

Rule 021

Settlement System Code Rules

The Alberta Utilities Commission (AUC/Commission) has approved this rule on January 2, 2008.

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1 Definitions

1.1 Key Terms

Act	Act means the <i>Alberta Utilities Commission Act</i> .
Aggregation	Aggregation is a collection of particulars into a whole mass or sum; total; combined.
Business Day	A Business Day has the meaning ascribed to the term “business day” in the ISO Rules.
Code	Code means this System Settlement Code (SSC) rule(s).
Commission	The Commission is the Alberta Utilities Commission.
Customer	A customer has the meaning ascribed to the term “customer” in the <i>Electric Utilities Act</i> .
Deemed Profiles	Deemed profiles are pre-specified load shapes agreed to in advance. Commonly, this method has been used for loads, such as street lighting, with predictable, essentially flat shapes. However, a deemed shape could be developed for other applications based on engineering analysis and/or load shapes from other territories.
Dynamic Estimates	Dynamic estimation is a profiling method using load research data from the day of interest. Use of the method produces dynamic estimates.
Initial Daily Settlement	Initial daily settlement is a calculation of load settlement conducted within five Business Days after the day of flow. Initial daily settlement, by virtue of its timing, may or may not use consumption information from cumulative meter readings, and may or may not use interval data that is retrieved on a monthly basis.
Initial Monthly Settlement	Initial monthly settlement is a calculation of load settlement for the preceding month.
ISO	ISO means the Independent System Operator.
Load Profile	A load profile is a series of load or consumption amounts for each interval over a particular time period. In this document, the intervals are one hour, so that the profile may be considered either as average load (kW) or total consumption (kWh) for each interval. The profile may be expressed either as the average per customer or as the total load for each interval.
Load Profile Shape	A load profile shape is a normalized load profile. Specifically, the energy consumption in each interval (hour) is expressed as a fraction of the total energy consumption for the time span of the profile.
Load Settlement Agent (LSA)	An LSA means the party conducting load settlement calculations for a particular settlement zone.

Market Participant	Market Participant has the meaning given the term in the <i>Electric Utilities Act</i> .
Measurement Data	Measurement data is data that has been collected from meters, compensated and aggregated in accordance with the appropriate Measurement Point Definition Record, and has been subjected to the required VEE checks.
Meter	“meter” has the same meaning as given the term in the <i>Electric Utilities Act</i> .
Meter Data Manager (MDM)	An MDM is the entity responsible for collecting meter data, correcting and validating interval meter data, storing historic data, and reporting load and consumption data together with corresponding time periods to appropriate parties.
Metering Data	Metering data is the data associated with a metering point.
Month-At-A-Time (MAAT) Settlement	MAAT settlement is a process of conducting load settlement for all days of a calendar month at once.
MSA	MSA is the Market Surveillance Administrator.
Net System Load Shape (NSLS)	NSLS is the shape of a total load of a settlement zone, minus interval metered loads, deemed loads, loads based on specific load-research-based profiled classes and known losses.
Point-of-Delivery (POD)	A POD is a conceptual point of delivery from the Transmission System. A POD is the point at which energy is deemed to be delivered from the transmission system to the distribution system. A POD is a collection of one or more measurement points.
Point-of-Supply (POS)	POS is a conceptual point of supply onto the Transmission System. A POS is the point at which energy is deemed to be supplied to the transmission system.
Post Final Adjustment Mechanism (PFAM)	PFAM is a process that participants must follow when final settlement data is being disputed and the participants are requesting financial adjustments be made as a result of the dispute.
Profiling Cap	A profiling cap or threshold is the size level above which a Site is required to have interval-metering data.
Profiling Class	A profiling class is a group of Sites that will be settled using a common load profile.
Reactive Power	Reactive power is the portion of electricity that establishes and sustains the electric and magnetic fields of alternating current equipment, usually expressed in kiloVAr (“kVAr”) or megaVAr (“MVA”).
Retailer of Record.	Retailer of Record is the single Retailer or regulated rate provider that the load settlement system recognizes as serving a given Site for a given day.
Retailer	Retailer has the meaning given the term in the <i>Electric Utilities Act</i> .

Settlement Interval	The settlement interval is the time increment at which distinct load estimates are calculated by load settlement systems.
Settlement Ready Data	Settlement ready data is data that is complete and ready for use in load settlement. Data shall be validated, estimated and edited as outlined in the standards, and aggregated or totalized to measurement point data as per the Measurement Point Definition records.
Settlement System	A settlement system is a computer system and associated operations and interfaces used to determine the load responsibility at each unit of the settlement interval, for each Retailer operating within the settlement zone.
Settlement Timing	Settlement timing - is the frequency at which load settlement is calculated and reported to the ISO and to Retailers by load settlement agents.
Settlement Zone	The settlement zone is the collection of Sites that are jointly settled by a settlement system.
Site	A Site is a unique end-use service delivery point. This is the finest level at which load settlement recognizes Retailer assignments and receives consumption data.
Socket	A Socket is normally a point at which a physical meter is installed, or a point at which a Site load is calculated.
System Level	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 transmission system and the distribution system, distribution interchange, distributed generation, and amounts delivered to or from border customers.
Unaccounted for Energy (UFE)	UFE for each hour is the difference between (a) the system total load for the hour and (b) the sum of the allocated hourly loads at the customer meters, plus their allocated losses. All references to UFE in this Code refer to UFE on electric distribution systems.
Wire Services Provider (WSP)	A WSP is a person authorized by an owner of an electric distribution system to act on behalf of that owner.

1.2 Common Abbreviations

AIES	Alberta's Interconnected Electric System
CSE	Cumulative Switch Estimate transaction
CT	Current Transformer
DCM	Daily Cumulative Meter transaction

DEC	De-Energize Completion transaction
DEF	De-Energize Failure transaction
DER	De-Energize Request transaction
DFO	Distribution Facility Owner
DG	Distributed Generation – includes Micro generation
DI	Distribution Interchange
DIM	Daily Interval Meter Readings transaction
DSM	Daily System Measurement transaction
DSN	De-Select Notification transaction
DSR	De-Select Request transaction
EDG	Excess Distribution Generation
ENC	Energize Completion transaction
ENF	Energize Failure transaction
ENR	Energize Request transaction
HE	Hour Ending label
ID	Identifier
LSA	Load Settlement Agent
MAAT	Month-At-A-Time
MDM	Meter Data Manager
MDP	Meter Data Provider
MEA	Measurement Error Adjustments
MP	Measurement Point
MPDR	Measurement Point Definition Record
MSP	Meter Service Provider
MSS	Measurement System Standard
NSLS	Net System Load Shape
PFAM	Post-Final Adjustment Mechanism
PFEC	Pre-Final Error Correction

POD	Point of Delivery
POS	Point of Supply
POT	Point of Transfer
PT	Potential Transformer
RAM	Retailer Adjustment to Market
RDC	Revoke De Energize Confirmation transaction
RDR	Revoke De Energize Request transaction
REA	Rural Electrification Association
ROC	Request Off Cycle Meter Read Completion transaction
ROR	Request Off Cycle Meter Read transaction
RRP	Regulated Rate Provider
RSA	Retailer Specific Adjustment
RUC	Request Update Customer Information transaction
SCU	Site Cumulative Update
SIR	Site ID Result transaction
SMC	Site Metering Characteristics
SPI	Settlement Profile Information transaction
SRN	Select Retailer Notification transaction
SRO	Notify Old Retailer transaction
SRR	Select Retailer Request transaction
SRW	LSA Notify MDM, WSP transaction
SSC	Settlement System Code
SSI	Settlement Summary Information transaction
SSR	Search Site Request transaction
T+Cs	Terms and Conditions
TA	Transmission Administrator
TAA	Transmission Administrator Adjustment transaction
TBC	Tariff Bill Code

TFO	Transmission Facility Owner
TX	Transmission
UCI	Update Customer Information transaction
UFE	Unaccounted For Energy
UTC	(Coordinated Universal Time, Temps Universel Coordonné) The international time standard (formerly Greenwich Mean Time, or GMT). Zero hours UTC is midnight at 0 degrees longitude.
VEE	Validation, Edit and Estimation
WO	Wire Owner
WSD	Wholesale Settlement Detail transaction
WSI	Wholesale Settlement Information transaction
WSP	Wire Service Provider
WSS	Wholesale Settlement Summary transaction

2 Responsibilities

2.1 Application

All Market Participants are required to comply with the Settlement System Code.

The following responsibilities are identified for LSA's, WSP's, and MDM's. These functional distinctions, or others indicated in subsequent sections, identify separate roles, responsibilities, and protections in cases where these functions are performed by separate entities. However, in cases where all these functions are performed within the same business entity, these terms are descriptive only, and are not proscriptive of implementation flows within the bundled WSP acting as LSA for its own customers.

2.2 Load Settlement Responsibility

Generally, this Code refers to load settlement as being a function of the WSP not the WO. In most cases, the WO and WSP are the same. In cases where the WO does not select a WSP, this Code considers the WO to be the WSP. In cases where the WO is not the WSP for its customers, this Code assigns load settlement responsibility to the WSP. That is, the WSP not the WO will be the LSA in such cases. Load settlement responsibility for cases where the WSP is the WO but does not arrange system access service is described in s. 4.6.

2.3 Profile Generation

Development of load profiles is an LSA function. This function includes:

- 1) Calculation of the net system load shape profiles,
- 2) Calculation of deemed profiles,
- 3) Load research sample design and implementation, and
- 4) Generation of class profiles based on load research data using methods that satisfy the profile generation standards.

2.4 Site Identification Number Catalog

Maintaining the catalog of Site identification numbers (Site IDs), load settlement agent identification numbers (LSA IDs) and service addresses is a WSP responsibility.

2.5 Receipt of Energize/De-energize Requests

All energize and de-energize requests initiated by the customer or the Retailer go from the Retailer to the WSP.

2.6 Estimating Missing Meter Readings and Consumption Amounts

- 1) Responsibility for filling in estimates for missing values in interval data series rests with the MDM as set out in s. 11.3.2.
- 2) If MDM Standards for no gaps in interval and POD level data is not met (see s. 9.6.1.1 and 1) above), LSAs can estimate missing intervals for interval and POD level data.
- 3) The LSA shall estimate consumption amounts for cumulative meters where these are needed according to the following:

- a) Daily energy consumption of initial daily settlement.
 - b) When an actual meter read is absent when any MAAT settlement is calculated.
 - c) In support of customer switching, through the provision of the CSE to the old and new Retailers. Procedures for estimating consumption where needed in b) are at the discretion of the LSA.
- 4) For a Site for which there is no prior consumption history, the WSP is responsible for creating the initial estimate of energy consumption as per the WSP process.
 - 5) The MDM is responsible for estimating consumption amounts for cumulative meters according to the specific circumstances in s.11.4.2.2.

2.7 Losses

- 1) The LSA is responsible for calculating distribution losses, establishing the formulas for allocating those losses to Sites, and implementing those formulas as part of the load settlement process.
- 2) Allocated losses are included in the hourly load calculated for each Retailer by load settlement.

2.8 Disclosure and Protection

The LSA shall make publicly available the procedures and methods used to conduct load settlement, including formulas, common parameter values, and system-level data. The LSA must also make available to individual parties data specific to those parties. The LSA shall not make publicly available, data specific to individual parties.

2.9 Retailer of Record

The LSA recognizes only one Retailer of Record for a particular Site on a particular day and the LSA will only allocate energy to the Retailer of Record.

2.10 Estimation and Liability for Load Settlement

Responsibility for conducting initial daily, initial monthly, interim and final settlements is part of the WSP's mandated responsibility as the Load Settlement Agents. WSPs are not liable for the financial consequences of errors in estimates developed and provided to interested parties as part of their good-faith performance of these tasks.

2.11 Provincial Reconciliation

The ISO is responsible for reconciling the total provincial supply and load. To ensure the ISO can carry out this task, each stakeholder and Market Participant must provide any generation and load data to the ISO that the ISO requests.

2.12 Request for Site ID numbers

- 1) Retailers must provide a list of the customer's Site IDs with the customer's bill or provide the Site IDs in an electronic format to the customer at the time of the customer bill.
- 2) Customer requests for the Site ID, that include the account number, must be responded to within two Business Days.

2.13 Review of Load Settlement Processes

LSAs are required to conduct reviews/audits of their load settlement processes annually and sooner if significant changes to those processes have occurred that could impact the results of the processes. The Commission, at its discretion, may require an independent external review of an LSA's load settlement processes or load settlement engine. For both the annual review and independent external review, the auditor's findings and management responses must be made available to the Commission and to the ISO. Subject to the AUC Rules of Practice, as applicable, the auditor's findings and management responses will be considered by the Commission and by the ISO to be confidential information.

2.14 Timing of Meter Reads

Each WSP may define an assumed time of day for meter reading for cumulative meters. The same deemed timing will apply to energize and de-energize.

2.15 Provision of Copies of Transactions to the ISO

- 1) Each Market Participant that provides a transaction identified in s. 9 of this Code (excluding s. 9.6.2.4) to another Market Participant shall:
 - a) provide a copy of that transaction to the ISO using DropChute; and
 - b) create a DropChute entry designated for the attention of the Load Settlement group in order to facilitate the provision of the transaction copy.
- 2) Each transaction copy must be provided to the ISO on the same day the Market Participant provides the original transaction to the intended Market Participant recipient.
- 3) The ISO shall be responsible for retrieving the transaction copies from their DropChute mailbox on each Market Participants' DropChute server.
- 4) Each Market Participant shall work with the ISO to ensure that the foregoing data transfer communication is set-up and tested to the ISO's satisfaction in order to achieve the objectives specified in 1) above.

2.16 Provision of Load Settlement Related Data to the ISO

The ISO may request a Market Participant to provide it with any data related to load settlement. A Market Participant receiving such a request is required to deliver this data to the ISO within a reasonable period.

All data requests made by the ISO under these rules of any Market Participant shall be also be copied to the Commission at the same time as the request is made

3 Load Profiling Methods

3.1 Profile Generation Methods

1) Acceptable Methods

- a) Net system load profile,
- b) Dynamic estimation from load research samples,
- c) Any load-research-based method that meets the accuracy standards defined in s. 8, and
- d) Deemed profiles, limited to loads described under 3) below.

The accuracy requirements specified in s. 8 apply to profiling classes based on load research samples used for final settlement. The same profiling methods shall be used for initial monthly and interim settlement runs.

2) Calculation of Net System Load Shape (NSLS)

a) Net System Load.

Load settlement systems must have the capability to accommodate profiling classes split from NSLS, based on load research or deemed methods. The net system load (NSL) shall be calculated for each hour as:

$$(\text{Total system load}) - [(\text{Sum of interval metered customers}) + (\text{Sum of deemed loads}) + (\text{Sum of loads for load-research-based profiled classes}) + (\text{Sum of known losses})]$$

b) Net System Load Shape.

NSLS for a period is calculated by dividing the hourly NSL by the sum over hours in the period of the NSL.

c) Known Losses.

The calculation of known losses for subtraction from the net system load shape depends on the loss calculation procedures. As specified in s. 4.1, the procedures for calculating and allocating losses are to be determined by each LSA. One possible approach involves the calculation of the total system loss, with subsequent allocation of this total to customer groups based on the known or estimated loads of those groups. With this approach, the total system loss is known before the net system load shape is calculated, but the losses associated with the individual load components subtracted to calculate the residual may not be. In this case, the total system loss is subtracted from the system load in calculating the residual. Another common approach is to develop a set of loss multipliers for different groups of customers and time periods. With this approach, the total system loss is not known prior to calculation and application of the residual profile, but losses for the load components subtracted from the system total are known. In this case, these known losses are subtracted from the residual.

d) Total Loads for Load Research-Based Profiling Classes.

For purposes of calculating NSL, the total load research-based profiling classes will

be calculated by applying appropriate sample expansion factors (such as the ratio of population count to sample size) to the load research sample.

3) Deemed Profiles

- a) Regardless of what general load profiling method is used, the unmetered loads should be handled by a “deemed” shape and estimated consumption.
- b) The deemed shapes and magnitudes will be calculated by each LSA using its existing methods.
- c) Both metered and unmetered irrigation, gas and oilfield pumping accounts will be profiled using a deemed profile. For all other metered accounts, the energy amount will be based on meter readings.

3.2 Segmentation

- 1) LSAs may not create new profiling classes. Each LSA will specify publicly the existing rate classes for which separate load research-based profiles may be provided.
- 2) Procedures for creating new profiling classes may be developed in consultation with stakeholders, including WSPs, Retailers, and consumers.
- 3) Retailers (or other market players) will pay for the costs of creating those profiling classes they request.

3.3 Profiling Cap

- 1) The profiling cap is 2 MW or the WSPs current policy, whichever is lower. WSPs must specify their current policy publicly.
- 2) The WSP has an obligation to provide interval meters to customers who request them for as long as metering remains a WSP responsibility. Costs recovery terms are specified by each WSP’s Terms and Conditions of Service.

3.4 Customers with Interval Meters but Below the Profiling Cap

The following rules apply to customers who have interval meters but are below the cap at which interval metering is required.

- 1) If the customer is part of its profiling class load research sample, the customer is always settled according to the class profile, not according to its own interval data.
- 2) If the customer is not part of its profiling class load research sample, the customer is always settled according to its own interval data, not according to the class profile.

4 Load Settlement Calculations

4.1 Loss Calculations

- 1) WSPs calculate losses and develop loss allocation formulas to be used in load settlement. Those who have been doing such calculations and developing loss allocation formulas as part of cost-of-service studies should continue to use similar methods to those they have been using. Those WSPs who have not conducted such calculations in the past (mainly smaller municipals) will calculate losses empirically from the difference between energy flow at the points of distribution and at the points of end use.
- 2) Loss calculation procedures and specific factors used in the calculations will be clearly reported to Retailers and to client WSPs at all times. Any changes to these procedures will be announced by the first day of the month after a ninety day notice period, to allow Retailers reasonable time to adjust their supply and sales contracts.
- 3) In cases where one WSP conducts load settlement on behalf of another WSP under the terms of s. 4.5, the loss calculation is the responsibility of the LSA. In particular, the WSP that conducts load settlement for REA customers served by the WSPs PODs is responsible for developing the loss allocation formulas that will apply to those customers. The loss calculation and allocation procedures in such cases must be transparent, and must be applied consistently for all customers in the settlement zone. Consistency does not require that the same loss allocation parameters must apply to all customers, but that the form of the allocation and the basis for determining its parameters must be the same for all customers.
- 4) When load settlement is performed by the LSA on behalf of another WSP, the loss calculation is subject to regulatory oversight. This oversight governs the confidentiality of data from the WSP used by the LSA and the fairness of the loss formulas developed by the LSA.
- 5) In the event that a client WSP disagrees with the loss allocation formulas developed by the LSA for load settlement, the client WSP may use the dispute resolution procedures specified in s. 5 to redress the disagreement.

4.2 Unaccounted for Energy (UFE)

4.2.1 UFE Allocation

- 1) The calculated UFE for each hour will be allocated across all customer Sites of all Retailers in proportion to their settlement calculation of load, excluding UFE, but including allocated losses.
- 2) Despite 1) above, customer Sites will not be allocated UFE effective January 1, 2002 provided that:
 - a) The energy flow to the customer Site is calculated from the measurements of one or more interval meters; and
 - b) The same measurements and calculations referred to in a) above, are used by the ISO to determine energy flow at a POD for transmission system access service.

4.2.2 UFE Monitoring

- 1) UFE Monitoring Rules

- a) Testing for UFE reasonableness is to be done on daily averaged UFE data for all settlement runs for LSAs using the NSLS profiling methodology.
- b) For LSAs not utilizing the NSLS profiling methodology, testing and reporting will be on monthly average UFE data, thereby excluding the daily reporting and testing requirement.
- c) When UFE is outside the tolerances described in s. 4.2.2.2), the LSA will investigate the variance and will report to the market on their websites.
- d) LSAs shall report as described in c) above, within three Business Days of the provision of load settlement results.
- e) Errors identified as part of the investigation, shall be corrected prior to the next settlement run, or in accordance with other error correction standards outlined in this Code.

2) UFE Tolerances

- a) For UFE to be considered reasonable, and thus does not constitute action by the LSA as described in s. 4.2.2.1) c), daily or monthly average UFE for all settlement runs, within each settlement zone must fall within both the General UFE and Settlement Zone Specific UFE tolerances outlined below.
- b) General UFE Tolerances: average daily or monthly UFE for all settlement runs and settlement zones must fall within the following tolerances to be considered reasonable:

Table 1. General UFE Tolerances

Settlement Run	Daily-Average UFE Tolerances (for NSLS Profiling)	Monthly-Average UFE Tolerances (for Non-NSLS Profiling)
Initial Monthly Settlement	+ / - 5%	+ / - 5%
Interim Settlement	+ / - 4%	+ / - 4%
Final Settlement	+ / - 4%	+ / - 4%

- c) Settlement Zone Specific UFE Tolerances: average daily or monthly UFE must fall within the following tolerances around the Average Zone UFE for each settlement zone to be considered reasonable.

Table 2. Settlement Zone Specific UFE Tolerances

Settlement Run	Daily-Average UFE Tolerances (for NSLS Profiling)	Average Monthly UFE Tolerances (for Non-NSLS Profiling)
Initial Monthly Settlement	+ / - 4%	+ / - 4%
Interim Settlement	+ / - 3%	+ / - 3%
Final Settlement	+ / - 2%	+ / - 2%

- d) The Average Zone UFE for each settlement zone for a particular year will be determined every January of that year by ISO utilizing the settlement data for such zone from the previous year and will then be made available to all Market Participants.

3) Reporting Requirements

- a) The UFE exception report, described in s. 4.2.2.5), shall be posted on the LSA’s website in Adobe Acrobat format.
- b) The LSA shall provide one file for each settlement zone.
- c) The reports are to contain twelve months of rolling data for initial daily, initial monthly, interim and final settlement runs.

4) File Naming Convention

File names shall use the following naming convention:
 LSA ID_ZoneID_UFEReporting.pdf

5) UFE Reasonableness Exception Report

The LSA shall provide the following information when UFE is found to be outside of the tolerances described in s. 4.2.2.2).

Table 3. UFE Reasonableness Report

UFE Reasonableness Reporting								
Last Revision Date:								
Period (Day / Month)	Date Identified	TEST 1 General	TEST 2 LSA Avg	Settlement Run	Type of Error	Status (1) Open – LSA (2) Open – Other (3) Resolved	Date Resolved	Comments
	Date Identified by the LSA	Outside of Overall Bound (mark with 'x')	Outside of LSA-specific bound (mark with 'x')	I=Initial Daily M=Initial Monthly R=Interim F=Final	S=System Level I=Interval C=Cumulative D=Deemed O=LSA Operational U=Unidentified		Date when LSA or other responsible party has resolved the issue	

4.3 Load Settlement Interval

Load Settlement is required at one-hour intervals. New components of load settlement systems should be designed to accommodate quarterly-hourly settlement data. An update of old components may be deferred until quarter-hourly results are required.

4.4 Load Settlement Timing

4.4.1 General Comments

- 1) There are four settlement runs for each day of flow. The specific timing and data requirements for initial daily, initial monthly, interim, and final load settlements are described below. For each day settled, the load settlement system will provide each of these four calculations of load settlement.

- 2) LSAs shall publish load settlement results only once for each mandated settlement run.
- 3) The ISO may order re-running of initial monthly or interim reconciliation or final reconciliation settlement runs.

4.4.2 Initial Daily Settlement

- 1) Initial daily settlement will be calculated utilizing the latest measurement data received as of 23:59 on the third Business Day following the day of flow.
- 2) LSAs will provide initial settlement results to the ISO and Retailers by 23:59 on the fifth Business Day after the day of flow.

4.4.3 Initial Monthly Settlement

- 1) The ISO and LSAs will utilize the latest measurement data received by 23:59 on the seventh Business Day following the last day of the month data for their respective calculations.
- 2) Initial monthly settlement will be calculated utilizing the latest measurement data received as of 23:59 on the seventh Business Day following the last day of the month to be settled.
- 3) LSAs will provide initial monthly settlement results to the ISO and Retailers by 23:59 on the tenth Business Day after the end of the month to be settled.

4.4.4 Interim Reconciliation Settlement

- 1) Interim reconciliation will make use of consumption amounts for all completed meter reading periods as of 23:59 of the fourth Business Day preceding the last Business Day of the third month following the month being settled, subject to the restrictions on profile cutoff dates and profile freezing described in s. 6. For customers for which a meter reading is not available covering the day to be settled, the energy consumption amounts will be estimated by the LSA as described in s. 2.6.
- 2) The LSA will provide interim settlement results to the ISO and Retailers by 23:59 on the Business Day preceding the last Business Day of the third month following the month being settled.

4.4.5 Final Reconciliation Settlement

- 1) The final reconciliation will make use of consumption amounts for all completed meter reading periods as of 23:59 of the twelfth Business Day of the seventh month following the month being settled, subject to the restrictions on profile cut-off dates and profile freezing described in s. 6. For customers for which a meter reading is not available covering the day to be settled, the energy consumption amounts will be estimated by the LSA as described in s. 2.6.
- 2) The LSA will provide final settlement results to the ISO and Retailers by 23:59 on the fifteenth Business Day of the seventh calendar month following the month being settled.

4.4.6 Data Revisions

Data revisions to date are incorporated at the initial monthly, interim and final reconciliations. No further data changes are incorporated after the final reconciliation. Load settlement is not

responsible for tracking and storing data versions between initial and interim settlement. Load settlement does store or maintain reproducibility for all the data used for each round of load settlement, initial, initial monthly, interim and final.

4.5 Load Settlement Responsibility for WSPs

- 1) Load Settlement responsibility is assigned to a Load Settlement Agent (LSA) which is a monopoly function of a WSP. A WSP is the LSA for all Sites to whom its wires tariff applies that are eligible for enrollment with a Retailer. In the case where a non-REA WSP's wires tariff applies to a Site in addition to a REA's wires tariff, the non-REA WSP is the LSA for that Site. The REA will provide consumption data and other Site information to the LSA for load settlement and the LSA will provide aggregated load settlement information for the REA Sites.
- 2) Each WSP will assign all the Sites for which it is the LSA to one or more settlement zones in accordance with its disclosures described in s. 12.1.1.4). A Site can be assigned to one and only one settlement zone.
- 3) Each WSP will subdivide its entire service territory into areas and assign each and every area to one and only one settlement zone so that each Site in a settlement zone is located in an area assigned to the settlement zone. The areas assigned to a settlement zone are not required to be contiguous. A WSP may be the LSA for sites located in border areas outside Alberta. For the purpose of assigning a WSP's service territory to settlement zones, these areas will be deemed to be part of the WSP's service territory.
- 4) WSP's require regulatory approval to change the rules by which their service territory and the sites for which they are the LSA are assigned to settlement zones.
- 5) The monopoly right and responsibility of one WSP to conduct load settlement for another WSP is subject to regulatory controls related to system transparency and information access and pricing of the load settlement service. Transparency of methods and procedures is a general requirement of the load settlement procedures. In particular, a client WSP must have access to load settlement-related information on its own customers.
- 6) Data provided to the LSA by the client WSP for purposes of load settlement must be used by the LSA for settlement purposes only, unless the client WSP authorizes other uses.
- 7) In cases where two WSPs each have some customers served from PODs or final points owned by the other WSP, and the two WSPs have historically determined between them the net hourly flow from one WSP's territory to the other's. These WSPs may continue to follow their existing procedures. In this case, each of the WSPs will use the metered data with no adjustment at the point of interchange between the two territories and add the net flow (positive for one and negative for the other) to the sum of their POD loads to determine their total system flows. This sum will serve as the adjusted POD total for the settlement zone. Each WSP will then conduct settlement for its own customers, reconciling to its adjusted zone POD total for each hour.

4.6 Load Settlement Mechanics for Special Cases

4.6.1 Distributed 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.
- 2) All distributed generation Sites must have interval metering to measure the energy supplied onto the distribution system, unless specifically excluded by the ISO. All distributed generation Sites capable of consuming energy must have a Site ID and a cumulative or interval meter. Specific metering configurations are at the discretion of each WSP. If the WSP does not own the metering systems, arrangements must be made by the distributed generation owner to deliver all data requirements defined by the WSP.
 - a) A distributed generator with an output of less than 25 kW to be exported to the distribution system, and less than 150 kW in size, is exempt from the requirements of having an interval meter.
 - b) The exception level may be reviewed at a later date, dependent upon the distributed generator impact to UFE, profiling and costs. This review will take place when the total provincial exempted generation referred to in 1 reaches 2 MW.
- 3) The load settlement procedure for distributed generation is the following:
 - a) For each quarter-hour interval, the MDM must determine if the Site as a whole is consuming energy from the distribution system or generating energy onto the distribution system. When the Site is consuming energy it is a net positive load. When the Site is generating energy it is net positive generation.
 - b) For each hour, net positive loads and net positive generation are each summed over the four quarter-hour intervals to give hourly net positive load and generation (kWh). These are the data provided to load settlement for the Site.
 - c) The hourly net positive generation is added to the POD totals as part of the zone load (ZPOD).
 - d) The hourly net positive load is settled in the same way as for any other Site.

4.6.2 Direct Sales Agreements

The LSA allocates the energy consumed at a Site using the same methods as for any other Site, whether or not the Site has a registered direct sales agreement. Each Site must have a Retailer. The LSA will treat direct seller Sites connected to the distribution system as distribution generation Sites.

4.6.3 Retailer De-Certification

- 1) In the event that a Retailer is de-certified the person responsible for the de-certification will notify all WSPs promptly.
- 2) The load settlement process is not affected by the de-certification. The hourly loads will still be calculated for the de-certified Retailer. The settlement data for the de-certified Retailer will go to the Retailer's receiver or designate.

- 3) Customers who switch from the de-certified Retailer will be handled like any other switched customers.

5 Dispute Resolution Process

5.1 General

General and specific procedures for dispute resolution among parties directly affected by load settlement calculations pursuant to the Settlement System Code are set out below. These procedures may be used for issues that affect only the parties directly involved in the dispute. Other than as expressly allowed hereunder, no party may opt out of specific requirements and procedures herein pertaining to Settlement System Code related disputes.

5.1.1 Initiation of General Dispute Resolution

- 1) Each of the parties discharging functions and responsibilities under the Settlement System Code shall designate a contact person within their organization to administer disputes pertaining to Settlement System Code matters; preferably, such person will have authority sufficient to resolve normal course business disputes. The identity and contact information for each designated person shall be made known to all other relevant parties on an ongoing basis.
- 2) Communications around disputes shall involve those contact persons designated by each of the relevant parties, as set out above. Further, to the extent that discussion, negotiation or mediation occurs, the relevant designated persons shall make their reasonable best efforts to have the dispute handled in a timely and effective manner, involving such other persons within their organization as needed to facilitate resolution efforts on the foregoing basis.
- 3) The parties to a dispute are encouraged to use mediation to resolve a dispute that cannot be settled by discussion or negotiation between the parties. Mediation would be as agreed between the parties, and in accordance with other provisions set out below.
- 4) At such time as any of the parties to a dispute have determined that efforts to resolve the dispute by discussion, negotiation or mediation between the parties have failed, that party may at its discretion serve a "Notice of Dispute" upon the other parties to the dispute, and upon other affected parties, in accordance with other provisions set out below.
- 5) The Notice of Dispute shall be as set out in s. 5.1.2.1). The Notice of Dispute will be sent with a cover letter setting out, in the opinion of the originating party, the status of the related dispute and a summary of efforts to resolve the dispute.
- 6) No later than thirty Business Days following the service of the Notice of Dispute on the other parties, each party to the dispute shall communicate to the MSA in writing a status update on the resolution of the dispute, including efforts taken since the service of the Notice of Dispute to resolve outstanding issues and further efforts contemplated.

5.1.2 Notice of Dispute

- 1) The Notice of Dispute shall be in writing, setting out the following in detail.

- a) The basis for the dispute, including a summary of factual basis for dispute, related argument, and references to relevant provisions of the Settlement System Code.
 - b) A statement that the party filing the Notice of Dispute agrees to abide by the dispute resolution process set out in the Settlement System Code in relation to Notice of Dispute matters.
 - c) The names and addresses of parties to whom the Notice of Dispute is being delivered.
 - d) The contact address, including street address, telephone and fax numbers, and contact person for the purposes of Notice of Dispute.
- 2) The Notice of Dispute may also include such other supporting documentation as the disputing party deems advisable, including (without limitation of the foregoing) references to any PFAM Decisions or business practices considered to be relevant.
 - 3) The Notice of Dispute must be signed by the party submitting it; in the case of a corporation, partnership or other organization, the Notice of Dispute must be signed by a duly authorized representative of the disputing party.
 - 4) The Notice of Dispute may be rejected by the LSA and considered closed where it does not include the information required in 1) above, a) to d) inclusive, or is not duly signed.
 - 5) The Notice of Dispute must be delivered in person, by registered mail, email or facsimile transmission, or by some other means of provable delivery, to the LSA and to any other parties directly affected by the matters of the Notice of Dispute. The Notice of Dispute shall also be concurrently delivered to the MSA. Onus for proof of service of the Notice of Dispute on the LSA, MSA and other relevant parties rests with the party filing such Notice of Dispute.
 - 6) Where a Notice of Dispute has been rejected by the LSA pursuant to 4) above, the LSA shall, in writing, advise the party who filed the Notice of Dispute, the MSA and all other parties shown on the Notice of Dispute, of its rejection and of the reasons for such rejection immediately.

5.1.3 Discussions, negotiations between the parties, with the option to include mediation

- 1) Upon delivery of a Notice of Dispute in prescribed form and content, the relevant parties, including the disputing party, the LSA (or other investigating party), and other affected parties, shall attempt to resolve the dispute through discussion and negotiation.
- 2) Mediation may be entered into by the parties on such terms and conditions and involving such mediator as the relevant parties may agree. The costs of the mediation shall be shared between the parties as agreed.
- 3) Only the parties and their representatives may attend mediation proceedings unless the parties and the mediator (as applicable) agree to the participation of other specified parties. Unless otherwise agreed by all parties, the discussions, negotiations and mediation between the parties in relation to the Notice of Dispute shall be conducted on a confidential and without prejudice basis, to encourage open dialogue between the parties.
- 4) All information disclosed to the mediator by the parties or others in the course of mediation and identified as confidential, will not be divulged by the mediator except within the mediation. All documents received by the mediator in the mediation shall be held confidential by the mediator, and the mediator shall not be compelled by any party

to divulge such documents or to act as a witness in regard to the mediation in any subsequent proceedings of any nature.

5.1.4 Dispute brought forward to binding arbitration or litigation

- 1) After the expiry of thirty Business Days immediately following the delivery of the Notice of Dispute to the LSA and other relevant parties, the parties involved may by notice in writing as required initiate a process of binding arbitration or litigation to resolve the matters in dispute.
- 2) Binding arbitration shall only be commenced and undertaken by agreement between the parties involved, and in accordance herewith. Where the parties initiate a process of binding arbitration or litigation in respect of the matters in dispute, the relevant parties shall notify the MSA in writing as to such process, including as applicable a copy of the initiating document or pleading commencing such process.
- 3) The process of binding arbitration in respect of the matters of the Notice of Dispute must be initiated by notice to the other parties and the MSA not later than thirty Business Days immediately following the delivery of the Notice of Dispute to the party initiating the arbitration process, failing which the Notice of Dispute shall be deemed closed.
- 4) In general, unless otherwise necessitated by the nature of the dispute, the parties to the binding arbitration will consist of the party initiating the Notice of Dispute and the LSA or other investigating party that rendered the relevant Decision.
- 5) Notice of binding arbitration shall be delivered to all relevant parties to the address of such parties as declared in the Decision or Notice of Dispute, or to such other address as the parties may stipulate in writing from time to time, in accordance with the *Arbitration Act*. Onus for proof of service shall rest with the party delivering the notice of binding arbitration.
- 6) The notice of binding arbitration shall set out the parties involved, the particular matters in dispute, the date of the notice, and shall be duly signed by or on behalf of the party initiating the binding arbitration.
- 7) Once a process of binding arbitration has been initiated, unless otherwise agreed in writing by all parties, none of the parties to that arbitration shall commence any other process or proceeding in respect of the matters of the arbitration until the arbitration tribunal has concluded a hearing and rendered its written decision in respect of the matters.
- 8) Binding arbitration will be conducted according to the rules and procedures set out in the *Arbitration Act*, as amended from time to time (and as amended hereby). In the event of a conflict between the conditions outlined in these rules and the *Arbitration Act*, these rules will prevail to the extent directly required to resolve such conflict. Where these rules are silent, the provisions of the *Arbitration Act* shall govern the proceedings.
- 9) Subject to other provisions herein, litigation in respect of the matters in dispute may be commenced by any party after expiry of the period set out in 1) above, in accordance with applicable legislation and regulation. Notice of litigation shall be given by filing and service of pleadings or other relevant documents, pursuant to the Rules of Court of Alberta.

- 10) Pending resolution of any dispute sent forward to binding arbitration or litigation, except as otherwise expressly provided herein, the parties shall continue to perform their respective obligations as outlined in the Settlement System Code and elsewhere. Notwithstanding the foregoing, nothing herein shall limit the powers of any court or regulatory party having jurisdiction over the matters to grant any form of injunctive or other relief within their powers while the dispute is being resolved.
- 11) Unless otherwise agreed, a single arbitrator agreed upon by the parties to the arbitration will form the arbitration tribunal to preside over the arbitration.
- 12) In the event that the parties can't agree to a single arbitrator within ten Business Days of the initiation of the arbitration process, then each of the parties to the dispute will select an arbitrator and those arbitrators shall then jointly select one additional arbitrator; this shall occur not later than twenty Business Days following the date upon which the arbitration process was initiated. All of those arbitrators together form the arbitration tribunal, the additional arbitrator acting as chair of related proceedings.
- 13) The arbitration tribunal shall conclude an arbitration hearing in respect of the matters within thirty Business Days after formation of the arbitration tribunal, and shall then render its written decision in respect of the dispute within ten Business Days after the conclusion of the arbitration hearing.
- 14) Any party directly affected by the binding arbitration may apply to the arbitration tribunal seeking status as an intervener, to appear and to be heard at the arbitration hearing. The decision whether to grant intervener status and as to any terms and conditions attaching to such intervener status, shall rest with the arbitration tribunal at its discretion.
- 15) The arbitration hearing shall be public, including any decision by the arbitration tribunal in respect of the hearing. Notwithstanding the foregoing, the arbitration tribunal may at its discretion limit the number of non-participants who may attend the hearing.
- 16) Each party shall be responsible for the costs of the arbitrator appointed by it hereunder. The costs of the additional arbitrator shall be divided evenly between the parties. If one arbitrator is appointed the costs shall be divided evenly between the parties. All other costs of the arbitration shall be borne by the parties in accordance with the determination of the arbitration tribunal in this regard.
- 17) Nothing herein shall limit the right of any party to file a complaint with the MSA in respect of the matters of the Notice of Dispute, or of the MSA to pursue such complaint or initiate any investigation in respect of the matters of the Notice of Dispute, in accordance with applicable legislation and regulations.

5.2 Pre-Final Error Correction (PFEC)

5.2.1 Scope

- 1) The purpose of PFEC is to establish a formal mechanism to correct errors prior to a subsequent run of load settlement, and ultimately to improve load settlement results before Final Settlement.
- 2) Types of errors which may be identified on the submission form include and are limited to: Energize/De-energize, Enrollment, Calculation (WSD not equal to DCM, WSD not equal to DIM, Estimated WSD consumption), Consumption /Meter Read, Site

Characteristics (Loss class, Profile class, Direct Connect status) and errors with system level meters.

- 3) LSAs shall forward the Submission form to the appropriate party (WSP or MDM); however, the LSA is not responsible for action or inaction of the other party.

5.2.2 PFEC Process

- 1) Errors shall be submitted by the complainant party to the LSA responsible for the relevant load settlement area, using a pre-defined submission form (see s. 5.2.4 PFEC Submission Form). The form shall be submitted via email, in prescribed format and with all required information. Additional information may be included or attached as deemed necessary by the complainant party.
- 2) Upon receipt of an error submission, the LSA shall assign a unique PFEC reference number to the submission for tracking and processing purposes.
- 3) The LSA shall determine who is responsible for investigating the error (LSA, WSP or MDM).
- 4) The LSA must send an electronic “receipt-notice” to the complainant party within two Business Days of receiving the submission. The receipt will include the PFEC reference number assigned to the submission, will confirm that the submission has been received, and will advise whether the LSA or some other specified party will be handling the investigation and assessment of the submission. At the same time, the LSA forwards the submission to the WSP or MDM (if applicable as the investigating party).
- 5) Where the submitted form is incomplete or otherwise lacks information required to commence an investigation of the claimed error, the LSA, after advising the complainant of the deficiency, shall not be required to take any further steps in respect of the submission form unless a completed submission form is received.
- 6) A submission form re-submitted by a complainant to address any format or information deficiency shall carry the PFEC reference number initially assigned by the LSA in respect of the relevant claim.
- 7) The investigating party shall review the PFEC submission and determine whether they agree with the Retailer, disagree with the Retailer, or are dismissing the claim with no further investigation. Comments shall be noted on the submission form and the appropriate actions are followed through as necessary.
- 8) Decisions that agree with submissions shall be resolved within five Business Days after initial receipt of submission has been sent by the LSA, except for Consumption /Meter errors which shall be cancelled within one Business Day and replaced with correct data within twenty Business Days after initial receipt of submission has been sent by the LSA.
- 9) Where the investigating party disagrees that the submission should be processed through PFEC, such decision shall be documented by the investigating party and provided to the LSA, and the submission shall be refused on that basis. The LSA shall communicate this decision and the basis for the assessment to the complainant who submitted the error submission, by completing and returning the PFEC submission form.
- 10) Where the LSA or other investigating party determines at its discretion that a submission is frivolous or vexatious, including where a submission duplicates another submission in

relation to the same Site, such decision shall be documented by the LSA, the submission shall be deemed to have been dismissed, and the LSA shall advise the complainant accordingly.

- 11) If the investigating party is unable to resolve and correct the error within these specified timelines, the investigating party must communicate back to the Retailer using the submission form and indicate the date by which the Retailer can expect the corrections to be made. Such written communication shall be in electronic form.
- 12) Upon resolution of the submission, the investigating party shall forward the submission form back to the LSA.
- 13) The LSA shall include any changes or corrections in the next possible settlement run and forward the submission form back to the Retailer.
- 14) Submissions received twenty days or more before the publishing of the Final Settlement results shall be included in the next settlement run.

5.2.3 Dispute Resolution Process

- 1) Where the complainant party or any other affected party does not agree with a decision in respect of a submission, they may invoke the dispute resolution process in accordance with the provisions of this Settlement System Code.

5.2.4 PFEC Submission Form

Table 4. PFEC Submission Form

PFEC Ref #			
LSA Contact Information		Status (Respondent to mark with an "x")	
Contact Name:		AGREE	
Company Name:		DISAGREE	
Phone Number:		DISMISSED (not investigated)	
Email Address:			
(Grey shaded sections to be completed by Complainant - Everything other than fields marked "optional" must be completed)			
Complainant Information:		Date of Complainant Request:	
Contact Name:			
Company Name:		Affected Parties: (if known)	
Phone Number:		Phone Number:	
Email Address:		Email Address:	
SITE ID #		Time Period From:	
SITE ADDRESS		To:	
(optional)			
Retailer ID #		Settlement Run (ID,IM,R,F)	
Type of Error (mark with an 'x')			
Energize/De-energize			
Enrollment			
Calculation			
	WSD not equal to DCM		(only applicable for runs with frozen profiles)
	WSD not equal to DIM		
	Estimated WSD consumption		
Consumption/Meter Read			
Site Characteristics			
	Loss Class		
	Profile Class		
	Zone		
Details of Problem:			
Original data and background information regarding error (including kWh estimates):			
Proposed Revisions:			
Rationale for Revisions:			
Reasons for response/comments:			
Action taken (if any):			
Response Date:		Signature of Respondent:	
		Respondent Name:	
		Phone Number:	
		Email Address:	

5.3 Post Final Adjustment Mechanism

5.3.1 Scope

- 1) PFAM shall only be applicable to load settlement related transactions dating from and after January 1, 2001. Any errors identified for the period before January 1, 2001, should be addressed by the claimant to the relevant organization(s) responsible for load settlement at that time.
- 2) PFAM may be used by the following participants: Retailers, LSAs, 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.
- 3) Once the PFAM reference # has been assigned for a claimed error, no further PFAM claims from any party will be allowed for that Site error; however, parties may at their discretion pursue other remedies in respect of a claimed error.
- 4) System level errors may be included in the PFAM mechanism.
- 5) PFAM will not provide WSD data or any other output of load settlement.

5.3.2 Communications

- 1) Each participant utilizing the PFAM process shall designate one individual as its primary contact point for PFAM communications.
- 2) The LSA in each settlement area shall act as the conduit for the handling of PFAM claims. In all cases, the relevant LSA 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.
- 3) Each LSA shall ensure that systems and procedures are established and maintained within their operations sufficient to track and process PFAM error claims on a timely basis in accordance with the provisions of this Settlement System Code.

5.3.3 Process

- 1) Error Submitted to LSA
 - a) Claimed PFAM errors must be submitted by the complainant party to the LSA responsible for the relevant settlement area, using the PFAM claim form in s. 5.3.11. The claim form shall be submitted electronically, in prescribed format and with all required information.
 - b) Where the LSA is the complainant party, the LSA shall send an electronic notice to the affected Retailer within two Business Days of submitting the claim form. The notice will include the PFAM reference number assigned to the claim, and provide the details of the claim.
 - c) Upon receipt of a claim form, the LSA will assign a unique PFAM reference number to the claim for tracking and processing purposes.
 - d) The LSA must send an electronic “receipt-notice” to the complainant party within two Business Days of receiving the claim form. The receipt notice will include the

PFAM reference number assigned to the claim, will confirm that the claim form has been received, will advise whether sufficient preliminary information has been submitted in relation to the claim and, if sufficient information has been included, will advise whether the LSA or some other specified party will be handling the investigation and assessment of the claim.

- e) Where the submitted claim form is incomplete or otherwise lacks information required to commence an investigation of the claimed error, the LSA, after advising the complainant of the deficiency, shall not be required to take any further steps in respect of the claim unless a completed claim form is received.
- f) A claim form re-submitted by a complainant to address any format or information deficiency shall carry the PFAM reference number initially assigned by the LSA in respect of the relevant claim.
- g) The investigating party shall complete the investigation of the claim on or before the tenth Business Day of the tenth month following the month disputed, and in no case more than thirty days following receipt of the claim. Where the investigating party is unable to comply with the specified timing, they must request an extension from the ISO.

2) Identification of Investigating Party

- a) Upon receipt of a claim form in prescribed format and with all information required to commence investigation of error claim, the LSA shall make an initial determination as to whether the claimed error falls directly within the settlement responsibilities of that LSA or of some other party; responsibility for investigation of the claimed error shall rest with the investigating party, as determined by the LSA.
- b) Where the claimed error pertains to load settlement responsibilities of that LSA, then the LSA shall be responsible for investigation and assessment of the claim.
- c) Where the claimed error pertains directly to load settlement responsibilities of a party other than the LSA, then the LSA shall immediately refer the claim to the relevant party for investigation and assessment of the claim. The LSA is not responsible for the action or inaction of that other party.
- d) The assessment in respect of a claim shall be referred to as the “Decision”.
- e) The investigating party, where other than the LSA, may at its discretion communicate directly with the complainant for the purposes of investigation of the claim; however, the Decision in respect of the claim shall in all cases be communicated to the LSA, which shall then in turn communicate the Decision to the complainant accordingly.
- f) All error claims shall be investigated and assessed, and the Decision communicated back to the complainant party on a timely basis following the receipt of the claim form in prescribed format and content by the LSA.

3) Discretion of Investigating Party

- a) The investigating party shall have the primary responsibility and discretion for rendering a determination as to whether the claim of error is valid and to what extent, and whether it should be addressed through the PFAM process, in accordance with the provisions of this Settlement System Code.

b) In addition, where the claim is determined to be frivolous or vexatious, the LSA or other party responsible for investigation of the claim may, upon making such determination, dismiss the claim without further investigation on that basis, in accordance with the provisions of this Settlement System Code.

4) Claim Determined to be Frivolous or Vexatious

Where the LSA or other investigating party determines in its discretion that a claim of error is frivolous or vexatious, including, without limitation, where a claimed error duplicates another claim in relation to the same Site, such Decision shall be documented by the LSA, the claim shall be deemed to have been dismissed, and the LSA shall advise the complainant accordingly.

5) Investigating Party Disagrees with Claim

Where the investigating party disagrees that the claimed error should be processed through PFAM in some fashion, such Decision shall be documented by the investigating party and provided to the LSA, and the claim shall be refused on that basis. The LSA shall communicate this Decision and the basis for the assessment to the complainant who submitted the error claim, by completing and returning the relevant claim form as applicable.

6) Investigating Party Agrees with Claim

a) Where the investigating party agrees that the claimed error should be processed through PFAM, such Decision shall be documented by the investigating party and provided to the LSA, and the claim shall be accepted to such extent on that basis. The LSA shall communicate this Decision and the basis for this assessment to the complainant who submitted the error claim, by completing and returning the relevant claim form as applicable.

b) In accordance with the Decision accepting the claim, and the provisions of this Settlement System Code, the LSA shall calculate the appropriate Retailer Specific Adjustment (RSA), Retailer Adjustment to Market (RAM) and Transmission Administrator Adjustment (TAA) as applicable.

c) The Agreed PFAM adjustment(s) shall be forwarded to the ISO by the LSA.

7) LSA to Notify Affected Parties

In all cases where the claim has been dismissed, rejected or accepted, the LSA shall ensure that all other parties affected by the determination of the claim are duly notified in writing of the Decision. Such written communication may be in electronic form.

8) Proof of Notification

In all circumstances, the onus of proof of required communication of the Decision to the complainant party and other affected parties shall rest with the LSA.

5.3.4 Dispute Resolution

1) Where the complainant party of any other affected party does not agree with a Decision in respect of a claim, they may invoke the dispute resolution process in accordance with the provisions of this Settlement System Code.

- 2) The PFAM adjustment transaction specified by the investigating party and communicated by the LSA to the ISO will be processed through PFAM at the time of Decision, but may be subject to later review if the dispute resolution process is invoked.
- 3) If the complainant or any other affected party wishes to dispute the Decision, they must notify the LSA as to the details of their dispute (Notice of Dispute) in writing, within ten Business Days immediately following receipt of the Decision.

5.3.5 Types of PFAM Claims

- 1) PFAM claims that are submitted as a result of an error that falls under the jurisdiction of the *Electricity and Gas Inspection Act* and Regulations are referred to as Measurement Error Adjustments (MEA). Specifically, errors in DCMs or DIMs resulting from the following list of causes will be considered MEA claims:
 - a) Apparatus or meter malfunction;
 - b) Connection errors;
 - c) Meter multiplier errors;
 - d) Theft or meter bypass;
 - e) Misread meter reads;
 - f) Error in the transference of valid meter read data to a DCM or DIM.

If a Market Participant believes that there is an error that should be classified as an MEA, but that error does not appear on this list, it may submit to the ISO and to the Commission a request, in writing, to classify the error as MEA. The ISO, acting reasonably, shall consider the request and make a determination in writing and shall provide its written decision to the Market Participant and to the Commission. If the ISO decision is believed to be incorrect by the Market Participant, the Market Participant may request that the Commission review the submission and ISO decision and the Commission will make a final determination.

- 2) The LSA shall provide the ISO with a monthly report of all MEA PFAM claims two Business Days prior to the submission of the RSA files. This report shall include the PFAM reference number and the specific cause used to classify the PFAM as an MEA type of claim. The report shall be submitted via email to the Load Settlement department at the ISO (loadsettlement@aeso.ca).
- 3) Those PFAM claims that refer to errors that are not covered in 1) above are referred to as Settlement Error Adjustments (SEA).

5.3.6 Time Limit for the submission of PFAM Claims

- 1) MEA PFAM claims are subject to the time limits imposed by s. 12 of the *Electricity and Gas Inspection Act* and s. 11 of the *Electricity and Gas Inspection Regulation*.
- 2) SEA PFAM claims shall only be accepted if the claim is submitted by the complainant to the LSA no later than 23:59 of the tenth Business Day of the ninth month following the month being disputed.

5.3.7 Materiality Limit for PFAM Claims

- 1) MEA PFAM claims are subject to the materiality limits imposed by s. 24 of the *Electricity and Gas Inspection Act* and s. 31 of the *Electricity and Gas Inspection Regulations*.
- 2) SEA PFAM claims for Sites that are eligible for the regulated rate option (RRO) as defined in the *Regulated Rate Option Regulation* may only be submitted for values above \$15 per Site per PFAM claim. SEA PFAM claims for Sites that are not eligible for the RRO may only be submitted for values above \$250 per Site per claim.

5.3.8 Processing of PFAM Adjustments

- 1) The LSA is responsible for calculating RSA, RAM and TAA, as specified below, in relation to each error claim, as applicable, and for submitting those adjustments to the ISO. Any Decision agreed to by the LSA or communicated to the LSA by the investigating party thirteen Business Days prior to the ISO's preliminary statement issue date must be sent to the ISO not less than eight Business Days prior to the ISO's preliminary statement issue date. The preliminary statement issue date is as set by the ISO, pursuant to its rules.
- 2) The following transactions are specified to be included in PFAM: RSA, RAM and TAA, as set out below.
 - a) Retailer Specific Adjustment (RSA)
 - i) The RSA Calculation specifies the specific hourly adjustment to energy for each Retailer; this adjustment may be either positive or negative and may or may not be bi-lateral. Bi-lateral errors will be re-allocated between two parties, while non bi-lateral errors will be re-allocated through RAM. The RSA amount will be applied to the Retailer of Record for the Site at the time of the error.
 - ii) A consolidated file for total RSA within each LSA settlement area will be sent by the LSA to the ISO every month. At the same time, the detail as to specific adjustments will be transmitted by the LSA to each relevant Retailer, as applicable.
 - iii) Customers directly connected to the transmission system as described in s. 4.2.1.2) of this Settlement System Code ("Direct Connect customers") are eligible for RSAs.
 - iv) The offsetting adjustment for system level meter errors will be made through the TAA.
 - b) Retailer Adjustment to Market (RAM)
 - i) The RAM calculation is the sum of all non-bilateral RSA adjustments allocated across all Retailers/RRPs in the relevant settlement area in accordance with v) below. In order to allow the ISO to calculate the correct RAM allocations for Retailers, the LSA shall provide, on a monthly basis, and at the same time as the RSA files, the total zone load by Retailer for the appropriate settlement month, excluding the direct connect load.
 - ii) RAM is allocated across the service area for which an LSA, as identified in the Settlement System Code by Settlement ID, conducts load settlement calculations

therefore, re-allocations of energy consumption will be linked to the geographic location in which they occurred.

- iii) Load attributed to Direct Connect customers will not be included in any allocation of RAM.
 - iv) RAM is not disputable through the PFAM process as it relates to the aggregate adjustment for error calculation underlying the RAM calculation. Parties who wish to dispute their particular load allocation (apportionment of RAM) may pursue a remedy through the dispute resolution process.
 - v) The ISO shall use the final settlement data included in the preliminary statement, as described in s. 5.3.10.1), to allocate RAM amongst the Retailers in the relevant settlement area.
 - vi) The LSA shall separate the RAM charges for 2001 errors from all other errors, and provide the separated values in two files for the Pool.
- c) Transmission Administrator Adjustment (TAA)

The TAA calculation specifies system level meter errors that have been brought forward to the PFAM process. Details of the TAA calculation shall be transmitted by each LSA to the ISO on a monthly basis. The ISO will then make the necessary adjustments in billings to the transmission line losses; such adjustments may be either positive or negative.

5.3.9 Transaction Mechanism and File Format

- 1) The RSA, RAM and TAA transaction files will be provided to the ISO in CSV format by the LSAs, via DropChute™ using the ISO ID for Financial Settlement purposes as described in s. 9.4.6.9. Each Retailer's specific RSA calculation will also be sent to Retailers by the LSAs in CSV format via DropChute™.

5.3.10 Financial Adjustments

- 1) PFAM adjustment calculations submitted by the LSA to the ISO pursuant to s. 5.3.8.1) will be included on the ISO's preliminary statement. Where these timelines are not met, the adjustment will be made on the following month's preliminary statement from the ISO.
- 2) The ISO shall accept the PFAM adjustments submitted by the LSA and apply the relevant historic ISO pool price to the data in order to arrive at the applicable financial adjustment(s) for the RSA, RAM and TAA.
- 3) The financial adjustments and allocations will be included on the relevant ISO statements and shall be payable by each party in accordance with the provisions of this Settlement System Code.

5.3.11 Post Final Adjustment Mechanism (PFAM) Claim Form

Table 5. PFAM Claim Form

LSA Contact Information		Status (mark with an "x")			
Contact Name:					
Company Name:		AGREE			
Phone Number:		DISAGREE			
Email Address:		DISMISSED (not investigated)			
Type of PFAM Error (check one):	Settlement Error Adjustment (SEA)		Measurement Error Adjustment (MEA)		
(Grey shaded sections to be completed by Complainant - Everything other than fields marked "optional" must be completed)					
Complainant Information:		Date of Complainant Request:			
Contact Name:					
Company Name:		Time Period	From:		
Phone Number:			To:		
Email Address:					
		Affected Parties Information (if known)			
SITE ID #		Contact Name:			
Retailer ID #		Company Name:			
		Phone Number:			
SITE ADDRESS		Email Address:			
(optional)					
Details of Problem:					
Please submit original data and background information regarding error including \$ and kWh estimates:					
Reasons for "disagree" by respondent:					
Response Date:		Signature of Respondent:			
Date sent to ISO by LSA: (if claim is "agreed" to by Respondent)		Respondent Name:			
		Phone Number:			
		Email Address:			

6 Functional Requirements of the Core Load Settlement Calculation

The sections listed below defines the required inputs and outputs of load settlement. These sections do not dictate how load settlement algorithms or calculations should be implemented. Any implementation approach that produces outputs mathematically equivalent to the outputs defined below is acceptable.

6.1 Data Versions and Revisions

- 1) These rules define load settlement outputs for a given settlement zone for a given hour of energy flow (hour t) for settlement run “as at” datetime T . “As at” means “using the most recent version of data in the Load Settlement Input database at datetime T .” Timing rules for, initial monthly, interim, and final settlement which define acceptable values of the database datetime used to calculate settlement T for a given hour of energy flow t are specified in s. 4.4.
- 2) An exception is made to the data revision rules in 1) above, for load profiles and profiled Sites. All profiles, for a given hour of flow t , must be frozen on their first usage for all MAAT settlement runs; that is, this may not be revised on subsequent respective settlement runs, even when the data used to calculate the profile, such as POD loads and interval metered loads, are revised for the other settlement computations. To allow sufficient time to finalize these profiles, load settlement generates and uses the profiles only up to a profile freeze cutoff date. Because profiles are not used for days of flow past the profile freeze cutoff, cumulative meter reads that cover dates past the cutoff cannot be profiled and such Sites are treated as though the cumulative meter read were missing for that MAAT settlement run; however such reads may be used in subsequent MAAT settlement runs subject to the same cutoff rules.

The profile freeze cutoff dates are as follows:

- a) For initial monthly settlement, the end of the last calendar day of the month being settled.
- b) For interim settlement, the end of the last calendar day of the second calendar month following the month being settled.
- c) For final settlement, the end of the last day of the sixth calendar month following the month being settled.

6.2 Assumptions

- 1) These calculation formulas assume that:
 - a) Energization and de-energization for a Site are always accompanied by a meter read on the same day. This assumption simplifies the definition of “profiled loads.” Switch of Retailer is not assumed to be accompanied by a meter read on the same day.
 - b) The WSP is not required to perform a meter read at the time of a change of profile class. In the absence of such a read, the LSA must make appropriate adjustments to the calculations specified below. The calculations are presented with the simplifying assumption of meter reads at profile class change for ease of exposition.
- 2) There are no missing interval meter read consumption (kWh) values in the load settlement input database. “Missing” means “no interval meter read kWh for hour t for an

entity in the zone that is interval metered at hour t .” Interval – metered entities include PODs, distributed generators, interval-metered customer Sites, unmetered Sites with deemed interval consumption values, and profile sample Sites. Filling in or “plugging” of missing or deemed interval meter reads is assumed to occur prior to entry into the load settlement input database referenced here.

- 3) There are missing cumulative meter read consumption values in the load settlement input database due to variations in cumulative meter reading frequency.

6.3 Load Settlement Inputs and Outputs

1) Inputs

- a) Inputs to the load settlement system include the following:
 - i) Information on each site to be settled, including status flags, and interval and cumulative consumption data,
 - ii) POD interval data and adjustments required to POD data,
 - iii) Load Research profile data if any profiling classes other than net system load shape are used, and
 - iv) Deemed profile data.
- b) The standard external transactions identified in s. 9 identify the critical information that must be transferred between external parties to support the load settlement process. Individual LSAs may require additional inputs to support their specific methods of performing the load settlement function.

2) Outputs

- a) Reporting requirements from the load settlement system are to include the following:
 - i) Basic ISO invoice requirements.
 - ii) Sufficient detail for Retailers to reproduce interim and final reconciliation settlement calculations for their own customers. The WSP supplier tariffs will determine the prices charged to Retailers for information other than what the ISO requires.
 - iii) Diagnostics. Publicly available diagnostics will include general formulas, aggregate statistics on UFE and losses, and the settlement zone sum of POD loads. No Retailer-specific information will be part of the publicly available diagnostics.
 - iv) Site-specific breakdown of load settlement results on a daily basis for Retailer’s own Sites.
- b) Specific calculation reporting requirements are described below.

6.4 Required Load Settlement Reports

6.4.1 Elements Required for Reporting

The following elements must be reported by load settlement. Reporting to the ISO includes all the zone elements and all the Retailer elements for each Retailer. Reporting to each Retailer includes all the zone elements and all the Retailer elements for that Retailer only.

- 1) $ZPOD_{tT}$ = Zone load which is determined by netting the hourly energy that:
- enters the settlement zone at the system level through PODs, distributed generators, distribution interchange import points with other settlement zones, isolated community generation and extra-provincial suppliers of border customers; and
 - leaves the settlement zone at the system level through distribution interchange export points with other settlement zones and transmission substations to the transmission system.

Zone load for a settlement zone is intended to be the total of:

- the hourly energy consumed by all sites within the settlement zone; and
- the hourly distribution energy loss incurred within the settlement zone to serve the sites within the settlement zone; and
- the hourly distribution energy loss incurred within the settlement zone to serve sites in other settlement zones through distribution interchange export points; and
- the hourly distribution energy loss incurred or saved to serve distributed generators.

Due to limitations in determining the hourly zone load, distribution loss and total site load for a settlement zone, the sum of the calculated distribution loss and total site load for the settlement zone will never exactly equal the zone load calculations. The difference is defined as UFE which can be positive or negative. UFE is allocated by the LSA to the sites within the settlement zone as specified in s. 4.2.1.

- 2) $ZLOAD_{tT}$ = Sum of Retailer-settled loads, excluding loss and UFE allocations, in hour t for the zone
- 3) $ZLOSS_{tT}$ = Zone total distribution loss in hour t
- 4) $ZUFE_{tT}$ = Zone total UFE in hour t
- 5) $RLOAD_{rT}$ = Retailer total settled load, excluding loss and UFE allocations, in hour t for Retailer r
- 6) $RLOSS_{rT}$ = Retailer total allocated distribution loss in hour t for Retailer r
- 7) $RUFE_{rT}$ = Retailer total allocated UFE in hour t for Retailer r

6.4.2 Definition of Required Elements

As noted above, these definitions are descriptive, not proscriptive. Any implementation that provides equivalent mathematical relationships among the elements is acceptable. The required elements are defined as follows:

- 1) Zone Load as Delivered to Sites

$$ZLOAD_{tT} = \sum_{r \in R_{tT}} RLOAD_{r,tT}$$

where

R_{tT} is the set of all Retailers with enrolled Sites in the zone at hour t as at time T .

- 2) Zone Losses

$$ZLOSS_{tT} = \sum_{r \in R_{tT}} RLOSS_{r,tT}$$

The zone loss $ZLOSS_{tT}$ may be calculated as the sum of separately determined Retailer losses $RLOSS_{r,tT}$, as indicated in this formula. Alternatively, the total zone loss $ZLOSS_{tT}$ may be calculated first, then allocated to Retailers. In either case, the zone loss must equal the sum of the Retailer losses.

- 3) Zone UFE

$$ZUFE_{tT} = ZPOD_{tT} - ZLOAD_{tT} - ZLOSS_{tT}$$

- 4) Retailer Load as Delivered to Sites

$$RLOAD_{r,tT} = \sum_{s \in E_{r,tT}} SLOAD_{s,tT}$$

where

$E_{r,tT}$ is the set of all Sites enrolled with Retailer r in the zone at hour t as at time T .

$SLOAD_{s,tT}$ is the settled load of Site s in hour t as at time T .

- 5) Retailer Loss

$$RLOSS_{r,tT} = \sum_{s \in E_{r,tT}} L_{s,tT}(SLOAD_{s,tT})$$

where

$L_{s,tT}$ is the distribution loss function for Site s at hour t as at time T .

6) Retailer UFE

- a) If all Sites within a zone receive UFE allocation or all Sites within a zone do not receive UFE allocation, the following formula is applicable:

$$RUFE_{rtT} = ZUFE_{rtT} * (RLOAD_{rtT} + RLOSS_{rtT}) / (ZLOAD_{rtT} + ZLOSS_{rtT})'$$

- b) In all other instances, the following formulas are applicable:

$$RUFE_{rtT} = \sum_{s \in S_{rtT}} SUFE_{stT}$$

Site UFE

$$SUFE_{stT} = ZUFE_{rtT} * \frac{(WUFE_{stT} * (SLOAD_{stT} + L_{stT}(SLOAD_{stT}))}{\sum_{s \in S} [WUFE_{stT} * (SLOAD_{stT} + L_{stT}(SLOAD_{stT}))]}$$

where

$$WUFE_{stT} = \begin{cases} 0 & \text{if UFE is not to be allocated to Site } s \text{ at hour } t \text{ as at time } T \\ & \text{as per s. 4.2.1.2),} \\ 1 & \text{otherwise} \end{cases}$$

and S is the set of all Sites s in the zone.

7) Site Load

$$SLOAD_{stT} = \begin{cases} ULOAD_{stT}, & \text{IF Site } s \text{ is on a deemed profile at hour } t \text{ as} \\ & \text{at time } T; \\ ILOAD_{stT}, & \text{IF Site } s \text{ is interval metered at hour } t \text{ as at} \\ & \text{time } T; \\ PLOAD_{stT}, & \text{IF Site } s \text{ is cumulative metered at hour } t \text{ as} \\ & \text{at time } T; \end{cases}$$

where

$ULOAD_{stT}$ is the deemed load for Site s at hour t as at time T ;
 $ILOAD_{stT}$ is the interval-metered load for Site s at hour t as at time T ; and
 $PLOAD_{stT}$ is the profiled load for Site s at hour t as at time T .

8) Profiling Class Load

$CLOAD_{p,t,T}$ = Profile kWh for profiling class p at hour t as at time T .

If p is a profiling class using class load research for the profile, $CLOAD_{p,t,T}$ is the estimate of total class load at hour t based on the load research data and estimation/expansion procedures.

If the profiling class p is the set of Sites profiled using the net system load shape, $CLOAD_{p,t,T}$ is the total net system load, calculated as

$$CLOAD_{p,t,T} = RESIDUAL_{t,T}$$

$$= ZPOD_{t,T} - \sum_{s \in U_{t,T}} ULOAD_{s,t,T} - \sum_{s \in I_{t,T}} ILOAD_{s,t,T} - \sum_{p \in L_{t,T}} CLOAD_{p,t,T} - KLOSS_{t,T}$$

where

$U_{t,T}$ is the set of all Sites in the zone that are assigned a deemed profile at time t as at time T

$I_{t,T}$ is the set of all Sites in the zone that are interval-metered at time t as at time T

$L_{t,T}$ is the set of load research-based profiling classes at time t as at time T

$KLOSS_{t,T}$ is the estimated loss at time t as at time T associated with known loads.

9) Loss Associated with Known Loads

If the total zone loss $ZLOSS_{t,T}$ is calculated first, then allocated to Retailers, the loss associated with known loads is the total zone loss:

$$KLOSS_{t,T} = ZLOSS_{t,T}$$

If the total zone loss $ZLOSS_{t,T}$ is calculated by applying loss formulas to load components and summing these component losses, the loss associated with known loads is the sum of the loss formulas evaluated for the known components (deemed, interval-metered, and load research-based profiling classes):

$$KLOSS_{t,T} = \sum_{s \in U_{t,T} \cup I_{t,T} \cup L_{t,T}} L_{s,t,T}(SLOAD_{s,t,T}).$$

10) Calculating Load Profile Shapes

For profiling classes p whose profiles are either the net system load shape or based on load research samples, the profile shape over the period from time a to b is

$$PROFILE_SHAPE_{pTTab} = \frac{CLOAD_{stT}}{\sum_{t'=a}^b CLOAD_{pTt'}}$$

11) Profiled Calculation of Site Load for Initial Daily Settlement

$$PLOAD_{stT} = DAYKWH_EST_{stT} * PROFILE_SHAPE_{pTTab}$$

where

$DAYKWH_EST_{stT}$ is an estimate (per s. 2.6) of kWh consumption for Site s for the calendar day containing hour t

a is the first hour of the calendar day containing hour t

b is the last hour of the calendar day containing hour t

p is the profile class of Site s at hour t as at time T .

12) Profiled Calculation of Site Load for Initial Monthly, Interim and Final Reconciliation Settlement

$$PLOAD_{stT} = \begin{cases} \text{LSA estimate (per s. 2.6); if } M_{stT} \text{ is missing} \\ M_{stT} * PROFILE_SHAPE_{pTTab} \text{ otherwise.} \end{cases}$$

where

M_{stT} is the consumption amount for Site s for the meter-reading period that contains hour t as at T

a is the deemed meter reading time on the start date of the time period covered by M_{stT}

b is the deemed meter reading time on the end date of the time period covered by M_{stT}

p is the profile class of Site s at hour t as at time T .

6.4.3 Site Specific Load Settlement Reporting

The following elements must be reported by load settlement. Elements (a), (b) and (c) are reported to each Retailer for each of its own enrolled Sites only.

1) Daily Site Load

$$DSLOAD_{rDT} = \sum_{s \in D} SLOAD_{stT}$$

where

$SLOAD_{stT}$ is the Site load as defined in s. 6.4.2.7)

s is a Site enrolled by Retailer r in hour t

t is the hour of power flow
 D is the calendar day that Site-specific load settlement results are reported for
 T is the as at date of the settlement run.

2) Daily Site Loss

$$DSLOSS_{sDT} = \sum_{s \in D} L_{stT}(SLOAD_{stT})$$

where

L_{stT} is the distribution loss function as defined in s. 6.4.2.5).

3) Daily Site UFE

a) If all Sites within a zone receive UFE allocation or all Sites within a zone do not receive UFE allocation, the following formula is applicable:

$$DSUFE_{sDT} = \sum_{s \in D} ZUFE_{tT} * (SLOAD_{stT} + L_{stT}(SLOAD_{stT})) / (ZLOAD_{tT} + ZLOSS_{tT})$$

where

$ZUFE_{tT}$ is the Zone UFE as defined in s. 6.4.2.3)

$ZLOAD_{tT}$ is the Zone Load as Delivered to Sites defined in s. 6.4.2.1)

$ZLOSS_{tT}$ is the Zone Losses as defined in s. 6.4.2.2).

b) In all other instances, the following formula is applicable:

$$DSUFE_{sDT} = \sum_{s \in D} SUFE_{stT}$$

where

$SUFE_{stT}$ is the Site UFE as defined in s. 6.4.2.6) b).

6.5 Diagnostics

The load settlement system will provide the diagnostics listed below. The diagnostics will be available to Retailers through the Settlement Summary Information (SSI).

6.5.1 Required Unaccounted for Energy Statistics

For each settlement run (initial daily, initial monthly, interim, final) report UFE statistics calculated across all hours h in the run

- 1) UFE_h for each hour h
- 2) min_h and $max_h (UFE_h)$ over hours h
- 3) $mean(UFE_h)$
- 4) $mean(|UFE_h|)$

6.5.2 Required Zero Balance Check

For each hour of initial daily, initial monthly, interim, or final settlement run, report

- 1) a = Zone total load (sum of POD loads)
- 2) b = Sum of Retailer-settled loads, excluding loss, UFE
- 3) c = Sum of loss allocation to Retailers
- 4) d = Sum of UFE allocations to Retailers
- 5) Hourly Zone load reconciliation error (r), which should be zero except for rounding error:

$$r = a - (b+c+d)$$

- 6) Hourly Zone loss as a percent of zone loads at the customer meter: $(c)/(b)$
- 7) Hourly Zone UFE as a percent of zone loads at the customer meter: $(d)/(b)$.

6.5.3 System Performance Diagnostics

The LSAs will perform the diagnostics listed below at a minimum of one day per month for each applicable settlement run unless otherwise stated below, and monthly reports shall be signed by LSA management. As part of any settlement engine audit in accordance with s. 2.13, the LSAs must demonstrate that they have performed these diagnostics as required since the last audit. The ISO will review and investigate results outside of tolerances and shall provide a summary report to the market indicating that this Code is being complied with and where the rules are not being followed.

- 1) Zone Load Zero Balance Check

Confirm that zone results balance with POD data, zone interchange and distributed generation (includes interchange external to Alberta) for each hour of each settlement run (initial daily, initial monthly, interim, final).

- 2) Zone Level Retailer Zero Balance Check

Confirm that zone results in the Settlement Summary Information (SSI) balance with the load allocated to Retailers in the Wholesale Settlement Information (WSI). For each hour of each settlement run (initial daily, initial monthly, interim, final):

- a) a = Zone settled load, excluding loss and UFE
- b) b = Zone loss allocation
- c) c = Zone UFE allocation
- d) d = Sum of Retailer-settled loads, excluding loss and UFE
- e) e = Sum of Retailer loss allocation
- f) f = Sum of Retailer UFE allocation
- g) Hourly zone load reconciliation difference: $r = a - d$
- h) Hourly zone loss reconciliation difference: $r = b - e$
- i) Hourly zone UFE reconciliation difference: $r = c - f$
- j) Hourly zone grand total reconciliation difference: $r = (a + b + c) - (d + e + f)$

where r = reconciliation difference.

3) Site Level Retailer Zero Balance Check

Confirm that Site level results reported in the Wholesale Settlement Detail (WSD) balance with the load allocated to Retailers reported in the Wholesale Settlement Information (WSI). For each settlement run (initial daily, initial monthly, interim, final) Site level statistics calculated for day D (at a minimum one day within the load settlement period must be selected) for each Retailer in each zone.

a) a = Daily Retailer total from hourly settled load, excluding loss and UFE

$$\sum_{r \in R} RLOAD_{rT}$$

where

$RLOAD_{rT}$ is the Retailer r settled load excluding loss and UFE allocations in hour t as at time T defined in s. 6.4.2.4).

b) b = Total daily Retailer loss allocation

$$\sum_{r \in R} RLOSS_{rT}$$

where

$RLOSS_{rT}$ is the Retailer r total distribution loss in hour t as at time T defined in s. 6.4.2.5).

c) c = Total daily Retailer UFE allocation

$$\sum_{r \in R} RUFET_{rT}$$

where

$RUFET_{rT}$ is the Retailer r total UFE in hour t as at time T defined in s. 6.4.2.6).

d) d = Daily Retailer total from Site level settled allocation, excluding loss and UFE

$$\sum_{r \in R} \sum_{s \in E_{rDT}} DSLOAD_{sDT}$$

where

E_{rDT} is the set of all Sites enrolled with Retailer r the zone on day D as at time T

$DSLOAD_{sDT}$ is the daily Site settled load for Site s for day D as at time T defined in s. 6.4.3.1).

e) e = Daily Retailer total from Site level loss allocation

$$\sum_{r \in R} \sum_{s \in E_{rDT}} DSLOSS_{sDT}$$

where

E_{rDT} is the set of all Sites enrolled with Retailer r the zone on day D as at time T
 $DSLOSS_{sDT}$ is the daily Site loss for Site s for day D as at time T defined in s. 6.4.3.2).

f) f = Daily Retailer total from Site level UFE allocation

$$\sum_{s \in E_{rDT}} DSUFE_{sDT}$$

where

E_{rDT} is the set of all Sites enrolled with Retailer r the zone on day D as at time T
 $DSUFE_{sDT}$ is the daily Site UFE for Site s for day D as at time T defined in s. 6.4.3.3).

g) Daily Retailer load reconciliation difference:

$$r = a - d$$

h) Daily Retailer loss reconciliation difference:

$$r = b - e$$

i) Daily Retailer UFE reconciliation difference:

$$r = c - f$$

j) Daily Retailer grand total reconciliation difference:

$$r = (a + b + c) - (d + e + f)$$

4) Profiled Divergence Check

For NSLS profiles only, confirm that the sum of Site level results reported in the Wholesale Settlement Detail (WSD) follows the pattern of their associated profiles reported in the Settlement Profile Information (SPI). For each settlement run (initial monthly, interim, final) profiling class statistics calculated across each day D within the month being settled for each Retailer in each zone:

a) a = Daily total profiling class load

$$= \sum_{t \in D} CLOAD_{ptT}$$

where

$CLOAD_{ptT}$ is the profiled class load p in hour t as at time T defined in s. 6.4.2.8).

b) b = Daily profiled total from Site level settled allocation, excluding loss and UFE

$$= \sum_{s \in E_{rDT}} DSLOAD_{sDT}$$

where

E_{pDT} is the set of all Sites in the zone assigned to profile p on day D as at time T
 $DSLOAD_{sDT}$ is the daily Site settled load for Site s for day D as at time T defined in s. 6.4.3.1).

c) c = Daily profiled total from Site level loss allocation

$$= \sum_{s \in E_{pDT}} DSLOSS_{sDT}$$

where

E_{pDT} is the set of all Sites in the zone assigned to profile p on day D as at time T
 $DSLOSS_{sDT}$ is the daily Site loss for Site s for day D as at time T defined in s. 6.4.3.2).

d) d = Daily zone total from Site level UFE allocation

$$= \sum_{s \in E_{DT}} DSUFE_{sDT}$$

where

E_{DT} is the set of all Sites in the zone on day D as at time T
 $DSUFE_{sDT}$ is the daily Site UFE for Site s for day D as at time T defined in s. 6.4.3.3).

e) Profile divergence error:

If the profiling class p is the set of Sites profiled using the residual load shape, the residual profile divergence error is:

$$r = a - (b + c + d)$$

c may or may not be included in the above calculation depending on which approach as per s. 3.1.2) c). Known Losses is implemented.

5) Enrollment Switches

For a selected day within the load settlement period, confirm that every enrollment switch results in allocation of energy as reported in the Wholesale Settlement Detail (WSD) to the correct Retailer of Record on the day of the switch as per the Select Retailer Notification (SRN). For each settlement run (initial daily, initial monthly, interim, final).

6) Cumulative Meter Reads Balancing

Confirm that Site level load settlement results reported in the Wholesale Settlement Detail (WSD) match the Daily Cumulative Meter Consumption (DCM), and do not over or under allocate the load. This test is subjected to the following restrictions:

a) Only WSDs generated by settlement runs with frozen profiles are used, i.e. the interim and final settlements.

- b) DCMs for which the load settlement results (WSD) for the entire meter-reading period are computed using the profiled calculation outlined in s. 6.4.2.12).
- c) The Profiled Calculation of Site Load Error ($PERROR_{stT}$) for Site s for the meter-reading period that contains hour t as at T is calculated as follows:

$$PERROR_{stT} = M_{stT} - \sum_{t \in [a,b]} PLOAD_{stT}$$

where M_{stT} , $PLOAD_{stT}$, a and b are defined in s. 6.4.2.12).

7) Interval Meter Reads Balancing

Confirm that Site level load settlement results reported in the Wholesale Settlement Detail (WSD) match the Daily Interval Meter Consumption (DIM), and do not over or under allocate the load for at least one day each month for each settlement run type (initial daily, initial monthly, interim, final).

The Interval Calculation of Site Load Error ($IERROR_{sDT}$) for Site s for the meter-reading for day D (the calendar day that load settlement results are reported for) as at T is calculated as follows:

$$IERROR_{sDT} = \sum M_{stT} - DSLOAD_{sDT}$$

where

M_{stT} is the interval consumption for interval Site s at hour t as at T

$DSLOAD_{sDT}$ is the daily Site settled load for Site s for day D as at time T defined in s. 6.4.3.1).

8) Percentage of Non-estimated Result Source Data

The LSAs will calculate for a given day D within the month of final settlement, the percentage of Sites settled and percentage of energy settled not estimated by the settlement engine, i.e. no DIM or DCM available. This percentage is calculated as follows.

- a) A = Number of WSD records generated for the day
- b) B = Number of WSD records with the Result Source flag set to M
- c) C = Sum of Daily Site Usage KWH for all WSDs generated for the day
- d) D = Sum of Daily Site Usage KWH for all WSDs generated for the day with the Result Source flag set to M
- e) Percentage of non-estimated Sites = b / a
- f) Percentage of non-estimated load = d / c

7 Information Exchange

7.1 Business Transactions

- 1) The transactions sets required to support load settlement processes are listed in Table 6. Transactions sets for which standard content or electronic transmittal is required are indicated by checkmarks in the third and fourth columns of the table, respectively. Universal standards for electronic and standard content transactions as well as detailed transaction content are provided in S. 9. The sets of transactions for which standard exchange procedures must be followed are listed in the next section. Specific standards are then given for electronic transactions and for the contents of specific transactions. The final subsection specifies the transaction processes for customer enrollment.
- 2) The transaction standards are required for data exchange between separate organizations or companies. However, where separate functions are performed by different parts of a bundled organization, such as MDM and LSA functions within the WSP, adherence to these transmittal standards is not required for transactions between these functional areas. Adherence to the standards is required for transactions between the bundled organization and any external parties.

Table 6. Business Process Flows and Transaction Sets Required for Load Settlement

Transaction Set	Transaction	Standard Content Required?	Electronic Transmittal Required?
Select Retailer			
	A. Select Retailer Request (SRR)	✓	✓
	B. Select Retailer Notification (SRN)	✓	✓
	C. Notify Old Retailer (SRO)	✓	✓
	D. Settlement (LSA) Notify Wires and MDM (SRW)	✓	✓
Update Customer Information			
	A. Update Customer Information (UCI)	✓	✓
	B. Site Metering Characteristics (SMC)	✓	✓
	C. Request Update Customer Information (RUC)	✓	✓
Energize Site			
	A. Energize Request (ENR)	✓	✓
	B. Energize Failure (ENF)	✓	✓
	C. Energize Completion to Retailer LSA and MDM (ENC)	✓	✓
De-energize Site			
	A. De-Energize Request (DER)	✓	✓
	B. De-Energize Failure (DEF)	✓	✓
	C. De-Energize Completion to Retailer, LSA and MDM (DEC)	✓	✓
Request Off-Cycle Meter Read			
	A. Request Off-Cycle Meter Read (ROR)	✓	
	B. Request Off-Cycle Meter Read Completion (ROC)	✓	
Revoke De-Energize			
	A. Revoke De-Energize Request (RDR)	✓	
De-Select			
	A. De-select Request (DSR)	✓	
	B. De-select Notification (DSN)	✓	

Transaction Set	Transaction	Standard Content Required?	Electronic Transmittal Required?
Search Site ID			
	A. Search Site ID Request (SSR)	✓	
	B. Site ID Result (SIR)	✓	
Provide Consumption Data			
	A. Daily Interval Meter Readings to Retailers and LSA (DIM)	✓	✓
	B. Daily Cumulative Meter Consumption to Retailer and LSA (DCM)	✓	✓
	C. Cumulative Switch Estimates (CSE)	✓	✓
Provide Wholesale Load Settlement Data			
	A. Wholesale Settlement Information (WSI)	✓	✓
	B. Settlement Summary Information (SSI)	✓	✓
	C. Settlement Profile Information (SPI)	✓	✓
	D. DSM Data to LSA and ISO	✓	✓
	E. Wholesale Settlement Summary (WSS)	✓	✓
	F. Detailed Settlement Information for Retailer's own Sites (WSD)	✓	✓
	G. Wholesale Class Information (WCI)	✓	✓
PFAM Transactions			
	A. Retailer Specific Adjustment (RSA)	✓	✓
	B. Retailer Adjustment to Market (RAM)	✓	✓
	C. Transmission Administrator Adjustment (TAA)	✓	✓

7.1.1 Transactions Requiring Standard Exchange Procedures

1) Transaction Sets with Standard Content

- a) The following process flows have transaction sets that are required to contain standard content but do not require electronic transmittal:
 - i) Search Site ID
 - ii) Request Off-Cycle Read
- b) S. 9 contains the specific content for each transaction set. The Site ID requirements are in s. 9.4.6.14.

2) Transaction Sets Requiring Electronic Transmittal

- a) The transaction sets for the following processes are required to be transmitted electronically and to have standard content:
 - i) Select Retailer: Electronic transmittal is required due to the security requirements and potential volume.
 - ii) Update Customer Information: Electronic transmittal is required to automate transfer of customer information from Retailers to WSP.
 - iii) Provide Current Consumption Data: Electronic transmittal is required because these are the transactions with the greatest volume of data.
 - iv) Provide Wholesale Settlement Data: Electronic transmittal is required for the data changing daily; fixed data are not required to be transmitted electronically. Specific data elements with electronic transmittal required are listed below.

- v) PFAM Transactions: Electronic Transmittal is the required method of transportation.
- vi) Energize Site
- vii) De-Energize Site
- viii) Revoke De-Energize

Electronic transmittal is required also for historic consumption data, as described further below.

7.2 Transaction Transport Method

- 1) The Internet is the transport mechanism for electronic data exchange.
- 2) Each participant must exchange these data securely in files formatted using CSV (Comma Separated Values).
- 3) The software product called DropChute™ will be used for the purpose of securely transferring the electronic business transactions. See S. 10 for the details of DropChute security requirements.
 - a) DropChute™ automatically establishes a secure, user-authenticated and encrypted connection directly from one PC to the other through the Internet, Intranets, or modem-to-modem. It eliminates manual encryption, decryption and log-in processes, and transfers data in real time. Industry standard encryption (up to 1024/128 bit) prevents others from intercepting and deciphering the data stream. DropChute is instant file delivery software. It lets PC users exchange files directly with one another in real-time, eliminating the security risks, time lag, and extra steps associated with conventional methods such as email and FTP.
- 4) Additional documentation regarding electronic file transport may be provided and/or produced by each WSP (e.g., Alberta-Specific Installation Guides, User Guides, Training Material, Sample File Layouts, etc.).

7.3 Electronic Transaction Content

S. 9 contains the Information Exchange Standards. Detail for electronic and standard content transactions is provided.

- 1) Provide Consumption Data Transactions
 - a) Meter data are transmitted daily to the LSA from Meter Data Managers (MDM) for cumulative read consumption data and interval consumption data.
 - b) For cumulative meter reads, the data will be sent when they become available after passing validation, estimation, and editing (VEE).
 - c) MDMs must routinely provide meter-reading data for the current period to Retailer for each Retailer's Sites. Bulk transmittal of files including all Sites for the Retailer, each identified by Site ID, is sufficient to meet this requirement. That is, for current data, MDMs are not required to provide separate data sets for specific requested Site IDs. For historic consumption data, however, such as the most recent twelve months, MDMs are required to provide the data on request for specific Site IDs.
- 2) Historic Consumption Data from the MDM

- a) Except as otherwise agreed by the parties, historic consumption data for dates January 1, 2001 or later must be delivered electronically, following the format of the appropriate consumption data transaction.
 - b) Historic interval data for dates January 1, 2001 or later must be delivered electronically. The data delivery format will follow the format of the “Provide Consumption Data” transaction.
 - c) Historic consumption data for dates prior to January 1, 2001 do not have to be delivered electronically or follow a standard format.
 - d) The method of fulfilling consumption data requests from Retailers not registered with the ISO will be at the discretion of the WSP.
- 3) Provide Wholesale Settlement Data
- a) This transaction set consists of data transmitted to the ISO from the LSA. Transaction A (shown in Table 6 above) is the computed load settlement for each Retailer that is sent to the ISO each Business Day.
 - b) Other data computed each Business Day (Transaction B and C in Table 6) by the LSA, but not specific to any Retailer, will be provided electronically to all Retailers. Such data as Zone POD Load, Zone UFE and Zone Loss Percentage are included in Transaction B, Settlement Summary Information. Likewise, load settlement profile data available to all Retailers will be provided electronically as shown in Transaction C in Table 6.

7.4 Enrollment Mechanics

- 1) Customers can switch Retailers no more than once per day. All customer switches occur at midnight.
- 2) The first switch request received by a WSP and made effective for a customer for a particular day determines the customer assignment from that day until the next effective switch. For example, if a switch request for the same customer is received on the same day at 1 PM from Retailer One and at 2 PM from Retailer Two, Retailer One is assigned the customer.
- 3) The Retailer shall manage the enrollment queue and shall send the enrollment request transactions to the LSA only on the calendar day prior to the desired effective date.
- 4) Enrollments can occur on any calendar day, regardless of holidays or non-working days.
- 5) All enrollment requests shall be processed to be effective the midnight following the receipt of a valid enrollment request. For example, if the enrollment is received at 23:00 on July 21, the enrollment, provided the transaction is valid, will be effective at 00:00 on July 22, one hour later.
- 6) The LSA shall process enrollment requests on the day of receipt, in accordance with 8) below.
- 7) When a customer with a cumulative consumption meter switches Retailers without an actual meter read at the time of the switch, the LSA will calculate estimated consumption since the previous actual meter read. The estimated consumption will be from the last actual meter read to the switch date. The LSA will provide the estimate to the previous

Retailer and to the new Retailer for billing purposes as part of the “Cumulative Switch Estimate Consumption to Retailers” transaction. When the next actual read becomes available, it will be provided to all Retailers that served the customer since the previous actual read. The estimation requirement at the time of a switch applies only to customers with cumulative consumption meters. Interval metered customers do not require switch estimates.

- 8) Notification of a customer switch shall be provided to the new Retailer, the Retailer of Record on the day preceding the switch, the WSP and the MDM in accordance with the following:
 - a) 90% of the enrollment requests received between 7am and 3pm each day will be responded to within two hours, with the remaining 10% being responded to within four hours. This standard shall be based on the total number of enrollment requests received by each LSA for all Retailers on a calendar day basis.
 - b) If an enrollment request is received after 3pm there is no guarantee of notification prior to 9am the following day. The enrollment request will still be processed by the LSA.
 - c) An exception to the performance standard stated in a) above, shall be permitted for scheduled maintenance, or for other reasons that are specifically approved by the ISO, not to exceed two non-consecutive calendar days per calendar month.
- 9) Erroneous Enrollment
 - a) When a Retailer enrolls a Site erroneously, that Retailer shall notify the LSA of the error within one Business Day of the discovery of the error.
 - b) The LSA shall confirm the receipt of the notification from the Retailer.
 - c) The LSA shall contact the previous Retailer within one Business Day from the date of notification from the Retailer responsible for the accidental enrollment.
 - d) The previous Retailer shall re-enroll the Site within three Business Days from the data of notification from the LSA.
 - e) Compliance with a) above does not preclude the Retailer from de-selecting the Site at any time during this process.

7.5 Changes in Profiling Class

- 1) If the LSA changes a customer’s profiling class, the LSA must notify the Retailer. The LSA will make a best effort to provide the notification in advance of the profile class change. However, the LSA will not attempt to synchronize the notification with enrollment or change of meter, in the case of conversion from cumulative metering (load profiled) to interval metering. The means of notification is up to each LSA, and is not a standard transaction in this Settlement System Code.
- 2) For changes in profiling class in response to a Retailer request, no standard transaction is required either for receiving the request or notifying the Retailer of the change.

7.6 Site ID Retirement

- 1) A WSP shall retire a Site ID when a Site is salvaged. Salvage occurs when the wires and other apparatus are removed from the Site such that no electricity services can be supplied to the Site.
- 2) When a Site ID is retired, the WSP shall disassociate the Site from the Retailer of Record. The WSP shall notify the Retailer that it is no longer the Retailer of Record for that Site using the SRO transaction.
- 3) When a Site ID is retired, the WSP shall ensure that the Site ID can no longer be enrolled.
- 4) The WSP shall not reuse Site IDs.
- 5) The WSP shall purge the Site ID from its catalogue within the refresh time specified in s. 9.4.6.14.3).

8 Standards for Load Profiles Based on Load Research Samples

8.1 Introduction

- 1) Class load profiles based on load research samples must meet the standards defined in this schedule. Standards are specified in three general areas:
 - a) Estimation accuracy
 - b) Frame adequacy
 - c) Sample design and implementation.

The standards for each of these areas are described below.

8.2 Estimation Accuracy

Estimation accuracy refers to how well the load research sample and estimation procedure estimate the quantity of interest.

8.2.1 Test Parameter

- 1) The accuracy of an estimated class load profile will be measured in terms of the accuracy of the load-weighted average price per kWh U_c . This test parameter is defined as

$$U_c = \frac{\sum_h L_{ch} U_h}{\sum_h L_{ch}}$$

where

- U_c = load-weighted average price per kWh for class c
- L_{ch} = class c load at hour h
- u_h = wholesale market commodity price of electricity at hour h the summation is over a full year.

- 2) The profiling accuracy standard addresses how well the class average is estimated.

8.2.2 Measuring Estimation Accuracy

The estimation accuracy is defined in terms of the variance V_c of the estimate of the class unit price U_c . This mean squared error consists of sampling error and modeling error. That is,

$$V_c = V_{cs} + V_{cm}$$

where

- V_{cs} = sampling variance for class c
 V_{cm} = modeling variance for class c .

1) Sampling Variance

- a) The sampling variance V_{cs} is determined by applying appropriate statistical methods to the statistical sample. Specifically, for each Site j in the sample, determine the Site's load-weighted average annual price U_{sj} analogously to the determination of the class average price U_c :

$$U_{sj} = \frac{\sum_h L_{sjh} u_h}{\sum_h L_{sjh}}$$

where

- U_{sj} = load-weighted average price per kWh for Site j
 L_{sjh} = Site j metered load at hour h
 u_h = wholesale market commodity price of electricity at hour h the summation is over a full year.

- b) The class mean price $\overline{U_c}$ is calculated as the energy-weighted average of the Site-specific average prices U_{sj} :

$$\overline{U_c} = \frac{\sum_{j=1}^n w_j (\sum_h L_{sjh}) U_{sj}}{\sum_{j=1}^n w_j (\sum_h L_{sjh})}$$

here

- n = number of Sites in the sample for class c
 w_j = expansion weight for Site j .

- c) The sampling variance V_{cs} of the class unit price is then calculated as the variance of the ratio estimator $\overline{U_c}$, using standard statistical formulas appropriate to the sample design.
- d) In the simplest case, none of the sampled Sites j have any missing data, and the expansion weights used to calculate the class load L_{ch} from the Site loads L_{sjh} are constant over all hours of the year. In this case, the mean class price $\overline{U_c}$ obtained by combining the Site-specific prices U_{sj} will coincide with the class price U_c calculated by applying the hourly prices u_h to the estimated class loads L_{ch} . In this case, the variance V_{cs} calculated as indicated is a direct estimate of the sampling variance of the class average price U_c .

- e) If there are some missing data and/or the expansion weights vary over the year, the mean class average price $\overline{U_c}$ may differ from the direct calculation U_c . In this case, the variance V_{cs} calculated as indicated is a good approximation to the sampling variance of the class average price U_c .

2) Dynamic Estimation

If dynamic estimation is used, the sampling variance is the only estimation variance. That is, with dynamic estimation,

$$V_c = V_{cs}$$

3) Estimates Based on Historical Data

If an estimate for the day of interest is constructed from historical data, the estimation variance is the sum of the sampling variance V_{cs} that would apply with dynamic estimation, plus the “modeling” variance V_{cm} . The word “modeling” as used here includes any procedure that constructs estimates for the current day from historical data. Such procedures include regression modeling, as well as proxy-day or static methods.

The modeling variance is calculated as follows.

- a) A minimum of three years (36 months) of historical data is required. (This requirement appears also in s. 8.3.2.)
- b) For each year of historical data, treat that year as the year for which profiles are to be estimated, and construct estimates for that year using the remaining years of data as the historical years, and not using any data from that year. For example, if three years of historical data are to be used, estimate
 - i) year One using years Two and Three as the historical data and no data from year One;
 - ii) year Two using years Three and One as the historical data and no data from year Two; and
 - iii) year Three using years One and Two as the historical data and no data from year Three.
- c) Calculate the average unit price for each year of historical data, using the actual load data and also using the estimate developed in Step b). The hourly price series u_h to use is defined below. Denote by U_y the average annual unit price calculated for year y from the historical data for year y , and by U'_y the average annual unit price calculated for year y using the estimated profile developed in Step b) from the other years of data.

- d) Calculate the modeling variance as

$$V_{cm} = (1/n) \sum_y (U_y - U'_y)^2$$

where

n is the number of years of historical data.

e) The total variance is given by

$$V = V_{cs} + V_{cm}$$

4) Price Series

- a) For each year of load data used in the analysis, the wholesale commodity price data will be adjusted to a recent “base” year. The base year will be the most recent calendar year for which analysis is practical.
- b) For all years of load data used in the analysis, the wholesale price data from that year will be adjusted to the base year conditions so that the mean and standard deviation of log price from the adjusted series will coincide with those from the base year. That is, the adjusted price u'_h at hour h of the year will be calculated as

$$\log(u'_h) = \overline{\log(u)} + (s^*/s)(\log(u_h) - \overline{\log(u)})$$

where

s and $\overline{\log(u)}$, respectively, are the standard deviation and mean of log price for the year of the load data, and the corresponding values with asterisks are for the base year.

In calculating the modeling variance V_{cm} as described above, the adjusted price series will be fixed, and will not be recalculated as different years of load data are included in the analysis at Step b).

For years of load data prior to 1996 (the first year for which Alberta wholesale price data exist), the base year price data will be transferred to the corresponding year of load data. The transfer will map price series data to approximately the same date in the load data year. The price series calendar will be shifted as necessary so that days of the week and holidays will correspond in the price and load series.

8.2.3 Required Accuracy Level

1) Measuring Accuracy

- a) The estimation accuracy will be measured in terms of the relative standard error of the estimate, also called the coefficient of variation. The standard error S_c of the estimate \overline{u}_c is calculated as

$$S_c = \sqrt{V_c}$$

- b) The relative standard error RSE or coefficient of variation CV is calculated as

$$RSE_c = S_c / \overline{u}_c$$

- c) This calculation applies whether the variance V_c consists only of sampling variance V_{cs} , in the case of dynamic estimation, or also includes modeling variance V_{cm} .

2) Sampling Accuracy Requirement

- a) Whether dynamic estimation or some form of modeling is used, the sample must be designed to provide a relative standard error due to sampling of 0.8 percent or less. That is, the design sampling variance V_{cs} must be such that

$$RSE_{cs} = \sqrt{V_{cs}} / \overline{u}_c < 0.008$$

b) The design sampling variance is the projected sampling variance calculated during the design phase prior to collection of load data. The design variance should be based on existing load research samples, if available, and on reasonable assumptions. For load research samples designed prior to this standard or for purposes other than load profiling, compliance with this standard will be based on the achieved variance V_{cs} .

3) Modeling Accuracy Requirement

If estimates are based on historic data, the modeling variance V_{cm} must satisfy the criterion

$$RSE_{cm} = \sqrt{V_{cm}}/U_G < 0.008$$

8.3 Frame Adequacy

Frame adequacy refers to how well the list of customers from which the sample was drawn matches the target population—that is, the list of customers to whom the profile will be applied.

8.3.1 Maximum Allowable Difference between the Sampling Frame and Target Population

1) Sites in the Sample Frame Who are Not in the Target Population

Sites selected for the sample that fall out of the target population over time must be dropped from the sample used to estimate the population. In this way, the sample will represent only Sites that continue to be in the target population. Sites may fall out of the target population because they shut down entirely, because they move to another profiling class, or because they install interval meters and leave profiling status altogether. In and of itself, a change in occupant at a Site does not constitute leaving the population, though a change of occupant may be the reason for a change in Site status.

2) Sites in the Target Population Who are Not in the Sample Frame

Sites may be in the population but not in the frame if the Site came into existence after the sample was drawn, or if the Site changed from one profiling class to another. The sample design must be updated when the collection of Sites that is in the target population but not in the sample frame constitute more than twenty percent of the annual energy of the target population. Updating the sample design does not necessarily require re-drawing the entire sample. Updating could simply mean adding another stratum to represent newcomers.

3) Adjustments for Divergence between the Frame and Population

The sample must be post-stratified to represent the current target population. That is, the expansion weights must be based on current stratum-level population counts. If ratio estimation is used, the expansion weights must be based on current stratum-level ancillary variable totals.

8.3.2 Minimum Number of Years of Historical Data

If historic load research data are used for estimating class profiles, a minimum of three full years (36 months) of data are required. This requirement applies only if historical data are used for profile estimation, not if dynamic estimation is used.

8.3.3 Maximum Age of Historical Data

The maximum age of historic data that may be used for estimation is ten years.

8.4 Sample Design and Implementation

8.4.1 Sample Design and Analysis Principles

- 1) Any statistical sample design may be allowed, provided that it is based on random sampling from well-defined and identifiable sampling cells.
- 2) Sampling within cells may be by simple random sampling, or by more complex methods, provided the procedures are well-defined and provide a basis for calculating appropriate expansion weights and variances.
- 3) Random sampling may be implemented by systematic sampling from a randomized list.
- 4) Some sampling strata may be designated as certainty strata. That is, all customers within this stratum are selected with certainty, and represent themselves only.
- 5) The estimation and variance calculation procedures applied must be appropriate to the sample design.

8.4.2 Sample Implementation Principles

The above principles refer to how the customers are theoretically selected. In practice, customers actually included in a sample are often only a subset of those initially targeted. The difference is the result of refusals, difficulty with meter installation, and finding that selected customers no longer exist. Following are standards for implementing the sample design.

- 1) The best reasonable effort will be made to avoid notifying customers selected for the sample of this selection.
- 2) Sites should not be excluded from the sample because they turn out to be remote or complex to meter. However, Sites that are more expensive to meter may be put into a different sampling stratum and sampled at a lower rate.
- 3) The maximum fraction of Sites that are selected for the sample but at which load research meters are not installed should be less than ten percent of the total number selected for the sample. This maximum non-installation rate includes customer refusals, failure to install for logistical reasons, and customer dropout.
- 4) At each hour for which the class load is estimated from the sample, data may be missing for no more than 25 percent of the installed and active Sites for the class.

9 Information Exchange Standards

9.1 Purpose

- 1) The purpose of s. 9 is to define the electronic and non-electronic information exchange standards for the business transactions, including electronic and non-electronic. In addition to defining the format and contents of each transaction, universal standards that govern all transactions are specified.
- 2) The standards are intended to be as specific as practical to facilitate data exchange among market players. At the same time, it may turn out in the course of system implementation that certain details require adjustment for practical reasons. These specifications may be revised if the need for such adjustment becomes clear. In the event that a WSP's implementation differs in certain details from the approved specifications, a standard for assessing such variances will be the extent to which those variances were necessary and reasonable in light of the WSP's overall system structure, and the extent to which the resulting differences impede the operation of the market.

9.2 Scope

The scope of this documentation is limited to the electronic and standard content transactions in Table 6 of s. 7.

9.3 Revisions

Revisions to these standards, including both additions and changes, may be made by the Commission in consultation with stakeholders.

9.4 Universal Standards

9.4.1 Directory Structure

The directory structure for the electronic files is dependent upon the transaction transport method.

9.4.2 File Naming Convention

- 1) All transactions of the same type for a period (usually one day) are to be placed in a single comma separated value (CSV format) file. The standard file naming convention is:

TRX_From_To_YYYYMMDDHHMISS.CSV

where,

TRX	three letter abbreviation for the transaction name (e.g. Select Retailer Request = SRR)
From	ID of the sender, either Wires Company ID, Retailer ID, or Settlement ID
To	ID of the receiver, either Wires Company ID, Retailer ID, or Settlement ID
YYYYMMDD	Date the file was created
HHMISS	Time the file was created on a 24 hour clock.

- 2) In the case where the file has no single recipient such as Settlement Summary Information and Settlement Profile Information, the “To_” may be omitted from the file name. The file name would be as follows:

TRX_From_YYYYMMDDHHMISS.CSV

- 3) For transactions with a Transaction Status Code, a response file (a mirrored-back transaction file) may be delivered to the sender. Its purpose is to notify the sender of any errors in individual transactions. The file naming convention for the response files would be as follows:

TRX_From_To_YYYYMMDDHHMISSR.CSV

9.4.3 Universal Transaction Contents

All transactions are to include:

- 1) Transaction Name (three Character abbreviation).
- 2) Identification of the sender (Retailer ID, Wire Services Provider ID, or Settlement ID).
- 3) Identification of the recipient (Retailer ID, Wire Services Provider ID, or Settlement ID).
- 4) Transaction Date Time. The “Transaction Date Time” field in all transactions is the latter of the time the transaction was created or last modified.

9.4.4 Optional Fields

The optional fields specified in the electronic transactions are applicable to both the sender and receiver. Either the sender or the receiver may choose to use them unless otherwise specified.

9.4.5 Data-type Definition

9.4.5.1 Char(x)

Fixed length Character always x Characters in length.

For example, Char(3) is ‘ABC’

9.4.5.2 Varchar(x)

x designates the maximum number of characters.

For example, Varchar(3) is ‘A’ or ‘AB’ or ‘ABC’

9.4.5.3 Number(p,s)

Number with p digits of precision and s digits to the right of the decimal (scale).

For example, 123456.78 is Number (8,2) and .0012 is Number (2,4)

9.4.6 Standard Fields

This section contains common fields that may appear in many transactions. For consistency and to avoid confusion within the transactions, refer to these fields using their full name at all times (e.g., Settlement ID and not Sett. ID).

9.4.6.1 Date / Datetime Format

The Standard Date format has been defined as:

YYYYMMDDHHMISS

where,

YYYY year with century (e.g., 1999)
MM two digit numeric month 01-12 (e.g., 09)
DD two digit numeric day 01-31 (e.g., 03)
HH hour on a 24 hour clock 00 - 23 (e.g., 22)
MI minutes 00 - 59 (e.g., 02)
SS seconds 00 - 59 (e.g., 09)

For example, 19990903220209 is September 03, 1999 at nine seconds after 10:02 PM.

9.4.6.2 Telephone Number Format

The Standard Telephone format has been defined as:

AAANNNNNNNXXXX

Where:

AAA area code
NNNNNNN telephone number
XXXX extension (if any)

9.4.6.3 Time Conventions

Clock Time

Times refer to times on the prevailing local clock, standard or daylight time depending on the season.

Daylight Saving Time Conversion

Clock adjustments for daylight saving time are carried out using the convention that the clock is set to the new time system at the instant prior to 02:00:00 and 02:00:00 on the old time system never occurs. In the spring, the clock changes from 01:59:59 MST to 03:00:00 MDT. In the fall, the clock changes from 01:59:59 MDT to 01:00:00 MST. For purposes of identification and reporting of hour-ending (HE),

- a) On the day of the springtime change, HE 02 does not exist. HE 03 follows HE 01. All energy consumed in the period between 00:00:01 and 01:00:00 are HE 01, and energy consumed in the following hour is HE 03. The hourly allocations for purposes of “hour ending” assignment translates quantities in the second hour to 03. Each hour thereafter is labeled incrementally such that there are 23 identifiers for the day where 24 is the last hour and “02” is not used.
- b) On the day of the fall time change, HE 02 occurs twice, with the second occurrence denoted with an asterisk (02*). The hourly allocations for purposes of “hour ending” assignment translates quantities in the first hour is labeled 01, for the second hour is labeled 02 and for the third hour is labeled 02*. Energy consumed in the fourth hour

of that day are recorded as 03, and so on, permitting 25 identifiers for the day where 24 is the last hour and “02*” is added.

The following example is provided for clarity:

Table 7. DST Change Date Examples

Steady State – Daylight Time			
Actual in UTC*	Prevailing Time Period	HE Identifier	Partial DIM Example ¹
06:00:01 to 07:00:00	00:00:01 to 01:00:00	01	...,20060802010000,15,01,...
07:00:01 to 08:00:00	01:00:01 to 02:00:00	02	...,20060802020000,15,02,...
08:00:01 to 09:00:00	02:00:01 to 03:00:00	03	...,20060802030000,15,03,...
09:00:01 to 10:00:00	03:00:01 to 04:00:00	04	...,20060802040000,15,04,...
Steady State – Standard Time			
Actual in UTC*	Prevailing Time Period	HE Identifier	Partial DIM Example
07:00:01 to 08:00:00	00:00:01 to 01:00:00	01	...,20060202010000,15,01,...
08:00:01 to 09:00:00	01:00:01 to 02:00:00	02	...,20060202020000,15,02,...
09:00:01 to 10:00:00	02:00:01 to 03:00:00	03	...,20060202030000,15,03,...
10:00:01 to 11:00:00	03:00:01 to 04:00:00	04	...,20060202040000,15,04,...
Fall change- MDT to MST			
Actual in UTC*	Prevailing Time Period	HE Identifier	Partial DIM Example ²
06:00:01 to 07:00:00	00:00:01 MDT to 01:00:00 MDT	01	...,20061029010000,15,01,...
07:00:01 to 08:00:00	01:00:01 MDT to 01:00:00 MST	02	...,20061029010000,15,02,...
08:00:01 to 09:00:00	01:00:01 MST to 02:00:00 MST	02*	...,20061029020000,15,02*,...
09:00:01 to 10:00:00	02:00:01 MST to 03:00:00 MST	03	...,20061029030000,15,03,...
10:00:01 to 11:00:00	03:00:01 MST to 04:00:00 MST	04	...,20061029040000,15,04,...
Spring Change – MDT to MST			
Actual in UTC*	Prevailing Time Period	HE Identifier	Partial DIM Example ³
07:00:01 to 08:00:00	00:00:01 MST to 01:00:00 MST	01	...,20070311010000,15,01,...
08:00:01 to 09:00:00	01:00:01 MST to 03:00:00 MDT	03	...,20070311030000,15,03,...
09:00:01 to 10:00:00	03:00:01 MDT to 04:00:00 MDT	04	...,20070311040000,15,04,...

* Actual in UTC: This column is provided for clarification purposes.

¹ Examples use a partial excerpt from a DIM file, showing only the last 15-minute record in the hour

² Example is for the daylight time change on October 29, 2006

³ Example is for the daylight time change on March 11, 2007

9.4.6.4 ID Assignments

The ISO oversees ongoing ID assignment.

A unique ID will be set up for each business function within the Wire Services Provider (WSP). WSP will have a three digit number ID prefixed with a "0", Load Settlement Agent (LSA) will have a three digit number ID prefixed with a "1" and Meter Data Manager (MDM) will have a three digit number ID prefixed with a "2".

9.4.6.5 Retailer/Business ID

1) Retailer ID

- a) The Retailer ID is a nine-digit number that uniquely represents each Retailer operating within Alberta. The ISO shall assign this number when a participant is approved for pool participant status.

Table 8. Retailer ID

Retailer ID	Retailer Name
123456789	Retailer X

2) Business Function ID

- a) Business Function ID codes and processing rules must be interoperable. Business rules may vary from participant to participant. While failures may result from business rules violations, transactions should not fail due to implementation logic. If Business Function ID is not used by the LSA it may be ignored, but a file may not be rejected for this reason.
 - i) The Business Function ID codes are:

Table 9. Business Function ID

Code	Meaning
DE	Default Retailer
LR	Supplier of Last Resort
RE	Competitive Retailer
RR	Regulated Rate Option Retailer
SR	Self Retailer
Blank	Not permitted
Null*	Not permitted

* Null means in a comma separated values file that there are no contents in the field at all and that the field is represented only by its terminating character, a comma.

- 3) Refer to the specific transactions in s. 9.6 and s. 9.7 to determine what the requirements are and when the Business Function IDs are to be used.

9.4.6.6 Wire Services Provider ID

- 1) A four-digit number uniquely represents each Wire Services Provider operating within Alberta.

Table 10. WSP ID

Wires Company ID	Wires Company Name
0010	ATCO
0020	ENMAX
0030	EPCOR
0040	FortisAlberta
0050	Lethbridge
0060	Crowsnest Pass
0070	Red Deer
0080	Ponoka
0090	Fort MacLeod
0100	Cardston
0110	SouthAlta REA
0120	Rocky REA
0121	Horseguard REA
0130	Central REA
0140	Battle River REA
0150	Barrhead REA
0151	Duffield REA
0153	Wild Rose REA
0154	Yellowhead REA
0155	North Parkland Power REA
0156	Sion REA
0160	Manning REA
0165	Lakeland REA

- 2) The Wire Services Provider ID is required to inform Market Participant who is responsible for the service of the physical Site.

9.4.6.7 Settlement ID

- 1) A four-digit number uniquely represents each Load Settlement Agent operating within Alberta.

Table 11. Settlement ID

Settlement ID	Settlement Name
1010	ATCO
1020	ENMAX
1030	EPCOR
1040	FortisAlberta
1050	Lethbridge
1060	Crowsnest Pass
1070	Red Deer
1080	Ponoka
1090	Fort MacLeod
1100	Cardston

- 2) The Settlement ID is required in transactions as a verification check for the LSA. The LSA will only process files where the Settlement ID is equal to their own.

9.4.6.8 MDM ID

- 1) A four-digit number uniquely represents each Meter Data Management company operating within Alberta.

Table 12. MDM ID

MDM ID	MDM Name
2010	ATCO
2020	ENMAX
2030	EPCOR
2040	FortisAlberta
2050	Lethbridge
2060	Crowsnest Pass
2070	Red Deer
2080	Ponoka
2090	Fort MacLeod
2100	Cardston
2110	SouthAlta REA
2120	Rocky REA
2121	Horseguard REA
2130	Central REA
2140	Battle River REA
2150	Barrhead REA
2151	Duffield REA
2153	Wild Rose REA
2154	Yellowhead REA
2155	North Parkland Power REA
2156	Sion REA
2160	Manning REA
2165	Lakeland REA
2170	MIDAS
2175	City of Medicine Hat
2176	PowerEx
2180	TransAlta
2190	Trackflow
2195	AltaLink

- 2) The MDM ID is required on transactions to inform the receiver of the data, the party responsible to read the meter. This becomes important in zones that have multiple MDMs or in the case where an LSA is settling multiple zones.

9.4.6.9 ISO ID for Financial Settlement Purposes

The ISO ID for Financial Settlement purposes is “3000”.

9.4.6.10 ISO ID for Operational Purposes

The ISO ID for Operational purposes is “4000”.

9.4.6.11 Zone ID

A four-digit number that uniquely represents each Settlement Zone operating within Alberta. The ID is assigned by the LSA. A block of 500 is allocated to ATCO, ENMAX, EPCOR and FortisAlberta, and a block of 100 is allocated to other WSPs.

Table 13. Zone ID

Zone ID – Number Range	LSA
0001 to 0500	ATCO
0501 to 1000	ENMAX
1001 to 1500	EPCOR
1501 to 2000	FortisAlberta
2001 to 2100	Lethbridge
2101 to 2200	Crowsnest Pass
2201 to 2300	Red Deer
2301 to 2400	Ponoka
2401 to 2500	Fort MacLeod
2501 to 2600	Cardston

9.4.6.12 Site ID

- 1) A Site ID possesses the following characteristics:
 - a) A Site ID can be enrolled by a Retailer.
 - b) Consumption is allocated at the Site ID.
 - c) Load Settlement occurs at the level of Site ID.
- 2) A check digit is required to minimize the possibility of entering an incorrect Site ID (e.g., transposition errors on the part of the Retailer). This check digit is a calculated number placed into the Site ID.
- 3) Adding the wires company ID eliminates the requirement for provincial administration of the Site IDs. The Wires ID does not have any meaning other than to support the creation of uniqueness across the province. For instance, if a wires company was sold to another wires company, the new wires company would have to retain the existing Site IDs.
- 4) Site ID Format:
WiresID99999999Chk
where,
WiresID Wires Company ID (0010)
99999999 Eight Numbers identifying a Site, each WSP can administer as they see fit.
Chk Single check digit formed as a Mod 9 of the prior numbers. Mod 9 will provide a check digit value of 0 through 8.
- 5) Check Digit Calculation Example
Sum the following Numbers:
Digit 1 (left to right) of the Site ID x 1
Digit 2 (left to right) of the Site ID x 2
Digit 3 (left to right) of the Site ID x 3

...

Digit 12 (left to right) of the Site ID x 12

Using a sample of 001085434216

The check digit is

0 1x0

0 2x0

3 3x1

0 4x0

40 5x8

30 6x5

28 7x4

24 8x3

36 9x4

20 10x2

11 11x1

72 12x6

264

264 / 9 remainder 3

Check digit = 3

Full Number is 0010854342163

9.4.6.13 Socket ID

A Socket ID is the number assigned to a Socket. No Site that is cumulative metered may have more than one Socket ID associated with it.

99999999

where,



99999999 Eight Numbers identifying a Socket, each WSP can administer as they see fit.

9.4.6.14 Site ID catalogue (SID)—Process Rules

- 1) The SID is an electronic file in CSV format.
- 2) No commas are permitted within a field. Abbreviations used in addressing schemes follow the English language version of Canada Post standards.
- 3) The SID file is to be refreshed weekly at a minimum.
- 4) Transport/delivery is at the discretion of each WSP.
- 5) WSPs have an obligation to provide a Site ID and location information for all Sites to which they provide delivery services in the SID file format. Requests for Site IDs that are not in the Site ID catalogue must be responded to by the WSP by the end of the next Business Day.
- 6) WSP may use multiple methods to identify location, but at least one of the addressing schemes must be populated in enough detail so as to disclose the location of the Site. For example, if an apartment number exists as a part of the Urban Addressing Scheme, it is

required to be provided. That is, a WSP may choose the “Urban Addressing Scheme”, the “Rural Addressing Scheme”, or the “LEGAL Addressing Scheme”, and must provide all of the information within that scheme that is normally required to identify the Site’s location. If information is available to populate more than one addressing scheme for the same Site, WSPs may do so.

Table 14. Site ID Catalogue

Sequence	Section	Process Requirement	Element	Datatype / Size	Description
1	Basic Site Info. Fields 1 through 7 		Transaction Abbreviation	'SID'	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	MDM for the Site.
4			WSP ID	WSP ID Format	WSP for the Site. (sender)
5			Settlement ID	Settlement ID format	LSA for the Site.
6			Site ID	Site ID format	See definition in Universal Standard section of this document
7				Municipality	Varchar(50)
8	Urban Addressing Scheme. Fields 8 through 16. 	Optional within the scheme.	Unit Definer	Varchar(15)	Used to define individual units where no unit number exists, e.g., BACK, BASEMENT
9		Optional within the scheme.	Unit Number	Varchar(6)	Apartment number, etc.
10		Required within the scheme.	House Number	Varchar(6)	
11		Optional within the scheme.	Street Pre-Direction	Varchar (2)	Standard direction codes (N, W, SW, etc.) which appear in front of the Street Name, e.g., W Georgia ST
12		Required within the scheme.	Street Name	Varchar(50)	If street name is a number, include the digit, not the spelled out name
13		Optional within the scheme.	Street Type Code	Varchar(8)	Valid Canada Post Codes are required
14		Optional within the scheme.	Street Direction	Varchar(2)	Standard direction codes (N, W, SW, etc.) which appear after the Street Name, e.g., Millwoods RD W
15		Optional within the scheme.	City Quadrant	Varchar(2)	Standard direction codes (N, W, SW, etc.) which designate a quadrant of a city
16		Required within the	City/town Name	Varchar(30)	Usual name of the City,

Sequence	Section	Process Requirement	Element	Datatype / Size	Description
		scheme.			town, village, etc.
17	Rural Addressing Scheme. Fields 17 through 25. ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	17 OR 19 required within the scheme.	Legal Subdivision Code (LSD)	Varchar(2)	Sections are divided into four quarters or into sixteen legal sub-divisions. They are numbered from 1 to 16.
18		Optional within the group if 16 used, otherwise not used.	LSD Quadrant	Varchar(1)	LSDs are divided into four quadrants, A,B, C, and D
19		17 OR 19 required within the scheme.	Quarter Section Code	Varchar(2)	Quarters divide each section into four pieces: NE, NW, SE, SW This field may optionally be used for RL – “River Lot” or SL – “Settlement Lot” or SV – “Summer Village”
20		Optional if 19 used, otherwise, not used.	Lot	Varchar(6)	A lot number to identify a lot within a Quarter Section Code (of RL/SL/SV).
21		Required within the scheme.	Section	Number(2)	Sections are divided into four quarters or into sixteen legal sub-divisions. They are numbered from 1 to 36.
22		Required within the scheme.	Township	Number(3)	Townships are numbered from south to north starting at the U.S. border. They are numbered from 1 to 129 and 141. Each township is 6 miles (~10 kilometers) wide.
23		Required within the scheme.	Range	Number(2)	Ranges are numbered from east to west starting from each meridian. They are numbered 1 to 34. Each range is 6 miles (~10 kilometers) wide.
24		Required within the scheme.	Meridian	Varchar(1)	A Meridian defines a block of land between an east and west boundary. For Alberta, the Meridian is 4, 5, 6 with 4 being the Saskatchewan border, 5 running just east of the Calgary Airport and 6 being just east of Jasper. The “W” is implied.
25		Optional within the scheme.	Rural House Number	Varchar(4)	A house number. This is sometimes used in First Nations Reserves to identify unique residences within the Rural Scheme.

Sequence	Section	Process Requirement	Element	Datatype / Size	Description
26	LEGAL Addressing Scheme. Fields 26 through 29. ↓	Required within the scheme.	Lot	Varchar(6)	Defines a lot within a city block.
27		Optional within the scheme.	Lot Range ID	Varchar(5)	
28		Required within the scheme.	Block	Varchar(5)	Defines a city block within a plan.
29		Required within the scheme.	Government Plan ID	Varchar(8)	For urban areas, a plan defines an area within a city, usually a community.
30	Optional Fields 30 through 33. ↓		Area Name	Varchar(20)	Oilfield name, subdivision name, etc.
31			Cluster Correlation Key	Number(6)	Optional. Identifies a grouping of sites which are normally handled jointly as regards enrollment.
32			Unformatted Address	Varchar(65)	Address information that does not fit Canada Post standard rules.
33			Site Reference	Varchar(50)	Supporting helpful information.

9.5 Transaction Principles

9.5.1 Rejected by Transaction not by File

Only transactions that fail validation are rejected, not the entire file. The sender is notified by reason code for each failed transaction. If the file is corrupted, the complete file will be rejected. The receiver will notify the sender of problems on a per transaction basis as soon as practical.

9.5.2 No Header Information

To simplify file loading procedures, transaction files are to be defined without header information.

9.5.3 Transaction Will Not Contain Additional Fields for Custom Use

To keep the transactions standard, fields can only be added or removed if approved by the Commission in consultation with stakeholders.

9.5.4 Transactions Will Not Contain Descriptive Fields

- 1) To prevent potential misuse and to limit the complexity of transaction creation, descriptive fields are not allowed. For example, field 'other reject reason description – Varchar(80)' is not allowed.
- 2) The following transactions and specific fields are exempt from this principle.
 - a) SIR Failure reason field
 - b) ENR Optional message to WSP
 - c) DER Optional message to WSP

- d) ROR meter access instructions
- e) ROC Off-cycle incomplete reason

9.5.5 Transaction File Contents

- 1) No more than one transaction type will be contained in a file.

9.6 EBT Provincial Standard Transactions

The following transactions are standard in both content, packaging and delivery method. They must be delivered in Comma Separated Value format over the Internet. Additional delivery methods may be built as long as this method is supported.

9.6.1 Provide Current Consumption Data from MDM

Retailers are to receive metering data at the Site level, unless they have a bi-lateral agreement with the MDM to provide the totalized data at the Socket level. Load settlement settles at the Site level and is to receive the metering data at the Site level.

9.6.1.1 Daily Interval Meter Readings to Retailers and LSA—Process Rules

- 1) Gaps are not acceptable.
- 2) If a record is to be replaced, a replacement interval is provided. There is no distinction that it is a replacement record.
- 3) Status flags are mandatory for inclusion with all DIM transactions.

Table 15. DIM Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'DIM'	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	Settlement ID	Settlement ID format	Recipient (LSA responsible to settle the load within the Zone)
7	Site ID	Site ID format	See definition in Universal Standard section of this document
8	Socket ID	Socket ID format	See definition in Universal Standard section of this document
9	Load Research Flag	Character (1)	A Yes (Y) or No (N) flag noting a customer in the load research sample.
10	Profiling class	Varchar (20)	The customer's load profiling class.
11	kW	Number (10,4)	Kilowatt demand for the interval period
12	kWh	Number (10,4)	Kilowatt hour consumption for the interval period
13	kVA	Number (10,4)	Kilovolt-ampere (Demand) for the interval period
14	kVAh	Number (10,4)	Kilovolt-ampere hour (Consumption) for the interval period
15	kVAR	Number (10,4)	Kilovolt-ampere Reactive (Demand) for the interval period
16	kVARh	Number (10,4)	Kilovolt-ampere Reactive hour (Consumption) for the interval period
17	Datetime	Datetime format	END Date and Time for the reading
18	Interval Period	Number (4)	Number of minutes between readings
19	Hour Ending	Char (3)	See definition. Third character is to be used for asterisk as described in the definition, but otherwise blank.
20	Demand (KW)	Char (2)	Describes the type of meter reading.

Sequence	Element	Data Type/Size	Description
	status		ME – Actual from meter ES – Estimated
21	Consumption (kWh) Status	Char (2)	Describes the type of meter reading. ME – Actual from meter ES – Estimated.
22	Demand (kVA) Status	Char (2)	Describes the type of meter reading. ME – Actual from meter ES – Estimated
23	Demand (kVAh) Status	Char (2)	Describes the type of meter reading. ME – Actual from meter ES – Estimated.
24	Demand (kVAR) Status	Char (2)	Describes the type of meter reading. ME – Actual from meter ES – Estimated
25	Demand (kVARh) Status	Char (2)	Describes the type of meter reading. ME – Actual from meter ES – Estimated
26	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 Daily Cumulative Meter Consumption to Retailers and LSA — Process Rules

- 1) DCM 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 DCM 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 DCM must be identical to the “Current Reading Date Time” field of the prior DCM 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 DCM transaction and the “Current Reading Date Time” field of the same DCM transaction.
 - e) Gaps between the “Last Reading Date Time” field of a DCM transaction and the “Current Reading Date Time” field of the prior DCM transaction are only permitted when a Site is in a de-energized state.
 - f) The “Last Meter Dial Reading” field of a DCM transaction must be identical to the “Current Meter Dial Reading” field from the prior DCM transaction, when the meter is unchanged.
- 2) DCM Rejection Rules
 - a) Tests

- i) Notwithstanding file or format errors, an LSA may only reject a DCM record on the basis of:
 - Overlaps (s. 9.6.1.2.1) c)
 - negative usage
 - b) Rejection Process
 - i) LSA Overlaps and Negative Usage Errors
 - When the LSA rejects a DCM due to the conditions identified in s. 9.6.1.2.2) a) i), the LSA shall notify the MDM within two Business Days of excluding the DCM from load settlement.
 - Only the records rejected on the basis of file or format errors will be returned via Dropchute using the same file name, under which it was received but with an appended “R”. Each rejected record will have Transaction Status code the reason for the rejection of that record.
 - When the DCM rejection contains records with Transaction Status Code for the tests in s. 9.6.1.2.2) a) i), the MDM shall cancel the DCM within one Business Day to the LSA and Retailers.
 - ii) Retailer Rejection Process For Content Errors
 - Retailers shall use the Pre-Final Error Correction (PFEC) mechanism as described in s. 5.2 of the Code for all errors other than file or format errors.
- 3) DCM Cancellation
 - a) Single DCM Cancellation
 - i) The MDM will indicate specifically which record to cancel by sending a cancellation DCM indicated by “CA” in the Record Status field. All cancellation DCM fields should match exactly to the DCM 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.
 - iii) A DCM that is generated from two valid meter reads shall not be cancelled and replaced after final settlement unless one of the two meter reads that feed into the DCM is considered invalid according to Measurement Canada’s guidelines.
 - b) Multi DCM Cancellation
 - i) Multi DCM cancellation will be used at the discretion of the MDM, where a single DCM cancellation may not resolve the issue.
 - ii) Multi DCM cancellation will only be used for replacement of data for a specific Site, not for multiple sites.
 - iii) The MDM will initiate a multiple DCM cancellation by issuing a Site Cumulative Update (SCU) transaction (s. 9.6.1.3). When and SCU is issued, replacement DCMs for those sites shall be provided on the same Business Day.
 - iv) The SCU transaction provides a date upon which to synchronize cancellations. Upon receipt of SCU, all participants will cancel all DCMs received for that Site

from and including the “Effective Date Time” forward. Replacement data is provided in new DCMs.

- v) Where a Site is made up of multiple Sockets, all are cancelled and replaced as stated above.

c) DCM Status Flags

The following data status flags are mandatory for inclusion with all DCM transactions:

Table 16. DCM Status Flag Codes

Code	Meaning
ME	Passed validation tests as described in s. 11.4.2.1
VE	Failed validation tests as described in s. 11.4.2.1, but passed verification process.
ES	Estimated based on methodology outlined in s. 11.4.2.2.3)

Table 17. DCM Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'DCM'	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	Settlement ID	Settlement ID format	Recipient (LSA responsible to settle the load within the Zone)
7	Site ID	Site ID format	See definition in Universal Standard section of this document
8	Socket ID	Socket ID format	See definition in Universal Standard section of this document
9	Meter Number	Varchar (20)	Meter Number
10	kWh	Number (8,2)	Kilowatt hour consumption for period
11	Max kVA	Number (8,2)	Demand in Kilovolt Amps for period
12	Max kW	Number (8,2)	Kilowatt demand for period
13	Last Reading Datetime	Datetime format	Date and time of the last reading
14	Current Reading Datetime	Datetime format	Date and time of the current reading
15	Last Meter Dial Reading	Number (10)	The previous dial reading taken from the meter.
16	Current Meter Dial Reading	Number (10)	The current dial reading taken from the meter.
17	Max Reading (Watt)	Number (5)	Used to derive the demand in kW For example, if max reading = 100 and the multiplier = 200 $kW = (100 \times 200)/1000$ $kW = 20$
18	Max Reading (Voltamp)	Number (5)	Used to derive the demand in kVA For example, if max reading = 100 and the multiplier = 200 $kVa = (100 \times 200)/1000$ $KVA = 20$
19	Meter Multiplier	Number (6,1)	Meter multiplier
20	Consumption (kWh) Status	Char (2)	Describes the type of meter reading. Refer to DCM status flags code table under process rules.
21	Demand (kVA) Status	Char (2)	Describes the type of meter reading. Refer to DCM status flags code table under process rules.
22	Demand (kW) Status	Char (2)	Describes the type of meter reading. Refer to DCM status flags code table under process rules.
23	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

Sequence	Element	Data Type/Size	Description
			the replacement record may not cover the same period as this cancelled record.
24	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.

9.6.1.3 Site Cumulative Update

- 1) LSAs and Retailers must process SCU transactions prior to processing DCM transactions.
- 2) MDM must ensure that Retailers only receive the metering data to which they are entitled.

Table 18. SCU Transaction

Sequence	Element	Data	Description
1	Transaction Abbreviation	'SCU'	Abbreviation for the transaction name
2	Transaction Date Time	Date time format	Date the transaction was created
3	MDM ID	MDM ID format	Sender (MDM responsible to read the meter)
4	Retailer ID	Retailer ID format	Recipient
5	Settlement ID	Settlement ID Format	Recipient (LSA responsible to settle the load within the Zone)
6	Site ID	Site ID Format	See definition in Universal Standard section of this document
7	Effective Datetime	Date time format	Date upon which to synchronize cancellations
8	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

9.6.1.4 Cumulative Switch Estimate Consumption to Retailers—Process Rules

- 1) Two copies of this transaction should be sent – one to the old Retailer and one to the new Retailer.
- 2) Each should have only the Retailer ID of the Retailer the transaction is being sent to, since the other Retailer involved in the switch is confidential.

Table 19. CSE Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'CSE'	Abbreviation for the transaction name
2	Transaction Date time	Date time format	Latter of the time the transaction was created or last modified
3	LSA ID	LSA ID format	Sender (LSA responsible for estimating usage on a switch))
4	Retailer ID	Retailer ID format	Recipient (Retailer currently associated to the Site or the immediate previous Retailer)
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	kWh	Number (8,2)	Kilowatt hour consumption for period
8	Last Reading Datetime	Datetime format	Date and time of the last actual
9	Switch Datetime	Datetime format	Date and time of the switch
10	Transaction Status Code	Char (4)	Used by the recipient to notify the sender of problems with the transaction. The use of this electronic transaction in an automated fashion (in case of problems) is subject to the WO T+Cs. When this field is used it must be dealt with at a minimum, in a manual fashion. When using transaction status codes, the codes in s. 9.8 must be used.

9.6.2 Wholesale Settlement Data Transfers

9.6.2.1 Wholesale Settlement Information—Process Rules

- 1) Transactions that are sent to Retailers are sent to the specific Retailers only.
- 2) Transactions that are sent to the ISO include data for all Retailers.
- 3) Transactions that are sent to disclose load settlement information aggregated for the Client WSP's sites will be sent to Client WSP, e.g. REA.
- 4) The WSI files must be provided to the ISO using DropChute using the ISO ID for Financial Purposes as described in s. 9.4.6.9.

Table 20. WSI Transaction Layout

Sequence	Element (in sequence)	Data Type/Size	Description
1	Transaction Abbreviation	'WSI'	Abbreviation for the transaction name
2	Transaction Date Time	Date time format	Latter of the time the transaction was created or last modified
3	Settlement ID	Settlement ID format	Sender (Load Settlement Agent)
4	ISO Financial ID	ISO Financial ID format	Recipient
5	Retailer ID	Retailer ID format	Recipient
6	Business Function ID	Varchar (2)	Optional at the discretion of the LSA
7	Zone ID	Zone ID format	Settlement zone
8	Client Wires Service Provider ID	Wire Services Provider ID format	Recipient
9	Settlement Run Date Time	Date Time format	Date and time settlement was initiated. This date does not indicate which data was used by the settlement run.
10	Settlement As At Date Time	Date Time format	Date and time that all data used by this settlement run was in the load settlement system. Supports reproducibility of settlement at a later time than the 'original' settlement run. This allows the same data to be used regardless of how many times a run is performed.
11	Settlement Type	Char(1)	'I', 'M', 'R', 'F' for Initial Daily, Initial Monthly, Interim Reconciliation or Final Reconciliation respectively.
12	Profile Freeze Cutoff Date	Date Time format	Date/Time specifying the last point at which data is included for profile generation.
13	Settlement Interval Ending Time	Date Time format	Date and end time of the interval the settlement data is for
14	Interval Period	Number (4)	Number of minutes in the interval period – 60 is the current standard
15	Settlement Hour Ending	Char (3)	See definition. Third character is to be used for asterisk as described in the definition, but otherwise blank.
16	Retailer Usage Total (kWh)	Number (12,4)	Total of the consumption for all of the Retailer's customers
17	Retailer Loss Total (kWh)	Number (12,4)	Total of the losses allocated to all of the Retailer's customers
18	Retailer UFE Total (kWh)	Number (12,4)	Total of the UFE allocated to all of the Retailer's customers
19	Retailer Energy Grand Total (MWh)	Number (12,7)	Total of the consumption, line loss and UFE for the Retailer in MWh for the ISO
20	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.

9.6.2.2 Settlement Summary Information—Process Rules

- 1) This transaction will not be directed to a specific Retailer, but will be made available to all Retailers.

- 2) The SSI files must be provided to the ISO using DropChute using the ISO ID for Financial Purposes as described in s. 9.4.6.9.

Table 21. SSI Transaction Layout

Sequence	Element (in sequence)	Data Type/Size	Description
1	Transaction Abbreviation	'SSI'	Abbreviation for the transaction name
2	Transaction Date time	Date time format	Latter of the time the transaction was created or last modified
3	Settlement ID	Settlement ID format	Sender (Load Settlement Agent)
4	Zone ID	Zone ID format	Settlement zone
5	Settlement Run Date Time	Date Time format	Date and time settlement was initiated. This date does not indicate which data was used by the settlement run.
6	Settlement As At Date Time	Date Time format	Date and time that all data used by this settlement run was in the load settlement system. Supports reproducibility of settlement at a later time than the 'original' settlement run. This allows the same data to be used regardless of how many times a run is performed.
7	Settlement Type	Char(1)	'I', 'M', 'R', 'F' for Initial Daily, Initial Monthly, Interim Reconciliation or Final Reconciliation respectively.
8	Profile Freeze Cutoff Date	Date Time format	Date/Time specifying the last point at which data is included for profile generation.
9	Settlement Interval Ending Time	Date Time format	Date and end time of the interval the settlement data is for
10	Interval Period	Number(4)	Number of minutes in the interval period – 60 is the current standard
11	Settlement Hour Ending	Char (3)	See definition. Third character is to be used for asterisk as described in the definition, but otherwise blank.
12	Zone POD Load Total (kWh)	Number (12,4)	Total of the consumption for the settlement zone (Sum of the POD Loads)
13	Zone Retailer Load Total (kWh)	Number (12,4)	Sum of Retailer-allocated loads, excluding losses and UFE
14	Zone Loss Total (kWh)	Number (12,4)	Total of loss allocations to Retailers for the settlement zone
15	Zone UFE Total (kWh)	Number (12,4)	Total of Unaccounted For Energy (UFE) of allocations to Retailer for the settlement zone
16	Zone Loss Percent of Retailer Load	Number (6,4)	Zone loss as a percent of zone Retailer-allocated load less load with no associated loss
17	Zone UFE Percent of Retailer Load	Number (6,4)	Zone UFE as a percent of zone Retailer-allocated load less direct connect load
18	Zone Reconciliation Error (kWh)	Signed Number (12,4)	Zone POD Load Total – (Zone Retailer Load Total + Zone Loss Total + Zone UFE Total). This should be zero except for rounding error

9.6.2.3 Settlement Profile Information—Process Rules

- 1) This transaction will not be directed to a specific Retailer, but will be made available to all Retailers.
- 2) This transaction is sent out with the same timing as the WSI transaction following each settlement run.

- 3) For each Profiling Type or Profiling Class, Settlement Interval Ending Time includes all profile values used in the settlement run.
- 4) Hourly Values for a given profile will be sent out the first time they are used in a Settlement run. Profiles that are frozen will be sent out only once.

Table 22. SPI Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'SPI'	Abbreviation for the transaction name
2	Transaction Date time	Date time format	Latter of the time the transaction was created or last modified
3	Settlement ID	Settlement ID format	Sender (Load Settlement Agent)
4	Zone ID	Zone ID format	Settlement zone
5	Settlement Run Date Time	Date Time format	Date and time settlement was initiated. This date does not indicate which data was used by the settlement run.
6	Settlement As At Date Time	Date Time format	As at date and time of the settlement run that used the profiles. Identifies the settlement these profiles are for.
7	Settlement Type	Char(1)	'I', 'M', 'R', 'F' for Initial Daily, Initial Monthly, Interim Reconciliation or Final Reconciliation respectively.
8	Profile Type	Varchar (20)	Type of Profile (e.g., NSLS, Sample)
9	Profiling Class	Varchar (20)	Profiling class, if for a specific class
10	Settlement Interval Ending Time	Date Time format	Date and end time of the interval the settlement data is for
11	Interval Period	Number (4)	Number of minutes in the interval period – 60 is the current standard
12	Settlement Hour Ending	Char (3)	See definition. Third character is to be used for asterisk as described in the definition, but otherwise blank.
13	Profile Create Date	Date Time format	Date/time the profile was created for this hour. It is equal to the Settlement As At Date Time if profile freezing is not in effect. If profile freeing is in effect it is equal to a date earlier than or equal to the Settlement As At Date Time.
14	Hourly Value (kWh)	Number (12,4)	Value of the energy used for this profiling class for this hour. This may be a total for the profiling class, or a number for an average Site of this profiling class, as long as it is consistent from day to day for the LSA.

9.6.2.4 System Level Measurement Data Provision

The following transaction format shall be used for the provision of System Level Measurement Data by the MDM to the LSA and the ISO as indicated within each section. Note however that when the interface between MDM and LSA is within the same WSP, the format and content is a WSP decision.

9.6.2.4.1 Daily System Measurement

- 1) This format became effective February 1, 2006.
- 2) The DSM files must be provided to the ISO using DropChute using the ISO ID for Financial Purposes as described in s. 9.4.6.9.

Table 23. DSM Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'DSM'	Description: Abbreviation for the transaction name Format: DSM (upper case only) Example: DSM
2	Data Type	Char (3)	Description: Metering data transaction type Format: GEN: Transmission Generation – generation connected to the transmission system Distributed Generation – generation connected to the distribution system Isolated Generation – generation providing energy to isolated communities that are not connected to the AIES Border Supply – energy supplied by an extra-provincial supplier to customers in Alberta not connected to the AIES EDG: Reversing Loads – energy flow from the distribution system into the transmission system due to distributed generation LOD: Transmission Loads – points of delivery to the distribution system from the transmission system Isolated Loads – points of delivery to isolated communities from isolated generation IMP: Provincial Imports – energy supplied by an extra-provincial transmission system to the AIES Zone Imports – energy that is transferred into one load settlement zone from another load settlement zone EXP: Provincial Exports – energy supplied to an extra-provincial transmission system from the AIES Zone Exports – energy that is transferred out of one load settlement zone to another load settlement zone POT: Duplication Avoidance Transfers – energy that is transferred between customer generation and load facilities, wheeled across the AIES Example: GEN
3	Data Date	Number (8)	Description: Date of energy flow of metering data Format: yyyymmdd Example: 20040520 = May 20, 2004
4	Data Hour	Number (2)	Description: Hour of energy flow of metering data Format: hh where hh is hour ending: 01 to 25 for the day of the Fall time change 01 to 23 for the day of the Spring time change 01 to 24 for all other days Example: 01 = 00:00 to 01:00
5	Data Interval	Number (2)	Description: Interval of energy flow of metering data Format: ii where ii is interval ending 01 to 04 Examples: 01 = XX:00 to XX:15, 03 = XX:30 to XX:45

Sequence	Element	Data Type/Size	Description
6	Measurement Point ID	Char (10)	Description: Measurement point identifier Format: Alphanumeric characters Examples: RD14S, 366S001, 0000021401, ADEC...
7	MWh	Number (12,7)	Description: Net active energy transferred in the interval Format: XXXXX.XXXXXXX (unsigned values only) Examples: 22222.1234567, 48.3
8	MWh Source	Char (1)	Description: Net active energy source flag Format: M = Metered, E = Estimated Example: M
9	MVARh	Number (12,7)	Description: Net reactive energy transferred in the interval Format: XXXXX.XXXXXXX (signed values allowed) Examples: -22222.1234567, 19.4
10	MVARh Source	Char (1)	Description: Net reactive energy source flag Format: M = Metered, E = Estimated Example: E

9.6.2.5 Wholesale Settlement Summary—Process Rules

- 1) This transaction is a control report, providing a monthly summation. The WSS report is sent in conjunction with the WSI transaction containing the settlement data for the last calendar day of the month.
- 2) Transactions that are sent to Retailers are sent to the specific Retailers only.
- 3) Transactions that are sent to the ISO include data for all Retailers.
- 4) The WSS files must be provided to the ISO using DropChute using the ISO ID for Financial Purposes as described in s. 9.4.6.9.

Table 24. WSS Transaction Layout

Sequence	Element (in sequence)	Data Type/Size	Description
1	Transaction Abbreviation	'WSS'	Abbreviation for the transaction name
2	Transaction Date Time	Date time format	Latter of the time the transaction was created or last modified
3	Settlement ID	Settlement ID format	Sender (Load Settlement Agent)
4	ISO Financial ID	ISO Financial ID format	Recipient
5	Retailer ID	Retailer ID format	Recipient
6	Business Function ID	Varchar (2)	Optional at the discretion of the LSA
7	Zone ID	Zone ID format	Settlement zone
8	Settlement Type	Char(1)	'I', 'M', 'R', 'F' for Initial Daily, Initial Monthly, Interim Reconciliation or Final Reconciliation respectively.
9	Settlement Month	YYYYMM	Year and month of the settlement data being summarized
10	Retailer Usage Total (kWh)	Number (17,4)	Total of the consumption for all of the Retailer's customers in the month
11	Retailer Loss Total (kWh)	Number (17,4)	Total of the losses allocated to all of the Retailer's customers in the month
12	Retailer UFE Total (kWh)	Number (17,4)	Total of the UFE allocated to all of the Retailer's customers in the month
13	Retailer Energy Grand Total	Number (17,7)	Total of the consumption, line loss and UFE for all the Retailer's customers in the month

Sequence	Element (in sequence)	Data Type/Size	Description
	(MWh)		
14	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 this transaction status code, the codes in s. 9.8 of the Settlement System Code must be used.

9.6.2.6 Wholesale Settlement Details for Retailers Own Sites—Process Rules

- 1) This transaction provides daily Site-specific initial daily, initial monthly, interim, and final settlement results to Retailers for energized sites which are enrolled to that Retailer.
- 2) The Site characteristics in this transaction are those characteristics in effect at the end of the load settlement day.

Table 25. WSD Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'WSD'	Abbreviation for the transaction name
2	Transaction Date/Time	Date time format	Date and time that the transaction was created
3	Settlement ID	Settlement ID format	Sender; entity responsible for Site load settlement
4	Retailer ID	Retailer ID format	Recipient; Retailer who has enrolled the Site
5	Business Function ID	Varchar (2)	Optional at discretion of the LSA
6	Site ID	Site ID format	Site Identifier
7	Zone ID	Zone ID format	Settlement Zone
8	Settlement Run Date/Time	Char (14)	Date and time settlement was initiated. This date does not indicate which data was used by the settlement run.
9	Settlement As At Date/Time	Char (14)	Date and time that all data used by this settlement run was in the load settlement system. Supports reproducibility of settlement at a later time than the original settlement run. This allows the same data to be used regardless of how many times a run is executed.
10	Settlement Type	Char (1)	I for initial daily, M for initial monthly, R for interim reconciliation, and F for final reconciliation
11	Profile Freeze Cutoff Date/Time	Char (14)	Date and time which specifies the last point at which data is included for profile generation
12	Settlement Date	Char (8)	The effective date of power flow and Site characteristics that the transaction is for.
13	Profiling Class	Varchar (20)	The Site's Load Profiling Class
14	Loss Group Code	Varchar (10)	The Site's Loss Group code
15	Unmetered Indicator	Char (1)	Optional. Identifies whether the Site is unmetered. Values are: 'U' – unmetered blank – if field is not used or if Site is not unmetered
16	Daily Site Usage	Number (8,2)	Settled kilowatt hour consumption for the Site for the day (before loss

Sequence	Element	Data Type/Size	Description
	kWh		and UFE allocation)
17	Result Source	Char (1)	Daily Site Usage kWh was calculated using: 'M' – DIM or DCM containing any hour of Settlement Date 'E' – LSA-generated consumption estimate
18	Daily Site Loss kWh	Number (8,2)	Settled loss allocation for the Site for the day
19	Daily Site UFE kWh	Number (8,2)	Settled UFE allocation for the Site for the day
20	Weather Station Identifier	Varchar (20)	Reserved for future use; therefore, the contents are null
21	Estimation Methodology	Char (1)	Reference code to estimation methodology used by the LSA to create consumption estimate for this Site. Example of estimation methodology is to be made public. U – Usage Factor A – Average Daily Usage
22	Transaction Status Code	Char (4)	The field is used by the recipient to notify the sender of problems with the transaction.

9.6.2.7 Wholesale Class Information—Process Rules

- 1) LSAs that provide load settlement services for WSPs and utilize dynamically calculated losses will use this transaction.

Table 26. WCI Transaction Layout

Sequence	Element (in sequence)	Data Type/Size	Description
1	Transaction Abbreviation	'WCI'	Abbreviation for the transaction name
2	Transaction Date Time	Date time format	Letter of the time the transaction was created or last modified
3	Settlement ID	Settlement ID format	Sender (Load Settlement Agent)
4	ISO Financial ID	ISO Financial ID format	Recipient
5	Retailer ID	Retailer ID format	Recipient
6	Business Function ID	Varchar (2)	Optional at the discretion of the LSA
7	Zone ID	Zone ID format	Settlement zone
8	Client Wire Services Provider ID	Wire Services Provider ID format	Recipient
9	Loss Group Code	Varchar (10)	Loss Group Code
10	Profile Class	Varchar (20)	Load Profiling Class
11	Settlement Run Date Time	Date Time format	Date and time settlement was initiated. This date does not indicate which data was used by the settlement run.
12	Settlement As At Date Time	Date Time format	Date and time that all data used by this settlement run was in the load settlement system. Supports reproducibility of settlement at a later time than the 'original' settlement run. This allows the same data to be used regardless of how many times a run is performed.

Sequence	Element (in sequence)	Data Type/Size	Description
13	Settlement Type	Char(1)	'I', 'M', 'R', 'F for 'Initial Daily, Initial Monthly, Interim Reconciliation or Final Reconciliation respectively.
14	Profile Freeze Cutoff Date	Date Time format	Date/Time specifying the last point at which data is included for profile generation.
15	Settlement Interval Ending Time	Date Time format	Date and end time of the interval the settlement data is for
16	Interval Period	Number (4)	Number of minutes in the interval period – 60 is the current standard
17	Hour-ending	Char (3)	See definition
18	Retailer Usage Total (kWh)	Number (12,4)	Total of the consumption for all of the Retailer's customers in the loss group and profile class
19	Retailer Loss Total (kWh)	Number (12,4)	Total of the losses allocated to all of the Retailer's customers in the loss group and profile class
20	Retailer UFE Total (kWh)	Number (12,4)	Total of the UFE allocated to all of the Retailer's customers in the loss group and profile class
21	Retailer Energy Grand Total (MWh)	Number (12,7)	Total of the consumption, line loss and UFE for all the Retailer's customers in the loss group and profile class
22	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 this transaction status code, the codes in s. 9.8 of the Settlement System Code must be used.

9.6.3 Select Retailer Transaction Set

9.6.3.1 Select Retailer Request—Process Rules

- 1) The Retailer shall send an Update Customer Information (UCI) transaction as detailed in s. 9.6.4 with an SRR, for the Site to be enrolled. The UCI must be populated as per s. 9.6.4.
- 2) The LSA may reject an enrollment if a UCI is not received. An enrollment may not be rejected on the basis of a failed UCI. The LSA's validation process for enrollment may only include that a populated UCI was received.
- 3) If the UCI in question is rejected by the WSP, the Retailer must send a corrected UCI within one Business Day of the effective date of the enrollment. For example, if a Site becomes effective at 00:00 on March 27, and the UCI is rejected due to transaction errors, the Retailer must send a corrected UCI by 00:00 on March 28.
- 4) The WSP shall track by Retailer the number of UCIs rejected as per 3) above and report monthly to the Pool.

Table 27. SRR Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'SRR'	Abbreviation for the transaction name
2	Transaction Date time	Date time format	Latter of the time the transaction was created or last modified
3	Retailer ID	Retailer ID format	Sender and chosen Retailer
4	Business Function ID	Varchar (2)	Required
5	Site ID	Site ID format	Site to enroll
6	Settlement ID	Settlement ID format	Recipient
7	Priority Code	Char (1)	1 – Next Day
8	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	Retailer Account Number	Varchar (30)	OPTIONAL FIELD – Account number by which Retailer identifies Site/Socket ID. Note that this is an optional field.
10	Retailer Reference Number	Varchar (20)	OPTIONAL FIELD – Identification number that allows Retailers to track their transactions easily. (Unique transaction ID). Note that this is an optional field.

9.6.3.2 Select Retailer Notification

Table 28. SRN Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'SRN'	Abbreviation for the transaction name
2	Transaction Date time	Date time format	Latter of the time the transaction was created or last modified
3	Settlement ID	Settlement ID format	Sender
4	Retailer ID	Retailer ID format	Recipient and chosen Retailer
5	Business Function ID	Varchar (2)	Optional at the discretion of the LSA
6	Site ID	Site ID Format	Site to enroll.
7	Switch Date	Standard Date/Time	If blank, transaction is rejected
8	Profile Class	Varchar (20)	The customer's Load Profiling Class
9	Loss Group Code	Varchar (10)	Loss Group Code
10	Enrollment notification code	Char (4)	Reason the select Retailer request was confirmed or rejected. When using transaction status codes, the codes in s.9.8 must be used
11	Retailer Account Number	Varchar (30)	OPTIONAL FIELD – Account number by which Retailer identifies Site/Socket ID. Note that this is an optional field.
12	Retailer Reference Number	Varchar (20)	OPTIONAL FIELD – Identification number that allows Retailers to track their transactions easily. (Unique transaction ID). Note that this is an optional field.
13	LSA Transfer Number	Varchar (20)	OPTIONAL FIELD – A unique transaction number that a WSP can use for verifying that processing took place.

9.6.3.3 Notify Old Retailer—Process Rules

- 1) This transaction is sent from the LSA to the old Retailer to notify them of loss of customer.

Table 29. SRO Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'SRO'	Abbreviation for the transaction name
2	Transaction Date time	Date time format	Latter of the time the transaction was created or last modified
3	Settlement ID	Settlement ID format	Sender
4	Retailer ID	Retailer ID format	Recipient and old Retailer
5	Business Function ID	Varchar (2)	Optional at the discretion of the LSA
6	Site ID	Site ID format	Site enrolled by new Retailer
7	Switch Date	Date Time	Date and Time the old Retailer is no longer connected to the Site (no longer responsible for the load). Time will be the first hour of the day.
8	Settlement Transfer Number	Varchar (20)	OPTIONAL FIELD – A unique transaction number that a WSP can use for verifying that processing took place.
9	Old Retailer Account Number	Varchar (30)	OPTIONAL FIELD – Account number by which old Retailer identifies Site/Socket ID.

9.6.3.4 LSA Notify Wires and MDM

Table 30. SRW Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'SRW'	Abbreviation for the transaction name
2	Transaction Date time	Date time format	Latter of the time the transaction was created or last modified
3	Settlement ID	Settlement ID format	Sender
4	Wire Services Provider ID	Wire Services Provider ID format	Recipient
5	MDM ID	MDM ID format	Recipient
6	Retailer ID	Retailer ID format	Chosen NEW Retailer
7	Business Function ID	Varchar (2)	Optional at the discretion of the LSA
8	Site ID	Site ID format	Site enrolled
9	Switch Date	Date Time	Date and Time the Site was allocated to the Retailer. Time will be the first hour of the day.

9.6.4 Update Customer Transaction Set

9.6.4.1 General UCI Details

- 1) The UCI transaction allows for the transfer of important customer and emergency contact information to the Wire Services Provider. This information is needed so that the WSP may execute its duties to facilitate customer transfer to the Supplier of Last Resort (SOLR), if required, and to permit safe and secure operation of the wires environment. To that end, references to “Customer” refer to the person, company or legal entity financially responsible for a Site, specifically with regards to enrollment with the SOLR should that become necessary. Additionally references to Site Contact are intended to mean the person responsible for day-to-day functions at a Site, specifically with regards to emergency and service outage management.
- 2) Abbreviations used in addressing schemes follow the English language version of Canada Post standards.
- 3) Update/Refresh mechanism: Whenever any of the information listed below is known by the Retailer to have changed, the Retailer is required to re-send all of the data to ensure data is not lost.

9.6.4.2 Update Customer Information

Table 31. UCI Transaction Layout

Field Sequence	Info Section	Process Requirement	Subsection	Element (in sequence)	Data Type/Size	Description
1	Site Info Fields 1 through 6	Required		Transaction Abbreviation	'UCI'	Abbreviation for the transaction name
2		Required		Transaction Date time	Date time format	Latter of the time the transaction was created or last modified
3		Required		Retailer ID	Retailer ID format	Sender
4		Required		Business Function ID	Varchar (2)	Required
5		Required		Wire Services Provider ID	Wire Services Provider ID format	Recipient
6		Required		Site ID	Site ID format	Site to which the information applies.
7	Customer Info	Customer Name	Required if party financially responsible for Site energy is a company or other corporate entity.	Customer Company Name	Varchar (100)	Customer Company Name – mandatory if Customer Last Name is not included, not allowed if Customer Last Name is included

Field Sequence	Info Section	Process Requirement	Subsection	Element (in sequence)	Data Type/Size	Description
8			Required if party financially responsible for Site energy is a person.	Customer Last Name	Varchar (30)	Customer Last Name – mandatory if Customer Company Name is not included, not allowed if Customer Company Name is included
9			Required if party financially responsible for Site energy is a person	Customer First Name	Varchar (30)	Customer First Name – mandatory if Customer Company Name is not included, not allowed if Customer Company Name is included
10			Optional.	Customer Middle Name	Varchar (30)	Customer Middle Name – optional if Customer Company Name is not included (may be only an initial), not allowed if Customer Company Name is included
11			Optional.	C/O or Attention Field	Varchar (100)	Customer's Care of information (name only)
12			Required.	GST Canada Customs & Revenue Agency Exemption Indicator	Char (1)	'Y' if the customer is GST exempted 'N' if the customer is not GST exempted
13		Customer Mailing Address (Canada & U.S.) – Street Address	Required if it exists in the energy billing mailing address.	Unit Definer	Varchar (15)	Used to define individual units where no unit number exists, e.g., BACK, BASEMENT
14			Required if it exists in the energy billing mailing address.	Unit Number	Varchar (6)	Apartment number, etc.
15			Required if it exists in the energy billing mailing address.	House Number	Varchar (6)	
16			Required if it exists in the energy billing mailing address.	Street Pre-Direction	Varchar (2)	Standard direction codes (N, W, SW, etc.) which appear in front of the Street Name, e.g., W Georgia ST

Field Sequence	Info Section	Process Requirement	Subsection	Element (in sequence)	Data Type/Size	Description
17			Required if it exists in the energy billing mailing address.	Street Name	Varchar (50)	
18			Required if it exists in the energy billing mailing address.	Street Type Code	Varchar (8)	Valid Canada Post Codes are required
19			Required if it exists in the energy billing mailing address.	Street Direction	Varchar (2)	Standard direction codes (N, W, SW, etc.) which appear after the Street Name, e.g., Millwoods RD W
20			Required if it exists in the energy billing mailing address.	City Quadrant	Varchar (2)	Standard direction codes (N, W, SW, etc.) which designate a quadrant of a city
21		Customer Mailing Address (Canada & U.S.) – General Delivery Address	Required if it exists in the energy billing mailing address.	General Delivery Indicator	Char (1)	General Delivery Indicator – ‘Y’ means general delivery address, ‘N’ or blank otherwise. Address is formatted: GD Drayton Valley AB T0E 0M0
22		Customer Mailing Address (Canada & U.S.) – Road Address	Required if it exists in the energy billing mailing address.	Lot ID	Varchar (10)	An example of this type of address: (54 is the Lot ID) 54 26540 Range Road 11 Red Deer County AB T4E 1A3
23			Required if it exists in the energy billing mailing address.	Pre Road Number	Varchar (10)	Number that appears before the Road Type in the Canada Post road address standard (26540 in the above example is the Pre Road Number)

Field Sequence	Info Section	Process Requirement	Subsection	Element (in sequence)	Data Type/Size	Description
24			Required if it exists in the energy billing mailing address.	Road Type	Varchar (20)	Road Type in the Canada Post road address standard – Range Road, Township Road, Highway ('Range Road' in the above example is the road type)
25			Required if it exists in the energy billing mailing address.	Post Road Number	Varchar (10)	Number of the road that appears after the Road Type in the Canada Post road address standard (11 in the above example is the Road Number)
26		Customer Mailing Address (Canada & U.S.) – Delivery Address	Required if it exists in the energy billing mailing address.	Compartment	Varchar (10)	Number of the compartment to follow 'CP' in standard Canada Post mailing address, e.g., CP 10 SITE 4 RR 3
27			Required if it exists in the energy billing mailing address.	Site Number	Varchar (10)	Number of the Site to follow 'SITE' in standard Canada Post rural mailing address, e.g., CP 10 SITE 4 RR 3
28			Required if it exists in the energy billing mailing address.	Rural Route	Varchar (10)	Number of the rural route to follow 'RR' in standard Canada Post rural mailing address, e.g., CP 10 SITE 4 RR 3
29			Required if it exists in the energy billing mailing address.	Mobile Route	Varchar (10)	Number of the mobile route to follow 'MR' in standard Canada Post mailing address, e.g., CP 10 SITE 4 MR 3
30			Required if it exists in the energy billing mailing address.	Suburban Service	Varchar (10)	Number of the suburban service to follow 'SS' in standard Canada Post mailing address, e.g., CP 10 SITE 4 SS 3

Field Sequence	Info Section	Process Requirement	Subsection	Element (in sequence)	Data Type/Size	Description
31			Required if it exists in the energy billing mailing address.	Station Name	Varchar (50)	Name to follow 'STN' in standard Canada Post mailing address, e.g., PO BOX 11223 STN MAIN Toronto ON
32			Required if it exists in the energy billing mailing address.	Retail Postal Outlet	Varchar (50)	Name of the retail postal outlet to follow 'RPO' in standard Canada Post mailing address, e.g., PO BOX 123 RPO Standard Life Edmonton AB
33			Required if it exists in the energy billing mailing address.	Post Office Box	Varchar (10)	Number to follow 'PO BOX' in standard Canada Post mailing address, e.g., PO BOX 11223 STN MAIN Toronto ON
34			Required if it exists in the energy billing mailing address.	Letter Carrier Depot	Varchar (50)	Name of the letter carrier depot to follow 'LCD' in standard Canada Post mailing address, e.g., PO BOX 1352 LCD Blue Quill Edmonton AB
35			Required if it exists in the energy billing mailing address.	Delivery Installation Name	Varchar (50)	Name of the Canada Post delivery installation. Has no coded designator in the Canada Post mailing address
36		Customer Mailing Address (Canada & U.S.) – all types	Required if it exists in the energy billing mailing address.	City	Varchar (50)	Name of the town or city
37			Required.	Postal Code	Varchar (9)	Postal or zip code – 9 characters allows for the largest possible zip code
38			Required.	Province / State Code	Char (2)	Use standard 2-character codes

Field Sequence	Info Section	Process Requirement	Subsection	Element (in sequence)	Data Type/Size	Description
39		Customer Mailing Address – Foreign Address	Required if it exists in the energy billing mailing address.	Foreign Address 1	Varchar (50)	Format as required for mailing
40			Required if it exists in the energy billing mailing address.	Foreign Address 2	Varchar (50)	Format as required for mailing
41			Required if it exists in the energy billing mailing address.	Foreign Address 3	Varchar (50)	Format as required for mailing
42			Required if it exists in the energy billing mailing address.	Foreign Address 4	Varchar (50)	Format as required for mailing
43		Customer Mailing Address – all formats	Required if it exists in the energy billing mailing address.	Country	Varchar (30)	Full country name
44		Customer Phone Number	One of 44, 45 or 48 is required. Both is acceptable.	Customer Phone Number	Telephone Number Format	Full telephone number including area codes and international codes.
45			Optional	Customer Business Phone Number	Telephone Number Format	
46			Optional	Customer Fax Number	Telephone Number Format	
47			Optional	Customer Pager Number	Telephone Number Format	
48			Optional	Customer Mobile Phone	Varchar (20)	
49			Optional	Customer E-mail Address	Varchar (80)	
50	General Info Fields 50 through 54	General Information	Optional	Meter Access Notes	Varchar (80)	Information about accessing the Site, e.g., bad dog, knock first.
51			Required.	Onsite Generation Flag	Char (1)	'Y' if the Site has onsite generation. 'N' if not.

Field Sequence	Info Section	Process Requirement	Subsection	Element (in sequence)	Data Type/Size	Description
52			Required.	Critical To Have Power Flag	Char (1)	'Y' if it is critical for this Site to have power. 'N' if not.
53			Required if 52 is 'Y'.	Critical To Have Power Reason	Varchar (30)	Reason it is critical for this Site to have power
54			Optional	SIC Code	Varchar (6)	
55	Contact Info Fields 55 through 64	Site Contact Information	Required if party responsible for day-to-day operation of a Site is a company or other corporate entity. At least one of 55 or (56 and 57) is required.	Contact Company Name	Varchar (100)	
56			Required if party responsible for day-to-day operation of a Site is a person.	Contact Last Name	Varchar (30)	
57			Required if party responsible for day-to-day operation of a Site is a person.	Contact First Name	Varchar (30)	
58			Optional	Contact Middle Name	Varchar (30)	
59			One of 59 or 60 or 63 is required.	Contact Phone Number	Telephone Number Format	
60			One of 59 or 60 or 63 is required	Contact Business Phone Number	Telephone Number Format	
61			Required if available.	Contact Fax Number	Telephone Number Format	
62			Optional	Contact Pager Number	Telephone Number Format	
63			One of 59 or 60 or 63 is required	Contact Cellular Phone	Varchar (20)	
64			Required if available.	Contact E-mail Address	Varchar (80)	
65	Owner Info Fields 65	Site Owner Information (only if	Optional	Owner Company	Varchar (100)	

Field Sequence	Info Section	Process Requirement	Subsection	Element (in sequence)	Data Type/Size	Description	
	through 105	Customer is a tenant)		Name			
66			Optional	Owner Last Name	Varchar (30)		
67			Optional	Owner First Name	Varchar (30)		
68			Optional	Owner Middle Name	Varchar (30)		
69			Site Owner Mailing Address (Canada & U.S.) – Street Address	Optional	Unit Definer	Varchar (15)	Used to define individual units where no unit number exists, e.g., BACK, BASEMENT
70				Optional	Unit Number	Varchar (6)	Apartment number, etc.
71				Optional	House Number	Varchar (6)	
72				Optional	Street Pre-Direction	Varchar (2)	Standard direction codes (N, W, SW, etc.) which appear in front of the Street Name, e.g., W Georgia ST
73				Optional	Street Name	Varchar (50)	
74				Optional	Street Type Code	Varchar (8)	Valid Canada Post Codes are required
75				Optional	Street Direction	Varchar (2)	Standard direction codes (N, W, SW, etc.) which appear after the Street Name, e.g., Millwoods RD W
76				Optional	City Quadrant	Varchar (2)	Standard direction codes (N, W, SW, etc.) which designate a quadrant of a city
77			Site Owner Mailing Address (Canada & U.S.) – General Delivery Address	Optional	General Delivery Indicator	Char (1)	General Delivery Indicator – ‘Y’ means general delivery address, ‘N’ or blank otherwise. Address is formatted: GD Drayton Valley AB T0E 0M0
78			Site Owner Mailing Address (Canada & U.S.) – Road Address	Optional	Lot ID	Varchar (10)	An example of this type of address: 54 26540 Highway 11 Red Deer County AB T4E 1A3

Field Sequence	Info Section	Process Requirement	Subsection	Element (in sequence)	Data Type/Size	Description
79			Optional	Pre Road Number	Varchar (10)	Pre Road
80			Optional	Road Type	Varchar (20)	Range Road, Township Road, Highway
81			Optional	Post Road Number	Varchar (10)	Post Road
82		Site Owner Mailing Address (Canada & U.S.) – Delivery Address	Optional	Compartment	Varchar (10)	Number of the compartment to follow 'CP' in standard Canada Post mailing address, e.g., CP 10 SITE 4 RR 3
83			Optional	Site Number	Varchar (10)	Number of the Site to follow 'SITE' in standard Canada Post rural mailing address, e.g., CP 10 SITE 4 RR 3
84			Optional	Rural Route	Varchar (10)	Number of the rural route to follow 'RR' in standard Canada Post rural mailing address, e.g., CP 10 SITE 4 RR 3
85			Optional	Mobile Route	Varchar (10)	Number of the mobile route to follow 'MR' in standard Canada Post mailing address
86			Optional	Suburban Service	Varchar (10)	Number of the suburban service to follow 'SS' in standard Canada Post mailing address
87			Optional	Station Name	Varchar (50)	Name to follow 'STN' in standard Canada Post mailing address
88			Optional	Retail Postal Outlet	Varchar (50)	Name of the retail postal outlet to follow 'RPO' in standard Canada Post mailing address
89			Optional	Post Office Box	Varchar (10)	Number to follow 'PO BOX' in standard Canada Post mailing address
90			Optional	Letter Carrier Depot	Varchar (50)	Name of the letter carrier depot to follow 'LCD' in standard Canada Post mailing address

Field Sequence	Info Section	Process Requirement	Subsection	Element (in sequence)	Data Type/Size	Description
91			Optional	Delivery Installation Name	Varchar (50)	Name of the Canada Post delivery installation. Has no coded designator in the Canada Post mailing address
92		Site Owner Mailing Address (Canada & U.S.) – all types	Optional	City	Varchar (50)	Name of the town or city
93			Optional	Postal Code	Varchar (9)	Postal or zip code – 9 characters allows for the largest possible zip code
94			Optional	Province / State Code	Char (2)	Use standard 2-character codes
95		Site Owner Mailing Address – Foreign Address	Optional	Foreign Address 1	Varchar (50)	Format as required for mailing
96			Optional	Foreign Address 2	Varchar (50)	Format as required for mailing
97			Optional	Foreign Address 3	Varchar (50)	Format as required for mailing
98			Optional	Foreign Address 4	Varchar (50)	Format as required for mailing
99		Site Owner Mailing Address – all formats	Optional	Country	Varchar (30)	Full country name
100		Site Owner Phone Number	Optional	Site Owner Phone Number	Telephone Number Format	
101			Optional	Site Owner Business Phone Number	Telephone Number Format	
102			Optional	Site Owner Fax Number	Telephone Number Format	
103			Optional	Site Owner Pager Number	Telephone Number Format	
104			Optional	Site Owner Mobile Phone	Varchar (20)	
105			Optional	Site Owner E-mail Address	Varchar (80)	
106	Standard Transaction format Field			Transaction Status Code	Varchar(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

Field Sequence	Info Section	Process Requirement	Subsection	Element (in sequence)	Data Type/Size	Description
						use of this electronic transaction in an automated fashion (in case of problems) is subject to the WO T+Cs. Transaction Status e.g. Code "0000" Successful Error "0001" Site ID Invalid Error "0002" Other
107			Optional	Retailer / RRP Account Number	Varchar (30)	OPTIONAL – Cross reference for support. WSP does not have any obligation to keep track of this for the Retailer
108	Optional Helpful info Fields 107 and 108		Optional	Retailer Reference Number	Varchar (20)	OPTIONAL – Identification number that allows Retailers to track their transactions. NOTE: This field is optional by Retailer preference, but if present, it will be mirrored back in any rejection transaction

9.6.4.3 Request Update to Customer Information—Process Rules

- 1) This transaction may be sent by a WSP if the WSP suspects that the customer information for a specific Site is not up to date and is requesting the Retailer send a UCI.
- 2) The WSP must specify which Site IDs require the new UCI. The Retailer must respond within five Business Days of receiving the request.
- 3) Each WSP can make a maximum of 25 different Site ID requests per Retailer each week.

Table 32. RUC Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'RUC'	Abbreviation for the transaction name
2	Transaction Date time	Date time format	Latter of the time the transaction was created or last modified
3	Wire Services Provider ID	Wire Services Provide ID Format	Sender
4	Retailer ID	Retailer ID format	Recipient

Sequence	Element	Data Type/Size	Description
5	Site ID	Site ID format	Site ID for which the UCI is required
6	First Incorrect Field	Number 1 to 108 Mandatory	Field which incorrect from UCI currently held by the WSP
7	Second Incorrect Field	Number 1 to 108 Optional	Field which incorrect from UCI currently held by the WSP
8	Third Incorrect Field	Number 1 to 108 Optional	Field which incorrect from UCI currently held by the WSP
9	Fourth Incorrect Field	Number 1 to 108 Optional	Field which incorrect from UCI currently held by the WSP
10	Fifth Incorrect Field	Number 1 to 108 Optional	Field which incorrect from UCI currently held by the WSP
11	Transaction Status Code	Char (4)	Used by the recipient to notify the sender of problems with the transaction. When using transaction status codes, the codes in s. 9.8 must be used.

9.6.5 Site Metering Characteristics Transaction—Process Rules

- 1) The Site Metering Characteristics (SMC) transaction consists of information about the metering setup at a Site for which the WSP is responsible. If the Site has more than one associated Socket, a transaction will be sent for each Socket. This transaction allows for different meters at the same Socket measuring different functions. This transaction set is sent to the Retailer:
 - a) When the WSP has been notified of a successful enrollment at a Site.
 - b) When the metering configuration has been changed at a Site. Specifically, this includes a change to:
 - i) Type of metering
 - ii) Energized state
 - iii) Loss compensation
 - iv) Subtract metering.
- 2) Changes to meter, multiplier, or last reading will be reported by way of the DCM transaction.

9.6.5.1 Site Metering Characteristics

Table 33. SMC Transaction Layout

Field Sequence	Section	Processing Requirements	Element	Data Type/Size	Description
1	Transaction Data Fields 1 through 11	Required	Transaction Abbreviation	SMC	Abbreviation for the transaction name
2		Required	Transaction Date time	Datetime format	Letter of the time the transaction was created or last modified
3		Required	Wire Services Provider ID	Wire Services Provider ID format	Sender
4		Required	Retailer ID	Retailer ID format	Recipient (Retailer currently

Field Sequence	Section	Processing Requirements	Element	Data Type/Size	Description
					associated with the Site)
5		Required	Site ID	Site ID format	Identifier for the Site
6		Required	Type of Metering	Char (1)	The type of metering at the Site. Values are: 'C' – cumulative 'I' – interval 'U' – unmetered
7		Required	Energized Ind	Char (1)	Indicates whether the Site is energized ('Y' or 'N')
8		Required	Subtract metering	Char(1)	Indicates whether the Site is subtract metered ('Y' or 'N'). Required if the Site is metered in such a way that an additional correcting DCM usage value will be provided.
9		Required	Loss Compensation	Char(1)	Indicates whether the Site is loss compensated ('Y' or 'N'). Required if the Site meter reading requires an additional correcting DCM usage value.
10		Required	Socket ID	Socket ID format	Identifier for the point of measurement within the Site (cumulative meter only). Optional at the discretion of WSP.
11		Required.	Date time Effective	Datetime format	Date and time the characteristics are effective
12	kWh Measurement Section required if a meter is measuring KWh at the Site. Fields 12 through 17	Required, even if the meter number is the same as for the meter number listed in the kVa and/or kW sections.	Meter Number	Varchar (20)	Meter Number (cumulative meter only)
13		Required	Billing Multiplier	Number (6,1)	Includes meter multiplier and all external equipment (e.g., CT, PT/VT) (cumulative meter only)
14		Required	Number of Dials	Number (3)	Number of dials on the meter (cumulative meter only)
15		Required	Decimal Positions	Number (1)	Number of the above dials which represent decimal positions (cumulative meter only)
16		Required, unless this is a new Site	Last Reading Datetime	Datetime format unless it is a new Site, in which case it	Date and time of the last actual reading (cumulative meter only) or if it is an

Field Sequence	Section	Processing Requirements	Element	Data Type/Size	Description
				must be null	unmetered Site, the date and time of the last DCM
17		Required	Last Meter Dial Reading	Number (10)	The last actual reading taken from the meter (cumulative meter only)
18	kVa Measurement Section required if a meter is measuring kVa Fields 18, 19 at the Site.	Required, even if the meter number is the same as for the meter number listed in the kWh and/or kW sections.	Meter Number	Varchar (20)	Meter Number (cumulative meter only)
19		Required	Billing Multiplier	Number (6,1)	Includes meter multiplier and all external equipment – also includes .001 factor if required to get from VA reading to kVa demand (cumulative meter only)
20	kW Measurement Section required if a meter is measuring KW at the Site. Fields 20, 21.	Required, even if the meter number is the same as for the meter number listed in the kWh and/or VA sections.	Meter Number	Varchar (20)	Meter Number (cumulative meter only)
21		Required.	Billing Multiplier	Number (6,1)	Includes meter multiplier and all external equipment – also includes .001 factor if required to get from WATT reading to kW demand (cumulative meter only)
22	Standard Field. Field 22	Required on reply transactions.	Transaction Status Code	Char (4)	Used by the recipient to notify the sender of problems with the transaction.

9.6.6 Post Final Adjustment Mechanism Transaction Set

9.6.6.1 Retailer Specific Adjustment—Process Rules

- 1) The total energy identified in MWh may be either positive or negative. A positive number means the Retailer pays the ISO and a negative number means that the ISO pays the Retailer.

Table 34. RSA Transaction Layout

Sequence	Element	Data Type / Size	Description
1	Transaction Abbreviation	'RSA'	Abbreviation for the transaction
2	Transaction Date Time	Date time format	Latter of the time the transaction was created or last modified
3	Settlement ID	Settlement ID format	
4	PFAM Reference #	Number (10)	PFAM Submission Reference Number
5	Retailer ID	Retailer ID Format	Recipient (Retailer of Record associated with the Site for period under dispute Site)
6	Site ID	Site ID Format	See definition in Universal Standard section of the Code
7	Settlement Interval Ending Time	Date time format	Date and time of the interval the data is for
8	Interval Period	Number (4)	Number of minutes in the interval period. 60 is the current standard
9	Settlement Hours Ending	Char (3)	See definition. Third character is to be used for asterisk as described in the definition, but otherwise blank.
10	Consumption (kWh)	Number (12,4)	Adjustment to consumption for PFAM
11	UFE (kWh)	Number (12,4)	Adjustment to UFE for PFAM
12	Loss (kWh)	Number (12,4)	Adjustment to Losses for PFAM
13	Total Energy (MWh)	Number (12,7)	Total of the consumption, line loss and UFE for the PFAM in MWh for the ISO.

9.6.6.2 Retailer Adjustment to Market

Table 35. RAM Transaction Layout

Sequence	Element	Data Type / Size	Description
1	Transaction Abbreviation	'RAM'	Abbreviation for the transaction
2	Transaction Date Time	Date time format	Latter of the time the transaction was created or last modified
3	Settlement ID	Settlement ID Format	Sender (Load Settlement Agent)
4	Settlement Month	YYYYMM	Year and month of the settlement data being used for determining Retailer allocation
5	Settlement Type	Char(1)	'F' – Final Settlement
6	Retailer ID	Retailer ID Format	Retailer identification for the ISO billing purposes
7	Retailer Energy Grand Total (MWh)	Number (17,7)	Total of the consumption, line loss, and UFE, less Direct Connect Sites for all the Retailer's customers in the month.

9.6.6.3 Transmission Administrator Adjustment—Process Rules

- 1) This transaction is required by the ISO and should be submitted when system level measurement data has been found to be in error.

Table 36. TAA Transaction Layout

Sequence	Element	Data Type / Size	Description
1	Transaction Abbreviation	'TAA'	Abbreviation for the transaction
2	Transaction Date Time	Date time format	Latter of the time the transaction was created or last modified
3	Settlement ID	Settlement ID format	Sender (Load Settlement Agent)
4	PFAM Reference #	Number (10)	PFAM Submission Reference Number
5	Retailer ID	Retailer ID Format	Recipient (Retailer of Record associated with the Site for period under dispute Site)
6	Site ID	Site ID Format	See definition in Universal Standard section of the Code
7	Settlement Interval Ending Time	Date time format	Date and time of the interval the data is for
8	Interval Period	Number (4)	Number of minutes in the interval period. 60 is the current standard
9	Settlement Hours Ending	Char (3)	See definition. Third character is to be used for asterisk as described in the definition, but otherwise blank.
10	Consumption (kWh)	Number (12,4)	Adjustment to consumption for PFAM
11	UFE (kWh)	Number (12,4)	Adjustment to UFE for PFAM
12	Loss (kWh)	Number (12,4)	Adjustment to Losses for PFAM
13	Total Energy (MWh)	Number (12,7)	Total of consumption, line loss and UFE for the PFAM in MWh for the Power Pool.

- a) Energy flow from the distribution system into the transmission system due to distributed generation:

Details of the TAA file shall be submitted by the LSA to the ISO on a monthly basis. The ISO will then make the necessary adjustments in billings between the transmission line losses account and all retailers within the affected zone. The adjustments may be either positive or negative, depending on whether the POD is overstated or understated.

The following table details the adjustment sign in these two situations:

Table 37. Signed Values in TAA - Example

Problem: When POD is	Data before correction	Data after correction	Energy sign in the TAA file	TAA line losses account	Retailers
Overstated	100	85	+15	Charge 15 to the TAA line losses account	Credit 15 to all retailers
Understated	100	120	-20	Credit 20 to the TAA line losses account	Charge 20 to all retailers

In terms of the TAA file format, it is necessary for the LSA to populate all the fields in accordance with s. 9.6.6.3. In particular, there are two fields that must be populated as follows in order for the ISO to process the file:

Field 5, Retailer ID must be “872841374”, which is the TAA retailer ID

Field 6, Site ID must be “0” since the adjustment is not on a site level

9.6.7 Energize/De-Energize Site

9.6.7.1 Energize Request

- 2) Responsibility for Load as a Result of Emergency Energization.
 - a) An emergency energization is a condition where energization may occur on the day immediately preceding the enrollment effective date. This is only allowed when a customer has failed to make necessary arrangements prior to moving into a residence and the customer is switching to a Retailer other than the current Retailer of Record.
 - b) In such circumstances, the Retailer of Record on the day of energization will be allocated the load for that day and only that day.
 - c) Emergency energization prior to enrollment is limited to residential and farm customers.
 - d) This clause does not obligate a WSP to perform emergency energizations prior to enrollment.

Table 38. ENR Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'ENR'	Abbreviation for the transaction name
2	Transaction Date time	Date time format	Latter of the time the transaction was created or last modified
3	Retailer ID	Retailer ID format	Sender
4	Business Function ID	Varchar (2)	Required
5	Wire Services Provider ID	Wire Services Provider ID format	Recipient
6	Site ID	Site ID format	Site to energize
7	Priority Code	Number (1)	Priority code for each WSP. Can be specified from 1-9, with 1 being the top priority. The cost and performance of each priority is at the WSP's discretion. Priority 5 is the standard level of service.
8	Requested Energize Date	Date	Date the power is to be turned on. Is optional if the priority code is used.
9	Contact name	Varchar (100)	The person to contact in the event of problems executing this request.
10	Contact phone number	Telephone number format	The phone number of the contact person named in this transaction.
11	Message to WSP	Varchar (160)	Optional field. Information to assist the WSP in executing this request

9.6.7.2 Energize Failure

Table 39. ENF Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'ENF'	Abbreviation for the transaction name
2	Transaction Date time	Date time format	Latter of the time the transaction was created or last modified
3	Wires ID	Wires ID format	Sender
4	Retailer ID	Retailer ID format	Recipient
5	Site ID	Site ID format	Site that could not be energized
6	Energize Failure Reason Code	Char (4)	Reason why the failure did not succeed: When using transaction status codes, the codes in s. 9.8 must be used.

9.6.7.3 Energize Completion to Retailers, LSA

Table 40. ENC Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'ENC'	Abbreviation for the transaction name
2	Transaction Date time	Date time format	Latter of the time the transaction was created or last modified
3	Wire Services Provider ID	Wire Services Provider ID format	Sender
4	Retailer ID	Retailer ID format	Recipient
5	Settlement ID	Settlement ID Format	Recipient
6	Site ID	Site ID format	Site that was energized
7	Energized Date and Time	Date Time format	Date the Site was energized

9.6.7.4 De-Energize Request

Table 41. DER Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'DER'	Abbreviation for the transaction name
2	Transaction Date time	Date time format	Latter of the time the transaction was created or last modified
3	Retailer ID	Retailer ID format	Sender
4	Business Function ID	Varchar (2)	Required
5	Wire Services Provider ID	Wire Services Provider ID format	Recipient
6	Site ID	Site ID format	Site to de-energize
7	Priority Code	Number (1)	Priority code for each WSP. Can be specified from 1-9, with 1 being the top priority. The cost and performance of each priority is at the WSP's discretion. Priority 5 is the standard level of service.
8	Requested De-Energize Date	Date	Date the power is to be turned off. Is optional if the priority code is used.
9	Contact name	Varchar (100)	The person to contact in the event of problems executing this request.
10	Contact phone number	Telephone number format	The phone number of the contact person named in this transaction.
11	De-Energize Reason	Number (4)	Reason for De-Energize: "0001" Customer Request "0002" Cut Off for Non Payment "0003" Premise Demolished "0004" Safety Shut Off "0005" Seasonal Shut Off "0006" Vacant Premises
12	Message to WSP	Varchar (160)	Optional field. Information to assist the WSP in executing this request

9.6.7.5 De-Energize Failure

Table 42. DEF Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'DEF'	Abbreviation for the transaction name
2	Transaction Date time	Date time format	Latter of the time the transaction was created or last modified
3	Wires ID	Wires 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	Site that could not be energized
7	De-Energize Failure Reason Code	Char (4)	Reason why the de-energize did not succeed: When using transaction status codes, the codes in s. 9.8 must be used.
8	Other Failure Description	Varchar (80)	Date the power is to be turned off. Is optional if the priority code is used.

9.6.7.6 De-Energize Completion to Retailers and LSA

Table 43. DEC Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'DEC'	Abbreviation for the transaction name
2	Transaction Date time	Date time format	Latter of the time the transaction was created or last modified
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	Site that was energized
7	De-energized Date and Time	Date Time format	Date the Site was de-energized

9.6.7.7 Revoke De-Energize Request

This transaction is a request and has no performance or time certainty. The WSP may not be capable of recalling or canceling the de-energization of the Site.

Table 44. RDR Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'RDR'	Abbreviation for the transaction name
2	Transaction Date time	Date time format	Latter of the time the transaction was created or last modified
3	Retailer ID	Retailer ID format	Sender
4	Business Function ID	Varchar (2)	Required
5	Wire Services Provider ID	Wire Services Provider ID format	Recipient
6	Site ID	Site ID format	Site to revoke de-energize

9.7 Transaction Sets with Standard Content

The following transaction sets are required to contain standard content but do not require electronic transmittal or standard format.

9.7.1 Search Site ID

9.7.1.1 Search Site ID Request

Table 45. SSR Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'SSR'	Abbreviation for the transaction name
2	Transaction Date time	Date time format	Latter of the time the transaction was created or last modified
3	Retailer ID	Retailer ID format	Sender
4	Wire Services Provider ID	Wire Services Provider ID format	Recipient
5	Meridian	Varchar (3)	A Meridian defines a block of land between an east and west boundary. For Alberta, the Meridian is W4, W5, and W6 with W4 being the Saskatchewan border, W5 running just east of the Calgary Airport and W6 being just east of Jasper.
6	Range	Number (2)	Ranges are numbered from east to west starting from each meridian. They are numbered 1 to 36. Each range is 6 miles (~10 kilometers) wide.
7	Township	Number (3)	Townships are numbered from south to north starting at the U.S. border. They are numbered from 1 to 129 and 141. Each township is 6 miles (~10 kilometers) wide.
8	Section	Number (2)	Sections are divided into four quarters or into sixteen legal sub-divisions. They are numbered from 1 to 36.
9	Quarter	Char (2)	Quarters divide each section into 4 pieces: NE, NW, SE, SW
10	Plan	Varchar (8)	For urban areas, a plan defines an area within a city, usually a community.
11	Block	Varchar (5)	Defines a city block within a plan.
12	Lot	Varchar (6)	Defines a lot within a city block.
13	Suite	Varchar (5)	Suite Number for the address
14	Street Number	Varchar (20)	The Street Number for the address. <ul style="list-style-type: none"> · The street number must begin with a numeral and there should be no spaces between the number e.g.. 416 is valid, 4 1 6 is invalid. · When a suffix is alphabetic, there is no space between the street number and the suffix, e.g. 416B. · When a suffix is a fraction, a space is required between the street number and the suffix, e.g. 416 ½.
15	Street Name	Varchar (20)	The street name; e.g. Argyle, 101, 20, Oak
16	Street Type	Varchar (10)	The street type; e.g., ST, AVE, BLVD
17	Street Direction	Varchar (2)	The direction of the street; i.e., N, S, E, W, NE, NW, SE, SW
18	Quadrant	Char (2)	The quadrant of the city; i.e., NE, NW, SE, SW
19	City	Varchar (25)	Name of the City, Town, Village
20	Province	Varchar (2)	Abbreviation for the province. Handles border customers from B.C.
21	Postal Code	Char (6)	Postal code for the physical Site. Will be empty if the Site address is not also the mailing address; i.e., post office box.

9.7.1.2 Site ID Result—Process Rules

- 1) Multiple records may be returned for each inquiry.

Table 46. SIR Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'SIR'	Abbreviation for the transaction name
2	Transaction Date time	Date time format	Latter of the time the transaction was created or last modified
3	Retailer ID	Retailer ID format	Recipient
4	Wire Services Provider ID	Wire Services Provider ID format	Sender
5	Row number	Number (2)	Result Number from query for example, the second record of 10 would be 2. 0 for failure.
6	Meridian	Varchar (3)	Duplication of submitted query or further Site details – Meridian.
7	Range	Number (2)	Duplication of submitted query or further Site details – Range.
8	Township	Number (3)	Duplication of submitted query or further Site details – Township.
9	Section	Number (2)	Duplication of submitted query or further Site details – Section.
10	Quarter	Char (2)	Duplication of submitted query or further Site details – Quarter.
11	Plan	Varchar (8)	Duplication of submitted query or further Site details – Plan.
12	Block	Varchar (5)	Duplication of submitted query or further Site details – Block.
13	Lot	Varchar (6)	Duplication of submitted query or further Site details – Lot.
14	Suite	Varchar (5)	Duplication of submitted query or further Site details – Suite Number.
15	Street Number	Varchar (20)	Duplication of submitted query or further Site details – Suite Number.
16	Street Name	Varchar (20)	Duplication of submitted query or further Site details – Street Name.
17	Street Type	Varchar (10)	Duplication of submitted query or further Site details – Street Type.
18	Street Direction	Varchar (2)	Duplication of submitted query or further Site details – Street Direction..
19	Quadrant	Char (2)	Duplication of submitted query or further Site details – Quadrant.
20	City	Varchar (25)	Duplication of submitted query or further Site details – City.
21	Province	Varchar (2)	Duplication of submitted query or further Site details – Province.
22	Postal Code	Char (6)	Duplication of submitted query or further Site details – Postal Code.
23	Site ID	Site ID format	Site ID for the address, or NULL if no records found
24	Meter Feed Description	Varchar (40)	Description of what the meter monitors (e.g., basement, garage, NW barn, and Lab –Floor 1 – North West corner). Used to distinguish between multiple Site IDs at the same address.
25	Meter Number		Number on the meter used by the MDM to track the meter
26	Failure Reason	Varchar (80)	Reason the Site ID record could not be found

9.7.2 Request Off-Cycle Meter Read

9.7.2.1 Request Off-Cycle Meter Read

Table 47. ROR Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'ROR'	Abbreviation for the transaction name
2	Transaction Date time	Date time format	Latter of the time the transaction was created or last modified
3	Retailer ID	Retailer ID format	Sender
4	Business Function ID	Varchar (2)	Required
5	Wire Services Provider ID	Wire Services Provider ID format	Recipient
6	Site ID	Site ID format	Site to perform off-cycle Meter Read
7	Priority Code	Number (1)	Priority code for each WSP. Can be specified from 1-9, with 1 being the top priority. The cost and performance of each priority is at the WSP's discretion. Priority 5 is the standard level of service.
8	Requested Off-Cycle Read Date	Date	Date the meter is requested to be read. Is optional if the priority code is used.
9	Meter Access Instructions	Varchar (80)	Instructions on how to access the meter, or warnings: Dog, See Manager, Careful, Knock and Wait

9.7.2.2 Request Off-Cycle Meter Read Completion

Table 48. ROC Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	'ROC'	Abbreviation for the transaction name
2	Transaction Date time	Date time format	Latter of the time the transaction was created or last modified
3	Retailer ID	Retailer ID format	Recipient
4	Wire Services Provider ID	Wire Services Provider ID format	Sender
5	Site ID	Site ID format	Site to perform off-cycle Meter Read
6	Completion Flag	Char (1)	(Y) If the meter read is complete, (N) if the meter read is incomplete.
7	Off-Cycle Incomplete Reason	Varchar (80)	Reason the Off-Cycle read was not completed
8	Off-Cycle Read Date	Date/Time	Date and Time the Off-Cycle Read was completed.

9.7.3 De-Select Request

9.7.3.1 De-Select Request

Table 49. DSR Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	"DSR"	Abbreviation for the transaction name
2	Transaction Date time	Date time format	Latter of the time the transaction was created or last modified
3	Retailer ID	Retailer ID format	Sender
4	Wire Services Provider ID	Wire Services Provider ID format	Recipient
5	Site ID	Site ID format	Site to de-select
6	Requested De-Select Date	Date	Date the Site is to be de-selected
7			
8	De Select Reasons	Varchar (4)	Reason for the De Select Request "0001" Customer Moving Out "0002" Retailer Drops Customer "0003" Other

9.7.3.2 De-Select Notification

Table 50. DSN Transaction Layout

Sequence	Element	Data Type/Size	Description
1	Transaction Abbreviation	"DSN"	Abbreviation for the transaction name
2	Transaction Date time	Date time format	Latter of the time the transaction was created or last modified
3	Wire Services Provider ID	Wire Services Provider ID format	Sender
4	Retailer ID	Retailer ID format	Recipient
5	MDM ID	MDM ID format	Recipient
6	Settlement ID	Settlement ID format	Recipient
7	Site ID	Site ID format	Site to de-select
8	De-Select Failure Reason Code	Varchar (4)	Reason why the failure did not succeed: When using transaction status codes, the codes in s. 9.8 must be used.

9.8 Settlement System Code Transaction Status Code

After a WSP receives a transaction, the WSP may screen the transaction for errors in the content or format of the transaction itself and/or for inconsistencies with other WSP data sources. The types and levels of detail of the error screening is up to each WSP. The notification to the sender of the error status of the transaction should use whichever of the status codes in the following table are appropriate for the error screening performed by the WSP.

Table 51. Transaction Status Codes

Status Code	Description	Applicable Transaction	Transaction w/o Status	Section Causing Error	Field Causing Error
0000	Transaction successful	all			
0001	Invalid transaction abbreviation	all			Transaction Abbreviation
0002	Invalid date / time format	all			Transaction Date time
0003	Invalid meter data manager ID	DCM			Meter Data Manager ID
0003	Invalid meter data manager ID	DIM			Meter Data Manager ID
0003	Invalid meter data manager ID		SRW		Meter Data Manager ID
0004	Invalid meter data manager ID for Site	DCM			Meter Data Manager ID
0004	Invalid meter data manager ID for Site	DIM			Meter Data Manager ID
0004	Invalid meter data manager ID for Site		SRW		Meter Data Manager ID
0005	Invalid Retailer ID	CSE			Retailer ID
0005	Invalid Retailer ID	DCM			Retailer ID
0005	Invalid Retailer ID	DEF			Retailer ID
0005	Invalid Retailer ID	DIM			Retailer ID
0005	Invalid Retailer ID	DSN			Retailer ID
0005	Invalid Retailer ID	ENF			Retailer ID
0005	Invalid Retailer ID	RDC			Retailer ID
0005	Invalid Retailer ID	ROC			Retailer ID
0005	Invalid Retailer ID	SRN			Retailer ID
0005	Invalid Retailer ID	SRR			Retailer ID
0005	Invalid Retailer ID	WSI			Retailer ID
0005	Invalid Retailer ID		DSR		Retailer ID
0005	Invalid Retailer ID		SRN		Retailer ID
0005	Invalid Retailer ID		SRO		Retailer ID
0005	Invalid Retailer ID		SRW		Retailer ID
0006	Invalid Retailer ID – not eligible for new switches	SRN			Retailer ID
0006	Invalid Retailer ID – not eligible for new switches	SRR			Retailer ID
0007	Invalid Retailer ID – not valid for this wire services provider	SRN			Retailer ID
0007	Invalid Retailer ID – not valid for this wire services provider	SRR			Retailer ID
0008	Invalid Retailer ID for Site	CSE			Retailer ID

Status Code	Description	Applicable Transaction	Transaction w/o Status	Section Causing Error	Field Causing Error
0008	Invalid Retailer ID for Site	DCM			Retailer ID
0008	Invalid Retailer ID for Site	DEF			Retailer ID
0008	Invalid Retailer ID for Site	DIM			Retailer ID
0008	Invalid Retailer ID for Site	DSN			Retailer ID
0008	Invalid Retailer ID for Site	ENF			Retailer ID
0008	Invalid Retailer ID for Site	RDC			Retailer ID
0008	Invalid Retailer ID for Site	ROC			Retailer ID
0008	Invalid Retailer ID for Site	WSI			Retailer ID
0008	Invalid Retailer ID for Site		SRO		Retailer ID
0009	Invalid settlement ID	CSE			Settlement ID
0009	Invalid settlement ID	DCM			Settlement ID
0009	Invalid settlement ID	DIM			Settlement ID
0009	Invalid settlement ID	SRN			Settlement ID
0009	Invalid settlement ID	SRR			Settlement ID
0009	Invalid settlement ID	WSI			Settlement ID
0009	Invalid settlement ID		SRN		Settlement ID
0009	Invalid settlement ID		SRO		Settlement ID
0009	Invalid settlement ID		SRW		Settlement ID
0011	Invalid wire services provider ID	DEF			Wire Services Provider ID
0011	Invalid wire services provider ID	DSN			Wire Services Provider ID
0011	Invalid wire services provider ID	ENF			Wire Services Provider ID
0011	Invalid wire services provider ID	RDC			Wire Services Provider ID
0011	Invalid wire services provider ID	ROC			Wire Services Provider ID
0011	Invalid wire services provider ID	UCI			Wire Services Provider ID
0011	Invalid wire services provider ID		DSR		Wire Services Provider ID
0011	Invalid wire services provider ID		SRW		Wire Services Provider ID
0012	Invalid wire services provider ID for Site	DSN			Wire Services Provider ID
0012	Invalid wire services provider ID for Site	UCI			Wire Services Provider ID
0012	Invalid wire services provider ID for Site		DSR		Wire Services Provider ID
0012	Invalid wire services provider ID for Site		SRW		Wire Services Provider ID
0013	Invalid Site ID	CSE			Site ID
0013	Invalid Site ID	DCM			Site ID
0013	Invalid Site ID	DEF			Site ID
0013	Invalid Site ID	DIM			Site ID
0013	Invalid Site ID	DSN			Site ID

Status Code	Description	Applicable Transaction	Transaction w/o Status	Section Causing Error	Field Causing Error
0013	Invalid Site ID	ENF			Site ID
0013	Invalid Site ID	RDC			Site ID
0013	Invalid Site ID	ROC			Site ID
0013	Invalid Site ID	SRN			Site ID
0013	Invalid Site ID	SRR			Site ID
0013	Invalid Site ID	UCI			Site ID
0013	Invalid Site ID		DSR		Site ID
0013	Invalid Site ID		SRO		Site ID
0013	Invalid Site ID		SRW		Site ID
0014	Site already enrolled with this Retailer	SRN			Site ID
0014	Site already enrolled with this Retailer	SRR			Site ID
0015	Site has been salvaged	SRN			Site ID
0015	Site has been salvaged	SRR			Site ID
0016	Site not allowed to switch	SRN			Site ID
0016	Site not allowed to switch	SRR			Site ID
0017	Switch has already been processed for Site	SRN			Site ID
0017	Switch has already been processed for Site	SRR			Site ID
0018	Invalid priority code	DEF			Priority Code
0018	Invalid priority code	ENF			Priority Code
0018	Invalid priority code	RDC			Priority Code
0018	Invalid priority code	ROC			Priority Code
0018	Invalid priority code	SRN			Priority Code
0018	Invalid priority code	SRR			Priority Code
0019	Invalid date format	DSN			Requested De-Select Date
0019	Invalid date format		DSR		Requested De-Select Date
0020	Invalid Socket ID	DCM			Socket ID
0020	Invalid Socket ID	DIM			Socket ID
0021	Transaction Status Code must be blank	CSE			Transaction Status Code
0021	Transaction Status Code must be blank	DCM			Transaction Status Code
0021	Transaction Status Code must be blank	DIM			Transaction Status Code
0021	Transaction Status Code must be blank	SRN			Transaction Status Code
0021	Transaction Status Code must be blank	SRR			Transaction Status Code
0021	Transaction Status Code must be blank	WSI			Transaction Status Code
0021	Transaction Status Code must be blank		DSR		Transaction Status Code
0022	Business Function ID must be blank	CSE			Business Function ID

Status Code	Description	Applicable Transaction	Transaction w/o Status	Section Causing Error	Field Causing Error
0022	Business Function ID must be blank	DCM			Business Function ID
0022	Business Function ID must be blank	DIM			Business Function ID
0022	Business Function ID must be blank	DSN			Business Function ID
0022	Business Function ID must be blank	SRN			Business Function ID
0022	Business Function ID must be blank	SRR			Business Function ID
0022	Business Function ID must be blank	WSI			Business Function ID
0022	Business Function ID must be blank		DSR		Business Function ID
0022	Business Function ID must be blank		SRN		Business Function ID
0022	Business Function ID must be blank		SRO		Business Function ID
0022	Business Function ID must be blank		SRW		Business Function ID
0024	Invalid number of fields in the transaction	CSE			
0024	Invalid number of fields in the transaction	DCM			
0024	Invalid number of fields in the transaction	DIM			
0024	Invalid number of fields in the transaction	DSN			
0024	Invalid number of fields in the transaction	SRN			
0024	Invalid number of fields in the transaction	SRR			
0024	Invalid number of fields in the transaction	UCI			
0024	Invalid number of fields in the transaction	WSI			
0024	Invalid number of fields in the transaction		DSR		
0024	Invalid number of fields in the transaction		SRN		
0024	Invalid number of fields in the transaction		SRO		
0024	Invalid number of fields in the transaction		SRW		
0025	Zone ID invalid - format, length, missing	WSI			Zone ID
0026	Invalid business function ID	CSE			Business Function ID
0026	Invalid business function ID	DCM			Business Function ID
0026	Invalid business function ID	DEF			Business Function ID

Status Code	Description	Applicable Transaction	Transaction w/o Status	Section Causing Error	Field Causing Error
0026	Invalid business function ID	DIM			Business Function ID
0026	Invalid business function ID	DSN			Business Function ID
0026	Invalid business function ID	SRN			Business Function ID
0026	Invalid business function ID	SRR			Business Function ID
0026	Invalid business function ID	WSI			Business Function ID
0026	Invalid business function ID		DSR		Business Function ID
0026	Invalid business function ID		SRN		Business Function ID
0026	Invalid business function ID		SRO		Business Function ID
0026	Invalid business function ID		SRW		Business Function ID
0027	Other	CSE			
0027	Other	DCM			
0027	Other	DIM			
0027	Other	DSN			
0027	Other	ENF			
0027	Other	SRN			
0027	Other	SRR			
0027	Other	UCI			
0027	Other	WSI			
0027	Other		DSR		
0027	Other		SRO		
0027	Other		SRW		
0050	Site not eligible for RRO	SRN			Site ID
0050	Site not eligible for RRO	SRR			Site ID
0051	Valid update customer information not received	SRN			
0051	Valid update customer information not received	SRR			
0053	Field too long	UCI		General Information	C/O or Attention Field
0054	Invalid critical to have power indicator	UCI		General Information	Critical To Have Power Indicator
0055	Critical to have power reason is required	UCI		General Information	Critical To Have Power Reason
0056	Invalid critical to have power reason	UCI		General Information	Critical To Have Power Reason
0057	Invalid GST exemption indicator	UCI		General Information	GST Canada Customs & Revenue Agency Exemption Indicator
0058	Field too long	ENF			Meter Access Notes
0058	Field too long	RDC			Meter Access Notes
0058	Field too long	ROC			Meter Access Notes
0058	Field too long	UCI		General Information	Meter Access Notes
0059	Invalid onsite generation indicator	UCI		General Information	Onsite Generation Indicator
0060	Invalid SIC code	UCI		General Information	SIC Code

Status Code	Description	Applicable Transaction	Transaction w/o Status	Section Causing Error	Field Causing Error
0061	Customer first, last, and middle names not allowed with customer company name	UCI		Customer Name	Customer Company Name
0062	Field too long	UCI		Customer Name	Customer Company Name
0063	Customer first name required	UCI		Customer Name	Customer First Name
0064	Field too long	UCI		Customer Name	Customer First Name
0065	Customer last name required	UCI		Customer Name	Customer Last Name
0066	Field too long	UCI		Customer Name	Customer Last Name
0067	Field too long	UCI		Customer Name	Customer Middle Name
0068	Customer name required	UCI		Customer Name	Customer Name
0069	City is required	UCI		Customer Mailing Address	City
0070	Field too long	UCI		Customer Mailing Address	City
0071	Invalid city quadrant	UCI		Customer Mailing Address	City Quadrant
0072	Field too long	UCI		Customer Mailing Address	Compartment
0073	Country is required	UCI		Customer Mailing Address	Country
0074	Invalid country	UCI		Customer Mailing Address	Country
0075	Customer mailing address required	UCI		Customer Mailing Address	Customer Mailing Address
0076	Invalid mailing address combination	UCI		Customer Mailing Address	Customer Mailing Address
0077	Only one of civic address, delivery address, road address, or foreign address may be included	UCI		Customer Mailing Address	Customer Mailing Address
0078	An address for suburban services, mobile or rural routes cannot have a delivery installation.	UCI		Customer Mailing Address	Delivery Installation Name
0079	Field too long	UCI		Customer Mailing	Delivery Installation Name

Status Code	Description	Applicable Transaction	Transaction w/o Status	Section Causing Error	Field Causing Error
				Address	
0080	Field too long	UCI		Customer Mailing Address	Foreign Address 1
0081	Field too long	UCI		Customer Mailing Address	Foreign Address 2
0082	Field too long	UCI		Customer Mailing Address	Foreign Address 3
0083	Field too long	UCI		Customer Mailing Address	Foreign Address 4
0084	Invalid general delivery indicator	UCI		Customer Mailing Address	General Delivery Indicator
0085	Field too long	UCI		Customer Mailing Address	House Number
0086	House number required	UCI		Customer Mailing Address	House Number
0087	Field too long	UCI		Customer Mailing Address	Letter Carrier Depot
0088	Field too long	UCI		Customer Mailing Address	Lot ID
0089	Field too long	UCI		Customer Mailing Address	Mobile Route
0090	Field too long	UCI		Customer Mailing Address	Post Office Box
0091	Field too long	UCI		Customer Mailing Address	Post Road Number
0092	Post road number required	UCI		Customer Mailing Address	Post Road Number
0093	Invalid postal code format	UCI		Customer Mailing Address	Postal Code
0094	Field too long	UCI		Customer Mailing Address	Pre Road Number
0095	Pre road number required	UCI		Customer Mailing Address	Pre Road Number
0096	Invalid province / state code	UCI		Customer Mailing	Province / State Code

Status Code	Description	Applicable Transaction	Transaction w/o Status	Section Causing Error	Field Causing Error
				Address	
0097	Province / state code is required	UCI		Customer Mailing Address	Province / State Code
0098	Field too long	UCI		Customer Mailing Address	Retail Postal Outlet
0099	Invalid road type	UCI		Customer Mailing Address	Road Type
0100	Road type required	UCI		Customer Mailing Address	Road Type
0101	Field too long	UCI		Customer Mailing Address	Rural Route
0102	Field too long	UCI		Customer Mailing Address	Site Number
0103	Site number is only valid when used in combination with a rural route	UCI		Customer Mailing Address	Site Number
0104	Field too long	UCI		Customer Mailing Address	Station Name
0105	Invalid street direction code	UCI		Customer Mailing Address	Street Direction
0106	Field too long	UCI		Customer Mailing Address	Street Name
0107	Street name required	UCI		Customer Mailing Address	Street Name
0108	Invalid street pre-direction code	UCI		Customer Mailing Address	Street Pre-Direction
0109	Invalid street type code	UCI		Customer Mailing Address	Street Type Code
0110	Street type code required	UCI		Customer Mailing Address	Street Type Code
0111	Field too long	UCI		Customer Mailing Address	Suburban Service
0112	Invalid unit definer	UCI		Customer Mailing Address	Unit Definer
0113	Unit definer not allowed with unit number	UCI		Customer Mailing	Unit Definer

Status Code	Description	Applicable Transaction	Transaction w/o Status	Section Causing Error	Field Causing Error
				Address	
0114	Field too long	UCI		Customer Mailing Address	Unit Number
0115	Field too long	UCI		Customer Phone & E-Mail	Customer E-mail Address
0116	Invalid customer fax number	UCI		Customer Phone & E-Mail	Customer Fax Number
0117	Invalid customer mobile number	UCI		Customer Phone & E-Mail	Customer Mobile Phone
0118	Invalid customer pager number	UCI		Customer Phone & E-Mail	Customer Pager Number
0119	Invalid customer phone number	UCI		Customer Phone & E-Mail	Customer Phone Number
0120	Field too long	UCI		Contact Name	Company Name
0121	First, last, and middle names not allowed with company name	UCI		Contact Name	Company Name
0122	Field too long	UCI		Contact Name	First Name
0123	First name required	UCI		Contact Name	First Name
0124	Field too long	UCI		Contact Name	Last Name
0125	Last name required	UCI		Contact Name	Last Name
0126	Field too long	UCI		Contact Name	Middle Name
0127	Contact name is required	UCI		Contact Name	Name
0128	Field too long	UCI		Contact Phone & E-Mail	E-mail Address
0129	Invalid fax number	UCI		Contact Phone & E-Mail	Fax Number
0130	Invalid mobile number	UCI		Contact Phone & E-Mail	Mobile Phone
0131	Invalid pager number	UCI		Contact Phone & E-Mail	Pager Number
0132	Invalid phone number	UCI		Contact Phone & E-	Phone Number

Status Code	Description	Applicable Transaction	Transaction w/o Status	Section Causing Error	Field Causing Error
				Mail	
0133	Field too long	UCI		Owner Name	Owner Company Name
0134	First, last, and middle names not allowed with company name	UCI		Owner Name	Owner Company Name
0135	Field too long	UCI		Owner Name	Owner First Name
0136	First name required	UCI		Owner Name	Owner First Name
0137	Field too long	UCI		Owner Name	Owner Last Name
0138	Last name required	UCI		Owner Name	Owner Last Name
0139	Field too long	UCI		Owner Name	Owner Middle Name
0140	City is required	UCI		Owner Mailing Address	City
0141	Field too long	UCI		Owner Mailing Address	City
0142	Invalid city quadrant	UCI		Owner Mailing Address	City Quadrant
0143	Field too long	UCI		Owner Mailing Address	Compartment
0144	Country is required	UCI		Owner Mailing Address	Country
0145	Invalid country	UCI		Owner Mailing Address	Country
0146	An address for suburban services, mobile or rural routes cannot have a delivery installation.	UCI		Owner Mailing Address	Delivery Installation Name
0147	Field too long	UCI		Owner Mailing Address	Delivery Installation Name
0148	Field too long	UCI		Owner Mailing Address	Foreign Address 1
0149	Field too long	UCI		Owner Mailing Address	Foreign Address 2
0150	Field too long	UCI		Owner Mailing Address	Foreign Address 3

Status Code	Description	Applicable Transaction	Transaction w/o Status	Section Causing Error	Field Causing Error
0151	Field too long	UCI		Owner Mailing Address	Foreign Address 4
0152	Invalid general delivery indicator	UCI		Owner Mailing Address	General Delivery Indicator
0153	Field too long	UCI		Owner Mailing Address	House Number
0154	House number required	UCI		Owner Mailing Address	House Number
0155	Field too long	UCI		Owner Mailing Address	Letter Carrier Depot
0156	Field too long	UCI		Owner Mailing Address	Lot ID
0157	Field too long	UCI		Owner Mailing Address	Mobile Route
0158	Invalid mailing address combination	UCI		Owner Mailing Address	Owner Mailing Address
0159	Only one of civic address, delivery address, road address, or foreign address may be included	UCI		Owner Mailing Address	Owner Mailing Address
0160	Field too long	UCI		Owner Mailing Address	Post Office Box
0161	Field too long	UCI		Owner Mailing Address	Post Road Number
0162	Post road number required	UCI		Owner Mailing Address	Post Road Number
0163	Invalid postal code format	UCI		Owner Mailing Address	Postal Code
0164	Field too long	UCI		Owner Mailing Address	Pre Road Number
0165	Pre road number required	UCI		Owner Mailing Address	Pre Road Number
0166	Invalid province / state code	UCI		Owner Mailing Address	Province / State Code
0167	Province / state code is required	UCI		Owner Mailing	Province / State Code

Status Code	Description	Applicable Transaction	Transaction w/o Status	Section Causing Error	Field Causing Error
				Address	
0168	Field too long	UCI		Owner Mailing Address	Retail Postal Outlet
0169	Invalid road type	UCI		Owner Mailing Address	Road Type
0170	Road type required	UCI		Owner Mailing Address	Road Type
0171	Field too long	UCI		Owner Mailing Address	Rural Route
0172	Field too long	UCI		Owner Mailing Address	Site Number
0173	Site number is only valid when used in combination with a rural route	UCI		Owner Mailing Address	Site Number
0174	Field too long	UCI		Owner Mailing Address	Station Name
0175	Invalid street direction code	UCI		Owner Mailing Address	Street Direction
0176	Field too long	UCI		Owner Mailing Address	Street Name
0177	Street name required	UCI		Owner Mailing Address	Street Name
0178	Invalid street pre-direction code	UCI		Owner Mailing Address	Street Pre-Direction
0179	Invalid street type code	UCI		Owner Mailing Address	Street Type Code
0180	Street type code required	UCI		Owner Mailing Address	Street Type Code
0181	Field too long	UCI		Owner Mailing Address	Suburban Service
0182	Invalid unit definer	UCI		Owner Mailing Address	Unit Definer
0183	Unit definer not allowed with unit number	UCI		Owner Mailing Address	Unit Definer
0184	Field too long	UCI		Owner Mailing	Unit Number

Status Code	Description	Applicable Transaction	Transaction w/o Status	Section Causing Error	Field Causing Error
				Address	
0185	Field too long	UCI		Owner Phone & E-Mail	Owner E-mail Address
0186	Invalid fax number	UCI		Owner Phone & E-Mail	Owner Fax Number
0187	Invalid mobile number	UCI		Owner Phone & E-Mail	Owner Mobile Phone
0188	Invalid pager number	UCI		Owner Phone & E-Mail	Owner Pager Number
0189	Invalid phone number	UCI		Owner Phone & E-Mail	Owner Phone Number
0190	Field too long	SRN			Retailer Account Number
0190	Field too long	SRR			Retailer Account Number
0190	Field too long	UCI			Retailer Account Number
0191	Field too long	SRN			Retailer Reference Number
0191	Field too long	SRR			Retailer Reference Number
0191	Field too long	UCI			Retailer Reference Number
0191	Field too long		SRN		Retailer Reference Number
0192	Site owner name is required	UCI		Owner Name	
0193	Invalid business number	UCI		Customer Phone & E-Mail	Customer Business Phone
0194	Invalid business number	UCI		Contact Phone & E-Mail	Contact Business Phone
0195	Invalid business number	UCI		Owner Phone & E-Mail	Owner Business Phone
0196	Invalid meter information	DCM			
0197	Invalid de-select reason		DSR		De-Select Reason
0198	Invalid date - notification period too short		DSR		Requested De-Select Date
0200	Invalid de-select reason	DSN			De-Select Reason
0201	Invalid requested de-select date - format, length, missing	DSN			Requested De-Select Date
0202	Already De-Selected	DSN			Site ID
0501	Meter Number invalid – format, length	DCM			Meter Number
0503	Max kVa invalid - format, length, missing on kVa meter	DCM			Max kVa
0504	Max kW invalid - format, length, missing on kW meter	DCM			Max kW
0505	Last Reading Date Time	CSE			Last Reading Date Time

Status Code	Description	Applicable Transaction	Transaction w/o Status	Section Causing Error	Field Causing Error
	invalid – format, length				
0505	Last Reading Date Time invalid – format, length	DCM			Last Reading Date Time
0506	Current Reading Date Time invalid – format, length	DCM			Current Reading DateTime
0507	Last Meter Dial Reading invalid – format, length	DCM			Last Meter Dial Reading
0508	Current Meter Dial Reading invalid – format, length	DCM			Current Meter Dial Reading
0509	Max Reading (Watt) invalid - format, length, missing on kWh meter	DCM			Max Reading (Watt)
0510	Max Reading (Voltamp) invalid - format, length, missing on Kva meter	DCM			Max Reading (Voltamp)
0511	Meter Multiplier invalid - format, length, missing	DCM			Meter Multiplier
0515	Record Status invalid – format, length	DCM			Record Status
0516	Cumulative meter read to be cancelled does not exist	DCM			Record Status
0517	Fields differ from original Meter Read, cancel aborted	DCM			Record Status
0518	Use of one of the Meter Read dates would create an overlap,	DCM			Record Status
0519	CA record encountered after regular reads, Cancel aborted	DCM			Record Status
0520	Meter read values and consumption cannot be negative	DCM			kWh
0550	Load Research Flag invalid – format, length, missing	DIM			Load Research Flag
0551	Profile Class invalid – format, length, missing	DIM			Profile Class
0551	Profile Class invalid – format, length, missing		SRN		Profile Class
0552	kW invalid – format, length, missing	DIM			kW
0553	kWh invalid – format, length	CSE			kWh
0553	kWh invalid – format, length	DCM			kWh
0553	kWh invalid – format, length, missing	DIM			kWh
0554	kVA invalid – format, length, missing	DIM			kVA
0555	kVAh invalid – format, length, missing	DIM			kVAh
0556	kVAR invalid – format, length, missing	DIM			kVAR
0557	kVARh invalid – format,	DIM			kVARh

Status Code	Description	Applicable Transaction	Transaction w/o Status	Section Causing Error	Field Causing Error
	length, missing				
0558	DateTime invalid – format, length, missing	DIM			DateTime
0559	Interval Period invalid – format, length, missing	DIM			Interval Period
0559	Interval Period invalid – format, length, missing	WSI			Interval Period
0560	Hour Ending invalid – format, length, missing	DIM			Hour Ending
0561	Demand (kW) Status invalid – format, length	DCM			Demand (kW) Status
0561	Demand (kW) Status invalid – format, length, missing	DIM			Demand (kW) Status
0562	Consumption (kWh) Status invalid – format, length	DCM			Consumption (kWh) Status
0562	Consumption (kWh) Status invalid – format, length, missing	DIM			Consumption (kWh) Status
0563	Demand (kVA) Status invalid – format, length	DCM			Demand (kVA) Status
0563	Demand (kVA) Status invalid – format, length, missing	DIM			Demand (kVA) Status
0564	Demand (kVAh) Status invalid – format, length, missing	DIM			Demand (kVAh) Status
0565	Demand (kVAR) Status invalid – format, length, missing	DIM			Demand (kVAR) Status
0566	Demand (kVARh) Status invalid – format, length, missing	DIM			Demand (kVARh) Status
0567	Profiling Class invalid or missing for Sample meter record	DIM			Profile Class
0568	Interval Record would create a GAP, previous read must be estimated	DIM			
0569	Meter read values and consumption cannot be negative, unless the Site is set up as having distributed generation then consumption can be negative	DIM			kWh
1002	Loss Group Code invalid – format, length, missing		SRN		Loss Group Code
1003	Enrollment Notification invalid – format, length, missing		SRN		Enrollment Notification
1004	Retailer Account Number invalid – format, length	SRN			Retailer Account Number
1004	Retailer Account Number invalid – format, length	SRR			Retailer Account Number
1004	Retailer Account Number	UCI			Retailer Account Number

Status Code	Description	Applicable Transaction	Transaction w/o Status	Section Causing Error	Field Causing Error
	invalid – format, length				
1004	Retailer Account Number invalid – format, length		SRN		Retailer Account Number
1004	Retailer Account Number invalid – format, length		SRO		Retailer Account Number
1005	Retailer Reference Number invalid – format, length	SRN			Retailer Reference Number
1005	Retailer Reference Number invalid – format, length	SRR			Retailer Reference Number
1005	Retailer Reference Number invalid – format, length	UCI			Retailer Reference Number
1006	LSA Transfer Number invalid – format, length		SRN		LSA Transfer Number
1006	LSA Transfer Number invalid – format, length		SRO		LSA Transfer Number
1052	Switch DateTime invalid – format, length	CSE			Switch DateTime
1052	Switch DateTime invalid – format, length, missing		SRN		Switch DateTime
1052	Switch DateTime invalid – format, length, missing		SRO		Switch DateTime
1052	Switch DateTime invalid – format, length, missing		SRW		Switch DateTime
1100	Client Wire Services Provider ID invalid – format, length	WSI			Client Wire Services Provider ID
1101	Settlement Run Date Time invalid – format, length, missing	WSI			Settlement Run Date Time.
1102	Settlement As At Date Time invalid – format, length, missing	WSI			Settlement As At Date Time
1103	Settlement Type invalid – format, length, missing	WSI			Settlement Type
1104	Profile Freeze Cutoff Date invalid -format, length, missing	WSI			Profile Freeze Cutoff Date
1105	Settlement Interval Ending Date Time invalid – format, length, missing	WSI			Settlement Interval Ending Date Time
1107	Settlement Hour Ending invalid – format, length, missing	WSI			Settlement Hour Ending
1108	Retailer Usage Total (kWh) invalid – format, length, missing	WSI			Retailer Usage Total (kWh)
1109	Retailer Loss Total (kWh) invalid – format, length, missing	WSI			Retailer Loss Total (kWh)
1110	Retailer UFE Total (kWh) invalid – format, length, missing	WSI			Retailer UFE Total (kWh)

Status Code	Description	Applicable Transaction	Transaction w/o Status	Section Causing Error	Field Causing Error
1111	Retailer Energy Grand Total (MWh) invalid – format, length, missing	WSI			Retailer Energy Grand Total (MWh)
1200	Already de-energized	DEF			Site ID
1201	Requested De-Energize Date invalid - format, length, missing	DEF			De-Energize Date
1202	Requested De-Energize Reason invalid - format, length, missing	DEF			De-Energize Reason
1203	Already Energized	ENF			Site ID
1204	Requested Energize Date invalid - format, length, missing	ENF			Energize Date
1205	Site does not have infrastructure	ENF			Site ID
1206	De-Energize not requested	RDC			Site ID
1207	Not Energized	RDC			Site ID
1208	Off-Cycle Read Date invalid - format, length, missing	ROC			Off-Cycle Read Date

10 Dropchute™ Security Requirements

This document details the requirements for DropChute™ servers for Market Participants and provides details on how the DropChute™ network is configured.

10.1 Participant Roles

- 1) The companies operating as Load Settlement Agents (LSAs) will be required to maintain a DropChute™ server for the use of all Market Participants in their settlement area. The server must use a version of DropChute™ that supports digital certificates.
- 2) All participants will be required to use a version of DropChute™, which is compatible with those in use by the other Market Participants.
- 3) For the purposes of this DropChute™ network, the LSA is the center of all transactions, and remains passive. The rest of the Market Participants pick up and drop off files on the LSA DropChute™ server: they are not delivered.

10.2 Firewall Management

- 1) DropChute™ communicates over a single open TCP port through the firewall, which must be opened for bi-directional communication. Participants wishing to interact with anyone's server will be required to configure their DropChute™ to use this standard port.
- 2) The number of this TCP port will be disclosed by the LSAs to qualified, contracted parties, and is not to be disclosed by other Market Participants.

10.3 Certificates Policy

- 1) DropChute™ can be configured to use X.509 standard digital certificates. Specifically, if a Verisign digital certificate is used, DropChute™ requires the Verisign Personal ID, which is the variety of certificate used to validate email and web browser communications. These are the Class 1 Digital IDs, which correspond to an email address. When purchasing one of these Digital IDs, a valid email address must be given, and the transaction must be made from a browser on the DropChute™ server that will be using the certificate. The email address must be the same as the unique name defined in DropChute™.
- 2) In order for the Digital ID to work with DropChute™, it must be purchased with the *low* security option. This is explicitly specified in the DropChute™ documentation, and is required for DropChute™ to automate file transfers.
- 3) For the purposes of the Market Participants in Alberta, all partners will use the same key length of 1024 bits.

10.4 New Participant Inclusion Procedure

- 1) It is the responsibility of the LSA's to verify the identity of the Market Participants with which they are exchanging transactions via DropChute™. All parties are responsible to carry out due diligence to confirm the identity of new Market Participants.
- 2) It will be the responsibility of new Market Participants to communicate with all the relevant parties, and to follow these guidelines laid out for DropChute™ transactions.

10.5 Data Implementation

10.5.1 Files

- 1) File names will follow the naming convention as specified in s. 9.4.2 of the Settlement System Code.
- 2) LSAs are not obligated to store DropChute™ data for longer than seven Business Days, after which all files will be removed from the LSA's DropChute™ server.

11 Performance Standards for Meter Data Managers Operating in the Province of Alberta

11.1 Overview

The purpose of this Chapter is to define the responsibilities and performance standards for Meter Data Managers (MDM) within the Province of Alberta. This Chapter contains the following sections:

Section 2: Role & Responsibilities

Section 3: Interval Meter Data Performance Standards

Section 4: Cumulative Meter Data Performance Standards

11.2 Roles & Responsibilities

11.2.1 Roles

- 1) Meter Data Manager (MDM) is the entity responsible for collecting meter data, validating and correcting interval meter data, storing historic data, and reporting data and times to required parties.
- 2) Accountability for accuracy of meter data, shall be the responsibility of one and only one entity. Accountabilities are as follows:
 - a) The owner of a transmission system, distribution system, power generator or distributed generator as defined by the *Electric Utilities Act* is responsible to provide a meter and all meter related services, including the function of Meter Data Manager as described below.
 - b) The owner may make arrangements under which other parties perform any or all of the functions of the MDM if the arrangements do not diminish or remove the responsibility or liability of the wire owner or facility owner for carrying out those functions.
- 3) Exceptions Include:
 - a) Where a bi-directional meter exists on the transmission system, the generator is responsible to enter into agreement with the transmission system owner(s) to identify which entity shall be the MDM.
 - b) Where a bi-directional meter exists on the distribution system, the distribution system owner will specify which entity shall be the MDM.
 - c) Where a distributed generator's energy output is measured by a non-interval meter, the distribution system owner shall be the MDM.

11.3 Interval Meter Data Performance Standards

- 1) Interval meters and related recording devices are used to collect meter data at fixed intervals. The three main functional areas are described as System Level, Site Level, and Private Meters.
- 2) System interval meters gather System Level interval data and the meter data are used for load settlement.
- 3) Site interval meters gather Site Level interval data and the meter data are used for load settlement and retail billing.
- 4) Measurement data from non-market interval meters is considered out of scope of this performance standard.
- 5) This standard does not deal with non-interval meters that are used at the System Level. In those situations, WSP's supply interval data derived from cumulative meters and/or an array of meters, local conditions, knowledgeable estimates and bilateral arrangements with other WSPs to reasonably and fairly represent interval data.
- 6) All System Level interval metering points must be in compliance with the ISO Measurement System Standard for installation and testing purposes.

11.3.1 Data Collection

MDMs are responsible for collecting System Level and Site Level interval meter data as required to ensure that they can comply with the standards outlined in s. 11.3.4 and s. 11.3.5 Data Provision, respectively.

11.3.2 Validation, Estimation & Editing (VEE)

11.3.2.1 Process Overview

- 1) The MDMs shall employ the validation, estimation, and editing steps as described in this section to create the load settlement ready data. MDMs shall maintain adequate records to explain all validation failures and revalidations.
- 2) Validation, Estimation and Editing Process

MDM shall undertake the following steps in providing load settlement ready data for the market:

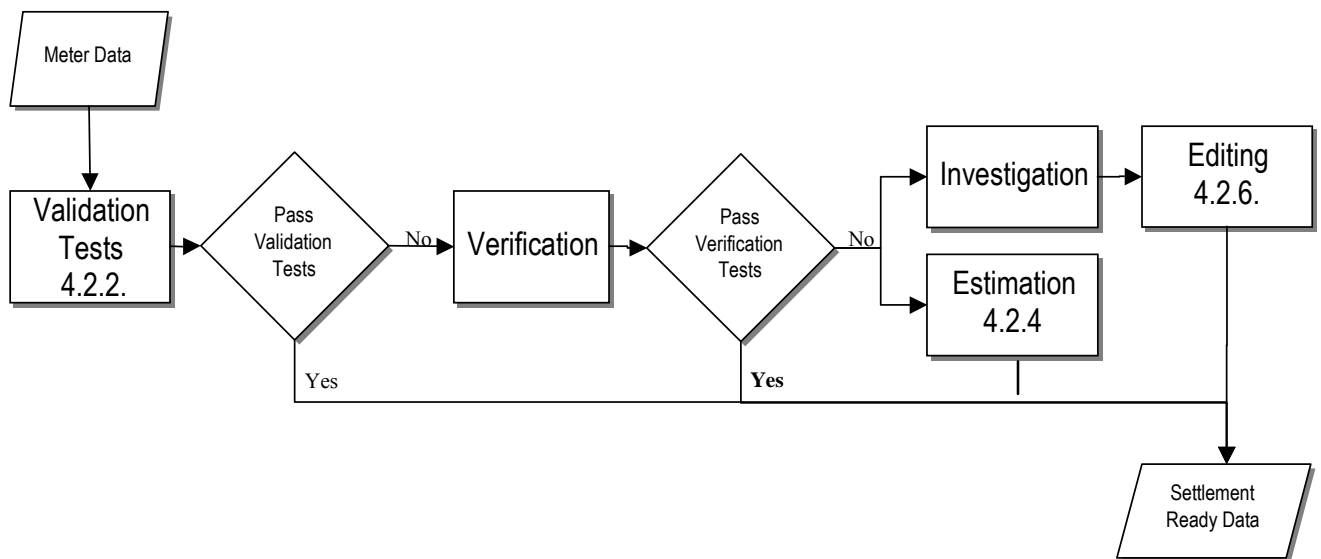


Figure 1. VEE Overview

- a) MDM shall validate all system level data using the validation tests outlined in s. 11.3.2.2.
- b) If the data passes the validation tests, the data shall be considered load settlement ready and shall be provided to the designated parties as per s. 11.3.5.
- c) The MDM will verify the data that failed validation test.
- d) If the MDM verifies that the failure of validation tests was applicable, then the MDM must:
 - i) estimate the data as described in s. 11.3.2.4,
 - ii) provide corrected and finalized data to the LSA and ISO as per s. 11.3.2.6.
- e) Where an MDM is required to pass data to another MDM for purposes of creating measurement data the following apply:

- i) the originating MDM is responsible for conducting all validation, estimation & editing (VEE) of the data.
- ii) if data timing requirements as specified in s. 11.3.4.1.2) for MDM to MDM data transfer are not met, the receiving MDM will estimate the data in accordance with s. 11.3.2 of this MDM Performance Standards.

11.3.2.2 Validation of Data

- 1) At a minimum, MDMs shall conduct the procedures outlined below to validate the collected data.

Table 52. Interval Metering Validation Procedures

Check	Test	Description	Frequency
Data Completeness	<ul style="list-style-type: none"> • No interval gaps • No duplicate intervals • Energy and reactive power (e.g. kVARh) for all intervals 	<ul style="list-style-type: none"> • Complete set of data per meter – this validation calculates the number of time intervals “Expected” between the start and stop time 	Daily
Acquisition System Time Check	<ul style="list-style-type: none"> • Compare acquisition system clock to National Research Council (NRC) atomic clock • +/- 1 minute, NRC atomic clock 	<ul style="list-style-type: none"> • Time drift of meter reading device/system clock • Ensures that all parties have a common time of reference • Reset acquisition system clock if out 	Daily
Meter Time Check	<ul style="list-style-type: none"> • Compare meter clock to NRC atomic clock • +/- 1 minute, NRC 	<ul style="list-style-type: none"> • Time drift of meter clock • Reset meter clock if out 	Daily, per interrogation
Pulse Overflow check	Improper scaling factor in meter Improperly sized transformer hardware problem	<ul style="list-style-type: none"> • Meter data condition that occurs as the result of a pulse count reaching its maximum value, register overflow detected, or demand value exceeds maximum limit. All overflow checks listed are monitored/flagged within the meter itself. When available this meter data condition can be collected during the meter data retrieval process and stored as a channel status for review/reporting purposes. • Applies to recorders only, and not to modern fully electronic metering systems 	Daily

11.3.2.3 Verification of Data

- 1) If the MDM believes a failed validation test is not valid, the MDM has the opportunity to verify the validity of the validation test failure.
- 2) If the MDM can determine with certainty, that the failure is invalid then the original meter data shall be considered load settlement ready.

- 3) If the MDM is unable to determine with certainty, that the failure is invalid, then the data shall be estimated using the standard outlined in s. 11.3.2.4.
- 4) The verification step shall not impede the provision of load settlement ready data as outlined in s. 11.3.5.

11.3.2.4 Estimation of Data

When metering data fails one or more validation tests, estimated data shall be provided using one of the following methods in order of priority:

- 1) Where Redundant Metering Exists:

Validated redundant metering shall replace failed metering data where:

- a) The redundant meter is approved for use by Industry Canada; and
- b) The metering data from both meters has historically been shown to be equal.

- 2) Where Check Metering Exists:

Validated check metering shall replace failed metering data where the metering data from both sources has historically been shown to be comparable, adjusted by a Site-specific mathematical scaling factor. The Site-specific mathematical adjustment factor is calculated by dividing the check meter value by the reporting check value for the same interval date and time.

- 3) Estimates of One Hour or Less:

Watt and VAR interval values shall be estimated using linear interpolation or proxy historical data (See “Estimates Greater Than One Hour”). Intervals failing one or more validation rules cannot be used as start or end points for interpolation.

- 4) Estimates Greater Than One Hour:

- a) Watt and VAR interval values shall be estimated using proxy historical data for the same reporting meter provided that no load switching has occurred during the proxy historical period or during the period being estimated. Proxy historical data must be for the same intervals and must be valid and not estimated. A scaling factor may be applied to proxy data to improve estimate quality provided that the scaling methodology and relevant data is disclosed upon request (month-end, interim, and final settlements only).

- b) Unless it can be shown that a more representative proxy day exists, the following shall be used:

- i) Previous week data for the same day of the week, as applicable.
- ii) Current month data for the same day(s) of the week, as applicable.
- iii) Previous month data for the same day(s) of the week, as applicable.
- iv) Current month of last year for the same day(s) of the week, as applicable.

- 5) Estimates Greater Than One Hour (No Proxy Day Available):

If the above methods do not provide a reasonable estimate for circumstances such as significant load switching during the estimation period, Watt and VAR interval values may be estimated using other methodologies provided that the methodology and relevant

data is disclosed upon request (month-end, interim, and final settlements only). Other methodologies may include:

- a) The use of SCADA data (adjusted by a Site-specific mathematical scaling factor if necessary to improve estimate quality).
- b) Performing load research analysis and/or conducting Site-specific investigations.

11.3.2.5 Investigation

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.

11.3.2.6 Editing of Data (Data Replacement)

Once the metering problem has been investigated and resolved, the MDM shall restate the data as follows:

- 1) Original Metering Data is Correct:

If the original metering data is found to be correct, the estimated data will be replaced by the original data and the original data shall be transmitted to the appropriate parties.

- 2) Estimate Revision:

If a more accurate estimate is established compared to a prior estimate, the MDM shall provide the appropriate parties with the revised estimated data.

- 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.

11.3.3 Data Storage

In addition to requirements outlined in the Electricity and Gas Inspection Regulations, MDM shall:

- 1) Store all original energy readings, substitutions, estimations and calculated values for metering and measurement point, for a period of at least 24 months.
- 2) Store all load settlement ready meter data for a period of at least 24 months.

11.3.4 System Level Data Provision

11.3.4.1 Initial Daily Load Settlement Data Provision

- 1) MDMs shall have provided to the ISO and the LSA a complete load settlement-ready data set for the day of the energy flow no later than the initial daily settlement timing provisions as specified in s. 4.4.2.1) of the Settlement System Code.
- 2) MDMs who provide data to another MDM for aggregation of any kind shall deliver that data to the receiving MDM no later than 24 hours prior to the initial daily settlement timing provisions as specified in s. 4.4.2.1) of the Settlement System Code.

11.3.4.2 Initial Monthly Settlement Data Provision

- 1) MDMs shall have provided to the ISO and the LSA a complete load settlement-ready data set for the day of the energy flow no later than the initial monthly settlement timing provisions as specified in s. 4.4.3.1) of the Settlement System Code.
- 2) MDMs who provide data to another MDM for aggregation of any kind shall deliver that data to the receiving MDM no later than 24 hours prior to the initial monthly settlement timing provisions as specified in s. 4.4.3.1) of the Settlement System Code.

11.3.4.3 Interim Settlement Data Provision

- 1) MDMs shall have provided to the ISO and the LSA a complete load settlement-ready data set for the day of the energy flow no later than the interim settlement timing provisions as specified in s. 4.4.4.1) of the Settlement System Code.
- 2) MDMs who provide data to another MDM for aggregation of any kind shall deliver that data to the receiving MDM no later than 24 hours prior to the interim settlement timing provisions as specified in s. 4.4.4.1) of the Settlement System Code.

11.3.4.4 Final Settlement Data Provision

- 1) MDMs shall have provided to the ISO and the LSA a complete load settlement-ready data set for the day of the energy flow no later than the final settlement timing provisions as specified in s. 4.4.5.1) of the Settlement System Code.
- 2) MDMs who provide data to another MDM for aggregation of any kind shall deliver that data to the receiving MDM no later than 24 hours prior to the final settlement timing provisions as specified in s. 4.4.5.1) of the Settlement System Code.

11.3.5 Site Level Data Provision

The MDM shall provide load settlement ready data for Site level interval meters in DIM records and by the process rules, as specified in s. 9.6.1.1 of the Settlement System Code, to the LSA and Retailers.

11.3.5.1 Initial Daily Settlement Data Provision

- 1) MDMs shall have provided to the LSA and the Retailer a complete load settlement-ready data set for the day of the energy flow no later than the initial daily settlement timing provisions as specified in s. 4.4.2.1) of the Settlement System Code.
- 2) MDMs who provide data to another MDM for aggregation of any kind shall deliver that data to the receiving MDM no later than 24 hours prior to the initial daily settlement timing provisions as specified in s. 4.4.2.1) of the Settlement System Code.

11.3.5.2 Initial Monthly Settlement Data Provision

- 1) MDMs shall have provided to the LSA and the Retailer a complete load settlement-ready data set for the day of the energy flow no later than the initial monthly settlement timing provisions as specified in s. 4.4.3.2) of the Settlement System Code.

- 2) MDMs who provide data to another MDM for aggregation of any kind shall deliver that data to the receiving MDM no later than 24 hours prior to the initial monthly settlement timing provisions as specified in s. 4.4.3.2) of the Settlement System Code.

11.3.5.3 Final Settlement Data Provision

- 1) MDMs shall have provided to the LSA and the Retailer a complete load settlement-ready data set for the day of the energy flow no later than the final settlement timing provisions as specified in s. 4.4.5.1) of the Settlement System Code.
- 2) MDMs who provide data to another MDM for aggregation of any kind shall deliver that data to the receiving MDM no later than 24 hours prior to the final settlement timing provisions as specified in s. 4.4.5.1) of the Settlement System Code.

11.3.6 Data Performance Metrics

11.3.6.1 System Level Data Performance Metrics

- 1) Initial Daily Data Performance Metric

The initial daily data stream is required to fall within 2% Accuracy where Accuracy is calculated as follows:

$$\text{Accuracy} = \text{ABS} \left(\frac{\sum \text{ERD} - \sum \text{ERM}}{\sum \text{ERM}} \right) \times 100$$

Where:

ERD (Energy Reported Daily) is the sum of the KWh of the intervals reported by the MDM in the daily streams for the calendar month, and

ERM (Energy Reported Monthly) is the sum of the KWh of the intervals as finalized and restated by the MDM for the same calendar month.

- 2) Initial Monthly Data Performance Metric

For each MDM, the monthly data stream, as assessed at the time of initial monthly data provisioning as specified in s. 11.3.4.2 is required to contain less than 2% estimated intervals for the month.

- 3) Final Settlement Data Performance Metric

For each MDM, the final settlement data stream, as assessed at the time of data provisioning for Final Settlement as specified in s. 11.3.4.4, is required to contain less than 1% estimated intervals for the month.

11.3.6.2 Site Level Data Performance Metrics

- 1) Initial Monthly Data Performance Metric

- a) The total energy value as stated by the Site Level Interval data set at the Initial Monthly Settlement (s. 11.3.5.2) must be no more than 2% from the energy value for the same data set as stated by the Final Settlement (s. 11.3.5.3).

- b) Where an MDM is unable to comply with a) then they must document the reasons and be able to provide upon request. These records shall be retained as described in s. 11.3.3.
 - c) The data provision accuracy standard stated in (a) is only a tentative value and shall be reviewed and revised once one year of historical performance data is available.
- 2) Final Settlement Data Performance Metric
- a) For each MDM, the restated load settlement data stream, as assessed at the time of Final Settlement, is required to contain less than 2% estimated energy for the month.
 - b) Where an MDM is unable to comply with a) then they must document the reasons and be able to provide upon request. These records shall be retained as described in s. 11.3.3.
 - c) The data provision accuracy standard stated in (a) is only a tentative value and shall be reviewed and revised once one year of historical performance data is available.

11.4 Cumulative Meter Data Performance Standards

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.

11.4.1 Data Collection

11.4.1.1 Data Collection Cycle

- 1) The MDM shall obtain at least one meter reading from 100% of cumulative meters every two months using one of the approved meter reads as defined in s. 11.4.1.2.
- 2) Where an MDM is unable to comply with (a) then they must document the reasons and be able to provide upon request.

11.4.1.2 Definition of Approved Meter Reads

An approved meter read shall be defined as any one of the three options shown below:

- 1) A physical on-Site meter read as approved by the MDM responsible for reading the meter, or
- 2) A remote meter read performed by an Automated Meter Reading System (AMR), or
- 3) Estimates for Sites with specific conditions as specified in s. 11.4.2.2.3).

11.4.1.3 Data Collection Elements

As a minimum, the data captured or verified during the data collection process must contain the following data elements:

- 1) Meter Number
- 2) Date of meter read

3) Reading for all valid registers from the meter

11.4.2 Validation of Meter Data

11.4.2.1 Validation Tests

The MDM shall validate all cumulative meters using the following validation tests. If the meter data passes the validation tests, 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.

Table 53. Cumulative Metering Validation Tests

Check	Test	Description	Pass/Fail Criteria
Meter Number	Compare Meter Number with expected Meter Number for Site	Meter Number must match expected Meter Number	Pass: Meter Number = Expected Meter Number Fail: Meter Number \neq Expected Meter Number
Number of Dials	Compare the number of digits on meter reading with expected number of digits for meter	The number of digits in meter reading must be equivalent to the number of digits or dials on the meter display	Pass: # digits = Expected # dials Fail: # digits \neq Expected # dials
High and Low Usage	Compare actual usage with historical usage (for Energy Meters only)	MDMs will continue to use their current High/Low validation routines. These routines shall be published and made available to the market.	Pass: Lo limit < Usage < Hi limit Fail: Lo limit > Usage > Hi Limit
High and Low Demand	Compare average demand with historical demand (for Demand Meters only)	MDMs will continue to use their current High/Low validation routines. These routines shall be published and made available to the market.	Pass: Lo limit < Demand < Hi limit Fail: Lo limit > Demand > Hi Limit

11.4.2.2 Verification, Editing and Estimation of Data

1) Verification of Data

- a) If the meter reading fails one or more validation tests, the MDM shall verify the validity of the test failure.
- 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 a Verified and Edited (VE) meter reading in the DCM.
- c) If the MDM determines that the data is invalid, then the MDM shall discard the failed data.

2) Editing of Data (Data Replacement)

- a) If a previously submitted meter reading is subsequently found by the MDM to be suspect, the MDM shall submit Cancellation DCM(s) for the suspect meter reading. At least 95% of Cancellation DCMs shall be submitted by the MDM within one Business Day from the date discovery of the suspect meter reading and no greater

than 5% of Cancellation DCMs shall be submitted within three Business Days from the date of the discovery of the suspect meter reading.

- b) If the Cancellation DCM causes the condition where there is no reported meter reading for the past 2 months, then the MDM shall provide replacement data for the Cancellation DCM as soon as is practicable but in no circumstances greater than 20 Business Days from the date of the Cancellation DCM.
- 3) Estimation of Data
 - a) Estimation of meter reading data shall take place only in these circumstances:
 - i) Where a meter has failed and the meter reading cannot be obtained by any means, or
 - ii) Where energy diversion of theft has occurred.
 - b) Under the circumstances specified in a), the MDM shall provide a Site-specific estimate of actual usage for the period from the last validated meter reading to a current date. The data shall be reported as Estimated (ES) meter reading in the DCM.

11.4.2.3 Investigation and Notification

- 1) If a meter is found to be suspect as a result of the data verification, editing and estimation process, the MDM shall notify the owner of the meter within one Business Day.
- 2) The Owner of the meter shall be responsible for replacing or repairing the defective meter within twenty Business Days from the day of notification from the MDM of a suspect cumulative meter.

11.4.3 Data Storage

In addition to requirement outlined 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 data revision date.

11.4.4 Data Provision

- 1) Subject to the general provisions of the Settlement System Code s. 11.2 the MDM shall provide load settlement ready data in DCM records, as specified in s. 9.6.1.2 of the Settlement System Code, to the LSA and Retailers.
- 2) The MDM shall ensure that reporting of DCM data for a Site will not generate date overlaps or leave date gaps with previously reported DCMs 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 DCM.
- 3) The reporting date in the DCM Current Reading Datetime field shall be the date the meter was actually read.
- 4) The reporting time in the DCM Current Reading Datetime field may, at the option of the MDM, be reported as actual meter read time or a consistently deemed meter read time between 00:00 and 23:59.

11.4.5 Data Performance Metrics

- 1) For any consecutive two-month period, 98% of all physical cumulative meters shall have at least one load settlement ready data set delivered to the market.
- 2) All data points that have passed validation shall be reported no later than 23:59 of the eighth Business Day from the date of the meter read.

12 Compliance Monitoring Standards

12.1 Overview

The purpose of this Chapter is to define compliance monitoring requirements and standards for Market Participants governed by the Settlement System Code.

All data requests made by the ISO of any Market Participant shall be copied to the Commission at the same time as the request is made.

Section 12.1.1: Statements of Disclosure

Section 12.2: Reporting Requirements

Section 12.3: Enforcement for Non-Compliance

12.1.1 Statements of Disclosure

Each LSA shall provide statements of disclosure on some processes that are not transparent to Market Participants. Every LSA shall provide renewal of these statements whenever significant changes to the methodologies have been made, or upon request by the Commission. Where the Commission determines that the disclosure is not sufficiently detailed, the LSA shall provide further details of disclosure. The following disclosures are required:

- 1) Disclosure of Profile Methodology - an LSA is required to provide disclosure for profile methodologies. The disclosure should have sufficient information to allow Retailers to understand the profile selection process and to enable Retailers to verify and check the energy allocation to each Site.
- 2) Disclosure of Loss Calculation Methodology - an LSA is required to provide disclosure for loss calculation methodologies, with sufficient detail to enable Retailers to verify and check the losses allocated to each Site.
- 3) Disclosure of Profile Caps – an LSA is required to disclose the profile cap used in each settlement zone.
- 4) Disclosure of Individual Site to Settlement Zone mapping rules utilized in s. 4.5.

12.2 Reporting Requirements

This section is to define the reporting requirements for MDMs, LSAs, WOs, ISO, and Retailers. These reporting requirements are based on performance standards contained in other sections, schedules, or appendices of the Code.

12.2.1 Metering Data Reporting Requirements

An MDM shall submit a summary of metering results data and information to the ISO and Commission. The ISO will utilize this data to monitor the quality and completeness of metering inputs to load settlement. The summary report shall be submitted by the end of the twelfth Business Day of each month. The summary shall:

- 1) Report system level metering metrics as stated in s. 11.3.6.1, in accordance with the Interval Meter Reporting template posted below:

- a) Accuracy

$$\text{Accuracy} = \text{ABS} \left(\frac{\text{Energy reported Daily} - \text{Energy reported Monthly}}{\text{Energy reported Monthly}} \right) * 100\%$$

Table 54. System Level Metrics - Accuracy

MDM ID:	
Reporting Period:	
Sum of Energy reported daily	X MW.h
Sum of Energy reported Monthly	Y MW.h
Accuracy	$\text{ABS} \{(X-Y)/Y\} * 100 \% = Z\%$
Current Standard is within	2%
Meet Required Standards (Yes/No)	

- b) Initial Monthly Settlement Data Performance Metric:

Assume 10 measurement points. Each had 100 missing intervals, which required estimates. The total estimated intervals are $100 * 10 = 1000$. The total number of intervals for the month is $10 \text{ measurement points} * 96 \text{ intervals} * 30 \text{ days} = 28,800$ intervals. The report is as follows:

Table 55. System Level Metrics - Initial Monthly Performance

MDM ID:	
Reporting Period:	
Total number of estimated intervals	A
Total # of intervals reported for the month	B
% of estimated intervals	$A/B * 100\% = C\%$
Current Standard is within	2%
Meet Required Standards (Yes/No)	

- c) Final Settlement Data Performance Metric:

Assume 10 measurement points. Each had 10 missing intervals, which required estimates. The total estimated intervals are $10 * 10 = 100$. The total number of intervals for the final month is $10 \text{ measurement points} * 96 \text{ intervals} * 30 \text{ days} = 28,800$ intervals. The report is as follows:

Table 56. System Level Metrics - Final Settlement Performance

MDM ID:	
Reporting Period:	
Total number of estimated interval	D
Total # of intervals reported for the Final Month	E
% of estimated intervals	D/E * 100% = F%
Current Standard is within	1%
Meet Required Standards (Yes/No)	

2) Report Site level interval metering metrics as stated in s. 11.3.6.2), in accordance with the Interval Meter Reporting template posted below:

a) Accuracy

$$\text{Accuracy} = \text{ABS} \left(\frac{\text{Energy reported Monthly} - \text{Energy reported at Final}}{\text{Energy reported at Final}} \right) * 100\%$$

Table 57. Site Level Metrics - Accuracy

MDM ID:	
Reporting Period:	
Sum of Energy reported monthly for all sites	J GW.h
Sum of Energy reported Final settlement for all sites	K GW.h
Accuracy	ABS {(J-K)/K} * 100% = L%
Current Standard is within	2%
Meet Required Standards (Yes/No)	

b) Initial Monthly Settlement Data Performance Metric:

Assume 10 sites. Each had 100 missing intervals that required estimates. The total estimated intervals are 100 * 10 = 1000. The total number of intervals for the month is 10 sites * 96 intervals * 30 days = 28,800 intervals. The report is as follows:

Table 58. Site Level Metrics - Initial Monthly Performance

MDM ID:	
Reporting Period:	
Total number of estimated interval	P
Total # of intervals reported for the month	Q
% of estimated intervals	P/Q * 100% = R%
Current Standard is within	2%
Meet Required Standards (Yes/No)	

c) Final Monthly Data Performance Metric:

Assume 10 sites. Each had 10 missing intervals that required estimates. The total estimated intervals are 10 * 10 = 100. The total number of intervals for the month at Final Settlement is 10 sites * 96 intervals * 30 days = 28,800 intervals. The report is as follows:

Table 59. Site Level Metrics - Final Settlement Performance

MDM ID:	
Reporting Period:	
Total number of estimated interval	S
Total # of intervals reported for the Final month	T
% of estimated intervals	$S/T * 100\% = U\%$
Current Standard is within	1%
Meet Required Standards (Yes/No)	

3) Report bi-monthly cumulative metering data collection metric, as stated in s. 11.4.1.1, in accordance with the Cumulative Meter Reporting template posted below:

a) Data Collection Cycle

$$\text{DataCollection} = \frac{\# \text{ cumulative meters with readings } \leq 65 \text{ days}}{\# \text{ cumulative meter sites in MDM responsibility as at last day of 2nd month}} * 100\%$$

Table 60. Cumulative Level Metrics - Data Collection Cycle

MDM ID:	
Reporting Period:	
# cumulative meters with readings ≤ 65 days	X
# cumulative meters in MDM responsibility as at last day of 2nd month	Y
# cumulative meters with DCM generated ≤ 65 days	Z
% cumulative meters read	$X/Y * 100\%$
% DCMs generated	$Z/Y * 100\%$

4) Report on the provision of load settlement ready data set, as stated in s. 11.4.5, in accordance with the Cumulative Meter Reporting template posted below:

a) Data Performance Metrics

$$\text{DataPerformance} = \frac{\# \text{ cumulative meters with DCM } \leq 65 \text{ days}}{\# \text{ cumulative meter sites in MDM responsibility as at last day of 2nd month}} * 100\%$$

Table 61. Cumulative Level Metrics - Data Reporting Cycle

MDM ID:	
Reporting Period:	
# cumulative meters with readings ≤ 65 days	X
# cumulative meters in MDM responsibility as at last day of 2nd month	Y
# cumulative meters with DCM generated ≤ 65 days	Z
% cumulative meters read	$X/Y * 100\%$
% DCMs generated	$Z/Y * 100\%$

12.2.2 System Performance Diagnostic Report

Each LSA shall submit a System Performance Diagnostics Report, based on performance tests as defined in s. 6.5.3 to the ISO and Commission. The LSA must provide further data

and information to explain any unacceptable results, as requested by the ISO. The report shall

- 1) Include any unacceptable results from the tests, such as reconciliation errors, imbalances, or inconsistencies.
- 2) Be submitted to the ISO within five Business Days of each Final settlement run.
- 3) Be signed by LSA management.
- 4) Be provided in a format consistent with the System Performance Diagnostic Template as described below:

The following template is intended for use by the LSAs to report their system performance diagnostic for each Final settlement run. It is anticipated that the LSAs shall conduct all performance tests as described in s.6.5.3. The template should be signed and submitted to the ISO and the Commission within 5 business days of each Final settlement run.

Table 62. System Performance Diagnostic Report

Reporting Month:				
Tests have been conducted and submitted by:				
Date:				
ISO Rules Reference	Tests	Tests have been conducted (Yes/No)	Test results Balanced (Yes/No)	If test results are not balanced, please provide variance and explanation
Rule 7 Section 6.5.3.1))	Zone Load Zero Balance Check			
Rule 7 Section 6.5.3.2)	Zone Level Retailer/RRP Zero Balance Check			
Rule 7 Section 6.5.3.3)	Site Level Retailer/RRP Zero Balance Check			
Rule 7 Section 6.5.3.4)	Profiled Divergence Check			
Rule 7 Section 6.5.3.5)	Enrollment Switches			
Rule 7 Section 6.5.3.6)	Cumulative Meter Reads Balancing			
Rule 7 Section 6.5.3.7)	Interval Meter Reads Balancing			
Rule 7 Section 6.5.3.8)	% of non-estimated result Source Data	% of non-estimated sites	X%	
		% of non-estimated load	Y%	

12.2.3 Load Settlement Process Reporting Requirements

LSAs and MDMs shall provide the ISO, upon request, records and evidence to demonstrate compliance with specific sections of this Code. These include specifically:

- 1) Records of PFEC processing, sufficient to demonstrate compliance to PFEC processing rules and timelines established in s. 5.2.2.
- 2) Records to demonstrate that meter readings have occurred with Site energization and de-energization activities, as established in s. 6.2.

12.3 Enforcement for Non-Compliance

This section defines responsibilities, processes, and actions to be taken by the Commission and other Market Participants in events of non-compliance to this Code.

12.3.1 Complaint Submission

A complaint may be submitted by any Market Participant, the Commission, the ISO, or the MSA. Complaints must be submitted in writing to the Commission with notification to the ISO and must include:

- 1) The name of the complainant Market Participant, together with contact information including name, email address and telephone number;
- 2) The date of the complaint submission;
- 3) The date or dates upon which the non-compliant behavior is alleged to have occurred;
- 4) The identity of the Market Participant alleged to have failed to comply;
- 5) The nature of the complaint;
- 6) The specific section or sections of this Code alleged to have been violated;
- 7) A brief summary of the efforts undertaken by the complainant as a part of its effort to resolve the matter;
- 8) A statement of the impact of the complaint.

12.3.2 Complaint Submission Process

- 1) A complaint of contravention of a load settlement rule may be initiated by one of the following:
 - a) through receipt of a written complaint from a Market Participant;
 - b) from the Market Participant committing the contravention;
 - c) through the actions of the Market Surveillance Administrator;
 - d) through compliance monitoring by the ISO. Except as otherwise provided by the regulations or this Code, if the ISO suspects that a Market Participant has contravened a load settlement rule the ISO must refer the matter to the Commission.

12.3.3 Compliance Investigations

- 1) The Commission shall refer investigations to the ISO. The ISO is responsible for carrying out compliance, including the monitoring, collection of data and information, analysis of data, assessment of compliance, and investigation of compliance issues.

- 2) The Commission may request investigation or analysis by its own personnel or the MSA. The Commission shall communicate to the ISO and MSA where such investigation has commenced to avoid duplication of efforts.
- 3) The ISO will refer compliance matters to the Commission, if the ISO suspects that an infraction has occurred. The ISO will provide the Commission with its findings and recommendations from each compliance matter.
- 4) In the course of investigation the ISO may, at its sole discretion, make Requests for Information from Market Participants. At the conclusion of such investigation, the ISO shall submit a written report to the Commission detailing:
 - a) the original complaint reference;
 - b) a summary of the investigation carried out;
 - c) a list of Requests for Information from Market Participants;
 - d) the findings resulting from the investigation;
 - e) any recommendation arising from the investigation or findings.

12.3.4 Enforcement Process

- 1) The Commission shall contact the Market Participant who is the subject of the complaint and other parties involved and shall determine whether or not these rules have been contravened.
- 2) Where the Commission determines that there has been a contravention the Commission shall notify the ISO and the party who submitted the complaint and the Market Participant who was the subject of the complaint.
- 3) Where the Commission determines that there has been a contravention of a load settlement rule by a Market Participant (in this s. 12.3 “a non-compliant party”) the Commission shall assess the contravention level as per s. 12.3.5 and issue a Non-Compliance Notice to the non-compliant party. The Commission shall provide a copy of the notice to the ISO for information. The Non-Compliance Notice shall include the following:
 - a) the specific section of the rules contravened;
 - b) the assessment of the contravention level;
 - c) the specific enforcement actions for the non-compliant party;
 - d) the timelines for response and resolution.
- 4) The Commission may refer any enforcement matter to the MSA or to law enforcement agencies at any time.
- 5) The Commission shall monitor both the action taken by the non-compliant party to comply with the enforcement actions as stated in the Non-Compliance Notice and the timelines for response and resolution as stated in the Non-Compliance Notice. The non-

compliant party shall provide to the Commission and ISO information and data on the status and progress of the resolution.

- 6) The Commission may issue an Enforcement Escalation Notice under any one or more of the conditions listed in s. 12.3.7.
- 7) The Commission shall issue an Enforcement Withdrawal Notice under one of the two conditions listed in s. 12.3.8.1.
- 8) The Commission shall maintain a record of activities referred to in this s. 12.3. The record shall contain a minimum of the following:
 - a) initial complaint made in accordance with s. 12.3.2.1);
 - b) the determination of the Commission made in accordance with s. 12.3.4.1);
 - c) a copy of the Non-Compliance Notice given in accordance with s. 12.3.4.3);
 - d) the non-compliant party's actions taken in accordance with s. 12.3.4.3);
 - e) a copy of the Enforcement Escalation Notice(s), if any,
 - f) communication from the non-compliant party, including any information and date received pursuant to s. 12.3.4.5), and
 - g) a copy of the Enforcement Withdrawal Notice given in accordance with s. 12.3.4.7).
- 9) A Market Participant determined to be non-compliant pursuant to s. 12.3.4.3) who does not agree with the assessment has the right to escalate their concern to the senior authority within the Commission.
- 10) Subject to the AUC Rules of Practice, as applicable, all information collected or received by the Commission, ISO or other investigating parties under this s. 12.3 shall be considered confidential.

12.3.5 Enforcement Assessment

12.3.5.1 Contravention Levels

The levels for contravention of a load settlement rule are as follows:

1) Level One: Minor Contravention

These are contraventions that have little or no impact on Market Participants involved in load settlement or their processes.

2) Level Two: Major Contravention

These are contraventions that have more than a little to a significant impact on Market Participants involved in load settlement or their processes.

3) Level Three: Serious Contravention

These are contraventions that impact financial settlement of the market.

4) Level Four

These are contraventions that are deliberate, intentional, deceptive, or fraudulent.

12.3.5.2 General Principles

- 1) The Commission shall assess the level of contravention by considering its impacts to the market and affected parties.
- 2) Where the contravention cannot be clearly assessed or determined to be in one of two consecutive levels, the Commission will assess the contravention at the lower level.
- 3) Where a Market Participant voluntarily identifies its contravention and that contravention is initially assessed as a Level 2 or 3 contravention, the Commission will assess that contravention one level lower than it would otherwise be assessed.

12.3.6 Enforcement Action

Where the Commission has assessed a contravention, it shall determine appropriate enforcement actions within that level of assessment. The Commission may provide timelines and schedules for completion of these actions.

12.3.6.1 Level 1 Enforcement Actions

The Commission may, through its own direct actions or by delegating duties to the ISO and/or the MSA, do any one or a combination of the following:

- 1) consult with the non-compliant party at the operational level.
- 2) request the non-compliant party to submit a written resolution plan.
- 3) request the non-compliant party to carry out remediation activities.
- 4) request the non-compliant party to acknowledge the successful resolution in writing.
- 5) assign additional compliance reporting requirements.
- 6) escalate the assessment to Level 2.

12.3.6.2 Level 2 Enforcement Actions

The Commission may, through its own direct actions or by delegating duties to the ISO and/or the MSA, do any one or a combination of the following:

- 1) take any action outlined in the Level 1 enforcement actions.
- 2) consult with the non-compliant party at the managerial level.
- 3) order an independent review or audit, which may be at the cost of the non-compliant party.
- 4) escalate the assessment to Level 3.

12.3.6.3 Level 3 Enforcement Actions

The Commission may, through its own direct actions or by delegating duties to the ISO and/or the MSA, do any one or a combination of the following:

- 1) take any action outlined in the Level 2 enforcement actions.
- 2) consult with the non-compliant party at the senior management level
- 3) order an independent investigation resulting in recommendations for change by the non-compliant party, which may be at the cost of the non-compliant party.
- 4) order the implementation of the recommendations resulting from 2) above.
- 5) order an independent assessment of a remedial plan proposed by the non-compliant party, which may be at the cost of the non-compliant party.
- 6) assess the full administrative cost of the investigation and review.
- 7) escalate the assessment to Level 4.

12.3.6.4 Level 4 Enforcement Actions

The Commission may do any one or a combination of the following:

- 1) take any action outlined in the Level 3 enforcement actions.
- 2) assess financial penalties of up to the limits provided in the Act.
- 3) take any other action that is legally permitted.

12.3.7 Enforcement Escalation

The Commission may escalate a non-compliant party to the next level by issuing an Enforcement Escalation Notice under any one or more of the following conditions:

- 1) Where a non-compliant party has failed to respond to or comply with a Commission enforcement action.
- 2) Where a non-compliant party has not fully completed the enforcement action, or has not met the enforcement action timelines.
- 3) Where the contravention is a repeat contravention during the period that a remedial plan is in effect.
- 4) Where the Commission determines that the contravention is more severe or widespread than initially assessed and should have been assessed at a higher level.

12.3.8 Withdrawal from Enforcement

12.3.8.1 Withdrawal from Levels 1-3

The Commission may withdraw a non-compliant party from the enforcement process by issuing an Enforcement Withdrawal Notice to such non-compliant party under one of the two following conditions:

- 1) Where the Commission determines that the contravention is less severe or widespread than initially assessed.
- 2) Where the following have been met:
 - a) All Commission enforcement actions regarding the non-compliance event have been completed.
 - b) For Level 2 and 3 contraventions:

- i) The cause for non-compliance has been identified.
- ii) Additional similar non-compliant situations have been identified by the non-compliant party and remedied.
- iii) During the twelve months from the date of notification of the enforcement action the non-compliant party has not been assessed a subsequent Level 2 or 3 non-compliance event in a related area. A related area refers to operations within a functional area, such as MDM, LSA, WO, or Retailer function.

12.3.8.2 Withdrawal from Level 4

A non-compliant party who has been assessed with a Level 4 contravention, must first be reassessed to a Level 3 and subsequently meet the Level 3 conditions to be withdrawn from the enforcement process. The following conditions must be met in order to be reassessed to a Level 3:

- 1) All Commission enforcement actions regarding the non-compliance event have been completed.
- 2) If the original non-compliance event was assessed as a Level 2 or Level 3 contravention, the non-compliant party has satisfied the Commission that it has identified and corrected the circumstance(s) that resulted in the escalation of the enforcement action to Level 4.
- 3) The non-compliant party has satisfied the Commission that it understands the enforcement consequences and has implemented internal processes to ensure that the Commission enforcement actions will be acted upon within the given timelines.