	Uncertainties																														
	Capital Costs														Demand and Energy					Fuel Cost (Starting			Fuel Escalations			Emission Costs			Other Variables		
Future	Coal	CC	CT	Nuclear	Wind Onshore	IGCC	IGCC w/ CCS	CC w/ CCS	Pumped Storage Hydro	Compressed Air Energy	Photovoltaic	Biomass	Conventional Hydro	Wind Offshore	Demand Response Level	Energy Efficiency Level	Demand Growth Rate	Energy Growth Rate	Natural Gas Forecast	Oil	Coal	Uranium	Oil	Coal	Uranium	SO_2	NO_x	CO_2	Inflation	Retirements	Renewable Portfolio Standards
Business As Usual	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	L	L	L	M	L	L
High Growth	H	H	H	H	H	H	H	H	H	H	H	H	H	H	M	M	H	H	H	M	M	M	H	H	H	L	L	L	H	L	L
Limited Growth	L	L	L	L	L	L	L	L	L	L	L	L	L	L	M	M	L	L	L	L	L	M	L	L	L	L	L	L	L	L	L
Generation Shift	M	H	H	M	M	M	M	M	M	M	M	M	M	M	H	H	M	M	M	L	L	M	M	M	M	L	L	M	M	M	M
Public Policy	H	H	H	M	M	M	M	M	M	M	M	M	M	M	H	H	M	M	M	L	L	M	M	M	M	L	L	H	M	H	H

To download the full MISO MTEP15 Futures Matrix please use the link below:

https://www.misoenergy.org/_layouts/MISO/ECM/Redirect.aspx?ID=169946

For more information on the MISO MTEP15 Futures please visit the MISO PAC site:

https://www.misoenergy.org/StakeholderCenter/CommitteesWorkGroupsTaskForces/PAC/Pages/home.aspx

MTEP15 FUTURES MATRIX

Uncertainty	Unit	Low (L)	Mid (M)	High (H)
New Generation Capital Costs[1]				
Coal	($/KW)	2,247	2,996	3,745
CC	($/KW)	783	1,045	1,306
CT	($/KW)	518	690	863
Nuclear	($/KW)	4,235	5,647	7,058
Wind-Onshore	($/KW)	1,525	2,034	2,542
IGCC	($/KW)	2,898	3,864	4,830
IGCC w/ CCS	($/KW)	5,054	6,738	8,423
CC w/ CCS	($/KW)	1,604	2,139	2,674
Pumped Storage Hydro	($/KW)	4,050	5,400	6,750
Compressed Air Energy Storage	($/KW)	957	1,276	1,595
Photovoltaic	($/KW)	2,225	2,966	3,708
Biomass	($/KW)	3,151	4,201	5,251
Conventional Hydro	($/KW)	2,248	2,998	3,747
Wind-Offshore	($/KW)	4,771	6,362	7,952
Demand and Energy				
Demand Growth Rate[2]	%	0.14%	0.80%	1.50%
Energy Growth Rate[3]	%	0.14%	0.80%	1.50%
Demand Response Level[4]	%		State mandates only	State mandates and goals
Energy Efficiency Level[4]	%		State mandates only	State mandates and goals
Natural Gas				
Natural Gas[5]	($/MMBtu)	Bentek -20%	Bentek forecast from Phase III Gas Study	Bentek +20%
Fuel Prices (Starting Values)				
Oil	($/MMBtu)	Powerbase default -20%	Powerbase default[6]	Powerbase default + 20%
Coal	($/MMBtu)	Powerbase default -20%	Powerbase default[7]	Powerbase default + 20%
Uranium	($/MMBtu)	0.91	1.14	1.37
Fuel Prices (Escalation Rates)				
Oil	%	2.0	2.5	4.0
Coal	%	2.0	2.5	4.0
Uranium	%	2.0	2.5	4.0
Emissions Costs				
SO_2	($/ton)	0	0	500
NO_x	($/ton)	0	0	NO_x: 500 Seasonal NO_x: 1000
CO_2	($/ton)	0	10	TBD: in 50 - 75 range
Other Variables				
Inflation	%	2.0	2.5	4.0
Retirements	MW	12,600 MW	12,600 MW + 11,600 MW age-related retirements = 24,200 MW[8]	TBD: in 24 - 30 GW range
Renewable Portfolio Standards	%	State mandates only	20% MISO-wide mandate Solar 5% of overall mandate	30% MISO-Wide Mandate Solar 10% of overall mandate

[1] *All costs are overnight construction costs in 2014 dollars; sourced from EIA and escalated according to the GDP Implicit Price Deflator; H*

[2] *Mid value for demand growth rate is the Module-E 50/50 load forecast growth rate*

[3] *Mid value for energy growth rate is the Module-E energy forecast growth rate*

[4] *MTEP13 modeled state mandates and goals for DR & EE*

[5] *Prices reflect the Henry Hub natural gas price*

[6] *Powerbase default for oil is $19.39/MMBtu; based on MTEP13 database*

[7] *Powerbase range for coal is $1 to $4, with an average value of $1.69/MMBtu; based on MTEP13 database*

[8] *11,600 MW value is based on MTEP13 database*