

Table 13. Energy Expense for All Well Pumps and Other Irrigation Pumps by Type of Energy Used: 2018

[Excludes institutional, research, and experimental farms. For meaning of abbreviations and symbols see introductory text.]

Geographic area	Total energy expenses for pumping ¹						Expenses (\$1,000)
	Farms	Pumps powered	Acres in the open by water source		Square feet under protection by water source		
			Water from wells	Surface water	Water from wells	Surface water	
United States	158,236	595,775	36,901,920	13,233,726	993,579,006	303,638,769	2,419,224
Alabama	929	2,014	90,057	82,589	9,064,080	5,144,224	4,656
Alaska	242	327	1,370	125	1,808,434	154,526	80
Arizona	1,259	4,414	337,873	105,373	9,836,360	(D)	42,216
Arkansas	3,024	45,090	4,047,330	577,775	1,573,874	1,061,540	128,626
California	28,767	94,698	4,461,363	3,512,066	193,255,732	84,361,298	769,947
Colorado	4,722	14,831	1,154,063	379,151	7,448,640	828,212	86,299
Connecticut	556	1,164	2,559	2,354	25,738,372	813,160	1,113
Delaware	517	2,847	189,403	19,962	2,293,800	-	9,773
Florida	7,431	20,881	737,191	588,274	253,225,684	33,666,658	47,447
Georgia	3,793	13,449	1,006,468	173,360	14,146,250	3,377,970	46,643
Hawaii	317	502	2,297	15,066	824,960	2,885,772	1,079
Idaho	7,496	23,159	1,044,768	1,434,002	3,003,332	158,600	145,734
Illinois	1,715	5,462	545,504	21,749	43,928,430	890,000	12,275
Indiana	1,951	5,716	528,697	54,963	5,753,528	2,141,188	9,621
Iowa	940	2,229	158,281	9,936	2,415,586	3,378,890	2,244
Kansas	4,043	19,940	2,341,715	109,987	4,087,616	249,250	109,310
Kentucky	695	1,220	33,749	24,985	1,494,908	3,983,194	861
Louisiana	1,769	11,232	1,006,581	116,956	5,651,525	6,649,912	30,702
Maine	913	1,743	12,250	22,580	4,345,739	684,165	1,067
Maryland	889	2,463	109,458	23,856	9,362,253	906,340	3,922
Massachusetts	1,183	2,356	4,333	16,137	4,378,296	118,000	1,788
Michigan	3,703	11,902	713,213	151,844	59,458,501	18,327,900	21,054
Minnesota	2,286	6,250	529,760	23,967	14,235,622	2,677,466	11,659
Mississippi	1,505	15,811	1,653,354	115,290	3,336,444	195,300	42,647
Missouri	2,384	15,540	1,385,498	98,458	5,782,916	1,601,240	29,134
Montana	4,888	12,220	60,103	1,110,353	1,494,808	100,980	26,556
Nebraska	12,465	72,591	7,277,592	634,495	2,457,968	-	234,140
Nevada	824	2,556	308,365	59,734	213,380	50,500	28,230
New Hampshire	599	840	1,175	1,721	6,325,538	744,500	200
New Jersey	1,431	3,331	67,093	22,276	43,424,676	4,692,558	5,612
New Mexico	4,415	10,973	400,765	130,683	1,945,008	1,329,045	35,443
New York	1,719	2,850	19,064	23,039	32,151,291	5,644,700	1,836
North Carolina	2,288	3,928	23,956	114,895	10,301,998	17,535,594	4,603
North Dakota	622	2,684	189,046	77,691	240,712	(D)	6,381
Ohio	1,298	1,932	17,414	16,779	15,969,059	23,180,842	922
Oklahoma	1,588	6,530	511,198	68,867	1,197,066	542,621	21,496
Oregon	9,301	19,133	433,629	592,328	37,770,843	18,624,450	54,249
Pennsylvania	2,453	3,932	29,831	9,180	54,606,820	7,586,125	1,459
Rhode Island	194	315	1,992	1,846	1,468,969	237,000	124
South Carolina	1,347	3,909	220,332	42,235	4,459,916	1,253,000	10,540
South Dakota	908	2,711	209,540	130,467	1,161,600	31,824	7,430
Tennessee	988	2,173	179,228	11,652	2,702,136	3,929,200	2,531
Texas	9,945	75,177	3,451,914	322,658	41,975,732	23,868,044	263,656
Utah	3,808	6,700	238,814	413,818	3,284,912	910,960	28,447
Vermont	410	688	911	949	2,122,254	157,752	164
Virginia	1,268	2,020	10,927	39,105	12,547,674	15,113,972	1,129
Washington	7,648	20,880	529,088	1,126,219	15,536,597	1,930,740	92,825
West Virginia	283	417	516	5,543	633,640	174,872	86
Wisconsin	1,980	6,634	478,334	41,061	12,914,397	666,600	16,795
Wyoming	2,537	5,411	143,958	555,327	221,130	71,400	14,476
Water Resources Regions							
Region 01 New England	3,628	6,800	22,982	44,948	43,317,334	2,656,825	4,376
Region 02 Mid-Atlantic	6,695	15,229	415,445	122,400	146,130,013	28,431,258	22,748
Region 03 South Atlantic-Gulf	15,986	44,769	2,061,814	1,018,333	293,977,702	57,973,466	114,128
Region 04 Great Lakes	6,288	16,909	962,382	198,520	77,631,329	40,425,146	26,749
Region 05 Ohio	3,769	7,299	373,731	66,894	19,903,049	13,801,383	8,834
Region 06 Tennessee	887	1,336	31,400	38,959	5,447,518	6,775,152	1,739
Region 07 Upper Mississippi	6,213	18,457	1,542,794	107,026	66,405,104	5,945,812	39,790
Region 08 Lower Mississippi	6,402	77,796	7,461,692	685,908	7,508,489	7,020,552	201,381
Region 09 Souris-Red-Rainy	554	2,452	176,639	29,730	152,800	(D)	4,230
Region 10 Missouri	24,499	108,264	9,353,331	2,446,919	16,495,114	3,339,481	365,746
Region 11 Arkansas-White-Red	7,461	47,206	4,523,811	309,472	3,565,652	1,581,721	257,295
Region 12 Texas-Gulf	8,246	59,928	2,162,528	219,665	36,729,816	23,868,044	158,928
Region 13 Rio Grande	4,064	9,926	388,509	171,931	9,789,468	91,000	35,632
Region 14 Upper Colorado	2,783	4,995	20,312	371,430	195,040	1,629,705	14,022
Region 15 Lower Colorado	1,545	4,886	379,086	123,178	9,971,360	(D)	44,786
Region 16 Great Basin	3,734	8,428	608,045	401,886	3,498,292	899,060	54,854
Region 17 Pacific Northwest	25,781	64,956	1,936,856	3,325,692	57,106,800	18,892,490	291,190
Region 18 California	29,142	95,310	4,476,896	3,535,644	193,120,732	86,255,298	771,639
Region 19 Alaska	242	327	1,370	125	1,808,434	154,526	80
Region 20 Hawaii	317	502	2,297	15,066	824,960	2,885,772	1,079

See footnote(s) at end of table.

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Table 13. Energy Expense for All Well Pumps and Other Irrigation Pumps by Type of Energy Used: 2018 (continued)

[Excludes institutional, research, and experimental farms. For meaning of abbreviations and symbols see introductory text.]

Geographic area	Total energy expenses for pumping ¹ - con.					
	Expenses per irrigated acre for operations with only acres in the open (dollars)		Expenses per irrigated acre for operations with only horticulture in the open (dollars)		Expenses per 10,000 sq ft. for operations with only irrigated horticulture under protection (dollars)	
	Water from wells only	Surface water only	Water from wells only	Surface water only	Water from wells only	Surface water only
United States	48.18	36.45	77.20	68.90	163.86	133.27
Alabama	28.44	23.38	18.82	66.88	59.74	65.37
Alaska	37.68	7.04	60.38	22.00	61.35	266.21
Arizona	115.37	30.48	75.47	95.51	(D)	250.00
Arkansas	26.84	19.27	51.05	29.88	102.33	27.55
California	133.67	54.62	285.60	161.38	226.22	293.15
Colorado	64.79	39.38	91.02	141.46	44.04	-
Connecticut	39.09	22.37	(D)	(D)	70.94	70.00
Delaware	22.30	-	4.90	-	30.04	-
Florida	48.32	13.40	110.71	59.45	376.19	49.19
Georgia	38.97	33.76	70.70	9.99	66.93	-
Hawaii	10.75	65.43	75.00	129.85	(D)	207.21
Idaho	62.59	44.68	29.56	110.74	277.14	5.22
Illinois	19.63	14.74	26.12	35.43	188.03	194.00
Indiana	15.80	16.56	30.26	58.10	49.02	(D)
Iowa	12.07	16.88	26.46	25.00	210.31	(D)
Kansas	45.57	39.82	48.13	154.74	12.78	7.50
Kentucky	15.23	8.50	157.14	76.56	93.80	292.43
Louisiana	28.33	25.82	62.17	21.60	596.33	128.21
Maine	34.11	31.59	5.96	11.34	108.30	-
Maryland	26.17	24.15	18.91	25.61	133.06	-
Massachusetts	50.33	100.19	64.27	92.50	8.72	312.50
Michigan	22.17	31.39	27.66	46.47	42.11	64.58
Minnesota	20.79	12.75	32.86	(D)	53.37	11.40
Mississippi	22.95	16.90	(D)	14.76	194.91	-
Missouri	20.16	15.85	33.93	48.19	367.53	(D)
Montana	25.89	22.02	50.13	(D)	246.79	(D)
Nebraska	30.61	21.07	24.63	-	304.03	-
Nevada	85.88	57.91	183.45	-	197.49	320.00
New Hampshire	39.78	41.99	50.00	38.00	324.00	16.67
New Jersey	59.28	55.40	75.67	49.43	86.59	16.03
New Mexico	80.69	45.09	27.46	-	702.90	-
New York	50.32	27.55	86.62	51.20	248.16	497.41
North Carolina	32.90	28.70	75.01	59.12	276.96	86.20
North Dakota	21.50	13.91	(D)	-	(D)	-
Ohio	21.05	21.82	41.11	50.66	85.73	22.15
Oklahoma	42.31	18.21	38.37	13.84	796.97	534.76
Oregon	55.07	45.23	88.30	88.06	93.04	202.48
Pennsylvania	21.57	34.62	29.44	125.62	35.89	283.78
Rhode Island	25.92	16.72	(D)	(D)	150.84	-
South Carolina	44.07	47.93	41.98	69.40	415.58	-
South Dakota	17.84	27.42	36.96	98.43	-	(D)
Tennessee	10.33	27.64	12.75	42.98	127.62	541.60
Texas	72.77	44.69	56.24	93.68	96.78	173.86
Utah	68.36	27.85	(D)	66.39	(D)	(D)
Vermont	24.64	45.97	68.50	222.00	580.58	-
Virginia	11.48	16.50	36.43	16.58	112.80	63.82
Washington	63.75	45.48	35.30	70.08	213.50	190.39
West Virginia	42.18	18.15	-	46.52	862.93	169.20
Wisconsin	28.61	74.31	26.60	29.31	72.16	-
Wyoming	35.11	15.72	(D)	-	213.26	-
Water Resources Regions						
Region 01 New England	41.15	62.91	37.48	38.41	96.38	72.88
Region 02 Mid-Atlantic	29.83	30.79	57.02	45.70	60.02	139.40
Region 03 South Atlantic-Gulf	42.94	19.02	91.38	51.07	328.31	61.95
Region 04 Great Lakes	20.85	26.36	28.21	38.11	66.06	63.13
Region 05 Ohio	18.27	20.05	36.65	58.38	136.18	158.00
Region 06 Tennessee	24.41	23.32	24.41	22.45	293.12	165.52
Region 07 Upper Mississippi	22.08	38.00	27.42	36.97	139.12	27.44
Region 08 Lower Mississippi	23.68	22.04	43.97	(D)	379.73	133.47
Region 09 Souris-Red-Rainy	20.51	13.14	123.03	(D)	(D)	(D)
Region 10 Missouri	33.54	21.90	67.36	127.68	130.77	60.26
Region 11 Arkansas-White-Red	55.23	36.04	41.34	20.05	333.39	94.00
Region 12 Texas-Gulf	71.60	34.39	52.39	99.45	120.16	173.86
Region 13 Rio Grande	80.27	39.63	47.77	-	(D)	-
Region 14 Upper Colorado	65.50	40.25	155.55	92.66	128.63	16.67
Region 15 Lower Colorado	108.02	26.24	84.75	95.51	(D)	250.00
Region 16 Great Basin	76.59	19.78	159.98	39.11	263.14	(D)
Region 17 Pacific Northwest	61.01	43.47	63.31	85.02	164.16	79.23
Region 18 California	133.09	54.91	284.27	161.38	226.45	293.99
Region 19 Alaska	37.68	7.04	60.38	22.00	61.35	266.21
Region 20 Hawaii	10.75	65.43	75.00	129.85	(D)	207.21

See footnote(s) at end of table.

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Table 13. Energy Expense for All Well Pumps and Other Irrigation Pumps by Type of Energy Used: 2018 (continued)

[Excludes institutional, research, and experimental farms. For meaning of abbreviations and symbols see introductory text.]

Geographic area	Total energy expenses for pumping ¹ - con.						
	Farms with energy expenses of -						
	\$1 to \$999	\$1,000 to \$1,999	\$2,000 to \$4,999	\$5,000 to \$9,999	\$10,000 to \$19,999	\$20,000 to \$49,999	\$50,000 or more
United States	63,374	18,516	22,863	15,891	13,854	13,499	10,540
Alabama	547	91	95	93	55	29	19
Alaska	227	8	2	4	1	-	-
Arizona	302	249	226	142	80	96	180
Arkansas	385	219	295	239	369	736	781
California	8,147	3,309	4,789	3,559	3,423	2,827	2,918
Colorado	1,648	554	492	687	470	416	463
Connecticut	423	54	31	1	30	16	1
Delaware	111	71	142	73	52	46	22
Florida	4,308	756	981	560	384	249	193
Georgia	1,663	412	517	155	442	389	215
Hawaii	226	54	5	6	15	3	8
Idaho	2,541	1,044	1,330	740	649	575	617
Illinois	601	229	284	263	202	102	34
Indiana	712	225	542	274	67	101	30
Iowa	531	147	135	75	47	5	-
Kansas	391	352	706	729	605	730	530
Kentucky	599	41	27	7	12	6	3
Louisiana	417	129	263	253	257	296	154
Maine	785	72	31	11	7	5	2
Maryland	496	107	77	112	47	68	2
Massachusetts	910	108	116	14	24	10	1
Michigan	1,901	371	611	395	184	151	90
Minnesota	773	396	547	307	188	46	29
Mississippi	367	103	181	190	201	216	247
Missouri	1,011	225	260	248	225	273	142
Montana	2,081	952	803	436	260	268	88
Nebraska	1,372	1,024	2,257	2,266	2,130	2,294	1,122
Nevada	201	77	121	62	143	108	112
New Hampshire	542	50	4	1	2	-	-
New Jersey	836	98	243	134	54	78	11
New Mexico	2,770	417	444	267	147	166	204
New York	1,451	147	54	30	16	13	8
North Carolina	1,489	437	135	107	68	49	3
North Dakota	112	63	233	73	71	47	23
Ohio	1,089	124	53	21	6	5	-
Oklahoma	574	108	328	174	133	141	130
Oregon	5,064	1,424	1,026	659	487	482	159
Pennsylvania	2,170	192	57	19	5	10	-
Rhode Island	173	7	10	2	-	-	-
South Carolina	695	85	256	90	63	98	60
South Dakota	101	140	224	319	65	47	12
Tennessee	544	115	192	59	66	12	-
Texas	3,687	1,046	1,124	628	861	1,336	1,266
Utah	1,432	743	697	427	199	196	114
Vermont	320	87	3	-	-	-	-
Virginia	1,043	62	105	41	9	8	-
Washington	3,504	1,102	916	461	725	506	441
West Virginia	273	3	2	5	-	-	-
Wisconsin	1,034	194	321	155	114	109	72
Wyoming	795	493	570	318	192	135	34
Water Resources Regions							
Region 01 New England	2,963	342	194	29	65	31	4
Region 02 Mid-Atlantic	4,723	566	628	384	179	215	43
Region 03 South Atlantic-Gulf	8,934	1,697	2,014	1,037	992	819	493
Region 04 Great Lakes	3,705	664	857	505	230	232	95
Region 05 Ohio	2,646	304	435	226	72	63	23
Region 06 Tennessee	619	161	40	8	41	16	2
Region 07 Upper Mississippi	2,527	847	1,282	708	483	246	139
Region 08 Lower Mississippi	866	480	905	712	935	1,369	1,135
Region 09 Souris-Red-Rainy	195	64	64	75	120	19	17
Region 10 Missouri	4,836	2,892	4,535	4,129	3,203	3,217	1,687
Region 11 Arkansas-White-Red	1,779	529	928	850	944	1,166	1,273
Region 12 Texas-Gulf	3,281	917	852	625	662	1,104	808
Region 13 Rio Grande	2,584	442	408	220	56	124	230
Region 14 Upper Colorado	1,291	425	487	417	103	27	33
Region 15 Lower Colorado	399	249	321	169	128	108	187
Region 16 Great Basin	1,364	590	539	325	323	357	236
Region 17 Pacific Northwest	11,972	3,873	3,512	1,868	1,801	1,565	1,197
Region 18 California	8,237	3,412	4,855	3,594	3,501	2,818	2,930
Region 19 Alaska	227	8	2	4	1	-	-
Region 20 Hawaii	226	54	5	6	15	3	8

See footnote(s) at end of table.

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Table 13. Energy Expense for All Well Pumps and Other Irrigation Pumps by Type of Energy Used: 2018 (continued)

[Excludes institutional, research, and experimental farms. For meaning of abbreviations and symbols see introductory text.]

Geographic area	Electricity								
	Farms	Pumps powered	Acres in the open by water source		Square feet under protection by water source		Expenses (\$1,000)	Expenses per irrigated acre for operations with only acres in the open (dollars)	
			Water from wells	Surface water	Water from wells	Surface water		Water from wells only	Surface water only
United States	135,309	443,717	24,067,681	10,011,992	889,659,055	251,733,786	1,885,547	57.26	38.82
Alabama	684	1,265	68,853	40,607	(D)	5,024,224	3,034	27.15	19.52
Alaska	226	291	(D)	26	(D)	133,246	60	48.93	(D)
Arizona	1,158	3,944	320,811	59,445	9,836,360	33,660	38,410	114.41	20.92
Arkansas	2,357	21,194	1,780,940	274,954	1,573,874	538,820	57,128	25.98	21.30
California	27,079	84,856	4,029,423	2,645,026	192,097,024	73,509,538	698,867	143.76	58.17
Colorado	4,285	13,654	1,099,327	344,361	(D)	(D)	83,049	65.89	40.34
Connecticut	450	867	1,036	633	25,423,372	147,120	915	51.71	20.17
Delaware	489	1,880	128,560	2,393	(D)	-	6,038	48.82	-
Florida	5,832	11,408	330,545	52,406	194,921,084	25,738,738	19,182	46.26	27.33
Georgia	3,459	11,420	855,562	114,691	14,146,250	(D)	39,349	39.27	28.31
Hawaii	299	419	(D)	8,319	824,960	2,885,772	688	54.18	63.17
Idaho	7,426	22,839	1,041,567	1,393,433	2,998,592	158,000	145,178	62.54	45.62
Illinois	1,335	3,995	388,142	8,769	43,827,230	832,500	8,111	20.21	9.59
Indiana	1,450	3,846	336,533	21,814	3,840,064	1,958,588	5,526	15.02	21.38
Iowa	798	1,731	116,901	3,487	2,353,570	(D)	1,551	11.75	(D)
Kansas	2,529	7,838	747,307	42,445	4,087,616	77,250	37,478	47.46	48.68
Kentucky	405	616	(D)	14,345	1,450,708	1,896,600	524	18.43	7.08
Louisiana	1,361	5,333	344,174	(D)	5,651,525	6,649,912	13,063	36.17	10.61
Maine	687	1,035	1,275	1,923	2,091,039	(D)	149	64.23	27.15
Maryland	575	1,317	48,990	3,250	7,163,533	762,340	1,532	27.52	33.53
Massachusetts	719	1,195	3,037	3,793	(D)	48,000	419	40.10	63.23
Michigan	3,238	9,339	551,153	84,420	59,328,325	17,939,500	16,902	25.10	35.54
Minnesota	2,050	5,817	496,143	19,585	14,225,482	2,661,032	10,746	20.55	9.95
Mississippi	1,190	7,567	653,421	67,773	67,773	195,300	18,749	25.89	19.79
Missouri	1,708	8,984	767,619	45,017	5,282,928	(D)	15,315	19.85	19.68
Montana	4,588	9,532	59,845	1,012,565	(D)	(D)	23,488	25.58	20.98
Nebraska	9,153	42,587	4,131,033	421,105	2,457,968	-	144,771	33.15	19.51
Nevada	795	2,441	260,213	(D)	213,380	(D)	24,553	88.16	57.91
New Hampshire	527	712	(D)	674	6,316,066	693,200	150	40.73	70.39
New Jersey	927	1,611	27,223	2,424	35,572,100	371,258	2,128	64.00	72.08
New Mexico	3,543	9,437	334,134	109,720	1,945,008	1,249,245	30,955	84.38	51.75
New York	1,117	1,529	6,047	1,862	17,838,219	5,364,178	446	35.22	33.02
North Carolina	1,673	2,768	15,974	70,468	10,217,998	16,321,134	3,089	29.67	29.85
North Dakota	555	2,544	182,148	76,094	(D)	(D)	6,137	21.18	12.96
Ohio	956	1,382	14,158	6,394	15,643,891	13,265,856	586	20.30	24.00
Oklahoma	1,076	4,099	234,030	31,334	1,197,066	(D)	8,706	37.50	15.33
Oregon	9,054	18,396	429,044	573,601	37,770,843	18,504,450	53,732	55.77	45.98
Pennsylvania	1,895	2,778	15,350	2,966	44,292,966	1,463,775	804	25.51	21.51
Rhode Island	159	213	930	(D)	(D)	228,000	69	29.90	-
South Carolina	1,208	3,546	204,640	32,727	(D)	1,253,000	9,850	46.78	35.21
South Dakota	825	2,428	174,886	98,042	1,161,600	31,824	6,463	19.57	29.83
Tennessee	716	1,301	87,088	6,117	2,518,116	3,889,600	1,657	12.96	28.46
Texas	8,658	65,277	2,448,894	212,995	41,534,671	23,744,444	199,862	76.95	54.80
Utah	3,421	6,024	225,158	359,539	3,284,912	910,960	26,583	66.54	30.20
Vermont	365	475	(D)	(D)	1,985,694	(D)	135	25.58	22.97
Virginia	849	1,267	5,351	5,921	11,504,454	(D)	457	22.90	38.57
Washington	7,457	20,352	521,934	1,095,147	15,536,597	1,425,060	91,600	64.18	46.02
West Virginia	218	352	516	5,155	633,640	(D)	74	42.18	34.15
Wisconsin	1,612	5,393	424,383	21,187	12,763,897	438,600	13,879	27.82	80.39
Wyoming	2,173	4,623	134,438	514,331	(D)	71,400	13,408	36.33	15.21
Water Resources Regions									
Region 01 New England	2,720	4,278	7,738	7,596	40,332,154	1,287,845	1,779	42.66	58.30
Region 02 Mid-Atlantic	4,898	9,297	227,441	20,906	110,957,751	16,216,576	11,020	44.25	26.70
Region 03 South Atlantic-Gulf	12,984	30,815	1,463,734	332,207	234,135,942	47,629,838	75,041	41.68	27.05
Region 04 Great Lakes	5,070	12,777	760,677	99,359	76,832,665	30,012,798	20,886	22.27	33.84
Region 05 Ohio	2,632	4,675	228,528	32,084	17,543,225	11,306,645	5,512	(D)	22.22
Region 06 Tennessee	719	959	24,482	11,147	5,447,518	6,567,552	1,011	24.78	(D)
Region 07 Upper Mississippi	5,191	14,853	1,228,421	49,628	66,011,760	5,592,272	30,316	22.23	45.82
Region 08 Lower Mississippi	5,060	38,791	3,349,235	354,826	(D)	6,497,832	94,436	24.46	16.01
Region 09 Souris-Red-Rainy	458	2,316	(D)	27,052	(D)	(D)	4,122	(D)	12.93
Region 10 Missouri	19,175	69,700	5,699,442	1,974,660	16,152,290	(D)	257,300	37.43	21.65
Region 11 Arkansas-White-Red	5,273	25,114	1,795,393	151,443	3,565,652	1,430,512	117,031	61.46	48.85
Region 12 Texas-Gulf	7,392	55,976	1,891,199	117,145	36,288,755	23,744,444	143,559	74.09	50.56
Region 13 Rio Grande	3,310	8,405	330,613	155,520	9,789,468	40,000	31,379	82.09	40.51
Region 14 Upper Colorado	2,475	4,363	16,392	356,027	195,040	(D)	13,398	59.31	39.90
Region 15 Lower Colorado	1,408	4,341	355,427	67,065	9,971,360	33,660	40,379	107.53	18.06
Region 16 Great Basin	3,315	7,654	545,862	342,222	3,498,292	(D)	49,295	76.21	21.11
Region 17 Pacific Northwest	25,247	63,183	1,921,916	3,225,971	57,080,280	18,266,210	287,505	61.30	43.70
Region 18 California	27,457	85,510	4,047,428	2,678,789	191,962,024	75,403,538	700,829	143.06	58.11
Region 19 Alaska	226	291	(D)	26	(D)	133,246	60	48.93	(D)
Region 20 Hawaii	299	419	(D)	8,319	824,960	2,885,772	688	54.18	63.17

See footnote(s) at end of table.

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Table 13. Energy Expense for All Well Pumps and Other Irrigation Pumps by Type of Energy Used: 2018 (continued)

[Excludes institutional, research, and experimental farms. For meaning of abbreviations and symbols see introductory text.]

Geographic area	Electricity - con.						
	Farms with energy expenses of -						
	\$1 to \$999	\$1,000 to \$1,999	\$2,000 to \$4,999	\$5,000 to \$9,999	\$10,000 to \$19,999	\$20,000 to \$49,999	\$50,000 or more
United States	55,672	16,562	19,885	13,698	11,893	10,431	7,889
Alabama	411	67	72	89	39	17	14
Alaska	213	8	1	4	-	-	-
Arizona	289	217	209	124	83	106	149
Arkansas	343	227	320	249	391	529	298
California	7,627	3,151	4,477	3,554	3,168	2,648	2,681
Colorado	1,513	445	432	631	443	374	455
Connecticut	331	43	29	1	45	-	1
Delaware	156	115	72	39	72	28	7
Florida	3,712	775	649	343	181	112	63
Georgia	1,666	343	383	197	441	339	159
Hawaii	226	54	6	2	5	1	5
Idaho	2,534	981	1,330	740	658	568	615
Illinois	477	191	279	178	101	96	13
Indiana	543	213	396	156	91	48	3
Iowa	504	96	105	60	30	3	-
Kansas	326	281	445	583	498	254	142
Kentucky	382	9	23	1	11	3	2
Louisiana	470	118	290	148	164	100	71
Maine	674	10	5	-	-	-	-
Maryland	383	58	43	102	21	6	1
Massachusetts	638	53	22	2	1	2	1
Michigan	1,678	412	602	251	134	132	70
Minnesota	689	379	451	288	169	45	29
Mississippi	407	92	236	105	126	118	106
Missouri	812	139	169	198	148	187	55
Montana	1,978	912	692	403	290	254	59
Nebraska	991	814	2,050	1,706	1,626	1,311	655
Nevada	188	81	132	45	143	105	101
New Hampshire	476	49	6	-	-	-	-
New Jersey	649	74	148	27	48	17	3
New Mexico	2,346	309	303	168	137	142	204
New York	970	132	11	3	-	-	1
North Carolina	1,133	305	113	65	9	47	1
North Dakota	48	63	231	73	71	47	22
Ohio	789	114	37	9	4	3	-
Oklahoma	414	83	196	163	127	81	25
Oregon	4,940	1,348	1,002	636	487	495	146
Pennsylvania	1,744	91	43	10	3	5	-
Rhode Island	146	4	8	-	1	-	-
South Carolina	637	110	156	86	74	88	57
South Dakota	57	181	188	300	40	47	12
Tennessee	367	75	197	32	43	2	-
Texas	3,380	954	989	587	630	1,199	1,025
Utah	1,210	723	642	420	151	161	114
Vermont	285	81	-	-	-	-	-
Virginia	801	12	13	13	7	3	-
Washington	3,408	1,048	916	457	694	512	432
West Virginia	208	3	2	5	-	-	-
Wisconsin	864	117	268	155	95	74	58
Wyoming	639	402	496	290	193	122	34
Water Resources Regions							
Region 01 New England	2,391	212	70	3	47	2	2
Region 02 Mid-Atlantic	3,837	408	328	184	151	57	12
Region 03 South Atlantic-Gulf	7,696	1,542	1,365	796	749	611	297
Region 04 Great Lakes	2,898	646	822	306	185	179	75
Region 05 Ohio	1,839	277	295	137	73	32	5
Region 06 Tennessee	535	128	40	18	20	1	2
Region 07 Upper Mississippi	2,247	698	1,054	577	344	204	86
Region 08 Lower Mississippi	972	453	1,026	573	722	824	490
Region 09 Souris-Red-Rainy	119	45	64	75	120	18	17
Region 10 Missouri	3,896	2,428	3,757	3,303	2,632	2,011	1,148
Region 11 Arkansas-White-Red	1,505	367	742	737	778	647	518
Region 12 Texas-Gulf	3,023	880	779	530	513	1,028	745
Region 13 Rio Grande	2,206	295	290	154	45	123	230
Region 14 Upper Colorado	1,118	363	416	417	111	17	33
Region 15 Lower Colorado	386	250	304	151	98	115	156
Region 16 Great Basin	1,129	574	495	301	275	319	225
Region 17 Pacific Northwest	11,719	3,680	3,488	1,841	1,779	1,600	1,150
Region 18 California	7,717	3,254	4,543	3,589	3,246	2,642	2,693
Region 19 Alaska	213	8	1	4	-	-	-
Region 20 Hawaii	226	54	6	2	5	1	5

See footnote(s) at end of table.

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Table 13. Energy Expense for All Well Pumps and Other Irrigation Pumps by Type of Energy Used: 2018 (continued)

[Excludes institutional, research, and experimental farms. For meaning of abbreviations and symbols see introductory text.]

Geographic area	Natural gas								
	Farms	Pumps powered	Acres in the open by water source		Square feet under protection by water source		Expenses (\$1,000)	Expenses per irrigated acre for operations with only acres in the open (dollars)	
			Water from wells	Surface water	Water from wells	Surface water		Water from wells only	Surface water only
United States	7,284	29,041	3,586,909	170,857	162,784	74,400	167,097	46.08	23.85
Alabama	-	-	-	-	-	-	-	-	-
Alaska	-	-	-	-	-	-	-	-	-
Arizona	47	124	8,422	-	-	-	1,554	184.49	-
Arkansas	203	889	97,607	11,156	-	-	2,451	24.77	-
California	323	809	68,445	40,936	-	-	6,300	62.60	33.54
Colorado	146	258	31,078	3,360	-	-	1,152	35.01	19.11
Connecticut	1	(D)	-	(D)	-	-	(D)	-	(D)
Delaware	-	-	-	-	-	-	-	-	-
Florida	27	54	4,860	-	-	-	802	165.00	-
Georgia	-	-	-	-	-	-	-	-	-
Hawaii	-	-	-	-	-	-	-	-	-
Idaho	-	-	-	-	-	-	-	-	-
Illinois	1	(D)	(D)	-	-	-	(D)	(D)	-
Indiana	10	56	6,335	-	-	-	43	6.79	-
Iowa	-	-	-	-	-	-	-	-	-
Kansas	1,718	8,392	1,252,806	13,337	-	-	55,514	44.49	49.50
Kentucky	-	-	-	-	-	-	-	-	-
Louisiana	62	106	15,601	-	-	-	631	40.45	-
Maine	-	-	-	-	-	-	-	-	-
Maryland	20	20	700	-	-	-	15	21.43	-
Massachusetts	28	(D)	-	(D)	-	-	(D)	-	(D)
Michigan	2	(D)	(D)	(D)	-	-	(D)	-	-
Minnesota	-	-	-	-	-	-	-	-	-
Mississippi	27	63	8,228	150	-	-	164	18.77	-
Missouri	-	-	-	-	-	-	-	-	-
Montana	54	150	-	22,816	(D)	-	215	-	9.42
Nebraska	2,315	8,295	958,042	14,532	-	-	27,173	27.81	16.29
Nevada	-	-	-	-	-	-	-	-	-
New Hampshire	-	-	-	-	-	-	-	-	-
New Jersey	23	23	2,300	-	-	-	46	20.00	-
New Mexico	605	823	54,284	8,670	-	(D)	2,908	50.72	71.80
New York	23	(D)	(D)	-	77,004	-	(D)	-	-
North Carolina	-	-	-	-	-	-	-	-	-
North Dakota	1	(D)	-	-	(D)	-	(D)	-	-
Ohio	4	(D)	128	(D)	(D)	-	(D)	(D)	-
Oklahoma	315	1,455	222,259	1,340	-	-	10,896	48.94	(D)
Oregon	-	-	-	-	-	-	-	-	-
Pennsylvania	2	(D)	-	(D)	-	-	(D)	-	(D)
Rhode Island	-	-	-	-	-	-	-	-	-
South Carolina	-	-	-	-	-	-	-	-	-
South Dakota	26	26	840	3,520	-	-	16	11.43	1.84
Tennessee	24	(D)	(D)	-	-	-	34	(D)	-
Texas	1,164	7,181	835,108	47,650	-	-	56,328	67.22	34.85
Utah	31	31	400	108	-	-	21	30.00	83.25
Vermont	-	-	-	-	-	-	-	-	-
Virginia	-	-	-	-	-	-	-	-	-
Washington	3	3	-	6	-	-	1	-	(D)
West Virginia	20	20	-	20	-	(D)	(D)	-	-
Wisconsin	13	53	11,473	-	-	-	604	52.68	-
Wyoming	46	112	4,840	2,505	-	-	114	9.05	27.93
Water Resources Regions									
Region 01 New England	29	30	-	297	-	-	37	-	124.93
Region 02 Mid-Atlantic	43	43	3,000	-	-	-	61	20.33	-
Region 03 South Atlantic-Gulf	27	54	4,860	-	-	-	802	165.00	-
Region 04 Great Lakes	25	29	331	(D)	(D)	-	33	-	-
Region 05 Ohio	26	30	128	72	(D)	(D)	11	(D)	(D)
Region 06 Tennessee	-	-	-	-	-	-	-	-	-
Region 07 Upper Mississippi	24	111	18,208	-	-	-	652	35.83	-
Region 08 Lower Mississippi	277	911	100,979	4,082	-	-	2,678	26.90	-
Region 09 Souris-Red-Rainy	1	(D)	-	-	(D)	-	(D)	-	-
Region 10 Missouri	3,022	10,705	1,214,239	47,363	-	-	35,384	28.47	11.82
Region 11 Arkansas-White-Red	2,342	13,739	1,986,401	27,321	-	-	108,120	54.62	25.64
Region 12 Texas-Gulf	502	1,631	135,706	41,600	-	-	8,702	65.48	43.16
Region 13 Rio Grande	493	715	41,665	2,953	-	-	2,264	53.64	43.10
Region 14 Upper Colorado	34	40	-	5,717	-	(D)	117	-	80.00
Region 15 Lower Colorado	82	169	15,019	-	-	-	2,046	136.21	-
Region 16 Great Basin	31	(D)	400	(D)	-	-	(D)	(D)	83.25
Region 17 Pacific Northwest	5	5	-	6	(D)	-	1	-	(D)
Region 18 California	321	797	65,973	40,936	-	-	6,138	62.49	33.54
Region 19 Alaska	-	-	-	-	-	-	-	-	-
Region 20 Hawaii	-	-	-	-	-	-	-	-	-

See footnote(s) at end of table.

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Table 13. Energy Expense for All Well Pumps and Other Irrigation Pumps by Type of Energy Used: 2018 (continued)

[Excludes institutional, research, and experimental farms. For meaning of abbreviations and symbols see introductory text.]

Geographic area	Natural gas - con.						
	Farms with energy expenses of -						
	\$1 to \$999	\$1,000 to \$1,999	\$2,000 to \$4,999	\$5,000 to \$9,999	\$10,000 to \$19,999	\$20,000 to \$49,999	\$50,000 or more
United States	791	636	1,548	1,421	1,095	1,080	759
Alabama	-	-	-	-	-	-	-
Alaska	-	-	-	-	-	-	-
Arizona	-	-	-	17	-	17	13
Arkansas	34	40	49	19	18	37	6
California	29	-	97	29	68	62	38
Colorado	-	28	52	31	9	25	1
Connecticut	-	-	1	-	-	-	-
Delaware	-	-	-	-	-	-	-
Florida	-	-	-	-	-	27	-
Georgia	-	-	-	-	-	-	-
Hawaii	-	-	-	-	-	-	-
Idaho	-	-	-	-	-	-	-
Illinois	-	-	-	1	-	-	-
Indiana	-	-	9	1	-	-	-
Iowa	-	-	-	-	-	-	-
Kansas	58	82	305	356	271	328	318
Kentucky	-	-	-	-	-	-	-
Louisiana	-	-	-	18	44	-	-
Maine	-	-	-	-	-	-	-
Maryland	20	-	-	-	-	-	-
Massachusetts	-	28	-	-	-	-	-
Michigan	-	-	-	-	2	-	-
Minnesota	-	-	-	-	-	-	-
Mississippi	-	7	6	12	2	-	-
Missouri	-	-	-	-	-	-	-
Montana	26	-	20	-	4	4	-
Nebraska	120	208	733	504	391	318	41
Nevada	-	-	-	-	-	-	-
New Hampshire	-	-	-	-	-	-	-
New Jersey	-	-	23	-	-	-	-
New Mexico	332	66	66	91	39	35	9
New York	23	-	-	-	-	-	-
North Carolina	-	-	-	-	-	-	-
North Dakota	-	-	-	-	-	1	-
Ohio	2	2	-	-	-	-	-
Oklahoma	4	50	58	43	44	50	79
Oregon	-	-	-	-	-	-	-
Pennsylvania	2	-	-	-	-	-	-
Rhode Island	-	-	-	-	-	-	-
South Carolina	-	-	-	-	-	-	-
South Dakota	22	-	4	-	-	-	-
Tennessee	-	22	1	1	-	-	-
Texas	69	78	99	295	203	176	244
Utah	27	-	4	-	-	-	-
Vermont	-	-	-	-	-	-	-
Virginia	-	-	-	-	-	-	-
Washington	3	-	-	-	-	-	-
West Virginia	20	-	-	-	-	-	-
Wisconsin	-	3	-	-	-	-	10
Wyoming	-	22	21	3	-	-	-
Water Resources Regions							
Region 01 New England	-	28	1	-	-	-	-
Region 02 Mid-Atlantic	20	-	23	-	-	-	-
Region 03 South Atlantic-Gulf	-	-	-	-	-	27	-
Region 04 Great Lakes	23	-	-	-	2	-	-
Region 05 Ohio	24	2	-	-	-	-	-
Region 06 Tennessee	-	-	-	-	-	-	-
Region 07 Upper Mississippi	-	3	9	2	-	-	10
Region 08 Lower Mississippi	25	59	56	48	64	19	6
Region 09 Souris-Red-Rainy	-	-	-	-	-	1	-
Region 10 Missouri	181	288	979	667	462	353	92
Region 11 Arkansas-White-Red	86	150	271	423	333	538	554
Region 12 Texas-Gulf	39	40	42	200	116	28	37
Region 13 Rio Grande	332	66	33	35	17	34	9
Region 14 Upper Colorado	-	-	33	-	-	1	-
Region 15 Lower Colorado	-	-	-	17	33	17	15
Region 16 Great Basin	27	-	4	-	-	-	-
Region 17 Pacific Northwest	5	-	-	-	-	-	-
Region 18 California	29	-	97	29	68	62	36
Region 19 Alaska	-	-	-	-	-	-	-
Region 20 Hawaii	-	-	-	-	-	-	-

See footnote(s) at end of table.

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Table 13. Energy Expense for All Well Pumps and Other Irrigation Pumps by Type of Energy Used: 2018 (continued)

[Excludes institutional, research, and experimental farms. For meaning of abbreviations and symbols see introductory text.]

Geographic area	LP gas, propane, and butane								
	Farms	Pumps powered	Acres in the open by water source		Square feet under protection by water source		Expenses (\$1,000)	Expenses per irrigated acre for operations with only acres in the open (dollars)	
			Water from wells	Surface water	Water from wells	Surface water		Water from wells only	Surface water only
United States	4,818	11,153	792,016	152,156	5,397,330	6,024,114	24,223	25.77	25.32
Alabama	25	25	125	(D)	-	-	3	20.00	(D)
Alaska	-	-	-	-	-	-	-	-	-
Arizona	1	(D)	(D)	(D)	-	-	(D)	-	-
Arkansas	186	791	(D)	7,812	-	-	2,050	26.51	21.32
California	296	598	20,510	36,208	-	-	2,263	79.52	19.11
Colorado	124	148	4,520	1,772	-	-	321	58.41	32.11
Connecticut	4	6	48	(D)	-	-	(D)	31.25	(D)
Delaware	-	-	-	-	-	-	-	-	-
Florida	29	58	5,916	-	-	-	642	108.50	-
Georgia	-	-	-	-	-	-	-	-	-
Hawaii	-	-	-	-	-	-	-	-	-
Idaho	47	47	1,001	322	2,370	-	32	-	75.71
Illinois	40	(D)	2,007	75	-	-	(D)	23.85	50.00
Indiana	171	217	12,159	5,099	(D)	-	346	17.50	25.85
Iowa	36	36	324	(D)	-	-	(D)	38.89	22.86
Kansas	219	416	33,336	7,306	-	-	2,058	59.06	11.16
Kentucky	1	(D)	(D)	-	-	-	(D)	-	-
Louisiana	89	242	20,759	(D)	-	-	383	17.91	-
Maine	-	-	-	-	-	-	-	-	-
Maryland	30	51	1,748	3,440	(D)	-	170	10.87	44.50
Massachusetts	224	494	206	6,232	-	-	677	-	(D)
Michigan	-	-	-	-	-	-	-	-	-
Minnesota	15	15	15	-	10,140	-	3	-	-
Mississippi	343	2,007	240,546	11,214	-	-	4,630	17.46	19.94
Missouri	192	673	62,457	5,760	-	-	992	14.49	15.18
Montana	23	23	-	1,771	-	-	23	-	12.99
Nebraska	2,146	3,925	262,546	51,922	-	-	7,808	25.57	17.40
Nevada	-	-	-	-	-	-	-	-	-
New Hampshire	1	(D)	(D)	(D)	-	(D)	(D)	-	-
New Jersey	-	-	-	-	-	-	-	-	-
New Mexico	101	101	2,071	-	-	-	345	166.73	-
New York	2	(D)	(D)	-	-	-	(D)	(D)	-
North Carolina	54	54	-	1,485	-	-	14	-	9.09
North Dakota	-	-	-	-	-	-	-	-	-
Ohio	2	(D)	-	(D)	-	(D)	(D)	-	-
Oklahoma	11	18	1,827	20	-	(D)	93	48.53	(D)
Oregon	-	-	-	-	-	-	-	-	-
Pennsylvania	43	(D)	(D)	-	4,791,600	5,749,920	(D)	50.00	-
Rhode Island	18	(D)	(D)	(D)	-	9,000	8	12.56	-
South Carolina	-	-	-	-	-	-	-	-	-
South Dakota	-	-	-	-	-	-	-	-	-
Tennessee	2	(D)	(D)	-	-	-	(D)	(D)	-
Texas	116	694	38,295	-	-	-	866	22.62	-
Utah	108	108	1,080	2,133	-	-	81	74.30	29.43
Vermont	-	-	-	-	-	-	-	-	-
Virginia	23	23	468	(D)	(D)	-	21	-	-
Washington	-	-	-	-	-	-	-	-	-
West Virginia	-	-	-	-	-	-	-	-	-
Wisconsin	44	47	1,884	456	-	-	8	3.46	3.63
Wyoming	52	175	(D)	5,294	-	-	256	(D)	25.73
Water Resources Regions									
Region 01 New England	247	519	652	6,502	-	(D)	689	14.75	111.71
Region 02 Mid-Atlantic	55	98	1,814	3,620	5,227,200	5,749,920	173	10.80	44.50
Region 03 South Atlantic-Gulf	130	159	6,459	1,485	143,220	-	677	106.67	9.09
Region 04 Great Lakes	6	6	114	(D)	-	(D)	4	15.09	-
Region 05 Ohio	181	232	13,189	4,179	(D)	-	336	16.28	28.80
Region 06 Tennessee	-	-	-	(D)	-	-	(D)	-	12.50
Region 07 Upper Mississippi	166	249	10,360	4,941	(D)	-	283	19.60	15.72
Region 08 Lower Mississippi	703	3,508	384,215	19,546	-	-	7,547	18.00	19.94
Region 09 Souris-Red-Rainy	-	-	-	-	-	-	-	-	-
Region 10 Missouri	2,427	4,401	276,598	70,572	-	-	8,738	26.54	17.89
Region 11 Arkansas-White-Red	261	487	54,949	1,656	-	(D)	2,491	44.69	23.65
Region 12 Texas-Gulf	61	577	18,680	-	-	-	551	29.51	-
Region 13 Rio Grande	68	68	751	-	-	-	266	354.31	-
Region 14 Upper Colorado	61	94	(D)	497	-	-	88	60.00	17.10
Region 15 Lower Colorado	1	(D)	(D)	(D)	-	-	(D)	-	-
Region 16 Great Basin	108	(D)	1,080	2,133	-	-	81	74.30	29.43
Region 17 Pacific Northwest	47	47	1,001	322	2,370	-	32	-	75.71
Region 18 California	296	598	20,510	36,208	-	-	2,263	79.52	19.11
Region 19 Alaska	-	-	-	-	-	-	-	-	-
Region 20 Hawaii	-	-	-	-	-	-	-	-	-

See footnote(s) at end of table.

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Table 13. Energy Expense for All Well Pumps and Other Irrigation Pumps by Type of Energy Used: 2018 (continued)

[Excludes institutional, research, and experimental farms. For meaning of abbreviations and symbols see introductory text.]

Geographic area	LP gas, propane, and butane - con.						
	Farms with energy expenses of -						
	\$1 to \$999	\$1,000 to \$1,999	\$2,000 to \$4,999	\$5,000 to \$9,999	\$10,000 to \$19,999	\$20,000 to \$49,999	\$50,000 or more
United States	1,525	910	1,321	512	327	185	65
Alabama	50	-	-	-	-	-	-
Alaska	-	-	-	-	-	-	-
Arizona	-	-	1	-	-	-	-
Arkansas	29	23	46	30	32	13	13
California	26	22	180	44	2	-	22
Colorado	63	24	-	37	-	-	-
Connecticut	3	1	-	-	-	-	-
Delaware	-	-	-	-	-	-	-
Florida	-	-	27	-	-	-	2
Georgia	-	-	-	-	-	-	-
Hawaii	-	-	-	-	-	-	-
Idaho	44	-	3	-	-	-	-
Illinois	15	16	9	-	-	-	-
Indiana	48	72	53	-	-	-	-
Iowa	18	-	18	-	-	-	-
Kansas	18	58	64	33	15	15	16
Kentucky	-	-	1	-	-	-	-
Louisiana	-	-	49	39	1	-	-
Maine	-	-	-	-	-	-	-
Maryland	-	19	1	-	10	-	-
Massachusetts	108	30	56	24	5	-	1
Michigan	-	-	-	-	-	-	-
Minnesota	15	-	-	-	-	-	-
Mississippi	25	44	58	36	92	79	9
Missouri	46	42	39	29	25	11	-
Montana	-	23	-	-	-	-	-
Nebraska	674	455	636	197	142	42	-
Nevada	-	-	-	-	-	-	-
New Hampshire	-	1	-	-	-	-	-
New Jersey	-	-	-	-	-	-	-
New Mexico	34	1	33	33	-	-	-
New York	2	-	-	-	-	-	-
North Carolina	54	-	-	-	-	-	-
North Dakota	-	-	-	-	-	-	-
Ohio	-	2	-	-	-	-	-
Oklahoma	2	-	1	5	3	-	-
Oregon	-	-	-	-	-	-	-
Pennsylvania	43	-	-	-	-	-	-
Rhode Island	14	3	1	-	-	-	-
South Carolina	-	-	-	-	-	-	-
South Dakota	-	-	-	-	-	-	-
Tennessee	-	-	2	-	-	-	-
Texas	19	50	20	5	-	22	-
Utah	108	-	-	-	-	-	-
Vermont	-	-	-	-	-	-	-
Virginia	22	-	1	-	-	-	-
Washington	-	-	-	-	-	-	-
West Virginia	-	-	-	-	-	-	-
Wisconsin	44	-	-	-	-	-	-
Wyoming	1	24	22	-	-	3	2
Water Resources Regions							
Region 01 New England	125	35	57	24	5	-	1
Region 02 Mid-Atlantic	24	19	2	-	10	-	-
Region 03 South Atlantic-Gulf	101	-	27	-	-	-	2
Region 04 Great Lakes	4	2	-	-	-	-	-
Region 05 Ohio	59	72	52	-	-	-	-
Region 06 Tennessee	25	-	-	-	-	-	-
Region 07 Upper Mississippi	98	23	37	-	8	-	-
Region 08 Lower Mississippi	62	81	170	134	142	92	22
Region 09 Souris-Red-Rainy	-	-	-	-	-	-	-
Region 10 Missouri	738	561	703	221	157	45	2
Region 11 Arkansas-White-Red	51	42	56	56	3	37	16
Region 12 Texas-Gulf	-	50	-	-	-	11	-
Region 13 Rio Grande	34	1	-	33	1	-	-
Region 14 Upper Colorado	26	2	33	-	-	-	-
Region 15 Lower Colorado	-	-	1	-	-	-	-
Region 16 Great Basin	108	-	-	-	-	-	-
Region 17 Pacific Northwest	44	-	3	-	-	-	-
Region 18 California	26	22	180	44	2	-	22
Region 19 Alaska	-	-	-	-	-	-	-
Region 20 Hawaii	-	-	-	-	-	-	-

See footnote(s) at end of table.

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Table 13. Energy Expense for All Well Pumps and Other Irrigation Pumps by Type of Energy Used: 2018 (continued)

[Excludes institutional, research, and experimental farms. For meaning of abbreviations and symbols see introductory text.]

Geographic area	Diesel and biodiesel fuel								
	Farms	Pumps powered	Acres in the open by water source		Square feet under protection by water source		Expenses (\$1,000)	Expenses per irrigated acre for operations with only acres in the open (dollars)	
			Water from wells	Surface water	Water from wells	Surface water		Water from wells only	Surface water only
United States	27,923	102,875	8,403,653	2,846,900	96,010,759	39,990,373	338,692	30.24	30.73
Alabama	211	650	21,079	41,753	(D)	-	1,615	27.43	26.28
Alaska	6	8	(D)	72	-	-	(D)	(D)	6.00
Arizona	67	320	(D)	44,973	-	(D)	2,224	77.88	35.65
Arkansas	2,192	22,155	2,095,105	283,732	-	522,720	66,878	28.51	28.59
California	2,640	8,043	342,850	786,921	1,158,708	10,226,760	62,402	87.11	45.60
Colorado	358	544	19,066	26,878	-	-	1,699	56.95	29.47
Connecticut	68	182	1,475	1,139	(D)	646,840	180	(D)	111.60
Delaware	229	963	60,831	17,569	(D)	-	3,735	23.92	135.90
Florida	2,009	9,067	395,225	535,868	58,304,600	7,927,920	26,792	50.43	13.89
Georgia	850	1,959	150,653	58,597	-	(D)	7,270	34.60	35.73
Hawaii	21	83	(D)	6,747	-	-	391	(D)	57.02
Idaho	69	174	2,197	37,444	-	-	476	4.76	12.78
Illinois	500	1,300	154,901	12,581	43,200	-	2,901	17.71	16.55
Indiana	573	1,457	173,543	27,600	1,668,544	-	3,672	17.98	10.95
Iowa	187	420	41,056	4,140	-	-	596	12.64	18.48
Kansas	1,281	3,183	299,350	45,989	-	-	14,020	43.35	33.64
Kentucky	86	229	15,735	7,429	-	18,000	246	13.57	3.80
Louisiana	995	5,551	626,047	73,069	-	-	16,625	23.45	32.79
Maine	187	406	(D)	20,339	(D)	(D)	892	(D)	31.62
Maryland	297	907	57,370	16,227	1,583,120	-	2,173	26.28	47.43
Massachusetts	249	420	1,090	4,725	-	-	608	92.00	115.52
Michigan	866	2,306	161,406	66,342	-	330,680	4,078	13.29	28.74
Minnesota	257	360	33,602	4,268	-	-	901	24.30	19.78
Mississippi	880	6,155	750,886	31,553	(D)	-	19,097	24.58	18.60
Missouri	984	5,554	554,915	46,877	324,000	(D)	12,728	21.23	13.51
Montana	346	1,545	(D)	70,316	-	-	2,752	-	39.16
Nebraska	6,054	17,664	1,917,011	144,488	-	-	54,281	26.97	20.25
Nevada	49	101	27,512	(D)	-	(D)	3,603	130.30	-
New Hampshire	25	(D)	(D)	722	-	21,100	31	-	16.81
New Jersey	438	1,439	36,542	19,207	7,852,576	4,321,300	3,411	60.06	57.53
New Mexico	163	346	10,243	8,200	-	(D)	1,132	106.32	8.00
New York	269	631	12,385	18,551	14,139,708	55,000	1,286	55.38	33.84
North Carolina	581	917	7,958	39,245	84,000	924,960	1,472	32.81	30.09
North Dakota	50	100	(D)	1,498	-	-	210	28.01	11.45
Ohio	183	308	2,988	9,434	183,368	9,532,520	277	15.17	18.08
Oklahoma	326	782	53,082	35,947	-	(D)	1,774	21.19	19.74
Oregon	201	482	2,760	17,695	-	-	373	15.03	17.66
Pennsylvania	293	423	14,060	3,676	5,113,318	62,460	482	18.88	51.17
Rhode Island	26	(D)	675	1,191	217,448	-	41	(D)	16.72
South Carolina	144	308	15,640	9,190	(D)	-	597	14.58	50.35
South Dakota	146	257	33,814	28,905	-	-	950	9.61	22.76
Tennessee	270	701	89,410	5,310	-	39,600	820	7.66	25.77
Texas	771	1,636	128,955	60,397	(D)	(D)	6,480	42.00	20.20
Utah	274	476	11,862	51,889	-	-	1,756	94.24	12.51
Vermont	43	84	(D)	422	80,000	(D)	18	(D)	45.31
Virginia	297	436	4,927	31,821	(D)	(D)	618	(D)	17.04
Washington	232	367	6,619	30,052	-	240,000	1,165	31.64	26.06
West Virginia	6	6	-	-	-	-	(D)	-	6.23
Wisconsin	429	1,034	40,575	19,092	27,000	-	2,294	29.85	57.23
Wyoming	245	358	675	31,800	(D)	-	650	-	19.98
Water Resources Regions									
Region 01 New England	561	1,101	13,701	28,192	2,602,948	992,300	1,753	46.19	52.22
Region 02 Mid-Atlantic	1,572	4,373	180,646	92,534	29,447,602	6,029,360	11,232	33.51	55.78
Region 03 South Atlantic-Gulf	3,874	12,977	585,696	675,831	59,698,540	10,102,128	37,429	44.44	18.27
Region 04 Great Lakes	1,307	3,259	200,625	95,920	142,304	9,827,200	5,677	16.18	25.18
Region 05 Ohio	595	1,457	130,548	25,026	1,869,728	(D)	2,781	17.04	14.53
Region 06 Tennessee	120	267	6,894	27,555	-	39,600	716	21.71	22.83
Region 07 Upper Mississippi	1,292	2,982	285,757	51,353	110,200	-	7,240	20.18	30.59
Region 08 Lower Mississippi	4,253	34,533	3,624,990	307,409	(D)	522,720	96,603	24.61	32.49
Region 09 Souris-Red-Rainy	44	76	(D)	2,541	-	-	(D)	(D)	13.74
Region 10 Missouri	8,019	21,998	2,144,494	347,529	326,544	(D)	63,846	26.28	23.03
Region 11 Arkansas-White-Red	1,717	7,630	686,962	128,734	-	(D)	29,612	38.30	20.19
Region 12 Texas-Gulf	667	1,395	116,281	59,504	(D)	(D)	6,016	43.11	20.13
Region 13 Rio Grande	230	498	15,447	9,396	-	-	1,622	114.37	3.64
Region 14 Upper Colorado	87	134	(D)	5,205	-	(D)	280	62.50	46.90
Region 15 Lower Colorado	70	350	(D)	55,158	-	(D)	2,333	77.88	30.97
Region 16 Great Basin	326	580	40,049	57,274	-	(D)	5,383	120.34	12.51
Region 17 Pacific Northwest	525	1,161	11,576	94,184	-	240,000	3,394	26.50	32.73
Region 18 California	2,637	8,013	342,850	776,736	1,158,708	10,226,760	62,294	87.11	46.24
Region 19 Alaska	6	8	(D)	72	-	-	(D)	(D)	6.00
Region 20 Hawaii	21	83	(D)	6,747	-	-	391	(D)	57.02

See footnote(s) at end of table.

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Table 13. Energy Expense for All Well Pumps and Other Irrigation Pumps by Type of Energy Used: 2018 (continued)

[Excludes institutional, research, and experimental farms. For meaning of abbreviations and symbols see introductory text.]

Geographic area	Diesel and biodiesel fuel - con.						
	Farms with energy expenses of -						
	\$1 to \$999	\$1,000 to \$1,999	\$2,000 to \$4,999	\$5,000 to \$9,999	\$10,000 to \$19,999	\$20,000 to \$49,999	\$50,000 or more
United States	5,753	3,698	6,501	4,327	3,612	2,629	1,403
Alabama	61	56	37	7	33	12	5
Alaska	5	-	-	-	1	-	-
Arizona	8	16	18	3	4	3	15
Arkansas	159	111	323	284	379	578	358
California	486	285	421	409	464	291	284
Colorado	25	75	163	61	16	18	-
Connecticut	45	6	1	15	-	1	-
Delaware	26	52	29	68	24	22	8
Florida	601	181	383	297	239	190	118
Georgia	210	134	246	51	137	8	64
Hawaii	1	-	1	4	10	2	3
Idaho	34	-	7	-	23	5	-
Illinois	85	74	108	138	87	6	2
Indiana	72	71	237	110	26	56	1
Iowa	34	106	21	8	18	-	-
Kansas	125	208	439	214	111	122	62
Kentucky	67	2	4	7	3	2	1
Louisiana	80	54	161	228	222	157	93
Maine	71	62	32	8	7	5	2
Maryland	69	48	61	36	45	37	1
Massachusetts	163	12	42	23	5	3	1
Michigan	194	200	244	95	90	40	3
Minnesota	72	19	138	6	20	2	-
Mississippi	70	63	161	196	172	134	84
Missouri	147	179	187	119	160	132	60
Montana	49	72	109	69	19	5	23
Nebraska	689	753	1,634	1,365	932	552	129
Nevada	15	-	19	2	1	1	11
New Hampshire	22	-	-	2	1	-	-
New Jersey	97	40	100	105	35	57	4
New Mexico	43	66	42	7	-	-	5
New York	140	20	59	20	10	13	7
North Carolina	306	90	120	1	58	6	-
North Dakota	31	10	7	-	1	-	1
Ohio	132	15	20	11	3	2	-
Oklahoma	94	31	120	42	4	30	5
Oregon	76	78	28	15	4	-	-
Pennsylvania	212	58	4	12	2	5	-
Rhode Island	21	-	2	2	1	-	-
South Carolina	30	25	76	4	2	3	4
South Dakota	45	-	52	28	20	-	1
Tennessee	84	69	54	31	32	-	-
Texas	231	101	159	122	79	43	36
Utah	54	20	110	35	20	35	-
Vermont	36	7	-	-	-	-	-
Virginia	103	61	98	30	1	4	-
Washington	61	65	56	8	33	3	6
West Virginia	6	-	-	-	-	-	-
Wisconsin	160	79	87	20	36	41	6
Wyoming	106	24	81	9	22	3	-
Water Resources Regions							
Region 01 New England	328	80	77	50	14	9	3
Region 02 Mid-Atlantic	514	234	290	266	116	132	20
Region 03 South Atlantic-Gulf	1,279	462	906	373	453	210	191
Region 04 Great Lakes	387	258	361	136	94	67	4
Region 05 Ohio	238	43	133	100	49	30	2
Region 06 Tennessee	29	52	-	-	30	9	-
Region 07 Upper Mississippi	263	242	390	173	152	65	7
Region 08 Lower Mississippi	312	332	727	699	824	856	503
Region 09 Souris-Red-Rainy	23	19	-	-	1	1	-
Region 10 Missouri	1,065	1,165	2,321	1,664	1,055	614	135
Region 11 Arkansas-White-Red	278	194	401	258	188	243	155
Region 12 Texas-Gulf	211	78	117	122	64	39	36
Region 13 Rio Grande	63	52	90	6	-	14	5
Region 14 Upper Colorado	23	23	28	1	12	-	-
Region 15 Lower Colorado	8	16	18	3	4	6	15
Region 16 Great Basin	69	20	129	40	21	36	11
Region 17 Pacific Northwest	171	143	91	23	60	8	29
Region 18 California	486	285	421	409	464	288	284
Region 19 Alaska	5	-	-	-	1	-	-
Region 20 Hawaii	1	-	1	4	10	2	3

See footnote(s) at end of table.

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Table 13. Energy Expense for All Well Pumps and Other Irrigation Pumps by Type of Energy Used: 2018 (continued)

[Excludes institutional, research, and experimental farms. For meaning of abbreviations and symbols see introductory text.]

Geographic area	Gasoline, ethanol, and blends								
	Farms	Pumps powered	Acres in the open by water source		Square feet under protection by water source		Expenses (\$1,000)	Expenses per irrigated acre for operations with only acres in the open (dollars)	
			Water from wells	Surface water	Water from wells	Surface water		Water from wells only	Surface water only
United States	6,150	8,989	51,661	51,821	2,349,078	5,816,096	3,667	17.14	34.42
Alabama	62	74	-	(D)	-	120,000	5	-	28.06
Alaska	18	28	14	27	(D)	21,280	(D)	(D)	29.89
Arizona	22	(D)	10	(D)	-	-	(D)	27.50	35.44
Arkansas	23	61	(D)	121	-	-	118	(D)	68.35
California	369	392	135	2,975	-	625,000	116	204.83	23.96
Colorado	196	227	72	2,780	(D)	(D)	78	(D)	27.84
Connecticut	99	(D)	-	(D)	(D)	19,200	(D)	-	29.31
Delaware	4	4	12	-	-	-	(Z)	16.67	-
Florida	133	294	645	-	-	-	28	43.80	-
Georgia	70	70	253	72	-	-	24	89.09	18.33
Hawaii	-	-	-	-	-	-	-	-	-
Idaho	99	99	3	2,803	2,370	600	48	-	23.93
Illinois	61	(D)	(D)	324	58,000	57,500	1,206	150.00	50.00
Indiana	129	140	127	450	(D)	(D)	34	190.68	58.81
Iowa	33	42	-	(D)	62,016	(D)	(D)	-	42.95
Kansas	75	111	8,916	910	-	172,000	240	24.70	16.67
Kentucky	257	(D)	(D)	3,211	44,200	2,068,594	(D)	62.50	41.33
Louisiana	-	-	-	-	-	-	-	-	-
Maine	165	302	(D)	318	(D)	248,280	26	36.64	30.83
Maryland	99	168	650	939	(D)	144,000	32	22.18	74.94
Massachusetts	180	(D)	-	(D)	(D)	70,000	(D)	-	44.02
Michigan	232	(D)	(D)	(D)	130,176	57,720	(D)	58.33	23.56
Minnesota	58	58	-	114	-	16,434	9	-	90.67
Mississippi	12	19	273	4,600	-	-	7	23.08	25.00
Missouri	220	329	507	804	175,988	339,640	99	30.45	58.11
Montana	179	970	(D)	2,885	-	(D)	77	100.00	22.14
Nebraska	36	120	8,960	2,448	-	-	108	8.33	11.63
Nevada	3	14	20,640	-	-	-	74	3.56	-
New Hampshire	91	96	(D)	(D)	9,472	(D)	(D)	-	40.24
New Jersey	235	258	1,028	645	-	-	27	16.41	15.26
New Mexico	232	266	33	4,093	-	(D)	103	50.00	22.76
New York	503	665	593	2,626	96,360	225,522	91	(D)	24.64
North Carolina	143	189	24	3,697	-	289,500	28	7.50	44.56
North Dakota	35	(D)	(D)	99	-	(D)	(D)	(D)	33.33
Ohio	222	232	140	739	(D)	(D)	54	68.10	48.98
Oklahoma	76	176	-	226	-	-	27	-	117.48
Oregon	203	255	1,825	1,032	-	120,000	143	47.72	56.88
Pennsylvania	513	664	(D)	(D)	408,936	309,970	166	101.53	40.87
Rhode Island	21	37	(D)	(D)	(D)	-	6	(D)	-
South Carolina	55	55	52	318	-	-	92	10.00	287.86
South Dakota	-	-	-	-	-	-	-	-	-
Tennessee	120	141	-	225	184,020	-	(D)	-	73.17
Texas	232	389	662	1,616	(D)	(D)	119	40.42	60.67
Utah	54	61	314	149	-	-	6	16.67	7.00
Vermont	43	129	268	(D)	56,560	-	10	(D)	110.65
Virginia	169	294	181	(D)	-	-	33	42.50	21.66
Washington	127	158	535	1,014	-	265,680	60	10.89	38.59
West Virginia	39	39	-	-	-	-	(D)	-	67.24
Wisconsin	107	107	19	326	123,500	228,000	9	-	18.14
Wyoming	96	143	(D)	1,397	(D)	-	47	-	33.82
Water Resources Regions									
Region 01 New England	587	872	891	2,361	382,232	(D)	118	36.64	40.70
Region 02 Mid-Atlantic	1,058	1,418	2,544	5,340	497,460	435,402	261	25.44	34.44
Region 03 South Atlantic-Gulf	475	764	1,065	8,810	-	241,500	180	54.66	149.63
Region 04 Great Lakes	756	838	635	2,639	(D)	(D)	149	79.03	23.08
Region 05 Ohio	742	905	1,338	5,533	(D)	2,336,738	193	82.26	39.06
Region 06 Tennessee	78	110	24	(D)	-	168,000	(D)	7.50	11.52
Region 07 Upper Mississippi	189	262	48	1,104	(D)	353,540	1,298	186.04	76.12
Region 08 Lower Mississippi	14	53	2,273	45	-	-	117	51.17	11.11
Region 09 Souris-Red-Rainy	55	(D)	(D)	137	-	2,418	(D)	(D)	32.67
Region 10 Missouri	479	1,460	18,558	6,795	16,280	341,400	478	18.12	21.11
Region 11 Arkansas-White-Red	124	236	106	318	-	(D)	40	13.21	108.43
Region 12 Texas-Gulf	212	349	662	1,416	(D)	(D)	99	40.42	54.68
Region 13 Rio Grande	186	240	33	4,062	-	51,000	101	50.00	22.58
Region 14 Upper Colorado	296	364	(D)	3,984	-	-	139	16.67	33.75
Region 15 Lower Colorado	22	(D)	10	(D)	-	-	(D)	27.50	35.44
Region 16 Great Basin	37	(D)	20,654	(D)	-	-	(D)	3.56	7.00
Region 17 Pacific Northwest	453	560	2,363	5,209	2,370	386,280	257	39.37	33.81
Region 18 California	369	392	135	2,975	-	625,000	116	204.83	23.96
Region 19 Alaska	18	28	14	27	(D)	21,280	(D)	(D)	29.89
Region 20 Hawaii	-	-	-	-	-	-	-	-	-

See footnote(s) at end of table.

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Table 13. Energy Expense for All Well Pumps and Other Irrigation Pumps by Type of Energy Used: 2018 (continued)

[Excludes institutional, research, and experimental farms. For meaning of abbreviations and symbols see introductory text.]

Geographic area	Gasoline, ethanol, and blends - con.						
	Farms with energy expenses of -						
	\$1 to \$999	\$1,000 to \$1,999	\$2,000 to \$4,999	\$5,000 to \$9,999	\$10,000 to \$19,999	\$20,000 to \$49,999	\$50,000 or more
United States	5,606	381	138	5	20	3	17
Alabama	62	-	-	-	-	-	-
Alaska	17	-	1	-	-	-	-
Arizona	5	16	-	1	-	-	-
Arkansas	16	5	-	-	-	-	2
California	336	33	-	-	-	-	-
Colorado	172	24	-	-	-	-	-
Connecticut	95	4	-	-	-	-	-
Delaware	4	-	-	-	-	-	-
Florida	133	-	-	-	-	-	-
Georgia	70	-	-	-	-	-	-
Hawaii	-	-	-	-	-	-	-
Idaho	72	27	-	-	-	-	-
Illinois	46	-	-	-	-	-	15
Indiana	125	4	-	-	-	-	-
Iowa	32	-	-	-	-	1	-
Kansas	45	15	-	-	15	-	-
Kentucky	223	31	3	-	-	-	-
Louisiana	-	-	-	-	-	-	-
Maine	165	-	-	-	-	-	-
Maryland	119	-	-	-	-	-	-
Massachusetts	170	-	10	-	-	-	-
Michigan	212	20	-	-	-	-	-
Minnesota	58	-	-	-	-	-	-
Mississippi	12	-	-	-	-	-	-
Missouri	189	19	12	-	-	-	-
Montana	155	24	-	-	-	-	-
Nebraska	16	-	16	-	4	-	-
Nevada	-	-	-	-	1	2	-
New Hampshire	89	2	-	-	1	-	-
New Jersey	235	-	-	-	-	-	-
New Mexico	199	33	-	-	-	-	-
New York	476	24	3	-	-	-	-
North Carolina	128	15	-	-	-	-	-
North Dakota	35	-	-	-	-	-	-
Ohio	218	2	2	-	-	-	-
Oklahoma	76	-	-	-	-	-	-
Oregon	157	23	23	-	-	-	-
Pennsylvania	482	10	21	-	-	-	-
Rhode Island	21	-	-	-	-	-	-
South Carolina	29	-	26	-	-	-	-
South Dakota	-	-	-	-	-	-	-
Tennessee	120	-	-	-	-	-	-
Texas	189	23	20	-	-	-	-
Utah	54	-	-	-	-	-	-
Vermont	38	5	-	-	-	-	-
Virginia	169	-	-	-	-	-	-
Washington	122	-	1	4	-	-	-
West Virginia	39	-	-	-	-	-	-
Wisconsin	107	-	-	-	-	-	-
Wyoming	74	22	-	-	-	-	-
Water Resources Regions							
Region 01 New England	569	8	10	-	-	-	-
Region 02 Mid-Atlantic	1,042	15	21	-	-	-	-
Region 03 South Atlantic-Gulf	442	7	26	-	-	-	-
Region 04 Great Lakes	709	46	1	-	-	-	-
Region 05 Ohio	702	33	7	-	-	-	-
Region 06 Tennessee	70	8	-	-	-	-	-
Region 07 Upper Mississippi	165	-	8	-	-	1	15
Region 08 Lower Mississippi	12	-	-	-	-	-	2
Region 09 Souris-Red-Rainy	55	-	-	-	-	-	-
Region 10 Missouri	384	58	18	-	19	-	-
Region 11 Arkansas-White-Red	117	5	2	-	-	-	-
Region 12 Texas-Gulf	189	3	20	-	-	-	-
Region 13 Rio Grande	133	53	-	-	-	-	-
Region 14 Upper Colorado	250	46	-	-	-	-	-
Region 15 Lower Colorado	5	16	-	1	-	-	-
Region 16 Great Basin	34	-	-	-	1	2	-
Region 17 Pacific Northwest	375	50	24	4	-	-	-
Region 18 California	336	33	-	-	-	-	-
Region 19 Alaska	17	-	1	-	-	-	-
Region 20 Hawaii	-	-	-	-	-	-	-

¹ Energy expenses for solar-powered pumps are not included.