Minutes of Meeting
EDAC - Operations Design Working Group

Date held: May 27, 2009	**Time held:** 8:30 pm to 14:00 pm	**Location:** Clarkson Viewing Gallery
Invited/Attended	**Company Name**	**Attendance Status** (A)ttended; (R)egrets; (S)ubstitute
McLeod, Ron	Abitibi Bowater	A
Cormier, Pascal	Brookfield Power	R
Laurin, Marc-Andre	Brookfield Power	A
Somerville, Stephen	Competitive Power Ventures Inc	A
Forsyth, Dave	Gerdau AmeriSteel Corporation	R
Oberholster, Henry	Greater Toronto Airports Authority	R
Baldwin, Ted	Greenfield Energy Centre	R
Windsor, John	Greenfield Energy Centre	via Teleconferencing
Penn, Richard	Greenfield Energy Centre	A
Abdelnour, Francois	Ivaco Rolling Mills	R
Samant, Sushil	Northland Power Incorporated	A
Covelli, Lucille	Ontario Power Generation	A
Fok, Danny (IT)	Ontario Power Generation	A
Kelly, Martin	Ontario Power Generation	A
Peterson, David	Ontario Power Generation	A
Shah, Sushil	Ontario Power Generation	A
Yee, Wah - IT Alternate	Ontario Power Generation	R
Kerr, Paul	Shell Energy	A
Cary, Rob	Sithe Global	R
Harwood, Shane	Sithe Global	A
Kraayenbrink, Ron	St. Clair Energy	R
Goldstein, Michael	St. Clair Energy	R
Heaton, Randy	TransCanada Energy	A
Kuntz, Margaret	TransCanada Energy	A
Abid, Tiberiu	IESO	A
Berry, Scott	IESO	A (Part-Time)
Boudreau, John	IESO	A
Briggs, Jeannette	IESO	A (Part-Time)
Doran, Pat	IESO	A
Fung, Lemann	IESO	A (Part-Time)
Lafoyiannis, Peter	IESO	A (Part-Time)

Invited/Attended	Company Name	Attendance Status (A)ttended; (R)egrets; (S)ubstitute
Lodyga, Martin	IESO	A
McIntosh, Grant	IESO	A
Nott, Keith	IESO	A
Sandilands, Wade	IESO	A
Sharma, Indi	IESO	A
Williams, Ralph	IESO	A

The meeting minutes when finalized will be posted on the IESO web portal at: https://portal.ieso.ca/

Summary of Meeting Discussion

Item 1 Introductions and Review of Agenda

Al Miller welcomed the members present at the meeting and reviewed the agenda noting that the IESO had added an item on Net Intertie Schedule Limit (NISL) since posting.
The Working Group was polled for any items that attendees wanted to add to the agenda for discussion at the meeting. While participants did not add anything to the agenda one participant requested a presentation covering the details of the EDAC calculation engine. The IESO inquired as to the detail that the presentation should cover as any participant facing items have been covered in the Design Working Group discussions.

The Participant noted that for their purposes, there may be value in reviewing the detailed formulations of the calculation engine. Not all participants viewed this as a requirement of the Design Working Group with the understanding that the detailed formulations of the calculation engine were undergoing a third party review for the technical panel. It was agreed that participants who were interested in reviewing the calculation engine would provide the IESO with a detailed definition of the information required.

A participant asked whether the Market Design document will be updated to include any of the revisions generated by the detailed design discussions. The IESO stated that the Market Design document has not been re-issued, the method discussed at the outset was that design issues would be captured in the Issues Log, and that the IESO had planned a "Bring it All Together" session as part of the July or August meetings. Participants noted that an update to the Issues Log would not be sufficient.

Participants asked that a detail document be developed that was available to participants to cover all of the detail design discussions in a single document for ease of reference. Such a document would be beneficial to participants, as it would allow attendees to answer the questions generated by people in their own organizations related to eligibility, calculation, scheduling and settlements.

A participant stated that the existence of such a document would eliminate any conflicts existing between different presentations revisions, as it would state the latest treatment of the conflicting topic.

Action – The IESO will look at the best method for creating detailed design documentation as part of the "Bring it All Together" session.

Editorial Note: *The IESO will have a meeting of the Operational Design Working Group on July 8, 2009. This meeting will provide a comprehensive review of the EDAC detailed design (excluding settlements).*

It was noted that the minutes from the last ODWG meeting were posted as draft on May 21, with no comments received from Participants. The minutes were posted as final on May 25 with a correction to the Action Table redlined.

Al Miller reviewed the outstanding actions from the last meeting. The action item table in these minutes reflects the current status of all action items.

Review of Action 19
While there are no confidentiality issues associated with posting a report listing all of the Eligible Energy Limited Resources (EELR), the IESO questions the benefits of knowing which resources are EELR. Participants can determine the changes to offers in the EDAC timeframe, from the differences in the hourly offer totals in the adequacy report.

Review of Action 20
An overview of the paper describing the treatment of the Daily Generator Data (DGD) - Minimum Loading Point (MLP) and the registered value by the Multi-Interval Optimization (MIO) tool was given. One participant had the impression, based on the paper, that manual intervention is required in the tool in order for a synchronized unit to reach the DGD designated MLP for the PCG start.

The IESO explained that outside the MIO time frame (more than 14 intervals away), the DSO will ramp the unit to the registered MLP. If the registered MLP is lower than the value in DGD, it might appear that the DSO is not dispatching the resource to meet the DGD related MLP. However, once the constraints from EDAC enter the MIO timeframe, the DSO will ramp the unit to the DGD MLP value (value entered into the Contract Manager).

It was further clarified that this is only applicable if the ramping energy is uneconomic and the DSO tool needs to constrain on the energy to ramp to MLP. Although it might look like the DSO is not fully utilizing the submitted ramp rates, the limitation is based on economics. To ensure that the dispatch follows the ramping path intended by the participant, the participant can submit economic offers and ramp rates that are reflective of the capability needed to meet the DGD MLP. This will ensure that the DSO ramps the resource according to the participant intentions outside the 14 interval period covered by MIO.

Another participant provided a scenario where the resource has fulfilled their EDAC schedule and is dispatched below its DGD – MLP in future predispatch schedules. The IESO stated that the participant at this point needs to notify the control room that they are being ramped down. This is followed by an assessment by the control room to determine whether there are any reliability issues that would merit a further constraint, otherwise the resources will be allowed to ramp off. If the unit wishes to remain on, once it has fulfilled its EDAC schedule, its offers have to be economic up to the DGD minimum loading point.

The discussion around the impact of the differing MLP's devolved to a discussion on the impact of MLP on price in real-time. Some participants noted that the practice of allowing a PCG eligible participant to reduce the price component of their offer data to maintain their MLP was unfair. Citing the fact that a PCG resource can protect their schedules, and are assured their revenue, while resources without a PCG have both their schedules and revenue negatively affected.

The IESO responded that this risk exists today, and that the EDAC implementation does not change this fundamental risk. This was further supported by a participant, who stated that EDAC is a better solution which will only commit what is necessary to satisfy demand.

A participant responded that although EDAC might provide improvements, it is still unfair to participants that do not have guarantees as a result of EDAC, and is against any practice that allows EDAC-PCG guaranteed resources to lower their offer price in real-time. Where these units might have been marginal in the EDAC time-frame, the lowering of offers in real-time and

the corresponding placement of the resource in the offer stack will end up suppressing real-time prices, effecting participants without guarantees.

A participant asked which forum they could raise this issue so that it is addressed. The IESO responded that as noted in the previous meeting minutes a separate forum dealing with real-time issues will be established.

Another participant encouraged other participants to contact Stakeholder engagement to have this issue added to the agenda of the June 3rd SAC meeting.

Item 2 NISL Initialization

Al Miller explained that in DACP the Net Interchange Scheduling Limit (NISL) is ignored in the first hour. The Market Rules for DACP allow this to occur and the IESO would like the ability to continue the practice in EDAC to avoid any unintended consequences. No objections to providing this flexibility in the Market Rules were raised.

Item 3 Submission of Dispatch Data into Real-time

Wade Sandilands provided a presentation that detailed the transfer of EDAC dispatch data into real-time. While the P,Q pairs accepted for the final EDAC schedule for resources will be available for use in the first run of predispatch following EDAC (assuming they are not updated in the window prior to the first run), it was identified that any resource that offers as part of the Pseudo Unit model (assuming the model is incorporated into EDAC) will require a separate submission by the participant on a physical unit basis.

Participants asked what obligations if any there are on pseudo unit (PSU) resources to submit dispatch data for their physical units, into the pre-dispatch runs after the completion EDAC. The IESO clarified that there is no such obligation at the present for any resource, PSU or otherwise to submit dispatch data into predispatch. Participants stated that resources associated with pseudo units should be made to submit their offers upon EDAC completion, otherwise EDAC constraints will not be represented in pre-dispatch results and as a result initial runs of Predispatch will produce inaccurate pre-dispatch results.

The IESO clarified that dispatch data that was not accepted into EDAC is flushed from the system at 14:00. Participants would be able to submit new or revised dispatch data after 14:00.

A participant noted that the IESO has up to 15:00 to publish final EDAC results. Based on this timeline, a participant might not be aware of the final EDAC schedules in order to offer for the initial pre-dispatch run.

A participant requested clarification in regards to when pseudo units could submit dispatch data for their physical units for the 15:07 pre-dispatch run. The IESO explained that pseudo unit standing offers would be used in EDAC while the physical unit standing offers are ignored in EDAC. Upon completion of EDAC, the physical offers would be used for any subsequent pre-dispatch runs.

A participant asked for clarification on how ADE is established in EDAC. The IESO indicated that ADE is based on the offers associated with the EDAC Schedule of Record, for the total amount offered in a given hour.

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A participant asked for additional detail on the calculation of the minimum loading point price cap for pseudo units. The IESO stated that it was unable to provide detail on how the minimum loading point price will be established on pseudo unit offers, as this item is still in the process of being discussed.

A participant asked whether a decision has been made on the implementation of pseudo units. The IESO responded that the decision will be made at the upcoming EDAC Steering Committee Meeting. Another participant asked whether there was an opportunity for participants to update their submission on whether they would use the proposed pseudo unit model. The IESO confirmed that they would allow participants to revise their initial submission before the end of business May 29th. A more definitive stance from participants could provide the needed support for the pseudo unit initiative, as many of the submissions to date have not provided a clear statement of support.

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Action: Participants asked that the IESO provide a clear EDAC timeline for submitting pseudo and physical unit offers.

Action: The IESO to revise the fourth slide of the presentation (Outside the Mandatory Window). Revise the bullet "MLP price revisions to be validated" to "MLP price revisions to be validated only on units with EDAC PCG schedule".

Action: The IESO will provide information on the calculation of the pseudo unit MLP price cap, once a method is formulated.

Item 4 Withdrawal and Decommitment (Process Requirements)

Wade Sandilands provided a presentation on the processes for resource withdrawal and decomittment from EDAC-PCG constrained schedules.

A participant asked whether the withdrawal charge would apply in the scenario where a generator cannot fulfill their requirement of reaching MLP (constrained schedule) prior to the 6th interval of their PCG start due to a forced outage. The IESO clarified that if the reason for a delay in reaching MLP is outside the control of the participant, a withdrawal charge would not be applied. Additionally, because the participant did not fulfill their MLP requirement in the 6th interval, the PCG would be removed.

Participants asked whether the IESO has come to a decision on the treatment of eligibility for the EDAC PCG. A Participant stated that based on their recollection, the IESO asked for participant feedback on the validation criteria and treatment of failed PCG starts. The IESO responded by stating that results of a historical study of day-ahead starts and loading patterns were provided in the minutes from the Settlement Design Working Group. The results of the study showed that with the exception of starts delayed due to a forced limitation, of the approximate 2700 starts in the previous 12 months, only 3.3% did not reach MLP within 6 intervals. Due to this low occurrence, the IESO believes that the 6th interval validation criteria is not too restrictive, and will not change participant behaviors.

A participant asked for the reason for the eligibility requirement and asked the IESO to identify where the rationale is documented. The IESO stated the eligibility requirement is to incent generators to meet their schedule as they could have displaced other resources in the schedule process. The eligibility requirement is also important because of the larger guarantee available under EDAC. The guarantee applies for the entire duration and magnitude of the EDAC generated schedule, not just for the duration of MGBRT up to the MLP (DACP applicable).

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Participants reiterated that this eligibility requirement, will force resources to be very conservative with their start up procedures in order to ensure that the PCG eligibility criteria is met as a failure to meet the criteria represents a significant financial risk to resource.

Participants voiced their concern that their input is not being received and utilized by the IESO. The perception is that the working group meetings are just a measure for the IESO to inform participants of already committed decisions by the IESO.

The IESO noted that the minutes indicate that the action item on PCG eligibility is "Closed" however, participants are expected to comment on whether the IESO has misrepresented the action, do not agree with the research, analysis and conclusion or have missed details. Participants were also encouraged to comment on the need to incent generators to meet their EDAC schedule.

Item 5 EDAC Reporting and Notification

Wade Sandilands provided a presentation on reports and notifications affected by the EDAC process.

During a review of the current Adequacy Report, a participant asked that the EDAC version of the report be revised to include the offered and scheduled amount of imports and exports by intertie.

Action: The IESO to investigate whether any confidentiality issues exist with reporting the import/export offered, and scheduled amounts by intertie.

Editorial Note: *There are no confidentiality issues related to reporting of aggregate amounts of export bids or imports offered by intertie. Real-time import and export scheduled amounts are already available by intertie, and do not pose any confidentiality issues in pre-dispatch.*

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Participants asked that the IESO maintain the data sets contained in the current set of pre-dispatch public reports for publication in EDAC. A request was made of the IESO to merge the DACP Pre-Dispatch Energy Report with the DACP Commitment Report.

The IESO was requested to investigate the potential of merging the DACP Pre-Dispatch Energy Report with the DACP Commitment Report during the development of report specifications. The IESO responded that all generators receive the pre-dispatch report, and that the commitment report is only applicable to a small subset of those generators. In addition the Commitment Report is only available after the EDAC Schedule of Record is issued. As a result of this discussion, it was agreed that merging these two reports is not practical.

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A participant asked whether any of the intermediate data associated with the individual passes of the EDAC calculation engine (average pass, peak pass, average pass) will be made available to participants. If such data is available, participants agreed that it would be beneficial for their own analysis of results. The IESO clarified that this data is currently not expected to be available immediately following the EDAC Run. Participants restated the benefit of having such data

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available, and requested that it be made available in a file that could be scraped by participants. The IESO identified that the data requirements need to be better defined. Participants suggested that the data should include, but not be limited to a duplication of the public and private reports currently available at the end of EDAC.

The IESO will investigate whether intermediate data from individual passes is available as an output from the EDAC calculation engine and what information is available to the IESO by the EDAC tool as part of the detailed design phase associated with Operational review (an internal business requirement review).

Action: Participants to define the requirements for intermediate data from individual passes of each EDAC run. The request should also include details of what data to include, the formatting and timelines associated with its publishing.

A participant enquired as to the availability of the EDAC equivalent of the Pre-Dispatch of Record (EDAC Schedule of Record) report and the potential for a participant to perform historical assessments of the report. The IESO clarified that every version of the EDAC reports would be available to participants in the short term, but would be purged after a set period leaving only the official EDAC Schedule of Record version in the long term repository.

Participant led discussions formulated a set of technical requirements for EDAC Schedule of Record (SoR)report availability.

Definition of SoR Report availability requirements:

1.) Be able to access a set of historical data (all runs in the short term)
2.) Have an identifier for the official version of the SoR.
3.) Have the SoR available historically (long term retention)

The IESO stated that these requirements are the current IESO practice.

Item 6 – Treatment of Start Up Costs by the Calculation Engine for Hour 1

Tibby Abid provided a presentation showing the day-ahead treatment of start up costs for HE1 in EDAC.

Participants asked about the treatment in a scenario where EDAC sees a unit online in HE24 based on the latest pre-dispatch report, but after the completion of EDAC, the unit no longer scheduled in pre-dispatch for HE24. Based on this scenario, if EDAC schedules the resource in

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HE1, what would be the settlement treatment in terms of the PCG guarantee related to the start in HE1? The IESO answered that because the scheduling tool did not consider start-up costs, the settlement tool will likewise ignore the start-up costs in calculating of the PCG guarantee. Participants recognized the risk of this scenario but confirmed that there was a small probability of this ever happening.

A participant asked how the PCG would be treated for a start, whose hours roll into the next day. The IESO stated that there would be no PCG paid in the hours that roll into the next day. The participant would be compensated for those hours on the start day through the escalating start up costs that cover the costs of remaining hours of MGBRT in the next day.

Participants asked whether the IESO would constrain the resource for the remaining hours of the MGBRT for a start that rolls into the next day regardless of the offer price. The IESO confirmed that the resource would be constrained for the remainder of their MGBRT.

Editorial Note: *As clarified in the Settlement Design Working Group meeting, any CMSC generated due to constrains resulting from a continuation of a previous day start would be clawed back. The reason for the claw back is to ensure that participants are not compensated twice, compensated once through the escalating start-up costs and then again through additional CMSC.*

Item 7 Wrap up and Review Next Meeting Agenda

Al Miller reviewed the action items generated at the meeting. At the conclusion of the review, participants were asked whether there were any outstanding issues that were not covered. No outstanding issues were brought forth by participants. Therefore the Operational Design Working Group meeting scheduled for June 17 is cancelled in order to allow the IESO to complete ongoing development activities.

The tentative Operational Design Working Group meeting in either July or August will be used as a "bring it all together" meeting.

Action Item Summary				
#	Date	Action	Status	Comments
1	April 16, 2009	The IESO will check to see if the Portal User Guide covers subscribing and if not will revise it appropriately. A link to the portal user guide will be provided to the DWG.	Closed	The Portal User Guide was updated and posted on April 30
2	April 16, 2009	The IESO will determine the process to handle identified Real Time issues and identify the process for tracking and assigning these issues. The process will be discussed at the next DWG meeting. Al Miller will identify how long it will take to determine if an issue is in scope of EDAC or not as part of this process.	Closed	The IESO plan for addressing real-time issues was presented to the Operations Design Working Group on May 7, 2009
3	April 16, 2009	The IESO will determine if the requirement for Daily Generator Data to default to the last submitted value has a significant impact on the EDAC project (cost or schedule).	Closed	The IESO has determined that using the last submitted value as the default value for Daily Generator Data will not have a significant impact on the EDAC project. This will be adopted in the detailed design and slides from the April 16th ODWG meeting were updated accordingly.
4	April 16, 2009	IESO will provide clarification on how changes to MLP are handled in real time (for non EDAC scheduled hours) and how this relates to the new rules on self induced CMSC. (What happens in the example where the MLP post EDAC >	Closed	The IESO presented the process for managing changes to MLP in real-time at the May 7, 2009 ODWG meeting. Supplemental slides were posted to provide additional detail. The proposed Market Rules on

		registered MLP)		self-induced CMSC have been identified as warranting consideration by the Technical Panel, pending an effort to revise the proposed rules to incorporate generator concerns. The IESO cannot definitely say what the impact will be on real-time CMSC relating to elevated Minimum Loading Points at this time.
5	April 16, 2009	IESO will review the DET validation rule (0 <= (Minimum Run Time –MGBRT) <= DET) to determine if it works for minimum MRT situations.	Closed	This validation rule will be removed. Revised slide deck posted on portal on April 20, 2009.
6		The IESO will post the presentation on ramping consideration for the ODWG which describes the rationale behind the 30% ramping MW assumption.	Closed	Slide deck from November 26, 2008 TSG meeting posted on portal on April 20, 2009.
7	April 16, 2009	The IESO will update the startup cost slide to change the number format to $/start and not $/hr.	Closed	Revised slide deck posted on portal April 20, 2009.
8	April 16, 2009	The IESO will provide further detail regarding how ramp rates will be utilized in the EDAC calculation engine to participants in writing. At that time, participants will be requested to identify any issues with this approach.	Closed	Additional detail provided as an editorial note in the meeting minutes.
9	April 16, 2009	DWG members to identify any issues with using the first hour ramp rates for all hours of EDAC before the next DWG Meeting.	Closed	No issues raised by ODWG Participants before or during the May 7, 2009 ODWG meeting.
10	April 16, 2009	IESO will update slide #14 of the EDAC data submission slide deck to reflect that "accepted" offers will	Closed	Revised slide deck posted on April 20, 2009.

		be used by both EDAC and pre-dispatch.		
11	April 16, 2009	The definition of "eligible ELR resource" will be developed and provided to the group.	Closed	The IESO presented the definition of Eligible Energy Limited Resources at the May 7, 2009 ODWG meeting. Supplemental slides were posted to provide additional detail.
12	May 7, 2009	A generator asked that the IESO provide information on where to address any comments related to the pending market rule amendment for self-induced CMSC.	Closed	Information provided as an editorial note in the meeting minutes
13	May 7, 2009	An ODWG member requested that updates to EDAC documents, clearly identify where the document has changed from the previous version (i.e. redlined, etc).	Closed	Information provided as an editorial note in the meeting minutes
14	May 7, 2009	The IESO will review whether the clarification of the 4th bullet has been addressed in the April 16th power point presentation. If not clarification and improvements to the statement will be made.	Closed	Clarification provided as an editorial note in the meeting minutes
15	May 7, 2009	The IESO is to assess the concern expressed that guarantees (both DACP/EDAC and OPA), and the impact of restricting MLP pricing will cause downward pressure on price.	Closed	Clarification provided as an editorial note in the meeting minutes as discussed at the May 7th Settlements DWG meeting. Table did not get updated.
16	May 7, 2009	The IESO will investigate providing a report that would identify when EDAC results are final, and can be used as the official EDAC results. Example: A report that is populated with final results at a specific time each day.	Closed	The IESO will identify the EDAC Schedule of Record and archive these reports consistent with existing practices.

17	May 7, 2009	The IESO will investigate ongoing developments that are underway in wind forecasting, under SE #57 and ensure that EDAC is in line with current efforts.	Closed	Information provided as an editorial note in the meeting minutes
18	May 7, 2009	The IESO will investigate publishing a report listing the hourly quantity of offers revised between EDAC runs in addition to ELRs.	Closed	Changes to offers in the EDAC timeframe, may be obtained from the differences in the hourly offer totals between adjoining versions of the adequacy report.
19	May 7, 2009	The IESO will investigate publishing a report listing all resources that qualify for EELR status and are eligible for EDAC re-submission, subject to confidentiality concerns.	Closed	Item closed after review at the May 27th Operations DWG meeting.
20	May 7, 2009	The IESO will provide a description of the impacts of MLP changes during the EDAC to real-time transition. Contents will include the submission and approval process, duration for which the data is applicable, as well as the treatment by settlements and compliance.	Closed	Information provided as an editorial note in the meeting minutes
21	May 27, 2009	The IESO will look at the best method for creating detailed design documentation as part of the "Bring it All Together" session.	Closed	Information provided as an editorial note in the meeting minutes.
22	May 27, 2009	Participants asked that the IESO provide a clear EDAC timeline for submitting pseudo and physical unit offers.	Open	To be covered at the July 8th Operational Design Working Group meeting.
23	May 27, 2009	The IESO to revise the fourth slide of the presentation (Outside the Mandatory Window). Revise the bullet "MLP price revisions to be validated" to "MLP price revisions to be validated only on units with	Closed	Slide presentation revised on the IESO portal (June 11).

		EDAC PCG schedule".		
24	May 27, 2009	The IESO will provide information on the calculation of the pseudo unit MLP price cap, once a method is formulated.	Open	To be covered at the July 8th Operational Design Working Group meeting.
25	May 27, 2009	The IESO to investigate whether any confidentiality issues exist with reporting the import/export offered, and scheduled amounts by intertie.	Closed	Closed as per editorial comment in meeting minutes.
26	May 27, 2009	Participants to define the requirements for intermediate data from individual passes of each EDAC run. The request should also include details of what data to include, the formatting and timelines associated with its publishing.	Open	

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