

Table 2 Number, capacity, footprint area, and spacing area of WWS power plants or devices needed to provide total annually-averaged end-use all-purpose load over all 50 states plus additional power needed to provide peaking and storage services, as derived in ref. 2. The numbers account for short- and moderate-distance transmission, distribution, forced and unforced maintenance, and array losses. Ref. 9 derives individual tables for each state

Energy technology	Rated power one plant or device (MW)	Percent of 2050 all-purpose load met by plant/device <sup>a</sup>	Name-plate capacity of existing plus new plants or devices (MW)	Percent name-plate capacity already installed 2013	Number of new plants or devices needed for U.S.	Percent of U.S. land area for footprint of new plants/devices <sup>b</sup>	Percent of U.S. land area for spacing of new plants/devices
<b>Annual power</b>							
Onshore wind	5	30.92	1 701 000	3.59	328 000	0.00004	1.5912
Offshore wind	5	19.08	780 900	0.00	156 200	0.00002	0.7578
Wave device	0.75	0.37	27 040	0.00	36 050	0.00021	0.0098
Geothermal plant	100	1.25	23 250	10.35	208	0.00078	0.0000
Hydroelectric plant <sup>f</sup>	1300	3.01	91 650	95.87	3	0.02077	0.0000
Tidal turbine	1	0.14	8823	0.00	8823	0.00003	0.0004
Res. roof PV	0.005	3.98	379 500	0.94	75 190 000	0.03070	0.0000
Com/gov roof PV <sup>d</sup>	0.1	3.24	276 500	0.64	2 747 000	0.02243	0.0000
Solar PV plant <sup>d</sup>	50	30.73	2 326 000	0.08	46 480	0.18973	0.0000
Utility CSP plant	100	7.30	227 300	0.00	2273	0.12313	0.0000
<b>Total</b>		<b>100.00</b>	<b>5 841 000</b>	<b>2.71</b>		<b>0.388</b>	<b>2.359</b>
<b>Peaking/storage</b>							
Additional CSP <sup>e</sup>	100	4.38	136 400	0.00	1364	0.07388	0.0000
Solar thermal <sup>f</sup>	50	7.21	469 000	0.00	9380	0.00731	0.0000
<b>Total all</b>			<b>6 447 000</b>	<b>2.46</b>		<b>0.469</b>	<b>2.359</b>
<b>Total new land<sup>f</sup></b>						<b>0.416</b>	<b>1.591</b>