Table E4. Renewable Energy Production and Consumption by Source, Fossil Fuel Equivalency Approach (Trillion Btu)

	Production[a]				Consumption								
	Biomass			Total Renewable Energy[e]	Noncombustible (Fossil Fuel Equivalent)				Biomass				Total Renewable Energy
	Wood[b]	Biofuels[c]	Total[d]		Hydroelectric Power[f]	Geothermal[g]	Solar[h]	Wind[i]	Wood[j]	Waste[k]	Biofuels[l]	Total	
1950 Total	**1,562**	**NA**	**1,562**	**2,978**	**1,415**	**NA**	**NA**	**NA**	**1,562**	**NA**	**NA**	**1,562**	**2,978**
1955 Total	**1,424**	**NA**	**1,424**	**2,784**	**1,360**	**NA**	**NA**	**NA**	**1,424**	**NA**	**NA**	**1,424**	**2,784**
1960 Total	**1,320**	**NA**	**1,320**	**2,928**	**1,608**	**(s)**	**NA**	**NA**	**1,320**	**NA**	**NA**	**1,320**	**2,928**
1965 Total	**1,335**	**NA**	**1,335**	**3,396**	**2,059**	**2**	**NA**	**NA**	**1,335**	**NA**	**NA**	**1,335**	**3,396**
1970 Total	**1,429**	**NA**	**1,431**	**4,070**	**2,634**	**6**	**NA**	**NA**	**1,429**	**2**	**NA**	**1,431**	**4,070**
1975 Total	**1,497**	**NA**	**1,499**	**4,687**	**3,155**	**34**	**NA**	**NA**	**1,497**	**2**	**NA**	**1,499**	**4,687**
1980 Total	**2,474**	**NA**	**2,475**	**5,428**	**2,900**	**53**	**NA**	**NA**	**2,474**	**2**	**NA**	**2,475**	**5,428**
1985 Total	**2,687**	**93**	**3,016**	**6,084**	**2,970**	**97**	**NA**	**(s)**	**2,687**	**236**	**93**	**3,016**	**6,084**
1990 Total	**2,216**	**111**	**2,735**	**6,040**	**3,046**	**171**	**59**	**29**	**2,216**	**408**	**111**	**2,735**	**6,040**
1995 Total	**2,370**	**198**	**3,099**	**6,557**	**3,205**	**152**	**68**	**33**	**2,370**	**531**	**200**	**3,101**	**6,559**
2000 Total	**2,262**	**233**	**3,006**	**6,102**	**2,811**	**164**	**63**	**57**	**2,262**	**511**	**236**	**3,008**	**6,104**
2005 Total	**2,137**	**561**	**3,101**	**6,221**	**2,703**	**181**	**58**	**178**	**2,137**	**403**	**574**	**3,114**	**6,233**
2010 Total	**2,217**	**1,868**	**4,553**	**8,313**	**2,539**	**208**	**90**	**923**	**2,217**	**468**	**1,821**	**4,506**	**8,266**
2011 Total	**2,213**	**2,037**	**4,712**	**9,306**	**3,103**	**212**	**110**	**1,168**	**2,213**	**462**	**1,941**	**4,616**	**9,210**
2012 Total	**2,151**	**1,936**	**4,554**	**8,890**	**2,629**	**212**	**156**	**1,340**	**2,151**	**467**	**1,899**	**4,517**	**8,853**
2013 Total	**2,338**	**2,000**	**4,835**	**9,438**	**2,562**	**214**	**226**	**1,601**	**2,338**	**496**	**2,026**	**4,861**	**9,465**
2014 Total	**2,398**	**2,135**	**5,049**	**9,795**	**2,466**	**214**	**338**	**1,727**	**2,398**	**516**	**2,099**	**5,013**	**9,759**
2015 Total	**2,305**	**2,201**	**5,025**	**9,760**	**2,320**	**212**	**427**	**1,776**	**2,305**	**518**	**2,185**	**5,008**	**9,743**
2016 Total	**2,290**	**2,329**	**5,122**	**10,469**	**2,471**	**210**	**572**	**2,095**	**2,217**	**503**	**2,333**	**5,053**	**10,401**
2017 Total	**2,254**	**2,407**	**5,156**	**11,253**	**2,765**	**210**	**779**	**2,342**	**2,176**	**495**	**2,364**	**5,035**	**11,132**
2018 Total	**2,348**	**2,471**	**5,306**	**11,575**	**2,661**	**209**	**918**	**2,481**	**2,254**	**487**	**2,355**	**5,096**	**11,365**
2019 Total	**2,333**	**2,432**	**5,207**	**11,624**	**2,562**	**201**	**1,021**	**2,633**	**2,229**	**442**	**2,376**	**5,048**	**11,465**
2020 Total	**2,066**	**2,194**	**4,700**	**11,583**	**2,501**	**203**	**1,216**	**2,963**	**1,960**	**440**	**2,136**	**4,535**	**11,418**
2021 Total	**2,111**	**2,374**	**4,916**	**12,220**	**2,225**	**205**	**1,529**	**3,345**	**1,992**	**430**	**2,331**	**4,753**	**12,057**
2022 Total	**2,273**	**2,511**	**5,196**	**13,366**	**2,245**	**205**	**1,892**	**3,827**	**2,135**	**412**	**2,433**	**4,980**	**13,149**
2023 Total	**2,103**	**2,705**	**5,202**	**13,309**	**2,114**	**205**	**2,154**	**3,634**	**1,968**	**394**	**2,659**	**5,021**	**13,128**
2024 January	173	226	434	1,066	186	17	129	300	165	35	212	411	1,043
February	166	227	425	1,135	179	16	161	353	154	32	223	410	1,119
March	174	241	448	1,263	201	17	208	389	161	33	232	427	1,242
April	166	223	420	1,265	180	16	243	406	155	31	222	408	1,253
May	170	232	435	1,277	211	16	277	338	158	33	242	433	1,275
June	169	238	437	1,274	193	16	295	333	157	30	235	422	1,259
July	173	252	457	1,198	184	16	297	244	162	32	252	446	1,187
August	176	250	458	1,195	177	16	292	252	163	32	242	437	1,174
September	169	236	435	1,090	137	16	251	251	157	31	231	418	1,073
October	164	245	441	1,168	132	16	237	341	153	32	243	428	1,155
November	169	251	452	1,130	144	17	172	346	157	32	235	425	1,104
December	178	255	465	1,149	168	17	158	341	166	33	236	435	1,119
Total	**2,046**	**2,875**	**5,308**	**14,211**	**2,093**	**196**	**2,719**	**3,894**	**1,909**	**387**	**2,806**	**5,101**	**14,004**
2025 January	177	233	443	1,207	185	17	186	376	165	33	208	406	1,170
February	160	212	402	1,124	168	16	199	339	148	30	199	377	1,098
March	176	232	441	1,366	193	17	278	436	163	33	214	410	1,335
April	162	218	411	1,337	197	16	317	395	151	31	212	393	1,318
May	170	234	434	1,326	210	16	348	318	158	31	212	401	1,292
June	170	235	435	1,318	191	16	368	308	158	30	209	397	1,281
July	180	243	453	1,300	172	16	385	274	166	30	220	416	1,264
August	177	237	445	1,236	173	17	365	235	165	30	218	413	1,204
September	172	233	434	1,126	132	16	323	221	160	29	211	400	1,092
October	171	248	450	1,236	143	16	286	341	158	31	226	416	1,202
November	169	243	443	1,189	159	16	219	353	156	31	212	400	1,146
December	175	249	457	1,273	206	17	187	405	163	32	228	423	1,239
Total	**2,058**	**2,817**	**5,247**	**15,037**	**2,129**	**199**	**3,461**	**4,002**	**1,912**	**372**	**2,569**	**4,853**	**14,643**
2026 January	172	232	436	1,290	240	18	213	383	159	31	199	390	1,244
February	154	220	403	1,200	194	16	246	342	145	29	194	368	1,165
March	166	248	446	1,482	232	17	336	450	155	32	225	412	1,447
April	R 154	233	R 416	R 1,412	194	16	363	423	140	30	216	386	1,382
May	169	257	456	1,440	196	16	417	355	157	30	234	420	1,404
5-Month Total	**815**	**1,190**	**2,157**	**6,824**	**1,056**	**82**	**1,575**	**1,953**	**755**	**152**	**1,069**	**1,976**	**6,643**
2025 5-Month Total	**845**	**1,129**	**2,132**	**6,359**	**953**	**83**	**1,327**	**1,864**	**785**	**157**	**1,045**	**1,987**	**6,214**
2024 5-Month Total	**849**	**1,150**	**2,163**	**6,006**	**957**	**83**	**1,017**	**1,786**	**794**	**164**	**1,131**	**2,089**	**5,932**

[a] For hydroelectric power, geothermal, solar, wind, and biomass waste, production equals consumption.

[b] Wood and wood-derived fuels. Through 2015, wood production equals consumption. Beginning in 2016, wood production equals consumption plus densified biomass exports.

[c] Total biomass inputs to the production of fuel ethanol and biodiesel. Beginning in 2011, also includes production of renewable diesel fuel. Beginning in 2014, also includes production of other biofuels.

[d] Includes biomass waste.

[e] Hydroelectric power, geothermal, solar, wind, and biomass.

[f] Conventional hydroelectricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6).

[g] Geothermal electricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6), and geothermal heat pump and direct use energy.

[h] Solar photovoltaic (PV) and solar thermal electricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6), and solar thermal direct use energy.

[i] Wind electricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6).

[j] Wood and wood-derived fuels.

[k] Municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass. Through 2000, also includes non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

[l] Fuel ethanol (minus denaturant), biodiesel, renewable diesel fuel, and other biofuels consumption; plus losses and co-products from the production of fuel ethanol and biodiesel.

R=Revised. NA=Not available. (s)=Less than 0.5 trillion Btu.

Notes: • Production data are estimates. Consumption data are estimates, except for hydroelectric power in 1949–1978 and 1989 forward, and wind. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#appendices (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: • **Biomass:** Table 10.1. • **Hydroelectric Power** and **Wind:** Calculated as electricity net generation (see Table 7.2a) multiplied by the total fossil fuels heat rate factors (see Table A6). • **Geothermal:** Calculated as geothermal electricity net generation (see Table 7.2a) multiplied by the total fossil fuels heat rate factors (see Table A6); plus geothermal heat pump and direct use energy in the residential, commercial, and industrial sectors (see Tables 10.2a and 10.2b) .• **Solar:** Calculated as solar electricity net generation (see Table 7.2a) multiplied by the total fossil fuels heat rate factors (see Table A6); plus solar thermal direct use energy (see Table 10.5). • **Total Production:** Calculated as the sum of biomass production and noncombustible consumption. • **Total Consumption:** Calculated as the sum of biomass consumption and noncombustible consumption.