

Table 29. Energy intensity, projected versus actual

Projected (quadrillion Btu / \$Billion 2012 Chained GDP)																														
	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	9.9	9.7	9.7	9.5	9.4	9.3	9.1	9.0	8.9	8.8	8.7	8.6	8.5	8.4	8.3	8.2	8.1	8.1												
AEO1995		9.6	9.5	9.3	9.2	9.0	8.9	8.8	8.7	8.6	8.5	8.4	8.3	8.2	8.1	8.0	7.9	7.9												
AEO1996			9.4	9.3	9.2	9.0	8.9	8.8	8.6	8.5	8.5	8.4	8.3	8.2	8.1	8.0	8.0	7.9	7.8	7.8	7.7	7.6	7.6							
AEO1997				9.1	9.0	8.9	8.8	8.7	8.6	8.5	8.5	8.4	8.3	8.2	8.1	8.0	7.9	7.9	7.8	7.7	7.7	7.6	7.5							
AEO1998					8.9	8.9	8.9	8.8	8.7	8.6	8.6	8.5	8.4	8.3	8.2	8.1	8.0	8.0	7.9	7.8	7.7	7.7	7.6	7.5	7.5	7.5	7.4	7.4	7.3	
AEO1999						8.5	8.5	8.5	8.5	8.4	8.3	8.1	8.0	7.9	7.8	7.7	7.6	7.5	7.4	7.4	7.3	7.3	7.2	7.1	7.1	7.1	7.0	6.9	6.9	
AEO2000							8.3	8.3	8.2	8.1	8.0	7.9	7.8	7.7	7.7	7.6	7.5	7.4	7.4	7.3	7.2	7.1	7.0	6.9	6.9	6.8	6.7	6.7		
AEO2001								7.6	7.5	7.4	7.4	7.3	7.1	7.0	6.9	6.8	6.7	6.6	6.4	6.3	6.2	6.1	6.0	5.9	5.8	5.8	5.7	5.6		
AEO2002									7.7	7.8	7.7	7.7	7.5	7.4	7.3	7.2	7.0	6.8	6.7	6.6	6.5	6.4	6.3	6.1	6.0	5.9	5.8	5.8		
AEO2003										7.6	7.5	7.4	7.3	7.2	7.1	7.0	6.9	6.7	6.6	6.5	6.4	6.3	6.2	6.1	6.0	5.9	5.8	5.8	5.7	
AEO2004											7.4	7.3	7.2	7.1	7.0	6.9	6.8	6.7	6.6	6.5	6.4	6.3	6.2	6.1	6.0	5.9	5.8	5.8	5.7	
AEO2005												7.2	7.1	7.0	6.9	6.8	6.7	6.6	6.5	6.4	6.3	6.2	6.0	5.9	5.8	5.7	5.6	5.5	5.4	
AEO2006													7.0	6.9	6.8	6.6	6.5	6.4	6.3	6.2	6.1	6.0	5.9	5.8	5.6	5.5	5.4	5.3	5.3	
AEO2007														6.9	6.8	6.7	6.6	6.5	6.3	6.3	6.2	6.1	5.9	5.8	5.7	5.6	5.5	5.4	5.3	
AEO2008															6.8	6.8	6.6	6.4	6.3	6.2	6.1	6.0	5.9	5.8	5.7	5.6	5.5	5.4	5.3	
AEO2009																6.7	6.7	6.6	6.5	6.3	6.2	6.0	5.9	5.8	5.6	5.5	5.4	5.3	5.2	
AEO2010																	6.6	6.6	6.5	6.3	6.2	6.1	5.9	5.8	5.7	5.5	5.4	5.3	5.2	
AEO2011																		6.4	6.3	6.2	6.0	5.9	5.8	5.7	5.6	5.4	5.4	5.3	5.1	
AEO2012																			6.4	6.3	6.1	5.9	5.7	5.6	5.5	5.4	5.3	5.2	5.1	
AEO2013																				6.2	6.1	5.9	5.8	5.7	5.5	5.4	5.3	5.2	5.1	
AEO2014																					6.1	5.9	5.8	5.7	5.6	5.5	5.3	5.2	5.2	
AEO2015																						5.8	5.6	5.5	5.4	5.3	5.2	5.1	5.0	
AEO2016																							5.6	5.6	5.5	5.3	5.2	5.2	5.1	
AEO2017																								5.5	5.4	5.4	5.3	5.2	5.1	
AEO2018																										5.4	5.4	5.3	5.2	5.1
AEO2019																											5.4	5.3	5.1	5.1
AEO2020																												5.2	5.1	5.1
AEO2021																													5.1	5.1
AEO2022																														5.0
Actual*	8.8	8.6	8.6	8.5	8.2	7.9	7.7	7.5	7.3	7.2	7.1	7.0	6.7	6.5	6.5	6.3	6.2	6.2	6.1	5.8	5.9	5.8	5.6	5.5	5.4	5.4	5.3	5.1	5.0	
Average absolute difference	1.1	1.1	1.0	0.8	0.9	1.1	1.1	1.0	1.1	1.0	1.0	1.0	1.0	1.1	1.0	1.0	1.0	0.8	0.7	0.9	0.7	0.6	0.7	0.5	0.5	0.4	0.4	0.5	0.2	

Table 29. Energy intensity, 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	12.8	13.4	12.9	11.8	14.4	17.5	19.4	20.1	23.1	21.8	23.4	24.1	26.8	29.8	28.7	30.3	31.9	29.6											
AEO1995		11.1	10.5	9.5	11.7	14.7	16.5	17.1	19.9	18.6	19.9	20.3	22.9	25.9	25.2	26.8	28.6	26.4											
AEO1996			10.1	9.4	11.9	14.6	16.3	16.6	19.2	18.0	19.8	20.5	23.2	26.2	25.3	27.1	28.8	26.7	28.4	33.9	31.5	31.4	34.9						
AEO1997				6.3	9.7	13.4	15.5	16.0	18.9	18.1	19.8	20.6	23.2	26.2	25.3	26.9	28.6	26.3	27.9	33.1	30.6	30.6	34.2						
AEO1998					8.4	12.5	15.7	16.7	20.2	19.4	21.1	21.6	24.4	27.7	26.9	28.5	30.2	27.9	29.4	34.5	31.8	31.9	35.5	36.6	38.2	36.4	39.5	44.3	
AEO1999						7.4	11.6	13.3	17.1	16.0	17.2	17.2	19.4	21.9	20.7	21.9	23.1	20.4	21.9	26.7	24.5	24.7	27.9	28.9	30.5	28.8	31.6	36.2	
AEO2000							8.1	9.9	12.6	11.9	13.5	13.8	16.2	19.3	18.5	20.0	21.5	19.0	20.5	25.2	22.5	22.1	25.2	25.9	27.2	25.2	27.7	31.8	
AEO2001								1.6	3.9	2.9	4.2	4.4	6.2	8.2	7.0	7.5	8.1	5.3	5.7	8.8	5.9	5.1	7.3	7.3	7.9	5.8	7.7	10.9	
AEO2002									6.4	7.2	9.6	10.1	12.3	14.7	13.2	13.1	13.1	9.8	9.9	13.4	10.5	9.7	11.6	11.4	11.7	9.3	11.0	14.2	
AEO2003										4.4	6.2	6.2	8.2	10.8	9.8	10.4	11.0	8.0	8.6	12.1	9.3	8.6	10.9	11.1	11.6	9.3	11.0	14.1	13.6
AEO2004											5.2	5.2	7.4	9.6	8.3	8.9	9.5	7.2	8.1	11.8	9.0	8.2	10.4	10.6	11.1	8.9	10.9	14.0	13.5
AEO2005												3.4	5.3	7.5	6.4	7.9	8.8	6.0	6.7	10.1	7.0	6.0	7.8	7.7	8.1	5.6	7.0	9.6	8.7
AEO2006													4.5	5.5	4.8	5.0	5.6	3.1	3.6	7.2	4.3	3.2	5.0	4.6	4.5	1.9	3.2	5.8	5.0
AEO2007														5.9	5.3	5.9	6.4	3.8	4.1	7.6	4.8	4.1	5.9	5.7	5.5	3.0	4.2	6.5	5.4
AEO2008															5.6	7.2	6.6	3.4	3.6	6.7	3.6	2.8	4.7	4.6	5.0	2.7	4.0	6.7	6.1
AEO2009																5.9	8.8	6.4	6.5	9.2	5.5	4.0	5.2	4.6	4.4	1.5	2.3	4.5	3.4
AEO2010																	6.2	5.2	5.9	8.8	5.5	4.7	6.0	5.3	5.1	2.1	2.9	4.7	3.5
AEO2011																		3.3	3.9	6.1	2.5	1.6	3.4	2.9	2.8	0.3	1.5	3.9	2.6
AEO2012																			5.4	8.7	3.9	1.9	2.3	1.3	1.0	-1.3	-0.1	2.3	1.3
AEO2013																				5.9	3.6	2.0	3.5	2.7	2.6	0.1	1.3	3.3	2.2
AEO2014																					3.4	1.8	3.4	2.7	2.8	0.3	1.4	3.7	2.9
AEO2015																						0.3	0.1	0.2	0.2	-2.3	-1.0	0.8	-0.5
AEO2016																							0.5	1.0	1.1	-2.1	-0.8	1.9	1.4
AEO2017																								-0.2	0.0	-1.5	0.7	2.7	1.3
AEO2018																									0.2	-1.1	0.5	2.8	1.6
AEO2019																										-0.4	-0.1	1.8	1.0
AEO2020																											-0.5	1.4	1.2
AEO2021																												1.1	1.3
AEO2022																													-0.4
Average absolute percentage difference	12.8	12.2	11.1	9.3	11.2	13.4	14.7	13.9	15.7	13.8	14.5	13.9	15.4	17.1	15.4	15.8	16.3	13.2	11.8	15.0	11.6	10.2	11.7	8.8	8.6	6.8	7.4	9.5	3.8

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

GDP data from the U.S. Bureau of Economic Analysis (accessed February 2022), <https://apps.bea.gov/national/xls/gdplev.xlsx>

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

* Actual energy intensity is based on BEA data using 2012 chained dollars.