

Table 8a. U.S. Renewable Energy Consumption (Quadrillion Btu)
 U.S. Energy Information Administration | Short-Term Energy Outlook - October 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Electric Power Sector															
Geothermal	0.014	0.013	0.014	0.014	0.005	0.005	0.008	<i>0.008</i>	<i>0.006</i>	<i>0.006</i>	<i>0.007</i>	<i>0.006</i>	0.056	<i>0.026</i>	<i>0.025</i>
Hydroelectric Power (a)	0.253	0.236	0.213	0.188	0.214	0.223	0.198	<i>0.201</i>	<i>0.254</i>	<i>0.278</i>	<i>0.228</i>	<i>0.209</i>	0.890	<i>0.836</i>	<i>0.969</i>
Solar (b)	0.100	0.152	0.148	0.094	0.101	0.169	0.180	<i>0.123</i>	<i>0.144</i>	<i>0.236</i>	<i>0.249</i>	<i>0.166</i>	0.493	<i>0.573</i>	<i>0.795</i>
Waste Biomass (c)	0.055	0.053	0.053	0.052	0.051	0.046	0.046	<i>0.047</i>	<i>0.049</i>	<i>0.047</i>	<i>0.048</i>	<i>0.048</i>	0.213	<i>0.189</i>	<i>0.192</i>
Wood Biomass	0.051	0.046	0.055	0.047	0.045	0.039	0.048	<i>0.044</i>	<i>0.048</i>	<i>0.043</i>	<i>0.053</i>	<i>0.046</i>	0.200	<i>0.177</i>	<i>0.190</i>
Wind	0.406	0.413	0.275	0.388	0.428	0.349	0.289	<i>0.413</i>	<i>0.459</i>	<i>0.372</i>	<i>0.299</i>	<i>0.432</i>	1.483	<i>1.479</i>	<i>1.562</i>
Subtotal	0.879	0.914	0.759	0.784	0.843	0.831	0.770	<i>0.837</i>	<i>0.961</i>	<i>0.983</i>	<i>0.884</i>	<i>0.907</i>	3.335	<i>3.281</i>	<i>3.734</i>
Industrial Sector															
Biofuel Losses and Co-products (d)	0.203	0.202	0.197	0.206	0.199	0.202	0.200	<i>0.203</i>	<i>0.198</i>	<i>0.197</i>	<i>0.202</i>	<i>0.198</i>	0.808	<i>0.804</i>	<i>0.795</i>
Geothermal	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<i>0.001</i>	<i>0.001</i>	<i>0.001</i>	<i>0.001</i>	<i>0.001</i>	0.004	<i>0.004</i>	<i>0.004</i>
Hydroelectric Power (a)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<i>0.001</i>	<i>0.002</i>	<i>0.001</i>	<i>0.001</i>	<i>0.001</i>	0.003	<i>0.004</i>	<i>0.005</i>
Solar (b)	0.003	0.004	0.004	0.003	0.003	0.005	0.005	<i>0.003</i>	<i>0.004</i>	<i>0.005</i>	<i>0.005</i>	<i>0.004</i>	0.015	<i>0.016</i>	<i>0.018</i>
Waste Biomass (c)	0.042	0.040	0.037	0.042	0.042	0.040	0.039	<i>0.041</i>	<i>0.041</i>	<i>0.040</i>	<i>0.039</i>	<i>0.041</i>	0.161	<i>0.162</i>	<i>0.161</i>
Wood Biomass	0.319	0.324	0.322	0.314	0.309	0.292	0.315	<i>0.336</i>	<i>0.331</i>	<i>0.330</i>	<i>0.342</i>	<i>0.344</i>	1.278	<i>1.252</i>	<i>1.347</i>
Subtotal (e)	0.573	0.577	0.567	0.571	0.559	0.545	0.566	<i>0.590</i>	<i>0.581</i>	<i>0.579</i>	<i>0.595</i>	<i>0.594</i>	2.288	<i>2.261</i>	<i>2.349</i>
Commercial Sector															
Geothermal	0.005	0.005	0.005	0.005	0.005	0.005	0.005	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	0.022	<i>0.022</i>	<i>0.022</i>
Solar (b)	0.013	0.018	0.018	0.012	0.014	0.021	0.021	<i>0.015</i>	<i>0.017</i>	<i>0.024</i>	<i>0.024</i>	<i>0.017</i>	0.061	<i>0.071</i>	<i>0.082</i>
Waste Biomass (c)	0.009	0.009	0.009	0.009	0.010	0.011	0.009	<i>0.009</i>	<i>0.010</i>	<i>0.012</i>	<i>0.012</i>	<i>0.009</i>	0.037	<i>0.040</i>	<i>0.044</i>
Wood Biomass	0.020	0.021	0.021	0.021	0.020	0.020	0.021	<i>0.021</i>	<i>0.020</i>	<i>0.020</i>	<i>0.021</i>	<i>0.021</i>	0.083	<i>0.082</i>	<i>0.082</i>
Subtotal (e)	0.054	0.060	0.061	0.054	0.056	0.065	0.064	<i>0.057</i>	<i>0.059</i>	<i>0.069</i>	<i>0.070</i>	<i>0.059</i>	0.230	<i>0.242</i>	<i>0.257</i>
Residential Sector															
Geothermal	0.010	0.010	0.010	0.010	0.010	0.010	0.010	<i>0.010</i>	<i>0.010</i>	<i>0.010</i>	<i>0.010</i>	<i>0.010</i>	0.040	<i>0.039</i>	<i>0.039</i>
Solar (f)	0.038	0.057	0.057	0.041	0.046	0.069	0.069	<i>0.048</i>	<i>0.052</i>	<i>0.078</i>	<i>0.078</i>	<i>0.054</i>	0.192	<i>0.233</i>	<i>0.261</i>
Wood Biomass	0.104	0.105	0.106	0.106	0.111	0.112	0.106	<i>0.106</i>	<i>0.111</i>	<i>0.112</i>	<i>0.106</i>	<i>0.106</i>	0.422	<i>0.436</i>	<i>0.436</i>
Subtotal	0.152	0.172	0.173	0.157	0.167	0.192	0.186	<i>0.164</i>	<i>0.173</i>	<i>0.200</i>	<i>0.194</i>	<i>0.170</i>	0.654	<i>0.709</i>	<i>0.737</i>
Transportation Sector															
Biodiesel, Renewable Diesel, and Other (g)	0.099	0.118	0.118	0.126	0.140	0.173	0.162	<i>0.174</i>	<i>0.175</i>	<i>0.187</i>	<i>0.185</i>	<i>0.190</i>	0.462	<i>0.649</i>	<i>0.737</i>
Ethanol (g)	0.262	0.281	0.281	0.283	0.268	0.284	0.286	<i>0.276</i>	<i>0.263</i>	<i>0.278</i>	<i>0.285</i>	<i>0.273</i>	1.108	<i>1.114</i>	<i>1.098</i>
Subtotal	0.361	0.399	0.400	0.410	0.408	0.457	0.448	<i>0.450</i>	<i>0.437</i>	<i>0.465</i>	<i>0.470</i>	<i>0.463</i>	1.569	<i>1.763</i>	<i>1.835</i>
All Sectors Total															
Biodiesel, Renewable Diesel, and Other (g)	0.099	0.118	0.118	0.126	0.140	0.173	0.162	<i>0.174</i>	<i>0.175</i>	<i>0.187</i>	<i>0.185</i>	<i>0.190</i>	0.462	<i>0.649</i>	<i>0.737</i>
Biofuel Losses and Co-products (d)	0.203	0.202	0.197	0.206	0.199	0.202	0.200	<i>0.203</i>	<i>0.198</i>	<i>0.197</i>	<i>0.202</i>	<i>0.198</i>	0.808	<i>0.804</i>	<i>0.795</i>
Ethanol (f)	0.273	0.293	0.293	0.295	0.279	0.296	0.298	<i>0.287</i>	<i>0.273</i>	<i>0.289</i>	<i>0.297</i>	<i>0.284</i>	1.153	<i>1.160</i>	<i>1.143</i>
Geothermal	0.030	0.030	0.031	0.031	0.030	0.030	0.024	<i>0.024</i>	<i>0.022</i>	<i>0.022</i>	<i>0.023</i>	<i>0.023</i>	0.122	<i>0.107</i>	<i>0.090</i>
Hydroelectric Power (a)	0.254	0.237	0.214	0.189	0.215	0.224	0.200	<i>0.203</i>	<i>0.256</i>	<i>0.280</i>	<i>0.229</i>	<i>0.211</i>	0.894	<i>0.841</i>	<i>0.975</i>
Solar (b)(f)	0.153	0.231	0.228	0.150	0.164	0.264	0.276	<i>0.189</i>	<i>0.217</i>	<i>0.343</i>	<i>0.356</i>	<i>0.240</i>	0.761	<i>0.893</i>	<i>1.156</i>
Waste Biomass (c)	0.106	0.102	0.099	0.103	0.103	0.098	0.096	<i>0.098</i>	<i>0.100</i>	<i>0.099</i>	<i>0.099</i>	<i>0.098</i>	0.411	<i>0.394</i>	<i>0.396</i>
Wood Biomass	0.494	0.496	0.505	0.489	0.486	0.464	0.491	<i>0.507</i>	<i>0.510</i>	<i>0.505</i>	<i>0.522</i>	<i>0.518</i>	1.984	<i>1.948</i>	<i>2.055</i>
Wind	0.406	0.413	0.275	0.388	0.428	0.349	0.289	<i>0.413</i>	<i>0.459</i>	<i>0.372</i>	<i>0.299</i>	<i>0.432</i>	1.483	<i>1.479</i>	<i>1.562</i>
Total Consumption	2.019	2.122	1.960	1.976	2.034	2.089	2.033	<i>2.098</i>	<i>2.210</i>	<i>2.295</i>	<i>2.213</i>	<i>2.193</i>	8.077	<i>8.255</i>	<i>8.911</i>

Notes: EIA completed modeling and analysis for this report on October 5, 2023.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

(a) Energy consumption for conventional hydroelectric power only. Hydroelectricity generated by pumped storage is not included in renewable energy, and energy consumption by small-scale solar photovoltaic systems (less than 1 megawatts in size).

(c) Municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass.

(d) Losses and co-products from the production of fuel ethanol and biomass-based diesel

(e) Subtotals for the industrial and commercial sectors might not equal the sum of the components. The subtotal for the industrial sector includes ethanol consumption that is not shown separately. The subtotal for the commercial sector includes ethanol and hydroelectric consumption that are not shown separately.

(f) Solar consumption in the residential sector includes energy from small-scale solar photovoltaic systems (<1 megawatt), and it includes solar heating consumption in all sectors. Some biomass-based diesel may be consumed in the residential sector in heating oil.

Historical data: Latest data available from EIA databases supporting the following reports: Electric Power Monthly, Electric Power Annual, Minor discrepancies with published historical data are due to independent rounding and possible revisions not yet reflected in the STEO.

Forecast data: EIA Short-Term Integrated Forecasting System.