

**Draft Phase 2 Sensitivities Table from MWG October 3, 2012 Meeting**

Category	Sensitivity	Description	Purpose	Discussion/MWG Recommendation	Scenario 1	Scenario 2	Scenario 3	Sensitivity Count
MWG SSC	Increase Natural Gas Costs	2030 gas price ~\$6.50/mmBtu.	If combined with higher load in S3 – could show useful info about whether our assumptions end up diverging from reality – “perfect storm”/worst case boundary. Could show “how much we could lose” if gas prices do go up. Wouldn’t show much in S1.	CRA – OK ?		X	X States, EUs, PP	
MWG SSC	Increase Natural Gas Costs and Load	2030 gas price ~\$6.50/mmBtu.	If combined with higher load in S3 – could show useful info about whether our assumptions end up diverging from reality – “perfect storm”/worst case boundary.  10/5 --Load – amt from Phase 1? Or slightly lower? Less concerned about including this one.	What would you gain from production cost run, vs. just calculating based on info we already have? Perhaps the combo would yield effects you wouldn’t see form calculation. Could see more DR as you use more high-cost peaking units. Would you need to re-set bottom price on DR?			X	
MWG SSC	Decrease Natural Gas Costs	2030 gas price ~\$6.50/mmBtu.	10/5: Many indicators and forecasts show fuel prices could be lower than what we assumed.	CRA -- OK	X	X	X	
MWG SSC	Load	Raise load 5-10%	To understand impact on curtailments, transmission, or other generation if demand higher than expected.  10/5: Could expose any broader issues across EI. Too much of an increase can’t be modeled, and also wouldn’t be very realistic, since significant changes in load over time would result in building a different system. 10% might give good info reflecting weather variation and also could result in higher DR. 10% could be tough in S1.	CRA -- OK in S2 and S3 but may not be feasible in S1.		X	X	Sens1? – TOs (S1HiLoad)
<b>Curtailment Sensitivities</b>								
SSC	Deactivate % Wind Capacity	Deactivate some % of wind capacity in areas with high curtailment	To see if system can handle less wind, given high levels of wind curtailment.	CRA – Depends on details but may be doable. Can you achieve a NERC compliant system with less wind. Apply uniform percentage reduction across NEEM regions with high curtailment.	X			
SSC	Flowgate Adjustments	Increase transmission capacity	Increase – explore whether more transmission would provide useful information given high levels of curtailment – how much of curtailment is caused by transmission constraints? Could provide information about transmission alternatives for future use	CRA – could possibly change limit (or eliminate) on certain flowgate or set of flowgates but may not provide useful/meaningful results and could violate NERC criteria. GOs, NGOs support TOs concerned	X			Sens6Aor Sens6B (NGOs and GOs)
MWG SSC	Spinning Reserve	Eliminate Spinning Reserves	To understand the cause of wind curtailment.	10/3: Provides technical information and may give the most information showing how important spin contributed to wind curtailment, very easy to model, but does not provide realistic results.  10/5: Alone would show that, if there’s still curtailment,				Sens1 (+PJMIntCom)

				transmission lines aren't big enough. If you add PJM Intertie Commitment as well, might have confounding variables..				
		Allow CTs to provide spin	To provide more resources for spinning; reduce wind curtailment;  10/5: Proxy for recognizing that a more flexible resource (CTs) could be used for spin, resulting in lower commitment of CCs. Believe this will reduce wind curtailment.	May not give much information even if spin is dispersed across regions would show most info. (Possibly in conjunction w/ Intertie commitment sensitivity) TOs concern about further reduction of spin req. Many CTs can't comply with environmental regs in providing spin	X	X		Sens1 - NGOs (+FlexCC +PJMIntCom)
		Apply new operating characteristics of flexible CC	To provide more load following capability and reduce spinning reserves & wind curtailment	May not give much information. Would need new characteristics of units.	X			
MWG SSC	PJM Intertie Commitment	Increase amount of MISO capacity available to PJM for next day commitment. May reduce internal CC generation for spinning reserves and MISO wind curtailment	To reduce wind curtailment  May also include SPP to reflect fullest possible utilization of HVDC in the model	CRA -- OK (Possibly in conjunction w/spinning reserve sensitivity)	X			
<b>Eliminated Sensitivities</b>								
MWG	<b>Demand Response</b>	Modify DR supply curve, especially at lower price tiers	To understand impact of lower cost DR	CRA -- OK if follows same step curve (just raise/lower trigger point) Can calculate how DR might respond to price adjustments, so might not be worth running a sensitivity. Increasing load might yield better info.		X	X	
SSC	<b>Transmission Adjustments</b>	Decrease transmission capacity	Test whether too much transmission capacity (say, in S2 in SPP) was put in	CRA – could possibly change limit (or eliminate) on certain flowgate or set of flowgates but may not provide useful/meaningful results.		X		
SSC	<b>Increase Load on at peak wind</b>	Encourage load increases when wind resources are available (changing load shape so more load at peak wind)	To reduce wind curtailment	CRA – Not sure if feasible, given time limits. May be challenging to target those hours and define new load shapes.	X			
SSC	<b>Change Wind Shape</b>	Change wind shape to approximate storage	To assess benefits of storage for wind curtailment	CRA – Probably not feasible, given time limits.	X			
MWG Low	Hurdle Rates	Lower or remove hurdle rates between all regions	To understand how hurdle rates affect inter-regional flow	CRA – OK.			X	
MWG Low	<b>Wind Performance</b>	Improve wind performance at lower wind speeds (low generation levels)		CRA – Probably not feasible, given time limits.		X		
MWG Low	CO <sub>2</sub> Price Variation	Adjust CO <sub>2</sub> Price. Could be combined with fuel adjustment. CO <sub>2</sub> adds ~\$8/mmBtu.		CRA – OK.	X			

Note: X in scenario boxes represent a first guess at where sensitivities may be applicable. Final selections will need to be limited to six and some sensitivities could have multiple choices (e.g., higher/lower cost)

## **“Homework” For Next call:**

- 1. Fill out slide with your proposal for Sens1, Sens6A, Sens6B, and Predetermined Indicators**
- 2. Prioritize sensitivities 2-5**
- 3. Send your “package” if possible!**

**DUE COB TUESDAY**

**Next calls **Wed. 10/10 3:30-5:00/30 p.m. ET and Thurs. 10/11 3:30-5 p.m.****