

PS North Closed Loop Interface

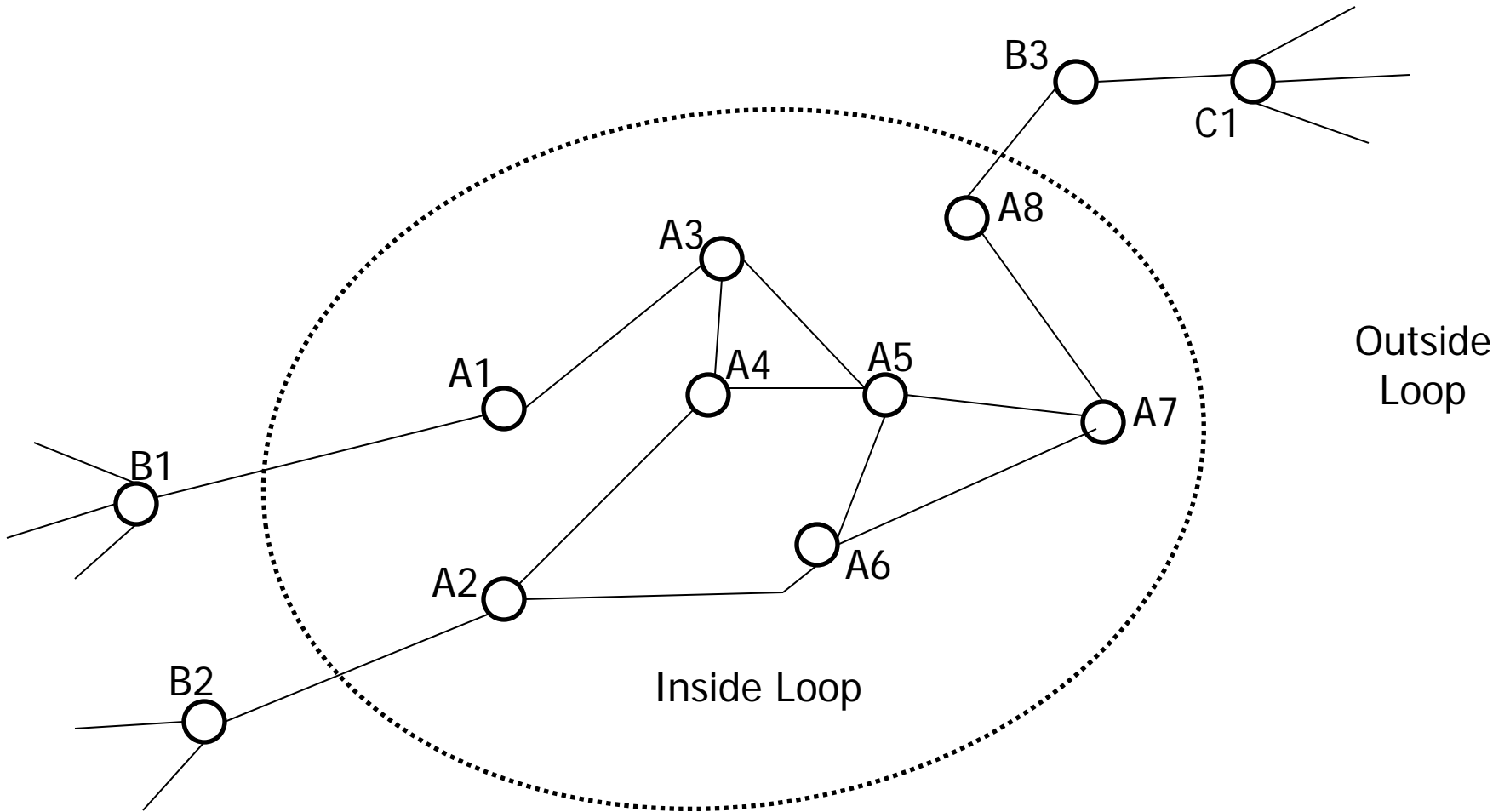
**PJM FTRSTF Meeting
July 16, 2014**

**Highlands Energy Group
Martin Matijasich**

Closed Loop Interfaces Overview

<u>Closed Loop Interface</u>	<u>Implemented</u>	<u>Purpose</u>
BCPEP	2013 (?)	?
ATSI Interface	Jul 17, 2013	set LMP during Load Management
Cleveland Transfer Limit	?	?
COMED interface	Jun 1, 2013	Voltage/Reactive Reliability (Real Time)
SENECA Interface	Feb 1, 2014	Voltage/Reactive Reliability
NEWCASOE	Jul 1, 2014	Thermal and Voltage/Reactive Reliability
PS NORTH	2014-15 Annual FTR Auction	FTR Uplift Reduction

Shadow Price for Closed Loop Interface Binding Constraints



Shadow Price for Closed Loop Interface Binding Constraints

A) Highlands Observations for Closed Loop Binding Constraints:

All PNODES inside the Closed Loop have the same Shadow Price.

B) Discussion Questions:

- 1) How are the Marginal Unit(s) determined for a Closed Loop Interface?
- 2) How are the Shadow Prices calculated for a Closed Loop Interface?
- 3) For a transmission maintenance outage of B3 to C1, will B3 have the same Shadow Price as A8?
- 4) For a transmission maintenance outage of A7 to A8, will A8 have the same Shadow Price as B3?

C) Request to PJM:

Present a tutorial using a hypothetical Closed Loop Interface that addresses the above Discussion Questions.

The tutorial should include a detailed example showing Shadow Price calculations.

PS North Interface Facts

A) PS NORTH Definition

Border Transmission Facility

WALDWICK 345 KV 345-1
WALDWICK 345 KV 345-2
WALDWICK 345 KV 345-3
FARRAGUT 345 KV FAR-HUDB
FARRAGUT 345 KV FAR-HUDC
GOETHALS 230 KV GOE-LIN
LINCOGEN 345 KV LIN-LIN
ROSELAND 500 KV 2TRX
ROSELAND 500 KV 1TRX
MONTVILL 230 KV MNT-ROS
READINGT 230 KV REA-ROS
ROSELAND 230 KV ROS-WHI
DEANS 230 KV DEA-NEW
DEANS 230 KV DEA-PIES
DEANS 230 KV DEA-MIN
MEADOWRD 138 KV MEA-METR
MEADOWRD 138 KV MEA-METQ

Outside Border

WALDWICK 345KV
WALDWICK 345KV
WALDWICK 345KV
FARRAGUT 345KV
FARRAGUT345 KV
GOETHALS230 KV
LINDEN VFT (NY)
ROSELAND 500KV
ROSELAND 500KV
MONTVILL230 KV
READINGT230 KV
WHIPPANY 230 KV
DEANS 230 KV
DEANS 230 KV
DEANS 230 KV
MEADOW RD 138KV
MEADOW RD 138 KV

Inside Border

WALDWICK 230KV
WALDWICK 230KV
WALDWICK 230KV
HUDSON 345KV
HUDSON 345KV
LINDEN 230KV
LINDEN VFT (PSEG)
ROSELAND 230KV
ROSELAND 230KV
ROSELAND 230KV
ROSELAND 230KV
ROSELAND 230KV
ROSELAND 230KV
NEW DOVER 230KV
PIERSO AV 230KV
MINUE TAP 230KV
METUCHEN 138KV
METUCHEN 138KV

HUDSON TP was **not included !!**

PS North Interface Facts

B) PNODES "INSIDE" PS NORTH Closed Loop Interface

PNODE TYPE	Approx Number
Load	220
Generator	150
Total	370

C) PS NORTH Interface Limit used in FTR Auctions: 1,500 MW

Discussion:

What criteria does PJM use to calculate the PS NORTH Interface Limit?

Will PJM change the PS NORTH limit from 1,500MW for PY 2014-15?

PS North Interface in the FTR Market

FACTS:

1) PSNORTH INTERFACE is the only CLOSED LOPP INTERFACE being used for the sole purpose of reducing FTR Market Uplift

2) PJM rationale for PSNORTH Interface to reduce/control FTR Market Uplift:

Tariff section 7.5 (a).....

The goal of the simultaneous feasibility determination shall be to ensure that there are sufficient revenues from Transmission Congestion Charges to satisfy all Financial Transmission Rights obligations for the auction period under expected conditions and to ensure that there are sufficient revenues from the annual Financial Transmission Rights Auction to satisfy all Auction Revenue Rights obligations.

HIGHLANDS ISSUES/CONCERNS:

1) Effectiveness of PSNORTH to reduce FTR Market Uplift

Discussion: How much reduction in FTR Market Uplift does PJM expect to achieve with PSNORTH Interface?

Discussion: Has PJM considered "unexpected consequences" from implementing PSNORTH Interface?

2) Market Fairness

Discussion: Is this "cost shifting" resulting from selectively applying Tariff section 7.5 (a)?

PS North Interface in the LMP Market

FACTS:

- 1) PSNORTH INTERFACE is not needed for Thermal or Voltage/Reactive Reliability purposes.
- 2) PJM has said they intended to use PSNORTH as a Binding Constraint in the Day-ahead (DA) LMP Market.
- 3) PJM Operating Agreement Section 2.6

For the Day-ahead Energy Market, day-ahead Locational Marginal Prices shall be determined on the basis of the **least-cost, security-constrained dispatch**...

HIGHLANDS ISSUES/CONCERNS:

- 1) PS NORTH Interface is not a security constraint...
hence, PS North Interface as a Binding Constraint in the LMP Market will NOT result in a least cost, security constrained dispatch.

Discussion: Under what circumstances, if any, could a PS NORTH Interface Limit set Day Ahead LMP?

- 2) PS NORTH Interface as a Binding Constraint in the LMP Market may result in excess unit commitment...
because all 370 PNODES inside PSNORTH will have the same higher Shadow Price.