

Proceeding ID 41 – AUC Decision 2009-042
Proposed New Level 1 ISO Rules

Draft of Section 9.4

Transmission Constraints Management ~~Rule~~

External Consultation Draft

Version 2.0

July 20, 2010

A. G1 Definitions

The following new definitions are incorporated in to Section G1 of the ISO rules:

“**downstream flow side**” means, in relation to ~~the receiving end of electrical energy on a constrained path within~~ a **transmission constraint**, an area of the interconnected electric system more proximate to the load or consumption location than to the source of electrical energy.

“**constraint effective factor**” means a ratio, calculated by load flow studies conducted by the ISO, of the change in the flow of electric energy through~~on the constrained path~~ corresponding to a change in an ~~energy production, an energy consumption or an energy flow on an interconnection.~~

“**upstream**” means the supply end of electrical energy on a constrained path within a ~~transmission constraint.~~

~~B. — ISO Rule~~

~~9.4 — Transmission Constraints Management~~

~~9.4.1 — Purpose of Rule~~

The purpose of this ~~rule~~ is to prescribe the means by which the ~~ISO~~ determines if a **transmission constraint** to a change in energy production, energy consumption or an electric energy flow across an interconnection. ~~exists and if the ISO has made such determination, how the ISO must operate the transmission system and manage transmission constraints.~~

“**upstream flow side**” means, in relation to ~~9.4.2 — Determining a Transmission Constraint~~

The ~~ISO~~ may determine that a **transmission constraint**, an area exists by one or more of the following means:

- a) ~~By assessing an application from a **system access customer** pursuant to the **ISO tariff** for either **system access service** or for an increase to an existing **STS contract capacity** and applying Transmission Operating Criteria, Part II of the interconnected electric system more proximate AESO Transmission Reliability Criteria to the specifications of the application;~~
- b) ~~By performing operations planning analysis based on the Transmission Operating Criteria, Part III of the AESO Transmission Reliability Criteria from time to time to the source of electrical energy than assess if such criteria is met; or~~
- e) ~~By the **system controller** observing a thermal or voltage limit excursion or predicting a thermal or voltage limit excursion after performing a contingency analysis.~~

~~9.4.3 Notification to the load or consumption location. Market Participants~~

B. Draft of New ISO Rules Text

1. Applicability

Section 9.4 applies to:

- (1) the ISO; and
- (2) a **pool participant** registered under Section 1 of the **ISO rules**.

2. Requirements

9.4 Real Time Transmission Constraints Management

9.4.1 Real Time

- a) ~~In the event the **ISO** has determined pursuant to **rule 9.4.2 a)** that a **transmission constraint** exists, the **ISO** will,~~
 - i) ~~notify all **market participants** that a requested **STS contract capacity** increase may cause a potential congestion condition;~~
 - ii) ~~provide to **market participants** a description of the **transmission facilities** that will be required to relieve the **transmission constraint** and the estimated date of **energization** of such **transmission facilities** including any **RAS** requirements;~~

iii) ~~develop and approve an ISO Operating Policy and Procedure to describe how the ISO will operate to manage the transmission constraint;~~

iv) ~~when the transmission facilities required to relieve the transmission constraint have been energized, notify market participants that the potential congestion condition has been relieved and revise the relevant existing Operating Policy and Procedure to reflect the new system capabilities.~~

9.4.4 ~~Transmission Constraint Mitigation~~

(a) Subject to ~~subsection rule 9.4.2, 4 b)~~, the ISO must ~~comply with~~ follow the following ~~procedures~~ steps sequentially in ~~the following sequence to mitigate~~ mitigating a transmission constraint in real time:

(i) ~~taking in to account any applicable constraint i) using the effective factors~~ factor as a guideline, determine the assets, including load, supply and interchange that would be effective in ~~mitigating~~ managing the transmission constraint and apply the appropriate procedure set out in this subsection 9.4.1 a) to those effective assets;

(ii) ensure ~~that any effective generating units~~ generators are not generating MW above their maximum capability, by cancelling any related directives;

(iii) ~~by directives~~, curtail all effective downstream flow side service under ISO tariff rate schedules *Rate XOS 1 Hour* and *Rate XOS 1 Month*, and all effective upstream flow side service under ISO tariff rate schedule *Rate IOS*;

(iv) ~~by directives~~, curtail effective loads receiving ~~iii) DDS providers that are downstream of the transmission constraint will receive a DDS dispatched off direction by the system controller;~~

~~iv) curtail opportunity export services~~ downstream flow side service under ISO tariff rate schedules *Rate DOS 7 Minutes*, *Rate DOS 1 Hour* and *Rate DOS Term*;

(v) ~~where the use of transmission must run is effective~~, use the following additional procedures;

(A) issue a dispatch to any generating unit that is under contract with the ISO to provide foreseeable ~~of the transmission must run and that is effective in mitigating~~ constraint and curtail opportunity import services upstream of the transmission constraint at the downstream flow side;

(B) in

~~v) curtail demand opportunity service loads downstream of the transmission constraint;~~

~~vi) dispatch effective generating assets downstream of the transmission constraint that are contracted with the ISO to provide TMR. In circumstances where the transmission constraint creates a need for unforeseeable transmission must run to be in compliance with reliability standards and reliability criteria local load pocket, as defined by the ISO, issue a directive to provide transmission must run to any directives to generating units effective in mitigating downstream of the transmission constraint at the downstream flow side; to provide TMR.~~

(vi) issue directives to curtail any

~~vii) curtail effective generating assets, as per rule 9.4.4 a) i), upstream of the transmission constraint. Effective generating units effective in mitigating the transmission constraint at the upstream flow side using the following additional procedures:~~

(A) The ISO must curtail ~~assets will be curtailed~~ using the energy market merit order with the highest priced effective offer from a generating unit effective in mitigating the transmission constraint being curtailed first, followed by the next highest priced effective offer, if necessary, during the remainder of the current settlement interval and the next two (2) settlement intervals;

(B) - If there is a need to curtail more than one (1) such effective generating unit having ~~assets with~~ equal price offers, then the ISO curtailment will issue directives to the generating units to curtail ~~offer~~ using a pro-rata methodology;

(C) - If the transmission constraint persists on a continuous basis for longer than the remainder of the current settlement interval and the next two (2) settlement intervals, then the ISO must reallocate the required curtailment, using a pro-rata methodology, ~~will be reallocated~~ to all effective generating units effective in mitigating the transmission constraint and ~~assets~~ whose offers are below system marginal price; ~~SMP using a pro-rata methodology.~~

(vii) by directives, ~~viii) dispatch generating assets downstream of the transmission constraint, in accordance with the energy market merit order to increase or begin energy production;~~

~~ix)~~ curtail any loads receiving demand transmission service under ISO tariff rate schedule Rate DTS at the loads downstream flow side of the **transmission constraint**, if so required by the *AESO Transmission Reliability Criteria*, using the following procedure:

(A) The ISO will allocate the curtailment ~~will be allocated~~ using the **energy market merit order** with the lowest priced effective **bid** being curtailed first, followed by the next lowest priced effective **bid**, if necessary. ~~If there is a need to curtail loads with equal price bids or there are no bids remaining, curtailment will occur on a pro-rata basis as required or practical;~~

(B) If there is a need to curtail **loads with equal price bids**, or there are no **bids** remaining, the **ISO** will curtail on a pro-rata basis.

(b) With regard to any ~~x)~~ ~~in all~~ of the procedural ~~above~~ steps set out in subsection 9.4.1 (a):

(A) the **ISO** must issue **dispatches for dispatch down service** as appropriate in accordance with subsection 6.3.6.3 of the **ISO rules**;

(B) the **ISO** must use established procedures as appropriate to restore energy and supply balance to the **interconnected electric system** including the issuance of **dispatches to increase or begin energy production to any such generating units** that are at the **downstream flow side** of the **transmission constraint**, in accordance with the **energy market merit order**;

(c) With regard to any of the procedural steps set out in subsection 9.4.1 (a) that involve **generating unit** ~~asset~~ or **load curtailment**, ~~if curtailments, where~~ the **generating unit** ~~asset~~ or **load** is supplying both **ancillary services** and **energy production**, then **ancillary services** will be curtailed first, before **energy production**.

(d) When a **transmission constraint** has activated or is expected by the **ISO** to activate a **remedial action scheme**, and after the **ISO** has ensured that the **interconnected electric system** is operating in a safe and reliable mode, the **ISO** must recommence the procedural sequence set out in subsection 9.4.1 (a) to manage the **transmission constraint**.

9.4.2 Additional Real Time Constraint Management Procedures

As the circumstances may warrant, the ISO may implement the following procedures to mitigate any real time transmission constraint:

- (a) if the result of following the procedures set out in subsection 9.4.1 a) will be to curtail any effective generating unit below minimum stable generation levels and the ISO expects the transmission constraint b) ~~—The ISO may take the following measures in managing transmission constraints:~~
- i) ~~—in the event the system controller, acting reasonably, expects a transmission constraint to last a short duration, then the ISO by directive may curtail any effective one or more generating units to above or at the minimum stable generation level of those the generating unit if the alternative would be to curtail the generating units;~~
- (b) ii) in circumstances where abnormal operating or market conditions exist, the ~~ISO system controller~~ acting reasonably may, in ~~implementing~~ taking mitigation measures to address a transmission constraint, take procedural steps not listed in subsection ~~rule~~ 9.4.1 (4-a) ~~if providing that~~ those steps are substantially consistent with good electric industry operating practice;
- (c) the abnormal conditions referred to in subsection (b) include circumstances of unusual natural risks to the system, and issues raised by a unique real time iii) ~~—the system configuration or reliability concerns stemming from voltage or reactive power effects;~~
- (d) in mitigating a transmission constraint, the ISO must follow the procedural sequence set out in subsection 9.4.1 (a) and any more specific and complementary ISO rules applicable for a given regional area of the interconnected electric system, unless real time operating conditions change ~~controller must, in taking mitigation measures to address a transmission constraint in circumstances where~~ such that following the specified sequence would ~~put measures may result in~~ the ISO being in contravention of a reliability standard requirement ~~by failing,~~ ~~take immediate action~~ to achieve compliance within the operating limits ~~or within the~~ required response time specified ~~in time; provided that subsequent to the system controller~~ ensuring that reliability standard;
- (e) if the ISO alters the procedural sequence or takes alternate mitigating actions because of the circumstances referred to in subsections (b) and (d) above, then once the ISO is assured that the interconnected electric system AIES is operating in a safe and reliable mode, the ISO must recommence the procedural

sequence set out in subsection ~~follow the steps as per~~ **rule** 9.4.1
(4-a).