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PHEV2007

“Where the Grid Meets the Road”

Technical Conference Location: Delta Winnipeg, 350 St.Mary Avenue
Showcase and Forum (exhibits): Convention Centre, 375 York Avenue (accessed via skywalk at the Delta Winnipeg)
# Conference Co-Chairs

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Institution</th>
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<tbody>
<tr>
<td>Dr. Eric Bibeau</td>
<td>Conference Co-Chair</td>
<td>NSERC/Manitoba Hydro Alternative Energy</td>
</tr>
<tr>
<td>Arne Elias</td>
<td>Executive Director</td>
<td>The Centre for Sustainable Transportation at the University of Winnipeg</td>
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# Planning Committee

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Institution</th>
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<tbody>
<tr>
<td>Ajaleigh Williams, M.N.R.M.</td>
<td>Conference Coordinator</td>
<td>Red River Valley Clean Cities Coalition, Winnipeg Chapter Inc.</td>
</tr>
<tr>
<td>Dana L. Hoffman, C.E.T.</td>
<td>Emerging Energy Technologist</td>
<td>Manitoba Hydro</td>
</tr>
<tr>
<td>Edwin Innes, MSc (EE)</td>
<td>PHEV Technology Options Specialist</td>
<td>Manitoba Hydro</td>
</tr>
<tr>
<td>Jeff Blais, B.Sc.Comp.Eng.</td>
<td>Graduate Student</td>
<td>The Centre for Sustainable Transportation at the University of Winnipeg</td>
</tr>
<tr>
<td>Jeremy Langner, EIT</td>
<td>Dept. of Mechanical and Manufacturing Engineering</td>
<td>University of Manitoba</td>
</tr>
<tr>
<td>Joseph Furgal</td>
<td>Chief Development Officer</td>
<td>Biodiesel Manitoba Inc.</td>
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<tr>
<td>Kofi K. Adane</td>
<td>CFD Specialist</td>
<td>Red River Valley Clean Cities Coalition, Winnipeg Chapter Inc.</td>
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<tr>
<td>Rob Spewak</td>
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<tr>
<td>Sheri Mackie</td>
<td>Acting Research Director</td>
<td>The Centre for Sustainable Transportation at the University of Winnipeg</td>
</tr>
<tr>
<td>Terry Zdan B.A. M.E. Des.</td>
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# Media Group

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<tr>
<th>Name</th>
<th>Position</th>
<th>Institution</th>
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<tbody>
<tr>
<td>Amber Anderson Skrabek</td>
<td>External Communications Coordinator</td>
<td>Faculty of Engineering, University of Manitoba</td>
</tr>
<tr>
<td>Arne Elias</td>
<td>Executive Director</td>
<td>The Centre for Sustainable Transportation at the University of Winnipeg</td>
</tr>
<tr>
<td>Ilana Simon, BA, Communications Officer</td>
<td>University of Winnipeg</td>
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<tr>
<td>Jim Peters</td>
<td>Public Affairs Officer</td>
<td>Manitoba Hydro</td>
</tr>
<tr>
<td>Justyna Swistak</td>
<td>Media Coordinator, Research Assistant</td>
<td>The Centre for Sustainable Transportation at the University of Winnipeg</td>
</tr>
<tr>
<td>Shawn Coates, BA</td>
<td>PHEV2007 Marketing Coordinator, Director of Marketing &amp; Communications</td>
<td>University of Winnipeg</td>
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# Technical Review Committee

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Institution</th>
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<tbody>
<tr>
<td>Dr. Shaahin Filizadeh</td>
<td>Department of Electrical and Computer Engineering</td>
<td>University of Manitoba</td>
</tr>
<tr>
<td>Dr. Zareh Soghomonian</td>
<td>Technical Manager</td>
<td>General Atomics</td>
</tr>
</tbody>
</table>
Welcome to PHEV2007 and to Winnipeg, Manitoba. Plug-in Hybrids present the best and most immediate opportunity so far to move towards transportation sustainability. In conjunction with other strategies, from developing active transportation and transit to the redesign of our cities and the electricity grid, plug-ins offer up a plausible and livable vision of our energy and transportation future.

To make this vision real we will need to bring greater awareness to the public, industry and governments of the promise of plug-in and electric vehicles working together with renewable and clean energy technologies. We must also fund the research to commercialization process for these technologies to accelerate plug-in and vehicle-to-grid integration through policy tools that make economic sense and help safeguard and advance our quality of life.

By significantly reducing our dependency on finite fossil fuels we will slow the destructive forces that have instigated everything from climate change and pollution to energy security concerns and resource conflicts across the globe.

We invite you to engage with the other experts here in the broad range of fields that are essential to bringing these technologies, and the promises that they offer for our societies, to fruition. To prosper we need our communities across North America to derive a much larger percentage of our total primary energy use from renewable energy. Plug-in hybrids are a key technology to lead us towards that goal.

Sincerely,

Arne Elias PhD(C) MBA
Executive Director
The Centre for Sustainable Transportation

Dr. Eric Bibeau
NSERC/Manitoba Hydro Alternative Energy Industrial Chair
University of Manitoba
**Platinum:** Manitoba Hydro, Natural Resources Canada

**Gold:** The Province of Manitoba, Transport Canada

**Silver:** NSERC, NSERC Prairies, Red River Valley Clean Cities Coalition Winnipeg Chapter Inc., The Centre for Sustainable Transportation at the University of Winnipeg, The City of Winnipeg, and The University of Manitoba

**Bronze:** A123 Systems, Assiniboine Credit Union, Electric Mobility Canada, Electrovaya, Innovative Hydrogen Solutions Inc., Manitoba Infrastructure and Transportation, New Flyer, Persentech, Red River College, Solar Solutions, Vehicle Technology Centre
Dr. Andy Frank, UC Davis, California

Prof Frank teaches and does research in energy efficient transportation systems with emphasis on automobiles, trucks, and buses. He and his students have demonstrated the concept of Plug-In Hybrids for sustainability for the last 15 years. In this time he and his students have won student competitions for the most fuel efficient vehicle 4 times over. Professor Frank is currently forming a company to commercialize the concept of the PHEV. He is the CTO of a company Efficient Drivetrains Inc or EDI. EDI’s objective is to see that the PHEV technology is introduced world wide to begin the transition toward a zero Carbon society.

Chelsea Sexton, Executive Director, Plug In America

Chelsea Sexton is a Los Angeles area native who found her passion at an early age with the General Motors EV1 electric vehicle program. Focusing on building a market for alternate-fuel vehicles through partnerships with corporate and non-profit stakeholders, shaping public policy and incentives, developing marketing strategies, and working directly with the drivers themselves, Chelsea became well-known as an advocate for clean, efficient, fun transportation. Chelsea is one of the key individuals featured in the 2006 film, "Who Killed the Electric Car?" by Sony Pictures Classics.

Dr. Ali Emadi, Illinois Institute of Technology and Hybrid Electric Vehicle Technologies, Inc.

Dr. Ali Emadi is a professor of electrical engineering and the director of the Electric Power and Power Electronics Center and Grainger Laboratories at the Illinois Institute of Technology (IIT) in Chicago, where he has established research and teaching facilities as well as courses in power electronics, motor drives, and vehicular power systems. He is also the founder, director, and chairman of the board of the Industry/Multi-university Consortium on Advanced Automotive Systems (IMCAAS). Dr. Emadi is the founder and chief technology officer of Hybrid Electric Vehicle Technologies, Inc.

Felix Kramer, Founder California Cars Initiative, Cal Cars

Felix Kramer is an entrepreneur and lifelong environmentalist. Concentrating on innovative ideas, events and businesses in energy and technology, he builds ambitious and "first-ever" projects and companies. In 2002, working with entrepreneurs, environmentalists, engineers, and drivers, he founded the non-profit California Cars Initiative to put plug-in hybrid vehicles on the map by technology demonstrations, advocacy and buyers' clubs.
Ewan Pritchard, Hybrid Program Manager, Advanced Energy
A process engineering consultant with Advanced Energy since 1997, Ewan Pritchard leads the company's initiatives in hybrid technology. In 2002, Pritchard initiated the plug-in hybrid electric school bus project, which is transforming the classic school bus platform into a full plug-in hybrid, achieving more than 12 miles per gallon. To date, this collaborative effort has resulted in the manufacturing of 19 plug-in hybrid school buses that are presently being delivered nationwide.

Jasna Tomic, WestStart-CALSTART, California
Jasna Tomic is the Fuels Program Manager at WestStart-CALSTART. Her interest is in alternative transportation solutions involving new technologies and fuels. The two main areas that she is presently working in are the Hybrid Truck Users Forum (HTUF), bringing hybrid trucks to the marketplace, and use of alternative fuels in transportation. Within HTUF, she leads the deployment and field testing of twenty-four pre-production hybrid trucks and investigates best pathways and uses for plug-in hybrids.

Phillip Sharer, Argonne National Laboratories (PSAT)
Phillip Sharer is a Systems Analysis Engineer at Argonne National Laboratory. He received a Master of Science in Engineering from Purdue University Calumet in 2002. He has over seven years of experience modeling hybrid electric vehicles using PSAT at Argonne National Laboratory. He was awarded an R&D100 Award in 2004 for the 100 most technologically significant new products and processes introduced into the market each year for the development of PSAT.

David Hughes, Geological Survey of Canada
David Hughes is a geologist with 35 years experience studying the energy resources of Canada for the Geological Survey of Canada and the private sector. He is the Leader of the National Coal Inventory, which is a digital knowledge base on coal used to determine the availability of resources for conventional and non-conventional uses.
# Wednesday, October 31

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

# Thursday, November 1

<table>
<thead>
<tr>
<th>Time</th>
<th>Ballroom C</th>
<th>Ballroom B</th>
<th>Ballroom A</th>
<th>Convention Centre</th>
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<tbody>
<tr>
<td>7:15 am-8:00 am</td>
<td>Registration &amp; Breakfast</td>
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<tr>
<td>8:00 am-9:00 am</td>
<td><strong>Conference Opening with Featured Speakers</strong></td>
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<tr>
<td>9:00 am-9:30 am</td>
<td>Guest Speaker: Andy Frank, UC Davis- “PHEV for Energy Sustainability”</td>
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<tr>
<td>9:30 am-10:30 am</td>
<td>Session 1 Battery Technologies Part I</td>
<td>Session 2 PHEV Impact on Utilities Part I</td>
<td>Session 3 PHEV Simulations Part I</td>
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<tr>
<td>10:30 am-10:45 am</td>
<td>Nutrition Break</td>
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<tr>
<td>10:45 am-12:00 pm</td>
<td>Session 4 Battery Technologies Part II</td>
<td>Session 5 PHEV Impact on Utilities Part II</td>
<td>Session 6 Networking Area</td>
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<tr>
<td>12:00 pm-1:30 pm</td>
<td><strong>Plenary Lunch</strong></td>
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<tr>
<td>1:30 pm-2:45 pm</td>
<td>Session 7 Renewable Energy Integration &amp; Drivers</td>
<td>Session 8 PHEV Experiences and Futures</td>
<td>NSERC Networking Workshop Session A</td>
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<tr>
<td>2:45 pm-3:00 pm</td>
<td>Nutrition Break</td>
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<tr>
<td>3:00 pm-3:30 pm</td>
<td>Guest Speaker: Ali Emadi, IIT- “PHEV Opportunities and Challenges”</td>
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<tr>
<td>3:30 pm-5:30 pm</td>
<td>Session 9 Policy in Support of PHEV</td>
<td>Session 10 PHEV Simulations Part III</td>
<td>Plug-in Highway Workshop</td>
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<tr>
<td>6:30 pm-10:00 pm</td>
<td>Gala Dinner</td>
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Concurrent Events on Wednesday and Thursday: Simulation courses at University of Manitoba.

**Gala Dinner:**

The Nov.1st 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.

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<thead>
<tr>
<th>Time</th>
<th>Ballroom C</th>
<th>Ballroom B</th>
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<th>Convention Centre</th>
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<tbody>
<tr>
<td>7:30 am-8:15 am</td>
<td>Breakfast &amp; Networking</td>
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<tr>
<td>8:15 am-8:45 am</td>
<td>Guest Speaker: Dan Eberle, North American Solar Challenge- “The Soul of Competition”</td>
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<td>8:45 am-9:15 am</td>
<td>Guest Speaker: Mark Duvall, EPRI- “Environmental Assessment of PHEVs”</td>
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<tr>
<td>9:15 am-10:30 am</td>
<td>Session 11: Future of University Student Competitions</td>
<td>Session 12: PHEV Programs &amp; Funding</td>
<td>NSERC Networking Workshop Session B</td>
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<tr>
<td>10:30 am-10:45 am</td>
<td>Nutrition Break</td>
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<tr>
<td>10:45 am-12:00 pm</td>
<td>Session 13: PHEV and its Role for Sustainability</td>
<td>NSERC Networking Workshop Session C</td>
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<tr>
<td>12:00 pm-1:30 pm</td>
<td>Plenary Lunch</td>
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<td>Lunch Guest Speaker: Chelsea Sexton, Plug in America- “Grassroots Efforts in Transforming an Industry”</td>
<td>Lunch Guest Speaker: Ewan Pritchard, Advanced Energy- “Experience Gained with PHEV School Buses”</td>
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<tr>
<td>1:30 pm-2:45 pm</td>
<td>Session 14: PHEV Implementation</td>
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<tr>
<td>2:45 pm-3:15 pm</td>
<td>Nutrition Break</td>
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<tr>
<td>3:15 pm-3:45 pm</td>
<td>Guest Speaker: Peter Frise, CEO Auto21- “Industry &amp; University collaborations on future transportation research”</td>
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<tr>
<td>3:45 pm-4:45 pm</td>
<td>Session 16: Future of PHEV and Closing Remarks</td>
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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)
**CONFERENCE SESSIONS**

**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 17th 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*
CONFERENCE SESSIONS

- 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 Ouellette, 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 2nd 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 1st-1:30-4:30 p.m.:** PSAT: Simulation of electric mobility vehicles using PSAT
- **Friday November 2nd- 9:00-12:00 p.m.:** Using Simulink for off-line and real-time modeling of vehicle powertrain and Opal-RT blocksets
Take the Skywalk from the Delta to the Convention Centre to visit the Showcase Area in anytime on November 1st and 2nd 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

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