

Economic Planning Considerations

NYISO ESPWG
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Draft – for discussion purposes only



Overall Framework

- Evaluate present and expected future benefit from eliminating targeted transmission constraints
 - Based on effect on BPC impact
- Historical analysis
 - Focus on most persistent / largest impact constraints
 - Select sample days
 - Evaluate constraint interaction
 - Extrapolate from sample days to annual impact
- Two calculation approaches for validation purposes
 - Simple constraint relaxing to gauge benefit
 - Specific constraint model grid change

Validation test run to evaluate the two approaches



Validation Process

- Select a particular persistent constraint
- Select sample of days when constraint was present and caused congestion
- Calculate BPC value for fully constrained (actual) system model
- Relax (exclude or eliminate) specific constraint and calculate BPC
- Modify network model to include representation of a technically feasible solution to the specific constraint and calculate BPC for modified system model
- Calculate BPC impact for sample days



Validation Process Details

- Focus on relaxing 'Constraint A'
 - Represents actual constraint
 - Historically persistent constraint
 - Large impact on past unhedged congestion payments
- Sample days from summer 2004
 - 10 days when constraint A had large impact
- Solution to Constraint A
 - Discussed with NYISO
 - Included in network modeling (modified system configuration)
 - Network solved with new unit commitment (UC not fixed)
- Examples are for process validation purposes only
- Examples are based on historical data



Validation Process

- Proposed process
 - Assumes increased ratings (i.e., ignores contingency)
 - No system changes / reconfigurations
 - Does not represent specific solution
 - Simplicity / speed of representation tradeoff
- Specific solution process
 - Models technically feasible solution
 - Solution specific – tailored to specific constraint
 - Network representation changed



Validation Process – Historical Examples

Day	BPC impact		Total BPC impact (for reference)
	proposed	specific solution	
1	2,915	5,832	257,189
2	1,965	7,812	140,725
3	1,397	3,688	102,490
4	1,046	1,842	44,376
5	899	1,545	88,101
6	3,020	6,814	168,761
7	2,004	1,877	136,391
8	1,420	1,326	169,224
9	1,502	1,915	178,338
10	320	328	90,041



Validation Process – Historical Examples

Day	BPC impact		Total BPC impact (for reference)
	proposed	specific solution	
1	1.1%	2.3%	257,189
2	1.4%	5.6%	140,725
3	1.4%	3.6%	102,490
4	2.4%	4.2%	44,376
5	1.0%	1.8%	88,101
6	1.8%	4.0%	168,761
7	1.5%	1.4%	136,391
8	0.8%	0.8%	169,224
9	0.8%	1.1%	178,338
10	0.4%	0.4%	90,041



Observations

- Modified network (due to specific solution) led to
 - shifted congestion
 - different commitment schedule
 - different flow patterns
- Congestion due to specific constraint still present on some days
- System response subject to
 - system conditions (load levels / generation availability)
 - market conditions (bidding patterns)
 - constraint co-dependency
- Small changes result in large BPC fluctuations



Next Steps

- Reevaluate process and objectives
- Request feedback from group and NYISO

