

# CONFERENCE SESSIONS

## Wednesday, October 31

Opening Reception Meet and Greet: 6:30 pm-8:30 pm

## Thursday, November 1

Time	Ballroom C	Ballroom B	Ballroom A	Convention Centre
7:15 am-8:00 am	Registration & Breakfast			PHEV2007 Showcase and Forum  <i>"Where the Grid Meets the Road"</i> (9:00-5:00)
8:00 am-9:00 am	<b>Conference Opening with Featured Speakers</b>			
9:00 am-9:30 am	Guest Speaker: Andy Frank, UC Davis- "PHEV for Energy Sustainability"			
9:30 am-10:30 am	Session 1 Battery Technologies Part I	Session 2 PHEV Impact on Utilities Part I	Session 3 PHEV Simulations Part I	
10:30 am-10:45 am	Nutrition Break			
10:45 am-12:00 pm	Session 4 Battery Technologies Part II	Session 5 PHEV Impact on Utilities Part II	Session 6 Networking Area	
12:00 pm-1:30 pm	Plenary Lunch Lunch Guest Speaker: Phillip Sharer, Argonne- "The Powertrain Systems Analysis Toolkit-PSAT" Lunch Guest Speaker: Jasna Tomic, Westart-Calstart- "Beyond Hybrids-The HTUF Process and Pathway for PHEV"			
1:30 pm-2:45 pm	Session 7 Renewable Energy Integration & Drivers	Session 8 PHEV Experiences and Futures	NSERC Networking Workshop Session A	
2:45 pm-3:00 pm	Nutrition Break			
3:00 pm-3:30 pm	Guest Speaker: Ali Emadi, IIT- "PHEV Opportunities and Challenges"			
3:30 pm-5:30 pm	Session 9 Policy in Support of PHEV	Session 10 PHEV Simulations Part III	Plug-in Highway Workshop	
6:30 pm-10:00 pm	Gala Dinner			

Concurrent Events on Wednesday and Thursday: Simulation courses at University of Manitoba.

### Gala Dinner:

The Nov.1<sup>st</sup> Gala dinner is a great opportunity to network with business, government, academia and guest speakers featured in the two-day conference. Sit back and relax to the musical entertainment of Winnipeg's renowned Ron Paley Jazz Band.

Gala Dinner Guest Speakers: David Hughes (ASPO) "The Energy Sustainability Dilemma: Powering the Future in a Finite World" & Felix Kramer (Cal Cars) "Mapping the future of PHEV"

# CONFERENCE SESSIONS

## Friday, November 2

Time	Ballroom C	Ballroom B	Ballroom A	Convention Centre
7:30 am-8:15 am	Breakfast & Networking			PHEV2007 Showcase and Forum  <i>"Where the                      Grid Meets                      the Road"</i> (9:00-5:00)  PHEV Public Forum  2:00-4:00
8:15 am-8:45 am	Guest Speaker: Dan Eberle, North American Solar Challenge- "The Soul of Competition"			
8:45 am-9:15 am	Guest Speaker: Mark Duvall, EPRI- "Environmental Assessment of PHEVs"			
9:15 am-10:30 am	Session 11: Future of University Student Competitions	Session 12: PHEV Programs & Funding	NSERC Networking Workshop Session B	
10:30 am-10:45 am	Nutrition Break			
10:45 am-12:00 pm	Session 13: PHEV and its Role for Sustainability		NSERC Networking Workshop Session C	
12:00 pm-1:30 pm	Plenary Lunch  Lunch Guest Speaker: Chelsea Sexton, Plug in America- "Grassroots Efforts in Transforming an Industry"  Lunch Guest Speaker: Ewan Pritchard, Advanced Energy- "Experience Gained with PHEV School Buses"			
1:30 pm-2:45 pm	Session 14: PHEV Implementation		Session 15: Advanced Student Vehicle Simulations	
2:45 pm-3:15 pm	Nutrition Break			
3:15 pm-3:45 pm	Guest Speaker: Peter Frise, CEO Auto21- "Industry & University collaborations on future transportation research"		NSERC Networking Workshop Session D	
3:45 pm-4:45 pm	Session 16: Future of PHEV and Closing Remarks		Session 17: Networking Area	

Concurrent Event on Friday: Simulation courses at University of Manitoba.

## Conference Opening (Ballroom A, B and C Thursday 8:00am-9:00 am)

Gary Lunn, Minister Natural Resources Canada (or Designate)  
Ron Lemieux, Minister Manitoba Infrastructure & Transportation  
Gord Steeves, Councillor City of Winnipeg  
Lloyd Axworthy, President and Vice-Chancellor University of Winnipeg  
Emoke Szathmáry, President and Vice-Chancellor of University of Manitoba

## Session 1: Battery Technologies Part I (Ballroom C Thursday 9:30 am-10:30am)

**Topic: Battery technologies for PHEV applications**

### Technical Session

**Chairperson:** Efrain Ornelas, Pacific Gas & Electric

- Yaser Abu-Lebdeh, National Research Council of Canada  
*Advanced Li-ion battery technologies for Plug-in hybrid electric vehicles (PHEV)*  
(Based on research by Yaser Abu-Lebdeh and Isobel Davidson)
- Andy Chu, A123Systems  
*The use of A123Systems technology in PHEV applications*
- Abdelbast Guerfi, Institut de Recherche d'Hydro-Québec  
*Olivines for HEV and PHEV applications*  
(Based on research by A.Guerfi, P.Charest, M.Dontigny, M.Petitclerc and K.Zaghib)

## Session 2: PHEV Impacts on Utilities and Vehicle to Grid (V2G) Part I (Ballroom B Thursday 9:30 am- 10:30am)

**Topic: Impact of PHEV on the utility grid system and vehicle to grid applications**

### Technical Session

**Chairperson:** David Checkel, University of Alberta

- Ed Innes, Emerging Energy Technologies, Manitoba Hydro  
*PHEV, energy efficiency, and comparison to alternatives*
- Alec Tsang, Asset Management and Planning, Generation, BC hydro  
*EV charging evaluation - impact on utility*
- Alistair Miller, Office of the Principal Scientist Atomic Energy of Canada Limited (AECL)  
*A historic perspective on the future cost of off-peak electricity for EVs*

## Session 3: PHEV Simulations Part I (Ballroom A Thursday 9:30 am-10:30 am)

**Topic: Simulation results of hybrid powertrains and PHEV architecture will be presented using simulation software.**

### Technical Session

**Chairperson:** Gitanjali DasGupta, Electrovaya

- Matthew Stevens, University of Waterloo, Green Energy Research Institute  
*Modeling battery degradation in plug-in hybrid vehicles*  
(Based on research by Matthew Stevens and M.W. Fowler)
- S. S. Williamson, Department of Electrical and Computer Engineering, Concordia University  
*Optimal control strategy design for extending all-electric driving capability of plug-in hybrid electric vehicles (PHEVs)*
- Shereez Ali, University of Windsor  
*An energy based model for optimization of motor runtime in plug-in hybrid electric vehicles* (Based on research by Shereez Ali and Narayan Kar)

## **Session 4: Battery Technologies Part II (Ballroom C Thursday 10:45 am-12:00 pm)**

**Topic: Battery technologies for PHEV applications**

**Technical Session**

**Chairperson:** Stuart Evans, Delta-q

- Mark Shoesmith, E-One Moli Energy Canada Ltd.  
*The effect of PHEV and HEV duty cycles on battery and battery pack performance*  
(Based on research by Mark Shoesmith and Lars Ole Valoen)
- Ali Abouimrane, National Research Council of Canada, Institute for Chemical Process and Environmental Technology  
*Electrolytes for lithium batteries with improved thermal stability*  
(Based on research by Ali Abouimrane and Isobel Davidson)
- Gitanjali DasGupta, Electrovaya  
*Conversion kits & battery system solutions for PHEVs with Electrovaya's proprietary Lithium Ion SuperPolymer® technology*
- Sadeg Faris, Xellerion  
*NiZn Battery as the alternative battery technology for PHEV*  
(Based on research by Sadeg Faris and Tsepin Tsai)

## **Session 5: PHEV Impacts on Utilities and Vehicle to Grid (V2G) Part II (Ballroom B Thursday 10:45 am-12:00 pm)**

**Topic: Impact of PHEV on the utility grid system and vehicle to grid applications**

**Technical Session**

**Chairperson:** Curran Crawford, University of Victoria

- Keith Parks, Xcel Energy  
*PHEV impacts on the Xcel energy system*
- Ken Thomas, Fleet Services Manitoba Hydro  
*A utility fleet perspective on the role of PHEVs*
- Efrain Ornelas, Pacific Gas and Electric  
*PG&E view of V2G, PHEV projects, and progress so far*

## **Session 6 & 17: Networking Area (Ballroom A)**

Session 6 and 17<sup>th</sup> are sessions where conference delegates may use Ballroom A as a networking area in the allotted time slot.

## **Session 7: Renewable Energy Integration and Drivers (Ballroom C Thursday 1:30 pm to 2:45 pm)**

**Topic: Energy drivers that promote the development and applications of PHEV technology and its impact on sustainability, peak oil and GHG**

**Technical Session**

**Chairperson:** Peter Radziszewski, McGill University

- The Rt. Honorable Edward Schreyer, ASPO Canada  
*Peaking the capacity to supply oil and climate change*
- Jack Wood, The Wood Family Trust & GeoLectric Power Company NM  
*Implementation of a geothermal-PHEV transportation system in Unalaska/Dutch Harbor*
- David Levin Biosystems Engineering, University of Manitoba  
*Achieving sustainability in transportation for passenger vehicles using bio-fuels and the PHEV platform in Manitoba* (Based on research by David Levin and Nazim Cicek)

## **Session 8: PHEV Experiences and Futures (Ballroom B Thursday 1:30 pm to 2:45 pm)**

**Topic:** Previous experiences with PHEV technology and where new developments can lead us

### **Technical Session**

**Chairperson:** Isobel Davidson, National Research Council of Canada

- Nigel Fitzpatrick, Azure Dynamics  
*Canadian sponsored plug-in hybrids and their impact*
- Tony Markel, National Renewable Energy Laboratory (NREL)  
*Plug-in hybrid electric vehicle design options and expectations*
- Huang-Yee Iu, Hymotion-A123 Systems  
*Performance Analysis of the Hymotion PHEV fleet*
- David Checkel, University of Alberta  
*Experience with an early PHEV field trial*

## **Session 9: Policy in Support of PHEV (Ballroom C Thursday 3:30 pm to 5:30 pm)**

**Panel Goals:** Discuss policies that can favor sustainable transportation by implementing PHEV

### **Panel Discussion**

- **Panel Moderator:** Arne Elias, Centre for Sustainable Transportation
- **Panelists:**
  - Tony Markel, National Renewable Energy Laboratory (NREL)
  - Henry David Venema, International Institute for Sustainable Development (IISD)
  - Keith Parks, Xcel Energy
  - Claude Guérette, Transport Canada

## **Session 10: PHEV Simulations Part III (Ballroom B Thursday 3:30 pm-5:30 pm)**

**Topic:** Simulation results of hybrid powertrains and PHEV architecture will be presented using simulation software.

### **Technical Session**

**Chairperson:** Grant Koroll, Atomic Energy of Canada Ltd.

- Peter Radziszewski, McGill University  
*Moving towards a network for advance power train research and development*  
(Based on research by Peter Radziszewski, Claude Guerette, Charles Guatier, Eric Bibeau, Geza Joos and Vince Thomson)
- Mariam Khan, University of Windsor  
*Performance analysis of fuzzy-based indirect field oriented control of induction motor drives for hybrid electric vehicles*  
(Based on research by Mariam Khan and Narayan Kar)
- Shaahin Filizadeh, University of Manitoba  
*Drive-train design using transient simulation tools*
- Roydon Fraser, University of Waterloo  
*Hardware-in-the-loop platform development for hybrid vehicles*  
(Based on research by Roydon Fraser, E. Wilhelm, ETH Zurich, E. Switzerland, Fowler and M. Stevens)

## **Session 11: The Future of University Student Competitions (Ballroom A Friday 9:15 am to 10:30 am)**

**Panel Goals:** Discuss how to improve student vehicle competition in favor of sustainability and to attract more students from various engineering faculties

### **Panel Discussion**

- **Panel Moderator:** Dan Eberle, American Solar Challenge Advanced Vehicle
- **Panelists:**
  - David Checkel, University of Alberta
  - Douglas Ruth, Engineering Dean University of Manitoba
  - Ali Emadi, Illinois Institute of Technology
  - Leon Fainstein, Red River College
  - David Strong, Design Chair Queens University

## **Session 12: PHEV Programs and Funding (Ballroom B Friday 9:15 am to 10:30 am)**

**Topic:** Current funding opportunities for PHEV

### **Technical Session**

- **Panel Moderator:** Al Cormier, Electric Mobility Canada
- **Panelists:**
  - Walter Wardrop, IRAP
  - Isobel Davidson, National Research Council of Canada, PHEV program
  - Andy Frank, UC Davis
  - Rick Whittaker, Vice President, Investments, SDTC

## **Session 13: PHEV and its Role for Sustainability (Ballroom B&C Friday 10:45 am to 12:00 pm)**

**Topic:** Emerging Canadian policy on PHEV to promote sustainability in transportation

### **Technical Session**

**Chairperson:** Douglas Ruth, Dean of Engineering, University of Manitoba

- Al Cormier, Electric Mobility Canada  
*Greening policies for electric mobility*  
(Based on research by Al Cormier and Terry Zdan)
- Isobel Davidson, National Research of Canada, Institute for Chemical Process and Environmental Technology  
*Canadian government programs supporting plug-in hybrid electric vehicle development*
- Charles Thibodeau, Science and Technology Advisor, Office of Energy Research and Development, Natural Resources Canada  
*The international energy agency's implementing agreement on hybrid and electric vehicles*

## **Session 14: PHEV Implementation (Ballroom B & C Friday 1:30 pm to 2:45 pm)**

**Topic:** Technology ramification aspects to implement PHEV and their impact

### **Technical Session**

**Chairperson:** Ken Thomas, Fleet Services Manitoba Hydro

- Stuart Evans, Delta-Q Technologies Corp.  
*Plug-in hybrid electric vehicle (PHEV) - charging for the real world*
- Paul Zanetel, New Flyer  
*PHEV implementation in heavy vehicles, transit buses*

- Frank Franczyk- Persen Technologies Incorporated (Persentech)  
*OttoLink- A tool for recording PHEV performance data*  
(Based on research by Frank Franczyk and Tom Cwikla)
- Mike Waters, CSE Consulting  
*Using Plug-in hybrid electric vehicle impact summary for the progress energy Carolinas territory* (Based on research by Mike Waters, Tom Outlaw and Kelly Boone)

### **Session 15: Advanced Vehicle Design and Simulations (Ballroom C Friday 1:30 pm to 2:45 pm)**

**Topic: Simulation results of student vehicles and model-based design approaches**  
**Technical Session**

**Chairperson:** Grant Koroll, Atomic Energy of Canada Limited

- Chris Mendes, CrossChasm Technologies  
*Model-based design approaches for plug-in hybrid vehicle design*  
(Based on research by Chris Mende, M.Stevens, M.W. Fowler and R.A. Fraser)
- Charles Dahan, McGill University  
*Investigating the conversion of a personal watercraft to electric/hybrid drive through the use of Matlab/Simulink* (Based on research by: Charles Dahan, , Elizabeth Lee, Albert Mathews, Simon Ouellette, Olivier Proulx, Amrit Richardson, Peter Radziszewski and Jeff Turner)
- Simon Ouellette, McGill University  
*Design Challenges and Possible Benefits of Electric/Hybrid Utility Snowmobiles* (Based on research by: Simon Ouelette , Charles Dahan, Elizabeth Lee, Albert Mathews, Olivier Proulx, Amrit Richardson, Peter Radziszewski and Jeff Turner)
- Albert Mathews, McGill University  
*Development of a series PHEV "Formula type" race car* (Based on research by: Simon Ouellette, Charles Dahan, Geza Joos, Elizabeth Lee, Olivier Proulx, Amrit Richardson, Peter Radziszewski and Jeff Turner)

### **Session 16: Future of PHEV and closing remarks (Ballroom B&C Friday 3:30 to 4:45)**

**Closing Remarks**

- Ed Innes, Manitoba Hydro  
*Future impact of PHEV on utilities*
- Arne Elias, Executive Director, Centre for Sustainable Transportation  
*Role of PHEV in sustainable transportation*
- Jasna Tomic, WestStart-CALSTART  
*PHEV cooperation and synergies to promote the development process*
- Chelsea Sexton, Plug-in America  
*Closing remarks*

### **Workshop: Workshop for Demonstrations for Plug-in Highway (Ballroom A Thursday 3:30 to 5:30)**

**Workshop Goals:** Discuss collaborative PHEV demonstrations projects with utilities for vehicle, utility truck and bus applications. Strong audience participation is required as we want to formulate possible PHEV collaborative demonstration projects across North America with utility participation.

- **Workshop Moderators:**

- Jasna Tomic, CALSTART and Tom Molinski, Manitoba Hydro

### **Workshop: NSERC Network Workshops (Ballroom A Thursday and Friday, closed sessions)**

**Workshop Goals:** Discuss how to set up a PHEV network of researchers and partners

- **Workshop Moderators:**

- Eric Bibeau, University of Manitoba
- Arne Elias, Executive Director, Centre for Sustainable Transportation
- Peter Frise, AUTO21 NCE
- Peter Radziszewski, McGill University

### **Simulation courses**

A variety of simulation courses will be offered during the conference. The courses include a PSAT training course on how to use PSAT by ANL, PSCAD and Opal-RT. Registered PHEV2007 conference attendees will be given priority. All courses will be at the University of Manitoba starting on Wednesday October 31 and ending on Friday November 2<sup>nd</sup> as per the schedule below:

- Wednesday October 31st-1:00-4:00 p.m.: PSCAD: Analysis and design of vehicle to grid interconnection
- Thursday November 1<sup>st</sup>-1:30-4:30 p.m.: PSAT: Simulation of electric mobility vehicles using PSAT
- Friday November 2<sup>nd</sup>- 9:00-12:00 p.m.: Using Simulink for off-line and real-time modeling of vehicle powertrain and Opal-RT blocksets



# SHOWCASE AND FORUM

Take the Skywalk from the Delta to the Convention Centre to visit the Showcase Area in anytime on November 1<sup>st</sup> and 2<sup>nd</sup> to see eco-friendly transportation options showcased through vehicle displays, booths, a PHEV ride and drive, student posters and presentations on sustainable transportation.

## Schedule of Events

Start Time	Interactive Forums		Exhibit Displays	PHEV Ride & Drive	Student Posters
	Nov 1 only	Nov 2 only	Nov 1 & 2	Nov 1 & 2	Nov 1 & 2
9:00			Informative displays and exhibits by eco-friendly transportation companies, utilities, governments and universities	Have the opportunity to ride or drive in a PHEV inside the Convention Centre	Student posters on sustainability from University of Manitoba, University of Winnipeg, University of Brandon and Red River College.
10:00	RRVCCC: "Sustainable Transportation: What you can do"				
11:00	City of Winnipeg: "Update on Sustainable Transportation Initiatives"				
12:00					
1:00	High School Student Presentation: "What is a PHEV?"	<b>Main Event" PHEV Public Forum-Q&amp;A with Leading North American PHEV Experts</b>			
2:00					
3:00					
4:00					
5:00		Closing			

**The showcase and public forum is open to all, free of charge (donation to Winnipeg Harvest will be accepted) and includes:**

### **Main Event: PHEV Showcase & Forum (Convention Centre Friday 2:00 to 4:00)**

Presentations by PHEV2007 invited guest speakers describing how they see the future of sustainable transportation. Guest speakers will answer questions from the audience. This forum will provide the chance for the public to understand the role of PHEV in sustainable transportation and interact with PHEV world leaders. (Open to all)

**PHEV Forum Moderator:** Chelsea Sexton, Plug-in America

### **PHEV Forum Panelists:**

- Felix Kramer, Founder California Cars Initiative
- Andy Frank, UC Davis
- Dan Eberle, American Solar Challenge
- Ali Emadi, Illinois Institute of Technology
- Ricardo Bazzarella, Hymotion

*Other Public forums include:*

- Red River Valley Clean Cities Coalition presentation: "Sustainable Transportation: What you can do". Come and learn about current state of the art vehicles and what the public can do to improve sustainability in transportation. (Open to all)
- City of Winnipeg: "Update on sustainable transportation activities". Hear about what the municipal government is doing to encourage sustainable transportation.
- Presentation to local high school students: "What is a PHEV?" will be presented by a leading PHEV expert in simple language. (Open to all)
- *PHEV ride and drive*: PHEV attendees will have the opportunity to be a passenger in this emerging technology.
- *Student posters* on sustainable energy systems will be displayed by students, government organizations and local companies. Students are encouraged to present their research work in sustainable areas during this public forum.
- *Networking area* for pre-arranged meetings or impromptu discussion with PHEV stakeholders.