

## DRAFT

1. The following table summarizes the proposed changes due to the inclusion of the Micro-Generation in the AUC Rule 021:

Reference to the AUC Rule 021 section/number		Reason for change	Currently stated in the Rule	Proposed to change as:
1 Definitions	1.1 Key Terms	No definition exists in current Rule 021	Nil	<b>micro-generator</b> micro-generator has the meaning ascribed to the term "micro-generator" in the Micro-Generation Regulation Alta. Reg. 27/2008.
	1.1 Key Terms	No definition exists in current Rule 021	Nil	<b>large micro generation</b> large micro-generation has the meaning ascribed to the term "large micro-generation" in the Micro-Generation Regulation Alta. Reg. 27/2008.
	1.1 Key Terms	No definition exists in current Rule 021	Nil	<b>small micro-generation</b> small micro-generation has the meaning ascribed to the term "small micro-generation" in the Micro-Generation Regulation Alta. Reg. 27/2008.
	1.1 Key Terms	No definition exists in current Rule 021	Nil	<b>mini micro-generator</b> mini micro-generator" means a micro-generation generating unit of a micro generator which is using an inverter, or a technology which has been proven by an independent third party to act like an inverter, and has a generation capacity of no more than 10kW and is generating or proposing to generate electric energy solely for the Customer's own use.
	1.1 Key Terms	Current definition requires adjustment to include micro generation	<b>System Level</b> (Page 11) "System level is hourly measurement values needed to describe the total hourly energy flow on the AIES at the transmission level and the inputs and outputs to each and every distribution	<b>System Level</b> System level is hourly measurement values needed to describe the total hourly energy flow on the AIES at the transmission level and the inputs and outputs to each and every distribution settlement zone for each hour. It includes measurements between the

Reference to the AUC Rule 021 section/number		Reason for change	Currently stated in the Rule	Proposed to change as:
			settlement zone for each hour. It includes measurements between the transmission system and the distribution system, distribution interchange, distributed generation, and amounts delivered to or from border customers.”	transmission system and the distribution system, distribution interchange, distributed generation, <b>excluding small micro-generation</b> , and amounts delivered to or from border customers.
	1.2 Common Abbreviations	No definition exists in current Rule 021	Nil	<b>GIM</b> <b>micro-Generation Interval Meter Readings to Retailers</b>
	1.2 Common Abbreviations	No definition exists in current Rule 021	Nil	<b>GCM</b> <b>micro-Generation Cumulative Meter Consumption to Retailers</b>
	1.2 Common Abbreviations	No definition exists in current Rule 021	Nil	<b>GRN</b> <b>micro-Generation Retailer Notification</b>
	1.2 Common Abbreviations	No definition exists in current Rule 021	Nil	<b>GRS</b> <b>micro-Generation Retailer Summary</b>
3 Load Profiling Methods	3.4 Customers with Interval Meter but Below the Profiling Cap	Treatment of Micro-generation is not properly reflected	Nil	Add:  3) If a small micro-generator requests interval metering, it is treated like a large micro-generator and is settled according to its interval data.  4) If the wire owner installed an interval meter on a small micro-generation site, it is treated as a small micro-generator and is excluded from load settlement calculations. Wire owner is responsible for GCM data provision .
4. Load Settlement Calculation	4.6.1 Distribution Generation	Micro-generation is not properly reflected.	4.6.1 Distribution Generation”  “1) Distributed generation includes all generation facilities connected to the distribution system capable of supplying energy onto the distribution system and includes but is not limited to wind power, small hydro and flare gas generation.”	Proposed to change as:  “1) Distributed generation includes all generation facilities connected to the distribution system capable of supplying energy onto the distribution system and includes but is not limited to wind power, small hydro and flare gas generation. <b>Micro-generation is exempt from s. 4.6.1 2). Small micro-generation is exempt from s 4.6.1 3) as well.</b>
5 Dispute	5.1 General	Current section	Nil	Proposed to add at the end of 5.1:

Reference to the AUC Rule 021 section/number	Reason for change	Currently stated in the Rule	Proposed to change as:
Resolution Process	requires modification to properly reflect the Micro-generation		<p>“Dispute regarding large micro-generation will follow the process outlined below as the energy forms part of the load settlement calculation.</p> <p>“Energy captured from small or mini micro-generation does not form part of the load settlement calculations. Disputes regarding small or min micro-generation must be coordinated among the MDM, retailer and the ISO.”</p>
5.3.1 Scope	Current section requires modification to properly reflect the Micro-generation	5.3.1  Nil	<p>Proposed to add:</p> <p>6) Micro-generation PFAM shall only be applicable to load settlement related transactions dated January 1, 2009 and later.</p> <p>7) Where PFAM is used for small or mini micro-generation, PFAM may be used by the Retailers, MDMs, WOs, WSPs, and the ISO. Where an end use customer seeks a remedy through the PFAM process they must raise the error through their Retailer of Record for the period in dispute. The LSA is not part of this PFAM as small micro generation is not part of load settlement activities.</p>
5.3.2 Communications	Current section requires modification to properly reflect the Micro-generation	5.3.2  Nil	<p>Proposed to add:</p> <p>4) The MDM shall act as the conduit for handling of all small micro-generation PFAM claims. In all cases, the relevant MDM shall receive communications from each claimant party (“complainant”), and shall send all relevant communications back to the complainant party, in accordance with the provisions of this Settlement System Code.</p> <p>5) Each MDM shall ensure that systems and procedures are established and maintained with their operations sufficient to track and process small micro-generation PFAM error claims on a timely basis in accordance with the provision of this Settlement</p>

Reference to the AUC Rule 021 section/number		Reason for change	Currently stated in the Rule	Proposed to change as:
				System Code.
	5.3.7 Materiality Limit for PFAM Claims	Current section requires modification to properly reflect the Micro-generation	5.3.7 Nil	Proposed to add:  3) MEA or SEA PFAM claims for micro-generation sites may only be submitted for values above \$250 per site per PFAM claim.
	5.3.8 Processing PFAM Adjustments	Current section requires modification to properly reflect the Micro-generation	5.3.8 Nil	Proposed to add:  3) For micro-generation PFAM, it is the responsibility of the relevant MDM to provide GIM, GCM and DSM transactions to appropriate parties to facilitate financial settlement adjustments under the ISO Rules.
	5.3.9. Transaction Mechanism and File Format	Current section requires modification to properly reflect the Micro-generation	5.3.9 Nil	Proposed to add:  2) The GCM, GIM and DSM transaction files will be provided to the ISO in CSV format by the MDMs, via DropChute™ using ISO ID for Financial Settlement purposes as described in s. 9.4.6.9. Each Retailer's specific GCM, GIM or DSM transaction files will also be sent to Retailers by the MDMs in CSV format via DropChute™.
	5.3.10 Financial Adjustments	Current section requires modification to properly reflect the Micro-generation	5.3.10 Nil	Proposed to add:  4) The ISO shall accept PFAM adjustments for micro-generation submitted by the MDM and apply the relevant price to the data in order to arrive at the applicable financial adjustments for the GCM or DSM transactions.
11 Performance Standards for Meter Data Managers Operating in the Province of Alberta	11.3.2.4 Estimation of Data	Current section requires modification to properly reflect the Micro-generation	Nil	Proposed to add:  "6) Estimation of data for large micro-generation a) Where no redundant metering or check metering exists, MDMs will initially estimate large micro-generation interval data at zero until successful conclusion of an investigation.

Reference to the AUC Rule 021 section/number	Reason for change	Currently stated in the Rule	Proposed to change as:
			<p>b) MDMs may estimate large micro-generation based on historical values only if consistent historical values exist. In the event consistent historical values do not exist, large micro-generation will be reported as zero.</p>
11.3.2.5 Investigation	Current section requires modification to properly reflect the Micro-generation	<p>11.3.2.5</p> <p>“If the meter or related devices are found to be suspect as a result of the data investigation, the MDM shall notify the meter owner within one Business Day.”</p>	<p>Proposed to add:</p> <p>“If the meter or related devices are found to be suspect as a result of the data investigation, the MDM shall notify the meter owner within one Business Day.</p> <p>The MDM shall provide notification to the Retailer where large micro-generation is present at the site”</p>
11.3.2.6 Editing of Data (Data Replacement)	Current section requires modification to properly reflect the Micro-generation	<p>11.3.2.6 Editing of Data (Data Replacement)</p> <p>“3) MDMs shall report all System Level data variances by way of the PFAM process where such variance is not corrected in data used for initial daily, initial monthly, interim, or final settlement data provision within one calendar month of the discovery of the variance.”</p>	<p>Proposed to add:</p> <p>“3) MDMs shall report all System Level data variances, including large micro-generation, by way of the PFAM process where such variance is not corrected in data used for initial daily, initial monthly, interim, or final settlement data provision within one calendar month of the discovery of the variance.”</p>
11.4 Cumulative Meter Data Performance Standards	Current section requires modification to properly reflect the Micro-generation	<p>11.4</p> <p>“The following section of the MDM Performance Standards deals with Cumulative Meters that are defined as Measurement Canada approved devices that measure and register the integral of an electrical quantity with respect to time. This section is also applicable to Virtual Metering Points that are effective points of measurement that may or may not be physically locatable. Virtual Metering Points are calculated values based on two or more Cumulative Meters.”</p>	<p>Proposed to add:</p> <p>The following section of the MDM Performance Standards deals with Cumulative Meters that are defined as Measurement Canada approved devices that measure and register the integral of an electrical quantity with respect to time. This section is also applicable to small or mini micro-generation as well as Virtual Metering Points that are effective points of measurement that may or may not be physically locatable. Virtual Metering Points are calculated values based on two or more Cumulative Meters.”</p>

Reference to the AUC Rule 021 section/number		Reason for change	Currently stated in the Rule	Proposed to change as:
	11.4.2.1 Validation Tests	Current section requires modification to properly reflect the Micro-generation	11.4.2.1  “The MDM shall validate all cumulative meters using the following validation tests. If the meter data passes the validation, the data shall be considered load settlement ready and shall be provided to the designated parties as per s. 11.4.4. Meter data that fails one or more validation tests, shall be verified by the MDM as specified in s. 11.4.2.2.1”	Proposed to add:  “The MDM shall validate all cumulative meters using the following validation tests. If the meter data passes the validation, the data shall be considered load settlement ready and shall be provided to the designated parties as per s. 11.4.4. Meter data that fails one or more validation tests, shall be verified by the MDM as specified in s. 11.4.2.2.1. While small or mini micro-generation is not part of the data set for load settlement ready, the following validations will also be considered for required validation tests.”
	11.4.2.2 1) Verification of Data b)	Current section requires modification to properly reflect the Micro-generation	11.4.2.2. 1) b)  “If the MDM determines that the meter data is valid, then the original meter reading shall be considered settlement ready and shall be provided as Verified and Edited (VE) meter reading in DCM.”	Proposed to add:  11.4.2.2. 1) b)  “If the MDM determines that the meter data is valid, then the original meter reading shall be considered settlement ready and shall be provided as Verified and Edited (VE) meter reading in DCM. If the MDM determines that the micro-generation meter data is valid, then the original meter reading shall be considered settlement ready and shall be provided as Metered Energy (ME) meter reading in the GCM.”
	11.4.2.2 2) Editing of Data (Data Replacement)	Current section requires modification to properly reflect the Micro-generation	11.4.2.2  2) Editing of Data (Data Replacement  Nil	Proposed to add c) and d):  “c) If a previously submitted small micro-generation meter reading is subsequently found by the MDM to be suspect, the MDM shall submit Cancellation GCM(s) for the suspect meter reading. At least 95% of Cancellation GCMs shall be submitted by the MDM within one Business Day from the date of discovery of the suspect meter reading and no greater than 5% of the Cancellation GCMs shall be submitted within three Business Days from the date of discovery of the suspect meter reading.  d) If the Cancellation GCM causes the condition where there is no reported meter reading for the past

Reference to the AUC Rule 021 section/number	Reason for change	Currently stated in the Rule	Proposed to change as:
			2 months, then the MDM shall provide replacement data for the Cancellation GCM as soon as is practicable but in no circumstances greater than 20 Business Days from the date of the Cancellation GCM."
11.4.2.2 3) Estimation of Data	Current section requires modification to properly reflect the Micro-generation	11.4.2.2 3) Estimation of Data  Nil	Proposed to add c):  c) Under the circumstances specified in a), the MDM shall provide a Site-specific estimate of small or mini micro generation for the period from the last validated meter reading to a current data. That estimation should be zero unless consistent historical generation is available. The data shall be reported as Estimated (ES) meter reading in the GCM.
11.4.2.3 Investigation and Notification	Current section requires modification to properly reflect the Micro-generation	11.4.2.3  Nil	Proposed to add 3):  "3) The owner of the meter shall be responsible to provide notification to the Retailer within one business day where small micro generation is present at the Site."
11.4.3 Data Storage	Current section requires modification to properly reflect the Micro-generation	11.4.3 Data Storage  "In addition to requirement outline in the Electricity and Gas Inspection Regulations, the MDM shall store all original meter readings, validation results, estimated readings, issued DCMs, and cancelled DCMs for a period of at least 24 months from the last date revision date."	Proposed to change:  In addition to requirement outline in the Electricity and Gas Inspection Regulations, the MDM shall store all original meter readings, validation results, estimated readings, issued DCMs, and cancelled DCMs, issued GCMs and cancelled GCMs, for a period of at least 24 months from the last date revision date.
11.4.4 Data Provision	Current section requires modification to properly reflect the Micro-generation	11.4.4 Data Provision  Nil	Proposed to add 5) 6) 7) and 8):  5) Subject to the general provisions of the Settlement System Code s. 11.2 the MDM is not required to provide GCM records to the LSA. The MDM is required to provide GCM records to the Retailer and the ISO.  6) The MDM shall ensure that reported GCM data for a Site will not generate date overlaps or leave date gaps with previously reported

Reference to the AUC Rule 021 section/number		Reason for change	Currently stated in the Rule	Proposed to change as:
				<p>GCMs for that Site - that is, for any valid Site, the energy flow for any past single day must be accounted for in the effective time interval (as calculated from the difference between Current Reading Datetime and Last Reading Datetime) of one and only one GCM.</p> <p>7) The report date in the GCM Current Reading Datetime field shall be the date the meter was actually read</p> <p>8) The reporting time in the GCM Current Reading Datetime field may, at the option of the MDM, be report as actual meter read time or a consistently deemed meter read time between 00:00 and 23:59.</p>
	11.4.5 Data Performance Metrics	Current section requires modification to properly reflect the Micro-generation	11.4.4 Data Performance Metrics  Nil	<p>Proposed to add 3):</p> <p>"3) All micro-generation sites shall have their cumulative meters read each calendar month.</p>

2. The following tables are the proposed transactions that related to micro-Generation. These transactions will be included in the AUC Rule 021.

9.6.1.1. a) Micro-Generation Interval Meter Readings to Retailers – Process Rules

- 1) This transaction is used for reporting electric energy supplied out of the large micro-generator sites.
- 2) Each transaction is sent to retailer identified in the transaction
- 3) It is required only while the site is energized and the micro-generator site is commissioned. Gaps during such periods are unacceptable.
- 4) If a record is to be replaced, a replacement interval is provided. There is no distinction that it is a replacement record.
- 5) Status flags are mandatory for inclusion with all GIM transactions.

Table 15.A GIM Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'GIM'	Abbreviation for the transaction name
2	Date time	Date time format	Latter of the time the transaction was created or last modified
3	MDM ID	MDM ID format	Sender (MDM responsible to read the meter)
4	Retailer ID	Retailer ID format	Recipient (Retailer currently associated with the site)
5	Business Function ID	Varchar (2)	Optional at the discretion of the WSP
6	Site ID	Site ID format	See definition in Universal Standard section of this document
7	Socket ID	Socket ID format	See definition in Universal Standard section of this document
8	Asset ID	Varchar (10)	Identifier assigned by the AESO to the micro-generator
9	kW	Number (10,4)	Kilowatt demand supplied out of the site for the interval period
10	kWh	Number (10,4)	Kilowatt hour energy supplied out of the site for the interval period
11	Datetime	Datetime format	End Date and Time for the reading
12	Interval Period	Number (4)	Number of minutes between readings
13	Hour Ending	Char (3)	See definition. Third character is to be used for asterisk as described in the definition, but otherwise blank.
14	Demand (kW) status	Char (2)	Describes the type of meter reading ME – Actual from meter ES – Estimated

15	Energy (kWh) Status	Char (2)	Describes the type of meter reading ME – Actual from meter ES – Estimated
16	Transaction Status Code	Char (4)	Used by the recipient to notify the sender of problems with the transaction. When this field is used it must be dealt with at a minimum, in a manual fashion. The use of this electronic transaction in an automated fashion (in case of problems) is subject to the WO T&Cs. When using transaction status codes, the codes in s. 9.8 must be used.

### 9.6.1.2 a) Micro-Generation Cumulative Meter Consumption to Retailers – Process Rules

#### 1) GCM Date Time Usage

- a) The “Transaction Date Time” field shall be populated with the latter of the time the transaction was created or last modified.
- b) The “Current Reading Date Time” field of the GCM shall be populated with actual or deemed values, at the discretion of the MDM. If a deemed value is used, the time must be within 24 hours of the actual read.
- c) The “Last Reading Date Time” field of the GCM must be identical to the “Current Reading Date Time” field of the prior GCM for the same Site except when the energize status of a Site has changed.
- d) There must be a difference between the “Last Reading Date Time” field of a GCM transaction and the “Current Reading Date Time” field of the same GCM transaction.
- e) Gaps between the “Last Reading Date Time” field of a GCM transaction and the “Current Reading Date Time” field of the prior GCM transaction are only permitted when a Site is in a de-energized state or the micro-generator site is commissioned.
- f) The “Last Meter Dial Reading” field of a GCM transaction must be identical to the “Current Meter Dial Reading” field from the prior GCM transaction, when the meter is unchanged.

#### 2) GCM Data Provision

- a) In the event of a retailer switch during the meter reading period, the MDM shall provide the meter read to both old and new retailers.

#### 3) GCM Cancellation

##### a) Single GCM Cancellation

- i) The MDM will indicate specifically which record to cancel by sending a cancellation GCM indicated by “CA” in the Record Status field. All cancellation GCM fields should match exactly to the GCM to be cancelled except for the following fields:
  - Transaction Date time
  - Record Status
  - Transaction Status Code
- ii) Records with a “CA” status should appear first in every file.

b) GCM Status Flags

The following data status flags must be included with all GCM transactions:

**Table 17.A GCM Status Flag Codes**

Code	Meaning
ME	Passed validation tests as described in s. 11.4.2.1
ES	Estimated

**Table 17.B GCM Transaction Layout**

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	GCM	Abbreviation for the transaction name
2	Transaction Date time	Date time format	Latter of the time the transaction was created or last modified
3	MDM ID	MDM ID format	Sender (MDM responsible to read the meter)
4	Retailer ID	Retailer ID format	Recipient (Retailer currently associated to the site)
5	Business Function ID	Varchar (2)	Optional at the discretion of the WSP
6	Site ID	Site ID format	See definition in Universal Standard section of this document
7	Meter Number	Varchar (20)	Meter Number
8	kWh	Number (8,2)	Kilowatt hour energy supplied out of the site between the last and current readings.
9	Last Reading Datetime	Datetime format	Date and time of the last reading
10	Current Reading Datetime	Datetime format	Date and time of the current reading
11	Last Meter Dial Reading	Number (10)	The previous dial reading taken from the meter
12	Current Meter Dial	Number (10)	The current dial reading taken from the meter
13	Meter Multiplier Number	Number (6,1)	Meter multiplier
14	Energy (kWh) Status	Char (2)	Char (2) Describes the type of meter reading. Refer to GCM status flags code table under process rules.
15	Record Status	Char (2)	CA – Cancelled. This code indicates that the receiver should cancel their version of this exact record. Sending this record eliminates confusion of the records purpose; especially

			when the replacement record may not cover the same period as this cancelled record.
16	Transaction Status Code	Char (4)	Used by the recipient to notify the sender of problems with the transaction. When this field is used it must be dealt with at a minimum, in a manual fashion The use of this electronic transaction in an automated fashion (in case of problems) is subject to the WO T+Cs. When using transaction status codes, the codes in s. 9.8 must be used.

### 9.6.3.5 - Micro-Generation Retailer Notification – Process Rules

- 1) The Micro-Generation Retailer Notification (GRN) transaction consists of information about the micro-generator site setup. If the Site has more than one associate Socket, a transaction will be sent for each Socket. This transaction allows for different meters at the same Socket measuring different functions. This transaction is sent to the Retailer and the ISO:
  - a) on a change in operational status (commissioned/decommissioned) at the site
  - b) on a successful retailer enrollment at the site
- 2) The WSP is responsible for producing this transaction and sending it to the retailer.
- 3) This transaction is used in conjunction with the SMC transaction to identify the periods of time during which a complete set of GIM or GCM transactions must be provided by the MDM.

**Table 30.A GRN Transaction Layout**

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'GRN'	Abbreviation for the transaction name
2	Transaction Date time	Date time format	Date the transaction was created
3	Wire Services Provider ID	Wire Services Provider ID format	Sender
4	Retailer ID	Retailer ID format	Recipient
5	Business Function ID	Varchar (2)	Optional at the discretion of the WSP
6	Site ID	Site ID format	See definition in Universal Standard section of this document
7	Socket ID	Socket ID format	See definition in Universal Standard section of this document
8	Asset ID	Varchar (10)	Required for large micro-generator sites only
9	Date time Effective	Datetime format	Date and time the micro-generator indicator is effective
10	Micro-generator Indicator	Char (1)	Y – Micro-generator is commissioned N – Micro-generator is decommissioned

### 9.6.6.3 a) Micro-Generation Retailer Summary – Process Rules

This transaction is used by retailers to submit a generation credit summary report for each small micro-generator's site to the ISO on a monthly basis.

- 1) Retailers will submit only one GRS transaction file to the ISO each month for all small micro-generator sites enrolled with the retailer in that month.
- 2) A cancel transaction is indicated by negative values in the "kWh" and "Total" elements.
- 3) The ISO will list the file name and the "Total" elements on the retailer's pool statement.
- 4) The "From" "To" date range that defines the billing period cannot span a calendar month boundary.
- 5) Where a meter read period spans the calendar month boundary, the Retailer will pro-rate the energy volume based on number of days within the billing month period.
- 6) Retailers must submit this file by 23:59 of the 2nd business day of the month to be included in the preliminary pool statement and by 23:59 of the 10th business day of the month to be included in the final pool statement.

**Table 37.A GRS Transaction Layout**

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'GRS'	Abbreviation for the transaction name
2	Transaction Date time	Date time format	Date the transaction was created
3	Retailer ID	Retailer ID format	Sender
4	ISO Financial ID	ISO Financial ID format	Recipient
5	Site ID	Site ID format	See definition in Universal Standard section of this document
6	From	Date format	The date of the first day in the period over which the energy in the "kWh" field was supplied out of the site. (YYYYMMDD)
7	To	Date format	The date of the last day in the period over which the energy in the "kWh" field was supplied out of the site. (YYYYMMDD)
8	kWh	Number (8,2)	Kilowatt hour energy supplied out of the site between and

			including the "From" and "To" dates. Signed values allowed.
9	Rate	Number (8,4)	The retailers retail energy rate for the site in dollars per kWh.
10	Total	Number (8,2)	Total credit for the site in dollars (kWh x rate rounded to 2 decimal places). Signed values allowed.

#### 9.4.6.14 Site ID catalogue (SID)

The following element is added to the end of the SID record.

**Table 14. SID Transaction Layout**

Sequence	Element	Data Type/Size	Description
34	Micro-generator Indicator	Char (1)	Y – Micro-generator is commissioned N – Micro-generator is decommissioned or does not exist