

Austin Generation Resource Planning Task Force

9-23-09

General Modeling Assumptions:

- DSM costs: \$500 expected with a range of \$350-\$750
- Pace's capital costs (mid-years), levelized costs (2020), projected load (both at peak and annual energy demand) and capacity factor assumptions used. These assumptions are not used in the initial model provided to Task Force, but are similar.
- All other assumptions as defined by the Austin Energy Resource Portfolio Simulator user's guide

Staff Recommendation (base model)

Choose Your Generation Mix

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 (%)	Min C
Coal	607													72%	0.95		
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						70%	0.39	70%	61%
Natural Gas Steam Turbines - Decker 1 & 2	741													9%	0.65	20%	1%
Natural Gas Turbines - Decker	193													3%	0.70	10%	1%
Onshore Wind	274	165		123		150		100		74			115	41%	0.00		
Offshore Wind	0													42%	0.00		
Biomass	0				100				50					86%	0.00		
FPP w/ biomass co-firing	0													89%	0.00		
Landfill Gas	12													79%	0.00		
Solar PV - Centralized	0		30				30		20	30	20	30	40	26%	0.00		
Solar PV - Distributed	1													26%	0.00		
Concentrated Solar	0													32%	0.00		Parabolic Trough
IGCC w/ CCS	0													84%	0.13		
IGCC w/o CCS	0													84%	0.87		
Geothermal	0													95%	0.00		
Storage	0													0%	0.00		Storage Type 0
Accelerated Conservation	0		5	8	9	9	10	11	10	10	9	10	9	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		Pace	AE
% of Annual Electricity Demand Met	100%	Total Expected Capital Costs through 2020 (\$ million)		2,700	
% of Peak Hourly Demand Met	100%	Annual Expected Fuel Costs in 2020 (\$ million)		410	
Carbon Impacts in 2020		Expected Increase in Cost of Electricity in 2020 (¢/kWh)		2.7	2.8
Carbon Emissions (metric tons)	4,491,400	4580			
% Generation from Renewables in 2020	34.0%	36			
% Capacity from Renewables in 2020	33.0%	33			
		Pace			

**Renewables/DSM to replace FPP
(Submitted by Cyrus Reed – 9/22/09)**

Choose Your Generation Mix

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 (%)	Min C
Coal	607				-120		-120		-120		-120		-127	83%	0.95		
Nuclear	422													87%	0.00		
Natural Gas Turbines - Sand Hill 1-4	189		100											25%	10%		
Natural Gas Combined Cycle - Sand Hill 5	312													70%	61%		
Natural Gas Steam Turbines - Decker 1 & 2	741													16%	0.65		20%
Natural Gas Turbines - Decker	193													7%	0.70		10%
Onshore Wind	274	165					200		300	300	100	100	350	41%	0.00		
Offshore Wind	0													42%	0.00		
Biomass	0				100									86%	0.00		
FPP w/ biomass co-firing	0													89%	0.00		
Landfill Gas	12						15							79%	0.00		
Solar PV - Centralized	0		30				50		50		50		50	26%	0.00		
Solar PV - Distributed	1			10	10	10	10	10	10	10	10	10	10	26%	0.00		
Concentrated Solar	0													32%	0.00		Parabolic Trough
IGCC w/ CCS	0													84%	0.13		
IGCC w/o CCS	0													84%	0.87		
Geothermal	0					25			25					95%	0.00		
Storage	0													0%	0.00		Storage Type 0
Accelerated Conservation	0		10	20	20	20	20	20	20	20	20	20	10	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		Pace	AE
% of Annual Electricity Demand Met	100%	Total Expected Capital Costs through 2020 (\$ million)	4,530		
% of Peak Hourly Demand Met	95%	Annual Expected Fuel Costs in 2020 (\$ million)	320	344	
Carbon Impacts in 2020		Expected Increase in Cost of Electricity in 2020 (¢/kWh)	3.5	2.8	2
Carbon Emissions (metric tons)	1,332,100				
% Generation from Renewables in 2020	56.9%				
% Capacity from Renewables in 2020	54.0%				
		4580			
		36			
		33			
		Pace			

**Additional Assumptions:
Model Result Concerns:**