Power to Ontario. On Demand.

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Power Outage Meter Trouble Reports – Proposed Change in Process

Background

When power to the revenue meter is interrupted, depending on the type of meter, the meter's internal event log will flag either a power outage, create a lapse in data or both. IESO's MV-90 system which interrogates the meters and validates the meter data early each morning detects these flags, creates a validation report and sends the trouble code to the meter trouble reporting (MTR) system. The MTR system issues automatically a meter trouble report to the metering service provider (MSP). A MTR is issued for all flagged meters whether they are main, alternate or standalone meters.

When issued, the MTR identifies the code for the problem but does not indicate the time at which the power outage occurred. When IESO staff review validation reports each business day they can identify the specific time that the issue occurred. Time permitting, they recall the auto generated MTR and provide the details of the event and request confirmation there was no power flow. In cases with lapsed data flags in a data file, they also request the MSP to supply correct interval data and then return the MTR to the MSP. If this is not done, some MSPs will return the MTR requesting the details for the identified power outage.

On many occasions, the MTR is cycled back and forth between the IESO and the MSP until all the details are resolved, and if necessary, a valid data file is provided.

There is a general concern amongst metered market participants (MMPs), MSPs and the IESO that the current process is inefficient. There is a sense that with the supporting clarifying information within the meter and assessment where appropriate of main/alternate meter interval data combinations, that the total effort by all parties may be reduced with minimal risk to the quality of the data used for settlement. The following is an assessment and a proposal of the MTR Working Group for a revision of the power outage MTR process.

Problem Assessment

There are a number of areas for potential improvement.

1. There are a relatively high volume of power outages that are short duration and are the result of weather, short duration line faults or switching operations. It is likely that a definition of an instantaneous or short duration power outage could lead to an assessment that these power outages were legitimate and no significant value is added by the IESO issuing an MTR, the MSP responding and the MMP contributing to this assessment.
2. Currently a MTR is issued for both the main and the alternate meter, often resulting in two answers to the same question. A revision to this practice, if it reduced the overall work, may be able to justify the additional assessment effort.
3. Sufficient information may be available to IESO so that with confirmation of a legitimate power outage by the MSP, data substitution from channels 1 to 4 of the alternate meter may be possible without provision of a data file by the MSP.
4. For market rule conforming meters with power outage (PO) flagged intervals that have recorded V^2h and I^2h interval data in the flagged intervals, it is reasonable to conclude these are probably valid power outages that do not need a MTR.
5. A MSP may be able to arrange with their MMP to get reports from the appropriate grid or distribution operator to identify issues, faults, switching etc. that can be useful in identifying the validity of a power outage and shorten the time for MTR resolution.

Proposal

A. Short Duration Power Outage

It would seem to be a low risk to assume that short period power outages are legitimate if there is comparable energy in the interval before and after the interval with the PO status flag. Many weather related faults, line faults and operational switching activities are very short in duration and almost always result in power interruptions of less than one minute.

Proposed Definition – Short Duration Power Outage

A short duration power outage (SDPO) exists when:
a) a power outage flag or a lapsed data flag exists in an interval for a standalone meter; in both of the meters in a main/alternate configuration; or in the alternate meter only for a main/alternate configuration where the main meter is auxiliary powered via an uninterruptible power supply (UPS);
b) the total power outage time (for multiple events in an interval) is less than one minute as identified in the MV-90 Validation Report's Event Summary;
c) the energy in the interval following the PO interval is comparable to the interval preceding the PO interval;
d) reasonable provision may be made in assessing c) for load/unload (ramping) periods; and
e) where the power outage initiates in the last 30 seconds of an interval, a short term power outage can be deemed to have occurred over the 2 intervals if the total event time is less than one minute and c) applies.

For legacy meters (standalone) that do not record V^2h and I^2h interval data, the only energy values available to IESO staff to review for comparable energy before and after the interval(s) with PO status flags are kWh and kVARh values.

Proposed Treatment

No MTR will be issued if a short duration power outage (SDPO) exists, the metering data will be accepted as valid. Any MTR created in the system will have the time of the PO identified by IESO staff and the MTR will be rejected.

B. Potential Power Outages that are NOT Short Duration

In a main / alternate meter installation where the apparent power outage status flags exist in both meters, only one MTR should be used to identify and resolve the issue.

The alternate meter is a Market Rule and Measurement Canada compliant meter and should be used for settlement in the absence of validated main meter data where possible to minimize the work effort and maintain market rule timeliness in the meter trouble reporting process.

When main meter or standalone meter where data is missing, where possible, use the estimation market rules to establish the meter data and use one MTR to resolve the validity of the power outage.

Proposed Treatment

Using this logic, the following decision table sets out the possible combinations of main / alternate and standalone meter situations affecting multiple intervals with power outage or lapsed data status flags that could exist and the proposed treatment by the IESO and the action required by the MSP.

Decision Table for Power Outage Events Lasting Two or More Intervals

PO = power outage
LA = lapsed data
Load = apparent valid interval data
Zero = complete period interval data filled with measured zeroes
Not available = no meter data due to communication or other problem

Case	Main	Alternate	MV-90 auto edit if any	Manual Edit of data in MV-90	IESO action for created MTR	MSP action response to MTR
1	PO	PO	None	No edit required unless MSP provides data file	MAIN: Note the PO also affected the ALT, add the time of outage and issue. ALT: Add the MAIN MTR # and reject	Confirm PO is valid for time specified or supply data file if invalid.
2	PO	PO+LA	None	No edit required	MAIN: Note the PO also affected the ALT, add the time of outage and issue. ALT: Add the MAIN MTR # and reject.	Confirm PO is valid for time specified or supply data file if invalid.
3	PO	LOAD	None	Copy from ALT (Channels 1 to 4)	MAIN: Add time of outage; indicate the edit performed, advise ALT has load and issue.	Accept edit unless data is incorrect (1)
4	PO	ZERO	None	No edit required	MAIN: Add time of outage and issue.	Confirm PO is valid for time specified or supply data file if invalid.
5	PO (2)	Not available	None	No edit required	MAIN: Note ALT. not available; add time of outage and issue. ALT: Will get a Comm. MTR.	Confirm PO is valid for time specified or supply data file if invalid.

Decision Table for Power Outage Events Lasting Two or More Intervals (continued)

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Case	Main	Alternate	MV-90 auto edit if any	Manual Edit of data in MV-90	IESO action for created MTR	MSP action response to MTR
6	PO+LA	PO	Auto estimate	Copy from ALT (Channels 1 to 4)	MAIN: Add time of outage; indicate the edit performed and issue. ALT: Add the MAIN MTR # and reject.	Accept edit unless data is incorrect (1)
7	PO+LA	PO+LA	Auto estimate	Copying the MAIN over MAIN	MAIN: Add time of outage; indicate the edit performed and issue. ALT: Add the MAIN MTR # and reject.	Confirm PO is valid for time specified or supply data file if invalid.
8	PO+LA	LOAD	Auto estimate	Copy from ALT (Channels 1 to 4)	MAIN: Add time of outage; indicate the edit performed, advise ALT has load and issue.	Accept edit unless data is incorrect (1)
9	PO+LA	ZERO	Auto estimate	Copy from ALT (Channels 1 to 4)	MAIN: Add time of outage; indicate the edit performed and issue.	Confirm PO is valid for time specified or supply data file if invalid.
10	PO+LA (2)	Not Available	Auto estimated	Copy the MAIN over MAIN	MAIN: Note ALT not available; add time of outage and issue. ALT: Will get a Comm. MTR.	Confirm PO is valid for time specified or supply data file if invalid.

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11	LOAD	PO	None	No edit required	ALT: Add time of outage; indicate MAIN has load and issue.	MSP to check alternate meter for proper operation and continued use. MSP to confirm whether PO in alternate meter is valid and that the main meter data as received is valid for settlement.
12	LOAD	PO+LA	None	No edit required	ALT: Add time of outage; indicate MAIN has load and issue.	MSP to check alternate meter for proper operation and continued use. MSP to confirm PO in alternate meter is valid and that the main meter data as received is valid for settlement.

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13	ZERO	PO	None	No edit required	ALT: Add time of outage; indicate MAIN has measured zero load values and reject.	None. No MTR will be issued.
14	ZERO	PO+LA	None	No edit required	ALT: Add time of outage; indicate MAIN has measured zero load values and reject.	None. No MTR will be issued.
15	Not available	PO	Auto estimate with min/max for entire period with missing data	Copy from ALT (Channels 1 to 4) (ALT initially is rejected)	Locate MTR for MAIN for communication failure, advise ALT has been copied add time of PO and request confirmation. ALT: Add time of outage; indicate MAIN is not available, that confirmation of PO has been added to MTR and reject. Edit "Last Stop Time" field in MV-90 Master File for MAIN Meter to be the stop time for the data file copied from ALT. If Comm. MTR for MAIN received from MSP before comments added, or fails to clarify PO, return to MSP.	MSP to validate data file prior to providing to IESO. Confirm PO is valid for time specified or supply data file if invalid.

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16	Not available	PO+LA	Auto estimate with min/max for entire period with missing data	Copy from ALT (Channels 1 to 4) (ALT initially is rejected) and change the last stop time on the master file for the MAIN	Locate MTR for MAIN for communication failure, advise ALT has been copied add time of PO and request confirmation. Edit "Last Stop Time" field in MV-90 Master File for MAIN Meter to be the stop time for the data file copied from ALT. ALT: Add time of outage; indicate MAIN is not available, that confirmation of PO has been added to MTR and reject. If Comm. MTR for MAIN received from MSP before comments added, or fails to clarify PO, return to MSP.	MSP to validate data file prior to providing to IESO. Confirm PO is valid for time specified or supply data file if invalid.

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17	Not available (2)	None	Auto estimate		If MSP supplies data file and it has PO, add time of outage and return to MSP.	MSP must validate data files prior to providing them to IESO. If the incoming data file from the MSP contains any PO or LA flagged intervals, the MSP response to the MTR must include a statement that verifies the status flags in the attached data file have been checked and are valid.

(1) Alternate meter data is valid for settlement. Do not supply main meter data file, only provide data file if alternate data is incorrect.
(2) This also applies if this is a standalone meter.

Implementation Method

IESO is not aware of software capabilities that currently exist to implement this proposal using automated methods. Thus a trial period is planned using a manual process to implement the recommendations on the assumption that the overall IESO staff requirement to implement this process is equal or less than what is presently required to process power outage MTRs with the existing process.

When the MTR working group agrees with the details of this proposal, the revised process will be issued to all MSPs with a set start date approximately 1 to 2 weeks after issue. We are targeting August 1, 2005 as the planned implementation date.

All PO validations will be queued for assessment by IESO and manual issue of MTR by IESO. No automatic PO MTR will be issued. For situations that meet the definition as Short Duration Power Outages, no MTR will be issued. For other Power Outage situations, the MTR will contain the information outlined in the Decision Table. Metering Service Providers (with Metered Market Participants if appropriate) will provide confirmation of the power outage, and supply a correct and valid data file if (and only if) the estimate is not appropriate.

Risk Assessment

Risks

- There may be some invalid short duration power outages identified with the associated small inaccuracy in settlement.
- PO MTRs will no longer be available at start of business day but in most cases be processed over the period of the first business day and thus MSP cannot start assessment for a few hours to 1 day later than current scheme.
- IESO corporate performance measure of issuing MTR within 1 business day of problem will have downward pressure especially after weekends with significant storm events.
- MMPs may call IESO for clarification / resolution of short term power outages eliminating the benefit of not processing these MTRs automatically.
- Some MMPs may be uncomfortable with the use of alternate meter data when main meter data is subsequently available or confirmed. If this results in increased Notices of Disagreement, the value of this process is reduced.
- Increased use of the alternate meter's data for settlement will necessitate the use of the assumed voltage and power factor method for calculating losses for the

replaced intervals as V^2h and I^2h data will not be available to calculate Method 1 losses during the periods of replaced data in the main meter.

Rewards

- With the use of the Short Duration Power Outage definition and a single MTR for main / alternate combinations, there will be significantly fewer MTRs for MSPs to resolve.
- IESO at the time of initial validation will rationalize the main/ alternate MTR and thus are not processing two MTRs from the MSP for the same event.
- MSPs need only supply data files when the data proposed for use in the MTR (typically copied from Channels 1 to 4 of the alternate meter) is incorrect.
- The cost to MMPs of MTR processing will be reduced.
- More MTRs should be resolved prior to the preliminary settlement statement.
- The initial edits of data using alternate meters per the decision table minimizes the edits, shortens the period for changes in the metering database and increases the likelihood that acceptable data is available for calculating preliminary settlement statements.

Recommendation

The proposed implementation will be a trial period of 4 months prior to an evaluation by the MTR working group with the intention of formal recommendation to the Revenue Metering Sub-Committee for implementation.

All parties will attempt to monitor the process during the trial period to attempt to quantify the costs and benefits of the overall Power Outage MTR process improvement.

IESO commits to the initiating the trial process, but may require a return to the existing process if the additional front end work is not providing commensurate improvements in overall work load.