

Carbon Reduction Guideline Delaware Base Year

		2012				2030				Sum of Carbon	Sum of Electric	Sum of Net En	Emission R	Emission R	Capacity Factor	Capacity Factor - %
		Sum of Carbon	Sum of Electric C	Sum of Net En	Emission Rate (lt	Emission R	Capacity N	Capacity F	Sum of Carbon							
coal	Indian River	1,502,779	1,406,502	1,406,502	2,137	2,137	410	0	1,227,120	1,221,623	1,221,623	2,009	2,009		0	
NGCC	Hay Road	2,536,173	5,179,270	5,179,270	979	979	1,193	0	3,352,332	7,335,518	7,335,518	914	914		1	
OG Steam	Edgemoor	770,330	1,076,070	1,077,502	1,432	1,432	710	0	629,031	936,057	936,057	1,344	1,344		0	
Other	Edgemoor	1,004	1,432						1,004	1,432						
Renewable										1,038,351	1,038,351					
Energy Efficiency										1,172,806	1,172,806					
Total		4,810,285	7,663,274	7,663,274	1,255				5,209,487	11,705,787	11,704,355	890				
				EPA Quoted	1234							841				

Total 2012 Sales - MWh 12,384,433
 EE Impact 2030 = 2012 less 9.47% MWh 1,172,806
 NGCC Generation 2030 MWh 7,335,518
 Coal Generation 2030 (-184879) MWh 1,221,623
 OG Steam Generation 2030 (-141,445) MWh 936,057
 Coal Carbon Emissions 2030 1,227,120
 NGCC Carbon Emissions 2030 3,352,332
 OG steam carbon emissions 2030 629,031

All above data from EPA Clean Power Plan technical documents Appendix 1,2 & 7
 Capacity for each plant sourced from company websites and other published sources

Delaware CO2 emissions from power plants 2005 = 6,878,000 tons according to US EIA, and 2013 was 4,128,812 according to RGGI COATS, so reduction is 40%

Key Assumptions

Dispatch Rate on NGCC goes from 49% to 70% for generation increase of 2,156,248 MWh
 Heat Rate improves 6% to 7% on all fossil fuel generation
 Dispatch declines by 184,879 MWh for coal (39% to 34%), and 141,445 MWh for OG steam (17% to 15%)
 Renewable generation goes from 173,059 in 2012 to 1,038,351 in 2030 (2% to 12%) RPS requires 2,581,985 MWh, or 25% by 2025
 Energy Efficiency accounts for 9.5% of demand, Delaware has 15% goal

Alternative Case 1, add Calpine Dover NGCC Plant

		2012				2030				Sum of Carbon	Sum of Electric	Sum of Net En	Emission R	Emission R	Capacity Factor	Capacity Factor - %
		Sum of Carbon	Sum of Electric C	Sum of Net En	Emission Rate (lt	Emission R	Capacity N	Capacity F	Sum of Carbon							
coal	Indian River	1,502,779	1,406,502	1,406,502	2,137	2,137	410	0	1,227,120	1,221,623	1,221,623	2,009	2,009		0	
NGCC	Hay Road	2,536,173	5,179,270	5,179,270	979	979	1,193	0	3,352,332	7,335,518	7,335,518	914	914		1	
OG Steam	Edgemoor	770,330	1,076,070	1,077,502	1,432	1,430	710	0	629,031	936,057	936,057	1,344	1,344		0	
Other	Edgemoor	1,004	1,432						1,004	1,432	1,432					
Calpine NGCC	Dover						309		865,918	1,894,788	1,894,788	914			1	
Renewable										1,038,351	1,038,351					
Energy Efficiency										1,172,806	1,172,806					
Total		4,810,285	7,663,274	7,663,274	1,255				6,075,405	13,600,575	13,600,575	893				
										EPA Corrected Target		890				

Alternative Case 2, add Calpine Dover NGCC & Correct RPS require

		2012				2030				Sum of Carbon	Sum of Electric	Sum of Net En	Emission R	Emission R	Capacity Factor	Capacity Factor - %
		Sum of Carbon	Sum of Electric C	Sum of Net En	Emission Rate (lt	Emission R	Capacity N	Capacity F	Sum of Carbon							
coal	Indian River	1,502,779	1,406,502	1,406,502	2,137	2,137	410	0	1,227,120	1,221,623	1,221,623	2,009	2,009		0	
NGCC	Hay Road	2,536,173	5,179,270	5,179,270	979	979	1,193	0	3,352,332	7,335,518	7,335,518	914	914		1	
OG Steam	Edgemoor	770,330	1,076,070	1,077,502	1,432	1,430	710	0	629,031	936,057	936,057	1,344	1,344		0	
Other	Edgemoor	1,004	1,432						1,004	1,432	1,432					
Calpine NGCC	Dover						309		865,918	1,894,788	1,894,788	914			1	
Renewable										2,581,799	2,581,799					
Energy Efficiency										1,172,806	1,172,806					
Total		4,810,285	7,663,274	7,663,274	1,255				6,075,405	15,144,023	15,144,023	802				
										EPA Corrected Target		890				

Alternative Case 3, Case 2 with no Clean Power Plan

		2012				2030				Sum of Carbon	Sum of Electric	Sum of Net En	Emission R	Emission R	Capacity Factor	Capacity Factor - %
		Sum of Carbon	Sum of Electric C	Sum of Net En	Emission Rate (lt	Emission R	Capacity N	Capacity F	Sum of Carbon							
coal	Indian River	1,502,779	1,406,502	1,406,502	2,137	2,137	410	0	1,502,779	1,406,502	1,406,502	2,137	2,137		0	
NGCC	Hay Road	2,536,173	5,179,270	5,179,270	979	979	1,193	0	2,536,173	5,179,270	5,179,270	979	979		0	
OG Steam	Edgemoor	770,330	1,076,070	1,077,502	1,432	1,430	710	0	770,330	1,076,070	1,076,070	1,432	1,432		0	
Other	Edgemoor	1,004	1,432						1,004	1,432	1,432					
Calpine NGCC	Dover						309		662,499	1,353,420	1,353,420	979			1	
Renewable										2,581,799	2,581,799					
Energy Efficiency										1,172,806	1,172,806					
Total		4,810,285	7,663,274	7,663,274	1,255				5,472,785	12,771,299	12,771,299	857				
										EPA Corrected Target		890				