



APPENDIX TABLE 6-62

USPTO patents granted in bioenergy technology, by region, country, or economy: 1998–2016

(Number)

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	76	55	68	67	66	65	64	58	59	92	77	130	195	312	461	606	637	584	579
North America	54	35	40	44	41	41	43	32	41	66	53	93	138	241	347	428	449	396	398
Canada	5	3	6	4	4	2	3	3	6	5	5	4	9	24	15	24	18	36	23
Mexico	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	2	0	0
Puerto Rico	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
United States	49	32	34	40	35	39	40	29	35	62	47	89	128	217	332	403	429	360	375
Central and South America	0	0	0	0	0	1	1	2	1	1	0	1	0	4	6	5	9	10	6
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Brazil	0	0	0	0	0	0	0	2	1	1	0	1	0	4	4	5	7	3	4
All others	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	2	7	2
Europe	16	13	17	11	12	13	12	17	13	17	13	22	36	44	72	102	115	90	92
EU	11	12	14	8	11	13	11	12	10	14	11	21	30	38	67	96	108	86	86
Austria	0	1	0	1	0	0	0	1	1	0	0	1	0	0	1	0	0	2	2
Belgium	0	0	0	0	0	0	0	1	0	0	0	0	0	2	2	3	1	0	1
Denmark	0	1	0	0	2	2	0	0	0	2	2	3	2	5	7	5	11	8	5
Finland	1	2	0	0	0	1	2	2	2	0	0	2	2	2	5	7	7	11	7



Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
France	2	1	1	2	1	1	0	0	1	2	0	2	5	6	4	17	17	17	21
Germany	5	3	6	1	3	5	3	3	3	2	4	8	8	10	22	24	30	23	12
Hungary	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	0	1
Ireland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0
Italy	1	2	1	1	1	1	0	3	0	2	3	1	6	4	4	7	4	3	6
Netherlands	0	1	2	2	0	2	3	1	0	2	1	1	2	3	7	9	11	9	7
Spain	0	0	0	1	0	0	0	0	0	0	0	1	1	0	1	4	4	2	6
Sweden	1	0	2	0	3	0	2	0	2	1	0	1	0	2	2	4	6	2	3
United Kingdom	1	2	1	0	0	0	1	1	1	3	0	1	2	2	7	10	9	6	8
All others	0	0	0	1	1	1	0	0	0	0	1	0	0	0	3	4	3	0	6
Other Europe	5	1	3	3	1	0	1	5	3	3	2	1	6	6	5	7	7	5	6
Former Soviet Union	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	2	1	0	0
Norway	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3	1	0
Russia	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	2	2
Switzerland	5	1	3	3	1	0	1	4	3	3	2	1	6	4	2	3	2	1	3
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Asia	4	7	10	12	11	7	7	6	4	4	8	12	18	20	34	58	54	73	64
China	0	0	1	1	1	0	0	0	0	1	0	2	1	2	3	7	7	13	18
India	0	0	0	0	0	1	0	1	0	0	0	2	2	1	3	4	6	9	8



Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Japan	3	5	8	9	6	4	6	5	4	3	6	5	10	11	17	34	21	30	24
Malaysia	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	2	0	2
Singapore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
South Korea	0	1	1	1	3	2	1	0	0	1	0	0	2	2	8	9	16	18	12
Taiwan	1	1	0	1	1	0	0	0	0	0	2	2	3	2	0	1	2	2	1
All others	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1	0	0
Middle East	1	0	0	0	1	2	1	1	0	3	2	0	2	0	2	6	3	4	10
Israel	1	0	0	0	1	2	1	1	0	2	2	0	2	0	1	4	2	3	3
All others	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2	1	2	6
Africa	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	1	1	2	1
South Africa	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	1	1	2	1
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Australia and Oceania	0	0	1	0	1	1	0	0	0	0	1	1	2	2	1	6	5	8	8
Australia	0	0	1	0	1	1	0	0	0	0	0	1	1	1	1	4	3	6	6
New Zealand	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	2	2	2	2
Unclassified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

EU = European Union; USPTO = U.S. Patent and Trademark Office.

**Note(s)**



Patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. The EU includes 28 member countries. Technologies are based on a classification developed by The Patent Board.

**Source(s)**

Science-Metrix; PatentsView and USPTO patent data.

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