

Table 1: New Build and Retrofit Assumptions Developed and Used By CATF

EW BUILD																															
ew Unit Name	SCPCBitSeq4			SCPCBitSeq90			IGCCBitSeq4			IGCCBitSeq90			CCSeq90			SCPCPRBSeq4			SCPCPRBSeq90			SCPCLogSeq4			SCPCLogSeq90						
	New Bitum PC						New Bitum IGCC						New NGCC						New PRB w/Hybrid Cooling						New Lignite w/Hybrid Cooling						
Context (New, Retro)	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New
Location	Midwest	Midwest	Midwest	Midwest	Midwest	Midwest	Midwest	Midwest	Midwest	Midwest	Midwest	Midwest	Midwest	Midwest	Midwest	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	ND	ND	ND	ND	ND	ND
Cooling	Wet Tower	Wet Tower	Wet Tower	Wet Tower	Wet Tower	Wet Tower	Wet Tower	Wet Tower	Wet Tower	Wet Tower	Wet Tower	Wet Tower	Wet Tower	Wet Tower	Wet Tower	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Lignite	Lignite	Lignite	Lignite	Lignite	Lignite
Fuel (Bitum, PRG, Lignite, Gas)	Bitum	Bitum	Bitum	Bitum	Bitum	Bitum	Bitum	Bitum	Bitum	Bitum	Bitum	Bitum	Gas	Gas	Gas	PRB	PRB	PRB	PRB	PRB	PRB	PRB	PRB	PRB	PRB	Lignite	Lignite	Lignite	Lignite	Lignite	Lignite
Type (SCPC, IGCC, NGCC)	SCPC	SCPC	SCPC	SCPC	IGCC	IGCC	IGCC	IGCC	IGCC	NGCC	NGCC	NGCC	SCPC	SCPC	SCPC	SCPC	SCPC	SCPC	SCPC	SCPC	SCPC	SCPC	SCPC	SCPC	SCPC	SCPC	SCPC	SCPC	SCPC	SCPC	SCPC
CS Level (% Capture)	0	50	90	0	45	90	0	45	90	0	90	0	50	90	0	50	90	0	50	90	0	50	90	0	50	90	0	50	90		
Net Power (MW)	550	550	550	622	591	543	555	474	550	555	474	550	550	550	550	550	550	550	550	550	550	550	550	550	550	550	550	550	550		
Net Heat Rate (Btu / kWh-net)	8687	10379	12083	8756	9238	10459	6798	7968	8813	10936	12634	9093	11464	13361	1765	1055	246	1723	1000	206	802	94	1895	1176	272	1991	1255	293			
CO2 emissions rate (lb / MWh-net)	1765	1055	246	1723	1000	206	802	94	1895	1176	272	1991	1255	293	1765	1055	246	1723	1000	206	802	94	1895	1176	272	1991	1255	293			
Specific Capital Cost (TOC 2013\$ / kW-net)	\$ 2,176	\$ 3,018	\$ 3,743	\$ 2,629	\$ 3,107	\$ 3,584	\$ 771	\$ 1,608	\$ 2,463	\$ 3,475	\$ 4,283	\$ 2,675	\$ 3,780	\$ 4,665	\$ 2,176	\$ 3,018	\$ 3,743	\$ 2,629	\$ 3,107	\$ 3,584	\$ 771	\$ 1,608	\$ 2,463	\$ 3,475	\$ 4,283	\$ 2,675	\$ 3,780	\$ 4,665			
OM (2013\$/kWnet-yr)	\$ 63.76	\$ 85.34	\$ 101.73	\$ 84.90	\$ 97.74	\$ 111.63	\$ 23.71	\$ 45.24	\$ 71.97	\$ 96.43	\$ 116.00	\$ 77.50	\$ 104.25	\$ 125.64	\$ 63.76	\$ 85.34	\$ 101.73	\$ 84.90	\$ 97.74	\$ 111.63	\$ 23.71	\$ 45.24	\$ 71.97	\$ 96.43	\$ 116.00	\$ 77.50	\$ 104.25	\$ 125.64			
OM (2013\$/MWh-net) (Non-fuel, Non-CO2)	\$ 5.41	\$ 6.68	\$ 8.53	\$ 7.38	\$ 8.10	\$ 9.43	\$ 1.41	\$ 2.75	\$ 5.46	\$ 7.97	\$ 9.98	\$ 6.50	\$ 9.47	\$ 11.83	\$ 5.41	\$ 6.68	\$ 8.53	\$ 7.38	\$ 8.10	\$ 9.43	\$ 1.41	\$ 2.75	\$ 5.46	\$ 7.97	\$ 9.98	\$ 6.50	\$ 9.47	\$ 11.83			
OM (2013\$/MWh-net, after CO2 sales, non fuel)	\$ 5.41	\$ (12.09)	\$ (30.81)	\$ 7.38	\$ (6.46)	\$ (23.52)	\$ 1.41	\$ (12.30)	\$ 5.46	\$ (12.94)	\$ (33.52)	\$ 6.50	\$ (12.87)	\$ (35.01)	\$ 5.41	\$ (12.09)	\$ (30.81)	\$ 7.38	\$ (6.46)	\$ (23.52)	\$ 1.41	\$ (12.30)	\$ 5.46	\$ (12.94)	\$ (33.52)	\$ 6.50	\$ (12.87)	\$ (35.01)			

COAL RETROFIT																																
Context (New, Retro)	Retro						Retro						Retro						Retro													
CS Level (% Capture)	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
Net Heat Rate (Btu / kWh; HHV) before retrofit	9500	9500	9500	10500	10500	10500	11500	11500	11500	9500	9500	9500	10500	10500	10500	10500	10500	10500	10500	10500	10500	10500	10500	10500	10500	10500	10500	10500	10500			
Net Power (MW) before retrofit	200	400	800	200	400	800	200	400	800	200	400	800	200	400	200	400	800	200	400	800	200	400	800	200	400	800	200	400	800			
Output Penalty (% of original net MW)	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%			
Net Power (MW) after retrofit	172	344	689	172	344	689	172	344	689	150	300	600	150	300	150	300	600	150	300	600	150	300	600	150	300	600	150	300	600			
Net Heat Rate (Btu / kWh; HHV) after retrofit	11032	11032	11032	12194	12194	12194	13355	13355	13355	12667	12667	12667	14000	14000	14000	14000	14000	14000	14000	14000	14000	14000	14000	14000	14000	14000	14000	14000				
Net Rate Penalty (% increase upon retrofit)	16.1%	16.1%	16.1%	16.1%	16.1%	16.1%	16.1%	16.1%	16.1%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%			
CO2 Emission Rate (lb / MWh-net)	1131	1131	1131	1250	1250	1250	1369	1369	1369	260	260	260	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287			
Specific Capital Cost (TOC 2013\$/kW-net after retro)	\$ 1,334	\$ 1,011	\$ 766	\$ 1,416	\$ 1,074	\$ 813	\$ 1,496	\$ 1,134	\$ 859	\$ 2,179	\$ 1,651	\$ 1,252	\$ 2,313	\$ 1,753	\$ 1,329	\$ 2,443	\$ 1,334	\$ 1,011	\$ 766	\$ 1,416	\$ 1,074	\$ 813	\$ 1,496	\$ 1,134	\$ 859	\$ 2,179	\$ 1,651	\$ 1,252	\$ 2,313	\$ 1,753	\$ 1,329	\$ 2,443
OM (2013\$/kWnet-yr)	\$ 20.22	\$ 15.32	\$ 11.61	\$ 21.47	\$ 16.27	\$ 12.33	\$ 22.67	\$ 17.18	\$ 13.02	\$ 33.03	\$ 25.03	\$ 18.97	\$ 35.08	\$ 26.59	\$ 20.14	\$ 37.04	\$ 20.22	\$ 15.32	\$ 11.61	\$ 21.47	\$ 16.27	\$ 12.33	\$ 22.67	\$ 17.18	\$ 13.02	\$ 33.03	\$ 25.03	\$ 18.97	\$ 35.08	\$ 26.59	\$ 20.14	\$ 37.04
OM (\$MWh-net) (Non-Fuel, Non-CO2)	\$ 2.38	\$ 1.80	\$ 1.36	\$ 2.52	\$ 1.91	\$ 1.45	\$ 2.66	\$ 2.02	\$ 1.54	\$ 3.88	\$ 2.95	\$ 2.24	\$ 4.13	\$ 3.13	\$ 2.37	\$ 4.36	\$ 2.38	\$ 1.80	\$ 1.36	\$ 2.52	\$ 1.91	\$ 1.45	\$ 2.66	\$ 2.02	\$ 1.54	\$ 3.88	\$ 2.95	\$ 2.24	\$ 4.13	\$ 3.13	\$ 2.37	\$ 4.36
OM (\$MWh-net, after CO2 sales, non-fuel)	\$ (17.74)	\$ (18.32)	\$ (18.76)	\$ (19.71)	\$ (20.32)	\$ (20.79)	\$ (21.69)	\$ (22.34)	\$ (22.82)	\$ (37.70)	\$ (38.63)	\$ (39.35)	\$ (41.83)	\$ (42.83)	\$ (43.59)	\$ (45.97)	\$ (17.74)	\$ (18.32)	\$ (18.76)	\$ (19.71)	\$ (20.32)	\$ (20.79)	\$ (21.69)	\$ (22.34)	\$ (22.82)	\$ (37.70)	\$ (38.63)	\$ (39.35)	\$ (41.83)	\$ (42.83)	\$ (43.59)	\$ (45.97)

GAS RETROFIT														
Context (New, Retro)	Retro													
CS Level (% Capture)	90	90	90	90	90	90								
Net Heat Rate (Btu / kWh; HHV) before retrofit	6798	6798	6798	6798	6798	6798								
Net Power (MW) before retrofit	555	555	555	555	555	555								
Output Penalty (% of original net MW)	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%								
Net Power (MW) after retrofit	474	474	474	474	474	474								
Net Heat Rate (Btu / kWh; HHV) after retrofit	7968	7968	7968	7968	7968	7968								
Net Rate Penalty (% increase upon retrofit)	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%								
CO2 Emission Rate (lb / MWh-net)	94	94	94	94	94	94								
Specific Capital Cost (TOC 2013\$/kW-net after retro)	\$ 838	\$ 838	\$ 838	\$ 838	\$ 838	\$ 838								
OM (2013\$/kWnet-yr)	\$ 21.53	\$ 21.53	\$ 21.53	\$ 21.53	\$ 21.53	\$ 21.53								
OM (\$MWh-net) (Non-Fuel, Non-CO2)	\$ 1.33	\$ 1.33	\$ 1.33	\$ 1.33	\$ 1.33	\$ 1.33								