RELIABILITY FACTORS

Fuel	Typical Plant Type	Thousands of Households Served by Typical Power Plant (Note 1)	Frequency of Major Maintenance	Planned / Unplanned Outages	Typical Capacity Factor	Technological Risk	Annual Thousand MWH
Coal - APC	650 MW	413	Boilers require annual maintenance but long term maintenance on steam turbine every 8-10 years	Scheduled 9% per year. Forced Outage 3-4% (Overall Availability factor 87%)	80%	Considered standard technology	4,555
Coal - New Technology (APC with CCS)	650 MW	413	Annual major maintenance	Scheduled 9% per year. Forced Outage 6% per year (Overall Availability Factor 85%)	80%	APC with CCS is just entering demonstration phase- unproven technology.	4,555
Natural Gas - Combined Cycle	540 MW	279	Approximately every 8,000 operating hours	Scheduled - 5% per year Forced Outage 2% per year	65%	Considered standard technology	3,075
Advanced Nuclear	2,200 MW	1571	Annual major maintenance	Forced outages typically less than 1%	90%	Conventional nuclear technology is considered standard today in the industry	17,345
Hydro (Note 2)	500 MW	198	Generally a few days each year	Scheduled - 1% and Forced Outage 1% per year	50%	Considered standard technology	2,190
Geothermal	50 MW	34	Every 6 to 8 years	Scheduled 5% per year. Forced Outage 1% per year.	85%	Most technical issues with geothermal plants have become manageable by qualified geothermal operators	372
Biomass - MSW	50 MW	32	Boiler major maintenance each Spring and Fall, Steam turbine major maintenance every 8-10 years	Scheduled 15% per year. Forced Outage 5%per year. Average availablity 80%	80%	Complex process but standard technolgies	350
Biomass - BFB (Note 3)	50 MW	30	Boiler major maintenance each Spring and Fall, Steam turbine major maintenance every 8-10 years	Scheduled 8% per year. Forced Outage 3% per year. Average availability 89%.	75%	Tree and other crop wastes are considered standard technology	329
Solar - PV	150 MW	24	Every 6 years	Scheduled 2% per year and forced outage 2% per year	20%	Vendor experience and manufacturing capability varies and can be risk	263
Wind - Onshore	100 MW	28	None - unless there is a failure	Approximately 4% per year	35%	Newer, larger turbines not yet mature technology	307

Notes:
1) Based on 11,040 KWh of electricity consumed per household in the United States in 2008
2) Hydro capacity factor varies with hydrology
3) Capacity factor can be lower depending on fuel price