

Description

Sensitivity: High gas prices
 Sensitivity: Vary energy market prices +/- 30%
 Sensitivity: 3 WI Nuke out
 Sensitivity: Vary (energy&demand) load forecast +/- 5%
 Sensitivity: Potential plant retirements - based on owner feedback
 Sensitivity: Significant major transmission outage (•e.g. Eau Claire – Arpin 345 kV OOS 1 week)
 Sensitivity: High WI generation development
 Bound benefits: No ATC system constraints
 Sensitivity: Vary Forced Outage Rates (FOR) +/- 25%
 Sensitivity: Impaired gas supply (•Price spikes , •1 week gas main outage)
 Sensitivity: High wind (base assumption?)
 Sensitivity: Replicate spring 1997 conditions
 Bound benefits: Run feasible alternatives in 2009
 Sensitivity: NERC Category "C" outages and/or tower outages
 Bound benefits: Max import transfer capability - WI generation \$1,000 / MWhr & external "free"
 Sensitivity: Vary duration of planned outages +/- 25%
 Sensitivity: Retire Quad Cities and Dresden Nuclear units
 Bound benefits: Multiple "seed" draws
 Bound benefits: Max export transfer capability - (reverse assumptions above)
 Sensitivity: Other:
 Bound benefits: No Eastern Interconnection constraints
 Sensitivity: Other:
 Bound: Other:
 Bound: Other:
 Sensitivity: WI Generators offers are equal to offer cap whenever there is congestion into or within WI

ACEC	Alliant	MSB	WE	WPPI	WPS	Total	Average
1	3	1	1	3	1	10	1.7
10	4	7	2	15	2	40	6.7
18	5	2	4	5	NA	34	6.8
3	10	8	3	14	NA	38	7.6
2	12	3	23	4	3	47	7.8
11	1	20	11	9	5	57	9.5
5	6	13	5	19	NA	48	9.6
6	18	10	13	6	6	59	9.8
7	8	16	8	12	NA	51	10.2
22	2	11	14	10	4	63	10.5
4	11	12	10	16	NA	53	10.6
9	9	4	24	7	NA	53	10.6
8	22	9	6	8	NA	53	10.6
13	7	19	9	11	NA	59	11.8
20	20	5	16	2	NA	63	12.6
14	13	18	7	13	NA	65	13.0
15	14	17	12	18	NA	76	15.2
12	17	15	17	17	NA	78	15.6
21	21	6	15	24	NA	87	17.4
16	15	21	19	20	NA	91	18.2
19	19	14	18	23	NA	93	18.6
17	16	22	20		NA	75	18.8
23	23	23	21	21	NA	111	22.2
24	24	24	22	22	NA	116	23.2
NA	NA	NA	NA	1	NA	NA	NA

Rank

Description	Comments (WE)	Comments (WPPI)
Sensitivity: 3 WI Nuke out	Internal low supply bound	
Sensitivity: High WI generation development	Internal high supply bound	Not likely given the generation already included in the model
Sensitivity: High gas prices	Rates highest on our list of primary production cost drivers - Could be a bound for market behavior	A high gas price case seems very plausible.
Sensitivity: High wind (base assumption?)	External supply resource	Maybe ok as a sensitivity - definitely not a base case given the PTC uncertainty
Sensitivity: Significant major transmission outage (•e.g. Eau Claire – Arpin 345 kV OOS 1 week)	Is Arrowhead-Weston in the topology? Minor impact of week duration	Either 9, 10, or 11 would be sufficient (pick one major contingency to look at)
Sensitivity: Impaired gas supply (•Price spikes , •1 week gas main outage)	Encompassed by "Sensitivity: high gas prices"	
Sensitivity: NERC Category "C" outages and/or tower outages	Could be subjective and not comprehensive - depends on what is modeled	
Sensitivity: Potential plant retirements - based on owner feedback	Encompassed by "Sensitivity: 3 WI nuke out"	
Sensitivity: Replicate spring 1997 conditions	Encompassed by "Sensitivity: 3 WI nuke out"	
Sensitivity: Vary energy market prices +/- 30%	Rates high on our list of primary production cost drivers - Looks to be a good bound for market behavior impact - use bid adder?	I'm not sure what this means since PROMOD calculates market energy prices?
Sensitivity: Vary (energy&demand) load forecast +/- 5%	Rates high on our list of primary production cost drivers	
Sensitivity: Vary duration of planned outages +/- 25%	Internal supply low (encompassed by #4)	
Sensitivity: Vary Forced Outage Rates (FOR) +/- 25%	Internal supply low (encompassed by #4)	
Sensitivity: Retire Quad Cities and Dresden Nuclear units	Indicative of reduced external supply - what bearing does this have on access change case?	
Other: WI Generators offers are equal to offer cap whenever there is congestion into or within WI		WPPI requested this in its SEA comments of July 14, 2004. May need to be an iterative process.
Bound benefits: Multiple "seed" draws	Percentage of error small in change case scenario	Keep this simple - maybe average of a few runs?
Bound benefits: No ATC system constraints	Tests external limits - Expect MTEP & RECB process help reduce significant external seams problems	
Bound benefits: No Eastern Interconnection constraints	Assume internal ATC limits are addressable	
Bound benefits: Max import transfer capability - WI generation \$1,000 / MWhr & external "free"	This seems like more of a curiosity than an impact on whether the project is needed or not	As a bound it would be good to see how much access necessary to eliminate congestion into WI: all hours, 95% of time and 90% of time (see WPPI SEA comments)
Bound benefits: Max export transfer capability - (reverse assumptions above)	This seems like more of a curiosity than an impact on whether the project is needed or not	
Bound benefits: Run feasible alternatives in 2009	Topology and unit construction bound	Would this be run for 2012/2013 or for 2009? May require a lot of work to set up a 2009 case.

WPS suggests that the Access group consider the following sensitivities in the following order:

1. high gas price
2. vary energy market prices +/- 30% (note: need to discuss if this is all generation or just external to ATCLLC)
3. potential plant retirements
4. impaired gas supply
5. significant major transmission outage for extended time (could include a NERC Category C event)
6. bound benefits - no ATC system constraints

WPS did not attempt to rank the remaining sensitivities because we did not identify much value given the resources required to make each PROMOD run. Specifically, we did not identify much value in the multiple seeded draw sensitivities given the number of other assumptions that are made in the process.

MSB

I was quite indifferent to a number of the sensitivities but ranked them nonetheless. I assumed that the sensitivity to market prices was the 3X savings assessment you had already done, something that I did not find particularly useful or persuasive. However, I believe that the gas prices and market clearing prices are key drivers to determining the benefits of improving transmission access in Wisconsin, and would rank the sensitivity to market prices higher if there was a more rigorous way to measure it.

Question	WE answer	WPS answer
Do you have any updates for existing generators, including uprates, derates, planned retirements, fuel switches, significant heat rate changes, etc.?	Chris Hagman has sent data to us and Chris Gedemer has responded to ATC's data request.	We do not made any recent changes to our generator modeling parameters.
Do you believe that 2001 or 2002 is the most representative load shape year? (Because of the flood in Michigan's Upper Peninsula, we have decided not to use 2003 data.)	We Energies has a slight preference for 2002 data, but do not feel the effort to change load shape at this time is required at this time.	We are indifferent to 2001 or 2002 loadshapes (per your conversation with KWittkopf).
The control peak load forecasts are based on the 2004 EIA 411 forecast. The 2005 EIA 411 forecast is still being compiled and will not be ready for several months, so we plan to use the 2004 values.	The 2004 EIA data is adequate.	Concur with 2004 EIA 411 baseline.
Please provide dates when PROMOD's automatic maintenance scheduler should not allow maintenance. (I.e., what should the blackout dates for scheduled maintenance be?)	We believe that the timeframe between June 15th and August 31st should be blocked out.	Auto maintenance schedulers should blackout mid-June through August.
Please provide any other significant changes that we might not be aware of that could affect the PROMOD results.	No comment.	Not aware of any other significant changes.