

Task Force Scenario #1 (Renewables/DSM to replace FPP)

Choose Your Generation Mix

See "References" tab for 2008 CF and EF references

Schedule of power generation additions and subtractions (net MW)													CF (% avg. 2009-2020)	CO ₂ EF (metric tons/MWh)				
Power Source	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019			2020			Max CF (%)
Coal	607				-305		-302								83%	0.99		
Nuclear	422														87%	0.00		
Natural Gas Turbines - Sand Hill 1-4	189		100												21%	0.53	25%	10%
Natural Gas Combined Cycle - Sand Hill 5	312														69%	0.36	70%	61%
Natural Gas Steam Turbines - Decker 1 & 2	741														15%	0.56	20%	1%
Natural Gas Turbines - Decker	193														5%	0.79	10%	1%
Onshore Wind	274	165			400		300				350				41%	0.00		
Coastal Wind	0				100		100								42%	0.00		
Biomass	0				100										90%	0.00		
FPP w/ biomass co-firing	0														90%	0.00		
Landfill Gas	12						15								85%	0.00		
Solar PV - Centralized	0		30												26%	0.00		
Solar PV - Distributed	1		5	10	20	30	50	80	85	90	100	115	165		26%	0.00		
Concentrated Solar	0														32%	0.00		Parabolic Trough
IGCC w/ CCS	0														83%	0.13		
IGCC w/o CCS	0														83%	0.87		
Geothermal	0					25			25						95%	0.00		
Storage	0														0%	0.00		Storage Type 0 Hours of St
Accelerated Conservation	0		10	20	30	30	30	30	30	30	30	30	30		0%	0.00		Meet conservation demand? Yes
Purchased Power	0														100%	0.59		

Scenario Output Summary

System Reliability in 2020		Costs and Economic Impacts through 2020	
% of Annual Electricity Demand Met	100%	Total Expected Capital Costs through 2020 (\$ million)	4,870
% of Peak Hourly Demand Met	100%	Annual Expected Fuel Costs in 2020 (\$ million)	260
Carbon Impacts in 2020		Expected Increase in Cost of Electricity in 2020 (¢/kWh)	
Carbon Emissions (metric tons)	855,800		2.3
% Generation from Renewables in 2020	61.8%		
% Capacity from Renewables in 2020	57.5%		

Environmental Report

	2020 Levels	Total Reduction (from 2009)	% Reduction (from 2009)
Carbon Dioxide (metric tons)	855,846	5,358,636	86%
Sulfur Dioxide (metric tons)	262	13,539	98%
Nitrogen Oxides (metric tons)	859	1,877	69%
Carbon Monoxide (metric tons)	1,308	3,444	72%
Total Solid Particulates (metric tons)	40	1,109	96%
Volatile Organic Compounds (metric tons)	112	29	21%
Mercury (lbs)	0	208	100%
Water Requirements (gallons)	5,361,852,018	3,886,168,153	42%
Water Intensity (gallons/kWh)	0.38	0.39	-

Assumptions / Issues :

- Increase DSM to 1000 MW by 2020
- 750 MW of distributed solar PV is customer sited and owned at an average \$1 watt rebate. Attached is a study on solar PV for Austin that includes annual capacity factors for solar PV in Austin; actuals have been about 15%. Could use yearly solar data for Webberville and scale down with distributed solar PV capacity factor.
- Coastal wind needs a coastal wind profile and different costs than onshore wind (assumed to be West Texas)

Task Force Scenario #2 1000 MW DSM Replacement at Least Cost-Strawman as base case

Choose Your Generation Mix													See "References" tab for 2008 CF and EF references				
Schedule of power generation additions and subtractions (net MW)													CF (% avg. 2009-2020)	CO ₂ EF (metric tons/MWh)	Max CF (%)	Min CF (%)	
Power Source	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019					2020
Coal	607													83%	0.99		
Nuclear	422													87%	0.00		
Natural Gas Turbines - Sand Hill 1-4	189		100											18%	0.53	25%	10%
Natural Gas Combined Cycle - Sand Hill 5	312							200						61%	0.36	70%	61%
Natural Gas Steam Turbines - Decker 1 & 2	741													7%	0.56	20%	1%
Natural Gas Turbines - Decker	193													3%	0.79	10%	1%
Onshore Wind	274	165		135			50	100		200			100	41%	0.00		
Coastal Wind	0													42%	0.00		
Biomass	0				100									90%	0.00		
FPP w/ biomass co-firing	0													90%	0.00		
Landfill Gas	12													85%	0.00		
Solar PV - Centralized	0		30											26%	0.00		
Solar PV - Distributed	1						20			20			30	26%	0.00		
Concentrated Solar	0													32%	0.00	Parabolic Trough	
IGCC w/ CCS	0													83%	0.13		
IGCC w/o CCS	0													83%	0.87		
Geothermal	0													95%	0.00		
Storage	0													0%	0.00	Storage Type 0 Hours of St	
Accelerated Conservation	0		10	20	30	30	30	30	30	30	30	30	30	0%	0.00	Meet conservation demand? Yes	
Purchased Power	0													100%	0.59		

Scenario Output Summary		Costs and Economic Impacts through 2020	
System Reliability in 2020		Carbon Impacts in 2020	
% of Annual Electricity Demand Met	100%	Total Expected Capital Costs through 2020 (\$ million)	2,400
% of Peak Hourly Demand Met	100%	Annual Expected Fuel Costs in 2020 (\$ million)	330
Carbon Emissions (metric tons)	5,280,700	Expected Increase in Cost of Electricity in 2020 (¢/kWh)	1.7
% Generation from Renewables in 2020	31.8%		
% Capacity from Renewables in 2020	30.9%		

Environmental Report	2020 Levels	Total Reduction (from 2009)	% Reduction (from 2009)
Carbon Dioxide (metric tons)	5,280,724	933,757	15%
Sulfur Dioxide (metric tons)	948	12,853	93%
Nitrogen Oxides (metric tons)	2,771	-35	-1%
Carbon Monoxide (metric tons)	5,312	-561	-12%
Total Solid Particulates (metric tons)	1,109	40	4%
Volatile Organic Compounds (metric tons)	187	-45	-32%
Mercury (lbs)	203	4	2%
Water Requirements (gallons)	8,908,541,163	339,479,008	4%
Water Intensity (gallons/kWh)	0.64	0.14	-

Assumptions / Issues :

- Increase DSM to 1000 MW by 2020
- 70 MW of distributed solar PV (solar investment beyond 30 MW at Webberville) is customer sited and owned at an average \$1 watt rebate
- Run-down coal plant when possible; treated the same way as the Staff Recommendation using economic dispatch

Presented Results:

- Standard screening analysis results in spreadsheet format and slideshow format
- Results shown with and without off-system sales (not to be provided in slideshow format) and delineate the FPP sales from other off-system sales