

# **Technical Bulletin**

**2011-12-01**

**Implementation of Marginal Cost of  
Losses and Transmission Losses for  
Facilities on the CAISO Controlled Grid  
outside the CAISO Balancing Authority  
Area as Specified Section 27.1.1.2**

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### Implementation of Marginal Cost of Losses and Transmission Losses for Facilities on the CAISO Controlled Grid outside the CAISO Balancing Authority Area as Specified Section 27.1.1.2

Section 27.1.1.2 provides in part that:

For CAISO Controlled Grid facilities outside the CAISO Balancing Authority Area, the CAISO shall assess the cost of Transmission Losses to Scheduling Coordinators using each such facility based on the quantity of losses agreed upon with the neighboring Balancing Authority multiplied by the LMP at the PNode of the Transmission Interface with the neighboring Balance Authority Area.

For the purposes of this discussion, facilities that are on the CAISO Controlled Grid but are not in the CAISO Balancing Authority Area (CAISO BAA) are referred to herein as the *Subject Facilities*. Section 27.1.1.2 ensures that scheduling coordinators are only charged for losses attributed to schedules coming to the CAISO BAA through *Subject Facilities* based on the quantity of losses agreed upon with the neighboring Balancing Authority multiplied by the LMP at the PNode of the Transmission Interface with the neighboring Balancing Authority Area.

This provision also ensures that the ISO does not charge for the marginal cost of losses (MCL) that reflects the resistive component of the losses on the *Subject Facilities* to schedules that use the *Subject Facilities*. The LMP at such locations will only reflect a MCL for the CAISO Controlled Grid that is in the CAISO BAA and will not reflect the MCL on the *Subject Facilities* outside the CAISO BAA.

The location for the calculation of the Transmission Losses must be selected at a Location where the external BAA ends and the CAISO BAA begins for that power flow. This is based on the presumption and operational practice that the external BAA is accounting for losses on the *Subject Facilities*, and not the ISO. In order to calculate losses at the correct location consistent with this requirement, the CAISO uses the tie location at which losses are scheduled back to the neighboring Balancing Authority Area. The external tie point loss matrix shown below provides a mapping of such locations depending on where the schedule is submitted to enter into the CAISO Controlled Grid.

The MCLs calculated for Locations within the CAISO Balancing Authority Area shall not reflect the cost of Transmission Losses on *Subject Facilities*. Because of this requirement, the CAISO calculates the LMPs for such transactions by zeroing out the resistive component for power flows on the *Subject Facilities*. This provision does not preclude the CAISO from applying the MCLs attributed to such power flows on the CAISO Controlled Grid that is within the CAISO BAA. Therefore, the Marginal Cost of Losses of the LMP for transactions using the *Subject Facilities* is based on the same “border location” approach. In summary, the CAISO calculates an LMP that includes a MCL based on the assumption that the power is physically injected at the ISO border with the neighboring BAA who is owed the losses. This is accomplished by calculating an LMP that is derived by replacing the MCL component of the original LMP, with a MCL component from the LMP at the injection location on the border of the CAISO BAA.

External tie point loss matrix						
Balancing Authority	Scheduling Point	TNAME	Scheduling Point Pnode	Border Location	Border TNAME	Border PNode
APS	Four Corners	FOURCORNE345	FOURCORN_3_N501	North Gila	NORTHGILA69	NGILA1_5_N001
APS	Moenkopi	MOENKOPI500	MOENKOPI_5_N101	North Gila	NORTHGILA69	NGILA1_5_N001
LDWP	Gonder	GONIPP	GONDER_2_N501	Sylmar	SYLMAR	SYLMARLA_2_N501
LDWP	Intermountain Marketplace	IPP	INTERM1G_7_N501	Sylmar	SYLMAR	SYLMARLA_2_N501
LDWP	500 McCullough	MARKETPLACE	MARKETPL_5_N501	Sylmar	SYLMAR	SYLMARLA_2_N501
LDWP	500	MCCULLOUG500	MCCULLGX_5_N501	Sylmar	SYLMAR	SYLMARLA_2_N501
LDWP	Mona	MDWP	MONA_3_N501	Sylmar	SYLMAR	SYLMARLA_2_N501
LDWP	NOB	NOB	SYLMARDC_2_N501	Sylmar	SYLMAR	SYLMARLA_2_N501
WALC	Mead 230kv	MEAD2MSCHD	MEADN_2_N501	Mead	MEAD230	MEADS_2_N101
WALC	Mead 500kv	MEAD5MSCHD	MEAD_5_N501	Mead	MEAD230	MEADS_2_N101
WALC	Westwing 500	WESTWING500	WESTWING_5_N501	Mead	MEAD230	MEADS_2_N101

Example:

The following example demonstrates how the LMP is calculated for external tie point transactions based on the matrix above.

A market participant schedules an import transaction at Westwing 500 using 'SCID\_WESTWING500\_I\_F\_123456' resource ID.

Scheduling Point PNode		Border Point PNode	
WESTWING_5_N501		MEADS_2_N101	
Energy:	25	Energy:	25
Congestion:	8	Congestion:	2
Loss:	-1	Loss:	3
LMP:	32	LMP:	30

The resource's LMP will be constructed using the energy and congestion components of the scheduling point PNode, and the marginal cost of losses from the border PNode for any scheduled transaction.

Resource Specific Price	
SCID_WESTWING500_I_F_123456	
Energy:	25
Congestion:	8
Loss:	3
LMP	36

Note: Please note that the above loss adjustments will be made only to the resource specific prices and not to the nodal prices in OASIS. Market participants will be able to see the resource specific prices for DAM and HASP in CMRI.