

# Oshawa and the Region of Durham's drive to deploy, research, and build electric vehicles; and Ontario's Smart Grid

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Alliance (DSEA)

Member - Ontario Smart Grid Forum



# Veridian Corporation

- One of the largest, fastest growing utilities in Ontario
- Pioneer in Electric Vehicles in Ontario – first plug-in hybrid solar vehicle driven by CEO
- Supporting EV vehicle research at University of Ontario Institute of Technology (UOIT)
- Helped found coordinating body Plug and Drive Ontario through Ontario Centres of Excellence – Energy (OCE-E) with Ontario Power Generation
- Through Durham Strategic Energy Alliance (DSEA), promoting energy and transportation solutions



“Plug-in Prius: automobile's future? Veridian CEO modifies hybrid car to get 55 kilometres on a single charge Toronto Star - Ontario, Canada Oct. 4, 2006.  
01:29 AM Tyler Hamilton, Energy Reporter  
The future of the automobile could very well be parked in Michael Angemeer's driveway...”

# Durham Strategic Energy Alliance (DSEA)

- Region of Durham has one of the most developed energy clusters in North America
- Business, government and educational institutions working together
- Working on convergence of energy and transportation sectors



# University of Ontario Institute of Technology (UOIT) - Oshawa

- Electric vehicle & bus fleet and charging research
- Automotive Centre of Excellence (ACE – Global) nearing completion
  - World-class research, design, wind tunnel & training centre focused on the next-gen automobile industry



# Oshawa & Region of Durham

- Growing area east of Toronto
- Home of General Motors of Canada and many automotive companies
- Existing automotive manufacturing, skilled labour, UOIT, Durham college for training
- Region of Durham is Energy Capital of Ontario and seeks to become a hub of electric transportation research, design, manufacturing and deployment

# Smart Grid

- Ontario's Leadership Position in Smart Meters
  - Almost 2.7M smart meters installed
  - TOU rates being implemented starting in Greater Toronto Area
- EVs will have large impact on local pollution and GHG in Ontario
  - Coal plant shutdown
  - Green Energy Act – more renewable power
  - Off peak nuclear generation – nuclear to remain ~ 50% of generation mix
  - Ontario ideal jurisdiction for early deployment of EV

# Smart Grid

- Smart Grid Forum coordinated by Independent Electricity System Operator (IESO) - recommendations:
- Investment proposed of \$320M over five years in smart grid
- Establish Task Force – government, auto sector, electricity sector, universities
  - Comprehensive plan to enable EV – policy, financial, electricity system impacts
  - Coordinate with EPRI, SAE, Standards
- Ontario Centres of Excellence to work with auto and electricity sector to undertake projects to enable electric vehicles and infrastructure

# Smart Grid

- Local building electricity supply could be an issue with 1.5 kW – 7 kW peak charging for 3 – 8 hours
- EV may someday act as energy storage for peak load and ancillary services such as regulation and voltage support
- Distribution lines and transformers overloading – monitoring through smart meters
- Smart charging and billing systems

# Ontario Activity

- Veridian working with City of Oshawa and Oshawa PUC on Project Get Ready with Rocky Mountain Institute
- Toronto participating in Project Get Ready & Toronto Atmospheric Fund sponsored 10 plug-in retrofits (Toronto Hydro and Bullfrog Power participated)
- In Windsor, Local utility ENWIN participating with GM and EPRI
- Burlington's Grid Smart City initiative includes electric vehicles
- Ontario Government vehicle incentives, MOV lane rules, GO transit parking lot charging, Better Place
- UOIT, University of Waterloo, McMaster research
- Veridian has ordered plug-in hybrid service truck and is looking to add to electric vehicle fleet with Chevy Volt and others

# References

- Veridian Corporation
  - [www.veridian.on.ca](http://www.veridian.on.ca) (choose 5 on home page for car story and Weather Network interview clip)
- Durham Strategic Energy Alliance (DSEA)
  - [www.dsea.ca](http://www.dsea.ca)
- Smart Grid Forum Report
  - [www.ieso.ca/imoweb/pubs/smart\\_grid/Smart\\_Grid\\_Forum-Report.pdf](http://www.ieso.ca/imoweb/pubs/smart_grid/Smart_Grid_Forum-Report.pdf)

Thank you!