fuel Cell Sector Profile
  - Raglan Mine: Industrial Wind & Energy Storage Demonstration

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Industry/Academic/Public Collaboration

- Catalysis Research for Polymer Electrolyte Fuel Cells (CaRPE-FC)
  - Collaborative research agreement with the Fraunhofer Institute in Germany: **Ge**rman-**C**anadian cooperation on **K**enetics & mass transport **O**ptimization (GECKO)
  - Agreements are also under development with the UK & France
- Simon Fraser University (SFU) agreement with Indian Oil Corporation

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Power-to-Gas (PtG)

- 2MW PtG Energy Storage Project in Canada
  - Awarded to Hydrogenics & Enbridge
  - Independent Electricity System Operator (IESO) for Ontario

  http://www.hydrogenics.com/about-the-company/news-updates/2014/07/25/hydrogenics-selected-for-2-megawatt-energy-storage-facility-in-ontario

- Canada/USA Clean Energy Dialogue (CED) Project
  - PtG Workshop with 70+ sector experts from Canada & the US
  - Development of a techno-economic analysis tool designed to assess the viability of potential PtG systems
  - Multiple stakeholders engaged

Review IPHE

- The most valuable aspects or outcomes of the IPHE:
  - Exchange of knowledge, experience & lessons learned
  - Senior level, multi-national networking & engagement
  - International collaborative initiatives (CED project, workshops etc)
- Greatest need that can be addressed through the IPHE:
  - Engagement of & support from senior leaders, globally
  - Support the development of Codes & Standards
  - Encourage the adoption of HFC technologies (government, industry & academia)
    - ➢ The sharing of lessons learned from policy initiatives, for example incentives to mitigate technology risks, demonstrations through government procurement, effective partnerships

Review IPHE Continued

- Top actions/next steps to be undertaken through IPHE:
  - Encourage broader participation from appropriate economies
  - Endorse/encourage International HFC student design competitions
  - Encourage broader dissemination of information on the opportunities, developments & challenges associated with the HFC industry, globally
    - **Target Market**: technology developers & adopters
- Specific action you would be willing to support:
  - Dissemination of information on the opportunities, developments & challenges associated with the HFC industry, globally
    - **Through**: Project specific webinars, Workshops, Panel discussion (HFC2015), Regional Industry Associations etc.

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