



**SETTLEMENT OF REAL POWER LOSSES
IN THE ENERGY IMBALANCE MARKET
ISSUE PAPER**

APRIL 5, 2017

I. INTRODUCTION

PacifiCorp is seeking customer feedback on the following issue related to its settlement of real power losses in the Energy Imbalance Market (“EIM”). Customer feedback should be delivered via e-mail to Christine.kirsten@pacificorp.com by April 14, 2017.

II. ISSUE

PacifiCorp is the only EIM entity operating in the EIM footprint which uses a PacifiCorp-generated static, system-wide loss factor for settling marginal losses associated with imbalance energy for load and generation. The other EIM entities use the loss component of the applicable EIM price¹ calculated by California ISO (“CAISO”) in the EIM. PacifiCorp’s transmission customers who are also customers of other EIM entities have requested standardization of EIM entity loss calculations and settlements so that there is consistency in EIM settlements and so that there are no unintentional market “seams” created which could influence market behavior.

A. Background

PacifiCorp was the first EIM entity to participate in the CAISO’s EIM in November 2014. Since then, three other EIM entities have implemented the EIM, NV Energy being the first in December 2015. While PacifiCorp’s EIM tariff (contained as Attachment T to its Open Access Transmission Tariff [“OATT”]) was used by NV Energy as a guide, the two EIM entities crafted some portions of their tariffs differently, based on their own unique policies, procedures, and business practices. Since NV Energy began participating in the EIM, two other EIM entities, Puget Sound Energy

¹ The applicable EIM price is either the Load Aggregation Point (“LAP”) price or the Locational Marginal Price (“LMP”) calculated by the CAISO, which include three components: 1) losses; 2) energy, and 3) congestion. The loss component is the focus of this issue paper.

(“PSE”) and Arizona Public Service (“APS”), have implemented the EIM, and have generally adopted NV Energy’s approach for loss calculations in their own tariffs.

At the time of adopting the EIM, PacifiCorp and its transmission customers had recently settled various rate provisions in the OATT, including the Schedule 10 loss rate. As a result, PacifiCorp elected, and customers agreed, to retain settlement of losses using the OATT Schedule 10 static loss factor and to avoid real-time impacts of losses in the EIM.² To achieve this result, PacifiCorp’s current settlements process for real power losses and imbalance energy include two unique approaches:

- 1) For Schedule 10 real power loss settlements, PacifiCorp applies its Schedule 10 static loss factor of 4.45% to total actual schedules or metered load (as applicable) to determine the loss volume; and
- 2) For settlement of load imbalance service (Schedule 4 of the OATT), interchange imbalances (Attachment T Section 8.1 of the OATT), and generator imbalance service (Schedule 9 of the OATT), PacifiCorp excludes the loss component of the EIM real-time pricing.

The result is that PacifiCorp’s Schedule 10 loss factor of 4.45% is used for *all* losses on the PacifiCorp transmission system, including losses associated with Base Schedule³ energy *as well as* marginal losses associated with imbalance energy.

Subsequently, other EIM entities joined and elected to settle marginal losses associated with imbalance energy for load and generation using real-time prices as published by the CAISO. To achieve this result, the other EIM entities’ settlements process for real power losses and imbalance energy generally include the following *contrasting* approaches:

² PacifiCorp determined to use its current real power losses calculations in the EIM beginning November 1, 2014, to preserve the prior settlement agreement between PacifiCorp and its transmission customers, approved by the Federal Energy Regulatory Commission (“FERC”) May 23, 2013, in Docket No. ER11-3643 (“Settlement Agreement”). The Settlement Agreement was the result of PacifiCorp’s revisions to its OATT filed May 26, 2011, to propose certain transmission rates, including an update to its transmission real power loss factor under Schedule 10 of the OATT. After several settlement and technical conferences, the parties executed and filed the Settlement Agreement February 22, 2013, which was certified by the settlement judge March 26, 2013, *PacifiCorp*, 142 FERC ¶ 63,023 (2013), and approved by FERC May 23, 2013.² *PacifiCorp*, 143 FERC ¶ 61,162 (2013).

³ A “Base Schedule” is a forecasted energy schedule which is used by an EIM entity to set the baseline by which to measure imbalance energy for purposes of EIM settlement. Imbalance energy is the deviation or imbalance from the Base Schedule in real time.

- 1) For Schedule 10 real power loss settlements, the other EIM entities' apply their OATT loss factors to only the *balanced Base Schedule*; and
- 2) For settlement of imbalance service, the other EIM entities' include the loss component of the EIM real-time pricing.

B. Loss Settlements Comparison

Currently, the EIM entities including PacifiCorp, calculate and settle imbalance energy using the hourly LAP price for load imbalance energy and the real-time LMPs for generation and interchange imbalance energy under their OATTs. Each EIM entity also has its own real power loss factor set forth in its OATT, to calculate the volume of real power losses on an hourly basis.

Below is a comparison chart to help clarify the current differences in loss calculations:

Calculation	PacifiCorp	NV Energy
Real Power Losses: loss volume for transactions using Point-to-Point Transmission Service	Product of total actual amounts of power scheduled to be delivered at Point(s) of Delivery and OATT loss rate factor	Product of Base Schedule and OATT loss rate factor
Real Power Losses: load loss volume for transactions using Network Integration Transmission Service	Product of total metered load and OATT loss rate factor	Product of <u>balanced</u> Base Schedule (portion of the load Base Schedule that equals metered load) and OATT loss rate factor
Financial settlement of real power losses for both Point-To-Point Transmission Service transactions and Network Integration Transmission Service transactions	Product of loss volume (as calculated above) and hourly LAP price	Product of loss volume (as calculated above) and hourly LAP price
Settlement of generator imbalance service pursuant to OATT Schedule 9	Product of imbalance volume and FMM or RTD LMP <i>without</i> the loss component	Product of imbalance volume and FMM or RTD LMP

Calculation	PacifiCorp	NV Energy
Settlement of load imbalance service pursuant to OATT Schedule 4	Product of imbalance volume and hourly LAP price <i>without</i> the loss component	Product of imbalance volume and hourly LAP price
Settlement of interchange imbalances pursuant to PacifiCorp OATT Attachment T Section 8.1 and NV Energy OATT Attachment P Section 8.1	Product of imbalance volume and FMM or RTD LMP <i>without</i> the loss component	Product of imbalance volume and FMM or RTD LMP

Should PacifiCorp change its loss calculations, it may also be necessary for PacifiCorp to analyze and determine whether to sub-allocate the real-time marginal cost of losses offset account. Currently, PacifiCorp does not sub-allocate these charges from the CAISO. The other EIM entities sub-allocate these charges on the basis of Measured Demand. PacifiCorp would likely propose to sub-allocate these charges on the basis of Measured Demand as well.

C. Examples

Also posted with this issue paper is a spreadsheet showing examples of PacifiCorp’s current process and the proposed method, consistent with the approach used by other EIM entities.

III. CONCLUSION

PacifiCorp believes it is reasonable and relatively uncomplicated to revise its tariff and business practices in an effort to standardize EIM loss settlement calculations in the EIM footprint, particularly if PacifiCorp has support from its transmission customers.

PacifiCorp appreciates stakeholder feedback on its proposal to change its loss service calculations as described herein. Please respond to Christine.kirsten@pacificorp.com by close of business April 14, 2017.