

Table 28. Total energy-related carbon dioxide emissions, projected versus actual

Projected																														
(million metric tons)		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
AEO1994	5,060																													
AEO1995		5,130																												
AEO1996			5,174																											
AEO1997				5,224																										
AEO1998					5,381																									
AEO1999						5,491																								
AEO2000							5,586																							
AEO2001								5,658																						
AEO2002									5,715																					
AEO2003										5,781																				
AEO2004											5,863																			
AEO2005												5,934																		
AEO2006													6,009																	
AEO2007														6,106																
AEO2008															6,184															
AEO2009																6,236														
AEO2010																	6,288													
AEO2011																		6,316												
AEO2012																			6,365											
AEO2013																				6,417										
AEO2014																					6,467									
AEO2015																						6,542								
AEO2016																							6,597							
AEO2017																								6,641						
AEO2018																									6,683					
AEO2019																										6,752				
AEO2020																											6,801			
AEO2021																												6,862		
AEO2022																													6,924	
Actual		5,185	5,261	5,323	5,510	5,584	5,635	5,688	5,868	5,761	5,804	5,853	5,970	5,993	5,910	6,001	5,809	5,386	5,576	5,439	5,227	5,355	5,406	5,257	5,188	5,140	5,281	5,142	4,576	4,870
Average absolute difference		125	128	143	273	244	197	164	259	138	149	159	156	144	226	228	406	840	691	889	1,108	976	937	1,072	1,112	1,148	1,022	1,145	1,063	614

Table 28. Total energy-related carbon dioxide emissions, projected versus actual (continued)

Projected versus actual
(percentage difference)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
AEO1994		-2.4	-2.5	-2.6	-4.9	-5.3	-5.3	-5.4	-7.3	-4.9	-4.7	-4.3	-5.2	-5.0	-2.9	-3.4	1.1	10.0	7.3											
AEO1995		-2.4	-2.8	-5.8	-5.8	-5.8	-5.8	-8.1	-5.6	-5.4	-5.2	-5.8	-5.2	-3.1	-3.8	0.6	9.3	6.6												
AEO1996			-2.6	-5.2	-5.2	-5.0	-4.8	-6.9	-4.1	-3.7	-3.3	-3.9	-3.0	-0.5	-1.3	3.0	12.0	9.2	12.9	18.7	16.9	17.0	21.0							
AEO1997				-3.9	-3.6	-2.6	-1.8	-3.6	-0.8	-0.4	0.2	-0.6	0.3	3.3	3.1	7.3	16.4	13.3	17.0	22.8	20.8	21.0	25.5							
AEO1998					-2.0	-0.3	0.4	-1.4	2.3	2.6	3.0	2.1	3.3	6.5	6.3	11.3	21.5	18.6	22.9	29.2	27.0	26.9	31.7	34.4	36.8	34.3	38.9	56.7		
AEO1999						-2.0	0.0	-1.0	2.6	3.0	3.1	1.9	2.6	5.7	5.4	10.5	20.6	17.7	22.1	28.2	26.4	26.7	31.8	34.8	37.5	35.0	39.7	58.2		
AEO2000							-2.0	-3.0	0.3	1.0	2.0	1.8	3.0	6.0	5.7	10.5	20.3	17.5	21.5	27.8	26.1	26.6	32.0	34.9	37.5	35.0	39.9	58.6		
AEO2001								-4.1	0.3	1.8	2.9	2.4	3.4	6.3	6.4	11.4	21.5	19.0	23.3	29.9	28.5	28.9	34.5	37.9	40.9	38.6	43.8	63.5		
AEO2002									-0.7	0.1	2.2	2.1	3.6	7.0	7.3	12.4	23.0	20.6	25.7	32.7	31.3	31.7	37.1	40.7	43.8	41.6	47.2	67.3		
AEO2003										-3.0	-1.8	-1.9	-0.7	3.1	3.9	9.5	20.2	18.4	23.5	30.6	29.3	29.9	35.6	39.3	42.4	40.6	46.6	66.9	58.7	
AEO2004											-1.9	-2.4	-0.1	3.6	4.2	9.4	19.8	17.6	22.4	29.4	28.0	28.5	33.7	37.3	40.4	38.6	44.5	64.7	56.8	
AEO2005												-1.1	0.5	3.9	4.6	10.4	21.3	18.8	23.6	30.3	28.6	29.1	34.1	37.5	40.8	38.9	44.4	64.3	56.3	
AEO2006													-0.4	1.1	1.3	6.4	16.6	14.1	18.4	25.0	23.1	23.1	27.8	31.0	33.6	31.6	36.7	56.6	48.0	
AEO2007														0.5	0.0	4.3	13.7	11.4	15.7	21.9	20.3	20.7	25.3	28.4	30.7	28.3	33.3	51.7	44.4	
AEO2008															-0.4	3.0	11.0	7.8	11.9	17.6	14.9	14.5	18.4	20.9	22.7	20.2	23.9	39.5	31.7	
AEO2009																0.7	5.8	3.0	6.7	11.8	9.4	8.3	10.9	12.6	13.9	11.2	14.5	29.0	21.3	
AEO2010																	2.3	-1.0	3.7	9.2	6.6	6.2	9.0	10.8	12.1	9.6	13.3	27.9	20.8	
AEO2011																	1.2	3.0	7.6	5.7	4.5	8.0	9.9	11.0	8.4	11.7	26.2	19.6		
AEO2012																		3.5	6.6	1.8	0.6	2.9	4.2	5.1	2.3	5.4	18.8	11.9		
AEO2013																			2.6	0.2	-0.8	2.3	2.9	4.5	2.3	5.8	19.2	12.0		
AEO2014																				1.2	0.4	3.1	3.7	5.4	3.2	6.4	19.7	12.7		
AEO2015																					1.5	3.2	4.8	5.1	2.7	6.5	20.2	12.8		
AEO2016																						0.3	2.0	3.5	0.9	3.5	15.6	7.4		
AEO2017																								-0.6	0.8	-1.1	2.5	15.2	7.4	
AEO2018																								0.2	-0.5	1.7	13.3	5.5		
AEO2019																										-0.6	1.5	11.8	3.7	
AEO2020																											-0.4	9.1	1.8	
AEO2021																												-0.3	-3.0	
AEO2022																													-0.9	
Average absolute percentage difference		2.4	2.4	2.7	5.0	4.4	3.5	2.9	4.4	2.4	2.6	2.7	2.6	2.4	3.8	3.8	7.0	15.6	12.4	16.3	21.2	18.2	17.3	20.4	19.5	20.4	17.7	20.5	33.6	21.8

Data source: Historical data are from the U.S. Energy Information Administration open data API (accessed April 2022), <http://www.eia.gov/opendata/>, series: TOTAL_TETCEUS.A; projections: Annual Energy Outlook, Reference case projections from various editions

Notes: shading indicates overestimation (blue) or underestimation (green).