

I N N O V A T I O N   T H R O U G H   C O L L A B O R A T I O N



Centre for Energy Advancement  
through Technological Innovation

## Status Report on PHEV Committee of the International Energy Agency

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# Presentation Outline

- » About CEATI
- » IEA PHEV Committee Background
- » Activity to Date
- » Upcoming Events



## About CEATI

- Since 1891, the Canadian Electrical Association (CEA) has been the forum for electrical business in Canada
- In 1974, CEA initiated its R&D Program to serve the research needs of Canadian electric utilities
- In 1998, CEA's R&D Program opened its doors to international participation
- In 2001, CEA Technologies Inc. (CEATI) was separated from the Canadian Electricity Association
- In 2008, we became the “Centre for Energy Advancement through Technological Innovation” (CEATI) International



# About CEATI

- CEATI is an organization that facilitates **closed door, inter-utility information exchange, informal benchmarking, and technology transfer opportunities**. In addition, it equally facilitates the development of **highly leveraged, collaborative R&D projects and manages these for utilities**.
- Projects are initiated on issues raised by participating organizations. They are typically short term, fewer than 12 months, **resulting in practical deliverables** that impact your day-to-day operations and strategic planning.



Participation: 2009



For more information regarding our Interest Groups, Events and Publications, visit [www.ceati.com](http://www.ceati.com)

Over 700 utility participants from 16 countries

# About CEATI

We currently operate **14 focused Interest Groups**

## Generation & Utilization

- Strategic Options for Sustainable Power Generation (Sustainable Transportation Working Group)
- Water Management
- Dam Safety
- Hydraulic Plant Life
- Thermal Generation
- Customer Energy Solutions

## Distribution

- Distribution Assets Life Cycle Management (Smart Grid Taskforce)
- Power Quality

## Transmission

- Life Cycle Management of Substation Equipment and Apparatus
- Power System Planning and Operations
- Overhead Line Design Issues & Wind and Ice Storm Mitigation
- Transmission Line Asset Management
- Transmission Underground Cables
- Transmission Infrastructure Protection

# IEA PHEV Committee Background

» International Energy Agency (IEA) is the energy forum for 26 member countries



» Objectives of the IEA:

- to maintain and improve systems for coping with oil supply disruptions;
- to promote rational energy policies in a global context through co-operative relations with non-member countries, industry and international organizations;
- to operate a permanent information system on the international oil market;
- to improve the world's energy supply and demand structure by developing alternative energy sources and increasing the efficiency of energy use;
- to assist in the integration of environmental and energy policies

# IEA PHEV Committee Background

- » IEA IA-HEV's Annex group (XV) on Plug-in Hybrid Electric Vehicles (PHEVs)
- » Operating Agent: Charles Thibodeau (Canada/NRCan)
- » Formally started in December 2007
- » Phase 1 scheduled to run until February 2011
- » Participation typically includes 15+ delegates from 10+ countries (Canada, USA, Austria, France, Japan, Netherlands, New Zealand, Sweden, Switzerland, South Africa, and Turkey)
- » Committee focus on information exchange



## Activity to Date

- » Kickoff Meeting held in February 2008 in Vancouver, Canada
  - Fleshing out preliminary plan of committee, establishing subtasks
  
- » 2<sup>nd</sup> Meeting held in conjunction with Plug-in 2008 in July 2008 in Palo Alto, USA
  - Elaborating on scope and details of each subtask, draft subtask workplans
  
- » 3<sup>rd</sup> Meeting held February 2009 in Istanbul, Turkey
  - Final subtask workplans

# Activity to Date

» Five Subtasks:

1. **Advanced Battery Technologies** – Isobel Davidson (Canada/NRC)
2. **PHEV Components** – Valerio Conte (Austria/Arsenal)
3. **Policy Issues and Marketability** – Danilo Santini (USA/Argonne)
4. **Utilities and the Grid** – David Lapointe (Canada/CEATI)
5. **Group Administration and Communication** – Charles Thibodeau (Canada/NRCCan)

## Activity to Date

- » **Advanced Battery Technologies – Isobel Davidson (Canada/NRC)**
  - Focused on lithium based advanced battery technologies
  - Activities will explore issues related to: battery life, battery power, energy density, use in extreme climates, safety, recycling, and disposal
  - The first workshop was held in Charlotte, USA on December, 2008 focused on the World's Supply of Lithium
  - The next workshop will be on Battery Safety Evaluations in Spring 2010



## Activity to Date

- » **PHEV Components – Valerio Conte (Austria/Arsenal)**
  - Activities will explore issues related to new or modified main components including: electric machines, inverters, charger (charger design and communication protocol standard), batteries, drivetrain cooling system (engine cooling system, electrical machines, ESS), and air conditioning
  - The first workshop will focus on chargers and charging communications protocol (date and location TBD)
    - Focused on overnight, single phase charging and as a secondary option, low cost single phase opportunity charging

## Activity to Date

- » **Policy Issues and Marketability** – Danilo Santini (USA/Argonne)
  - Focused on identifying policy issues which concern participating member governments, especially those related to the environment including greenhouse gas emissions and air quality issues
  - Activities will explore issues related to:
    - Environmental – potential reduction of GHG emissions, air quality improvement via emissions changes, and noise reduction issues
    - Marketability – quantifying potential fuel consumption improvements, quantifying potential to mitigate oil price shocks and their macroeconomic damages, the roles of existing and new tax, registration and other policies, non traditional financing (utility participation & government incentives), codes, standards, and regulatory requirements, purchase and operating costs of PHEVs
  - No workshops scheduled

## Activity to Date

- » **Utilities and the Grid – David Lapointe**  
(Canada/CEATI)
  - Focused on the impacts of PHEV deployment on power generation, ancillary service opportunities by PHEV deployment, and the commercial aspects of PHEV deployment to be addressed by utilities
  - [www.ceati.com/IEA\\_PHEV](http://www.ceati.com/IEA_PHEV)
  - The first workshop titled “Grid Connected Vehicles and Renewable Energies - Exploring Synergies” is scheduled for November 23-24, 2009 in Copenhagen, Denmark



## Activity to Date

- » **Group Administration and Communication – Charles Thibodeau (Canada/NRCan)**
  - Focused on keeping the current participation informed, coordinate the flow of information, and to solicit new participation in the annex
  - NRCan will host a private website to hold all annex information and this includes annual reports and workshop/annex meeting proceedings.



## Upcoming Events

- » 4<sup>th</sup> Meeting scheduled for October 1-2, 2009 in Montreal, Canada is postponed until TBD
- » **“Grid Connected Vehicles and Renewable Energies - Exploring Synergies”** Workshop - November 23-24, 2009
  - Hosted by Energinet.dk
  - Will hopefully provide answers to:
    - Is the integration of renewable energies in existing grids sufficient to handle the arrival of grid connected vehicles?
    - Can and will grid connected vehicles promote the use of renewables (and vice-versa)? How and what kind of marketing strategies will help both vehicles and renewables?
    - What regulatory requirements are in place that might affect or help with the increased implementation of renewable energies and grid connected vehicles?
    - What are the lessons learned from the various strategies around the world?

# Upcoming Events

Elektra Basel Land (Swiss Utility)  
Solar Power Station since 1992



**Thank You!**

**Merci!**