

# IMM Proposals and Results

2022 Quadrennial Review

March 25, 2022

IMM



Monitoring Analytics

# CONE CT and CC Technology

- **IMM cost estimated same designs as Brattle**
  - **CT – Single GE Frame 7HA.02**
    - CT Inlet Air Evaporative Cooling
    - SCR and CO Catalyst
  - **CC – 2x1 and 1x1 Single Shaft GE Frame 7HA.02**
    - CT Inlet Air Evaporative Cooling
    - SCR and CO Catalyst
    - Air Cooled Condenser (ACC)

# CONE Financial Structure

- **IMM used Brattle assumptions:**
  - **Equity Percent – 45%**
  - **Debt Percent – 55%**
  - **Target IRR – 12.95%**
  - **Debt Interest Rate- 4.20%**
  - **Asset/Economic Life – 30 Years**
  - **Federal Income Tax rate – 21%**
  - **State Tax Rates**
    - **NJ - 9.0%**
    - **MD – 8.25%**
    - **PA – 9.99%**
  - **Depreciation Effective in 2026**
    - **First Year Bonus 20%**
    - **MACRS – 80%**
  - **Fixed O&M General Escalation – 2.0%**
  - **Same capital cost escalation from 2021 to 2026 – CT 7.9% and CC 9.1%**
- **IMM included major maintenance in Gross CONE**

# CT Capital Cost Comparison

CT Capital Costs (000\$) (2021\$)	IMM				Brattle				
	PJM LDA	EMAAC	SWMAAC	Rest of RTO	WMAAC	EMAAC	SWMAAC	Rest of RTO	WMAAC
Plant ICAP (MW)		362.43	359.40	350.79	357.48	360.59	362.84	352.93	349.94
Plant Proper EPC		\$226,346	\$215,025	\$214,176	\$212,472	\$229,029	\$215,686	\$218,732	\$223,282
Electric Interconnect/System Upgrades		\$7,757	\$7,369	\$7,339	\$7,281	\$6,807	\$6,850	\$6,663	\$6,606
Gas Interconnect		\$18,790	\$17,850	\$17,780	\$17,638	\$37,575	\$37,575	\$37,575	\$37,575
Water and Sewer Connection		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Equipment Spares		\$4,452	\$4,452	\$4,452	\$4,452	\$1,145	\$1,078	\$1,094	\$1,116
Initial Fuel and Other Inventory		\$1,194	\$1,194	\$1,194	\$1,194	\$3,497	\$3,365	\$3,409	\$3,380
Mobilization and Startup		\$2,313	\$2,197	\$2,189	\$2,171	\$2,290	\$2,157	\$2,187	\$2,233
Land Purchase/Land Reservation Payment		\$2,123	\$1,173	\$646	\$862	\$350	\$282	\$156	\$293
Construction Period/Upfront Land Lease		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Decommissioning Bond Costs		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Development Expenses		\$7,093	\$7,093	\$7,093	\$7,093	\$11,451	\$10,784	\$10,937	\$11,164
Legal Fees		\$2,204	\$2,204	\$2,204	\$2,204	\$0	\$0	\$0	\$0
Permits		\$2,055	\$2,055	\$2,055	\$2,055	\$0	\$0	\$0	\$0
Emission Reduction Credits		\$14,609	\$14,445	\$579	\$998	\$0	\$0	\$0	\$0
Financing Fees		\$2,979	\$2,912	\$2,753	\$2,739	\$6,545	\$6,207	\$6,309	\$6,389
Interest During Construction		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Owner's Contingency		\$5,659	\$5,376	\$5,354	\$5,312	\$5,073	\$4,923	\$5,040	\$4,972
Sales Tax		\$298	\$284	\$268	\$267	\$0	\$0	\$0	\$0
Net Start Up Fuel		\$0	\$0	\$0	\$0	\$292	(\$555)	\$978	(\$218)
Total Project Overnight Cost (2021\$)		\$297,870	\$283,628	\$268,082	\$266,737	\$304,054	\$288,352	\$293,080	\$296,793
Total Project Cost (\$/kW)		\$821.87	\$789.17	\$764.23	\$746.16	\$843.22	\$794.71	\$830.43	\$848.12
Total Project Overnight Cost (2026\$)		\$326,837	\$310,677	\$292,384	\$290,433	\$331,679	\$314,655	\$319,664	\$323,824
Total Project Cost (\$/kW)		\$901.79	\$864.43	\$833.51	\$812.45	\$919.83	\$867.21	\$905.75	\$925.37
Interest During Construction		\$5,723	\$5,440	\$5,120	\$5,085	\$4,608	\$4,371	\$4,441	\$4,499



# CT Capital Cost Comparison

- **IMM CONE CT EPC cost is similar to Brattle cost on a \$/kW basis.**
- **Brattle gas interconnection cost 2 x IMM cost.**
- **Brattle did not include Emissions Reductions Credits.**



# CT First Year Fixed Expenses Comparison

CT Fixed O&M (000\$) (2026\$)	IMM				Brattle			
	EMAAC	SWMAAC	Rest of RTO	WMAAC	EMAAC	SWMAAC	Rest of RTO	WMAAC
PJM LDA								
Site O&M Labor	\$1,850	\$1,757	\$1,750	\$1,737	\$1,023	\$1,099	\$782	\$806
O&M Contract Parts and Labor	\$538	\$511	\$509	\$505	\$507	\$519	\$464	\$468
Major Maintenance	\$8,134	\$11,113	\$11,199	\$9,108	\$0	\$0	\$0	\$0
LTSA Fixed Fee	\$333	\$333	\$333	\$333	\$331	\$331	\$331	\$331
O&M Management Fees	\$162	\$162	\$162	\$162	\$521	\$563	\$390	\$399
Gas Transport Demand Charge	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Electric Purchases	\$305	\$305	\$305	\$305	\$0	\$0	\$0	\$0
Employee Training Expenses	\$110	\$110	\$110	\$110	\$0	\$0	\$0	\$0
Insurance	\$1,422	\$1,352	\$1,347	\$1,337	\$1,990	\$1,888	\$1,918	\$1,943
General and Administrative Expenses	\$226	\$226	\$226	\$226	\$238	\$252	\$197	\$201
Property Lease	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Property Taxes	\$859	\$715	\$358	\$361	\$324	\$4,188	\$2,223	\$319
Other (Brattle Working Capital)	\$0	\$0	\$0	\$0	\$37	\$35	\$35	\$36
<b>Total Fixed O&amp;M</b>	<b>\$13,939</b>	<b>\$16,583</b>	<b>\$16,298</b>	<b>\$14,182</b>	<b>\$4,971</b>	<b>\$8,875</b>	<b>\$6,340</b>	<b>\$4,503</b>

# CT First Year Fixed Expenses Comparison

- **IMM includes major maintenance.**
- **IMM CONE CT site labor higher than Brattle.**
- **Brattle SWMAAC and RTO annual property tax higher than IMM.**
- **Most other Fixed O&M line items are similar.**

# 1x1 CC Capital Cost Comparison

CC Capital Costs (000\$) (2021\$)	IMM - 1 on 1 CC ACC				Brattle - 1 on 1 CC ACC			
PJM LDA	EMAAC	SWMAAC	Rest of RTO	WMAAC	EMAAC	SWMAAC	Rest of RTO	WMAAC
Plant ICAP (MW)	552.07	548.17	536.21	545.15	592.61	596.21	580.12	574.92
Plant Proper EPC	\$583,328	\$532,140	\$527,373	\$522,625	\$516,656	\$463,330	\$478,929	\$496,560
Electric Interconnect/System Upgrades	\$11,893	\$11,337	\$11,231	\$11,130	\$11,188	\$11,256	\$10,952	\$10,854
Gas Interconnect	\$18,790	\$17,850	\$17,780	\$17,638	\$20,795	\$20,795	\$20,795	\$20,795
Water and Sewer Connection	\$4,679	\$4,312	\$4,215	\$4,219	\$0	\$0	\$0	\$0
Equipment Spares	\$5,248	\$5,226	\$5,157	\$5,209	\$2,583	\$2,317	\$2,395	\$2,483
Initial Fuel and Other Inventory	\$1,194	\$1,194	\$1,194	\$1,194	\$3,497	\$0	\$3,409	\$3,380
Mobilization and Startup	\$3,721	\$3,430	\$3,353	\$3,356	\$5,167	\$4,633	\$4,789	\$4,966
Land Purchase/Land Reservation Payment	\$3,185	\$1,759	\$969	\$1,292	\$1,400	\$1,128	\$624	\$1,172
Construction Period/Upfront Land Lease	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Decommissioning Bond Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Development Expenses	\$9,457	\$9,457	\$9,457	\$9,457	\$25,833	\$23,166	\$23,946	\$24,828
Legal Fees	\$2,834	\$2,834	\$2,834	\$2,834	\$0	\$0	\$0	\$0
Permits	\$2,158	\$2,149	\$2,121	\$2,142	\$0	\$0	\$0	\$0
Emission Reduction Credits	\$16,458	\$16,255	\$696	\$1,199	\$0	\$0	\$0	\$0
Financing Fees	\$6,851	\$6,282	\$6,062	\$6,020	\$12,904	\$11,527	\$12,040	\$12,419
Interest During Construction	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Owner's Contingency	\$14,583	\$13,304	\$13,184	\$13,066	\$5,177	\$4,489	\$5,064	\$5,032
Sales Tax	\$685	\$628	\$606	\$602	\$0	\$0	\$0	\$0
Net Start Up Fuel	\$0	\$0	\$0	\$0	(\$5,750)	(\$7,180)	(\$3,610)	(\$5,580)
Total Project Overnight Cost (2021\$)	\$685,063	\$628,156	\$606,233	\$601,983	\$599,450	\$535,461	\$559,333	\$576,909
Total Project Cost (\$/kW)	\$1,240.90	\$1,145.91	\$1,130.59	\$1,104.26	\$1,011.54	\$898.11	\$964.17	\$1,003.45
Total Project Overnight Cost (2026\$)	\$739,592	\$679,283	\$656,713	\$651,011	\$649,738	\$581,159	\$606,344	\$625,426
Total Project Cost (\$/kW)	\$1,339.67	\$1,239.18	\$1,224.73	\$1,194.20	\$1,096.40	\$974.76	\$1,045.20	\$1,087.84
Interest During Construction	\$24,009	\$22,051	\$21,319	\$21,134	\$17,563	\$15,709	\$16,390	\$16,905



# 2x1 CC Capital Cost Comparison

CC Capital Costs (000\$) (2021\$)	IMM - 2 on 1 CC ACC				Brattle - 1 on 1 CC ACC			
	PJM LDA	EMAAC	SWMAAC	Rest of RTO	WMAAC	EMAAC	SWMAAC	Rest of RTO
Plant ICAP (MW)	1,104.14	1,096.34	1,072.42	1,090.29	592.61	596.21	580.12	574.92
Plant Proper EPC	\$887,281	\$823,271	\$816,863	\$810,308	\$516,656	\$463,330	\$478,929	\$496,560
Electric Interconnect/System Upgrades	\$24,498	\$22,675	\$22,462	\$22,261	\$11,188	\$11,256	\$10,952	\$10,854
Gas Interconnect	\$26,478	\$24,507	\$24,277	\$24,060	\$20,795	\$20,795	\$20,795	\$20,795
Water and Sewer Connection	\$7,218	\$6,681	\$6,618	\$6,559	\$0	\$0	\$0	\$0
Equipment Spares	\$8,097	\$8,097	\$8,097	\$8,097	\$2,583	\$2,317	\$2,395	\$2,483
Initial Fuel and Other Inventory	\$2,387	\$2,387	\$2,387	\$2,387	\$3,497	\$0	\$3,409	\$3,380
Mobilization and Startup	\$5,741	\$5,314	\$5,264	\$5,217	\$5,167	\$4,633	\$4,789	\$4,966
Land Purchase/Land Reservation Payment	\$5,308	\$2,932	\$1,615	\$2,154	\$1,400	\$1,128	\$624	\$1,172
Construction Period/Upfront Land Lease	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Decommissioning Bond Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Development Expenses	\$9,457	\$9,457	\$9,457	\$9,457	\$25,833	\$23,166	\$23,946	\$24,828
Legal Fees	\$2,834	\$2,834	\$2,834	\$2,834	\$0	\$0	\$0	\$0
Permits	\$3,330	\$3,330	\$3,330	\$3,330	\$0	\$0	\$0	\$0
Emission Reduction Credits	\$31,157	\$30,715	\$1,712	\$2,888	\$0	\$0	\$0	\$0
Financing Fees	\$10,475	\$9,735	\$9,356	\$9,300	\$12,904	\$11,527	\$12,040	\$12,419
Interest During Construction	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Owner's Contingency	\$22,182	\$20,582	\$20,422	\$20,258	\$5,177	\$4,489	\$5,064	\$5,032
Sales Tax	\$1,047	\$973	\$936	\$930	\$0	\$0	\$0	\$0
Net Start Up Fuel	\$0	\$0	\$0	\$0	(\$5,750)	(\$7,180)	(\$3,610)	(\$5,580)
Total Project Overnight Cost (2021\$)	\$1,047,490	\$973,490	\$935,631	\$930,040	\$599,450	\$535,461	\$559,333	\$576,909
Total Project Cost (\$/kW)	\$948.69	\$887.94	\$872.45	\$853.02	\$1,011.54	\$898.11	\$964.17	\$1,003.45
Total Project Overnight Cost (2026\$)	\$1,131,589	\$1,051,902	\$1,009,891	\$1,003,708	\$649,738	\$581,159	\$606,344	\$625,426
Total Project Cost (\$/kW)	\$1,024.86	\$959.46	\$941.70	\$920.59	\$1,096.40	\$974.76	\$1,045.20	\$1,087.84
Interest During Construction	\$36,734	\$34,148	\$32,784	\$32,583	\$17,563	\$15,709	\$16,390	\$16,905



# CC Capital Cost Comparison

- **IMM CONE 2x1 CC costs are lower than Brattle 1x1 CC costs on a \$/kW basis due to the 2x1 CC economies of scale compared to the 1x1 CC design.**
- **IMM CONE 1x1 CC costs are higher than Brattle 1x1 CC on a \$/kW basis by 10-28 percent.**
- **Brattle reduced the gas interconnection cost for the CC by 50 percent compared to the CT assuming a second power block would be built.**
- **Brattle did not include Emissions Reductions Credits.**

# 1x1 CC First Year Fixed Expenses Comparison

CC Fixed O&M (000\$) (2026\$)	IMM - 1 on 1 CC ACC				Brattle - 1 on 1 CC ACC				
	PJM LDA	EMAAC	SWMAAC	Rest of RTO	WMAAC	EMAAC	SWMAAC	Rest of RTO	WMAAC
Site O&M Labor		\$4,971	\$4,601	\$4,558	\$4,517	\$5,460	\$5,857	\$4,170	\$4,297
O&M Contract Parts and Labor		\$1,742	\$1,606	\$1,570	\$1,571	\$5,798	\$5,936	\$5,300	\$5,353
Major Maintenance		\$4,552	\$4,592	\$4,828	\$4,825	\$0	\$0	\$0	\$0
LTSA Fixed Fee		\$432	\$430	\$424	\$428	\$442	\$442	\$442	\$442
O&M Management Fees		\$355	\$355	\$355	\$355	\$763	\$825	\$571	\$583
Gas Transport Demand Charge		\$0	\$0	\$0	\$0	\$0	\$9,676	\$0	\$0
Electric Purchases		\$203	\$201	\$197	\$200	\$0	\$0	\$0	\$0
Employee Training Expenses		\$142	\$142	\$142	\$142	\$0	\$0	\$0	\$0
Insurance		\$3,448	\$3,155	\$3,127	\$3,099	\$3,898	\$3,487	\$3,638	\$3,753
General and Administrative Expenses		\$1,018	\$1,018	\$1,018	\$1,018	\$1,247	\$1,306	\$1,048	\$1,068
Property Lease		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Property Taxes		\$1,976	\$1,582	\$1,199	\$1,221	\$1,793	\$7,623	\$4,714	\$1,765
Other (Brattle Working Capital)		\$0	\$0	\$0	\$0	\$72	\$64	\$67	\$69
<b>Total Fixed O&amp;M</b>		<b>\$18,839</b>	<b>\$17,683</b>	<b>\$17,418</b>	<b>\$17,378</b>	<b>\$19,473</b>	<b>\$35,216</b>	<b>\$19,950</b>	<b>\$17,330</b>

# 2x1 CC First Year Fixed Expenses Comparison

CC Fixed O&M (000\$) (2026\$)	IMM - 2 on 1 CC ACC				Brattle - 1 on 1 CC ACC			
	EMAAC	SWMAAC	Rest of RTO	WMAAC	EMAAC	SWMAAC	Rest of RTO	WMAAC
PJM LDA								
Site O&M Labor	\$4,971	\$4,601	\$4,558	\$4,517	\$5,460	\$5,857	\$4,170	\$4,297
O&M Contract Parts and Labor	\$2,688	\$2,488	\$2,464	\$2,442	\$5,798	\$5,936	\$5,300	\$5,353
Major Maintenance	\$9,103	\$9,184	\$9,656	\$9,651	\$0	\$0	\$0	\$0
LTSA Fixed Fee	\$666	\$666	\$666	\$666	\$442	\$442	\$442	\$442
O&M Management Fees	\$355	\$355	\$355	\$355	\$763	\$825	\$571	\$583
Gas Transport Demand Charge	\$0	\$0	\$0	\$0	\$0	\$9,676	\$0	\$0
Electric Purchases	\$417	\$417	\$417	\$417	\$0	\$0	\$0	\$0
Employee Training Expenses	\$142	\$142	\$142	\$142	\$0	\$0	\$0	\$0
Insurance	\$5,270	\$4,892	\$4,854	\$4,815	\$3,898	\$3,487	\$3,638	\$3,753
General and Administrative Expenses	\$1,018	\$1,018	\$1,018	\$1,018	\$1,247	\$1,306	\$1,048	\$1,068
Property Lease	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Property Taxes	\$3,021	\$2,452	\$1,851	\$1,886	\$1,793	\$7,623	\$4,714	\$1,765
Other (Brattle Working Capital)	\$0	\$0	\$0	\$0	\$72	\$64	\$67	\$69
<b>Total Fixed O&amp;M</b>	<b>\$27,652</b>	<b>\$26,216</b>	<b>\$25,982</b>	<b>\$25,910</b>	<b>\$19,473</b>	<b>\$35,216</b>	<b>\$19,950</b>	<b>\$17,330</b>

# CC First Year Fixed Expenses Comparison

- **IMM includes major maintenance.**
- **IMM CONE CC site labor similar to Brattle.**
- **Brattle SWMAAC and RTO annual property tax higher than IMM.**
- **Most other Fixed O&M line items are similar.**
- **Brattle included a \$9.7 million/year gas transport demand charge for SWMAAC.**

# CT Revenue Requirements Comparison: Historic and Forward EAS

CT Revenue Requirement (\$/MW-Day)	IMM				Brattle			
	EMAAC	SWMAAC	Rest of RTO	WMAAC	EMAAC	SWMAAC	Rest of RTO	WMAAC
PJM LDA								
Gross CONE (IMM incl. major maintenance)	\$369.56	\$384.82	\$378.68	\$350.32	\$287.67	\$293.15	\$289.32	\$286.85
IMM EAS Historical (no major maintenance)	\$53.34	\$90.20	\$113.72	\$120.71	\$53.34	\$90.20	\$113.72	\$120.71
Net CONE	\$316.22	\$294.62	\$264.96	\$229.61	\$234.33	\$202.95	\$175.60	\$166.14

CT Revenue Requirement (\$/MW-Day)	IMM				Brattle			
	EMAAC	SWMAAC	Rest of RTO	WMAAC	EMAAC	SWMAAC	Rest of RTO	WMAAC
PJM LDA								
Gross CONE (IMM incl. major maintenance)	\$369.56	\$384.82	\$378.68	\$350.32	\$287.67	\$293.15	\$289.32	\$286.85
IMM EAS Projected (no major maintenance)	\$85.26	\$153.85	\$217.22	\$233.45	\$85.26	\$153.85	\$217.22	\$233.45
Net CONE	\$284.29	\$230.97	\$161.46	\$116.87	\$202.41	\$139.30	\$72.10	\$53.40

Forward prices as of January 3, 2022

# CC Revenue Requirements Comparison: Historic and Forward EAS

CC Revenue Requirement (\$/MW-Day)	IMM - 1 on 1 CC ACC				Brattle - 1 on 1 CC ACC			
PJM LDA	EMAAC	SWMAAC	Rest of RTO	WMAAC	EMAAC	SWMAAC	Rest of RTO	WMAAC
Gross CONE (IMM incl. major maintenance)	\$498.42	\$462.47	\$461.14	\$450.32	\$418.26	\$444.13	\$399.80	\$407.75
IMM EAS Historical (no major maintenance)	\$116.47	\$210.05	\$226.67	\$229.38	\$116.47	\$210.05	\$226.67	\$229.38
Net CONE	\$381.95	\$252.42	\$234.47	\$220.94	\$301.79	\$234.08	\$173.13	\$178.37

CC Revenue Requirement (\$/MW-Day)	IMM - 1 on 1 CC ACC				Brattle - 1 on 1 CC ACC			
PJM LDA	EMAAC	SWMAAC	Rest of RTO	WMAAC	EMAAC	SWMAAC	Rest of RTO	WMAAC
Gross CONE (IMM incl. major maintenance)	\$498.42	\$462.47	\$461.14	\$450.32	\$418.26	\$444.13	\$399.80	\$407.75
IMM EAS Projected (no major maintenance)	\$187.56	\$310.89	\$391.44	\$395.46	\$187.56	\$310.89	\$391.44	\$395.46
Net CONE	\$310.85	\$151.58	\$69.71	\$54.87	\$230.70	\$133.24	\$8.36	\$12.29

CC Revenue Requirement (\$/MW-Day)	IMM - 2 on 1 CC ACC				Brattle - 1 on 1 CC ACC			
PJM LDA	EMAAC	SWMAAC	Rest of RTO	WMAAC	EMAAC	SWMAAC	Rest of RTO	WMAAC
Gross CONE (IMM incl. major maintenance)	\$377.74	\$354.52	\$352.07	\$344.44	\$418.26	\$444.13	\$399.80	\$407.75
IMM EAS Historical (no major maintenance)	\$116.47	\$210.05	\$226.67	\$229.38	\$116.47	\$210.05	\$226.67	\$229.38
Net CONE	\$261.27	\$144.47	\$125.40	\$115.06	\$301.79	\$234.08	\$173.13	\$178.37

CC Revenue Requirement (\$/MW-Day)	IMM - 2 on 1 CC ACC				Brattle - 1 on 1 CC ACC			
PJM LDA	EMAAC	SWMAAC	Rest of RTO	WMAAC	EMAAC	SWMAAC	Rest of RTO	WMAAC
Gross CONE (IMM incl. major maintenance)	\$377.74	\$354.52	\$352.07	\$344.44	\$418.26	\$444.13	\$399.80	\$407.75
IMM EAS Projected (no major maintenance)	\$187.56	\$310.89	\$391.44	\$395.46	\$187.56	\$310.89	\$391.44	\$395.46
Net CONE	\$190.18	\$43.63	(\$39.37)	(\$51.02)	\$230.70	\$133.24	\$8.36	\$12.29

Forward prices as of January 3, 2022

# Areas for Discussion

- **Major maintenance**
- **Emissions Reductions Credits (ERC)**
- **Cost of gas interconnection**
  - Review validity of future 1 on 1 CC train credit
- **Site O&M labor assumptions**
- **Asset economic life of 30 years**



# Notes on Using Historical E&AS

- **NJ joined RGGI in 2020**
  - **E&AS for 2019 excludes RGGI costs**
- **VA joined RGGI in 2021**
  - **E&AS for 2019 and 2020 excludes RGGI costs**

# Key E&AS Assumptions

- **No 10 percent adder**
- **Unit is dispatched based on short run marginal cost, accounting for start costs**
  - **First against DA prices**
  - **Then against RT prices if not committed DA**
- **CT has a minimum run time of 2 hours**
- **CC has a minimum run time of 4 hours**

# Objective of Gross CONE Study

- **Develop an independent determination of CONE CT and CC revenue requirements for the four CONE areas**
- **Participants**
  - **Pasteris Energy, Inc. – Overall coordination, soft cost development, plant performance modeling and proforma**
  - **Stantec – EPC cost estimate, project schedule, drawdown and escalation**
  - **David R. Alexander, Consulting – Emissions Reductions Credits (ERC), permitting and costs.**

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