



Manual 12: Balancing Operations- Updates

Attachment F: Dynamic Transfers

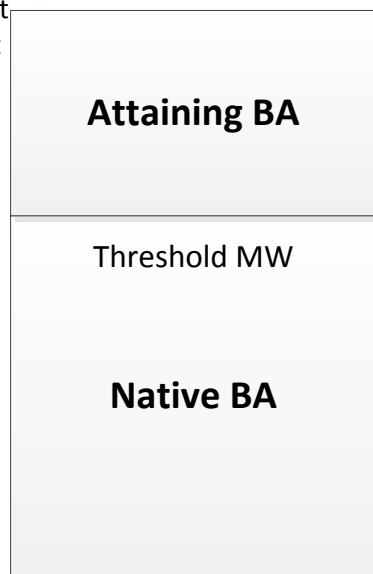
Sree Yeddanapudi
Sr. Engineer, Generation
Reliability Standards and
Compliance Subcommittee
March 18, 2016

- Inclusion of PJM's Dynamic Transfer business rules
 - Attachment F in PJM Manual 12: Balancing Operations
 - Draft redline version of manual provided for review and comment.
- Dynamic Transfer (NERC Definition)
 - The provision of the real-time monitoring, telemetering, computer software, hardware, communications, engineering, energy accounting (including inadvertent interchange), and administration required to electronically move all or a portion of the real energy services associated with a generator or load out of one Balancing Authority Area into another.

- Standard INT-004-3.1 — Dynamic Transfers (Effective 1/1/2016)
- Standard BAL-001-1 — Real Power Balancing Control Performance, R3
- Standard BAL-005-0.2b — Automatic Generation Control, R10, R12.3
- Standard BAL-002-1 — Disturbance Control Performance, R2.6
- Standard IRO-006-5 — Reliability Coordination — Transmission Loading Relief, R1

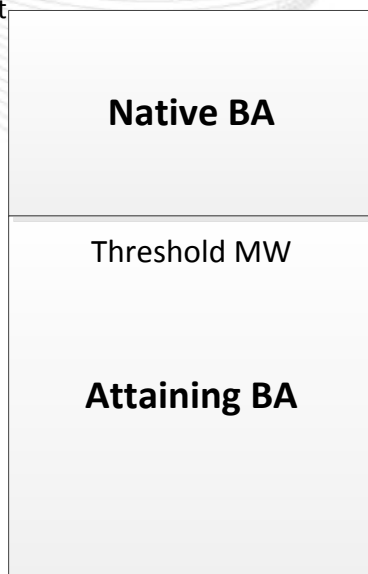
Partial Unit Dynamic Transfer Methods

Full unit
output



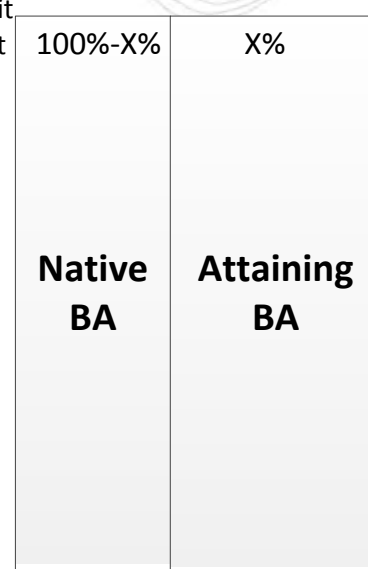
Dynamic Transfer of unit's output above a Threshold value
(Pseudo-Tie and Dynamic Schedule)

Full unit
output



Dynamic Transfer of unit's output below a Threshold value
(Dynamic Schedule Only)

Full unit
output



Dynamic Transfer of a percent of unit's output
(Pseudo-Tie and Dynamic Schedule)



Dynamic Transfer Requirement Summary- 1 (Exhibit 22)

Market Service	Requirement	Pseudo-Tie			Dynamic Schedule			
		Entirely	Above Threshold	Percentage	Entirely	Above Threshold	Below Threshold	Percentage
Capacity	Transmission Service	Firm/Network External Designated (NED) >= RPM/ FRR Committed ICAP. Capacity Performance Resources require Firm Transmission service with rollover rights.			Firm/Network External Designated (NED) >= RPM/ FRR Committed ICAP			
	NERC Tagging	May be required*			Required			
	Letter of Non Recallability	Required						
	Product Type	All Product Types including Capacity Performance. (and associated obligations)			No Capacity Performance. All Dynamic Scheduled Capacity resources have a sunset date of 06/01/2020			
	Day Ahead	Must Offer >= RPM/FRR ICAP Committed						
	Outage Reporting	eDART & eGADS Required; Update eMKT parameters to reflect outage						
Energy	Transmission Service	Firm/Network External Designated (NED)			Firm/Network External Designated (NED) /Non Firm			
	NERC Tagging	May be required*			Required			
	Outage Reporting	eDART Required & eGADS Requested; Update eMKT parameters to reflect outage						
	Nodal Representation- EMS, LMP	Yes			Interface Pricing Only. No nodal representation			
	Self-Scheduled Gen (move up/ down)	20 min notice						
	Start up and No Load Costs	Eligible if entire unit is transferred, called on by PJM						

* Per INT-004 3.1 R1



Dynamic Transfer Requirement Summary- 2 (Exhibit 22)

Market Service	Requirement	Pseudo-Tie			Dynamic Schedule			
		Entirely	Above Threshold	Percentage	Entirely	Above Threshold	Below Threshold	Percentage
Ancillary Services (Regulation, Contingency Reserves)	Transmission Service	Firm			Not Eligible			
	NERC Tagging	May be required*						
	Outage Reporting	Notify PJM Dispatch immediately						
	Regulation Qualification & Scoring	Same as PJM internal resources. Percent Method limited to 1 BA unless agreed upon auditable technical solution is provided by Market Participants.						
	Synchronized Reserves	Eligible if meets PJM Criteria. Percent Method limited to 1 BA unless agreed upon auditable technical solution is provided by Market Participants.						
	Non-Synchronized Reserves	Eligible if meets PJM Criteria						
Day Ahead Scheduling Reserve [xiii]	Reserve Credits	Eligible						
Other Requirements	eMeter Checkout				Required			
	Redundant Path Telemetry				Required			
	Time Frame for Implementation	12-30 Months			3-6 Months			
	Cost of Implementation	Borne by Resource Owner			None			
	Transmission Reservation (Firm/Non-Firm) Interruptions due to TLR.				Notify PJM Dispatch immediately			

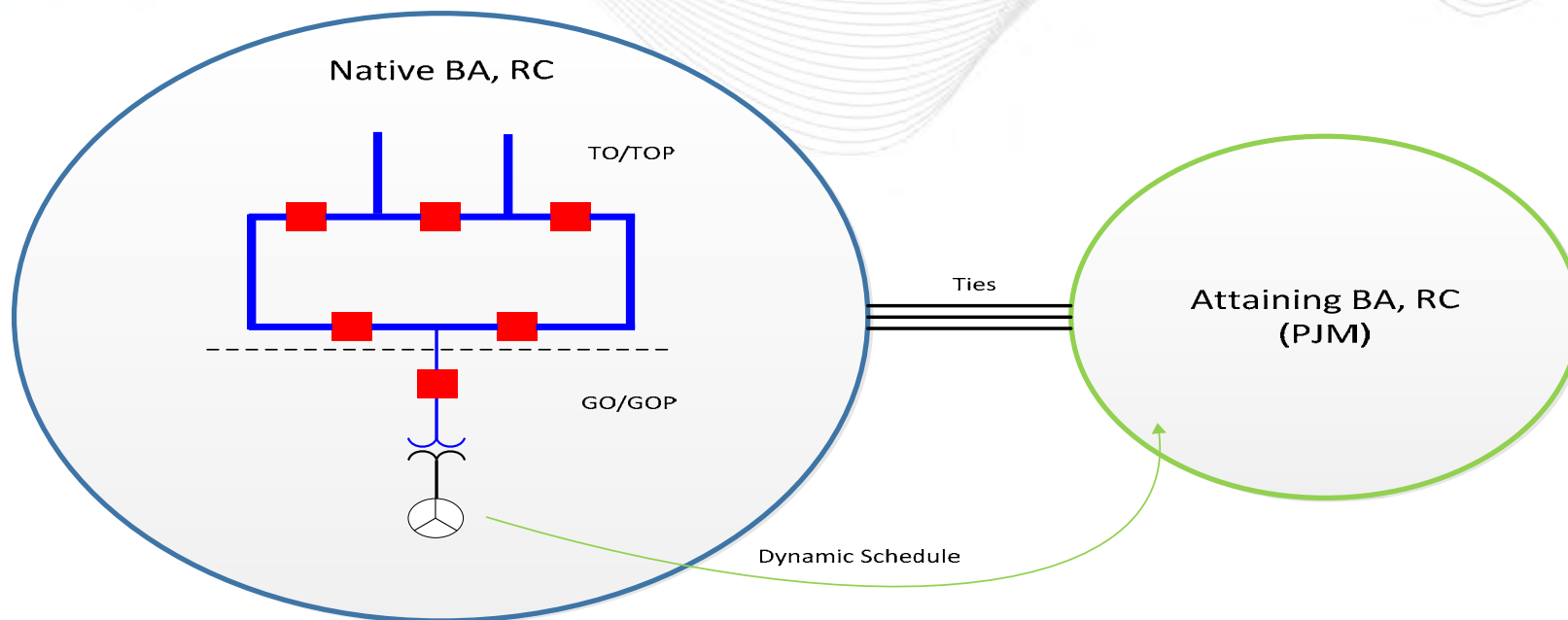
* Per INT-004 3.1 R1

- First Reads, Second Reads:
 - SOS: January 27, 2016, February 24, 2016
 - OC: February 8, 2016, February 24, 2016 *, March 8, 2016 (Endorsed)
 - MIC: February 9, 2016, ~~March 9, 2016~~
 - RSCS: March 18, 2016
 - MRC, MC: March 31, 2016, April 28, 2016 (Endorsement)
- OATT/ OA Revisions FERC filing - May 1, 2016
- July 1, 2016 implementation – Targeted

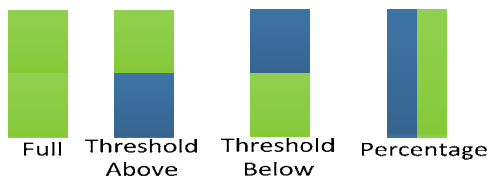
* Special OC session

- Manual Changes
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 - Dave Souder
 - david.souder@pjm.com, phone: 610-666-4795
- Dynamic Transfer Request Form
 - <http://pjm.com/about-pjm/member-services/member-forms/dynamic-transfers.aspx>
 - PJM Member Services/Client Manager, phone: 610-666-8980

Dynamic Schedule

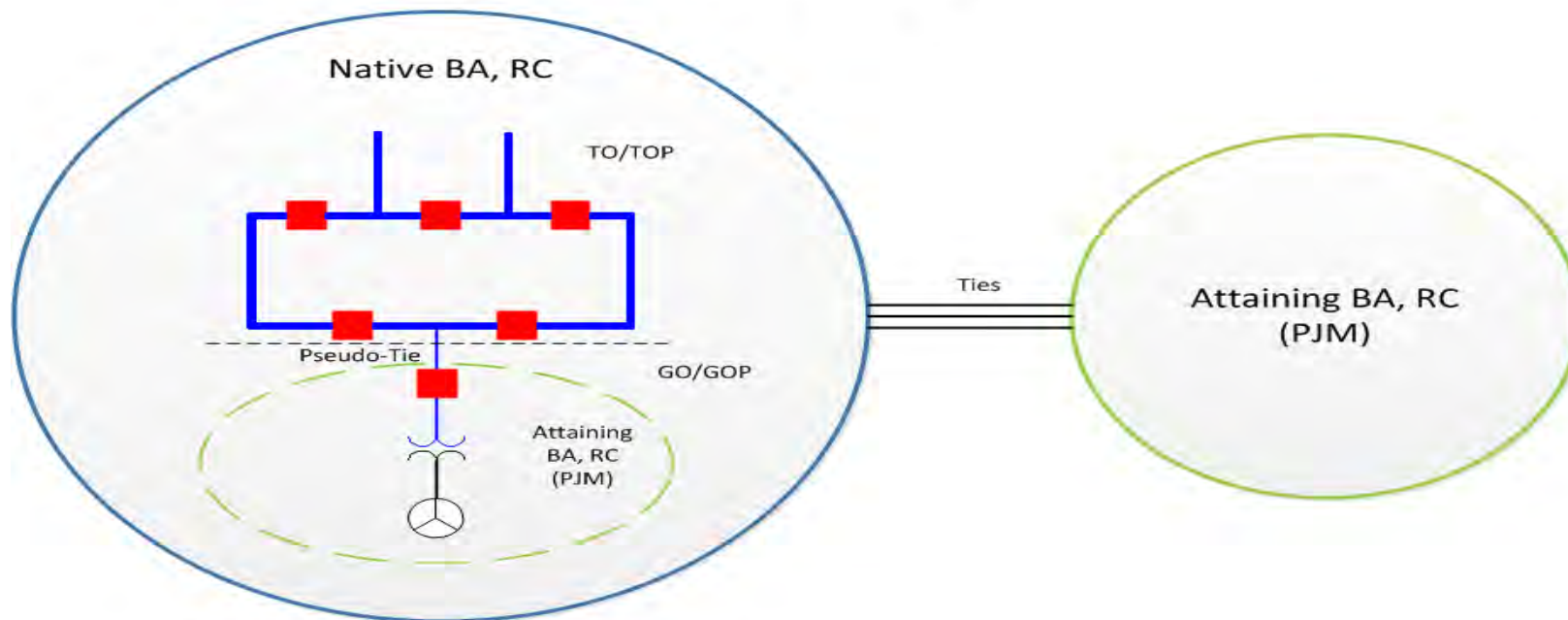


Methods:

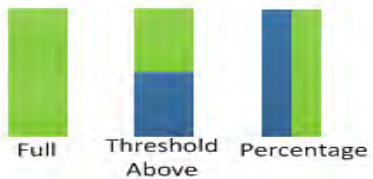


Dynamic Interchange Schedule or Dynamic Schedule: A time-varying energy transfer that is updated in Real-time and included in the Scheduled Net Interchange (NIS) term in the same manner as an Interchange Schedule in the affected Balancing Authorities' control ACE equations (or alternate control processes)

Pseudo-Tie



Methods:



Pseudo-Tie: "A time-varying energy transfer that is updated in Real-time and included in the Actual Net Interchange term (NIA) in the same manner as a Tie Line in the affected Balancing Authorities' control ACE equations (or alternate control processes)"