

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).

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, 1990-2018

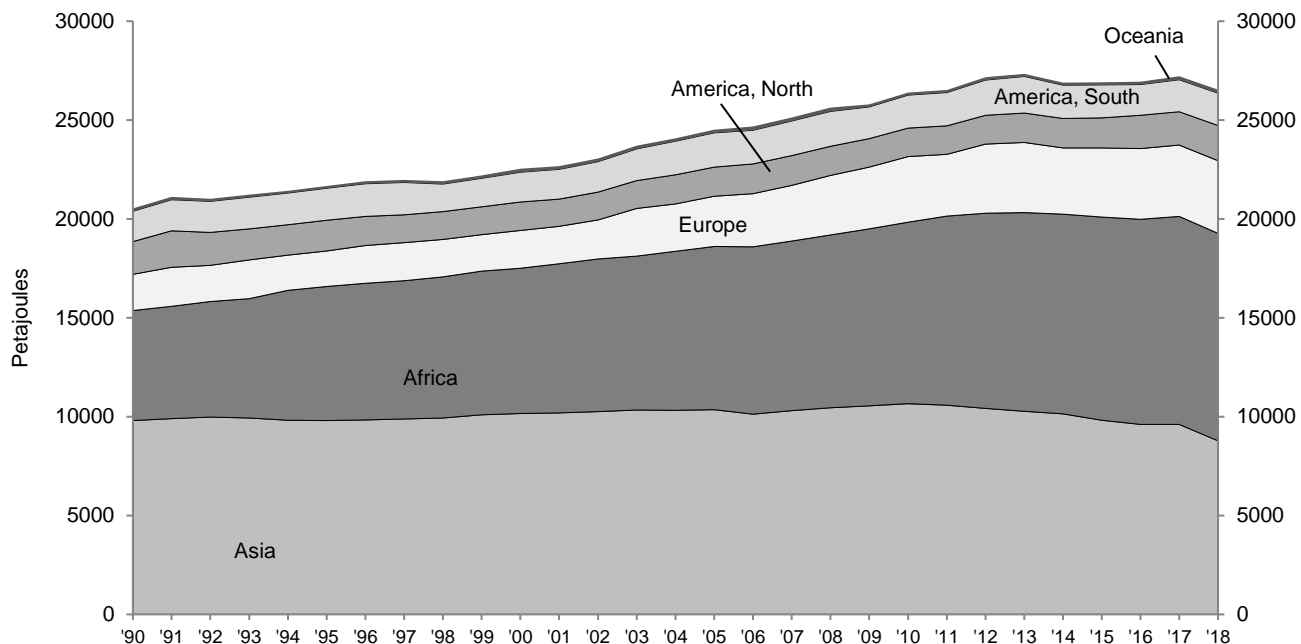


Figure 30: Production of charcoal by region, 1990-2018

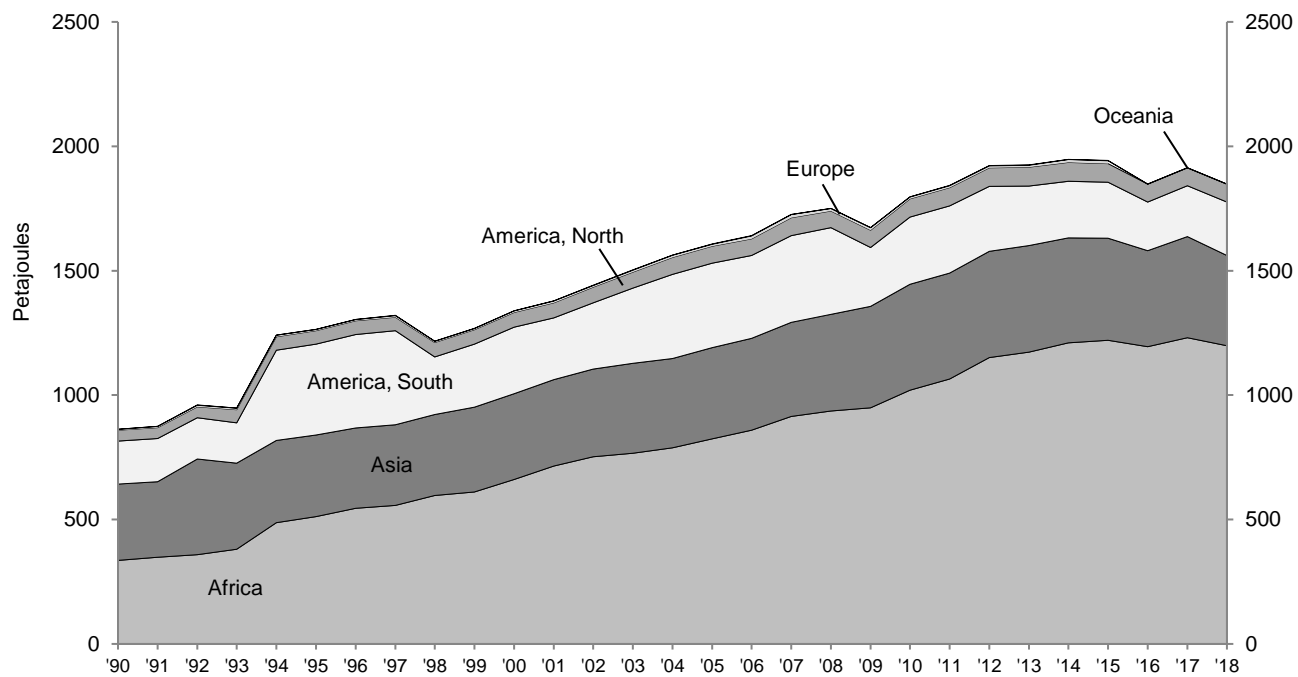


Figure 31: Production of total solid biofuels by region, 2018

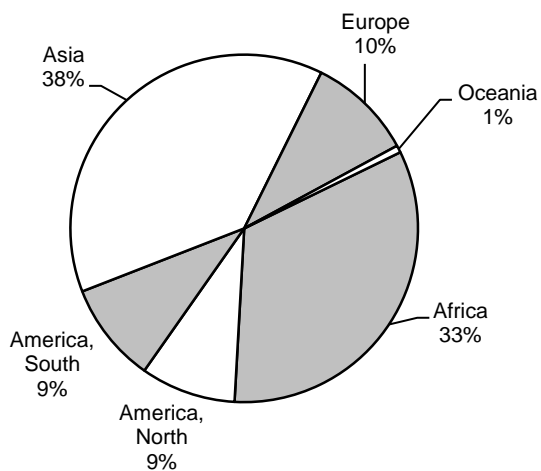


Figure 32: Production of biogases by region, 2018

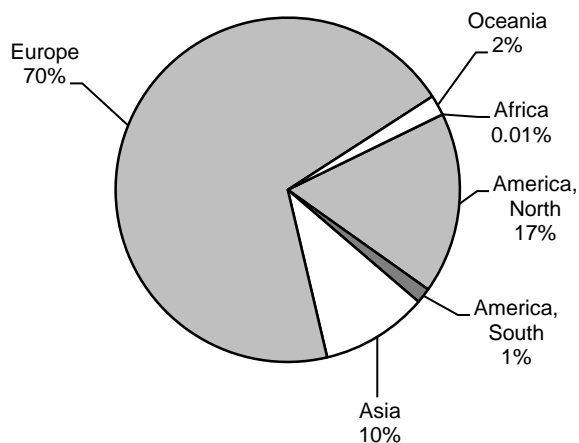


Figure 33: Production of bagasse by region, 2018

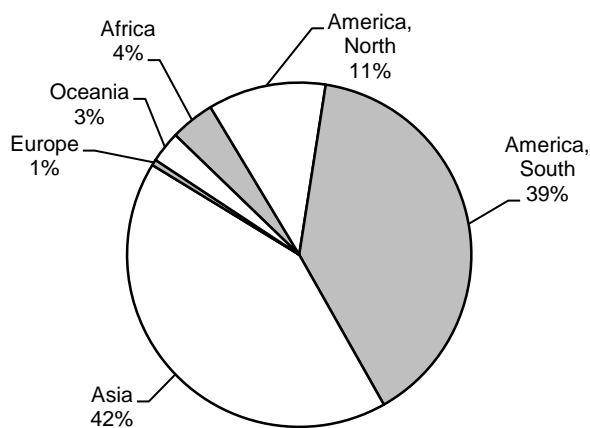


Figure 34: Production of liquids biofuels by region, 2018

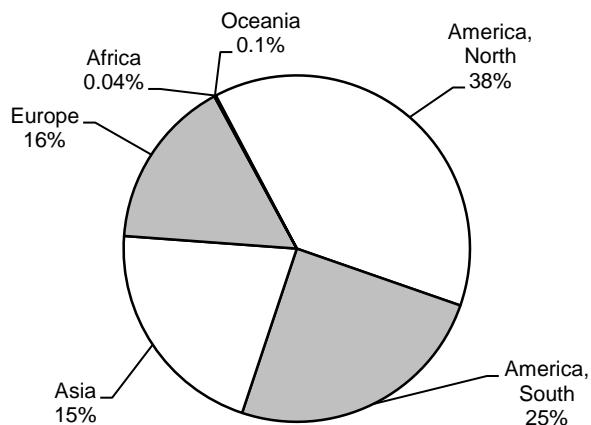


Figure 35: Production of energy from wastes by region, 2018

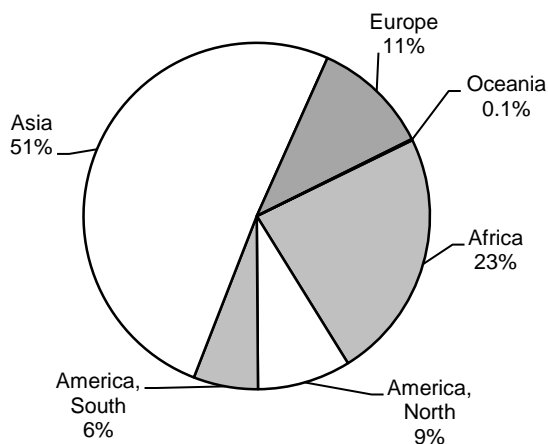


Table 12

Production of biofuels and wastes

Terajoules

Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
World	2015	26,909,521	686,897	11,246,139	3,581,014	1,811,988	1,942,794
	2016	26,934,418	638,013	11,748,646	3,615,699	1,689,690	1,861,914
	2017	27,213,443	631,526	11,934,311	3,590,488	1,705,817	1,928,079
	2018	26,540,058	682,878	12,093,629	3,576,323	1,817,819	1,861,374
Africa	2015	10,273,286	158,556	3,162,403	186,072	..	1,220,680
	2016	10,368,593	162,097	3,244,866	184,534	..	1,195,166
	2017	10,516,247	164,765	3,324,192	141,925	..	1,230,753
	2018	10,496,127	168,302	3,407,293	148,818	..	1,198,689
Algeria	2015	292	..	..	..	..	..
	2016	283	..	..	..	..	..
	2017	484	..	..	..	..	..
	2018	1,032	..	..	..	..	..
Angola	2015	154,892	..	100,681	*1,692	..	32,362
	2016	157,116	..	102,127	*3,058	..	32,834
	2017	159,460	..	103,650	*3,619	..	33,276
	2018	161,604	..	105,044	*3,639	..	33,778
Benin	2015	110,625	..	2,973	252	..	14,131
	2016	101,255	..	3,061	252	..	14,426
	2017	110,360	..	3,818	*252	..	14,927
	2018	108,829	..	4,411	*255	..	15,252
Botswana	2015	6,387	..	..	..	..	2,216
	2016	6,387	..	..	..	..	2,216
	2017	6,388	..	..	..	..	2,216
	2018	6,389	..	..	..	..	2,216
Burkina Faso	2015	125,268	..	..	633	..	19,850
	2016	126,702	..	..	633	..	20,345
	2017	128,164	..	..	*633	..	20,852
	2018	129,651	..	..	*633	..	21,372
Burundi	2015	54,801	..	..	579	..	7,788
	2016	54,801	..	..	596	..	7,788
	2017	54,801	..	..	552	..	7,788
	2018	54,801	..	..	492	..	7,788
Cabo Verde	2015	*1,466	..	..	..	..	*19
	2016	*1,448	..	..	..	..	*19
	2017	*1,413	..	..	..	..	*19
	2018	*1,399	..	..	..	..	*19
Cameroon	2015	255,228	..	4,999	..	..	6,785
	2016	261,985	..	5,131	..	..	6,962
	2017	*268,862	..	5,266	..	..	7,139
	2018	275,912	..	5,410	..	..	7,346
Central African Rep.	2015	18,270	..	..	..	..	6,209
	2016	18,270	..	..	..	..	6,308
	2017	18,270	..	..	..	..	6,408
	2018	18,270	..	..	..	..	6,408
Chad	2015	69,992	..	..	885	..	13,479
	2016	70,942	..	..	881	..	13,806
	2017	71,920	..	..	*914	..	14,131
	2018	72,916	..	..	*736	..	14,485
Comoros	2015	*3,562	..	*16	..	..	*4
	2016	*3,637	..	*17	..	..	*4
	2017	3,715	..	17	..	..	5
	2018	3,799	..	18	..	..	*5
Congo	2015	47,114	..	15,641	..	..	6,461
	2016	49,083	..	15,641	..	..	6,638
	2017	51,168	..	15,641	..	..	6,815
	2018	52,518	..	16,048	..	..	6,992

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
897,492	1,332,316	2,139,111	1,249,218	952,682	50,806,378
1,034,784	1,366,593	2,162,499	1,401,748	971,967	51,564,059
1,090,275	1,377,275	2,208,843	1,528,047	995,638	52,275,664
1,133,846	1,389,745	2,360,464	1,762,222	1,019,022	52,376,005
3,129	..	1,608	..	80	13,785,134
3,108	..	1,528	..	110	13,964,836
3,106	..	1,179	..	104	14,151,518
3,106	..	1,822	..	130	14,225,598
..	292
..	283
..	484
..	1,032
..	257,265
..	262,301
..	266,729
..	270,287
..	113,850
..	104,568
..	114,430
..	113,495
..	6,387
..	6,387
..	6,388
..	6,389
..	125,901
..	*36	127,372
..	*36	128,833
..	*36	130,320
..	55,380
..	55,396
..	55,353
..	55,293
..	*1,466
..	*1,448
..	*1,413
..	*1,399
..	7	260,234
..	7	267,123
..	7	*274,135
..	7	281,329
..	18,270
..	18,270
..	18,270
..	18,270
..	70,877
..	71,824
..	72,834
..	73,651
..	*3,578
..	*3,654
..	3,732
..	3,816
..	62,755
..	64,724
..	66,809
..	68,566

Table 12

Production of biofuels and wastes

Terajoules

Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
Côte d'Ivoire	2015	391,481	..	1,928	..	..	45,666
	2016	268,123	..	1,986	..	..	44,180
	2017	264,415	..	1,986	..	..	44,191
	2018	259,853	..	2,131	..	..	43,749
Dem. Rep. of the Congo	2015	1,135,176	..	6,028	..	..	116,112
	2016	1,174,908	..	6,229	..	..	120,183
	2017	1,176,516	..	3,014	..	..	120,360
	2018	1,072,193	..	4,658	..	..	121,865
Djibouti	2015	3,516	..	..	..	..	1,534
	2016	3,560	..	..	..	..	1,554
	2017	3,605	..	..	..	..	1,574
	2018	3,650	..	..	..	..	1,595
Egypt	2015	162,058	..	37,389	23,286	..	41,979
	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
Equatorial Guinea	2015	4,083	..	..	..	..	295
	2016	4,083	..	..	..	..	310
	2017	4,083	..	..	..	..	310
	2018	4,083	..	..	..	..	324
Eritrea	2015	21,694	2,551	1,444	..	..	5,045
	2016	21,913	2,577	1,459	..	..	5,133
	2017	22,151	2,606	1,475	..	..	5,399
	2018	22,407	2,636	1,492	..	..	5,605
Eswatini	2015	12,140	..	..	17,583	..	1,434
	2016	16,114	..	..	14,757	..	1,464
	2017	12,062	..	..	12,365	..	266
	2018	12,174	..	..	12,974	..	*295
Ethiopia	2015	988,160	149,058	146,106	8,811	..	124,475
	2016	999,269	152,834	149,807	8,934	..	127,340
	2017	1,010,532	156,058	156,058	*8,958	..	130,275
	2018	1,021,978	160,026	156,857	*8,958	..	133,272
Gabon	2015	*49,968	..	2,257	592	..	655
	2016	*50,000	..	2,132	705	..	667
	2017	*50,778	..	2,194	*618	..	676
	2018	*51,975	..	2,142	*633	..	687
Gambia	2015	6,773	..	..	..	..	1,936
	2016	6,846	..	..	..	..	1,972
	2017	6,921	..	..	..	..	2,008
	2018	6,997	..	..	..	..	2,045
Ghana	2015	99,322	..	..	..	..	43,843
	2016	98,907	..	..	..	..	43,695
	2017	107,237	..	..	..	..	46,197
	2018	107,702	..	..	..	..	46,648
Guinea	2015	111,730	..	..	604	..	11,455
	2016	112,050	..	..	629	..	11,679
	2017	112,388	..	..	629	..	11,907
	2018	112,730	..	..	*638	..	12,140
Guinea-Bissau	2015	25,499	..	..	..	..	2,124
	2016	25,808	..	..	..	..	2,172
	2017	26,119	..	..	..	..	2,221
	2018	26,434	..	..	..	..	2,271
Kenya	2015	545,871	..	24,139	15,393	..	191,316
	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

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
..	393,409
..	270,109
..	266,401
..	261,984
..	1,141,204
..	1,181,137
..	1,179,530
..	1,076,851
..	3,516
..	3,560
..	3,605
..	3,650
..	222,733
..	224,835
..	225,109
..	227,880
..	4,083
..	4,083
..	4,083
..	4,083
..	25,689
..	25,949
..	26,231
..	26,535
..	29,724
..	30,871
..	24,427
..	25,148
..	..	134	..	..	1,292,269
..	..	134	..	..	1,310,978
..	..	134	..	..	1,331,739
..	..	161	..	..	1,347,979
..	*52,818
..	*52,837
..	*53,590
..	*54,751
..	6,773
..	6,846
..	6,921
..	6,997
..	99,322
..	98,907
..	107,237
..	107,702
..	112,334
..	112,679
..	113,017
..	113,367
..	25,499
..	25,808
..	26,119
..	26,434
..	585,403
..	559,903
..	556,330
..	6	*553,469

Table 12

Production of biofuels and wastes

Terajoules

Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
Lesotho	2015	*12,163	*5,022	*1,371	..	..	1,027
	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
Liberia	2015	76,056	..	..	..	..	8,309
	2016	78,534	..	..	..	..	8,595
	2017	81,091	..	..	..	..	8,891
	2018	83,734	..	..	..	..	9,197
Libya	2015	24,095	..	..	..	..	3,275
	2016	24,330	..	..	..	..	3,304
	2017	24,602	..	..	..	..	3,334
	2018	24,884	..	..	..	..	3,363
Madagascar	2015	203,203	..	..	2,189	..	*25,665
	2016	256,698	..	..	2,726	..	23,655
	2017	266,494	..	..	2,851	..	24,702
	2018	*271,382	..	..	*2,896	..	*25,075
Malawi	2015	52,350	..	..	7,300	..	16,309
	2016	52,882	..	..	6,772	..	16,674
	2017	53,435	..	..	6,772	..	17,047
	2018	54,010	..	..	*6,772	..	17,429
Mali	2015	*148,334	..	..	*1,457	..	*14,750
	2016	*150,965	..	..	1,457	..	15,045
	2017	*153,587	..	..	*1,457	..	15,340
	2018	*155,249	..	..	*1,457	..	15,488
Mauritania	2015	18,736	..	..	..	..	6,245
	2016	19,092	..	..	..	..	6,390
	2017	19,448	..	..	..	..	6,534
	2018	19,805	..	..	..	..	6,667
Mauritius	2015	155	..	..	11,104	..	18
	2016	154	..	..	9,946	..	15
	2017	153	..	..	9,382	..	15
	2018	148	..	..	8,690	..	15
Morocco	2015	39,335	..	..	718	..	561
	2016	63,752	..	..	*718	..	561
	2017	63,022	..	..	*718	..	590
	2018	61,744	..	..	*718	..	590
Mozambique	2015	275,940	..	19,324	9,313	..	27,730
	2016	263,550	..	20,088	8,811	..	41,979
	2017	262,416	..	20,673	*8,046	..	45,017
	2018	270,174	..	21,006	*7,344	..	46,345
Namibia	2015	13,419	..	1,449	..	..	4,750
	2016	13,419	..	1,449	..	..	4,750
	2017	13,711	..	1,481	..	..	4,868
	2018	15,718	..	1,622	..	..	5,399
Niger	2015	63,457	*542	*435	..	..	1,486
	2016	65,581	*562	*452	..	..	1,535
	2017	*54,496	*584	*470	..	..	1,593
	2018	*65,932	*607	*488	..	..	1,652
Nigeria	2015	2,341,574	..	2,325,740	378	..	117,145
	2016	2,388,629	..	2,387,458	503	..	119,387
	2017	2,445,144	..	2,450,305	*507	..	122,160
	2018	2,407,570	..	2,515,866	*510	..	125,228
Rwanda	2015	*83,476	..	..	126	..	*18,113
	2016	*83,476	..	..	126	..	*18,113
	2017	*84,179	..	..	*130	..	*18,349
	2018	*84,526	..	..	*131	..	*18,467

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
..	*18,556
..	*17,254
..	16,012
..	*14,934
..	76,056
..	78,534
..	81,091
..	83,734
..	24,095
..	24,330
..	24,602
..	24,884
..	205,392
..	259,423
..	269,345
..	*274,278
*98	59,748
*99	59,753
*98	60,305
*98	60,880
..	*149,791
..	*152,422
..	*155,044
..	*156,706
..	18,736
..	19,092
..	19,448
..	19,805
..	73	11,333
..	67	10,167
..	61	9,596
..	81	8,919
3,031	43,084
3,009	67,480
3,008	66,748
3,008	65,471
..	304,577
..	292,449
..	291,136
..	298,524
..	14,868
..	14,868
..	15,192
..	17,340
..	64,434
..	66,595
..	*55,550
..	*67,027
..	4,667,692
..	4,776,590
..	4,895,957
..	4,923,946
..	*83,602
..	*83,602
..	*84,309
..	*84,657

Table 12

Production of biofuels and wastes

Terajoules

Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
Sao Tome and Principe	2015	1,023	..	..	..	..	280
	2016	1,029	..	..	..	..	283
	2017	1,033	..	..	..	..	286
	2018	1,039	..	..	..	..	289
Senegal	2015	65,076	..	1,071	2,052	..	10,148
	2016	60,730	..	1,136	2,768	..	8,526
	2017	64,534	..	252	2,706	..	5,576
	2018	63,838	..	252	3,536	..	5,399
Seychelles	2015	29	..	..	..	..	..
	2016	29	..	..	..	..	..
	2017	29	..	..	..	..	..
	2018	29	..	..	..	..	..
Sierra Leone	2015	52,965	..	*72	201	..	12,744
	2016	53,330	..	*72	201	..	13,039
	2017	53,723	..	*72	201	..	13,334
	2018	54,143	..	*72	*201	..	13,629
Somalia	2015	128,241	..	..	579	..	34,854
	2016	135,387	..	..	579	..	36,127
	2017	138,909	..	..	*527	..	37,447
	2018	142,539	..	..	*530	..	38,816
South Africa	2015	218,908	..	112,603	41,000	..	39,412
	2016	221,774	..	113,240	39,817	..	41,831
	2017	221,746	..	114,735	3,325	..	41,300
	2018	218,093	..	115,570	3,641	..	24,485
South Sudan	2015	8,022	..	..	..	..	325
	2016	8,103	..	..	..	..	325
	2017	6,890	..	..	..	..	266
	2018	6,937	..	..	..	..	266
St. Helena and Depend.	2015	6	..	..	..	..	..
	2016	6	..	..	..	..	..
	2017	6	..	..	..	..	..
	2018	5	..	..	..	..	..
Sudan	2015	138,952	..	47,113	*16,425	..	17,346
	2016	139,884	..	47,215	*16,711	..	17,346
	2017	140,834	..	47,319	*16,711	..	17,346
	2018	141,830	..	48,466	*16,989	..	17,346
Togo	2015	110,919	..	1,056	..	..	20,119
	2016	113,533	..	1,358	..	..	20,591
	2017	105,704	..	1,245	..	..	21,093
	2018	111,890	..	1,641	..	..	22,332
Tunisia	2015	34,558	1,383	3,800	..	..	6,284
	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
Uganda	2015	716,992	..	..	*16,603	..	55,433
	2016	742,912	..	..	*18,170	..	*56,164
	2017	773,962	..	..	*15,321	..	*60,008
	2018	806,413	..	..	*23,398	..	60,960
United Rep. of Tanzania	2015	538,053	..	138,743	1,152	..	45,076
	2016	545,532	..	142,969	1,242	..	46,345
	2017	553,309	..	147,316	1,297	..	47,643
	2018	570,051	..	151,773	1,297	..	49,088
Zambia	2015	308,903	..	47,940	*3,321	..	35,843
	2016	318,791	..	49,404	*3,398	..	36,934
	2017	328,608	..	50,883	*3,475	..	38,040
	2018	338,895	..	52,387	*3,475	..	39,164

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
..	1,023
..	1,029
..	1,033
..	1,039
..	68,199
..	64,634
..	67,492
..	67,626
..	29
..	29
..	29
..	29
..	53,238
..	53,603
..	53,996
..	54,416
..	128,820
..	135,966
..	139,436
..	143,069
..	372,511
..	374,831
..	339,806
..	337,304
..	8,022
..	8,103
..	6,890
..	6,937
..	6
..	6
..	6
..	5
..	202,490
..	203,810
..	204,864
..	207,284
..	111,975
..	114,891
..	106,949
..	113,531
..	39,741
..	45,248
..	45,320
..	45,636
..	733,595
..	761,082
..	789,282
..	829,811
..	677,948
..	689,743
..	701,921
..	723,120
..	360,164
..	371,593
..	382,966
..	394,757

Table 12

Production of biofuels and wastes

Terajoules

Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
Zimbabwe	2015	192,976	..	118,085	1,843	..	266
	2016	199,977	..	122,369	2,117	..	266
	2017	204,860	..	125,357	2,180	..	266
	2018	207,767	..	127,136	2,687	..	266
America, North	2015	1,527,348	373,303	686,818	309,205	952,141	74,351
	2016	1,671,417	317,313	591,162	346,456	827,488	71,594
	2017	1,687,880	308,947	537,731	390,372	808,160	71,530
	2018	1,783,881	354,331	615,405	396,350	903,830	71,849
Anguilla	2015	*2	..	..	..	..	..
	2016	*2	..	..	..	..	..
	2017	*2	..	..	..	..	..
	2018	*2	..	..	..	..	..
Aruba	2015	19	..	..	..	..	6
	2016	20	..	..	..	..	6
	2017	20	..	..	..	..	7
	2018	21	..	..	..	..	7
Bahamas	2015	308	..	..	..	..	33
	2016	308	..	..	..	..	33
	2017	309	..	..	..	..	34
	2018	309	..	..	..	..	34
Barbados	2015	44	..	..	455	..	9
	2016	44	..	..	462	..	9
	2017	44	..	..	478	..	9
	2018	43	..	..	539	..	9
Belize	2015	1,151	..	..	3,433	..	23
	2016	1,151	..	..	3,429	..	23
	2017	1,151	..	..	4,270	..	23
	2018	1,151	..	..	4,295	..	24
Bermuda	2015	..	..	..	..	..	..
	2016	..	..	..	..	..	..
	2017	..	..	..	..	..	..
	2018	..	..	..	..	..	..
British Virgin Islands	2015	14	..	..	..	..	2
	2016	14	..	..	..	..	2
	2017	14	..	..	..	..	2
	2018	15	..	..	..	..	2
Canada	2015	328,264	..	..	..	187,758	..
	2016	299,283	..	..	..	177,749	..
	2017	312,305	..	..	..	175,549	..
	2018	315,589	..	..	..	178,289	..
Costa Rica	2015	11,053	..	4,279	11,269	..	57
	2016	10,349	..	4,298	11,269	..	45
	2017	10,284	..	3,939	10,669	..	30
	2018	8,646	..	3,780	11,388	..	18
Cuba	2015	9,858	..	*88	38,163	..	2,227
	2016	10,111	..	*88	29,295	..	2,726
	2017	9,638	..	*88	40,413	..	2,272
	2018	8,805	..	*88	48,463	..	1,894
Dominica	2015	69	..	..	..	..	7
	2016	68	..	..	..	..	7
	2017	68	..	..	..	..	7
	2018	68	..	..	..	..	7
Dominican Republic	2015	10,140	..	454	8,138	..	1,596
	2016	10,313	..	468	9,229	..	1,658
	2017	10,446	..	490	11,410	..	1,720
	2018	10,667	..	516	11,514	..	1,796

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
..	..	1,474	..	..	314,378
..	..	1,394	..	..	325,857
..	..	1,045	..	..	333,442
..	..	1,662	..	..	339,251
56,942	306,219	1,217,843	164,790	197,721	5,792,330
51,550	320,869	1,265,945	206,117	174,645	5,772,961
48,394	310,065	1,308,003	208,582	176,153	5,784,287
50,790	312,927	1,328,279	240,746	173,626	6,160,165
..	..	..	..	..	*2
..	..	..	..	..	*2
..	..	..	..	..	*2
..	..	..	..	..	*2
..	..	..	..	..	19
..	..	..	..	..	20
..	..	..	..	..	20
..	..	..	..	..	21
..	..	..	..	..	308
..	..	..	..	..	308
..	..	..	..	..	309
..	..	..	..	..	309
..	..	..	..	..	499
..	..	..	..	..	506
..	..	..	..	..	522
..	..	..	..	..	582
..	..	..	..	..	4,584
..	..	..	..	..	4,580
..	..	..	..	..	5,421
..	..	..	..	..	5,446
..	*605	..	..	..	*605
..	*605	..	..	..	*605
..	*590	..	..	..	*590
..	*600	..	..	..	*600
..	..	..	..	..	14
..	..	..	..	..	14
..	..	..	..	..	14
..	..	..	..	..	15
5,783	7,658	36,368	9,973	16,977	592,780
5,960	7,658	35,939	13,984	16,977	557,550
6,137	7,658	36,582	13,027	16,977	568,235
6,314	7,658	37,011	13,027	16,977	574,865
..	..	705	..	4	27,310
..	..	630	..	4	26,550
..	..	625	..	9	25,526
..	..	604	..	9	24,426
..	..	*348	..	..	48,457
..	..	*348	..	..	39,841
..	..	*348	..	..	50,487
..	..	*348	..	..	57,704
..	..	..	..	..	69
..	..	..	..	..	68
..	..	..	..	..	68
..	..	..	..	..	68
..	..	..	..	*137	18,869
..	..	..	..	*157	20,167
..	..	..	..	*157	22,503
..	..	..	..	*157	22,853

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	2015	14,411	..	..	9,876	..	1,013
	2016	11,568	..	..	11,424	..	775
	2017	11,334	..	..	14,073	..	837
	2018	10,007	..	..	14,053	..	739
Greenland	2015	..	..	..	..	..	..
	2016	..	..	..	..	..	..
	2017	..	..	..	..	..	..
	2018	..	..	..	..	..	..
Grenada	2015	359	..	..	20	..	61
	2016	363	..	..	20	..	63
	2017	377	..	..	21	..	65
	2018	391	..	..	22	..	69
Guatemala	2015	210,264	..	..	55,979	..	1,682
	2016	223,935	..	..	85,152	..	1,711
	2017	237,545	..	..	53,779	..	1,800
	2018	242,245	..	..	51,340	..	1,896
Haiti	2015	137,436	..	..	958	..	37,052
	2016	139,415	..	..	972	..	37,583
	2017	141,050	..	..	983	..	38,026
	2018	143,143	..	..	998	..	38,586
Honduras	2015	90,483	..	..	10,228	..	30
	2016	86,381	..	..	13,115	..	9
	2017	59,076	..	..	17,116	..	3
	2018	80,973	..	..	11,860	..	*6
Jamaica	2015	5,006	..	..	3,660	..	1,133
	2016	5,006	..	..	2,868	..	1,133
	2017	5,006	..	..	1,965	..	1,133
	2018	*5,006	..	..	1,544	..	1,121
Mexico	2015	253,164	..	37,151	68,415	1	..
	2016	251,887	..	38,276	70,264	3	..
	2017	250,601	..	0	126,554	6	..
	2018	249,078	..	0	131,794	6	..
Nicaragua	2015	42,000	..	4,899	16,735	..	207
	2016	45,266	..	4,067	14,221	..	443
	2017	42,526	..	3,592	14,226	..	207
	2018	45,582	..	3,598	14,277	..	295
Panama	2015	7,146	..	..	4,764	..	36
	2016	7,102	..	..	6,319	..	35
	2017	7,059	..	..	5,997	..	34
	2018	7,015	..	..	5,846	..	33
St. Lucia	2015	*697	..	..	..	..	136
	2016	*670	..	..	..	..	125
	2017	*643	..	..	..	..	115
	2018	*617	..	..	..	..	106
St. Pierre-Miquelon	2015	5	..	..	..	..	..
	2016	5	..	..	..	..	..
	2017	5	..	..	..	..	..
	2018	5	..	..	..	..	..
St. Vincent-Grenadines	2015	66	..	..	..	..	11
	2016	66	..	..	..	..	11
	2017	65	..	..	..	..	11
	2018	65	..	..	..	..	11
Trinidad and Tobago	2015	286	..	..	..	..	59
	2016	284	..	..	..	..	59
	2017	281	..	..	..	..	59
	2018	279	..	..	..	..	59

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
..	589	24,876
..	531	23,523
..	510	25,917
..	495	24,555
..	98	..	..	..	98
..	94	..	..	..	94
..	94	..	..	..	94
..	*94	..	..	..	*94
..	379
..	383
..	397
..	412
..	212	266,454
..	199	309,286
..	329	291,653
..	459	294,044
..	..	241	..	..	138,635
..	..	241	..	..	140,628
..	..	241	..	..	142,274
..	..	241	..	..	144,382
..	3,576	..	..	..	104,287
..	9,432	..	..	..	108,928
..	9,559	..	..	..	85,751
..	7,446	..	..	..	100,279
..	8,665
..	7,874
..	6,971
..	*6,550
473	1,961	361,165
552	1,912	362,894
897	2,265	380,323
3,693	2,515	387,086
..	63,634
..	63,554
..	60,343
..	63,457
..	11,910
..	13,421
..	13,056
..	12,861
..	*697
..	*670
..	*643
..	*617
..	5
..	5
..	5
..	5
..	66
..	66
..	65
..	65
..	286
..	284
..	281
..	279

Table 12

Production of biofuels and wastes

Terajoules

Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
Turks and Caicos Islands	2015	10	..	..	..	..	4
	2016	11	..	..	..	..	4
	2017	11	..	..	..	..	4
	2018	*11	..	..	..	..	4
United States	2015	405,092	*373,303	*639,948	77,113	*764,382	28,969
	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
America, South	2015	1,658,747	..	708,885	1,453,286	126,319	224,988
	2016	1,561,671	..	763,878	1,499,902	158,887	196,382
	2017	1,605,825	..	829,987	1,491,047	160,256	204,959
	2018	1,644,242	..	922,395	1,407,338	165,667	214,182
Argentina	2015	34,816	..	..	41,406	..	12,331
	2016	34,652	..	..	42,711	..	11,771
	2017	34,873	..	..	49,522	..	11,977
	2018	39,250	..	..	54,974	..	11,918
Bolivia (Plur. State of)	2015	7,094	..	252	31,460	..	1,357
	2016	7,452	..	184	33,447	..	1,416
	2017	6,005	..	242	33,305	..	1,416
	2018	5,756	..	670	*33,367	..	1,446
Brazil	2015	1,006,403	..	648,338	1,255,521	..	190,098
	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
Chile	2015	237,262	..	..	..	64,768	2,154
	2016	227,188	..	..	..	94,908	1,918
	2017	241,105	..	..	..	93,577	3,629
	2018	240,328	..	..	..	100,675	4,160
Colombia	2015	135,480	..	..	75,268	12,429	590
	2016	129,077	..	..	74,891	12,688	295
	2017	105,566	..	..	80,843	12,859	590
	2018	106,425	..	..	56,020	13,190	649
Ecuador	2015	10,834	..	..	12,033	..	..
	2016	10,596	..	..	12,524	..	..
	2017	10,378	..	..	14,103	..	..
	2018	10,127	..	..	12,170	..	..
Falkland Is. (Malvinas)	2015	7	..	..	..	..	3
	2016	8	..	..	..	..	3
	2017	8	..	..	..	..	3
	2018	8	..	..	..	..	4
Guyana	2015	1,228	..	..	5,998	..	47
	2016	1,073	..	..	5,587	..	42
	2017	1,057	..	..	5,552	..	43
	2018	1,073	..	..	3,913	..	40
Paraguay	2015	120,454	..	23,530	..	..	12,686
	2016	113,888	..	24,563	..	..	12,139
	2017	117,769	..	23,335	..	..	13,103
	2018	101,576	..	23,931	..	..	12,801
Peru	2015	66,494	..	6,021	20,733	..	5,517
	2016	65,032	..	5,967	19,880	..	5,015
	2017	61,497	..	5,269	20,938	..	4,750
	2018	63,159	..	5,449	20,986	..	5,694
Suriname	2015	1,220	..	821	..	..	..
	2016	914	..	735	..	..	..
	2017	915	..	736	..	..	..
	2018	916	..	737	..	..	..

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
..	10
..	11
..	11
..	*11
50,686	294,282	1,180,181	154,818	177,841	4,117,645
45,038	303,080	1,228,787	192,133	154,864	4,091,129
41,360	292,164	1,270,206	195,555	155,906	4,102,804
40,783	297,129	1,290,075	227,718	153,014	4,438,575
..	..	664,965	215,393	11,627	4,839,221
..	..	625,684	240,083	11,128	4,861,232
..	..	615,225	262,148	13,066	4,977,553
..	..	736,426	285,638	14,682	5,176,388
..	..	17,286	66,645	..	160,152
..	..	18,867	97,851	..	194,082
..	..	23,450	105,653	..	213,498
..	..	23,638	89,350	..	207,212
..	38,806
..	41,083
..	39,552
..	*39,793
..	..	629,693	127,496	6,492	3,673,942
..	..	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
..	3,671	305,701
..	3,747	325,843
..	3,849	338,531
..	4,465	345,468
..	..	9,514	19,283	..	251,974
..	..	9,246	18,768	36	244,706
..	..	8,362	17,296	99	225,025
..	..	11,417	20,645	69	207,766
..	..	335	..	479	23,681
..	..	452	..	282	23,853
..	..	817	..	567	25,866
..	..	717	..	925	23,939
..	7
..	8
..	8
..	8
..	7,226
..	6,661
..	6,609
..	4,987
..	..	5,069	..	..	149,052
..	..	6,259	..	..	144,710
..	..	6,479	..	..	147,583
..	..	7,071	..	..	132,578
..	..	1,552	118	985	95,902
..	..	364	4	1,335	92,582
..	..	515	66	558	88,842
..	..	0	2,760	691	93,046
..	2,040
..	1,649
..	1,650
..	1,652

Table 12

Production of biofuels and wastes

Terajoules

Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
Uruguay	2015	25,244	..	10,267	1,050	49,122	..
	2016	25,176	..	11,570	863	51,291	..
	2017	25,060	..	11,807	882	53,820	..
	2018	25,794	..	12,873	858	51,802	..
Venezuela (Bolivar. Rep.)	2015	12,211	..	19,657	9,818	..	207
	2016	11,027	..	16,422	8,307	..	207
	2017	11,358	..	14,123	*7,029	..	177
	2018	10,184	..	11,060	*6,780	..	177
Asia	2015	9,823,869	141,399	6,360,866	1,477,639	202,695	410,543
	2016	9,611,532	143,703	6,855,674	1,429,164	158,475	385,011
	2017	9,611,258	145,297	6,919,184	1,431,112	178,391	406,438
	2018	8,777,143	145,716	6,828,990	1,498,791	189,175	362,693
Afghanistan	2015	16,368	..	..	..	..	3,821
	2016	16,660	..	..	..	..	3,927
	2017	16,960	..	..	..	..	4,037
	2018	16,960	..	..	..	..	4,037
Armenia	2015	5,088	1,307	..	..	..	..
	2016	6,194	2,195	..	..	..	..
	2017	6,082	2,428	..	..	..	..
	2018	4,348	1,289	..	..	..	..
Azerbaijan	2015	3,088	..	..	..	..	177
	2016	1,270	..	..	..	..	6
	2017	1,380	..	..	..	..	6
	2018	1,347	..	..	..	..	3
Bahrain	2015	64	..	..	..	..	33
	2016	65	..	..	..	..	34
	2017	66	..	..	..	..	34
	2018	66	..	..	..	..	34
Bangladesh	2015	242,179	119,987	228,381	1,762	..	9,922
	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
Bhutan	2015	46,722	..	..	..	..	207
	2016	47,088	..	..	..	..	207
	2017	47,457	..	..	..	..	207
	2018	47,457	..	..	..	..	207
Brunei Darussalam	2015	106	..	..	..	..	9
	2016	106	..	..	..	..	9
	2017	106	..	..	..	..	10
	2018	106	..	..	..	..	10
Cambodia	2015	176,140	..	545	..	..	26,845
	2016	180,792	..	1,118	..	..	27,229
	2017	185,783	..	1,132	..	..	27,642
	2018	191,160	..	1,385	..	..	28,055
China	2015	1,574,744	..	1,580,328	258,327	..	49,090
	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
China, Macao SAR	2015	..	..	..	..	..	..
	2016	..	..	..	..	..	..
	2017	..	..	..	..	..	..
	2018	..	..	..	..	..	..
Cyprus	2015	555	..	121	..	..	30
	2016	642	..	146	..	..	59
	2017	781	..	175	..	..	59
	2018	786	..	163	..	..	59

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
..	..	1,517	1,851	..	89,051
..	..	1,646	1,722	..	92,268
..	..	1,466	1,700	..	94,735
..	..	1,688	1,535	..	94,551
..	..	..	..	..	41,686
..	..	..	..	..	35,756
..	..	..	..	..	32,510
..	..	..	..	..	28,024
446,003	196,072	136,415	411,237	63,463	19,259,657
546,826	166,862	147,754	505,815	74,554	19,640,359
624,194	162,807	158,089	548,298	81,120	19,859,751
625,552	170,161	163,466	704,336	102,459	19,205,789
..	..	..	..	..	16,368
..	..	..	..	..	16,660
..	..	..	..	..	16,960
..	..	..	..	..	16,960
..	..	..	..	..	6,396
..	..	..	..	..	8,390
..	..	..	..	..	8,510
..	..	..	..	..	5,637
..	3,037	..	..	..	6,125
..	2,772	..	..	..	4,042
..	2,782	..	..	..	4,162
..	2,966	..	..	..	4,313
..	..	..	..	..	64
..	..	..	..	..	65
..	..	..	..	..	66
..	..	..	..	..	66
..	..	..	..	..	592,309
..	..	..	..	..	593,559
..	..	..	..	..	594,527
..	..	..	..	..	596,107
..	..	..	..	..	46,722
..	..	..	..	..	47,088
..	..	..	..	..	47,457
..	..	..	..	..	47,457
..	..	..	..	..	106
..	..	..	..	..	106
..	..	..	..	..	106
..	..	..	..	..	106
..	..	..	..	..	176,685
..	..	..	..	..	181,910
..	..	..	..	..	186,915
..	..	..	..	..	192,545
200,666	..	93,543	256,893	..	3,964,501
213,297	..	100,307	275,474	..	3,999,891
252,365	..	*106,664	321,757	..	4,211,159
230,133	..	*106,664	*323,840	..	4,233,165
..	*4,968	..	..	..	*4,968
..	*5,292	..	..	..	*5,292
..	*5,616	..	..	..	*5,616
..	5,897	..	..	..	5,897
124	24	..	37	471	1,332
197	9	..	0	492	1,486
122	37	..	37	504	1,656
158	51	..	..	554	1,712

Table 12

Production of biofuels and wastes

Terajoules

Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
Georgia	2015	16,572	48	78	..	..	..
	2016	16,007	102	123	..	..	..
	2017	15,115	103	59	..	..	..
	2018	11,233	125	42	..	..	..
India	2015	3,612,485	..	3,567,415	726,800	..	87,114
	2016	3,654,193	..	3,784,803	624,165	..	85,668
	2017	3,754,412	..	3,752,455	631,235	..	113,664
	2018	*3,439,137	..	*3,691,161	*531,720	..	*82,187
Indonesia	2015	1,152,334	..	390,782	63,061	..	14,131
	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
Iran (Islamic Rep. of)	2015	73,994	1,175	7,500	..	..	27
	2016	*73,994	*1,175	8,400	..	..	30
	2017	*73,994	*1,175	8,715	..	..	0
	2018	*73,994	*1,175	8,373	..	..	..
Iraq	2015	1,935	..	..	..	..	767
	2016	2,148	..	..	..	..	856
	2017	1,982	..	..	..	..	797
	2018	1,977	..	..	..	..	561
Israel	2015	183	..	..	..	..	..
	2016	183	..	..	..	..	..
	2017	183	..	..	..	..	..
	2018	183	..	..	..	..	..
Japan	2015	58,175	..	68,386	..	183,076	354
	2016	68,080	..	69,938	..	139,603	354
	2017	77,970	..	74,928	..	158,638	354
	2018	81,391	..	75,019	..	159,676	354
Jordan	2015	3,133	..	..	..	..	1,350
	2016	3,197	..	..	..	..	1,380
	2017	3,261	..	..	..	..	1,410
	2018	3,325	..	..	..	..	1,441
Kazakhstan	2015	2,202	..	..	..	..	14
	2016	2,202	..	..	..	..	14
	2017	2,202	..	..	..	..	14
	2018	2,171	..	..	..	..	47
Korea, Dem.Ppl's.Rep.	2015	46,152	..	..	..	..	4,809
	2016	46,381	..	..	..	..	4,838
	2017	46,604	..	..	..	..	4,897
	2018	46,740	..	..	..	..	4,927
Korea, Republic of	2015	69,022	..	0	..	9,672	..
	2016	67,887	..	0	..	9,581	..
	2017	77,939	..	0	..	7,172	..
	2018	88,260	..	..	..	8,378	..
Kuwait	2015	181	..	..	..	..	89
	2016	183	..	..	..	..	90
	2017	185	..	..	..	..	91
	2018	187	..	..	..	..	92
Kyrgyzstan	2015	130	..	..	..	..	..
	2016	43	..	..	..	..	..
	2017	60	..	..	..	..	..
	2018	96	..	..	..	..	..
Lao People's Dem. Rep.	2015	53,348	..	..	3,147	..	6,050
	2016	*52,920	..	..	3,147	..	*6,048
	2017	53,063	..	..	*3,286	..	*6,048
	2018	52,710	..	..	*3,220	..	*6,136

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
..	0	16,698
..	0	16,232
..	15,277
..	11,399
..	7,906,700
..	8,063,161
..	8,138,102
..	*7,662,018
..	65,600	..	1,671,777
..	145,091	..	1,667,239
..	135,568	..	1,606,025
..	270,590	..	1,634,161
..	127	82,796
..	282	*83,851
..	288	*84,172
..	288	*83,830
..	1,935
..	2,148
..	1,982
..	1,977
..	559	742
..	795	978
..	960	1,143
..	878	1,061
155,149	52,048	54	515	1,675	519,078
221,960	31,100	54	442	5,844	537,020
235,175	28,752	0	442	4,495	580,400
251,446	30,804	..	442	8,708	607,486
..	90	3,223
..	100	3,297
..	100	3,361
..	*100	3,425
..	2,202
..	2,202
..	2,202
..	19	2,189
..	46,152
..	46,381
..	46,604
..	46,740
88,702	40,708	8,686	15,198	7,726	239,714
109,305	39,467	10,823	17,995	6,955	262,013
134,086	39,798	9,426	19,320	7,333	295,074
108,143	40,155	12,056	23,515	7,406	287,913
..	181
..	183
..	185
..	187
..	130
..	43
..	60
..	96
..	56,495
..	*56,067
..	56,349
..	55,930

Table 12

Production of biofuels and wastes

Terajoules

Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
Lebanon	2015	4,971	..	..	..	..	89
	2016	4,971	..	..	..	..	89
	2017	*4,971	..	..	..	..	89
	2018	*4,971	..	..	..	..	89
Malaysia	2015	23,526	..	9,878	226	..	864
	2016	23,146	..	9,878	2,394	..	864
	2017	22,780	..	*8,196	*2,394	..	864
	2018	22,425	..	*12,581	*2,394	..	867
Maldives	2015	148	..	..	..	..	25
	2016	149	..	..	..	..	25
	2017	149	..	..	..	..	26
	2018	150	..	..	..	..	26
Mongolia	2015	5,481	..	..	..	..	..
	2016	5,481	..	..	..	..	..
	2017	5,481	..	..	..	..	..
	2018	5,481	..	..	..	..	..
Myanmar	2015	426,663	..	25,637	2,494	..	856
	2016	429,209	..	25,790	*2,494	..	856
	2017	431,655	..	25,943	*2,494	..	856
	2018	432,788	..	26,005	*2,494	..	856
Nepal	2015	351,565	18,338	17,333	11,688	..	295
	2016	355,065	18,504	17,505	11,729	..	295
	2017	361,118	18,579	17,804	11,821	..	325
	2018	367,144	18,889	18,101	*11,833	..	325
Oman	2015	414	..	..	..	..	200
	2016	425	..	..	..	..	205
	2017	436	..	..	..	..	210
	2018	436	..	..	..	..	210
Other Asia	2015	8,058	..	..	..	..	..
	2016	6,888	..	..	..	..	..
	2017	6,281	..	..	..	..	..
	2018	6,183	..	..	..	..	..
Pakistan	2015	269,784	..	*172,034	126,411	..	2,418
	2016	269,784	..	*175,506	141,268	..	2,466
	2017	269,784	..	*178,970	*141,268	..	2,516
	2018	269,784	..	*178,971	*149,508	..	2,567
Philippines	2015	175,999	543	39,317	22,365	..	55,976
	2016	171,236	549	38,750	27,819	..	58,690
	2017	170,958	557	38,808	32,046	..	60,800
	2018	170,692	565	38,473	33,588	..	63,042
Qatar	2015	47	..	..	..	..	23
	2016	47	..	..	..	..	23
	2017	47	..	..	..	..	23
	2018	47	..	..	..	..	23
Singapore	2015	276	..	..	..	..	146
	2016	271	..	..	..	..	143
	2017	267	..	..	..	..	141
	2018	262	..	..	..	..	139
Sri Lanka	2015	156,317	..	..	1,517	..	..
	2016	150,651	..	..	1,862	..	..
	2017	148,807	..	..	1,470	..	..
	2018	*148,885	..	..	*1,693	..	..
State of Palestine	2015	3,135	..	*625	..	..	..
	2016	3,460	..	564	..	..	..
	2017	1,964	..	588	..	..	..
	2018	2,022	..	398	..	..	..

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
..	..	..	..	..	4,971
..	..	..	..	..	4,971
..	..	..	..	..	*4,971
..	..	..	..	..	*4,971
..	..	..	24,766	..	58,396
..	..	..	18,437	..	53,855
..	..	..	16,928	..	50,298
..	..	..	25,502	..	62,903
..	..	..	..	..	148
..	..	..	..	..	149
..	..	..	..	..	149
..	..	..	..	..	150
..	..	..	..	..	5,481
..	..	..	..	..	5,481
..	..	..	..	..	5,481
..	..	..	..	..	5,481
..	..	..	..	..	454,794
..	..	..	..	..	457,493
..	..	..	..	..	460,092
..	..	..	..	1	461,288
..	..	..	..	11,688	410,612
..	..	..	..	11,729	414,532
..	..	..	..	11,821	421,143
..	..	..	..	12,019	427,985
..	..	..	..	..	414
..	..	..	..	..	425
..	..	..	..	..	436
..	..	..	..	..	436
..	56,994	1,214	..	259	66,525
..	55,944	438	..	295	63,565
..	54,370	186	..	272	61,109
..	56,726	8	..	267	63,184
..	..	..	..	..	568,229
..	..	..	..	..	586,558
..	..	..	..	..	*590,022
..	..	..	..	..	*598,263
..	955	6,172	6,496	..	251,848
..	447	8,314	7,050	..	254,165
..	527	8,608	6,591	..	258,095
..	543	11,130	6,645	..	261,636
..	..	..	..	..	47
..	..	..	..	..	47
..	..	..	..	..	47
..	..	..	..	..	47
..	27,830	..	..	..	28,105
..	27,436	..	..	..	27,707
..	26,742	..	..	..	27,009
..	24,819	..	..	..	25,082
..	..	..	..	..	157,833
..	..	..	..	..	152,512
..	..	..	..	..	150,277
..	..	..	..	..	*150,579
..	..	..	..	..	3,760
..	..	..	..	..	4,024
..	..	..	..	..	2,552
..	..	..	..	..	2,420

Table 12

Production of biofuels and wastes

Terajoules

Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
Syrian Arab Republic	2015	238	..	..	..	..	30
	2016	236	..	..	..	..	30
	2017	234	..	..	..	..	30
	2018	217	..	..	..	..	30
Tajikistan	2015	*50,225	..	..	..	..	..
	2016	50,225	..	..	..	..	..
	2017	*50,225	..	..	..	..	..
	2018	*50,225	..	..	..	..	..
Thailand	2015	504,764	..	212,343	225,232	9,947	126,939
	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
Timor-Leste	2015	886	..	..	..	..	..
	2016	850	..	..	..	..	..
	2017	813	..	..	..	..	..
	2018	776	..	..	..	..	..
Turkey	2015	77,791	..	40,163	..	..	..
	2016	68,831	..	40,551	..	..	..
	2017	56,773	..	45,407	..	..	..
	2018	40,654	..	32,226	..	..	..
Turkmenistan	2015	100	..	..	..	..	..
	2016	100	..	..	..	..	..
	2017	121	..	..	..	..	..
	2018	121	..	..	..	..	..
Uzbekistan	2015	*1,307	..	..	..	..	..
	2016	*1,763	..	..	..	..	..
	2017	*924	..	..	..	..	..
	2018	*926	..	..	..	..	..
Viet Nam	2015	602,389	..	..	34,609	..	15,517
	2016	616,245	..	..	33,040	..	15,517
	2017	603,615	..	..	*31,545	..	15,517
	2018	324,561	..	..	*48,538	..	15,340
Yemen	2015	4,886	..	..	..	..	2,331
	2016	4,999	..	..	..	..	2,390
	2017	5,120	..	..	..	..	2,449
	2018	5,306	..	..	..	..	2,537
Europe	2015	3,492,847	13,639	317,828	15,698	510,313	11,827
	2016	3,585,291	14,900	283,716	19,572	524,767	13,351
	2017	3,612,196	12,517	311,779	20,322	543,284	13,984
	2018	3,663,265	14,529	305,816	19,886	543,927	13,541
Albania	2015	8,960	..	..	..	..	..
	2016	7,787	..	..	..	..	..
	2017	6,959	..	..	..	..	..
	2018	6,710	..	..	..	..	..
Andorra	2015	..	..	..	..	..	..
	2016	..	..	..	..	..	..
	2017	..	..	..	..	..	..
	2018	..	..	..	..	..	..
Austria	2015	152,102	..	9,631	..	28,396	30
	2016	153,635	..	8,878	..	32,785	30
	2017	160,979	..	8,718	..	32,663	30
	2018	150,748	..	8,255	..	33,651	30
Belarus	2015	68,924	..	2,701	..	..	89
	2016	68,613	..	2,403	..	..	118
	2017	75,446	..	2,345	..	..	89
	2018	60,492	..	2,084	..	..	89

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
..	..	..	..	..	238
..	..	..	..	..	236
..	..	..	..	..	234
..	..	..	..	..	217
..	..	..	..	..	*50,225
..	..	..	..	..	50,225
..	..	..	..	..	*50,225
..	..	..	..	..	*50,225
..	9,508	24,951	39,192	29,749	1,055,686
..	4,395	25,889	39,008	33,341	1,177,697
..	4,183	31,088	45,190	37,778	1,100,627
..	8,029	31,570	49,790	51,723	1,073,050
..	..	..	..	..	886
..	..	..	..	..	850
..	..	..	..	..	813
..	..	..	..	..	776
1,362	..	1,796	2,539	11,119	134,770
2,067	..	1,930	2,318	14,721	130,418
2,446	..	2,117	2,466	17,569	126,778
35,672	171	2,037	4,011	20,496	135,268
..	..	..	..	..	100
..	..	..	..	..	100
..	..	..	..	..	121
..	..	..	..	..	121
..	..	..	..	..	*1,307
..	..	..	..	..	*1,763
..	..	..	..	..	*924
..	..	..	..	..	*926
..	..	..	..	..	636,998
..	..	..	..	..	649,285
..	..	..	..	..	635,160
..	..	..	..	..	373,099
..	..	..	..	..	4,886
..	..	..	..	..	4,999
..	..	..	..	..	5,120
..	..	..	..	..	5,306
387,519	830,026	112,888	452,720	659,972	6,793,449
429,385	878,862	116,677	447,746	690,757	6,991,673
410,810	904,403	122,188	508,870	706,931	7,153,299
450,613	906,657	125,346	531,466	708,711	7,270,215
..	..	..	..	..	8,960
..	..	..	..	..	7,787
..	..	..	..	..	6,959
..	..	..	..	..	6,710
..	*248	..	..	..	*248
..	*255	..	..	..	*255
..	*306	..	..	..	*306
..	*366	..	..	..	*366
16,092	19,347	5,655	12,586	12,628	256,436
16,943	21,169	5,709	11,040	12,790	262,949
16,538	18,623	5,682	9,090	13,273	265,566
15,330	19,440	5,253	8,538	9,781	250,996
1,157	..	..	810	398	73,989
1,286	..	..	736	390	73,428
1,187	..	..	736	468	80,182
1,319	..	..	515	498	64,908

Table 12

Production of biofuels and wastes

Terajoules

Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
Belgium	2015	42,117	266	3,894	..	1,666	..
	2016	45,175	783	3,792	..	1,762	..
	2017	41,907	841	4,083	..	1,732	..
	2018	42,353	741	4,015	..	1,817	..
Bosnia and Herzegovina	2015	30,354	..	..	..	..	1,298
	2016	30,729	..	..	..	..	1,328
	2017	28,596	..	..	..	..	1,180
	2018	60,650	..	..	..	..	885
Bulgaria	2015	45,681	..	2,603	..	2,898	177
	2016	42,194	..	1,261	..	4,733	118
	2017	41,930	..	1,103	..	5,104	59
	2018	51,470	..	8,079	..	4,273	59
Croatia	2015	63,861	..	19	..	..	236
	2016	64,080	..	32	..	..	266
	2017	64,565	..	19	..	..	266
	2018	62,621	..	32	..	..	295
Czechia	2015	102,917	..	5,581	..	15,196	..
	2016	103,427	..	5,789	..	15,114	..
	2017	103,824	..	6,379	..	15,281	..
	2018	108,298	..	5,576	..	14,675	..
Denmark	2015	46,757	..	19,824	..	..	..
	2016	46,576	..	19,921	..	..	..
	2017	*51,961	..	20,400	..	..	..
	2018	56,429	..	17,840	..	..	..
Estonia	2015	41,571	..	7,721	..	1,340	..
	2016	50,850	..	6,206	..	1,385	..
	2017	51,714	..	9,175	..	1,382	..
	2018	55,681	..	11,914	..	1,404	..
Finland	2015	187,269	244	1,230	..	142,056	..
	2016	200,688	239	1,684	..	146,307	..
	2017	202,373	212	1,698	..	154,761	..
	2018	201,498	308	1,773	..	167,032	..
France	2015	364,489	2,850	7,369	5,879	35,992	..
	2016	396,458	2,164	6,395	6,126	35,462	..
	2017	383,454	2,193	6,017	5,931	35,747	..
	2018	381,782	2,340	6,402	5,599	31,967	..
Germany	2015	475,843	3,916	7,610	..	29,219	974
	2016	454,508	6,068	7,020	..	25,910	974
	2017	454,708	3,660	8,477	..	31,453	974
	2018	444,222	3,653	14,692	..	26,710	974
Greece	2015	30,587	..	9,293	..	..	30
	2016	26,947	..	6,440	..	..	30
	2017	27,655	..	6,199	..	..	30
	2018	25,977	..	6,769	..	..	59
Hungary	2015	91,443	291	13,222	..	265	..
	2016	87,340	323	12,624	..	283	..
	2017	86,860	256	11,526	..	310	..
	2018	76,209	241	12,509	..	303	..
Iceland	2015	455	..	..	..	..	..
	2016	465	..	..	..	..	..
	2017	680	..	..	..	..	..
	2018	902	..	..	..	..	..
Ireland	2015	7,223	1,203	..	..	..	..
	2016	8,621	866	..	..	..	..
	2017	9,339	955	..	..	..	..
	2018	9,249	1,091	..	..	..	..

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
13,074	30,549	6,543	9,126	9,860	117,096
13,291	30,460	6,354	8,648	9,814	120,079
12,119	30,894	7,293	10,672	9,423	118,963
13,037	30,513	7,614	9,274	9,547	118,911
..	..	..	..	..	30,354
..	..	..	..	..	30,729
..	..	..	..	..	28,596
..	..	..	..	..	60,650
765	631	670	1,766	820	55,834
1,319	1,061	724	2,282	2,511	56,084
1,621	1,240	590	3,386	1,958	56,931
2,990	1,520	456	4,674	2,245	75,707
390	..	..	626	1,507	66,403
425	..	..	37	1,952	66,526
483	..	..	0	2,672	67,739
818	..	..	..	3,081	66,552
9,382	5,570	2,814	6,182	25,681	173,323
10,361	5,968	3,109	5,483	25,161	174,412
10,228	6,422	2,734	5,778	25,444	176,089
12,061	6,115	2,010	7,139	25,279	181,153
..	34,812	411	..	6,285	108,089
..	34,271	192	..	9,048	110,008
..	35,609	137	..	11,053	119,160
..	33,562	164	..	13,414	121,409
..	2,819	..	..	550	54,001
..	2,944	..	..	722	62,107
..	3,030	..	..	540	65,841
611	2,117	..	..	571	72,298
1,758	19,742	999	15,309	4,321	372,928
1,644	22,201	1,288	3,864	4,694	382,609
2,001	23,808	1,288	11,003	7,147	404,291
2,048	24,865	1,233	10,157	7,796	416,710
19,879	102,878	26,403	89,571	30,388	685,698
19,751	108,498	24,451	83,278	32,678	715,262
15,715	107,544	23,589	89,608	34,356	704,154
19,833	111,088	26,564	99,323	36,737	721,635
52,659	250,720	20,521	113,528	314,418	1,268,434
59,095	259,750	21,419	114,779	320,998	1,269,547
54,307	269,372	21,180	118,054	323,250	1,284,461
46,695	259,778	19,596	123,059	319,497	1,257,902
3,732	..	..	5,410	3,826	52,848
2,517	..	..	5,594	4,258	45,756
0	..	..	5,667	4,484	44,005
1,213	..	..	6,330	4,724	45,013
2,520	4,728	10,613	5,373	3,335	131,790
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	3,850	119,533
..	..	..	..	69	524
..	..	..	..	71	536
..	..	..	..	76	756
..	..	..	..	78	980
..	5,265	..	994	2,287	16,972
..	5,467	..	994	2,294	18,242
..	9,606	..	1,067	2,286	23,253
..	11,953	..	1,104	2,108	25,505

Table 12

Production of biofuels and wastes

Terajoules

Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
Isle of Man	2015	..	..	..	..	..	..
	2016	..	..	..	..	..	..
	2017	..	..	..	..	..	..
	2018	..	..	..	..	..	..
Italy	2015	297,890	..	*9,433	..	..	295
	2016	293,118	..	*9,672	..	..	295
	2017	317,411	..	*10,247	..	..	295
	2018	284,621	..	*11,211	..	..	295
Jersey	2015	..	..	..	..	..	..
	2016	..	..	..	..	..	..
	2017	..	..	..	..	..	..
	2018	..	..	..	..	..	..
Kosovo	2015	10,721	..	..	..	..	..
	2016	14,823	..	..	..	..	..
	2017	15,305	..	..	..	..	..
	2018	15,415	..	..	..	..	..
Latvia	2015	83,986	..	135	..	..	325
	2016	86,776	..	136	..	..	354
	2017	85,124	..	234	..	..	384
	2018	102,172	..	277	..	..	266
Liechtenstein	2015	209	..	..	..	..	..
	2016	202	..	..	..	..	..
	2017	189	..	..	..	..	..
	2018	225	..	..	..	..	..
Lithuania	2015	50,437	..	585	..	..	30
	2016	50,378	..	731	..	..	30
	2017	54,681	..	721	..	..	..
	2018	51,111	..	1,175	..	..	30
Luxembourg	2015	2,175	..	217	..	..	..
	2016	2,461	..	186	..	..	..
	2017	2,727	..	201	..	..	..
	2018	3,630	..	208	..	..	..
Malta	2015	..	..	..	..	..	..
	2016	..	..	..	..	..	..
	2017	..	..	..	..	..	..
	2018	..	..	..	..	..	..
Montenegro	2015	8,304	..	..	..	..	18
	2016	8,395	..	..	..	..	24
	2017	9,235	..	..	..	..	21
	2018	7,964	..	..	..	..	18
Netherlands	2015	40,509	..	13,534	..	..	..
	2016	41,401	..	12,842	..	..	..
	2017	40,729	..	16,326	..	..	..
	2018	44,571	..	11,457	..	..	..
North Macedonia	2015	13,431	..	203	..	..	..
	2016	11,817	..	199	..	..	..
	2017	12,072	..	223	..	..	..
	2018	10,103	..	276	..	..	..
Norway	2015	35,977	..	..	..	..	..
	2016	35,715	..	..	..	..	..
	2017	36,657	..	..	..	425	..
	2018	36,378	..	..	..	369	..
Poland	2015	204,512	..	60,674	..	11,013	..
	2016	206,522	..	50,806	..	11,249	..
	2017	200,861	..	47,616	..	11,574	..
	2018	200,785	377	45,408	..	10,788	..

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
..	*389	..	..	..	*389
..	*411	..	..	..	*411
..	*396	..	..	..	*396
..	*546	..	..	..	*546
12,696	70,840	5,392	21,234	78,355	495,839
13,082	72,908	7,579	21,197	78,505	496,061
11,765	71,444	8,071	25,466	79,453	523,857
11,989	70,894	9,005	27,674	79,221	494,615
..	*732	..	..	..	*732
..	*813	..	..	..	*813
..	*799	..	..	..	*799
..	*760	..	..	..	*760
..	..	..	..	..	10,721
..	..	..	..	..	14,823
..	..	..	..	..	15,305
..	..	..	..	..	15,415
84	256	80	2,429	3,674	90,644
113	256	134	1,656	3,762	92,833
73	362	241	1,950	3,902	91,887
119	558	214	3,238	3,643	110,222
..	*691	..	..	22	*923
..	*706	..	..	20	*929
..	*703	..	..	23	*914
..	*759	..	..	24	*1,008
303	1,337	429	4,342	981	58,414
486	2,495	375	3,790	1,341	59,597
183	2,476	348	4,342	1,350	64,102
595	1,692	456	5,667	1,554	62,250
569	1,365	..	..	739	5,065
546	1,400	..	..	833	5,426
578	1,557	..	..	867	5,930
624	1,552	..	..	915	6,929
..	..	..	37	77	114
..	..	..	37	80	117
..	..	..	..	77	77
..	..	..	..	69	69
..	..	..	..	..	8,304
..	..	..	..	..	8,395
..	..	..	..	..	9,235
..	..	..	..	..	7,964
..	60,173	..	59,947	13,693	187,856
..	61,527	..	53,802	13,339	182,911
..	60,374	..	70,987	13,432	201,848
..	60,110	1,671	67,675	13,655	199,140
..	..	..	80	..	13,713
..	..	..	0	..	12,016
..	..	..	0	..	12,295
..	..	..	0	..	10,379
3,519	15,202	..	..	1,100	55,798
3,356	14,965	..	2,208	1,200	57,444
3,192	15,558	..	4,158	1,535	61,525
3,525	16,479	..	3,717	2,219	62,687
16,997	6,593	4,718	28,962	9,581	343,050
18,795	15,484	5,281	33,046	10,930	352,113
22,229	18,078	5,174	33,010	11,747	350,288
27,023	19,412	5,040	32,642	12,072	353,546

Table 12

Production of biofuels and wastes

Terajoules

Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
Portugal	2015	59,877	..	7,606	322	41,179	236
	2016	61,818	..	3,196	428	43,610	266
	2017	58,938	..	5,888	313	44,530	266
	2018	57,515	..	10,670	..	43,232	266
Republic of Moldova	2015	18,815	158	7,736	..	..	30
	2016	21,539	12	7,246	..	..	30
	2017	26,284	6	4,936	..	..	30
	2018	28,063	11	4,559	..	..	12
Romania	2015	147,416	..	..	..	..	177
	2016	149,864	..	..	..	..	67
	2017	149,227	..	..	..	..	36
	2018	144,164	..	..	..	..	33
Russian Federation	2015	118,109	..	..	..	..	1,543
	2016	121,911	..	..	..	..	2,065
	2017	107,613	..	..	..	..	2,163
	2018	119,089	..	..	..	..	2,328
Serbia	2015	46,240	..	..	..	..	354
	2016	46,259	..	..	..	..	443
	2017	45,477	..	..	..	..	585
	2018	46,936	..	..	..	..	413
Slovakia	2015	17,277	..	6,813	..	13,164	118
	2016	19,118	..	2,153	..	13,672	103
	2017	18,957	..	2,137	..	14,125	118
	2018	22,518	..	2,620	..	12,861	30
Slovenia	2015	24,436	..	273	..	..	..
	2016	25,242	..	236	..	..	..
	2017	24,525	..	245	..	..	..
	2018	22,768	..	217	..	..	..
Spain	2015	142,420	449	43,829	9,497	24,039	1,062
	2016	145,115	449	38,520	13,018	25,917	1,062
	2017	148,741	449	38,923	14,078	26,942	1,062
	2018	145,978	449	39,060	14,287	28,017	1,062
Sweden	2015	216,259	76	..	..	163,890	..
	2016	227,021	52	..	..	166,578	..
	2017	230,319	103	..	..	167,254	..
	2018	219,560	106	..	..	166,828	..
Switzerland	2015	38,060	..	..	..	..	..
	2016	41,350	..	..	..	..	..
	2017	40,590	..	..	..	..	..
	2018	39,990	..	..	..	..	..
Ukraine	2015	87,769	..	..	..	..	4,809
	2016	114,133	..	..	..	..	5,753
	2017	121,861	..	..	..	..	6,402
	2018	185,678	..	..	..	..	6,402
United Kingdom	2015	67,466	4,186	76,092	..	..	..
	2016	72,220	3,944	75,348	..	..	..
	2017	71,724	3,842	97,943	..	..	..
	2018	78,738	5,212	78,738	..	..	..
Oceania	2015	133,425	..	9,338	139,114	20,521	405
	2016	135,914	..	9,352	136,071	20,073	410
	2017	180,037	..	11,439	115,711	15,727	416
	2018	175,400	..	13,730	105,139	15,220	420
Australia	2015	31,646	..	1,006	132,643	20,521	..
	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	..

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
1,011	8,155	110	13,211	3,457	134,928
2,961	8,680	82	12,291	3,364	136,430
2,657	8,739	..	13,174	3,561	137,800
3,233	8,121	..	13,358	3,453	139,583
0	..	0	..	401	27,110
82	..	0	..	361	29,240
93	..	..	..	282	31,601
0	..	..	..	313	32,946
2,968	159	1,045	5,520	767	157,875
3,164	193	1,528	6,293	739	161,780
3,845	207	1,179	6,146	755	161,359
7,203	188	938	6,918	865	160,276
198,890	..	..	..	..	316,999
218,670	..	..	..	..	340,581
215,266	..	..	..	..	322,879
244,991	..	..	..	..	364,080
36	..	..	..	242	46,518
45	..	..	..	307	46,611
44	..	..	..	723	46,244
49	..	..	..	958	47,943
6,905	1,668	3,002	3,901	6,223	58,952
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
1,802	..	..	0	1,242	27,753
1,876	..	..	..	1,264	28,618
2,139	..	..	..	1,076	27,985
2,530	..	..	..	1,018	26,533
..	21,102	10,479	40,958	10,954	303,727
..	19,698	6,968	50,048	10,264	309,997
..	21,744	8,871	64,842	10,943	335,532
2,971	21,280	11,068	63,259	11,089	337,459
749	57,172	5,447	5,115	7,009	455,717
746	59,857	6,802	4,011	7,265	472,332
748	62,730	6,600	2,429	7,445	477,628
755	58,296	6,915	9,494	7,359	469,313
10,234	46,430	..	221	4,585	99,530
10,790	48,150	..	258	4,898	105,446
12,500	48,350	..	294	5,087	106,821
10,870	48,750	..	221	5,238	105,069
..	..	482	..	600	88,851
..	..	161	..	1,367	115,660
2,507	..	563	..	1,601	126,532
..	..	107	..	1,995	187,780
9,348	60,453	7,075	5,483	99,897	330,000
16,912	73,275	9,970	12,586	113,472	377,726
7,732	78,612	13,722	17,186	116,117	406,877
7,075	91,364	10,988	17,517	117,617	407,249
3,899	..	5,393	5,078	19,818	336,586
3,915	..	4,912	1,987	20,773	332,997
3,771	..	4,160	147	18,264	349,256
3,785	..	5,125	37	19,414	337,850
3,899	..	5,226	5,078	16,693	216,712
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

Table 12

Production of biofuels and wastes

Terajoules

Country or area	Year	Solid biofuels					
		Fuelwood	Animal waste	Vegetal waste	Bagasse	Black liquor	Charcoal
Fiji	2015	338	..	..	5,591	..	72
	2016	338	..	..	3,521	..	73
	2017	338	..	..	4,533	..	73
	2018	338	..	..	*4,031	..	73
French Polynesia	2015	42	..	..	..	..	16
	2016	42	..	..	..	..	16
	2017	42	..	..	..	..	16
	2018	42	..	..	..	..	16
Kiribati	2015	29	..	*500	..	..	11
	2016	30	..	*502	..	..	12
	2017	30	..	*510	..	..	12
	2018	30	..	*512	..	..	12
Marshall Islands	2015	..	..	*185	..	..	..
	2016	..	..	*190	..	..	..
	2017	..	..	*194	..	..	..
	2018	..	..	*195	..	..	..
Micronesia (Fed. States of)	2015	24	..	..	..	..	11
	2016	24	..	..	..	..	11
	2017	24	..	..	..	..	11
	2018	24	..	..	..	..	11
New Caledonia	2015	115	..	..	..	..	18
	2016	115	..	..	..	..	18
	2017	115	..	..	..	..	18
	2018	117	..	..	..	..	19
New Zealand	2015	47,456	..	..	..	..	..
	2016	47,001	..	..	..	..	..
	2017	49,310	..	..	..	..	..
	2018	47,585	..	..	..	..	..
Niue	2015	1	..	..	..	..	0
	2016	1	..	..	..	..	0
	2017	1	..	..	..	..	0
	2018	1	..	..	..	..	0
Papua New Guinea	2015	50,544	..	*5,263	880	..	195
	2016	50,544	..	*5,263	880	..	198
	2017	50,544	..	*5,263	*880	..	201
	2018	50,544	..	*5,315	*880	..	203
Samoa	2015	1,160	..	306	..	..	15
	2016	1,097	..	385	..	..	16
	2017	*1,089	..	*377	..	..	16
	2018	*1,089	..	*377	..	..	*15
Solomon Islands	2015	1,220	..	*2,079	..	..	42
	2016	1,223	..	*2,079	..	..	42
	2017	1,227	..	*2,078	..	..	43
	2018	1,231	..	*2,074	..	..	44
Tonga	2015	19	..	..	..	..	7
	2016	19	..	..	..	..	7
	2017	19	..	..	..	..	7
	2018	19	..	..	..	..	7
Vanuatu	2015	831	..	..	..	..	18
	2016	831	..	..	..	..	18
	2017	831	..	..	..	..	19
	2018	831	..	..	..	..	19

Table 12

Production of biofuels and wastes

Terajoules

Non-biomass wastes		Liquid biofuels		Biogases	Total
Industrial waste	Municipal waste	Biogasoline	Biodiesel		
..	5,929
..	3,859
..	4,871
..	*4,369
..	42
..	42
..	42
..	42
..	*529
..	*532
..	*540
..	*542
..	*185
..	*190
..	*194
..	*195
..	24
..	24
..	24
..	24
..	..	*5	..	..	120
..	..	*7	..	..	122
..	..	*5	..	..	120
..	..	*5	..	..	123
..	..	107	..	3,125	50,688
..	..	107	..	3,302	50,410
..	..	107	..	3,294	52,711
..	..	107	..	3,311	51,003
..	1
..	1
..	1
..	1
..	56,687
..	56,687
..	56,687
..	56,739
..	0	1,466
..	0	1,482
..	0	*1,466
..	0	*1,466
..	*3,299
..	*3,302
..	*3,305
..	*3,305
..	19
..	19
..	19
..	19
..	..	*55	..	..	886
..	..	*27	..	..	859
..	..	*27	..	..	859
..	..	*27	..	..	859