Eastern Interconnection Planning Collaborative

EIPC 2014
Result of Activities and Work Plan (Non-Grant)

EIPC Webinar
November 21, 2014

Outline

- Background
- Scenario A
  - Updates to 2023 Roll-Up Case
  - Summary of Transfer Results
- Scenario B
  - Heat Wave & Drought Scenario
- 2014 EIPC Report

Background

EIPC 2013 Effort:

- 2018 and 2023 summer peak models created
  - Model assembled utilizing most up to date information
- Steady-state load-flow model analysis performed
  - Transmission "Gap" Analysis
  - Linear Transfer Analysis
- Report assembled and posted to EIPC website
  - http://www.eipconline.com/Non-DOE_Documents.html

Background

EIPC 2014 Effort:

- Stakeholder input requested for potential scenarios
  - 2 sample scenarios created by EIPC
  - 5 scenarios submitted by stakeholders
- Two of Stakeholder suggested scenarios selected
  - Updated 2023 Roll-Up Base Case
  - Heat Wave and Drought Scenario
- Purpose of Todays Webinar
  - Inform Stakeholders of completion of updated base case
  - Inform Stakeholders of Heat Wave and Drought Results
  - Inform Stakeholders of 2014 Report

Scenario A – Update of 2023 Roll-Up Case

- 2023 Summer Peak Roll-Up Utilized as Starting Point
  - Updated with any available generation, transmission, and load modifications determined significant by individual PA's
- Interregional "Gap" Analysis Performed
  - N-1 contingency analysis
  - Purpose was to identify effect of changes between neighboring Planning Authorities systems
- Linear Transfer Analysis
  - Purpose was to demonstrate the effect of model updates on the ability to transfer power between large areas above long term commitments

Scenario A - Summary of Transfer Results

- Objective was to demonstrate the effect case updates had on the Eastern Interconnection's ability to reliably move large amounts of power between areas
  - Analyzed 5,000 MW transfers between selected areas
- Monitored the following (100 kV and above):
  - N-0 branch overloads
  - N-1 branch overloads
    - Also included NYISO specific regional contingencies
- Updates to 2023 Roll-up did not have significant impact on the Eastern Interconnection transfer capability

Scenario A - Summary of Transfer Results

Source		Sink		Previous		New	
				FCITC (MW)	Lim. PA	FCITC (MW)	Lim. PA
A	FRCC	E	SERC	1600	DEF	1700	DEF
B	MISO	C	NPCC	3400	PENELEC-PJM	3100	PENELEC-PJM
B	MISO	D	PJM	>5000	N/A	>5000	N/A
B	MISO	E	SERC	>5000	N/A	>5000	N/A
B	MISO	F	SPP	650	EES	650	EES
C	NPCC	B	MISO	1800	NYISO	1750	NYISO
C	NPCC	D	PJM	1500	NYISO	1200	NYISO
D	PJM	B	MISO	1600	ALTW-MISO	1650	ALTW-MISO
D	PJM	C	NPCC	2100	PENELEC-PJM	2750	NYISO
D	PJM	E	SERC	>5000	N/A	>5000	N/A
E	SERC	A	FRCC	1900	SBA/FRCC	1900	SBA/FRCC
E	SERC	B	MISO	>5000	N/A	>5000	N/A
E	SERC	D	PJM	1900	BREC-MISO	4800	DVP-PJM
E	SERC	F	SPP	550	SWPA-SPP	500	SWPA-SPP
F	SPP	B	MISO	850	WERE-SPP	800	WERE-SPP
F	SPP	E	SERC	950	WERE-SPP	950	WERE-SPP

Scenario B
Heat Wave and Drought Scenario Assumptions

- Submitted by: Eastern Interconnection States' Planning Council (EISPC)
- Study Case: Updated 2023 Summer Peak
- Premise: Model a severe and pervasive heat wave and drought condition in study year 2023
- Questions to be answered by analysis:
  - "What constraints arise when large amounts of power are transferred to areas of need during times of extremely high temperatures and drought conditions"

Scenario B
Heat Wave and Drought Scenario Assumptions

Modeling Parameters and Resource Modifications:

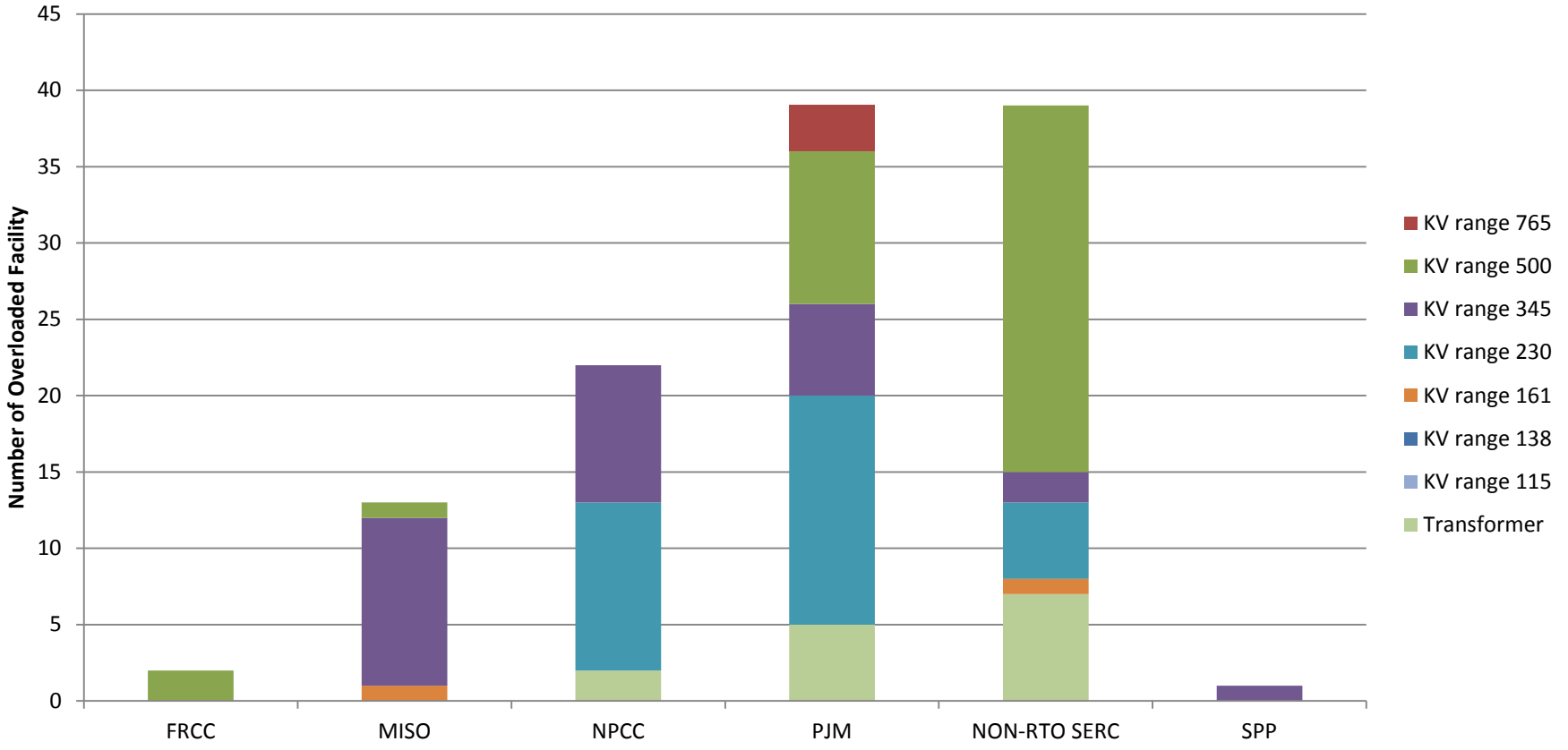
- Utilized updated 2023 summer peak roll-up model
- Modeled effect of heat wave condition on sink
  - Scale sink load up by 5% (~15,000 MW)
- Modeled effect of drought condition on sink
  - Scale sink generation down by 5% while assuming all unused capacity is unavailable (~15,000 MW)
- Modeled effect of power transfer from source
  - Scale available generation up while not violating generator limits (~30,000 MW)

Scenario B
Heat Wave and Drought Scenario Assumptions

- Utilizing revised Heat Wave & Drought Scenario Model:
  - Perform N-1 contingency analysis on 200 kV and above
    - Except for areas where lower voltage levels are required
  - Monitor all lines 161 kV and above
  - Utilizing MUST transfers analysis to identify facilities with > 3% TDF
    - Transfer Source:
      - ISO-NE, NYISO, IESO, PJM, MISO North, ATC, MAPP
    - Transfer Sink:
      - TVA, MISO South, SPP, SOCO, DEC, DUKE, SCEG, SC, PS, Alcoa, EEI, LGE/KU, FPL, DEF, JEA
  - Assembling results into report to be presented to Stakeholders December 2014

Scenario B
Heat Wave and Drought Scenario Results

Table illustrates the impacted facilities by KV range



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2014 EIPC Amended Report

- Report for 2014 EIPC effort intended to be amendment of 2013 effort report
- Draft report is nearing completion
  - Expected to be posted for Stakeholder comments in early December
- Overview of report upcoming is subject to change

2014 EIPC Amended Report Assembly

Scenario A – Update to 2023 Summer Peak Roll-Up Case:

Section 2.1: Roll-Up Case Updates

- Description of PA Updates Provided

Section 2.2: Interregional Transmission Analysis

- Summary of Thermal Results

Section 2.3: Potential Enhancements to Section 2.2 Analysis

- Issues List and Conceptual Upgrades

Section 2.4: Linear Transfer Analysis

- Linear Transfer Result Comparison Between 2013 and 2014 Efforts

2014 EIPC Amended Report Assembly

Scenario B – Heat Wave and Drought Scenario:

Section 3.1: Scenario Inputs and Process

- Description of Case Creation

Section 3.2: Scenario Results

- Summary of Linear Transfer Results

Section 3.3: Discussion of Results

- Discussion of Meaning of Results

2014 EIPC Amended Report Assembly

Appendix F

- Update to New/Upgraded Transmission Projects Included in Cases

Appendix G

- Update to Generation Included in Cases

Appendix H

- Linear Transfer Analysis Results

Appendix I

- Heat Wave and Drought Scenario Case Modifications

Appendix J

- Heat Wave and Drought Scenario Linear Transfer Analysis Results

Appendix K

- Eastern Interconnection Wide Map Highlighting Impacted Facilities

Questions and Discussion