

Appendix G

Projections of petroleum and other liquids fuels production in three cases

THIS PAGE INTENTIONALLY LEFT BLANK

Table G1. World petroleum and other liquids production by region and country, 2015-50, Reference case

million barrels per day

Region/Country	2015	2020	2025	2030	2035	2040	2045	2050	Average annual percent change (2015-50)
OPEC^a	37.8	40.2	41.0	42.8	46.1	49.6	52.9	56.2	1.1
Middle East	28.2	31.6	32.3	33.2	35.3	37.5	39.5	41.5	1.1
North Africa	2.2	2.1	2.3	2.6	3.0	3.5	4.0	4.4	2.0
West Africa	4.1	4.0	4.2	4.3	4.5	4.7	5.0	5.6	0.9
South America	3.2	2.5	2.3	2.7	3.2	3.9	4.4	4.7	1.1
Non-OPEC	58.9	59.6	60.8	61.1	61.7	63.2	64.7	65.9	0.3
OECD	27.0	28.7	29.3	29.3	29.2	29.8	30.3	30.7	0.4
OECD North America	22.4	24.2	25.0	25.3	25.3	26.1	26.8	27.3	0.6
United States	15.3	17.0	17.6	17.7	17.3	17.5	17.3	16.9	0.3
Canada	4.5	5.1	5.3	5.4	5.6	6.0	6.4	6.9	1.2
Mexico and Chile	2.6	2.1	2.2	2.2	2.3	2.6	3.1	3.5	0.8
OECD Europe	3.9	3.8	3.6	3.3	3.2	2.9	2.6	2.4	-1.4
North Sea	3.0	2.9	2.7	2.5	2.3	2.0	1.7	1.5	-2.1
Other	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.2
OECD Asia	0.7	0.7	0.7	0.7	0.7	0.8	0.9	1.0	1.0
Australia and New Zealand	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.7	1.4
Other	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1
Non-OECD	31.9	30.9	31.5	31.8	32.5	33.5	34.5	35.3	0.3
Non-OECD Europe and Eurasia	14.3	14.1	14.3	14.4	14.7	15.1	15.4	15.2	0.2
Russia	11.0	10.8	10.8	10.7	10.9	11.3	11.7	11.7	0.2
Caspian Area	3.0	3.1	3.3	3.5	3.6	3.6	3.4	3.3	0.3
Kazakhstan	1.8	2.0	2.2	2.4	2.5	2.5	2.3	2.2	0.6
Other	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.2	-0.1
Other	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	-0.8
Non-OECD Asia	9.1	7.9	8.0	7.9	7.8	7.9	8.0	8.3	-0.3
China	5.2	4.3	4.5	4.7	4.7	4.9	5.0	5.2	0.0
India	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	0.4
Other	2.9	2.7	2.4	2.2	2.1	2.0	1.9	1.9	-1.3
Middle East (Non-OPEC)	1.1	1.1	0.9	0.8	0.8	0.7	0.6	0.6	-1.7
Oman	1.0	1.0	0.8	0.7	0.6	0.6	0.5	0.5	-1.9
Other	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-1.0
Africa	2.1	2.1	2.1	2.0	2.0	1.9	1.9	2.0	-0.1
Ghana	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	2.6
Other	2.0	1.9	1.9	1.8	1.7	1.7	1.7	1.7	-0.4
Non-OECD Americas	5.3	5.6	6.1	6.7	7.3	7.9	8.5	9.2	1.6
Brazil	3.2	3.6	4.2	4.8	5.3	5.6	5.8	6.0	1.8
Other	2.2	2.0	1.9	1.9	2.0	2.4	2.8	3.2	1.1
Total World	96.7	99.8	101.8	103.9	107.8	112.8	117.6	122.1	0.7
OPEC Share of World Production	40%	40%	40%	40%	40%	40%	40%	50%	
Persian Gulf Share of World Production	30%	30%	30%	30%	30%	30%	30%	30%	

a/ OPEC = Organization of Petroleum Exporting Countries. Equatorial Guinea joined OPEC on 2017, but this is not reflected in the IEO2017 projections. Equatorial Guinea is reported as part of non-OPEC, non-OECD Africa.

Note: Totals may not equal sum of components dues to independent rounding

Source file: //nem6/d/IEO2017_GWOB/Final_Files/[IEO2017_Reference_GWOB.xlsx]IEO_G1_Total_Liquids_Production

Table G2. World crude oil^a production by region and country, 2015-50, Reference case

million barrels per day

Region/Country	2015	2020	2025	2030	2035	2040	2045	2050	Average annual percent change (2015-50)
OPEC^b	33.8	35.9	36.4	38.0	41.0	44.2	47.1	50.0	1.1
Middle East	24.9	27.9	28.4	29.2	31.1	33.1	34.9	36.7	1.1
North Africa	1.8	1.8	1.9	2.1	2.4	2.8	3.1	3.3	1.7
West Africa	4.1	3.9	4.1	4.2	4.4	4.5	4.9	5.4	0.8
South America	3.0	2.3	2.1	2.5	3.0	3.7	4.2	4.5	1.2
Non-OPEC	46.5	46.0	46.6	46.6	46.9	48.1	49.4	50.5	0.2
OECD	18.7	19.0	19.4	19.4	19.3	19.8	20.3	20.8	0.3
OECD North America	15.4	15.9	16.6	16.8	16.9	17.7	18.4	18.9	0.6
United States	9.4	9.9	10.4	10.5	10.2	10.3	10.2	9.9	0.1
Canada	3.7	4.2	4.3	4.4	4.6	4.9	5.4	5.8	1.3
Mexico and Chile	2.3	1.8	1.9	1.9	2.1	2.4	2.8	3.2	1.0
OECD Europe	3.0	2.7	2.5	2.2	2.0	1.8	1.4	1.2	-2.5
North Sea	2.5	2.4	2.2	2.0	1.8	1.6	1.2	1.0	-2.5
Other	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	-2.4
OECD Asia	0.4	0.4	0.4	0.4	0.3	0.4	0.5	0.6	1.5
Australia and New Zealand	0.4	0.4	0.4	0.4	0.3	0.4	0.5	0.6	1.5
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0
Non-OECD	27.8	26.9	27.2	27.2	27.6	28.2	29.1	29.8	0.2
Non-OECD Europe and Eurasia	13.3	13.3	13.5	13.5	13.8	14.2	14.5	14.4	0.2
Russia	10.3	10.2	10.2	10.1	10.3	10.7	11.2	11.1	0.2
Caspian Area	2.8	2.9	3.1	3.3	3.4	3.3	3.2	3.1	0.3
Kazakhstan	1.7	1.9	2.1	2.3	2.4	2.3	2.2	2.0	0.6
Other	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.1	-0.3
Other	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	-1.2
Non-OECD Asia	7.5	6.5	6.3	6.0	5.7	5.6	5.6	5.8	-0.7
China	4.3	3.7	3.7	3.7	3.6	3.6	3.6	3.8	-0.3
India	0.8	0.7	0.7	0.7	0.7	0.6	0.6	0.7	-0.4
Other	2.4	2.1	1.9	1.6	1.5	1.4	1.3	1.3	-1.7
Middle East (Non-OPEC)	1.1	1.1	0.9	0.8	0.7	0.7	0.6	0.6	-1.7
Africa	1.7	1.7	1.7	1.6	1.5	1.5	1.5	1.5	-0.3
Non-OECD Americas	4.2	4.4	4.8	5.3	5.7	6.3	6.9	7.5	1.7
Brazil	2.4	2.8	3.3	3.9	4.2	4.4	4.6	4.8	1.9
Other	1.8	1.6	1.5	1.4	1.6	1.9	2.3	2.7	1.2
Total World	80.3	81.8	83.0	84.6	87.9	92.2	96.5	100.5	0.6
OPEC Share of World Production	40%	40%	40%	40%	50%	50%	50%	50%	
Persian Gulf Share of World Production	30%	30%	30%	30%	40%	40%	40%	40%	

a/ Crude oil production includes tight oil, shale oil, extra-heavy oil, field condensate, and bitumen.

b/ OPEC = Organization of Petroleum Exporting Countries. Equatorial Guinea joined OPEC on 2017, but this is not reflected in the IEO2017 projections. Equatorial Guinea is reported as part of non-OPEC, non-OECD Africa.

Note: Totals may not equal sum of components due to independent rounding.

Source file: //nem6/d/IEO2017_GWOB/Final_Files/[IEO2017_Reference_GWOB.xlsm]IEO_G2_Crude_Production

Table G3. International other liquid fuels^a production by region and country, 2015-50, Reference case

million barrels per day

Region/Country	2015	2020	2025	2030	2035	2040	2045	2050	Average annual percent change (2015-50)
OPEC^b	4.0	4.3	4.6	4.8	5.1	5.4	5.8	6.3	1.3
Natural gas plant liquids	3.7	4.1	4.4	4.6	4.9	5.2	5.6	6.0	1.4
Liquids from renewable sources ^c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liquids from coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liquids from natural gas (primarily Qatar)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0
Refinery gain	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
Non-OPEC	12.4	13.6	14.2	14.6	14.8	15.2	15.3	15.4	0.6
OECD	8.3	9.7	9.9	9.9	9.9	9.9	9.9	9.9	0.5
Natural gas plant liquids	4.8	6.2	6.4	6.4	6.3	6.3	6.3	6.2	0.7
Liquids from renewable sources ^c	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	0.4
Liquids from coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liquids from natural gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liquids from kerogen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Refinery processing gain	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	0.2
Non-OECD	4.2	4.0	4.3	4.7	4.9	5.2	5.4	5.5	0.8
Natural gas plant liquids	2.0	1.9	2.0	2.0	1.9	1.9	1.9	1.9	-0.1
Liquids from renewable sources ^c	0.8	0.9	1.1	1.3	1.5	1.8	1.8	1.8	2.4
Liquids from coal	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.7
Liquids from natural gas	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	4.9
Refinery gain	0.7	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.6
Total world	16.4	17.9	18.8	19.4	19.9	20.6	21.1	21.7	0.8
Natural gas plant liquids	10.5	12.2	12.7	12.9	13.2	13.4	13.7	14.1	0.8
United States	3.3	4.7	4.8	4.8	4.8	4.8	4.8	4.7	1.0
Russia	0.8	0.6	0.6	0.6	0.5	0.5	0.5	0.5	-1.2
Liquids from renewable sources^c	2.1	2.4	2.6	2.8	3.0	3.3	3.3	3.4	1.3
Brazil	0.5	0.5	0.6	0.7	0.8	0.9	0.9	0.9	1.7
China ^d	0.1	0.1	0.2	0.3	0.4	0.5	0.6	0.6	6.6
United States	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.1
Liquids from coal	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.7
China	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	3.8
South Africa	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-100.0
Liquids from natural gas	0.2	0.2	0.4	0.4	0.4	0.4	0.4	0.4	1.8
Qatar	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0
South Africa	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	5.2
Refinery processing gain	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	0.7
United States	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	0.0
China	0.3	0.3	0.4	0.4	0.5	0.5	0.5	0.6	1.7

a/ Other liquids includes natural gas plant liquids, liquids from renewable sources (biofuels, including ethanol, biodiesel, and biomass-to-liquids [BTL]), liquids from natural gas (gas-to-liquids [GTL]), liquids from coal (coal-to-liquids [CTL]), and liquids from kerogen (oil shale).

b/ OPEC = Organization of Petroleum Exporting Countries. Equatorial Guinea joined OPEC on 2017, but this is not reflected in the IEO2017 projections. Equatorial Guinea is reported as part of non-OPEC, non-OECD Africa.

c/ Liquids from renewable sources (biofuels) include ethanol, biodiesel, and biomass-to-liquids [BTL]. All volumes, including ethanol, are reported on a volume basis. China statistics include methanol volumes.

d/ Alcohol data from China includes methanol.

Note: Totals may not equal sum of components due to independent rounding.

Source file: //nem6/d/IEO2017_GWOB/Final_Files/IEO2017_Reference_GWOB.xlsm|IEO_G3_OtherLiquids_Production

Table G4. World petroleum and other liquids production by region and country, High Oil Price case, 2015-50

million barrels per day

Region/Country	2015	2020	2025	2030	2035	2040	2045	2050	Average annual percent change (2015-50)
OPEC^a	37.8	32.5	33.7	34.4	37.0	39.9	42.9	45.9	0.6
Middle East	28.2	25.2	26.5	26.7	28.5	30.7	32.8	34.8	0.6
North Africa	2.2	1.8	1.8	2.0	2.5	3.0	3.4	3.7	1.5
West Africa	4.1	3.3	3.4	3.5	3.5	3.4	3.5	3.8	-0.2
South America	3.2	2.2	2.0	2.2	2.5	2.8	3.2	3.6	0.3
Non-OPEC	58.9	62.0	64.1	66.1	67.8	70.0	72.0	74.0	0.7
OECD	26.9	32.8	33.4	33.8	33.7	34.3	34.4	34.2	0.7
OECD North America	22.4	28.2	28.8	29.4	29.4	30.1	30.5	30.5	0.9
United States	15.2	20.5	20.8	20.7	19.9	19.4	18.9	18.4	0.6
Canada	4.5	5.2	5.6	6.0	6.5	7.0	7.6	7.7	1.5
Mexico and Chile	2.6	2.4	2.4	2.6	3.0	3.6	4.0	4.4	1.5
OECD Europe	3.9	4.0	3.9	3.7	3.6	3.4	3.0	2.8	-1.0
North Sea	3.0	3.1	3.1	2.9	2.7	2.5	2.1	1.8	-1.5
Other	0.8	0.8	0.8	0.8	0.9	0.9	0.9	1.0	0.4
OECD Asia	0.7	0.6	0.7	0.7	0.8	0.8	0.9	1.0	1.0
Australia and New Zealand	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.7	1.3
Other	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3
Non-OECD	31.9	29.2	30.7	32.3	34.0	35.8	37.6	39.7	0.6
Non-OECD Europe and Eurasia	14.3	12.8	12.5	13.1	13.6	14.0	14.3	14.2	0.0
Russia	11.0	9.7	9.0	9.3	9.6	10.0	10.3	10.2	-0.2
Caspian Area	3.0	2.8	3.3	3.6	3.8	3.8	3.7	3.8	0.7
Kazakhstan	1.8	1.8	2.2	2.6	2.7	2.8	2.7	2.6	1.2
Other	1.2	1.0	1.0	1.0	1.0	1.0	1.1	1.1	-0.2
Other	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-0.7
Non-OECD Asia	9.1	7.9	8.6	8.9	9.2	9.5	9.9	10.5	0.4
China	5.2	4.5	5.3	5.7	6.1	6.4	6.8	7.3	1.0
India	1.0	0.9	1.0	1.0	1.1	1.1	1.1	1.2	0.6
Other	2.9	2.5	2.3	2.2	2.1	2.0	2.0	2.0	-1.1
Middle East (Non-OPEC)	1.1	0.9	0.9	0.8	0.7	0.7	0.6	0.6	-1.8
Oman	1.0	0.8	0.7	0.7	0.6	0.6	0.5	0.5	-1.9
Other	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-1.0
Africa	2.1	2.0	2.0	2.0	1.9	1.9	2.0	2.0	-0.1
Ghana	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	2.6
Other	2.0	1.8	1.8	1.7	1.7	1.7	1.7	1.8	-0.3
Central and South America	5.3	5.6	6.7	7.6	8.6	9.7	10.9	12.4	2.4
Brazil	3.2	3.7	4.7	5.3	5.8	6.3	6.9	7.8	2.6
Other	2.2	1.9	2.1	2.4	2.8	3.4	4.0	4.6	2.2
Total World	96.7	94.5	97.8	100.6	104.7	109.9	114.9	119.9	0.6
OPEC Share of World Production	40%	30%	30%	30%	40%	40%	40%	40%	
Persian Gulf Share of World Production	30%	30%	30%	30%	30%	30%	30%	30%	

a/ OPEC = Organization of Petroleum Exporting Countries. Equatorial Guinea joined OPEC on 2017, but this is not reflected in the IEO2017 projections. Equatorial Guinea is reported as part of non-OPEC, non-OECD Africa.

Note: Totals may not equal sum of components due to independent rounding.

Source file: //nem6/d/IEO2017_GWOB/Final_Files/[IEO2017_HighPrice_GWOB.xlsm]IEO_G1_Total_Liquids_Production

Table G5. World crude oil production^a by region and country, High Oil Price case, 2015-50

million barrels per day

Region/Country	2015	2020	2025	2030	2035	2040	2045	2050	Average annual percent change (2015-50)
OPEC^b	33.8	28.0	28.8	29.1	31.0	33.4	36.0	38.5	0.4
Middle East	24.9	21.5	22.4	22.3	23.6	25.5	27.3	29.0	0.4
North Africa	1.8	1.4	1.4	1.5	1.8	2.1	2.4	2.4	0.8
West Africa	4.1	3.2	3.3	3.3	3.4	3.2	3.3	3.7	-0.3
South America	3.0	2.0	1.8	2.0	2.2	2.6	3.0	3.4	0.3
Non-OPEC	46.5	47.8	48.9	49.7	50.7	52.3	54.0	55.5	0.5
OECD	18.7	22.5	22.7	22.4	22.0	22.2	22.3	21.9	0.4
OECD North America	15.4	19.2	19.5	19.4	19.1	19.6	20.0	19.8	0.7
United States	9.4	12.8	12.9	12.2	11.2	10.5	10.0	9.3	0.0
Canada	3.7	4.4	4.6	4.9	5.3	5.8	6.3	6.4	1.6
Mexico and Chile	2.3	2.1	2.1	2.3	2.7	3.3	3.7	4.1	1.6
OECD Europe	3.0	2.9	2.8	2.6	2.4	2.1	1.7	1.5	-2.0
North Sea	2.5	2.6	2.5	2.4	2.2	2.0	1.6	1.3	-1.9
Other	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	-2.3
OECD Asia	0.4	0.3	0.4	0.4	0.4	0.5	0.5	0.6	1.4
Australia and New Zealand	0.4	0.3	0.4	0.4	0.4	0.5	0.5	0.6	1.4
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.5
Non-OECD	27.8	25.3	26.2	27.4	28.7	30.1	31.7	33.6	0.5
Non-OECD Europe and Eurasia	13.3	11.9	11.5	12.1	12.6	13.0	13.3	13.2	0.0
Russia	10.3	9.1	8.3	8.7	9.0	9.3	9.7	9.6	-0.2
Caspian Area	2.8	2.6	3.0	3.3	3.5	3.5	3.5	3.5	0.6
Kazakhstan	1.7	1.7	2.1	2.4	2.6	2.6	2.5	2.5	1.2
Other	1.2	0.9	0.9	0.9	0.9	0.9	0.9	1.0	-0.4
Other	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	-1.2
Non-OECD Asia	7.5	6.5	6.9	6.9	7.0	7.1	7.3	7.7	0.1
China	4.3	3.9	4.5	4.7	4.9	5.1	5.3	5.7	0.8
India	0.8	0.7	0.7	0.6	0.6	0.6	0.6	0.7	-0.3
Other	2.4	1.9	1.7	1.6	1.4	1.4	1.3	1.3	-1.7
Middle East (Non-OPEC)	1.1	0.9	0.8	0.7	0.7	0.6	0.6	0.6	-1.8
Africa	1.7	1.5	1.5	1.5	1.5	1.4	1.5	1.5	-0.3
Central and South America	4.2	4.5	5.4	6.1	6.9	7.9	9.1	10.6	2.7
Brazil	2.4	3.0	3.8	4.3	4.7	5.0	5.6	6.5	2.8
Other	1.8	1.5	1.6	1.9	2.2	2.9	3.4	4.1	2.4
Total World	80.3	75.8	77.7	78.8	81.7	85.8	90.0	94.0	0.4
OPEC Share of World Production	40%	40%	40%	40%	40%	40%	40%	40%	
Persian Gulf Share of World Production	30%	30%	30%	30%	30%	30%	30%	30%	

a/ Crude oil production includes tight oil, shale oil, extra-heavy oil, field condensate, and bitumen.

b/ OPEC = Organization of Petroleum Exporting Countries. Equatorial Guinea joined OPEC on 2017, but this is not reflected in the IEO2017 projections. Equatorial Guinea is reported as part of non-OPEC, non-OECD Africa.

Note: Totals may not equal sum of components due to independent rounding.

Source file: //nem6/d/IEO2017_GWOB/Final_Files/[IEO2017_HighPrice_GWOB.xlsm]IEO_G2_Crude_Production

Table G6. International other liquid fuels production by region and country, High Oil price case, 2015-50

million barrels per day

Region/Country	2015	2020	2025	2030	2035	2040	2045	2050	Average annual percent change (2015-50)
OPEC^b	4.0	4.4	4.9	5.4	5.9	6.4	6.9	7.5	1.8
Natural gas plant liquids	3.7	4.2	4.7	5.2	5.7	6.2	6.7	7.3	1.9
Liquids from renewable sources ^c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liquids from coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liquids from natural gas (primarily Qatar)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0
Refinery gain	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Non-OPEC	12.4	14.2	15.2	16.4	17.1	17.7	18.0	18.4	1.2
OECD	8.2	10.3	10.7	11.5	11.8	12.0	12.1	12.3	1.2
Natural gas plant liquids	4.7	6.6	7.1	7.4	7.3	7.3	7.2	7.1	1.2
Liquids from renewable sources ^c	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	0.4
Liquids from coal	0.0	0.0	0.0	0.2	0.3	0.3	0.3	0.3	17.8
Liquids from natural gas	0.0	0.0	0.1	0.3	0.5	0.7	0.9	1.1	inf
Liquids from kerogen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Refinery processing gain	2.0	2.1	2.1	2.1	2.2	2.2	2.2	2.3	0.4
Non-OECD	4.2	4.0	4.5	4.9	5.3	5.7	5.9	6.1	1.1
Natural gas plant liquids	2.0	2.0	2.1	2.2	2.3	2.3	2.3	2.3	0.4
Liquids from renewable sources ^c	0.8	0.9	1.1	1.4	1.6	1.8	1.8	1.9	2.5
Liquids from coal	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.7
Liquids from natural gas	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	4.9
Refinery gain	0.7	0.7	0.8	1.0	1.0	1.1	1.3	1.4	1.9
Total world	16.3	18.7	20.1	21.8	23.0	24.1	24.9	25.9	1.3
Natural gas plant liquids	10.4	12.8	13.9	14.8	15.3	15.8	16.2	16.6	1.3
United States	3.3	5.1	5.4	5.6	5.5	5.4	5.4	5.3	1.4
Russia	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.6	-0.7
Liquids from renewable sources^c	2.1	2.4	2.6	2.9	3.0	3.3	3.3	3.4	1.4
Brazil	0.5	0.5	0.6	0.7	0.8	0.9	0.9	0.9	1.8
China ^d	0.1	0.1	0.2	0.3	0.4	0.6	0.6	0.6	6.7
United States	1.0	1.1	1.1	1.1	1.1	1.1	1.0	1.0	0.1
Liquids from coal	0.2	0.3	0.2	0.4	0.5	0.6	0.6	0.6	2.8
China	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	3.8
South Africa	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-100.0
Liquids from natural gas	0.2	0.2	0.5	0.7	0.9	1.1	1.3	1.5	5.5
Qatar	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0
South Africa	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	5.2
Refinery processing gain	2.7	2.9	2.9	3.1	3.2	3.3	3.5	3.7	0.9
United States	1.3	1.5	1.4	1.4	1.4	1.4	1.3	1.3	0.1
China	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.7	2.2

a/ Other liquids includes natural gas plant liquids, liquids from renewable sources (biofuels, including ethanol, biodiesel, and biomass-to-liquids [BTL]), liquids from natural gas (gas-to-liquids [GTL]), liquids from coal (coal-to-liquids [CTL]), and liquids from kerogen (oil shale).

b/ OPEC = Organization of Petroleum Exporting Countries. Equatorial Guinea joined OPEC on 2017, but this is not reflected in the IEO2017 projections. Equatorial Guinea is reported as part of non-OPEC, non-OECD Africa.

c/ Liquids from renewable sources (biofuels) include ethanol, biodiesel, and biomass-to-liquids [BTL]. All volumes, including ethanol, are reported on a volume basis. China statistics include methanol volumes.

d/ Alcohol data from China includes methanol.

Note: Totals may not equal sum of components due to independent rounding.

Source file: //nem6/d/IEO2017_GWOB/Final_Files/IEO2017_HighPrice_GWOB.xlsm|IEO_G3_OtherLiquids_Production

Table G7. World petroleum and other liquids production by region and country, Low Oil Price case, 2015-50
 million barrels per day

Region/Country	2015	2020	2025	2030	2035	2040	2045	2050	Average annual percent change (2015-50)
OPEC^a	37.8	43.6	48.0	50.9	55.1	60.0	65.4	70.8	1.8
Middle East	28.2	34.2	37.9	39.4	42.1	45.2	48.5	51.9	1.8
North Africa	2.2	2.3	2.6	3.1	3.6	4.2	4.8	5.4	2.5
West Africa	4.1	4.5	5.0	5.2	5.5	5.9	6.6	7.5	1.7
South America	3.2	2.6	2.6	3.1	3.8	4.7	5.5	6.0	1.8
Non-OPEC	58.9	57.8	57.5	57.0	56.8	57.2	57.7	58.4	0.0
OECD	26.9	26.1	25.0	24.4	23.9	23.9	24.0	24.2	-0.3
OECD North America	22.4	21.6	20.9	20.4	20.1	20.5	20.9	21.3	-0.1
United States	15.2	14.6	13.9	13.5	13.3	13.3	13.5	13.6	-0.3
Canada	4.5	4.9	4.9	4.9	4.9	4.9	5.1	5.1	0.3
Mexico and Chile	2.6	2.1	2.0	1.9	2.0	2.2	2.4	2.6	0.0
OECD Europe	3.9	3.8	3.4	3.3	3.1	2.7	2.4	2.2	-1.5
North Sea	3.0	2.8	2.5	2.4	2.2	1.9	1.6	1.4	-2.2
Other	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.1
OECD Asia	0.7	0.8	0.7	0.7	0.7	0.7	0.7	0.7	-0.1
Australia and New Zealand	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	-0.1
Other	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.0
Non-OECD	31.9	31.7	32.5	32.7	32.9	33.3	33.6	34.2	0.2
Non-OECD Europe and Eurasia	14.3	15.0	16.0	16.2	16.4	16.6	16.9	17.0	0.5
Russia	11.0	11.7	12.5	12.6	12.8	13.1	13.5	13.9	0.7
Caspian Area	3.0	3.0	3.2	3.3	3.4	3.3	3.1	3.0	0.0
Kazakhstan	1.8	1.9	2.1	2.2	2.3	2.2	2.0	1.8	0.1
Other	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.2	-0.1
Other	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	-0.7
Non-OECD Asia	9.1	8.3	8.2	8.1	8.0	7.9	7.8	7.8	-0.4
China	5.2	4.4	4.5	4.7	4.8	4.8	4.7	4.7	-0.3
India	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.2	0.4
Other	2.9	2.8	2.6	2.3	2.1	2.0	2.0	2.0	-1.2
Middle East (Non-OPEC)	1.1	1.1	1.0	0.9	0.8	0.7	0.7	0.6	-1.6
Oman	1.0	1.0	0.9	0.7	0.7	0.6	0.6	0.5	-1.7
Other	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-0.9
Africa	2.1	2.1	2.1	1.9	1.9	1.8	1.8	1.9	-0.3
Ghana	0.1	0.2	0.3	0.3	0.3	0.2	0.3	0.3	2.8
Other	2.0	1.8	1.8	1.7	1.6	1.6	1.6	1.6	-0.6
Central and South America	5.3	5.2	5.2	5.5	5.9	6.2	6.4	6.8	0.7
Brazil	3.2	3.1	3.2	3.6	3.9	4.2	4.3	4.5	1.0
Other	2.2	2.1	2.0	1.9	2.0	2.0	2.1	2.3	0.2
Total World	96.7	101.4	105.6	107.9	111.9	117.3	123.1	129.2	0.8
OPEC Share of World Production	40%	40%	50%	50%	50%	50%	50%	50%	
Persian Gulf Share of World Production	30%	30%	40%	40%	40%	40%	40%	40%	

a/ OPEC = Organization of Petroleum Exporting Countries. Equatorial Guinea joined OPEC on 2017, but this is not reflected in the IEO2017 projections.

Equatorial Guinea is reported as part of non-OPEC, non-OECD Africa.

Note: Totals may not equal sum of components due to independent rounding.

Source file: //nem6/d/IEO2017_GWOB/Final_Files/[IEO2017_LowPrice_GWOB.xlsm]IEO_G1_Total_Liqids_Production

Table G8. World crude oil production^a by region and country, Low Oil Price case, 2015-50

million barrels per day

Region/Country	2015	2020	2025	2030	2035	2040	2045	2050	Average annual percent change (2015-50)
OPEC^b	33.8	39.3	43.5	46.2	50.1	54.8	59.7	64.8	1.9
Middle East	24.9	30.5	34.0	35.5	38.0	41.0	44.0	47.2	1.8
North Africa	1.8	1.9	2.2	2.7	3.0	3.5	3.9	4.3	2.5
West Africa	4.1	4.4	4.9	5.1	5.4	5.8	6.5	7.4	1.7
South America	3.0	2.4	2.4	2.9	3.6	4.5	5.3	5.8	1.9
Non-OPEC	46.5	44.9	44.6	43.8	43.4	43.5	43.9	44.5	-0.1
OECD	18.7	17.1	16.2	15.5	15.1	15.0	15.0	15.2	-0.6
OECD North America	15.4	14.0	13.4	13.0	12.8	13.1	13.4	13.7	-0.3
United States	9.4	8.2	7.7	7.4	7.2	7.2	7.2	7.2	-0.8
Canada	3.7	4.0	4.0	3.9	3.9	3.9	4.0	4.1	0.3
Mexico and Chile	2.3	1.8	1.8	1.7	1.7	1.9	2.1	2.4	0.1
OECD Europe	3.0	2.7	2.4	2.2	2.0	1.6	1.3	1.1	-2.7
North Sea	2.5	2.3	2.0	1.9	1.8	1.4	1.1	1.0	-2.8
Other	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	-2.2
OECD Asia	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	-0.2
Australia and New Zealand	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	-0.2
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.4
Non-OECD	27.8	27.8	28.4	28.3	28.3	28.5	28.8	29.3	0.2
Non-OECD Europe and Eurasia	13.3	14.1	15.1	15.3	15.5	15.8	16.1	16.2	0.6
Russia	10.3	11.0	11.9	12.1	12.2	12.6	13.0	13.4	0.8
Caspian Area	2.8	2.9	3.0	3.1	3.1	3.1	2.9	2.7	-0.1
Kazakhstan	1.7	1.8	1.9	2.1	2.2	2.1	1.9	1.7	0.0
Other	1.2	1.1	1.1	1.0	1.0	1.0	1.0	1.1	-0.2
Other	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	-1.0
Non-OECD Asia	7.5	6.8	6.6	6.3	6.0	5.8	5.7	5.6	-0.8
China	4.3	3.7	3.8	3.8	3.7	3.6	3.5	3.5	-0.6
India	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	-0.2
Other	2.4	2.3	2.0	1.8	1.6	1.5	1.4	1.4	-1.5
Middle East (Non-OPEC)	1.1	1.1	1.0	0.8	0.8	0.7	0.6	0.6	-1.6
Africa	1.7	1.8	1.8	1.6	1.6	1.5	1.6	1.6	-0.2
Central and South America	4.2	4.0	4.0	4.2	4.4	4.7	4.9	5.2	0.6
Brazil	2.4	2.4	2.4	2.7	2.9	3.1	3.2	3.4	0.9
Other	1.8	1.6	1.6	1.5	1.5	1.6	1.7	1.8	0.1
Total World	80.3	84.2	88.1	89.9	93.5	98.3	103.6	109.2	0.9
OPEC Share of World Production	40%	50%	50%	50%	50%	60%	60%	60%	
Persian Gulf Share of World Production	30%	40%	40%	40%	40%	40%	40%	40%	

a/ Crude oil production includes tight oil, shale oil, extra-heavy oil, field condensate, and bitumen.

b/ OPEC = Organization of Petroleum Exporting Countries. Equatorial Guinea joined OPEC on 2017, but this is not reflected in the IEO2017 projections. Equatorial Guinea is reported as part of non-OPEC, non-OECD Africa.

Note: Totals may not equal sum of components due to independent rounding.

Source file: //nem6/d/IEO2017_GWOB/Final_Files/[IEO2017_LowPrice_GWOB.xlsm]IEO_G2_Crude_Production

Table G9. International other liquid fuels^a production by region and country, Low Oil Price case, 2015-50

million barrels per day

Region/Country	2015	2020	2025	2030	2035	2040	2045	2050	Average annual percent change (2015-50)
OPEC^b	4.0	4.3	4.5	4.7	5.0	5.3	5.6	6.1	1.2
Natural gas plant liquids	3.7	4.1	4.3	4.5	4.8	5.1	5.4	5.8	1.3
Liquids from renewable sources ^c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liquids from coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liquids from natural gas (primarily Qatar)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0
Refinery gain	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Non-OPEC	12.4	12.8	12.9	13.3	13.4	13.7	13.8	13.9	0.3
OECD	8.2	9.0	8.9	8.9	8.8	8.9	9.0	9.1	0.3
Natural gas plant liquids	4.7	5.7	5.6	5.6	5.5	5.6	5.6	5.7	0.5
Liquids from renewable sources ^c	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.4	0.0
Liquids from coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-100.0
Liquids from natural gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liquids from kerogen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Refinery processing gain	2.0	1.9	1.9	1.9	1.9	2.0	2.0	2.1	0.1
Non-OECD	4.2	3.8	4.1	4.4	4.6	4.8	4.8	4.8	0.4
Natural gas plant liquids	2.0	1.9	1.9	1.9	1.9	1.9	1.8	1.8	-0.2
Liquids from renewable sources ^c	0.8	0.9	1.1	1.3	1.4	1.6	1.6	1.6	2.1
Liquids from coal	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-1.1
Liquids from natural gas	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	1.1
Refinery gain	0.7	0.8	0.8	1.0	1.1	1.1	1.2	1.2	1.4
Total world	16.3	17.1	17.5	18.0	18.4	19.0	19.5	20.0	0.6
Natural gas plant liquids	10.4	11.7	11.8	12.0	12.2	12.5	12.9	13.3	0.7
United States	3.3	4.2	4.0	4.0	4.0	4.1	4.2	4.2	0.7
Russia	0.8	0.6	0.6	0.6	0.5	0.5	0.5	0.5	-1.3
Liquids from renewable sources^c	2.1	2.3	2.5	2.6	2.7	2.9	2.9	3.0	0.9
Brazil	0.5	0.5	0.6	0.6	0.7	0.8	0.8	0.8	1.3
China	0.1	0.1	0.2	0.3	0.4	0.5	0.5	0.5	6.3
United States	1.0	1.1	1.1	1.0	1.0	0.9	0.9	0.9	-0.3
Liquids from coal	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-1.2
China ^d	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1.9
South Africa	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-100.0
Liquids from natural gas	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Qatar	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0
South Africa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Refinery processing gain	2.7	2.7	2.7	2.9	3.0	3.1	3.2	3.3	0.5
United States	1.3	1.1	1.1	1.1	1.1	1.1	1.2	1.2	-0.1
China	0.3	0.3	0.4	0.4	0.5	0.5	0.5	0.5	1.5

a/ Other liquids includes natural gas plant liquids, liquids from renewable sources (biofuels, including ethanol, biodiesel, and biomass-to-liquids [BTL]), liquids from natural gas (gas-to-liquids [GTL]), liquids from coal (coal-to-liquids [CTL]), and liquids from kerogen (oil shale).

b/ OPEC = Organization of Petroleum Exporting Countries. Equatorial Guinea joined OPEC on 2017, but this is not reflected in the IEO2017 projections. Equatorial Guinea is reported as part of non-OPEC, non-OECD Africa.

c/ Liquids from renewable sources (biofuels) include ethanol, biodiesel, and biomass-to-liquids [BTL]. All volumes, including ethanol, are reported on a volume basis. China statistics include methanol volumes.

d/ Alcohol data from China includes methanol.

Note: Totals may not equal sum of components due to independent rounding.

Source file: //nem6/d/IEO2017_GWOB/Final_Files/[IEO2017_LowPrice_GWOB.xlsm]IEO_G3_OtherLiquids_Production