

# AMP Implementation– Background Information

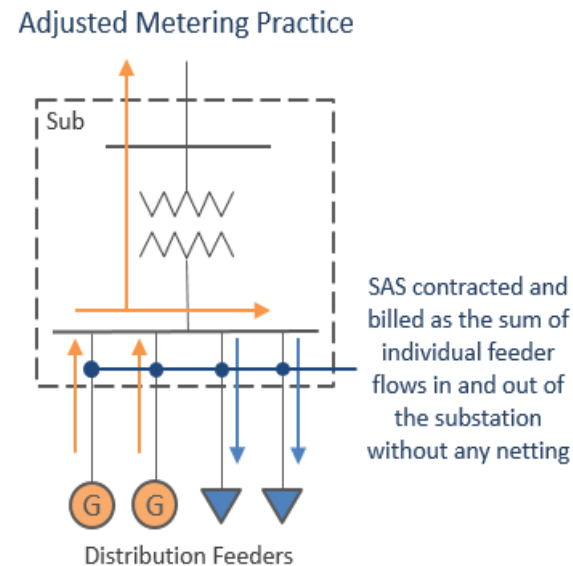
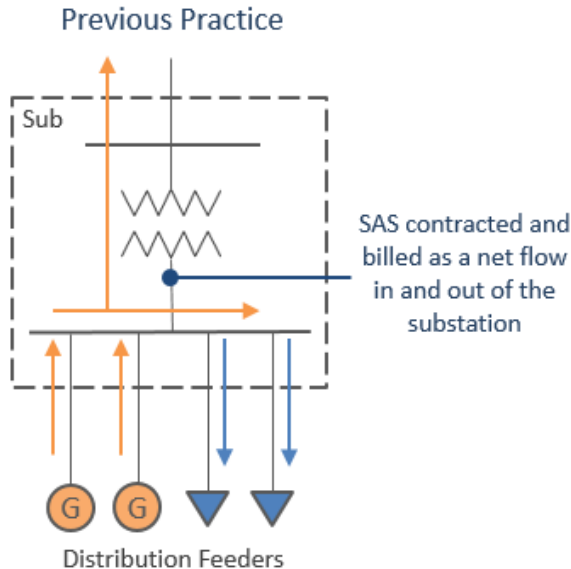
October 2021

- This document provides an overview of the AESO's implementation of the adjusted metering practice (AMP)
- This document is broken up into the following sections:
  - AMP Overview and Implementation Plan
  - Changes to Section 502.10 of the ISO rules, *Revenue Metering System Technical and Operating Requirements*
  - Cost Treatment for the Installation of Revenue Metering on Feeders
- This document assumes familiarity with the AMP Implementation Plan and Section 502.10 Revenue Metering Technical Req documents that have been posted to the AESO's website alongside this document
- The AMP applies to substations that provide system access service (SAS) to electric distribution systems; in this document the use of "substation" refers specifically to these substations

# AMP Overview and Implementation Plan

# What is the Adjusted Metering Practice

- The AMP is a practice of contracting, measuring, and billing for transmission SAS in a manner that reflects the sum of flows on each feeder
  - Under the previous practice, a substation was treated as a single point of delivery (POD) and a single point of supply (POS), which allowed for the netting of feeder flows against each other for a total that reflected the net flow through the substation
  - Under the AMP, each feeder is recognized as a single POD and single POS, and the individual feeder flows are not netted against each other



- To continue contracting and billing SAS at substations under a single DTS agreement and single STS agreement, the AESO will propose a new ISO tariff provision that allows for totalization within a substation
  - The provision will allow for totalization within a substation of PODs under a single DTS agreement, and POSs under a single STS agreement, without netting of those points
  - Without the proposed provision, the ISO tariff would require that Rate DTS and Rate STS be contracted at each feeder; this would result in an exponential increase in measurement points and SAS agreements, and carry a significant administrative burden
  - The default would be to continue to have a single DTS agreement and a single STS agreement for each substation; however, DFOs may request multiple agreements at a substation as they see fit
- Note that the new totalization provision is specifically **only** for substations where the AMP applies (i.e. DFO contracted substations that provide service to an electric distribution system)

- Substations with reversing flows on a feeder must be accurately billed under the ISO tariff, which requires:
  - Revenue metering on individual feeders
  - Data systems that appropriately aggregate meters for billing purposes
  - SAS agreements in place and contracted at the appropriate capacity
- Compliance under AMP does not always require actions to be taken
  - Substations without any reversing flows on feeders are already accurately billed
  - Revenue metering on individual feeders is **only** required when reversing flows on a feeder are expected; the absence of metering on feeders at substations without reversing flows does **not** constitute legacy treatment for that substation
- Most substations already have individual feeder metering installed
  - Generally, Fortis and ATCO substations (approx. 380) already have feeder metering installed; ENMAX, EPCOR, Red Deer and Lethbridge generally have metering at the transformer level (approx. 70 substations)
  - It is prudent and cost efficient to only require the installation of feeder metering at substations when the need arises (i.e. when reverse flows on feeders are expected) or when it would be efficient and cost-effective to install the meters (see slide 12)

- The Plan will be executed in three phases (Refer to subsection 2.1 of the Plan):
  - Phase 1: Existing substations are assessed for feeder flows and physical characteristics, and categorized for Phase 2 execution
  - Phase 2: Required actions are undertaken to bring substations into compliance with the AMP according to the category determined in Phase 1 (see below)
  - Phase 3: Ongoing oversight of new and existing substations to ensure continued compliance with the AMP, as governed by AESO authoritative documents
- Phase 2 Categories for required actions (Refer to section 2.3 of the Plan):
  - Category A: Substations that do not require any actions to be taken
  - Category B: Substations that require changes to data systems and SAS agreements, but already have appropriate revenue metering installed on the feeders
  - Category C: Substations that require changes to the current physical metering arrangement to transition to feeder metering (referred to as “retrofits” in this document), in addition to the changes required for Category B
- Refer to the AMP Implementation Plan posted to the AESO’s website alongside this document for more detailed information

- The proposed timing for the different phases of the Plan are based on discussions between the AESO, DFOs, and TFOs
- Phase 1 of the Plan is to be completed by April 1, 2022
- Phase 2 Category B is to be completed for July 1, 2022
  - The AESO is proposing that the MPDRs, data systems, and SAS agreements for Category B substations have an effective date of July 1, 2022
  - Having the AMP in place for Category B allows for ISO tariff costs to be more accurately attributed to the users of the transmission system; most substations that will require actions to comply with the AMP are expected to fall into this category
- Phase 2 Category C timing is substation dependent
  - Completion of meter retrofits is substation dependent as it is based on the specific characteristics of the substation, and when TFOs can reasonably plan for and perform the work (while factoring in limitations on resources and outage scheduling)
  - A master schedule will be developed in Phase 2 with the TFOs to prioritize the retrofits
- Phase 3 is ongoing and therefore has no associated completion date



- While the AMP was approved with no legacy treatment (see AUC Decision 25848-D01-2020), the AUC recognized that a “natural transition period” would be required to install the “gross” meters (i.e. meters on the individual feeders)
- Substations that fall into Category B and C of the Plan, or require metering retrofits in Phase 3, require a transition period to complete the necessary actions
  - These periods are temporary and necessary as the conditions required for AMP compliance cannot yet be met
  - For substations requiring a meter retrofit, data systems and SAS agreements cannot be put in place prior to the appropriate meters being installed in the substation
  - A reasonable amount of time is required to execute the necessary actions for each category, as detailed in the Plan
- During these transition periods, the AESO will continue to contract and bill the substation using the pre-existing arrangement

**Changes to Section 502.10 of the ISO Rules,  
*Revenue Metering System Technical  
and Operating Requirements***

- The AESO has determined that there is clarity required between the ISO tariff provisions that require agreements be based on individual feeder flows, and the ISO rule that governs the installation of revenue metering in substations
  - Section 502.10 of the ISO Rules, *Revenue Metering System Technical and Operating Requirements*, does not specifically tie the design of the metering in the Functional Specification to the end financial purposes that it is serving
  - While it is implied that the design of the metering should facilitate the financial settlement as contracted for, it is not definitively captured in any provision
- The AESO has proposed an updated ISO rule provision to require that the revenue metering details included in the Functional Specification for a facility allow for the appropriate financial settlement per the ISO rules and the ISO tariff
  - This provision will ensure that future revenue metering installations will be compliant with the AMP, and that there will be no disconnect between the metering and tariff requirements

- While substations without reversing feeder flows do not require the installation of feeder metering to be compliant with the AMP, there are circumstances where it may be prudent to do so
  - The future retrofit of an existing substation is significantly more costly than installing feeder metering during initial construction of a new substation
  - Certain types of work being performed at a substation allow for significant savings on feeder metering installations compared to a future retrofit cost
- The AESO has proposed an ISO rule provision to require the installation of revenue metering on each feeder for a bus, when a complete switchgear lineup is being installed or replaced for that bus
  - This provision includes both the construction of new substations, as well as work being performed at existing substations that do not have feeder metering
  - Limiting the installation of metering to the feeders related to the switchgear being replaced (rather than the entire substation) minimizes the potential of unnecessary costs being occurred during the work

# Cost Treatment for the Installation of Revenue Metering on Feeders

- To explore the question of how the cost of retrofits should be treated, the principles and guidance for cost treatment should include:
  - Costs should be allocated based on cost causation, so that those who benefit bear the cost
  - The use of AESO discretion to classify costs as system-related for a CCD must be well-supported, consistent, and must not result in an outcome that disadvantages one group of ratepayers over another
  - The manner and quantum of participant costs that DFOs flow through to DCGs is a matter best addressed in the DFO's tariff
  - To the extent possible, the allocation of costs (and flow through of AESO contributions) should send a signal to end-customers, including DCG, about the costs to connect
  - Costs cannot be allocated to a DCG after it has energized if the DCG does not directly cause those costs
- DFOs and DCGs should be aware of the costs to connect before they make their final investment decisions

- The proposed cost treatments in the following slides follow from the AESOs application of the cost treatment principles and guidance
  - These proposed cost treatments may be revised following stakeholder feedback
  - A final recommendation will be filed with the AUC, and subject to their approval
- Changes to the ISO tariff, the AESO's contribution policy, the *Transmission Regulation*, and DFO tariffs may impact the requirements applicable to CCDs and how costs are allocated to customers in the future
- Even though the future cost treatment can't be guaranteed for all substations, the principles and guidance in the previous slide should continue to be used when determining cost allocations

- Costs for Category C retrofits will be recovered as a transmission system cost from all Alberta ratepayers as “system” costs
  - Flows at these substations are caused by DCGs that have energized (and were based off DFO and DCG decisions made in the past), or have navigated through the Connection process and are nearing energization
  - As there are no associated Connection projects, retrofits required for Category C substations will be treated as TFO direct assign projects that are initiated by the AESO
- Based on preliminary analysis, there could be up to 10 substations in Category C, which amounts to approximately \$7.5M spread out over the number of years required to complete the retrofits



- Costs for Phase 3 retrofits will be recovered as a combination of “system” costs from all AB ratepayers; and from DFO customers
  - Phase 3 retrofits will be part of the Connection (likely BTF) project requesting new SAS
  - The AESO will classify a portion of the costs as system-related on the CCD
    - These projects would typically not be eligible for AESO investment as they would generally only include new STS contract capacities
    - Providing system-related treatment is a proxy for the AESO's investment that would have been provided for a substation constructed with feeder metering included
    - For example, based on simplicity, the system-related amounts could be calculated based on the average level of investment coverage available per the applicable AESO contribution policy (that is, if average coverage is 60%, then 60% of the retrofit costs is system-related)
  - The remaining portion of costs will be classified as participant-related on the CCD, and required as a contribution from the DFO
    - DFOs determine how contributions should be allocated to end-customers, including DCGs
    - In the AESO's view, if a new DCG is the primary contributor to the reverse flows, a price signal should be sent to that DCG
- The number of retrofits that may be required in the future is unknown, but there will be no more than 60-70 substations in Phase 3 without feeder metering

- Costs for feeder metering included with new substation construction will follow the same cost treatment used for new substations
  - Costs for new substations are currently allocated to the market participant as participant-related cost in accordance with the ISO tariff, and are eligible for investment
  - The incremental cost of the new metering requirement (see Slide 12) will be folded into the overall substation cost as treated as usual
- Costs for substations adding feeder metering when installing or replacing the complete switchgear array for a bus will follow the same cost treatment as the source work being performed
  - Cost treatment depends on if the work being performed is part of capital maintenance, or a Connection project unrelated to reversing flows
  - Incremental costs for the new metering installed during that work (see slide 12) will follow the same cost treatment as the original work being performed

**Thank you for your feedback**