

## **Stakeholder Comments Summary For Modeling Assumptions:**

*Note: The comments in italics are from the second round of stakeholder comments.*

### **General Comments Regarding the Futures/Scenarios:**

**We-Energies:** “The bookend 20% renewable studies being performed by MISO at this time are exploratory at best, and it is best to let MISO with the regional perspective model that scenario.” *“...we strongly suggest that we follow up with some additional dialogue between WE and ATC, and additional stakeholders as necessary. We believe that the assumptions section needs to be refined before we move on.”*

**WPSC:** “Besides the base case, one scenario is an expanded RPS (25% BY 2025), lower load growth, 14% reserve margin, old coal retired, replaced by new combined cycle.”

**MGE:** “To the extent reasonable and practical without significantly compromising the integrity and robustness of the methodology and analysis, it seems prudent to align ATC’s futures and model years with MISO’s.” *“...we suggest a no-load-growth rather than slow-load-growth scenario....It seems reasonable to include a 20% wind mandate in one or more appropriate futures.”*

**WOW:** “WOW supports the scenarios or futures proposed by ATC...We feel there is a benefit to the consistency between these scenarios and those that MISO is running in its MTEP09, especially the overlap between the Environmental, DOE 20% Wind Mandate, and the Regulatory Limitation scenarios.”

### **Peak Load and Energy Growth Rates**

**We-Energies:** *“...a mid rate...1.5% looks...reasonable.” “...OK with the Low 0.5/Mid 1.5/High 3.0 load growth values, we suggest maintaining the use of these basic values...instead of other values such as...1.0, 1.3, 2.0 %, etc.”*

**WPSC:** “WPS forecast is approximately 1% to 1.5% per year for energy and demand.”

**MGE:** *“...’Low’ future...At a minimum, we recommend considering a zero-load-growth scenario.”*

### **Amount of Generation within ATC**

**We-Energies:** “With the completion of significant coal projects and possible lower load growth it is possible that new baseload units will not be needed in Wisconsin before 2016...” “I would be careful to not develop scenarios which contain generation that could have a huge impact to exacerbate or mask a problem in a local study area.” *“We feel...the generation assumptions are just guesses - We are ready to assist by providing EGEAS/Strategist analysis to provide proposed future generation based via a resource planning analysis.” “...we believe the retirements modeled are too high in the 2018 and 2023 low to moderate load growth scenarios. Retiring a nuclear plant that is licensed or has requested to be relicensed is not appropriate.”*

**WPSC:** “With lower load growth and the possibility of a lower planning reserve margin, fewer units will be needed. However, with unit de-rates due to environmental controls and retirement of old units, new units will be needed....WPS believes that, after Nelson Dewey, there would probably be no new coal capacity for Wisconsin.”

**WOW:** *“WOW believes it is more appropriate not to include any new coal, except for IGCC with sequestration in the “High Environmental” and “Regulatory Limitation” scenarios.” “We also suggest that it is not appropriate to assume that a 500 MW nuclear addition is cost-effective under the “DOE 20% Wind” scenario.”*

### **Renewables**

**We-Energies:** “The major projects identified in the MTEP for CAPX 2020 are not planned until after 2011, therefore most of the renewables that Wisconsin companies would develop by 2011 would probably come from distributed Wisconsin projects in that time frame.” “2016 could probably see a higher potential for completion of collector and delivery upgrades in Minnesota and Iowa.” “The 80/20 [MISO’s wind siting over their modeling area (most of the Eastern Interconnect) based on 80% in Class 3 areas or higher and 20% sited in Class 2 or higher] still sounds high...an alternate...50/50 for those that believe sufficient transmission can be built in that time.”

We have some specific values in the table below.

Drivers	% Renewables inside/ outside WI <sup>2</sup>	
	2013	2018, 2023
Lower	Inside:	
	75%	65%
	Out:	
	25%	35%
Mid <sup>3</sup>	Inside:	
	75%	65%
	Outside:	
	25%	35%
Upper	Inside:	
	60%	50%
	Outside:	
	40%	50%

**WPSC:** Wind added and sited based on existing state mandates. This seems reasonable, but some sensitivity analyses on variant capacity values and capacity factors of wind would be beneficial...For Wisconsin's RPS, we recommend a 50/50 split between in-state and out-of-state generation.

**MGE:** "These appear to be reasonable assumptions, although there is some discussion of raising RPS requirements to 25% by 2025. Although the potential build-out of bio-mass generation is less than for wind, consideration should be given to including some such generation near available fuel sources, particularly if one or more futures assume strong incentives are adopted to encourage renewable development that includes bio-mass."

**WOW:** "...we feel that all scenarios, including the reference case, should model, at a minimum, the amount of renewables required by state mandates in the Midwest." "...it is valuable to do the DOE 20% Wind Mandate scenario, and model within that scenario a minimum of 20% of Wisconsin's load met by renewables." "We suggest that ATC consider the renewable resources in the MISO queue, along side the best available wind resource data maps, to site the amount of renewables needed to meet the Wisconsin commitments in each scenario with greater detail...WOW also suggests that ATC model at least 50% of the Wisconsin wind outside the state, likely located in Minnesota and Iowa."

"WOW suggests that for 2018 and 2023, the mid-level percentage should be 15% rather than 10%. We are comfortable keeping the mid-level percentage for 2013 at 8%."

### Internal/External Transmission

**We-Energies:** "CAPX2020 group 1 and of course MISO APP A projects should be in all study scenarios." "We do not think that this economic forum should be used to investigate the former "Access" projects which were already evaluated."

**WPSC:** "Internal build-out based on ATC's Ten Year Assessment. This is a good assumption for internal transmission. External Transmission is difficult to predict. Much of the external transmission will be driven by all the new wind generation in Minnesota, Iowa, South Dakota and North Dakota. How do you model wind, and is building 345 kV line adequate versus 765 kV lines are two good questions to explore."

**WOW:** "WOW believes all scenarios should include the CapX Group I transmission lines. For ATC's focus on additional lines internal to their system, WOW suggests they include lines that can support additional imports from the West, such as the North La Crosse to Middleton line. ATC should also work to identify additional lines that can aid in the delivery of imports from the West."

### Natural Gas Costs

**We-Energies:** "We agree...with ATC's proposal to blend the NYMEX and EIA projections."

**WPSC:** "ATC assumes NYMEX for 5 years then escalates at EIA rate. This is reasonable."

**MGE:** “A lower range of -30% and an upper range of +40% for gas prices seem to be plausible bounds. ...The differential between winter and summer costs will probably tend to continue to decline somewhat, but it is difficult to reliably quantify.”

### **Coal Costs**

**We-Energies:** “...we see the \$1.67 in 2018 to be too low and that a \$2.00 proxy to be more in line with expectations.”

**WPSC:** “WPS, based on public data, believes that delivered coal is at \$ 2.00/MMBtu by approximately 2010. Transportation cost is a big issue. WPS also recommends a base price escalation rate of 3% per year for coal.”

**MGE:** “An upper plausible bound of 10% seems too low for coal delivered to Wisconsin, and possibly outside Wisconsin. A cost increase of 30% by 2014 or so for coal delivered in Wisconsin seems plausible due to demand for both the commodity and transport.”

### **CO<sub>2</sub> Tax**

**We-Energies:** “The \$25/ton seems more reasonable in lieu of more information. Consistency with MISO may be reason enough to use 25\$/ton.”

**WPSC:** “Use of PSCW number from AP6 seems appropriate on this issue. The SEA referred a cost of \$23/ton in 2007, which the WPSC recommends for use in this study. Existing coal will still dispatch ahead of existing CC until CO<sub>2</sub> reaches approximately \$50/ton.”

**MGE:** “Both \$25 and \$44 per ton are in the range we’ve seen for projected CO<sub>2</sub> costs. The EU [European Union] has generally been between \$20 and \$30, so \$25 seems reasonable at this point. It is plausible, if not likely, that real CO<sub>2</sub> costs will escalate over time. If federal legislation is passed that aggressively limits CO<sub>2</sub> emissions (a big “if”), then CO<sub>2</sub> costs may approach \$44 (or more) per ton.”

**WOW:** “WOW is comfortable with the use of \$25/ton for the future value of carbon emission costs, along with a 25% increase in mercury costs. However, we believe this value to be in the mid-range of future possibilities. WOW suggests that ATC run a sensitivity with a higher value for carbon, such as \$40-\$44/ton.”

*“At the very least, we suggest the \$25/ton carbon value be included in the “Regulatory Limitation” scenario. However, we feel it should also be included in the “Robust Economy” and “DOE 20% Wind” scenarios. WOW again suggests that ATC run a sensitivity with a higher value for carbon, such as \$40-\$44/ton in at least one scenario.”*