Levelized Cost of Energy

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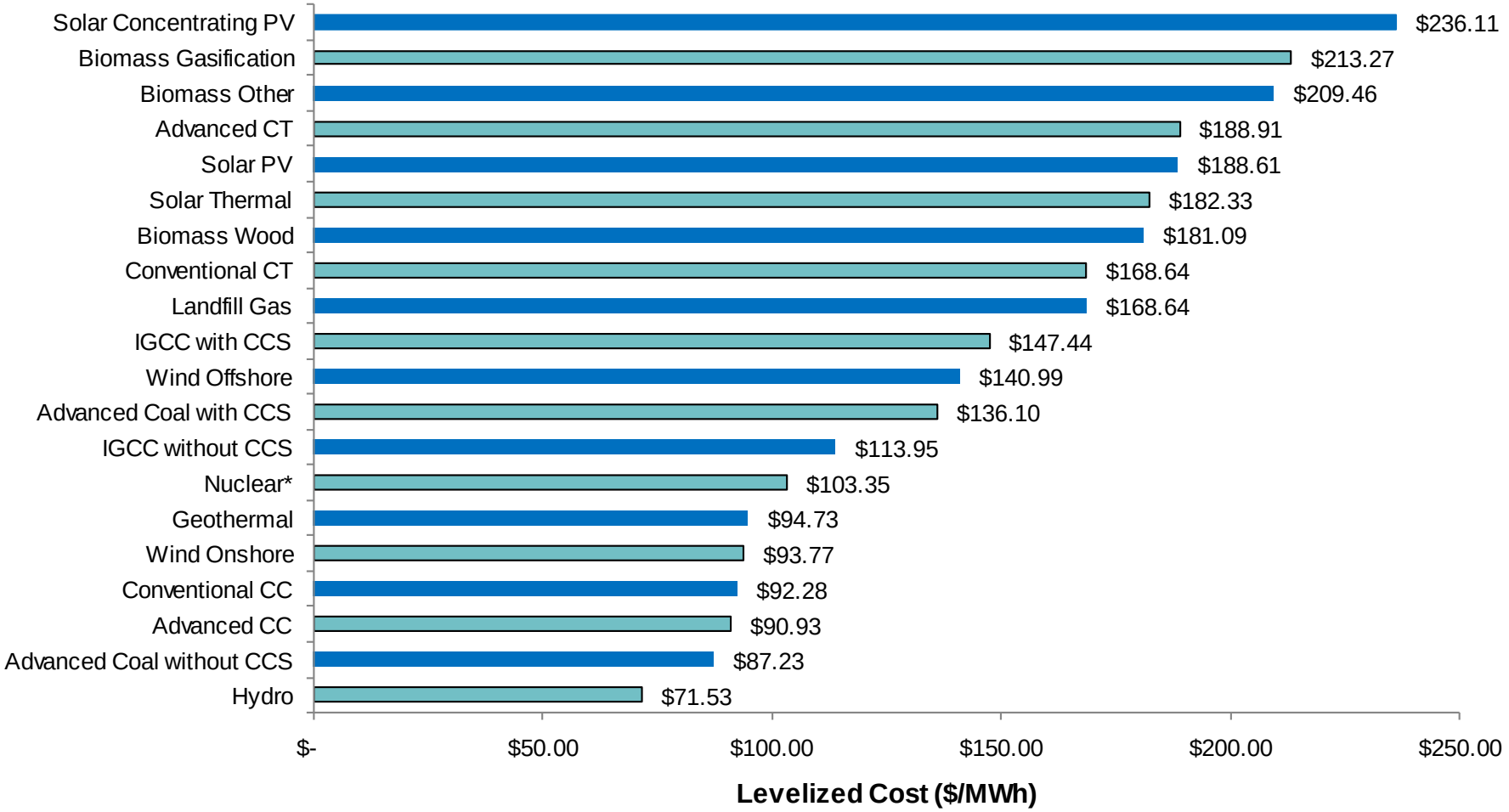
Levelized Cost Model Assumptions

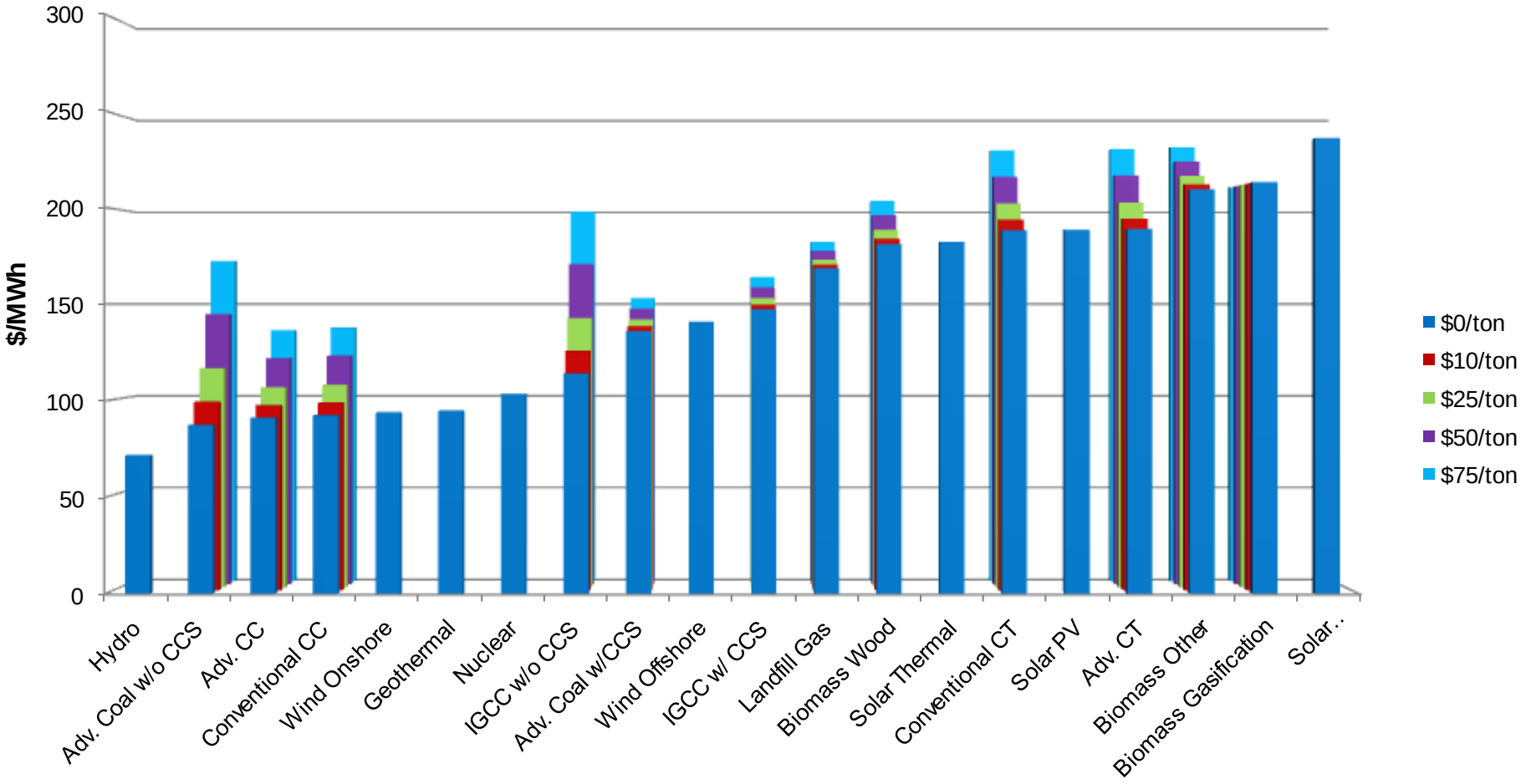
	Capacity (MW)	Capacity Factor	Heat Rate	Capital ($/kW)	Plant Life	Fuel Cost	Fixed O&M	Variable O&M
Adv. Coal w/o CCS	608	78%	9,043	$2,431	20 yrs	$2.00	$24.68	$3.95
Adv. Coal w/ CCS	625	80%	11,950	$5,225	20 yrs	$2.00	$54.11	$7.33
IGCC w/o CCS	625	58%	8,891	$3,111	20 yrs	$2.00	$40.37	$5.79
IGCC w/ CCS	539	58%	10,721	$4,590	20 yrs	$2.00	$47.57	$7.04
Conv. CT	170	10%	10,780	$777	20 yrs	$5.00	$8.12	$12.50
Adv. CT	100	10%	9,654	$920	20 yrs	$5.00	$13.09	$5.37
Conv. CC	250	50%	7,217	$924	20 yrs	$5.00	$10.01	$2.61
Adv. CC	400	50%	6,746	$971	20 yrs	$5.00	$11.00	$2.89
Nuclear	1165	90%	10,343	$5,281	40 yrs	$0.75	$67.04	$4.05
Solar PV	12	33%	9,884	$4,940	20 yrs	$ -	$19.02	$ -
Concentrating Solar	63	31%	9,884	$5,995	20 yrs	$ -	$30.41	$ -
Solar Thermal	91	38%	3,295	$5,405	20 yrs	$ -	$55.62	$ -
Wind Onshore	75	35%	3,295	$2,134	20 yrs	$ -	$29.90	$ -
Wind Offshore	200	40%	4,942	$4,137	20 yrs	$ -	$63.42	$ -
Geothermal	40	79%	10,990	$3,799	20 yrs	$ -	$99.40	$9.73
Biomass Wood	40	76%	12,954	$4,266	20 yrs	$5.00	$154.86	$9.39
Biomass Other	1	50%	17,500	$6,600	20 yrs	$1.00	$50.68	$15.20
Biomass Gasification	35	75%	12,350	$7,500	20 yrs	$3.00	$338.79	$16.64
Hydro	500	75%	9,884	$3,076	20 yrs	$ -	$13.44	$ -
Landfill Gas	22	79%	14,179	$3,854	20 yrs	$4.50	$178.85	$5.52

Levelized Cost of Energy Comparison



*Nuclear includes a $1 billion allowance for decommissioning costs

Levelized Cost of Energy: Sensitivity to Carbon Costs



Market Clearing Prices: Houston 2007-2009

-Market Clearing Prices for Houston from 2007-2009 were lower than the levelized cost of a CC with Henry Hub Natural Gas Prices

-The difference in MCP and Levelized Cost in this situation is a loss to the generators

-Combined Cycle Capacity Factor is approximately 50%

Capacity Factor	2007	2008	2009
15%	$108.34	$202.51	$79.08
30%	$85.27	$142.67	$56.92
50%	$72.58	$111.11	$45.42
75%	$62.87	$89.53	$37.34
90%	$57.95	$79.17	$33.89
Henry Hub	$6.98	$8.85	$3.95
Comb Cycle Levelized Cost	$106.49	$121.19	$82.67

Generic Generating Resource Assumptions

- **Operating characteristics for major generating resources**

Technology	Capacity	Heat Rate	Min Capacity	Min up time	Min down time	Variable O&M	Start Cost	Estimated CF
	(MW)	(BTU/kWh)	(MW)	(HRs)	(HRs)	($/MWh)	($)	(%)
Conventional CC (F type)	500	7,200	200	6	8	2.65	10,000	50%
Advanced CC (H type)	400	6,700	250	6	8	2.90	15,000	50%
Conventional CT (F type)	170	10,500	130	2	3	8.00	7,500	10%
Advanced CT (LMS100)	100	9,200	70	2	3	13.00	10,000	10%
Supercritical Coal	600	9,000	250	24	12	3.95	5,000	75%
Supercritical Coal W/ CCS	625	11,950	250	24	12	7.35	7,000	80%
IGCC	625	9,000	250	24	12	5.75	5,000	60%
IGCC W/ CCS	539	10,700	250	24	12	7.00	7,000	60%
Nuclear	1,100	10,300	600	168	48	4.00	-	90%
On shore Wind	100	-	-	-	-	-	-	35%
Off Shore Wind	100	-	-	-	-	-	-	40%
Geothermal	40	11,000	20	8	8	10.00	-	80%
Biomass - wood	40	13,000	15	8	8	9.50	2,500	75%
Biomass - other	1	17,500	3	8	8	15.00	1,000	50%
Solar PV	10	-	-	-	-	-	-	33%
Solar Thermal	100	-	-	-	-	-	-	38%