

Production of biofuels and wastes

Terajoules

Table Notes

The conversion of fuelwood (solid volume, 9.135 TJ/m³) is based on an average 20-30% moisture content of wood from an unspecified species.

The methodology used for estimating fuel bagasse production for certain countries is derived from the work done by the Economic Commission for Latin America and the Caribbean (ECLAC). Although several different methodologies have been devised, the one selected assumes a yield of 3.26 tons of fuel bagasse at 50% humidity per ton of cane sugar produced. This methodology was used for instances where national data on bagasse production were not available. In these cases, data were derived from

sugar production figures extracted from the Sugar Yearbook of the International Sugar Organization (London) or from the FAOSTAT database of the Food and Agriculture Organization of the United Nations.

Biogasoline includes Other liquid biofuels.

The total column excludes charcoal as it is the only secondary energy product in the table.

Please refer to the Definitions Section on pages ix to xv for the appropriate product description/classification, and xvi to xvii for the descriptions of relevant flows.

Figure 29: Production of fuelwood by region, 1990-2019

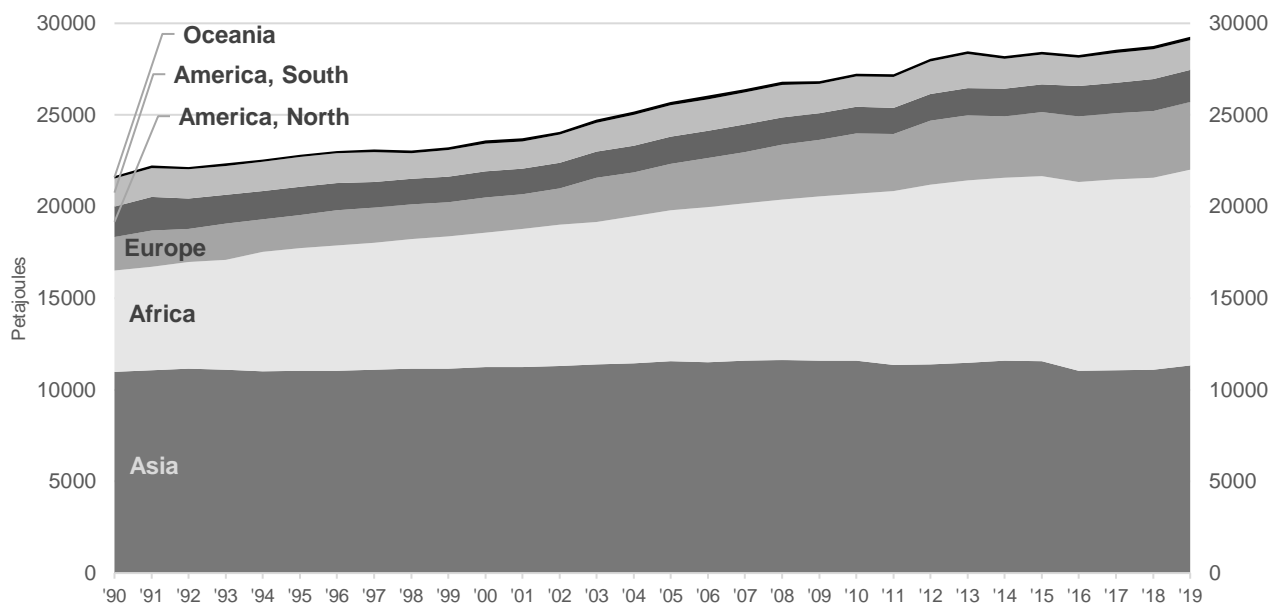


Figure 30: Production of charcoal by region, 1990-2019

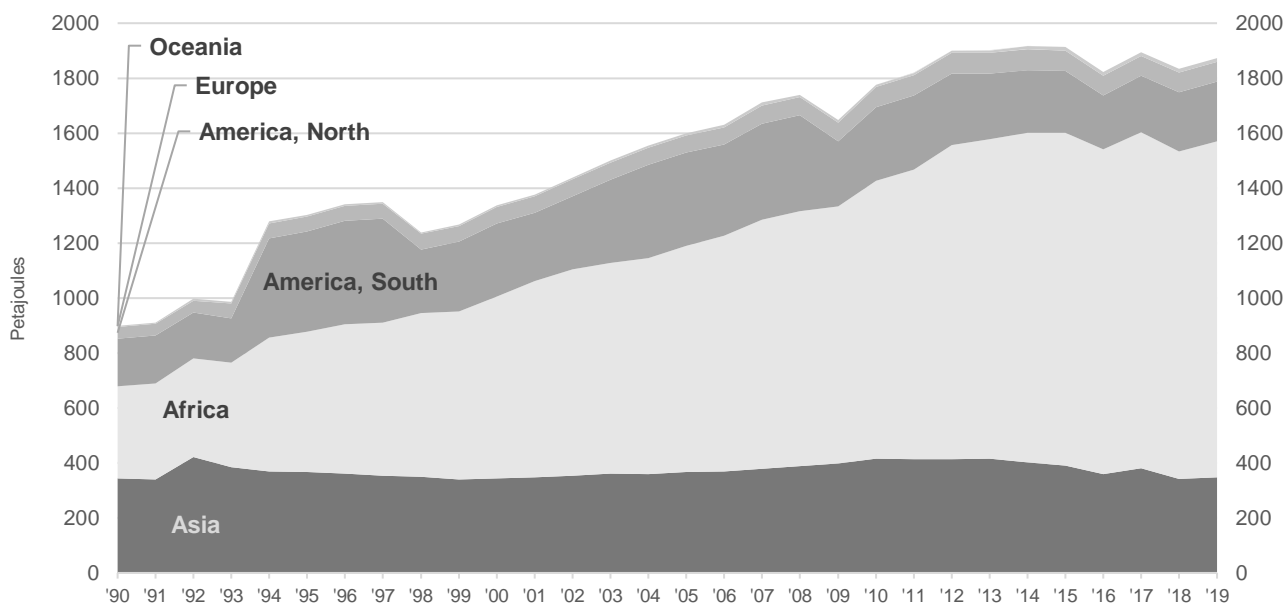


Figure 31: Production of total solid biofuels by region, 2019

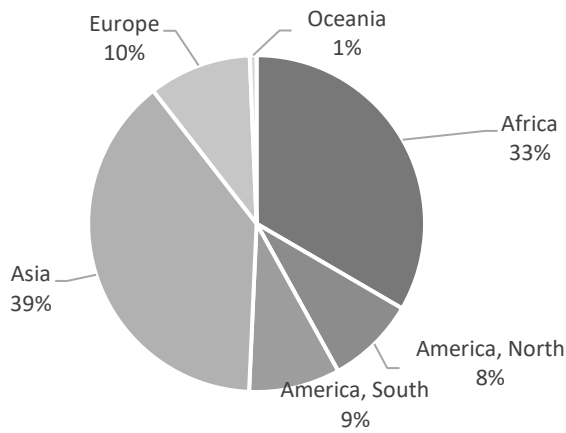


Figure 32: Production of biogases by region, 2019

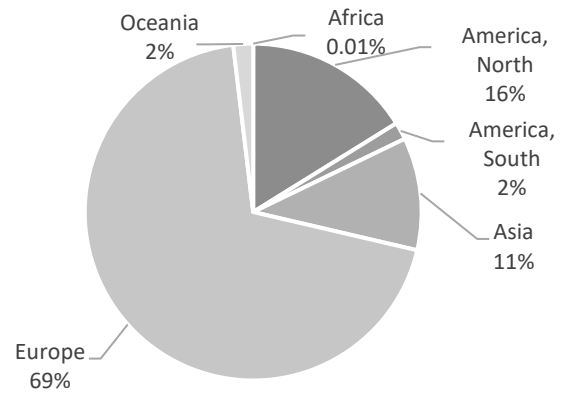


Figure 33: Production of bagasse by region, 2019

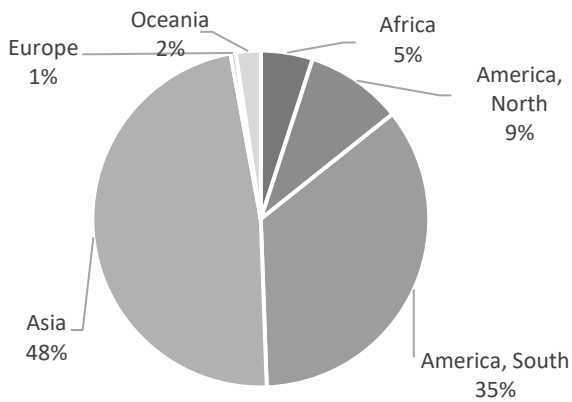


Figure 34: Production of liquids biofuels by region, 2019

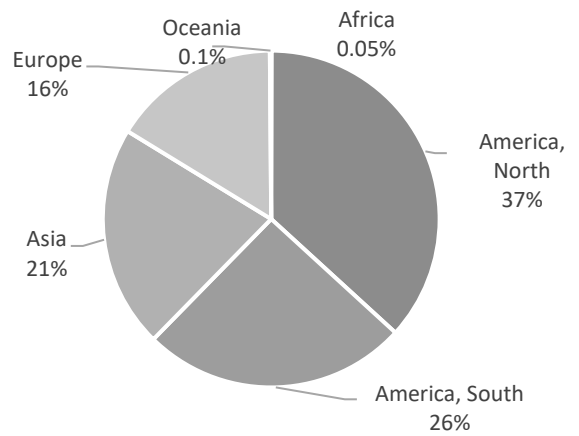


Figure 35: Production of energy from waste by region, 2019

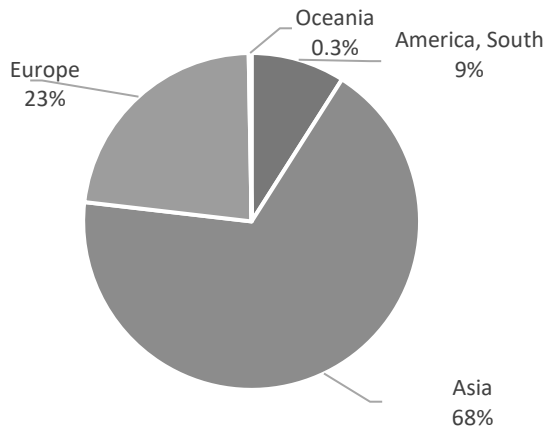


Table 12

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Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
World	2016	28,256,207	648,832	9,283,423	3,754,295	1,678,537	1,822,776
	2017	28,551,599	641,988	9,481,401	3,926,916	1,692,458	1,894,569
	2018	28,770,564	691,336	9,697,873	4,115,810	1,807,012	1,834,089
	2019	29,264,992	698,383	9,581,952	4,051,304	1,809,657	1,873,342
Africa	2016	10,305,021	162,097	3,284,307	190,366	..	1,181,745
	2017	10,408,269	164,765	3,357,216	178,689	..	1,221,898
	2018	10,475,535	168,498	3,434,767	184,689	..	1,192,683
	2019	10,684,724	172,225	3,508,753	202,292	..	1,222,147
Algeria	2016	283	..	..	..	..	..
	2017	484	..	..	..	..	..
	2018	1,032	..	..	..	..	..
	2019	484	..	..	..	..	..
Angola	2016	157,116	..	102,127	*1,113	..	32,834
	2017	159,460	..	103,650	*1,248	..	33,276
	2018	161,604	..	105,044	*1,382	..	33,778
	2019	163,722	..	106,421	*1,422	..	34,214
Benin	2016	102,816	..	4,084	..	..	14,426
	2017	105,436	..	4,169	..	..	14,937
	2018	108,829	..	4,411	..	..	15,258
	2019	117,219	..	3,386	..	..	16,409
Botswana	2016	6,387	..	..	..	..	2,216
	2017	6,388	..	..	..	..	2,216
	2018	6,389	..	..	..	..	2,216
	2019	6,390	..	..	..	..	2,216
Burkina Faso	2016	126,702	..	..	633	..	20,345
	2017	128,164	..	..	*633	..	20,852
	2018	129,651	..	..	*633	..	21,372
	2019	131,168	..	..	*633	..	21,905
Burundi	2016	54,801	..	..	596	..	7,788
	2017	54,801	..	..	552	..	7,788
	2018	54,801	..	..	492	..	7,788
	2019	54,801	..	..	468	..	7,788
Cabo Verde	2016	*1,448	..	..	..	..	*19
	2017	*1,413	..	..	..	..	*19
	2018	*1,399	..	..	..	..	*19
	2019	*1,385	..	..	..	..	*20
Cameroon	2016	261,985	..	5,131	1,594	..	6,962
	2017	*268,862	..	5,266	1,592	..	7,148
	2018	275,912	..	5,410	1,590	..	7,337
	2019	283,134	..	5,552	1,654	..	7,529
Central African Rep.	2016	33,201	..	..	..	..	413
	2017	*33,327	..	..	..	..	*422
	2018	*33,579	..	..	..	..	*434
	2019	*33,831	..	..	..	..	*445
Chad	2016	70,942	..	..	881	..	13,806
	2017	71,920	..	..	*914	..	14,131
	2018	72,916	..	..	*949	..	14,485
	2019	73,920	..	..	*985	..	14,839
Comoros	2016	*3,637	..	*17	..	..	*4
	2017	3,715	..	17	..	..	5
	2018	3,799	..	18	..	..	*5
	2019	*3,818	..	*18	..	..	*5
Congo	2016	49,105	..	15,641	6,638
	2017	51,186	..	15,641	6,805
	2018	51,911	..	15,862	6,902
	2019	51,911	..	15,862	6,902

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Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
1,032,033	1,351,277	2,158,567	1,355,579	970,535	50,489,285
1,066,990	1,363,863	2,205,009	1,482,907	993,066	51,406,195
1,122,273	1,377,319	2,355,274	1,670,818	1,013,671	52,621,950
1,171,511	1,384,747	2,367,432	1,798,898	1,032,473	53,161,350
3,108	..	1,528	..	110	13,946,537
3,106	..	1,179	..	104	14,113,329
3,106	..	1,825	..	130	14,268,549
3,106	..	1,887	..	114	14,573,102
..	283
..	484
..	1,032
..	484
..	260,356
..	264,358
..	268,031
..	271,566
..	106,900
..	109,605
..	113,240
..	120,604
..	6,387
..	6,388
..	6,389
..	6,390
..	*36	127,372
..	*36	128,833
..	*36	130,320
..	*36	131,837
..	55,396
..	55,353
..	55,293
..	55,268
..	*1,448
..	*1,413
..	*1,399
..	*1,385
..	7	268,717
..	*7	*275,727
..	7	282,919
..	7	290,347
..	33,201
..	*33,327
..	*33,579
..	*33,831
..	71,824
..	72,834
..	73,865
..	74,906
..	*3,654
..	3,732
..	3,816
..	*3,835
..	64,746
..	66,827
..	67,773
..	67,773

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Country or area	Year	Solid biofuels					Charcoal
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	
Côte d'Ivoire	2016	266,155	..	1,968	..	..	44,180
	2017	262,429	..	1,986	..	..	44,180
	2018	259,853	..	2,131	..	..	43,735
	2019	265,966	..	2,275	..	..	44,901
Dem. Rep. of the Congo	2016	1,174,908	..	6,229	..	..	120,183
	2017	1,176,516	..	3,014	..	..	120,354
	2018	1,072,193	..	4,658	..	..	121,858
	2019	1,191,222	..	4,131	..	..	121,858
Djibouti	2016	3,560	..	..	..	..	1,554
	2017	3,605	..	..	..	..	1,574
	2018	3,650	..	..	..	..	1,595
	2019	3,696	..	..	..	..	1,615
Egypt	2016	162,325	..	39,098	23,412	..	42,303
	2017	162,599	..	*39,098	*23,412	..	42,625
	2018	162,877	..	*41,088	*23,915	..	42,949
	2019	141,672	..	*41,100	*23,939	..	42,950
Equatorial Guinea	2016	4,083	..	..	..	..	310
	2017	4,083	..	..	..	..	310
	2018	4,083	..	..	..	..	324
	2019	4,083	..	..	..	..	324
Eritrea	2016	21,913	2,577	1,459	..	..	5,133
	2017	22,151	2,606	1,475	..	..	4,775
	2018	22,407	2,636	1,492	..	..	4,833
	2019	22,696	2,671	1,511	..	..	4,898
Eswatini	2016	16,114	..	..	14,757	..	1,464
	2017	12,062	..	..	12,365	..	266
	2018	12,174	..	..	12,974	..	*295
	2019	12,094	..	..	14,729	..	*295
Ethiopia	2016	999,269	152,834	149,807	8,934	..	127,340
	2017	1,010,532	156,058	156,058	9,158	..	130,275
	2018	1,021,978	160,026	156,857	*8,494	..	133,272
	2019	1,033,598	163,669	160,428	*7,722	..	136,340
Gabon	2016	*50,000	..	2,132	705	..	667
	2017	*50,778	..	2,180	628	..	676
	2018	*51,975	..	2,138	641	..	687
	2019	*52,070	..	2,101	649	..	698
Gambia	2016	6,846	..	..	..	..	1,972
	2017	6,921	..	..	..	..	2,008
	2018	6,997	..	..	..	..	2,045
	2019	7,074	..	..	..	..	2,083
Ghana	2016	150,872	..	..	..	..	43,785
	2017	161,583	..	..	..	..	50,153
	2018	176,833	..	..	..	..	52,963
	2019	173,064	..	..	..	..	52,066
Guinea	2016	112,050	..	..	629	..	11,679
	2017	112,388	..	..	629	..	11,907
	2018	112,730	..	..	*638	..	12,140
	2019	113,089	..	..	*647	..	12,377
Guinea-Bissau	2016	25,808	..	..	..	..	2,172
	2017	26,119	..	..	..	..	2,221
	2018	26,434	..	..	..	..	2,271
	2019	26,434	..	..	..	..	2,271
Kenya	2016	520,065	..	25,223	14,616	..	135,818
	2017	515,908	..	26,055	14,367	..	151,040
	2018	*515,908	..	25,879	11,676	..	115,758
	2019	*527,802	..	*26,474	*11,946	..	118,413

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Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
..	268,123
..	264,415
..	261,984
..	268,242
..	1,181,137
..	1,179,530
..	1,076,851
..	1,195,353
..	3,560
..	3,605
..	3,650
..	3,696
..	224,835
..	225,109
..	227,880
..	206,710
..	4,083
..	4,083
..	4,083
..	4,083
..	25,949
..	26,231
..	26,535
..	26,878
..	30,871
..	24,427
..	25,148
..	26,823
..	..	134	..	..	1,310,978
..	..	134	..	..	1,331,939
..	..	161	..	..	1,347,516
..	..	170	..	..	1,365,587
..	*52,837
..	*53,586
..	*54,754
..	*54,819
..	6,846
..	6,921
..	6,997
..	7,074
..	150,872
..	161,583
..	176,833
..	173,064
..	112,679
..	113,017
..	113,367
..	113,736
..	25,808
..	26,119
..	26,434
..	26,434
..	559,903
..	556,330
..	6	*553,469
..	*566,222

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Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
Lesotho	2016	*11,370	*4,508	*1,375	..	..	1,145
	2017	10,576	3,995	1,441	..	..	510
	2018	*9,994	*3,481	*1,459	..	..	153
	2019	*9,793	*3,412	*1,473	..	..	*153
Liberia	2016	78,534	..	..	..	..	8,595
	2017	81,091	..	..	..	..	8,891
	2018	83,734	..	..	..	..	9,197
	2019	86,462	..	..	..	..	9,513
Libya	2016	24,330	..	..	..	..	3,304
	2017	24,602	..	..	..	..	3,338
	2018	24,884	..	..	..	..	3,371
	2019	25,169	..	..	..	..	3,405
Madagascar	2016	256,698	..	..	2,726	..	22,677
	2017	266,494	..	..	2,851	..	23,680
	2018	299,749	..	..	2,497	..	27,199
	2019	312,613	..	..	2,487	..	28,497
Malawi	2016	52,882	..	..	6,772	..	16,674
	2017	53,435	..	..	6,772	..	17,047
	2018	53,973	..	..	*6,772	..	17,429
	2019	54,605	..	..	*6,772	..	17,819
Mali	2016	*150,965	..	..	1,457	..	15,045
	2017	*153,587	..	..	*1,457	..	15,340
	2018	*155,249	..	..	*1,457	..	15,488
	2019	*156,665	..	..	*1,457	..	*15,635
Mauritania	2016	19,092	..	..	..	..	6,390
	2017	19,448	..	..	..	..	6,534
	2018	19,805	..	..	..	..	6,667
	2019	19,805	..	..	..	..	6,667
Mauritius	2016	213	..	..	9,946	..	15
	2017	266	..	..	9,382	..	15
	2018	204	..	..	8,690	..	15
	2019	162	..	..	8,541	..	12
Morocco	2016	63,752	..	..	922	..	561
	2017	63,022	..	..	1,196	..	585
	2018	61,744	..	..	1,332	..	596
	2019	61,863	..	..	1,122	..	608
Mozambique	2016	281,294	..	13,774	9,689	..	41,979
	2017	285,973	..	13,552	9,777	..	47,742
	2018	290,683	..	13,343	9,706	..	48,182
	2019	295,388	..	13,145	9,520	..	48,647
Namibia	2016	13,419	..	1,584	..	..	4,750
	2017	13,711	..	1,586	..	..	4,868
	2018	15,718	..	1,601	..	..	5,399
	2019	18,426	..	1,592	..	..	5,508
Niger	2016	65,581	*562	*452	..	..	1,535
	2017	*54,496	*584	*470	..	..	1,593
	2018	*65,932	*803	*647	..	..	1,652
	2019	*68,537	*876	*705	..	..	1,711
Nigeria	2016	2,313,610	..	2,388,515	503	..	116,997
	2017	2,330,370	..	2,451,619	633	..	118,962
	2018	2,347,592	..	2,515,866	757	..	120,959
	2019	2,347,592	..	2,581,230	*541	..	120,959
Rwanda	2016	*83,476	203	..	*18,113
	2017	*84,179	232	..	*18,349
	2018	*84,526	253	..	*18,467
	2019	*84,526	248	..	*18,467

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Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
..	*17,254
..	16,012
..	*14,934
..	*14,677
..	78,534
..	81,091
..	83,734
..	86,462
..	24,330
..	24,602
..	24,884
..	25,169
..	259,423
..	269,345
..	302,246
..	315,100
*99	59,753
*98	60,305
*98	60,843
*98	61,475
..	*152,422
..	*155,044
..	*156,706
..	*158,122
..	19,092
..	19,448
..	19,805
..	19,805
..	67	10,226
..	61	9,709
..	81	8,975
..	71	8,775
3,009	67,683
3,008	67,227
3,008	66,085
3,008	65,993
..	304,757
..	309,302
..	313,732
..	318,053
..	15,003
..	15,297
..	17,319
..	20,018
..	66,595
..	*55,550
..	*67,382
..	*70,118
..	4,702,628
..	4,782,622
..	4,864,215
..	4,929,363
..	*83,679
..	*84,411
..	*84,779
..	*84,774

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Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
Sao Tome and Principe	2016	1,029	..	..	..	..	283
	2017	1,033	..	..	..	..	286
	2018	1,039	..	..	..	..	289
	2019	1,039	..	..	..	..	289
Senegal	2016	60,730	..	1,136	2,768	..	8,526
	2017	64,534	..	252	2,706	..	5,575
	2018	63,838	..	252	3,536	..	5,387
	2019	65,601	..	1,513	5,880	..	5,476
Seychelles	2016	29	..	..	..	..	..
	2017	29	..	..	..	..	..
	2018	29	..	..	..	..	..
	2019	29	..	..	..	..	..
Sierra Leone	2016	53,330	..	*72	201	..	13,039
	2017	53,723	..	*72	201	..	13,334
	2018	54,143	..	*72	*201	..	13,629
	2019	54,572	..	*70	*201	..	13,924
Somalia	2016	135,387	..	..	579	..	36,127
	2017	138,909	..	..	*527	..	37,447
	2018	142,539	..	..	*530	..	38,816
	2019	146,278	..	..	*550	..	40,235
South Africa	2016	221,774	..	113,240	39,817	..	41,831
	2017	221,746	..	114,735	25,678	..	41,300
	2018	218,093	..	115,570	28,114	..	24,485
	2019	213,420	..	115,726	28,157	..	23,569
South Sudan	2016	8,110	..	..	..	..	325
	2017	6,896	..	..	..	..	254
	2018	6,937	..	..	..	..	255
	2019	6,992	..	..	..	..	257
St. Helena and Depend.	2016	6	..	..	..	..	..
	2017	6	..	..	..	..	..
	2018	5	..	..	..	..	..
	2019	5	..	..	..	..	..
Sudan	2016	139,884	..	47,215	*16,711	..	17,346
	2017	140,834	..	47,319	*16,711	..	17,346
	2018	141,830	..	47,868	*16,989	..	17,346
	2019	142,351	..	48,413	*17,004	..	17,346
Togo	2016	113,533	..	1,358	..	..	20,591
	2017	105,704	..	1,245	..	..	21,093
	2018	111,890	..	1,641	..	..	22,332
	2019	111,890	..	1,641	..	..	22,332
Tunisia	2016	39,262	1,616	4,370	..	..	6,431
	2017	39,427	1,523	4,370	..	..	6,579
	2018	39,708	1,551	4,377	..	..	6,726
	2019	39,946	1,598	4,321	..	..	6,873
Uganda	2016	742,912	..	..	*18,170	..	*56,164
	2017	773,962	..	..	*22,796	..	*60,008
	2018	806,413	..	..	*27,568	..	60,960
	2019	833,335	..	..	*41,058	..	76,954
United Rep. of Tanzania	2016	545,532	..	199,763	6,517	..	46,345
	2017	553,309	..	200,729	6,618	..	47,643
	2018	561,390	..	203,328	6,741	..	49,088
	2019	561,390	..	203,342	7,761	..	48,989
Zambia	2016	259,105	..	44,236	*3,398	..	32,686
	2017	264,372	..	45,135	*3,475	..	33,350
	2018	269,585	..	46,025	*3,475	..	34,008
	2019	274,789	..	46,914	*3,475	..	34,665

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Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
..	1,029
..	1,033
..	1,039
..	1,039
..	64,634
..	67,492
..	67,626
..	72,994
..	29
..	29
..	29
..	29
..	53,603
..	53,996
..	54,416
..	54,843
..	135,966
..	139,436
..	143,069
..	146,828
..	374,831
..	362,158
..	361,777
..	357,302
..	8,110
..	6,896
..	6,937
..	6,992
..	6
..	6
..	5
..	5
..	203,810
..	204,864
..	206,686
..	207,768
..	114,891
..	106,949
..	113,531
..	113,531
..	45,248
..	45,320
..	45,636
..	45,864
..	761,082
..	796,757
..	833,981
..	874,394
..	751,812
..	760,655
..	771,460
..	772,493
..	306,739
..	312,983
..	319,085
..	325,178

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Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
Zimbabwe	2016	186,790	..	114,301	2,117	..	266
	2017	189,702	..	116,083	2,180	..	269
	2018	192,394	..	117,730	2,687	..	273
	2019	195,139	..	119,410	2,725	..	277
America, North	2016	1,648,130	317,313	589,247	346,361	827,488	71,492
	2017	1,671,335	308,947	536,792	348,820	808,160	71,678
	2018	1,746,892	354,331	614,216	382,186	906,606	71,929
	2019	1,744,512	348,416	604,263	376,703	898,323	72,537
Anguilla	2016	*2	..	..	..	..	..
	2017	*2	..	..	..	..	..
	2018	*2	..	..	..	..	..
	2019	*2	..	..	..	..	..
Aruba	2016	20	..	..	..	..	6
	2017	20	..	..	..	..	7
	2018	21	..	..	..	..	7
	2019	22	..	..	..	..	8
Bahamas	2016	308	..	..	..	..	33
	2017	309	..	..	..	..	34
	2018	309	..	..	..	..	34
	2019	309	..	..	..	..	34
Barbados	2016	44	..	..	462	..	9
	2017	44	..	..	478	..	9
	2018	43	..	..	539	..	9
	2019	43	..	..	430	..	9
Belize	2016	969	..	..	3,429	..	92
	2017	995	..	..	4,270	..	91
	2018	1,021	..	..	4,295	..	91
	2019	1,048	..	..	4,416	..	91
Bermuda	2016	..	..	..	..	..	..
	2017	..	..	..	..	..	..
	2018	..	..	..	..	..	..
	2019	..	..	..	..	..	..
British Virgin Islands	2016	14	..	..	..	..	2
	2017	15	..	..	..	..	2
	2018	15	..	..	..	..	2
	2019	15	..	..	..	..	2
Canada	2016	299,283	..	..	..	177,749	..
	2017	312,305	..	..	..	175,549	..
	2018	311,890	..	..	..	181,071	..
	2019	308,641	..	..	..	184,900	..
Costa Rica	2016	4,969	..	3,105	10,988	..	26
	2017	3,402	..	3,037	11,189	..	27
	2018	3,010	..	2,979	10,442	..	28
	2019	2,580	..	3,017	10,368	..	28
Cuba	2016	10,111	..	*88	29,295	..	2,726
	2017	9,638	..	*88	40,413	..	2,272
	2018	8,805	..	*88	48,463	..	1,894
	2019	8,440	..	*88	40,119	..	2,245
Dominica	2016	68	..	..	..	..	7
	2017	68	..	..	..	..	7
	2018	68	..	..	..	..	7
	2019	67	..	..	..	..	7
Dominican Republic	2016	10,313	..	468	9,229	..	1,658
	2017	10,446	..	490	11,410	..	1,720
	2018	10,667	..	516	11,514	..	1,796
	2019	*10,892	..	*525	*10,800	..	*1,888

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
..	..	1,394	..	..	304,602
..	..	1,045	..	..	309,010
..	..	1,664	..	..	314,476
..	..	1,718	..	..	318,992
51,550	311,437	1,265,992	207,221	174,636	5,739,375
48,394	300,506	1,307,951	208,462	175,879	5,715,245
48,107	307,781	1,328,262	237,710	173,933	6,100,024
47,341	294,451	1,307,965	222,994	166,786	6,011,754
..	..	..	..	..	*2
..	..	..	..	..	*2
..	..	..	..	..	*2
..	..	..	..	..	*2
..	..	..	..	..	20
..	..	..	..	..	20
..	..	..	..	..	21
..	..	..	..	..	22
..	..	..	..	..	308
..	..	..	..	..	309
..	..	..	..	..	309
..	..	..	..	..	309
..	..	..	..	..	506
..	..	..	..	..	522
..	..	..	..	..	582
..	..	..	..	..	473
..	..	..	..	..	4,398
..	..	..	..	..	5,265
..	..	..	..	..	5,316
..	..	..	..	..	5,464
..	*605	..	..	..	*605
..	*590	..	..	..	*590
..	*600	..	..	..	*600
..	*600	..	..	..	*600
..	..	..	..	..	14
..	..	..	..	..	15
..	..	..	..	..	15
..	..	..	..	..	15
5,960	7,658	35,939	15,088	16,977	558,654
6,137	7,658	36,582	12,917	16,977	568,125
6,314	9,958	37,011	10,010	16,977	573,230
6,491	9,944	41,084	11,666	16,977	579,703
..	..	677	..	9	19,748
..	..	586	..	13	18,226
..	..	608	..	16	17,055
..	..	746	..	11	16,723
..	..	*348	..	..	39,841
..	..	*348	..	..	50,487
..	..	*348	..	..	57,704
..	..	*348	..	..	48,994
..	..	..	..	..	68
..	..	..	..	..	68
..	..	..	..	..	68
..	..	..	..	..	67
..	..	..	..	*157	20,167
..	..	..	..	*157	22,503
..	..	..	..	*157	22,853
..	..	..	..	*157	*22,374

Table 12

Production of biofuels and wastes

Terajoules

Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
El Salvador	2016	8,030	..	..	11,424	..	775
	2017	8,666	..	..	14,073	..	837
	2018	7,651	..	..	14,053	..	739
	2019	6,661	..	..	14,927	..	643
Greenland	2016	..	..	..	..	..	..
	2017	..	..	..	..	..	..
	2018	..	..	..	..	..	..
	2019	..	..	..	..	..	..
Grenada	2016	304	..	..	20	..	64
	2017	315	..	..	21	..	67
	2018	327	..	..	22	..	69
	2019	339	..	..	22	..	72
Guatemala	2016	223,935	..	..	85,152	..	1,711
	2017	237,545	..	..	53,779	..	1,800
	2018	242,245	..	..	51,340	..	1,896
	2019	246,902	..	..	53,779	..	1,994
Haiti	2016	139,415	..	..	972	..	37,583
	2017	141,050	..	..	983	..	38,015
	2018	143,143	..	..	998	..	38,580
	2019	145,267	..	..	1,013	..	39,152
Honduras	2016	72,222	..	1,901	13,291	..	4
	2017	49,389	..	1,922	23,000	..	1
	2018	55,298	..	1,498	21,848	..	6
	2019	53,793	..	1,708	15,940	..	5
Jamaica	2016	5,006	..	..	2,868	..	1,133
	2017	5,006	..	..	1,965	..	1,133
	2018	*5,006	..	..	1,544	..	1,121
	2019	4,788	..	..	1,888	..	738
Mexico	2016	251,887	..	38,276	70,264	3	..
	2017	250,601	..	0	76,659	6	..
	2018	249,084	..	0	107,146	..	..
	2019	247,919	..	0	113,249	..	..
Nicaragua	2016	45,297	..	1,444	14,231	..	295
	2017	45,435	..	1,633	16,165	..	305
	2018	46,147	..	1,712	15,717	..	309
	2019	46,373	..	1,641	16,287	..	297
Panama	2016	7,102	..	..	6,319	..	35
	2017	7,059	..	..	5,997	..	34
	2018	7,015	..	..	5,846	..	33
	2019	6,973	..	..	4,660	..	32
St. Kitts-Nevis	2016	0	..	..	..	..	0
	2017	0	..	..	..	..	0
	2018	0	..	..	..	..	0
	2019	*1	..	..	..	..	0
St. Lucia	2016	*670	..	..	..	..	125
	2017	*643	..	..	..	..	115
	2018	*617	..	..	..	..	106
	2019	*595	..	..	..	..	*91
St. Pierre-Miquelon	2016	5	..	..	..	..	..
	2017	5	..	..	..	..	..
	2018	5	..	..	..	..	..
	2019	5	..	..	..	..	..
St. Vincent-Grenadines	2016	66	..	..	..	..	11
	2017	65	..	..	..	..	11
	2018	65	..	..	..	..	11
	2019	65	..	..	..	..	11

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
..	531	19,985
..	510	23,249
..	495	22,199
..	570	22,158
..	94	..	..	..	94
..	94	..	..	..	94
..	*94	..	..	..	*94
..	*94	..	..	..	*94
..	324
..	336
..	348
..	361
..	186	309,273
..	308	291,632
..	430	294,015
..	308	300,989
..	..	241	..	..	140,628
..	..	234	..	..	142,267
..	..	238	..	..	144,379
..	..	241	..	..	146,521
..	87,414
..	74,311
..	78,644
..	71,442
..	7,874
..	6,971
..	*6,550
..	6,676
552	1,912	362,894
897	2,008	330,171
1,010	2,844	360,084
1,067	2,799	365,034
..	60,972
..	63,233
..	63,577
..	75	64,376
..	13,421
..	13,056
..	12,861
..	11,633
..	0
..	0
..	0
..	*1
..	*670
..	*643
..	*617
..	*595
..	5
..	5
..	5
..	5
..	66
..	65
..	65
..	65

Table 12

Production of biofuels and wastes

Terajoules

Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
Trinidad and Tobago	2016	284	..	..	..	..	59
	2017	281	..	..	..	..	54
	2018	279	..	..	..	..	54
	2019	*276	..	..	..	..	54
Turks and Caicos Islands	2016	11	..	..	..	..	4
	2017	11	..	..	..	..	4
	2018	11	..	..	..	..	4
	2019	11	..	..	..	..	4
United States	2016	567,795	*317,313	*543,965	88,418	*649,736	25,134
	2017	588,020	*308,947	*529,623	*88,418	*632,605	25,134
	2018	654,148	*354,331	*607,424	*88,418	*725,535	25,134
	2019	652,486	*348,416	*597,284	*88,804	*713,423	25,134
America, South	2016	1,542,289	..	764,056	1,458,379	158,880	196,373
	2017	1,601,682	..	829,851	1,448,608	160,297	204,965
	2018	1,631,039	..	922,204	1,392,711	164,822	213,927
	2019	1,628,002	..	708,486	1,423,764	163,425	218,044
Argentina	2016	34,652	..	..	42,711	..	11,771
	2017	34,873	..	..	49,522	..	11,977
	2018	39,250	..	..	54,974	..	11,918
	2019	50,800	..	..	53,476	..	12,125
Bolivia (Plur. State of)	2016	7,452	..	38	19,794	..	1,416
	2017	6,006	..	0	19,821	..	1,419
	2018	5,756	..	0	*20,489	..	1,452
	2019	5,934	..	0	19,166	..	1,472
Brazil	2016	935,588	..	704,438	1,301,691	..	163,578
	2017	990,234	..	774,475	1,278,872	..	169,271
	2018	1,039,645	..	867,675	1,218,269	..	177,295
	2019	1,045,802	..	658,218	1,252,702	..	182,812
Chile	2016	227,188	..	..	..	94,908	1,918
	2017	241,105	..	..	..	93,577	3,621
	2018	240,328	..	..	..	100,675	4,165
	2019	237,692	..	..	..	98,853	3,704
Colombia	2016	95,706	..	427	47,021	12,681	286
	2017	88,193	..	467	50,323	12,900	601
	2018	87,884	..	478	51,676	12,345	383
	2019	81,512	..	489	48,159	11,851	350
Ecuador	2016	10,596	..	..	12,524	..	..
	2017	10,378	..	..	14,103	..	..
	2018	10,127	..	..	12,170	..	..
	2019	9,815	..	..	12,076	..	..
Falkland Is. (Malvinas)	2016	8	..	..	..	..	3
	2017	8	..	..	..	..	3
	2018	8	..	..	..	..	4
	2019	9	..	..	..	..	4
Guyana	2016	1,073	..	..	5,587	..	42
	2017	1,057	..	..	5,552	..	43
	2018	1,073	..	..	3,913	..	40
	2019	1,153	..	..	2,408	..	41
Paraguay	2016	113,888	..	24,563	..	..	12,139
	2017	117,769	..	23,335	..	..	13,103
	2018	101,576	..	23,931	..	..	12,801
	2019	98,604	..	23,692	..	..	11,871
Peru	2016	79,021	..	5,967	19,880	..	5,015
	2017	74,725	..	5,269	20,938	..	4,750
	2018	68,497	..	5,449	20,986	..	5,694
	2019	64,615	..	5,908	25,480	..	5,564

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
..	284
..	281
..	279
..	*276
..	11
..	11
..	11
..	11
45,038	303,080	1,228,787	192,133	154,864	4,091,129
41,360	292,165	1,270,200	195,545	155,906	4,102,788
40,783	297,129	1,290,057	227,701	153,014	4,438,540
39,783	283,813	1,265,545	211,328	145,888	4,346,770
294	..	621,712	228,558	11,092	4,785,260
268	..	611,497	260,268	12,968	4,925,438
366	..	731,371	283,484	14,632	5,140,630
360	..	773,641	290,712	17,228	5,005,618
..	..	18,867	97,851	..	194,082
..	..	23,450	105,653	..	213,498
..	..	23,638	89,350	..	207,212
..	..	22,780	79,010	..	206,065
..	27,284
..	25,827
..	..	25	..	..	*26,271
..	..	942	..	..	26,042
..	..	588,850	121,738	5,728	3,658,033
..	..	574,136	137,433	7,993	3,763,144
..	..	691,896	171,348	8,532	3,997,365
..	..	733,409	189,733	11,245	3,891,110
..	3,747	325,843
..	3,849	338,531
..	4,484	345,487
..	4,235	340,780
..	..	5,275	7,243	..	168,353
..	..	4,634	15,415	..	171,933
..	..	6,337	18,384	..	177,104
..	..	5,199	17,137	..	164,349
..	..	452	..	282	23,853
..	..	817	..	567	25,866
..	..	717	..	925	23,939
..	..	945	..	925	23,762
..	8
..	8
..	8
..	9
..	6,661
..	6,609
..	4,987
..	3,561
..	..	6,259	..	..	144,710
..	..	6,479	..	..	147,583
..	..	7,071	..	..	132,578
..	..	8,366	..	..	130,662
..	..	364	4	1,335	106,571
..	..	515	66	558	102,071
..	..	0	2,867	691	98,491
..	..	271	3,231	823	100,328

Table 12

Production of biofuels and wastes

Terajoules

Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
Suriname	2016	914	..	735	..	..	..
	2017	915	..	736	..	..	..
	2018	916	..	737	..	..	..
	2019	916	..	751	..	..	..
Uruguay	2016	25,176	..	11,570	863	51,291	..
	2017	25,060	..	11,807	882	53,820	..
	2018	25,794	..	12,873	858	51,802	..
	2019	24,286	..	12,238	829	52,720	..
Venezuela (Bolivar. Rep.)	2016	11,027	..	16,319	8,307	..	207
	2017	11,358	..	13,762	8,595	..	177
	2018	10,184	..	11,061	9,375	..	177
	2019	6,862	..	7,190	9,467	..	102
Asia	2016	11,027,950	149,986	4,349,298	1,603,291	147,329	359,457
	2017	11,079,084	151,267	4,430,679	1,814,508	164,990	381,631
	2018	11,094,322	151,328	4,369,551	2,030,507	176,397	341,535
	2019	11,318,071	160,006	4,401,349	1,931,384	169,246	347,468
Afghanistan	2016	16,660	..	..	..	..	3,927
	2017	16,960	..	..	..	..	4,037
	2018	17,266	..	..	..	..	4,149
	2019	17,578	..	..	..	..	4,265
Armenia	2016	6,194	2,195	..	..	..	..
	2017	6,082	2,428	..	..	..	..
	2018	4,348	1,289	..	..	..	..
	2019	4,019	871	..	..	..	..
Azerbaijan	2016	1,268	..	..	..	..	6
	2017	1,379	..	..	..	..	6
	2018	1,347	..	187	..	..	3
	2019	1,279	..	408	..	..	3
Bahrain	2016	65	..	..	..	..	34
	2017	66	..	..	..	..	34
	2018	66	..	..	..	..	34
	2019	66	..	..	..	..	35
Bangladesh	2016	239,844	121,178	230,649	1,888	..	9,947
	2017	237,541	122,456	232,777	1,753	..	9,972
	2018	235,268	123,673	235,395	1,771	..	9,998
	2019	233,025	132,688	199,031	*1,949	..	10,023
Bhutan	2016	47,088	..	..	..	..	207
	2017	47,457	..	..	..	..	207
	2018	47,831	..	..	..	..	252
	2019	48,209	..	..	..	..	257
Brunei Darussalam	2016	106	..	..	..	..	9
	2017	106	..	..	..	..	10
	2018	106	..	..	..	..	10
	2019	106	..	..	..	..	10
Cambodia	2016	137,593	..	1,118	..	..	12,626
	2017	139,949	..	1,132	..	..	12,580
	2018	142,416	..	1,385	..	..	12,490
	2019	145,073	..	1,974	..	..	12,418
China	2016	1,545,363	..	1,613,903	251,547	..	49,090
	2017	1,517,369	..	1,753,712	259,293	..	48,689
	2018	1,489,067	..	1,788,786	294,675	..	48,289
	2019	1,461,314	..	1,788,786	261,810	..	47,892
China, Macao SAR	2016	..	..	..	..	..	..
	2017	..	..	..	..	..	..
	2018	..	..	..	..	..	..
	2019	..	..	..	..	..	..

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
..	..	..	..	..	1,649
..	..	..	..	..	1,650
..	..	..	..	..	1,652
..	..	..	..	..	1,667
294	..	1,646	1,722	..	92,562
268	..	1,466	1,700	..	95,003
366	..	1,688	1,535	..	94,917
360	..	1,729	1,601	..	93,764
..	..	..	..	..	35,653
..	..	..	..	..	33,714
..	..	..	..	..	30,620
..	..	..	..	..	23,519
542,152	165,091	147,754	479,120	75,225	18,687,196
599,306	160,706	158,091	523,364	81,769	19,163,763
616,886	167,692	163,470	633,498	103,405	19,507,057
598,753	168,693	156,929	734,659	111,631	19,750,722
..	..	..	..	..	16,660
..	..	..	..	..	16,960
..	..	..	..	..	17,266
..	..	..	..	..	17,578
..	..	..	..	..	8,390
..	..	..	..	..	8,510
..	..	..	..	..	5,637
..	..	..	..	..	4,890
..	2,773	..	..	..	4,041
..	2,782	..	..	..	4,162
..	2,966	..	..	..	4,500
..	3,075	..	..	..	4,762
..	..	..	..	..	65
..	..	..	..	..	66
..	..	..	..	..	66
..	..	..	..	..	66
..	..	..	..	..	593,559
..	..	..	..	..	594,527
..	..	..	..	..	596,107
..	..	..	..	..	566,693
..	..	..	..	..	47,088
..	..	..	..	..	47,457
..	..	..	..	..	47,831
..	..	..	..	..	48,209
..	..	..	..	..	106
..	..	..	..	..	106
..	..	..	..	..	106
..	..	..	..	..	106
..	..	..	..	..	138,711
..	..	..	..	..	141,081
..	..	..	..	..	143,801
..	..	..	..	..	147,047
213,315	..	100,307	275,474	..	3,999,909
229,441	..	*106,664	321,757	..	4,188,235
221,906	..	*106,664	*323,840	..	4,224,938
230,386	..	*85,760	*323,840	..	4,151,896
..	3,384	..	..	..	3,384
..	3,339	..	..	..	3,339
..	3,386	..	..	..	3,386
..	3,878	..	..	..	3,878

Table 12

Production of biofuels and wastes

Terajoules

Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
Cyprus	2016	642	..	146	..	..	59
	2017	781	..	175	..	..	73
	2018	786	..	163	..	..	48
	2019	798	..	246	..	..	40
Georgia	2016	16,007	102	123	..	..	..
	2017	15,115	103	59	..	..	..
	2018	11,233	125	42	..	..	..
	2019	10,101	137	32	..	..	..
India	2016	5,405,992	..	1,060,823	789,278	..	85,668
	2017	5,549,926	..	1,056,729	998,812	..	113,664
	2018	5,698,172	..	1,037,543	1,056,815	..	*82,187
	2019	5,851,142	..	1,047,001	957,070	..	*80,535
Indonesia	2016	1,076,605	..	389,530	56,012	..	22,096
	2017	1,032,622	..	388,084	*49,751	..	26,609
	2018	901,816	..	409,291	52,464	..	47,053
	2019	947,857	..	419,574	53,782	..	52,923
Iran (Islamic Rep. of)	2016	*73,994	*1,175	8,400	..	..	30
	2017	*73,994	*1,175	8,715	..	..	9
	2018	*73,994	*1,175	8,373	..	..	9
	2019	*73,994	*1,175	8,205	..	..	9
Iraq	2016	2,148	..	..	..	..	856
	2017	1,982	..	..	..	..	797
	2018	1,977	..	..	..	..	561
	2019	2,008	..	..	..	..	574
Israel	2016	183	..	..	..	..	..
	2017	183	..	..	..	..	..
	2018	183	..	..	..	..	..
	2019	183	..	..	..	..	..
Japan	2016	64,882	..	69,938	..	128,457	354
	2017	73,880	..	75,019	..	145,237	343
	2018	77,642	..	75,019	..	146,898	343
	2019	79,212	..	97,735	..	141,546	343
Jordan	2016	3,197	..	..	..	..	1,380
	2017	3,261	..	..	..	..	1,410
	2018	3,325	..	..	..	..	1,441
	2019	3,397	..	..	..	..	1,473
Kazakhstan	2016	2,202	..	..	..	..	14
	2017	2,202	..	..	..	..	14
	2018	2,171	..	..	..	..	47
	2019	2,436	..	..	..	..	41
Korea, Dem.Ppl's.Rep.	2016	46,297	..	..	..	..	4,838
	2017	46,520	..	..	..	..	4,891
	2018	46,740	..	..	..	..	4,930
	2019	46,952	..	..	..	..	4,970
Korea, Republic of	2016	67,887	..	0	..	9,581	..
	2017	77,939	..	0	..	7,172	..
	2018	88,260	..	..	..	8,378	..
	2019	76,104	..	..	..	7,857	..
Kuwait	2016	183	..	..	..	..	90
	2017	185	..	..	..	..	91
	2018	187	..	..	..	..	92
	2019	189	..	..	..	..	93
Kyrgyzstan	2016	43	..	..	..	..	..
	2017	60	..	..	..	..	..
	2018	96	..	..	..	..	..
	2019	85	..	..	..	..	..

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
197	9	..	0	492	1,486
122	37	..	54	504	1,673
158	52	..	..	554	1,712
164	101	..	..	579	1,889
..	..	..	..	0	16,232
..	..	..	..	..	15,277
..	..	..	..	..	11,399
..	..	..	10	..	10,279
..	..	..	..	..	7,256,093
..	..	..	..	..	7,605,467
..	..	..	..	..	7,792,529
..	..	..	..	..	7,855,214
..	..	..	118,396	456	1,640,999
..	..	..	110,624	496	1,581,577
..	..	..	199,745	513	1,563,829
..	..	..	271,993	526	1,693,731
..	..	..	..	282	*83,851
..	..	..	..	288	*84,172
..	..	..	..	288	*83,830
..	..	..	..	254	*83,628
..	..	..	..	..	2,148
..	..	..	..	..	1,982
..	..	..	..	..	1,977
..	..	..	..	..	2,008
..	..	..	..	795	978
..	..	..	..	960	1,143
..	..	..	..	878	1,061
..	..	..	..	806	989
217,268	31,224	54	442	6,000	518,264
233,211	28,918	4	442	4,616	561,327
249,544	30,849	4	442	9,058	589,456
229,430	32,023	4	442	9,253	589,644
..	..	..	..	100	3,297
..	..	..	..	100	3,361
..	..	..	..	*100	3,425
..	..	..	..	85	3,482
..	..	..	..	58	2,260
..	..	..	..	32	2,234
..	..	..	..	19	2,189
..	..	..	..	43	2,479
..	..	..	..	..	46,297
..	..	..	..	..	46,520
..	..	..	..	..	46,740
..	..	..	..	..	46,952
109,305	39,467	10,823	17,995	6,955	262,013
134,086	39,798	9,413	19,320	7,333	295,061
108,143	40,155	12,045	23,515	7,406	287,901
102,191	37,090	15,573	24,082	8,108	271,006
..	..	..	..	..	183
..	..	..	..	..	185
..	..	..	..	..	187
..	..	..	..	..	189
..	..	..	..	..	43
..	..	..	..	..	60
..	..	..	..	..	96
..	..	..	..	..	85

Table 12

Production of biofuels and wastes

Terajoules

Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
Lao People's Dem. Rep.	2016	*52,920	..	..	3,147	..	*6,048
	2017	53,063	..	..	*3,286	..	*6,048
	2018	52,710	..	..	*3,220	..	*6,136
	2019	52,363	..	..	4,031	..	*6,195
Lebanon	2016	4,971	..	..	..	..	89
	2017	*4,971	..	..	..	..	89
	2018	*4,971	..	..	..	..	89
	2019	4,971	..	..	..	..	89
Malaysia	2016	23,146	..	9,878	2,394	..	864
	2017	22,780	..	*8,196	*755	..	864
	2018	22,425	..	*12,581	*591	..	867
	2019	22,083	..	12,624	*518	..	458
Maldives	2016	149	..	..	..	..	25
	2017	149	..	..	..	..	26
	2018	150	..	..	..	..	26
	2019	151	..	..	..	..	26
Mongolia	2016	5,481	..	..	..	..	466
	2017	5,481	..	..	..	..	506
	2018	5,481	..	..	..	..	510
	2019	5,481	..	..	..	..	515
Myanmar	2016	429,209	..	25,790	..	..	856
	2017	431,655	..	25,943	..	..	856
	2018	432,788	..	26,005	..	..	856
	2019	426,076	..	25,811	..	..	856
Nepal	2016	355,065	18,504	17,505	11,729	..	295
	2017	361,118	18,579	17,804	11,821	..	325
	2018	365,996	18,829	18,045	*11,833	..	325
	2019	372,785	19,179	18,379	*11,832	..	328
Oman	2016	425	..	..	..	..	205
	2017	436	..	..	..	..	210
	2018	447	..	..	..	..	216
	2019	458	..	..	..	..	221
Other Asia	2016	6,888	..	..	..	..	..
	2017	6,281	..	..	..	..	..
	2018	6,324	..	..	..	..	..
	2019	6,102	..	..	..	..	..
Pakistan	2016	*316,531	*6,284	*260,975	141,268	..	2,466
	2017	*311,634	*5,969	*256,937	*141,268	..	2,516
	2018	*306,330	*5,671	*252,564	*149,508	..	2,567
	2019	*306,579	*5,387	*252,769	*149,508	..	2,617
Philippines	2016	*269,053	549	38,750	27,819	..	58,690
	2017	*272,290	557	38,808	32,046	..	60,800
	2018	*275,761	565	38,473	33,588	..	63,042
	2019	*279,500	569	38,065	32,768	..	65,372
Qatar	2016	47	..	..	..	..	23
	2017	47	..	..	..	..	23
	2018	47	..	..	..	..	23
	2019	47	..	..	..	..	23
Singapore	2016	271	..	..	..	..	143
	2017	267	..	..	..	..	141
	2018	262	..	..	..	..	139
	2019	258	..	..	..	..	137
Sri Lanka	2016	150,651	..	..	1,862	..	..
	2017	148,807	..	..	1,470	..	..
	2018	148,878	..	..	1,572	..	..
	2019	*156,358	..	..	1,651	..	..

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
..	..	..	..	..	*56,067
..	..	..	..	..	56,349
..	..	..	..	..	55,930
..	..	..	..	..	56,394
..	..	..	..	..	4,971
..	..	..	..	..	*4,971
..	..	..	..	..	*5,054
..	..	..	..	*415	5,386
..	..	..	18,437	..	53,855
..	..	..	16,928	..	48,659
..	..	..	25,502	..	61,100
..	..	..	44,374	..	79,598
..	..	..	..	..	149
..	..	..	..	..	149
..	..	..	..	..	150
..	..	..	..	..	151
..	..	..	..	..	5,481
..	..	..	..	..	5,481
..	..	..	..	..	5,481
..	..	..	..	..	5,481
..	..	..	..	1	455,000
..	..	..	..	1	457,599
..	..	..	..	1	458,794
..	..	..	..	1	451,888
..	..	..	..	11,729	414,532
..	..	..	..	11,821	421,143
..	..	..	..	12,019	426,722
..	..	..	..	12,133	434,307
..	..	..	..	..	425
..	..	..	..	..	436
..	..	..	..	..	447
..	..	..	..	..	458
..	55,956	438	..	295	63,577
..	54,380	187	..	272	61,120
..	56,731	7	..	268	63,330
..	57,322	3	..	219	63,645
..	..	..	..	..	*725,057
..	..	..	..	..	*715,808
..	..	..	..	..	*714,073
..	..	..	..	..	*714,243
..	447	8,314	7,050	..	*351,982
..	527	8,608	6,591	..	*359,427
..	543	11,130	6,645	..	*366,705
..	634	13,030	7,044	..	*371,611
..	..	..	..	..	47
..	..	..	..	..	47
..	..	..	..	..	47
..	..	..	..	..	47
..	27,436	..	..	..	27,707
..	26,741	..	..	..	27,008
..	24,811	..	..	..	25,073
..	25,133	..	..	..	25,392
..	..	..	..	..	152,512
..	..	..	..	..	150,277
..	..	..	..	..	150,450
..	..	..	..	..	*158,009

Table 12

Production of biofuels and wastes

Terajoules

Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
State of Palestine	2016	3,460	..	564	..	..	..
	2017	1,964	..	588	..	..	..
	2018	2,022	..	398	..	..	..
	2019	2,074	..	1,190	..	..	..
Syrian Arab Republic	2016	333	..	..	..	..	30
	2017	305	..	..	..	..	30
	2018	304	..	..	..	..	30
	2019	305	..	..	..	..	80
Tajikistan	2016	50,225	..	..	..	..	..
	2017	*50,225	..	..	..	..	..
	2018	*50,225	..	..	..	..	..
	2019	50,142	..	..	..	..	..
Thailand	2016	345,454	..	448,520	271,799	9,291	91,539
	2017	315,620	..	391,430	262,756	12,581	78,057
	2018	233,303	..	312,620	364,892	21,121	43,159
	2019	229,289	..	340,594	389,444	19,843	42,510
Timor-Leste	2016	850	..	..	..	..	..
	2017	813	..	..	..	..	..
	2018	776	..	..	..	..	..
	2019	742	..	..	..	..	..
Turkey	2016	68,831	..	40,551	..	..	..
	2017	56,773	..	45,407	..	..	..
	2018	40,654	..	30,720	..	..	..
	2019	43,794	..	30,898	..	..	..
Turkmenistan	2016	86	..	..	..	..	..
	2017	104	..	..	..	..	..
	2018	104	..	..	..	..	..
	2019	104	..	..	..	..	..
Uzbekistan	2016	*1,763	..	..	..	..	..
	2017	*924	..	..	..	..	..
	2018	*926	..	..	..	..	..
	2019	*929	..	..	..	..	..
Viet Nam	2016	182,700	..	132,135	44,548	..	4,543
	2017	182,700	..	129,162	51,497	..	5,723
	2018	*293,836	..	121,961	59,578	..	9,588
	2019	*346,927	..	118,026	67,021	..	10,060
Yemen	2016	4,999	..	..	..	..	1,947
	2017	5,120	..	..	..	..	1,985
	2018	5,306	..	..	..	..	2,033
	2019	5,429	..	..	..	..	2,080
Europe	2016	3,593,320	19,435	280,753	19,820	524,767	13,248
	2017	3,609,912	17,009	308,914	20,547	543,284	13,890
	2018	3,645,688	17,180	336,888	20,528	543,966	13,503
	2019	3,711,663	17,735	340,850	20,608	563,226	12,618
Albania	2016	7,787	..	..	..	..	..
	2017	6,959	..	..	..	..	..
	2018	6,710	..	..	..	..	..
	2019	6,627	..	..	..	..	..
Andorra	2016	..	..	..	..	..	..
	2017	..	..	..	..	..	..
	2018	..	..	..	..	..	..
	2019	..	..	..	..	..	..
Austria	2016	154,659	..	5,932	..	32,785	30
	2017	161,236	..	5,904	..	32,663	36
	2018	151,477	..	4,941	..	33,651	41
	2019	153,709	..	2,601	..	33,643	42

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
..	..	..	..	..	4,024
..	..	..	..	..	2,552
..	..	..	..	..	2,420
..	..	..	..	..	3,264
..	..	..	..	..	333
..	..	..	..	..	305
..	..	..	..	..	304
..	..	..	..	..	305
..	..	..	..	..	50,225
..	..	..	..	..	*50,225
..	..	..	..	..	*50,225
..	..	..	..	..	50,142
..	4,395	25,889	39,008	33,341	1,177,697
..	4,183	31,089	45,193	37,778	1,100,632
..	8,029	31,578	49,782	51,723	1,073,049
..	9,001	40,342	58,422	54,385	1,141,320
..	..	..	..	..	850
..	..	..	..	..	813
..	..	..	..	..	776
..	..	..	..	..	742
2,067	..	1,930	2,318	14,721	130,418
2,446	..	2,126	2,455	17,569	126,775
37,135	171	2,042	4,027	20,496	135,245
36,581	436	2,217	4,453	24,824	143,202
..	..	..	..	..	86
..	..	..	..	..	104
..	..	..	..	..	104
..	..	..	..	..	104
..	..	..	..	..	*1,763
..	..	..	..	..	*924
..	..	..	..	..	*926
..	..	..	..	..	*929
..	..	..	..	..	359,383
..	..	..	..	..	363,359
..	..	..	..	..	*475,375
..	..	..	..	..	*531,974
..	..	..	..	..	4,999
..	..	..	..	..	5,120
..	..	..	..	..	5,306
..	..	..	..	..	5,429
431,014	874,749	116,677	438,693	688,699	6,987,927
412,146	902,650	122,192	490,653	704,056	7,131,363
450,023	901,846	125,246	516,077	702,187	7,259,628
518,341	921,604	121,662	550,496	717,109	7,483,293
..	..	..	..	..	7,787
..	..	..	..	..	6,959
..	..	..	..	..	6,710
..	..	..	..	..	6,627
..	*255	..	..	..	*255
..	*306	..	..	..	*306
..	*366	..	..	..	*366
..	*377	..	..	..	*377
16,943	21,169	5,709	11,040	12,515	260,752
16,538	18,622	5,681	9,097	13,021	262,762
15,332	19,441	5,236	9,377	9,505	248,959
16,468	19,796	5,042	10,595	8,975	250,830

Table 12

Production of biofuels and wastes

Terajoules

Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
Belarus	2016	68,613	..	2,403	..	..	118
	2017	75,446	..	2,345	..	..	89
	2018	60,492	..	2,084	..	..	103
	2019	66,963	..	2,184	..	..	189
Belgium	2016	45,175	783	6,204	..	1,762	..
	2017	41,907	841	6,406	..	1,732	..
	2018	42,353	741	6,630	..	1,817	..
	2019	41,185	818	6,611	..	1,548	..
Bosnia and Herzegovina	2016	30,729	..	..	..	..	1,328
	2017	28,596	..	..	..	..	1,180
	2018	60,650	..	..	..	..	885
	2019	60,775	..	..	..	..	944
Bulgaria	2016	42,194	..	1,261	..	4,733	118
	2017	41,930	..	1,103	..	5,104	72
	2018	51,470	..	8,079	..	4,273	60
	2019	52,470	..	11,043	..	4,331	62
Croatia	2016	64,080	..	32	..	..	266
	2017	64,565	..	19	..	..	280
	2018	62,621	..	32	..	..	290
	2019	62,228	..	30	..	..	416
Czechia	2016	103,427	..	5,789	..	15,114	..
	2017	103,824	..	6,379	..	15,281	..
	2018	108,298	..	5,576	..	14,675	..
	2019	116,958	..	5,331	..	18,803	..
Denmark	2016	51,000	..	19,698	..	..	..
	2017	49,255	..	20,219	..	..	..
	2018	50,688	..	17,606	..	..	..
	2019	47,114	..	17,963	..	..	..
Estonia	2016	50,850	..	6,206	..	1,385	..
	2017	51,714	..	9,175	..	1,382	..
	2018	55,681	..	11,914	..	1,404	..
	2019	58,683	..	13,906	..	1,229	..
Finland	2016	200,688	239	1,684	..	146,307	..
	2017	202,437	212	1,698	..	154,761	..
	2018	201,498	308	1,773	..	167,032	..
	2019	202,704	249	1,986	..	169,744	..
France	2016	396,199	2,164	5,818	6,374	35,462	..
	2017	383,265	2,193	5,887	6,156	35,747	..
	2018	382,031	2,340	6,816	5,835	31,967	..
	2019	378,520	2,806	6,781	6,262	32,447	..
Germany	2016	454,508	6,068	7,587	..	25,910	974
	2017	454,708	3,660	9,098	..	31,453	974
	2018	476,488	3,653	13,404	..	26,710	974
	2019	491,439	3,277	13,321	..	27,299	974
Greece	2016	26,947	..	6,440	..	..	30
	2017	27,655	..	6,199	..	..	30
	2018	25,977	..	6,769	..	..	59
	2019	25,746	..	6,532	..	..	30
Hungary	2016	87,340	323	12,624	..	283	..
	2017	86,860	256	11,526	..	310	..
	2018	76,281	241	12,495	..	303	..
	2019	73,900	379	11,258	..	377	..
Iceland	2016	465	..	..	..	..	..
	2017	680	..	..	..	..	..
	2018	902	..	..	..	..	..
	2019	..	..	..	..	..	..

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
1,286	..	..	736	390	73,428
1,187	..	..	736	468	80,182
970	..	..	515	507	64,568
792	..	..	589	465	70,993
13,290	30,460	6,354	8,648	9,819	122,495
12,118	30,895	7,293	10,654	9,432	121,276
13,038	30,512	7,598	9,281	9,555	121,525
13,154	30,481	8,513	9,358	9,708	121,378
..	..	..	..	..	30,729
..	..	..	..	63	28,659
..	..	..	..	97	60,747
..	..	..	..	67	60,842
1,319	1,061	724	2,282	2,511	56,084
1,621	1,240	577	3,384	1,958	56,918
2,095	2,415	465	4,657	2,245	75,700
2,785	2,472	439	6,299	2,133	81,973
425	..	..	37	1,952	66,526
483	..	..	14	2,672	67,752
818	..	..	15	3,081	66,568
1,129	..	..	10	3,442	66,838
10,361	5,968	3,109	5,483	25,161	174,412
10,228	6,422	2,743	5,793	25,444	176,115
12,061	6,115	2,013	7,149	25,279	181,165
12,499	6,376	2,493	9,142	24,332	195,934
..	34,478	192	..	9,048	114,416
..	35,447	139	..	10,906	115,966
..	33,598	172	..	13,354	115,418
..	33,912	105	..	16,605	115,700
717	1,970	..	..	722	61,850
606	2,123	..	..	540	65,540
611	2,117	..	..	571	72,298
614	1,791	..	..	581	76,804
1,644	22,201	1,288	3,864	4,694	382,609
2,001	23,808	1,293	10,992	7,147	404,348
2,048	24,865	1,246	10,145	7,804	416,719
1,818	25,214	1,130	12,187	7,941	422,973
20,604	104,558	24,451	74,226	31,410	701,266
17,628	106,436	23,589	71,415	34,009	686,325
18,712	105,330	26,569	83,064	36,822	699,486
20,153	105,115	25,788	75,705	40,888	694,465
59,095	259,750	21,419	114,779	320,998	1,270,114
54,307	269,372	21,180	118,054	323,250	1,285,082
46,695	259,778	19,459	123,059	316,484	1,285,730
48,440	258,838	17,062	131,854	316,085	1,307,616
2,517	..	..	5,594	4,258	45,756
0	..	..	5,649	4,484	43,987
1,213	..	..	6,312	4,724	44,995
1,758	..	253	7,206	5,233	46,726
3,546	4,470	11,417	5,741	3,708	129,452
3,777	3,606	11,792	5,814	4,141	128,082
4,322	3,417	12,757	5,925	3,916	119,657
3,339	4,445	13,588	6,182	3,769	117,237
..	..	..	..	56	521
..	..	..	..	50	730
..	..	..	..	61	963
..	..	..	..	51	51

Table 12

Production of biofuels and wastes

Terajoules

Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
Ireland	2016	8,658	866	..	..	..	..
	2017	9,418	955	..	..	..	..
	2018	9,365	1,091	..	..	..	..
	2019	8,896	1,022	..	..	..	..
Isle of Man	2016	..	..	..	..	..	..
	2017	..	..	..	..	..	..
	2018	..	..	..	..	..	..
	2019	..	..	..	..	..	..
Italy	2016	293,118	..	9,672	..	..	295
	2017	317,411	..	10,247	..	..	295
	2018	284,621	..	11,211	..	..	295
	2019	291,986	..	12,043	..	..	295
Jersey	2016	..	..	..	..	..	..
	2017	..	..	..	..	..	..
	2018	..	..	..	..	..	..
	2019	..	..	..	..	..	..
Kosovo	2016	14,823	..	..	..	..	..
	2017	15,305	..	..	..	..	..
	2018	15,415	..	..	..	..	..
	2019	13,364	..	..	..	..	..
Latvia	2016	86,776	..	136	..	..	354
	2017	85,124	..	267	..	..	371
	2018	102,172	..	277	..	..	257
	2019	102,427	..	358	..	..	248
Liechtenstein	2016	202	..	..	..	..	..
	2017	189	..	..	..	..	..
	2018	225	..	..	..	..	..
	2019	207	..	..	..	..	..
Lithuania	2016	49,647	..	731	..	..	30
	2017	53,960	..	721	..	..	9
	2018	52,657	..	1,175	..	..	15
	2019	50,969	..	1,234	..	..	15
Luxembourg	2016	2,461	..	186	..	..	..
	2017	2,727	..	201	..	..	..
	2018	3,655	..	208	..	..	..
	2019	4,535	..	226	..	..	..
Malta	2016	..	..	..	..	..	..
	2017	..	..	..	..	..	..
	2018	..	..	..	..	..	..
	2019	..	..	..	..	..	..
Montenegro	2016	8,395	..	..	..	..	24
	2017	9,235	..	..	..	..	21
	2018	7,964	..	..	..	..	18
	2019	*8,506	..	..	..	..	22
Netherlands	2016	41,401	..	12,842	..	..	..
	2017	40,729	..	16,326	..	..	..
	2018	44,673	..	11,457	..	..	..
	2019	48,210	..	12,082	..	..	..
North Macedonia	2016	11,817	..	199	..	..	..
	2017	12,072	..	223	..	..	..
	2018	10,206	..	261	..	..	..
	2019	9,428	..	260	..	..	..
Norway	2016	35,715	..	..	..	..	..
	2017	36,657	..	..	..	425	..
	2018	36,378	..	..	..	369	..
	2019	38,132	..	..	..	408	..

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
..	5,467	..	994	2,328	18,313
..	8,677	..	1,053	2,322	22,425
..	11,953	..	1,120	2,108	25,637
..	11,812	..	1,222	2,092	25,043
..	*411	..	..	..	*411
..	*396	..	..	..	*396
..	*546	..	..	..	*546
..	*542	..	..	..	*542
13,082	72,906	7,579	21,197	78,505	496,059
11,765	71,443	8,063	25,477	79,453	523,859
11,989	70,893	9,011	27,659	79,221	494,605
12,951	73,103	9,118	32,085	84,288	515,574
..	*813	..	..	..	*813
..	*799	..	..	..	*799
..	*760	..	..	..	*760
..	*764	..	..	..	*764
..	..	..	..	..	14,823
..	..	..	..	..	15,305
..	..	..	..	..	15,415
..	..	..	..	..	13,364
113	256	134	1,656	3,762	92,833
73	362	233	1,965	3,902	91,926
119	558	210	3,252	3,643	110,231
108	652	23	3,044	3,376	109,987
..	*706	..	..	20	*929
..	*703	..	..	23	*914
..	*759	..	..	24	*1,008
..	*785	..	..	25	*1,016
486	2,495	375	3,790	1,341	58,866
183	2,476	359	4,349	1,350	63,398
644	1,692	458	5,675	1,554	63,855
706	1,498	456	6,146	1,632	62,640
546	1,400	..	..	833	5,426
578	1,557	..	..	867	5,930
624	1,552	..	..	915	6,954
620	1,567	..	..	753	7,701
..	..	..	37	80	117
..	..	..	10	77	87
..	..	..	..	69	69
..	..	..	..	69	69
..	..	..	..	..	8,395
..	..	..	..	..	9,235
..	..	..	..	..	7,964
..	..	..	..	..	*8,506
..	61,527	..	53,802	13,339	182,911
..	60,374	..	70,987	13,432	201,849
..	60,110	1,672	67,675	13,655	199,242
..	60,667	1,526	69,979	14,904	207,368
..	..	..	0	..	12,016
..	..	..	0	..	12,295
..	..	..	0	..	10,467
..	..	..	..	..	9,688
3,356	15,245	..	2,208	1,200	57,724
3,192	15,812	..	4,158	1,535	61,779
3,525	16,600	..	3,733	2,226	62,832
3,568	16,267	..	3,175	3,631	65,180

Table 12

Production of biofuels and wastes

Terajoules

Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
Poland	2016	206,522	..	50,806	..	11,249	..
	2017	198,761	..	47,616	..	11,574	..
	2018	198,685	377	45,408	..	10,788	..
	2019	201,031	363	48,295	..	10,245	..
Portugal	2016	61,818	..	3,196	428	43,610	266
	2017	58,938	..	5,888	313	44,530	259
	2018	57,515	..	9,653	406	43,272	259
	2019	67,503	..	7,024	489	43,452	266
Republic of Moldova	2016	21,539	12	7,246	..	..	30
	2017	26,284	6	4,936	..	..	30
	2018	28,063	11	4,559	..	..	12
	2019	23,591	7	3,362	..	..	15
Romania	2016	149,864	..	..	..	..	67
	2017	149,227	..	..	..	..	36
	2018	144,164	..	..	..	..	33
	2019	144,700	..	..	..	..	*33
Russian Federation	2016	121,911	..	..	..	..	2,065
	2017	107,613	..	..	..	..	2,163
	2018	119,089	..	..	..	..	2,328
	2019	126,553	..	..	..	..	1,963
Serbia	2016	46,259	..	..	..	..	443
	2017	45,477	..	..	..	..	585
	2018	47,041	..	..	..	..	413
	2019	49,250	..	..	..	..	354
Slovakia	2016	19,118	..	2,153	..	13,672	..
	2017	18,957	..	2,137	..	14,125	..
	2018	22,518	..	2,620	..	12,861	..
	2019	38,456	..	7,309	..	12,797	..
Slovenia	2016	26,988	..	236	..	..	..
	2017	26,075	..	245	..	..	..
	2018	23,314	..	218	..	..	..
	2019	22,643	..	240	..	..	..
Spain	2016	145,115	449	38,520	13,018	25,917	1,062
	2017	148,983	449	38,923	14,078	26,942	1,062
	2018	145,978	449	39,060	14,287	28,017	1,062
	2019	147,062	449	38,411	13,857	31,658	1,062
Sweden	2016	225,762	52	..	..	166,578	..
	2017	229,283	103	..	..	167,254	..
	2018	219,212	106	..	..	166,828	..
	2019	220,661	64	..	..	175,245	..
Switzerland	2016	42,350	..	..	..	..	..
	2017	42,750	..	..	..	..	..
	2018	39,990	..	..	..	..	..
	2019	42,330	..	..	..	..	..
Ukraine	2016	114,133	..	..	..	..	5,753
	2017	121,861	..	..	..	..	6,402
	2018	141,044	..	..	..	..	6,402
	2019	133,765	..	..	..	..	5,691
United Kingdom	2016	74,267	8,479	73,151	..	..	..
	2017	71,840	8,334	95,227	..	..	..
	2018	78,126	7,862	112,662	..	..	..
	2019	78,438	8,302	110,457	..	..	..
Oceania	2016	139,498	..	15,762	136,078	20,073	460
	2017	181,317	..	17,950	115,744	15,727	508
	2018	177,088	..	20,247	105,189	15,220	511
	2019	178,020	..	18,251	96,554	15,438	529

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
18,795	15,484	5,281	33,046	10,930	352,113
22,229	18,077	5,168	33,016	11,747	348,188
27,023	19,412	5,055	32,629	12,072	351,449
28,437	20,415	5,468	35,341	12,498	362,091
2,961	8,680	82	12,291	3,364	136,430
2,657	8,738	..	13,162	3,561	137,787
2,786	8,120	..	13,373	3,453	138,579
3,061	8,666	..	14,455	3,355	148,005
142	..	0	..	361	29,300
316	..	..	..	282	31,824
2,091	..	..	..	313	35,037
1,922	..	..	..	292	29,174
3,164	193	1,528	6,293	739	161,780
3,845	207	1,192	6,129	755	161,357
7,203	188	944	6,927	865	160,291
6,140	188	1,447	7,726	794	160,995
218,670	..	..	..	..	340,581
215,266	..	..	..	..	322,879
244,991	..	..	..	..	364,080
305,868	..	..	..	..	432,421
45	..	..	..	307	46,611
44	..	..	..	723	46,244
49	..	..	..	958	48,048
51	..	..	..	1,190	50,491
7,583	1,530	3,136	4,048	6,357	57,597
7,283	2,214	3,136	4,011	6,384	58,247
6,784	1,161	3,296	4,048	6,228	59,516
7,311	2,386	3,564	4,011	5,984	81,819
1,876	..	..	..	1,264	30,364
2,014	..	..	..	1,076	29,410
2,409	..	..	..	1,018	26,959
2,597	..	..	..	930	26,410
..	19,698	6,968	50,048	10,264	309,997
..	21,743	8,871	64,842	10,943	335,773
2,971	21,280	11,075	63,252	11,089	337,459
2,412	21,412	11,504	73,065	10,898	350,728
746	59,857	6,802	4,011	7,265	471,073
748	62,730	6,600	2,429	7,445	476,592
755	58,296	6,915	9,494	7,359	468,965
744	62,211	6,694	11,850	7,600	485,069
10,790	48,150	..	258	4,898	106,446
11,220	48,140	..	278	5,059	107,447
11,070	48,750	..	221	5,238	105,270
11,670	49,050	..	501	5,564	109,115
..	..	161	..	1,367	115,660
2,507	..	563	..	1,601	126,532
..	..	107	..	1,995	143,147
..	..	1,874	..	2,028	137,667
16,912	73,591	9,970	12,586	112,933	381,888
7,732	79,924	13,722	17,186	113,932	407,896
7,075	91,262	10,988	17,517	114,177	439,669
7,227	100,801	5,574	18,768	114,931	444,498
3,915	..	4,904	1,987	20,773	342,991
3,771	..	4,100	161	18,290	357,058
3,785	..	5,099	48	19,384	346,061
3,609	..	5,347	37	19,606	336,861

Table 12

Production of biofuels and wastes

Terajoules

Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
Australia	2016	34,649	..	933	131,669	20,073	..
	2017	76,467	..	3,018	110,298	*15,727	..
	2018	73,548	..	5,257	100,228	15,220	..
	2019	72,141	..	2,665	91,314	15,438	..
Fiji	2016	338	..	..	3,521	..	73
	2017	338	..	..	4,533	..	73
	2018	338	..	..	4,023	..	73
	2019	338	..	..	4,255	..	74
French Polynesia	2016	42	..	..	..	..	16
	2017	42	..	..	..	..	16
	2018	42	..	..	..	..	16
	2019	43	..	..	..	..	*16
Kiribati	2016	30	..	*502	..	..	12
	2017	30	..	*510	..	..	12
	2018	30	..	*512	..	..	12
	2019	31	..	*514	..	..	12
Marshall Islands	2016	..	..	*190	..	..	..
	2017	..	..	*194	..	..	..
	2018	..	..	*195	..	..	..
	2019	..	..	*197	..	..	..
Micronesia (Fed. States of)	2016	24	..	..	..	..	11
	2017	24	..	..	..	..	11
	2018	24	..	..	..	..	11
	2019	25	..	..	..	..	11
New Caledonia	2016	115	..	..	..	..	18
	2017	115	..	..	..	..	18
	2018	117	..	..	..	..	19
	2019	118	..	..	..	..	19
New Zealand	2016	45,316	..	..	..	..	..
	2017	45,198	..	..	..	..	..
	2018	43,881	..	..	..	..	..
	2019	43,419	..	..	..	..	..
Niue	2016	1	..	..	..	..	0
	2017	1	..	..	..	..	0
	2018	1	..	..	..	..	0
	2019	1	..	..	..	..	0
Papua New Guinea	2016	55,813	..	*11,673	888	..	248
	2017	55,936	..	*11,773	913	..	293
	2018	55,936	..	*11,832	938	..	293
	2019	*58,733	..	*12,423	*985	..	308
Samoa	2016	1,097	..	385	..	..	16
	2017	*1,089	..	*377	..	..	16
	2018	*1,089	..	*377	..	..	16
	2019	*1,087	..	*377	..	..	17
Solomon Islands	2016	1,223	..	*2,079	..	..	42
	2017	1,227	..	*2,078	..	..	43
	2018	1,231	..	*2,074	..	..	44
	2019	1,235	..	*2,075	..	..	*45
Tonga	2016	19	..	..	..	..	7
	2017	19	..	..	..	..	7
	2018	19	..	..	..	..	7
	2019	19	..	..	..	..	7
Vanuatu	2016	831	..	..	..	..	18
	2017	831	..	..	..	..	19
	2018	831	..	..	..	..	19
	2019	831	..	..	..	..	20

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
3,915	..	4,770	1,987	17,471	215,468
3,771	..	4,020	147	14,970	228,418
3,785	..	4,985	37	16,103	219,163
3,609	..	5,333	37	16,325	206,862
..	3,859
..	4,871
..	4,361
..	4,593
..	42
..	42
..	42
..	43
..	*532
..	*540
..	*542
..	*545
..	*190
..	*194
..	*195
..	*197
..	24
..	24
..	24
..	25
..	..	*7	..	..	122
..	..	*5	..	..	120
..	..	*5	..	..	123
..	..	*5	..	..	124
..	..	107	..	3,302	48,725
..	..	75	14	3,320	48,606
..	..	104	11	3,281	47,277
..	3,281	46,700
..	1
..	1
..	1
..	1
..	68,374
..	68,622
..	68,706
..	*72,141
..	0	1,482
..	0	*1,466
..	0	*1,466
..	0	*1,464
..	*3,302
..	*3,305
..	*3,305
..	*3,310
..	19
..	19
..	19
..	19
..	..	19	..	..	850
..	..	0	..	..	831
..	..	5	..	..	837
..	..	8	..	..	840