

DRAFT - PRELIMINARY

ATC Futures for the 20XX¹ Study Year

Date: 2-15-11

Drivers ²	Load Growth within ATC	Energy Growth within ATC	Load Growth outside ATC ³	Energy Growth outside ATC ³	Total Coal Retirements (or conversions to natural gas) Within ATC ⁴	Generator Additions Within ATC	Total Percent Energy from Renewables for ATC & Inside/Outside Percent	Natural Gas Price Forecast	Coal Price Forecast for New Units ⁵	Environmental Regulations ⁶	Renewable Portfolio Standards (RPSs) and Wind Power Zones (GW: Existing Model / Expansion / Total)	Transmission Overlay Outside ATC	Generation Portfolio Outside ATC ¹¹
Bounds	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year
Lower	0.2%	0.1%	0.3%	0.3%	2,039 MW	Planned Wind, DRG ¹² , Plus required expansion generation (Wind / Fossil)	10 / 7.4 / 2.6 %	- 40%	- 10%	\$0/ton for CO ₂ , 0% higher mercury costs	Current State RPSs for MN, IA, IL & WI (for 2026) and Allocation to Wind Zones located only in the UMTDI States in Proportion to Associated Cap. Factors ⁷	Overlay Light-CAPX, Corridor & RIGO Projects MISO MVP Starter Projects	MISO Gas Only
Mid	1.40%	1.10%	0.75%	1.00%	907 MW	Planned Wind, DRG ¹² , Plus required expansion generation (Wind / Fossil)	20 / 10.5 / 9.5 %	NYMEX for as many years as available followed by EIA esc. Rate	Mid (Actual - Projected)	\$25/ton for CO ₂ , 25% higher mercury costs	WI 20% ⁸ RPS & MN, IA & IL RPSs (for 2026) and Allocation to RGOS I Wind Zones in Proportion to Associated Capacity Factors ⁹	RGOS UMTDI Local 345 kV / 765 kV	MISO Reference
Upper	2.5%	2.2%	1.6%	2.19%	Announced (289 MW)	Planned Wind, DRG ¹² , Plus required expansion generation (Wind / Fossil)	25 / 13 / 12 %	+ 50%	+ 20%	\$50/ton for CO ₂ , 25% higher mercury costs	WI 25% ⁸ & All MISO States with an RPS (for 2026) and Allocation to RGOS I Wind Zones in Proportion to Associated Capacity Factors ¹⁰	RGOS Intra-Regional Transfer 345 kV / 765 kV	OMS CARP
20XX Futures Descriptions¹³													
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Notes :

- 1) Study Year or Years are not yet defined.
- 2) Drivers and values as shown are solely those used by ATC in its previous 2026 PROMOD Futures. This is intended as a starting point for discussion in the 2011 analysis process.
- 3) Outside ATC is defined as all of MISO, the Non-MISO Midwest Reliability Organization (MRO) Areas and Commonwealth Edison excluding the ATC utilities (e.g. Alliant, MG&E, We Energies, WPPI, and WPS). Load and energy growth rates are those from the Orga
- 4) Some small coal-fired retirements have been publicly announced and/or have recently occurred and are included as basecase assumptions. Conversion of Blount 6 & 7 from coal to natural gas at the end of 2011 is included in the "Announced" coal-fired re
- 5) Most existing coal-fired generators have unit specific coal price forecasts from Ventyx (formerly NewEnergy Associates).
- 6) The upper CO₂ tax of \$50/ton is consistent with values used by MISO in the OMS CARP analysis. The generation expansion plan comes from MISO so the CO₂ tax only affects generation dispatch in ATC's PROMOD model. CAIR's and CAMR's status is uncertain,
- 7) The RPS requirements for Illinois, Michigan, Ohio-Pennsylvania & Missouri are currently assumed to be met internally. This assumption was made to be consistent with the Upper Midwest Transmission Development Initiative (RGOS, Phase 1) which includes
- 8) Based on the Wisconsin Governor's Task Force on Global Warming (GWTF) recommendation of 20% by 2020 and 25% by 2025.
- 9) RGOS is MISO's Regional Generator Outlet Study. The RGOS wind zones include the UMTDI wind zones plus zones in Illinois. The RPS requirements for the eastern RGOS states (including MI, OH-PA & MO) are assumed to be met internally.
- 10) Sufficient wind power is added so that all of the Load Serving Entities (LSEs) within MISO that have state RPS requirements can meet them from wind power coming from the RGOS I wind zones. However, the wind power to meet Michigan's RPS must be met by in-state resources and therefore does not come from the RGOS I wind zones. States without RPS requirements as of 9/15/09 with MISO LSEs include Indiana and Kentucky. North and South Dakota have renewable goals, rather than mandates, and are therefore not included in the requirements.
- 11) Reference and Gas-Only refer to separate MISO generation expansion plans and futures. ATC utilizes the identified generator additions within these expansion plans in order to develop its futures based on changes in peak demand forecasts. For cases where peak demand growth is low, generating units are typically removed from the expansion plan and may not be used at all for significantly low growth rates. For cases where peak demand growth is high, generating units are added to accommodate this growth. Reference refers to expansion consisting of CT Gas, Combined Cycle, and ST Coal generators. Gas-Only refers to expansion consisting of CT Gas and Combined Cycle generators. OMS CARP expansion was used for the Carbon Constrained Future in alignment with the MISO OMS CARP Cap and Trade Scenario.
- 12) Distributed Renewable Generation (DRG) provides 0.5% of the energy subject to the WI RPS in 2020 and includes Solar PV, Biogas, and Wind. Depending on the assumed energy growth rate, this percentage results in up to 67 MW of DRG. PSC Staff assumed 80 MW of DRG in its ratepayer impact scenario in its 5/20/09 Advanced Renewable Tariff (ART) Memo.
- 13) Futures to consider have not yet been developed but will be based on feedback regarding Drivers. ATC may limit the number of futures analyzed as a part of the 2011 Order 890 Economic Analysis Process