



Helping to keep the lights on,
businesses running
and communities strong®

ATC Update

Eastern Interconnection Planning Collaborative

Flora Flygt
April 14, 2014

atcllc.com

Eastern Interconnection Planning Collaborative Planning Efforts

- **DOE non-grant work**
 - Involves electric transmission system “roll-up” model development, analysis, report, scenario analysis, final report
 - ATC actively involved with the work
- **DOE grant work, Phase III**
 - At conclusion of Phase II (Dec 2012), DOE requested EIPC continue work on gas-electric coordination
 - Six Planning Coordinators chose to participate
 - MISO, PJM, ISO-NE, ISONY, TVA, IESO
 - ATC is observing, not actively participating

Eastern Interconnection Planning Collaborative Non-grant Work Update

- EIPC model roll-up and evaluation by Planning Coordinators (2018, 2023 models)
 - Inter-regional gap analysis
 - Increased transfers modeled to test robustness of system
- Final Roll Up report posted in Feb
 - Roll Up report located at: http://www.eipconline.com/Non-DOE_Documents.html
 - Includes Transmission Upgrade map, detailed appendices of generation and transmission additions, and summary of incremental transfer capabilities

EIPC: Non-grant Work Update

Roll-Up Report Results

- Interregional gap analysis: 3 entities reported issues
 - MISO, SPP, PJM reported a few overloads and voltage issues
 - MISO, SPP added upgraded transmission to deal with issues
 - PJM dealt with their issues with re-dispatch
- Increased transfer analysis involved testing additional 5,000 MWs going from selected sources to sinks

Table ES - 1: Groupings of Planning Areas for Transfers

A	B	C	D	E		F
FPL	MAPPCOR	New York ISO	PJM	Duke Energy Carolinas	SC	SPP
JEA	MISO	ISO New England		Duke Energy Progress	Southern Company	
Duke Energy Florida	ATC	Ontario IESO		LGE/KU	MEAG	
	ITC	NBSO		GTC	Alcoa Power Generating, Inc.	
	Entergy			Power South	TVA	
				SCEG	Electric Energy, Inc.	

Table ES-2: Transfers Performed

Source	Sink					
	A	B	C	D	E	F
A					Y	
B			Y	Y	Y	Y
C		Y		Y		
D		Y	Y		Y	
E	Y	Y		Y		Y
F		Y			Y	

EIPC: Non-grant Work Update Roll-Up Report Results

- Tables ES-3 and ES-4 show the system as planned is capable of handling additional flows in all the directions, ranging from 550 MW to >5,000 MW

Table ES-3: 2018 Linear Transfer Results				
Source	Sink	FCITC (MW)	Lim. PA	Con. PA
A	E	2,500	DEF	DEF
B	C	2,800	PENELEC-PJM	NYISO/PENELEC-PJM
B	D	>5,000	N/A	N/A
B	E	>5,000	N/A	N/A
B	F	2,700	EES	EES/OKGE-SPP
C	B	1,800	NYISO	NYISO
C	D	1,400	NYISO	NYISO
D	B	2,900	CE-PJM	CE-PJM
D	C	1,900	PENELEC-PJM	NYISO/PENELEC-PJM
D	E	>5,000	N/A	N/A
E	A	1,900	SBA/FRCC	FPL
E	B	4,800	TVA	TVA
E	D	1,500	BREC-MISO	N/A
E	F	2,200	EES-MISO	EES-MISO/OKGE-SPP
F	B	1,100	WERE-SPP	WERE-SPP
F	E	1,200	WERE-SPP	WERE-SPP

Table ES-4: 2023 Linear Transfer Results				
Source	Sink	FCITC (MW)	Lim. PA	Con. PA
A	E	1,600	DEF	DEF
B	C	3,400	PENELEC-PJM	N/A
B	D	>5,000	N/A	N/A
B	E	>5,000	N/A	N/A
B	F	650	EES	EES/OKGE-SPP
C	B	1,800	NYISO	NYISO
C	D	1,500	NYISO	NYISO
D	B	1,600	ALTW-MISO	CE-PJM/MEC-MISO
D	C	2,100	PENELEC-PJM	N/A
D	E	>5,000	N/A	N/A
E	A	1,900	SBA/FRCC	FPL
E	B	2,200	TVA	TVA
E	D	1,900	BREC-MISO	N/A
E	F	550	SWPA-SPP	EES/OKGE
F	B	850	WERE-SPP	WERE-SPP
F	E	950	WERE-SPP	WERE-SPP

EIPC: Non-grant Work Update

Scenario Suggestions

- **Suggested by stakeholders**
 - Heat wave and drought
 - Updated base case
 - Increased gas generation
 - High transmission buildout
- **Original EIPC sample scenarios**
 - Interregional capabilities and constraints with winter conditions
 - Interregional capabilities and constraints with spring conditions
- **Scenarios chosen**
 - Heat wave and drought – 2023 analysis of ability to move large blocks of power from areas not affected by heat wave and drought to those most affected
 - Updated 2023 base case - Updated with firm generation and transmission additions/cancellations since roll up case developed

Scenario Description

Heat Wave and Drought

- Submitted by: Eastern Interconnection States' Planning Council (EISPC)
- Study Case: 2023 Summer Peak
- Questions to be Answered Based on Power Flow Analysis:
 - “What new large transmission facilities over large geographic distances might be required?”
- This scenario would assess the Eastern Interconnection's ability to transfer large amounts of power among regions of interest during a heat wave and drought under summer peak conditions.

Scenario Description

Heat Wave and Drought

- For transfer studies, the source would be the areas not as severely affected by the persistent high temperatures and protracted drought. The sink would be the areas that are severely affected.
- Still need to identify additions and removal of resources
 - Assumes the heat wave and drought are “new normal” not just a one-time event
- Add in storage technologies: location, size, and mode of operation for storage technologies should be identified.
 - Additional advanced technologies considered on case-by-case basis.
- Changes to peak demand forecast will be specified as a change to aggregate demand in the Base Plan.

Scenario Description

Updated Base Case

- Submitted by: New York PSC
- Study Case: 2023 Summer Peak
- General Description
 - Addition of NY Transmission Owners' Transmission Solutions ("TOTS")
 - Marcy South Series Compensation
 - Fraser – Coopers Corners 345 kV line reconductoring
 - Con Edison New 2nd Rock Tavern – Ramapo 345 kV line
 - Con Edison Staten Island Un-bottling
 - Updates in other Regions based upon firm resource additions/retirements

EIPC: Non-grant Work Update Schedule

- Final scenarios chosen April 2
- Analysis work begins April 15
- Results of scenario analysis late summer/early fall
- Final report drafted, reviewed, posted by Dec 31, 2014

EIPC DOE Grant Work

Gas-Electric Coordination Study

- Objective is to assess constraints on the electric system due to gas constraints
- Focus is winter months in the near term (5 and 10 years out)
- Chose Levitan Associates to do analysis work
- Target 1: Assessment of current gas/electric infrastructure; final report just posted
- Target 2: Target 2 – adequacy analysis – for 5-10 year period, looking at a forecast of natural gas needed for electric generation – prod costs and other info from gas to identify constraints on gas system
 - Have developed the reference, high gas, low gas demand cases; series of 17 sensitivities as the higher priority sensitivities; analysis will start shortly

EIPC DOE Grant Work

Gas-Electric Coordination Study

- Target 3: Based on results of target 2, more granular modeling of the constraints found and critical contingencies
 - Currently gathering data from pipelines
 - Working with LDCs where they have significant amount of gas generation connected behind the city gate – being done regionally
- Target 4: dual fuel versus firm transportation analysis; analysis approach still being finalized
- Schedule: Analytical work complete end of 2014/early 2015; final report due June 15, 2015
- More information available at: <http://www.eipconline.com/Gas-Electric.html>

QUESTIONS/DISCUSSION?

