

Minutes of Meeting

Date held: June 16, 2009	Time held: 1:00 pm – 3:30 pm	Location held: Holiday Inn, 2125 North Sheridan Way, Mississauga
Invited/Attended	Company Name	Attendance Status (A)ttended; (R)egrets; (S)ubstitute
Adams, Tom	Consultant	A
Cadieux, Francois	Student	A
Caffyn, Sean	UPC Solar	Teleconference
Cary, Rob	Robert Cary & Associates	A
Choi, Daniel	Samsung C&T Corp	A
Garner, Tracy	Ontario Power Authority	A
Gursoy, Berk	Brookfield Power	A
Heaton, Randy	TransCanada Energy	A
Hunt, Robert	Hunt Management Services Limited	A
Jenkins, Allan	Ministry of Energy & Infrastructure	A
Krause, Don	Genivar	A
Kuber, Kathryn	Ministry of Energy & Infrastructure	A
Kuntz, Margaret	TransCanada Energy	A
Lee, Andrew	Acciona Wind Energy Canada	A
Malinowski, Martin	Rodan Energy & Metering Solutions	A
Maljukan, Sasa	Hydro One Networks Incorporated	A
Manougian, Harout	Elektron Consulting	A
Mehta, Adarsh P.	CanWEA Board	A
O'Rourke, Brian	SNC Lavalin	A
Pennie, J.C.	Windrush Energy	A
Rabadi, Adi	Invenergy Canada	A
Rangooni, Justin	Canadian Wind Energy Association (CanWEA)	Teleconference
Reyns, Roberta	Ontario Power Generation	A
Roks, Cindy	Ontario Power Authority	A
Romaniuk, Oliver	NextEra Energy Resources	A
Russell, Stewart	Samsung C&T Corp	A
Sidiropoulos, Michael	Renewable Energy Systems Americas Inc.	Teleconference
Taylor, Kristopher	Essex Power Group	A
Tuenter, Hans	Ontario Power Generation	A
Vallejo, Patricia	NextEra Energy Resources	A

Venkatesh, Bala	Ryerson University	A
Chase, Maia	IESO	A
Hastings, Martin	IESO	A
Khan, Khaqan	IESO	A
Lafoyiannis, Peter	IESO	A
Lam, Timothy	IESO	A
Matsugu, Darren	IESO	A
Rochester, Dan	IESO	A
Romeo, Rick	IESO	A
Scribe: Tim Lam, IESO. Please report any corrections, additions or deletions to the following e-mail address: stakeholder.engagement@ieso.ca		

All meeting material is available on the IESO web site at:
http://www.ieso.ca/imoweb/consult/consult_windpower-sc.asp

Item 1 Welcome and Introductions

Chair welcomed the group in his opening note and requested members to introduce themselves.

a) Review of Agenda

No additional agenda items were identified.

b) Review of Action Items

Khaqan Khan reviewed progress on Action Items: 42, 43, 44, 45, 46 and 47 (refer to [January 28, 2009 Minutes of Meeting](#) and the table below).

Action Item Summary				
#	Date	Action	Status	Comments
42	January 28, 2009	The IESO to accommodate OPG's presentation in its next WPSC meeting.	Closed	Presentation made by Hans Tuenter (OPG) on June 16, 2009 WPSC meeting.
43	January 28, 2009	The embedded generation related issues and suggestions identified by WPSC members will be forwarded to IESO's SE-57 working group for their consideration.	Closed	Issues identified at Jan 28, 2009 meeting forwarded to SE-57.
44	January 28, 2009	The WPSC members to provide any further comments on draft paper titled "Existing and Proposed Performance Requirements for Generators", posted on WPSC web page, by February 27, 2009.	Closed	No comments received.
45	January 28, 2009	GE may be asked to comment further on the study results (Tom Adams & Francois Cadieux presentation).	Open	GE has been contacted. IESO to post response on WPSC web page.

Action Item Summary				
#	Date	Action	Status	Comments
46	January 28, 2009	The IESO to consider WPSC member request re: "Upon request, the IESO to provide access to 5 minute wind variability data for selected days to promote wind research."	Closed	On a request basis, IESO will provide 5-minute wind output data.
47	January 28, 2009	Stewart Russell presentation along with a link to UWIG paper on wind integration to be posted on the WPSC website.	Closed	Presentation posted on WPSC web page. Link to UWIG paper in the presentation

Item 2 OPA's Feed In Tariff (FIT) Program and Wind

Cindy Roks of the Ontario Power Authority (OPA) gave a presentation to update the WPSC on OPA's Feed In Tariff (FIT) Program. The main topics reviewed in this presentation were:

- Main objectives of the proposed FIT program
- Overarching program objectives for the OPA
- Key elements of the proposed FIT program including: a summary of the FIT application process, a revised price schedule, and an "Aboriginal and Community Adder" schedule
- Proposed "Additional Contract Payments" stemming from IESO instructions to curtail generation output as a result of global oversupply

Members Questions, Comments and Discussion

A member asked if the large amount of legacy generation projects under various OPA contracts would be revisited in light of the FIT program. Ms. Roks noted that the OPA is currently working with the Ontario government on how best to treat these projects going forward.

Regarding the FIT program, Rob Cary (speaking as a consultant on behalf of the OPA) remarked that no caps on MW capacity have been discussed at this time. However, Mr. Cary also noted that the FIT program initialization (Group I and Group II) would recognize existing transmission/connection capacity; and that the program rules when finalized, would provide further clarity.

A member asked if any additional updates to the program rules would be made before launch, subsequent to the revisions presented at [May 12 OPA stakeholder session](#). Ms. Roks responded that an update to the draft rules is expected to be posted sometime in June 2009.

A member remarked that the timing of the proclamation for the Green Energy and Green Economy Act (GEA) would have an impact on timelines for proponents looking to participate in the FIT program. In addition, questions were raised regarding: amendments to the distribution code, Canadian content

provisions, and the Renewable Energy Approval (REA) regulation. Members remarked that it is only fair that proponents know what are the final decisions regarding these issues are before making financial commitments and applying to the FIT program. The OPA responded that they are currently working with several entities including the OEB to resolve these issues.

Regarding proposed FIT price schedules, a member asked whether the OPA is considering a digression of contract payments (prices) over time. Ms. Roks responded that digression of contract prices was considered, but taken out as a result of feedback received during the stakeholder consultation process. The OPA does however intend to review price schedules every two years.

A member inquired about the potential for including storage technologies as part of individual FIT projects under the FIT program/price schedule. Ms. Roks responded that at present there has been little discussion regarding storage technologies being incorporated into specific FIT projects, but that large-scale storage projects are a future consideration for the OPA.

Item 3 Group Discussion on emerging wind related matters and issues

Regarding the OPA FIT program, clarification was provided to the WPSC on the “Additional Contract Payments” for curtailment of generation (under FIT contract) due to global oversupply. Members expressed interest in the methodology the OPA plans to use in determining the amount of “forgone electricity” due to curtailment. At present, the OPA is working on developing a methodology to determine “forgone electricity”, as described in their [Draft FIT Contract Exhibits](#) (Exhibit B, Section 1.5, pages 3-4).

A member inquired about how telemetry requirements for wind projects connected to Ontario’s distribution system will be handled in the Market Rules. Khaqan Khan informed the group that this topic is being covered under SE-57 group and will be forwarded for information to [SE-57: Embedded and Renewable Generation](#).

On the subject of wind projects connecting under FIT, and the potential for connection delays due to limited transmission infrastructure, a WPSC member inquired about the possibility of using temporary operating guides or special protection systems to allow wind farms to connect on an interim basis, until sufficient transmission capacity can be built to incorporate the full capacity of the project. The member cited that MISO currently allows connection under these circumstances, calling them ‘interim connection agreements’; where the system control centre can instruct the generation resource to ramp down at any time. Khaqan Khan noted that this issue would be forwarded on to SE-57 and considered under review of interconnection standards.

Action Item: Forward the two issues above (telemetry requirements and ‘interim connection agreements’) to SE-57: Embedded and Renewable Generation.

A member remarked that further discussion on operational issues stemming from wind integration would be difficult until there is more definitive information on Ontario's future supply mix, subject to the Green Energy and Green Economy Act. Furthermore, it was suggested that it would be important to consider Ontario specific issues resulting from wind integration when reviewing recommendations stemming from future reports from NERC's Integration of Variable Generation Task Force (IVGTF). It was noted that a counter-part IESO work plan is being developed to address any Ontario specific issues. The IESO will continue to communicate such issues to NERC IVGTF via participating in next phases (study and implementation) of NERC IVGTF recommendations, as applicable.

Item 4 Modeling of Wind Energy

Hans Tuentler of Ontario Power Generation (OPG) gave a presentation on an OPG wind speed/wind energy model. Wind speed is modeled as a stochastic process that takes into account the following characteristics of wind speed: the Weibull distribution, diurnal and seasonal patterns, autocorrelation, and spatial correlation between wind farm locations. Modeled wind speed is then fed into wind turbine power curve to model wind energy. The stochastic model is appropriate for longer term forecasting (months-ahead to years-ahead timeframe), and is used by OPG to assess the impact of wind generation on the operation of its generation assets.

Members Questions, Comments and Discussion

A member asked about the amount of OPG assets that are exposed to financial risk; and as result could potentially be impacted by the variable nature of wind generation. OPG responded that it is 80% hedged through its prescribed assets, but that its remaining assets are unregulated and are exposed to price risk. In addition to financial risks, OPG also cited operational risks associated with the operation of OPG's hydro units and nuclear units as a reason for developing the wind model.

Some members expressed concern regarding OPG's conclusion statement that the wind "pattern is not well matched with the timing of Ontario's energy requirements". In response, the IESO noted that wind energy output correlates well with evening peaks in the winter season. Dr. Tuentler further clarified that the statement was made in reference to the on-peak periods during the summer months and in general during the morning ramp-up. Finally, it was suggested that the implementation of smart meters and time-of-use rates, and the potential development of plug-in hybrid electric vehicles would change the characteristics of the Ontario demand profile to complement the diurnal pattern of wind resources.

A member noted that all participants and in particular the IESO should benefit from wind energy modeling techniques for forecasting wind energy in Ontario's system.

A member brought up that in the past three winter seasons there has been high positive correlation between daily average temperature and daily wind outputs (e.g. low temperatures and low wind). The member inquired whether it would be possible for the model to 'look backwards' to see if this relationship between temperature and wind holds. Mr. Tuenter confirmed that it would be possible to do this with historical temperatures for the specific wind sites.

Some members suggested potential improvements to the model by incorporating additional variables such as: temperature, wind density, wind data from locations outside of Ontario (e.g. Michigan).

Item 5 Wrap Up

Khaqan Khan thanked WPSC members for their participation, and asked that suggestions for future meeting topics be sent to stakeholder.engagement@ieso.ca.

Action Item Summary				
#	Date	Action	Status	Comments
48	June 16, 2009	Forward two issues (telemetry requirements and 'interim connection agreements') to SE-57: Embedded and Renewable Generation.	Open	