

Table 22. Total Energy Related Carbon Dioxide Emissions, Projected vs. 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
AEO 1994	5,060	5,130	5,185	5,240	5,287	5,335	5,379	5,438	5,482	5,529	5,599	5,658	5,694	5,738	5,797	5,874	5,925	5,984									
AEO 1995		5,137	5,174	5,188	5,262	5,309	5,361	5,394	5,441	5,489	5,551	5,621	5,680	5,727	5,775	5,841	5,889	5,944									
AEO 1996			5,182	5,224	5,295	5,355	5,417	5,464	5,525	5,589	5,660	5,735	5,812	5,879	5,925	5,981	6,030	6,087	6,142	6,203	6,258	6,322	6,362				
AEO 1997				5,295	5,381	5,491	5,586	5,658	5,715	5,781	5,863	5,934	6,009	6,106	6,184	6,236	6,268	6,316	6,365	6,417	6,467	6,542	6,597				
AEO 1998					5,474	5,621	5,711	5,784	5,893	5,957	6,026	6,098	6,192	6,292	6,379	6,465	6,542	6,612	6,683	6,752	6,801	6,862	6,924	6,973	7,034	7,094	7,141
AEO 1999						5,522	5,689	5,810	5,913	5,976	6,036	6,084	6,152	6,244	6,325	6,418	6,493	6,563	6,641	6,703	6,771	6,846	6,930	6,991	7,066	7,129	7,183
AEO 2000							5,573	5,692	5,777	5,865	5,971	6,078	6,172	6,262	6,345	6,420	6,480	6,551	6,610	6,678	6,755	6,841	6,942	6,999	7,068	7,131	7,193
AEO 2001								5,630	5,781	5,909	6,023	6,114	6,197	6,281	6,387	6,470	6,541	6,633	6,709	6,788	6,881	6,970	7,070	7,152	7,244	7,318	7,394
AEO 2002									5,723	5,808	5,981	6,095	6,210	6,323	6,438	6,530	6,624	6,727	6,839	6,937	7,032	7,117	7,206	7,299	7,390	7,478	7,569
AEO 2003										5,633	5,749	5,856	5,954	6,095	6,232	6,360	6,475	6,602	6,719	6,828	6,927	7,024	7,129	7,224	7,322	7,423	7,537
AEO 2004											5,743	5,826	5,986	6,124	6,251	6,357	6,453	6,559	6,657	6,763	6,857	6,944	7,028	7,123	7,219	7,320	7,429
AEO 2005												5,905	6,023	6,138	6,274	6,415	6,533	6,627	6,721	6,812	6,889	6,979	7,052	7,135	7,236	7,334	7,427
AEO 2006													5,967	5,978	6,080	6,182	6,281	6,365	6,440	6,536	6,595	6,654	6,718	6,794	6,869	6,952	7,030
AEO 2007														5,940	5,999	6,059	6,124	6,214	6,296	6,369	6,442	6,527	6,589	6,662	6,716	6,777	6,854
AEO 2008															5,977	5,983	5,978	6,011	6,087	6,144	6,154	6,187	6,226	6,272	6,308	6,350	6,368
AEO 2009																5,849	5,699	5,746	5,803	5,842	5,858	5,852	5,830	5,844	5,857	5,875	5,889
AEO 2010																	5,507	5,521	5,643	5,706	5,707	5,741	5,731	5,749	5,761	5,787	5,826
AEO 2011																		5,643	5,601	5,622	5,659	5,651	5,680	5,700	5,707	5,724	5,742
AEO 2012																			5,632	5,570	5,453	5,438	5,407	5,408	5,402	5,402	5,421
AEO 2013																				5,361	5,368	5,361	5,381	5,336	5,370	5,404	5,441
AEO 2014																					5,421	5,426	5,418	5,382	5,418	5,452	5,469
AEO 2015																						5,488	5,428	5,436	5,405	5,425	5,477
AEO 2016																							5,273	5,292	5,321	5,329	5,322
AEO 2017																								5,157	5,183	5,222	5,272
AEO 2018																									5,151	5,257	5,230
AEO 2019																										5,250	5,217
AEO 2020																											5,123
Actual	5185	5261	5323	5510	5584	5635	5688	5868	5761	5804	5853	5970	5993	5910	6001	5809	5386	5576	5439	5227	5355	5406	5257	5188	5140	5281	5142
Average Absolute Difference	125	128	143	273	244	197	164	259	138	149	159	156	144	226	228	406	840	691	889	1108	976	937	1072	1112	1148	1022	1145

Table 2. Total Energy Related Carbon Dioxide Emissions, Projected vs. Actual (continued)

Projected vs. Actual
(percent 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		
AEO 1994	-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											
AEO 1995		-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											
AEO 1996			-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						
AEO 1997				-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						
AEO 1998					-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		
AEO 1999						-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		
AEO 2000							-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		
AEO 2001								-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		
AEO 2002									-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		
AEO 2003										-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		
AEO 2004											-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		
AEO 2005												-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		
AEO 2006															-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
AEO 2007														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		
AEO 2008																-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	
AEO 2009																	0.7	5.8	3.0	6.7	11.8	9.4	8.3	10.9	12.6	13.9	11.2	14.5	
AEO 2010																		2.3	-1.0	3.7	9.2	6.6	6.2	9.0	10.8	12.1	9.6	13.3	
AEO 2011																			1.2	3.0	7.6	5.7	4.5	8.0	9.9	11.0	8.4	11.7	
AEO 2012																				3.5	6.6	1.8	0.6	2.9	4.2	5.1	2.3	5.4	
AEO 2013																					2.6	0.2	-0.8	2.3	2.9	4.5	2.3	5.8	
AEO 2014																						1.2	0.4	3.1	3.7	5.4	3.2	6.4	
AEO 2015																							1.5	3.2	4.8	5.1	2.7	6.5	
AEO 2016																								0.3	2.0	3.5	0.9	3.5	
AEO 2017																									-0.6	0.8	-1.1	2.5	
AEO 2018																										0.2	-0.5	1.7	
																											-0.6	1.5	
																												-0.4	
Average Absolute Percent 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		

Sources: Projections: *Annual Energy Outlook*, Reference Case Projections, Various Editions.

Historical Data: U.S. Energy Information Administration open data API (<http://www.eia.gov/opendata/>) (Washington, DC). Retrieved September 24, 2020. Series: TOTAL.TETCEUS.A. Shading indicates overestimation (blue) or underestimation (green).