



**Asia-Pacific  
Economic Cooperation**

**Advancing** Free Trade  
for Asia-Pacific **Prosperity**

# **APEC Energy Handbook 2017**

**APEC Energy Working Group**

March 2020

Prepared by

Energy Statistics and Training Office  
Asia Pacific Energy Research Centre (APERC)  
Inui bldg., Kachidoki, 1-13-1, Kachidoki,  
Chuo-ku, Tokyo, 104-0054, Japan  
Phone: (81) 3 5144 8551 Facsimile: (81) 3 5144 8555  
E-mail: [esto@aperc.iej.or.jp](mailto:esto@aperc.iej.or.jp)  
Website: <https://www.egeda.ewg.apec.org/>

For

Asia-Pacific Economic Cooperation Secretariat  
35 Heng Mui Keng Terrace  
Singapore 119616  
Phone: (65) 6891 9600 Facsimile: (65) 6891 9690  
E-mail: [info@apec.org](mailto:info@apec.org)  
Website: [www.apec.org](http://www.apec.org)

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APEC#220-RE-03.1 ISSN: 0219-7634

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## Preface

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The APEC Energy Handbook 2017 is a handy, pocket-sized summary of key energy data and a supplement to APEC Energy Statistics 2017, which was released in February 2020.

This handbook consists of the following sections:

1. Primary Energy Supply
2. Transformation
3. Final Energy Consumption
4. Energy Balances
5. Energy Outlook
6. Energy Indicators

The supply section contains total primary energy supply by energy while the transformation section shows oil refining and power generation. The consumption section indicates both final energy consumption by sectors and by energy. The energy balances section includes regional energy balance tables while the outlook section shows projected energy demand until year 2035 taken from the APEC Energy Supply and Demand Outlook 2017 published by the Asia Pacific Energy Research Centre in May 2017. The energy indicators section contains several energy indicators based on population, GDP and energy consumption.

This handbook was derived from the APEC Energy Database, the purpose of which is to establish a comprehensive and consistent energy database within the APEC region. This database aims to assist in the identification of significant trends in energy supply and demand consistent with projects and priorities under the APEC Energy Working Group. It has been prepared in close cooperation with the twenty-one member economies.

Inquiries about figures and graphs in this handbook could be addressed to:

Energy Statistics and Training Office  
Asia Pacific Energy Research Centre  
Address: 13-1, Kachidoki 1, Chuo-ku, Tokyo 104-0054, Japan  
Telephone: +81 3 5144 8551; Facsimile: +81 3 5144 8555  
Email: [esto@aperc.iecej.or.jp](mailto:esto@aperc.iecej.or.jp)  
Website: <https://www.egeda.ewg.apec.org/>



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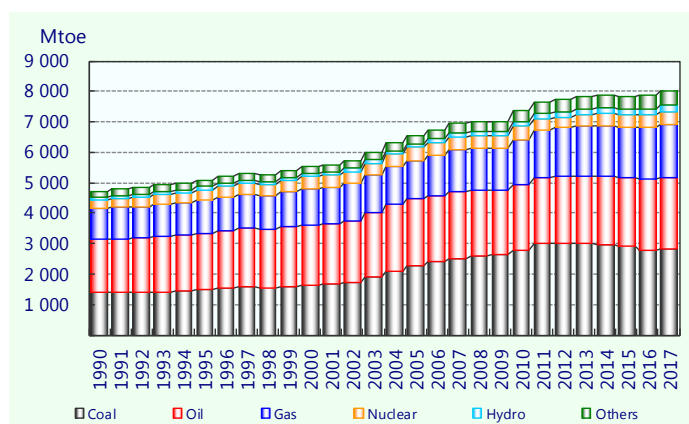
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## Total primary energy supply by energy APEC

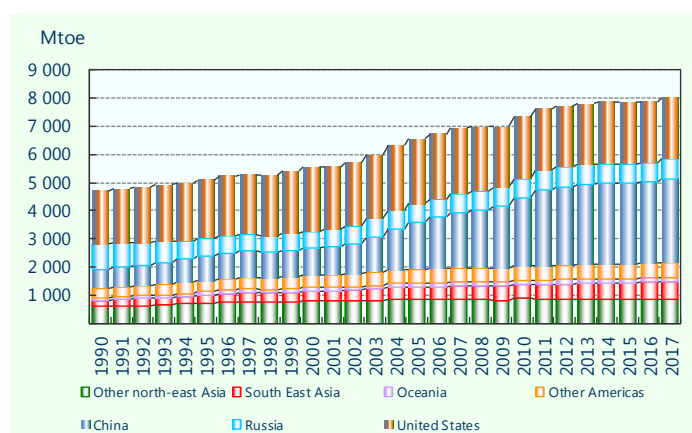


	Mtoe					
	1990	1995	2000	2005	2010	2017
Coal	1 381.4	1 510.9	1 620.3	2 272.0	2 787.1	2 809.8
Oil	1 761.2	1 832.2	1 991.6	2 196.3	2 168.0	2 353.5
Gas	997.1	1 074.4	1 194.3	1 267.8	1 463.2	1 748.0
Nuclear	285.9	345.9	390.1	419.2	432.4	418.8
Hydro	92.1	107.3	107.5	124.9	153.1	209.5
Others	200.5	222.5	240.0	277.4	348.7	481.3
<b>Total</b>	<b>4 718.3</b>	<b>5 093.2</b>	<b>5 543.9</b>	<b>6 557.6</b>	<b>7 352.5</b>	<b>8 020.8</b>

	Share (%)					
	1990	1995	2000	2005	2010	2017
Coal	29.3	29.7	29.2	34.6	37.9	35.0
Oil	37.3	36.0	35.9	33.5	29.5	29.3
Gas	21.1	21.1	21.5	19.3	19.9	21.8
Nuclear	6.1	6.8	7.0	6.4	5.9	5.2
Hydro	2.0	2.1	1.9	1.9	2.1	2.6
Others	4.3	4.4	4.3	4.2	4.7	6.0

## Total primary energy supply by region APEC



	Mtoe					
	1990	1995	2000	2005	2010	2017
Other north-east Asia	588.8	712.3	794.5	845.5	872.3	837.7
South East Asia	206.5	291.4	334.9	435.5	519.8	636.5
Oceania	99.0	109.6	127.8	133.7	149.4	152.2
Other Americas	358.9	395.4	441.9	496.3	487.5	531.6
China	670.6	880.4	951.6	1 675.9	2 417.6	2 975.5
Russia	879.3	636.8	619.4	651.7	689.0	732.2
United States	1 915.0	2 067.3	2 273.8	2 318.9	2 216.9	2 155.2
<b>Total</b>	<b>4 718.3</b>	<b>5 093.2</b>	<b>5 543.9</b>	<b>6 557.6</b>	<b>7 352.5</b>	<b>8 020.8</b>

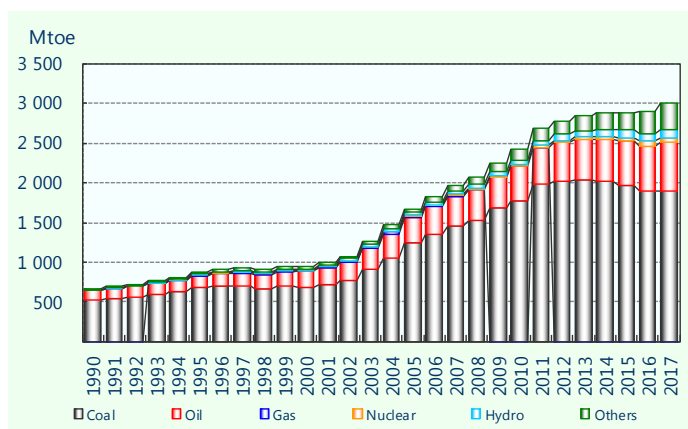
  

	Share (%)					
	1990	1995	2000	2005	2010	2017
Other north-east Asia	12.5	14.0	14.3	12.9	11.9	10.4
South East Asia	4.4	5.7	6.0	6.6	7.1	7.9
Oceania	2.1	2.2	2.3	2.0	2.0	1.9
Other Americas	7.6	7.8	8.0	7.6	6.6	6.6
China	14.2	17.3	17.2	25.6	32.9	37.1
Russia	18.6	12.5	11.2	9.9	9.4	9.1
United States	40.6	40.6	41.0	35.4	30.2	26.9

Primary Energy Supply



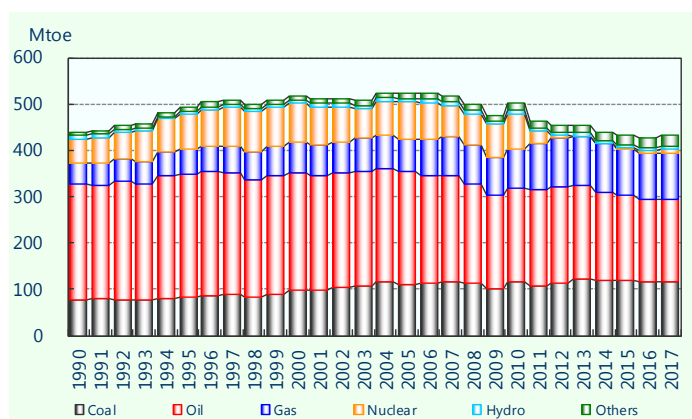
### Total primary energy supply by energy China



	1990	1995	2000	2005	2010	2017
Coal	531.5	685.0	674.7	1 246.8	1 767.5	1 903.9
Oil	113.5	143.2	212.6	315.6	439.5	603.7
Gas	- 3.2	7.9	7.1	16.9	- 1.1	- 22.1
Nuclear	-	3.3	4.4	13.8	19.3	64.6
Hydro	10.9	16.4	19.1	34.1	62.1	102.3
Others	18.0	24.6	33.6	48.6	130.3	323.0
<b>Total</b>	<b>670.6</b>	<b>880.4</b>	<b>951.6</b>	<b>1 675.9</b>	<b>2 417.6</b>	<b>2 975.5</b>

	1990	1995	2000	2005	2010	2017
Coal	79.3	77.8	70.9	74.4	73.1	64.0
Oil	16.9	16.3	22.3	18.8	18.2	20.3
Gas	-0.5	0.9	0.8	1.0	-0.0	-0.7
Nuclear	-	0.4	0.5	0.8	0.8	2.2
Hydro	1.6	1.9	2.0	2.0	2.6	3.4
Others	2.7	2.8	3.5	2.9	5.4	10.9

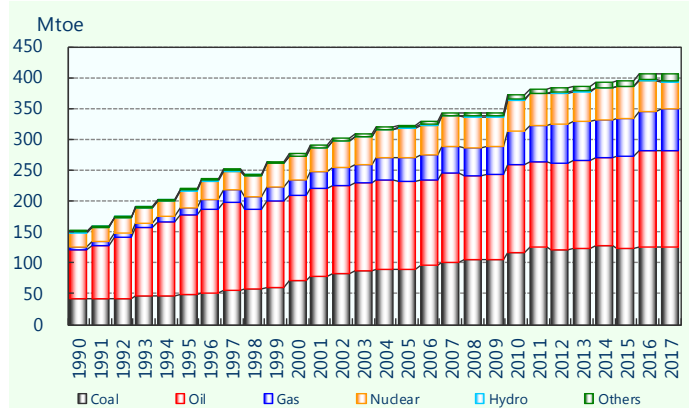
## Total primary energy supply by energy Japan



	Mtoe					
	1990	1995	2000	2005	2010	2017
Coal	76.7	83.9	97.0	110.5	115.4	116.5
Oil	250.3	264.9	255.0	243.1	202.7	176.0
Gas	44.1	53.2	65.6	70.7	85.9	100.9
Nuclear	52.7	75.9	83.9	79.4	75.1	8.6
Hydro	7.6	6.8	7.2	6.6	7.2	7.1
Others	7.3	8.5	9.4	12.0	15.1	23.0
<b>Total</b>	<b>438.7</b>	<b>493.2</b>	<b>518.2</b>	<b>522.3</b>	<b>501.4</b>	<b>432.0</b>
	Share (%)					
	1990	1995	2000	2005	2010	2017
Coal	17.5	17.0	18.7	21.2	23.0	27.0
Oil	57.0	53.7	49.2	46.6	40.4	40.7
Gas	10.1	10.8	12.7	13.5	17.1	23.4
Nuclear	12.0	15.4	16.2	15.2	15.0	2.0
Hydro	1.7	1.4	1.4	1.3	1.4	1.6
Others	1.7	1.7	1.8	2.3	3.0	5.3

Primary Energy Supply

### Total primary energy supply by energy Other north-east Asia\*



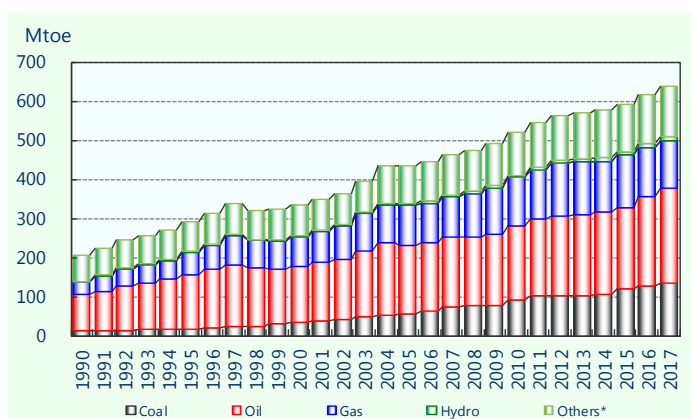
	Mtoe					
	1990	1995	2000	2005	2010	2017
Coal	42.2	48.7	70.9	90.1	115.8	126.6
Oil	79.3	129.2	137.5	140.7	142.9	156.0
Gas	4.3	12.0	25.4	38.4	55.5	66.2
Nuclear	22.3	26.7	38.4	48.7	49.6	44.5
Hydro	1.3	1.0	1.1	1.0	0.9	1.0
Others	0.7	1.6	3.0	4.3	6.3	11.4
<b>Total</b>	<b>150.1</b>	<b>219.2</b>	<b>276.3</b>	<b>323.2</b>	<b>370.9</b>	<b>405.7</b>

	Share (%)					
	1990	1995	2000	2005	2010	2017
Coal	28.1	22.2	25.7	27.9	31.2	31.2
Oil	52.8	58.9	49.8	43.5	38.5	38.5
Gas	2.9	5.5	9.2	11.9	15.0	16.3
Nuclear	14.9	12.2	13.9	15.1	13.4	11.0
Hydro	0.8	0.5	0.4	0.3	0.3	0.2
Others	0.4	0.7	1.1	1.3	1.7	2.8

\*In this page, Other north-east Asia includes Hong Kong, China; Republic of Korea and Chinese Taipei

## Total primary energy supply by energy South-East Asia



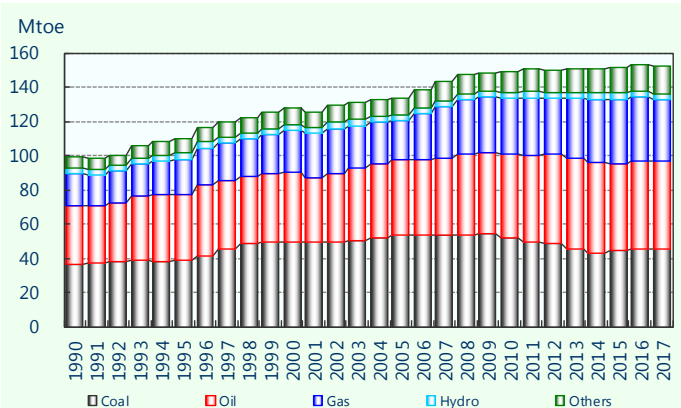
	Mtoe					
	1990	1995	2000	2005	2010	2017
Coal	12.7	17.7	32.3	55.1	91.5	135.7
Oil	92.3	138.9	145.6	175.7	187.3	239.7
Gas	31.2	55.0	75.2	102.6	125.2	121.8
Nuclear	-	-	-	-	-	-
Hydro	2.2	3.3	3.9	4.2	5.6	12.7
Others	68.2	76.5	77.9	98.0	110.3	126.5
<b>Total</b>	<b>206.5</b>	<b>291.4</b>	<b>334.9</b>	<b>435.5</b>	<b>519.8</b>	<b>636.5</b>

	Share (%)					
	1990	1995	2000	2005	2010	2017
Coal	6.1	6.1	9.6	12.6	17.6	21.3
Oil	44.7	47.7	43.5	40.3	36.0	37.7
Gas	15.1	18.9	22.5	23.6	24.1	19.1
Nuclear	-	-	-	-	-	-
Hydro	1.1	1.1	1.2	1.0	1.1	2.0
Others	33.0	26.2	23.3	22.5	21.2	19.9

\* Abrupt increase in 2004 is due to the availability of biomass data from Viet Nam

## Total primary energy supply by energy Oceania

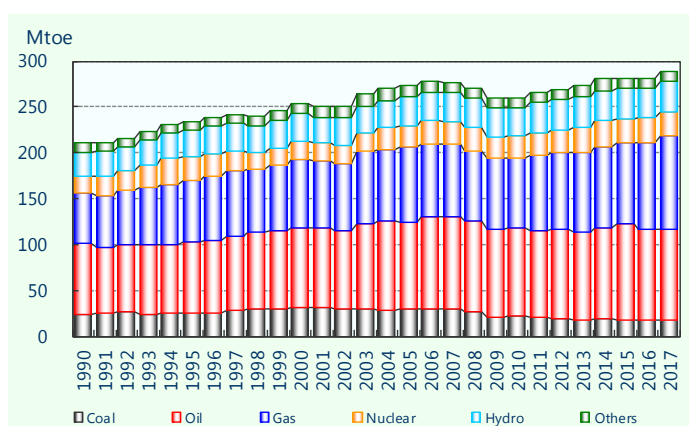


	Mtoe					
	1990	1995	2000	2005	2010	2017
Coal	36.1	38.6	49.3	53.2	51.8	45.1
Oil	34.7	38.4	40.8	44.5	49.3	51.5
Gas	18.7	20.7	24.5	22.3	32.3	36.0
Nuclear	-	-	-	-	-	-
Hydro	3.2	3.8	3.6	3.4	3.4	3.6
Others	6.4	8.1	9.7	10.3	12.6	15.9
<b>Total</b>	<b>99.0</b>	<b>109.6</b>	<b>127.8</b>	<b>133.7</b>	<b>149.4</b>	<b>152.2</b>

	Share (%)					
	1990	1995	2000	2005	2010	2017
Coal	36.4	35.3	38.5	39.8	34.7	29.6
Oil	35.1	35.0	31.9	33.3	33.0	33.9
Gas	18.8	18.8	19.1	16.7	21.6	23.7
Nuclear	-	-	-	-	-	-
Hydro	3.2	3.5	2.8	2.5	2.3	2.4
Others	6.4	7.4	7.6	7.7	8.4	10.5

## Total primary energy supply by energy Canada



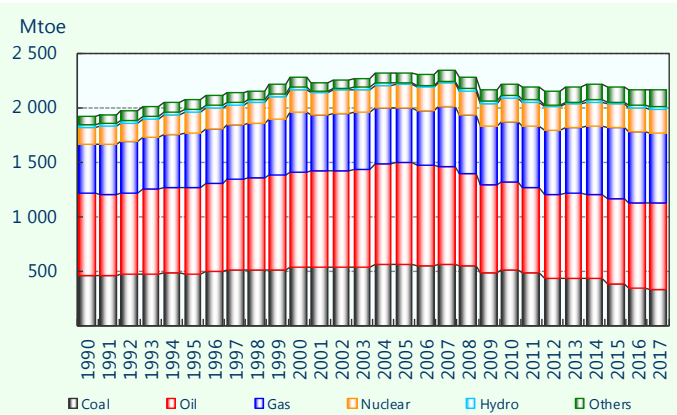
	Mtoe					
	1990	1995	2000	2005	2010	2017
Coal	24.3	25.3	31.6	29.7	22.5	17.0
Oil	76.5	77.2	87.1	95.0	96.3	99.9
Gas	54.7	67.1	74.3	81.2	75.7	100.9
Nuclear	19.4	25.6	19.0	24.0	23.6	26.3
Hydro	25.5	28.9	30.8	31.1	30.2	33.8
Others	10.9	9.8	10.8	12.5	11.8	11.2
<b>Total</b>	<b>211.3</b>	<b>233.9</b>	<b>253.6</b>	<b>273.5</b>	<b>260.1</b>	<b>289.1</b>

	Share (%)					
	1990	1995	2000	2005	2010	2017
Coal	11.5	10.8	12.5	10.8	8.6	5.9
Oil	36.2	33.0	34.3	34.7	37.0	34.6
Gas	25.9	28.7	29.3	29.7	29.1	34.9
Nuclear	9.2	10.9	7.5	8.8	9.1	9.1
Hydro	12.1	12.4	12.2	11.4	11.6	11.7
Others	5.1	4.2	4.3	4.6	4.5	3.9

Primary Energy Supply

## Total primary energy supply by energy United States

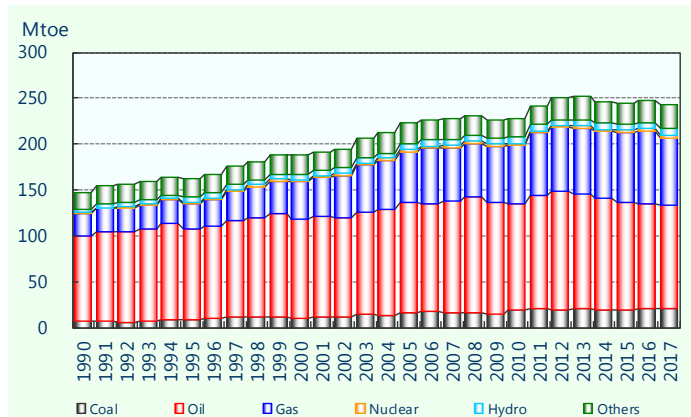


	Mtoe					
	1990	1995	2000	2005	2010	2017
Coal	460.1	473.9	533.9	558.4	502.6	330.7
Oil	756.8	785.6	871.2	929.2	806.5	790.3
Gas	438.4	507.4	547.7	507.2	556.1	643.9
Nuclear	159.4	186.0	207.9	211.2	218.6	218.6
Hydro	23.5	27.0	21.8	23.4	22.6	26.0
Others	76.9	87.4	91.3	89.5	110.5	145.7
<b>Total</b>	<b>1,915.0</b>	<b>2,067.3</b>	<b>2,273.8</b>	<b>2,318.9</b>	<b>2,216.9</b>	<b>2,155.2</b>

	Share (%)					
	1990	1995	2000	2005	2010	2017
Coal	24.0	22.9	23.5	24.1	22.7	15.3
Oil	39.5	38.0	38.3	40.1	36.4	36.7
Gas	22.9	24.5	24.1	21.9	25.1	29.9
Nuclear	8.3	9.0	9.1	9.1	9.9	10.1
Hydro	1.2	1.3	1.0	1.0	1.0	1.2
Others	4.0	4.2	4.0	3.9	5.0	6.8

## Total primary energy supply by energy Other Americas



	Mtoe					
	1990	1995	2000	2005	2010	2017
Coal	6.8	8.5	10.6	15.8	18.5	20.7
Oil	93.1	99.5	107.4	121.0	116.4	112.0
Gas	24.7	26.4	41.2	54.5	64.2	74.1
Nuclear	0.8	2.2	2.1	2.8	1.5	2.8
Hydro	3.7	5.1	5.8	6.2	6.8	7.1
Others	18.7	19.9	21.2	22.5	20.0	25.8
<b>Total</b>	<b>147.7</b>	<b>161.5</b>	<b>188.4</b>	<b>222.8</b>	<b>227.5</b>	<b>242.5</b>

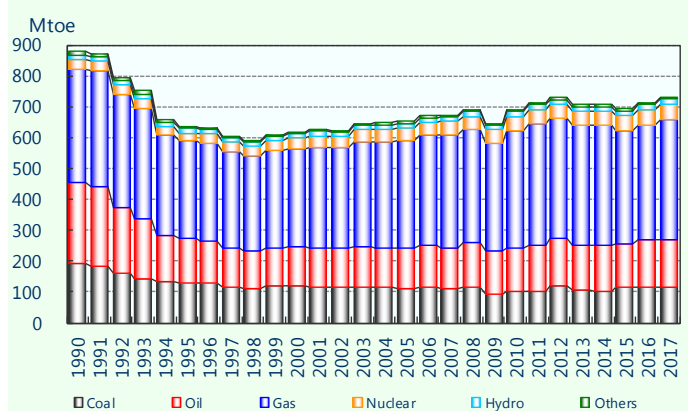
  

	Share (%)					
	1990	1995	2000	2005	2010	2017
Coal	4.6	5.2	5.6	7.1	8.1	8.5
Oil	63.0	61.6	57.0	54.3	51.2	46.2
Gas	16.7	16.4	21.9	24.5	28.2	30.6
Nuclear	0.5	1.4	1.1	1.3	0.7	1.2
Hydro	2.5	3.1	3.1	2.8	3.0	2.9
Others	12.6	12.3	11.3	10.1	8.8	10.6

\*In this page, Other Americas comprise Chile, Mexico, and Peru.



### Total primary energy supply by energy Russia

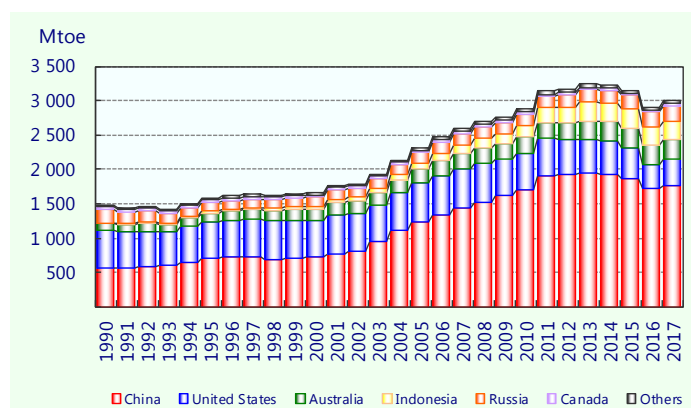


	Mtoe					
	1990	1995	2000	2005	2010	2017
Coal	191.1	129.2	120.0	112.6	101.4	113.6
Oil	263.8	142.7	126.1	129.2	139.1	154.0
Gas	367.4	316.6	319.0	349.7	383.5	388.3
Nuclear	31.3	26.2	34.4	39.2	44.8	53.3
Hydro	14.3	15.1	14.1	14.8	14.3	15.9
Others	11.5	6.9	5.7	6.2	5.9	7.1
<b>Total</b>	<b>879.3</b>	<b>636.8</b>	<b>619.4</b>	<b>651.7</b>	<b>689.0</b>	<b>732.2</b>

	Share (%)					
	1990	1995	2000	2005	2010	2017
Coal	21.7	20.3	19.4	17.3	14.7	15.5
Oil	30.0	22.4	20.4	19.8	20.2	21.0
Gas	41.8	49.7	51.5	53.7	55.7	53.0
Nuclear	3.6	4.1	5.6	6.0	6.5	7.3
Hydro	1.6	2.4	2.3	2.3	2.1	2.2
Others	1.3	1.1	0.9	1.0	0.9	1.0

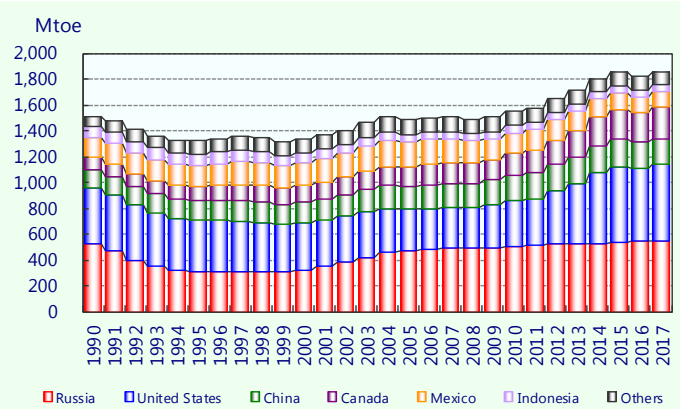
## Indigenous production of coal\* APEC



	Mtoe					
	1990	1995	2000	2005	2010	2017
China	564.5	707.7	717.8	1 231.4	1 700.9	1 770.1
United States	542.3	529.8	536.9	565.3	531.8	373.2
Australia	106.1	127.8	164.6	201.6	246.6	293.1
Indonesia	6.3	24.6	45.3	89.8	161.8	271.2
Russia	192.4	130.7	128.5	157.4	166.4	222.2
Canada	37.9	40.8	34.4	34.6	33.9	30.5
Others	25.6	24.4	25.8	38.6	48.1	44.6
<b>Total</b>	<b>1 475.2</b>	<b>1 585.8</b>	<b>1 653.3</b>	<b>2 318.7</b>	<b>2 889.5</b>	<b>3 004.9</b>
	Share (%)					
	1990	1995	2000	2005	2010	2017
China	38.3	44.6	43.4	53.1	58.9	58.9
United States	36.8	33.4	32.5	24.4	18.4	12.4
Australia	7.2	8.1	10.0	8.7	8.5	9.8
Russia	13.0	8.2	7.8	6.8	5.8	7.4
Indonesia	0.4	1.6	2.7	3.9	5.6	9.0
Canada	2.6	2.6	2.1	1.5	1.2	1.0
Others	1.7	1.5	1.6	1.7	1.7	1.5

\*Coal: hard coal, anthracite and lignite

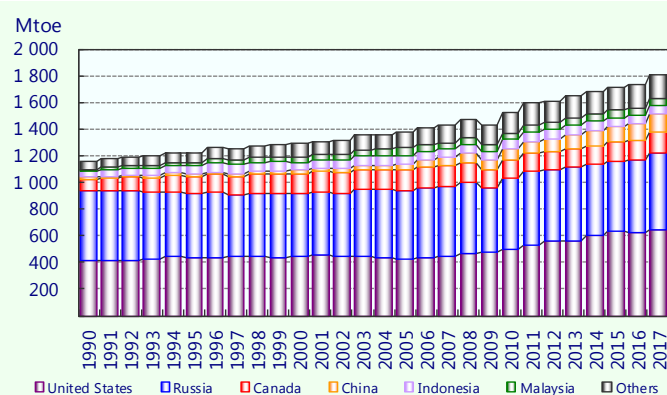
## Indigenous production of crude oil\* APEC



	Mtoe					
	1990	1995	2000	2005	2010	2017
Russia	526.3	306.6	323.3	468.7	506.5	549.0
United States	432.5	397.9	365.6	322.5	347.6	590.8
China	138.3	150.0	163.0	181.4	203.0	198.6
Canada	94.1	113.5	128.4	142.9	167.2	249.2
Mexico	153.3	157.6	171.2	197.5	155.3	112.8
Indonesia	85.5	94.8	77.7	58.1	58.7	51.4
Others	83.3	99.9	109.1	117.3	117.0	100.8
<b>Total</b>	<b>1 513.3</b>	<b>1 320.2</b>	<b>1 338.3</b>	<b>1 488.4</b>	<b>1 555.3</b>	<b>1 852.6</b>
	Share (%)					
	1990	1995	2000	2005	2010	2017
Russia	34.8	23.2	24.2	31.5	32.6	29.6
United States	28.6	30.1	27.3	21.7	22.4	31.9
China	9.1	11.4	12.2	12.2	13.1	10.7
Canada	6.2	8.6	9.6	9.6	10.7	13.5
Mexico	10.1	11.9	12.8	13.3	10.0	6.1
Indonesia	5.7	7.2	5.8	3.9	3.8	2.8
Others	5.5	7.6	8.2	7.9	7.5	5.4

\*Crude oil includes NGL and condensates

## Indigenous production of natural gas APEC

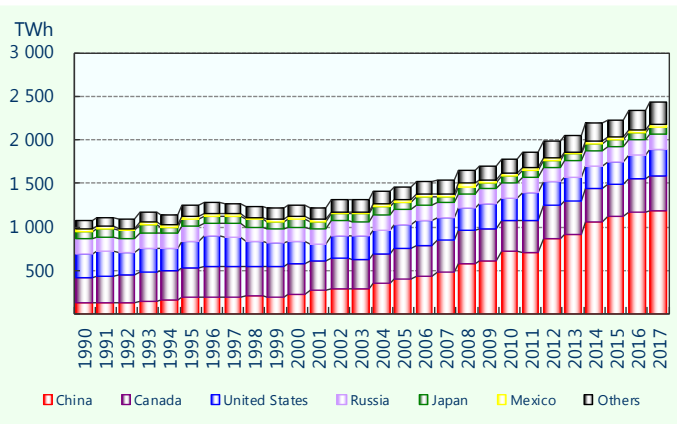


	Mtoe					
	1990	1995	2000	2005	2010	2017
United States	418.2	434.6	446.9	421.6	494.8	641.7
Russia	516.8	480.6	470.7	515.8	540.2	581.0
Canada	88.6	130.3	148.4	154.6	129.4	153.4
China	13.6	16.0	24.2	43.9	85.2	134.7
Indonesia	44.1	60.9	60.5	65.7	74.1	62.3
Malaysia	15.4	24.5	42.3	55.0	46.6	51.3
Others	61.8	77.0	100.6	115.4	157.4	186.7
<b>Total</b>	<b>1 158.5</b>	<b>1 223.8</b>	<b>1 293.6</b>	<b>1 372.0</b>	<b>1 527.8</b>	<b>1 811.0</b>

	Share (%)					
	1990	1995	2000	2005	2010	2017
United States	36.1	35.5	34.5	30.7	32.4	35.4
Russia	44.6	39.3	36.4	37.6	35.4	32.1
Canada	7.6	10.6	11.5	11.3	8.5	8.5
China	1.2	1.3	1.9	3.2	5.6	7.4
Indonesia	3.8	5.0	4.7	4.8	4.9	3.4
Malaysia	1.3	2.0	3.3	4.0	3.1	2.8
Others	5.3	6.3	7.8	8.4	10.3	10.3

## Indigenous production of hydro power APEC

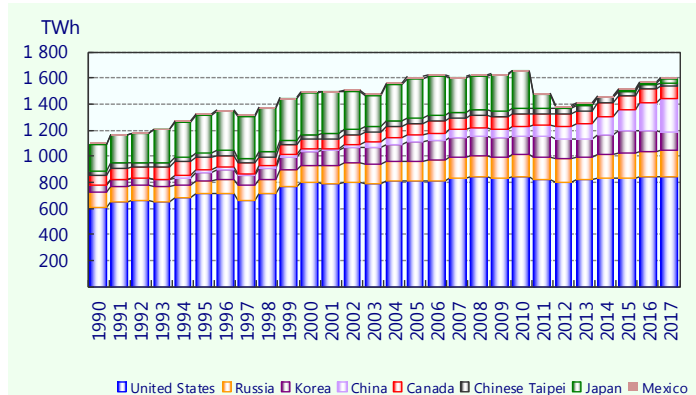


	TWh					
	1990	1995	2000	2005	2010	2017
China	126.7	190.6	222.4	397.0	722.2	1 189.8
Canada	296.7	335.9	358.4	361.9	351.3	392.5
United States	273.1	314.1	253.2	272.4	262.2	302.3
Russia	165.9	175.4	164.0	172.7	166.5	185.0
Japan	87.9	78.8	84.0	76.9	83.8	82.8
Mexico	23.5	27.5	33.1	27.7	37.1	32.0
Others	97.3	125.2	134.7	144.0	156.6	252.2
<b>Total</b>	<b>1 071.1</b>	<b>1 247.4</b>	<b>1 249.9</b>	<b>1 452.5</b>	<b>1 779.7</b>	<b>2 436.6</b>

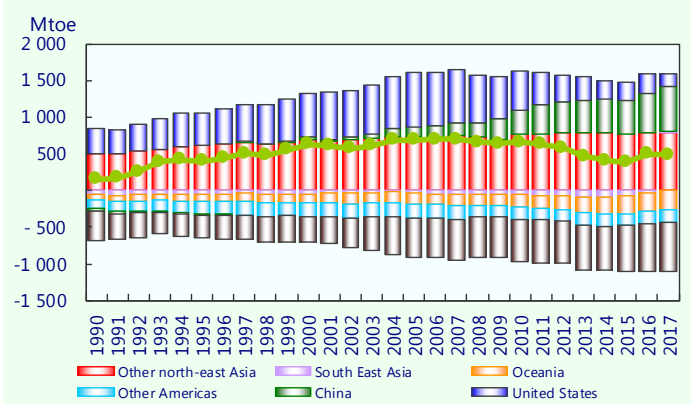
	Share (%)					
	1990	1995	2000	2005	2010	2017
China	11.8	15.3	17.8	27.3	40.6	48.8
Canada	27.7	26.9	28.7	24.9	19.7	16.1
United States	25.5	25.2	20.3	18.8	14.7	12.4
Russia	15.5	14.1	13.1	11.9	9.4	7.6
Japan	8.2	6.3	6.7	5.3	4.7	3.4
Mexico	2.2	2.2	2.7	1.9	2.1	1.3
Others	9.1	10.0	10.8	9.9	8.8	10.4

## Indigenous production of nuclear power APEC



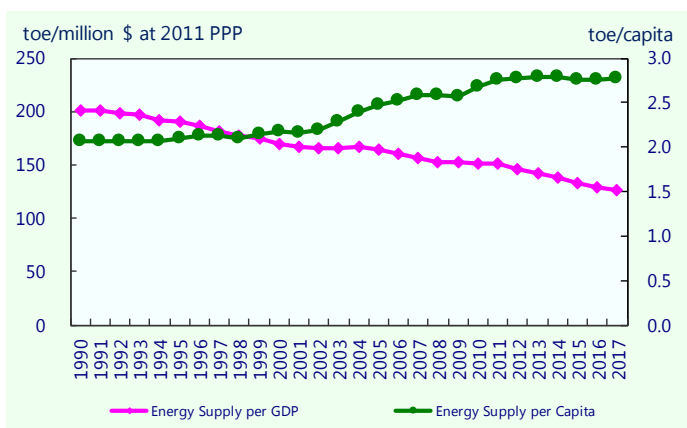
	TWh					
	1990	1995	2000	2005	2010	2017
United States	611.6	713.8	797.7	810.7	838.9	838.9
China	.0	12.8	16.7	53.1	73.9	248.1
Russia	118.3	99.5	130.7	149.4	170.4	203.1
Korea	52.9	67.0	109.0	146.8	148.6	148.4
Canada	73.0	97.8	72.8	92.0	90.7	101.1
Chinese Taipei	32.9	35.3	38.5	40.0	41.6	22.4
Japan	202.3	291.3	322.1	304.8	288.2	32.9
Mexico	2.9	8.4	8.2	10.8	5.9	10.9
<b>Total</b>	<b>1 093.8</b>	<b>1 326.1</b>	<b>1 495.7</b>	<b>1 607.6</b>	<b>1 658.2</b>	<b>1 605.9</b>
	Share (%)					
	1990	1995	2000	2005	2010	2017
United States	55.9	53.8	53.3	50.4	50.6	52.2
China	-	1.0	1.1	3.3	4.5	15.4
Russia	10.8	7.5	8.7	9.3	10.3	12.7
Korea	4.8	5.1	7.3	9.1	9.0	9.2
Canada	6.7	7.4	4.9	5.7	5.5	6.3
Chinese Taipei	3.0	2.7	2.6	2.5	2.5	1.4
Japan	18.5	22.0	21.5	19.0	17.4	2.0
Mexico	0.3	0.6	0.5	0.7	0.4	0.7

### Net import by region APEC



	1990	1995	2000	2005	2010	2017
Australia	-64.5	-89.2	-127.1	-148.8	-185.9	-268.8
Brunei Darussalam	-15.2	-16.8	-18.3	-19.9	-17.3	-12.3
Canada	-59.3	-119.7	-127.7	-129.9	-144.0	-217.1
Chile	7.0	10.8	17.7	20.5	22.3	26.2
China	-32.4	-10.3	33.5	137.4	333.0	607.4
Hong Kong, China	10.9	14.5	19.4	23.5	31.5	31.8
Indonesia	-68.9	-89.2	-85.3	-89.2	-148.0	-170.5
Japan	377.8	408.3	429.2	435.9	409.8	400.8
Korea	70.1	134.8	165.7	175.6	221.1	249.3
Malaysia	-26.9	-26.4	-25.8	-26.6	-11.8	-8.8
Mexico	-69.9	-69.3	-72.3	-79.6	-40.4	20.9
New Zealand	2.1	3.1	3.4	4.9	2.9	5.8
Papua New Guinea	-	-4.3	-2.7	-1.0	0.7	-1.6
Peru	-0.6	1.8	3.2	3.0	0.1	-0.3
Philippines	11.2	17.9	20.1	17.1	17.7	29.3
Russia	-412.6	-315.0	-349.6	-539.3	-579.1	-664.1
Singapore	24.5	32.4	40.8	49.6	67.2	93.3
Chinese Taipei	40.1	57.2	76.2	90.8	97.7	104.5
Thailand	18.1	31.1	34.4	48.3	52.9	68.7
United States	341.9	433.4	606.4	736.1	533.7	174.1
Viet Nam	-0.2	-4.7	-9.8	-17.7	-7.9	15.3
<b>Total</b>	<b>153.2</b>	<b>400.3</b>	<b>631.3</b>	<b>690.8</b>	<b>656.1</b>	<b>483.8</b>

## Total primary energy supply per GDP & capita APEC



	1990	1995	2000	2005	2010	2017
Population (million)	2 287	2 429	2 554	2 654	2 750	2 885
Primary Energy Supply per Capita (toe)	2.06	2.10	2.17	2.47	2.67	2.78
GDP (\$ 2011 PPP)	23 481	26 732	32 627	39 883	48 445	63 660
Primary Energy Supply per GDP (toe/million \$ at 2011 PPP)	200.9	190.5	169.9	164.4	151.8	126.0

Primary Energy Supply



### Total primary energy supply per capita 1990 vs 2017 by economy



\*1994 and 2017 data used for Papua New Guinea

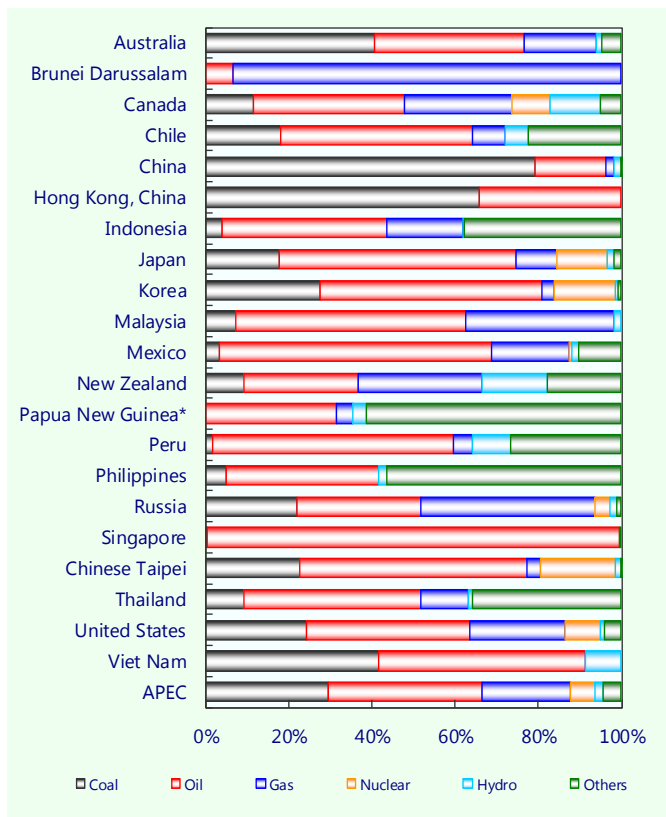
## Total primary energy supply per GDP 1990 vs 2017 by economy



\*1994 and 2017 data used for Papua New Guinea

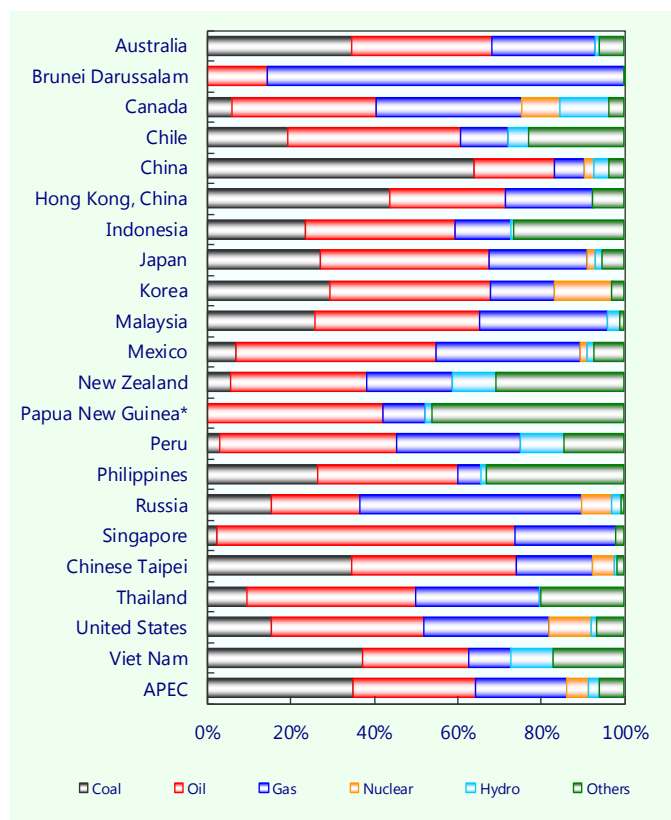
Primary Energy Supply

### Primary energy mix by economy 1990



\*1994 data used for Papua New Guinea

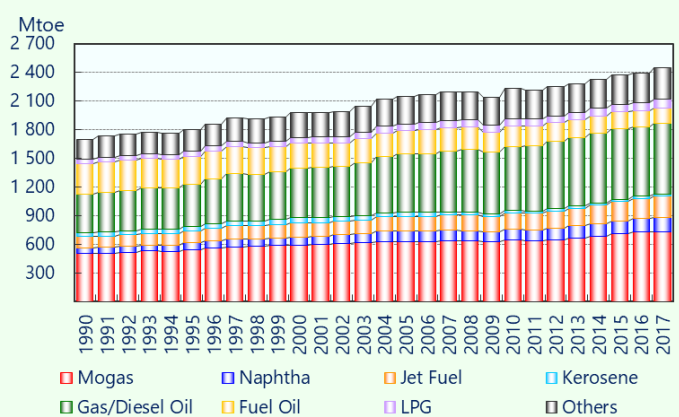
## Primary energy mix by economy 2017



Primary Energy Supply



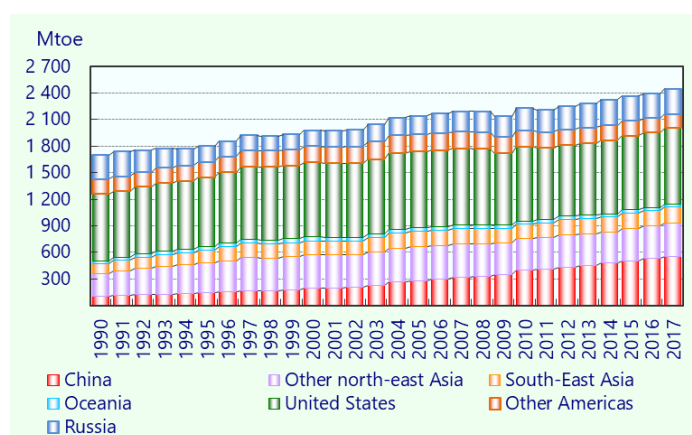
## Petroleum refining by product APEC



	Mtoe					
	1990	1995	2000	2005	2010	2017
Mogas	504.2	545.2	592.8	630.5	643.8	734.0
Naphtha	55.2	71.7	83.4	106.5	116.7	150.4
Jet Fuel	123.6	123.1	146.1	156.4	166.3	218.0
Kerosene	40.0	45.1	54.1	44.4	28.8	21.4
Gas/Diesel Oil	402.8	442.9	517.9	605.2	661.8	737.6
Fuel Oil	321.1	292.6	262.9	250.6	216.6	163.6
LPG	43.3	51.1	61.7	67.3	81.9	96.2
Others	208.6	226.4	259.0	282.7	312.4	326.8
<b>Total</b>	<b>1 698.7</b>	<b>1 798.1</b>	<b>1 977.9</b>	<b>2 143.5</b>	<b>2 228.3</b>	<b>2 448.0</b>

	Share (%)					
	1990	1995	2000	2005	2010	2017
Mogas	29.7	30.3	30.0	29.4	28.9	30.0
Naphtha	3.3	4.0	4.2	5.0	5.2	6.1
Jet Fuel	7.3	6.8	7.4	7.3	7.5	8.9
Kerosene	2.4	2.5	2.7	2.1	1.3	0.9
Gas/Diesel Oil	23.7	24.6	26.2	28.2	29.7	30.1
Fuel Oil	18.9	16.3	13.3	11.7	9.7	6.7
LPG	2.5	2.8	3.1	3.1	3.7	3.9
Others	12.3	12.6	13.1	13.2	14.0	13.3

## Petroleum refining by region APEC

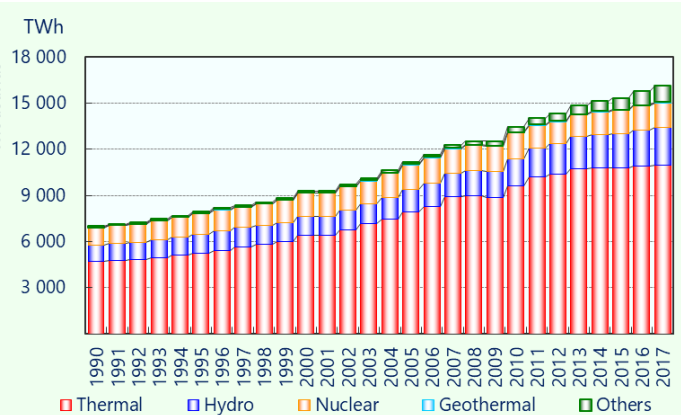


	1990	1995	2000	2005	2010	Mtoe 2017
China	107.3	140.5	196.3	278.1	395.3	557.2
Other north-east Asia	251.0	341.6	379.0	390.2	356.9	368.5
South-East Asia	111.2	143.8	155.4	170.5	164.3	186.8
Oceania	37.0	41.2	43.5	40.8	38.5	29.0
United States	753.8	778.9	843.8	861.4	840.7	860.2
Other Americas	168.6	173.2	180.0	193.8	182.5	159.3
Russia	269.7	178.9	179.9	208.9	250.0	287.0
<b>Total</b>	<b>1 698.7</b>	<b>1 798.1</b>	<b>1 977.9</b>	<b>2 143.5</b>	<b>2 228.3</b>	<b>2 448.0</b>

	1990	1995	2000	2005	2010	Share (%) 2017
China	6.3	7.8	9.9	13.0	17.7	22.8
Other north-east Asia	14.8	19.0	19.2	18.2	16.0	15.1
South-East Asia	6.5	8.0	7.9	8.0	7.4	7.6
Oceania	2.2	2.3	2.2	1.9	1.7	1.2
United States	44.4	43.3	42.7	40.2	37.7	35.1
Other Americas	9.9	9.6	9.1	9.0	8.2	6.5
Russia	15.9	10.0	9.1	9.7	11.2	11.7

## Electricity generation by type APEC



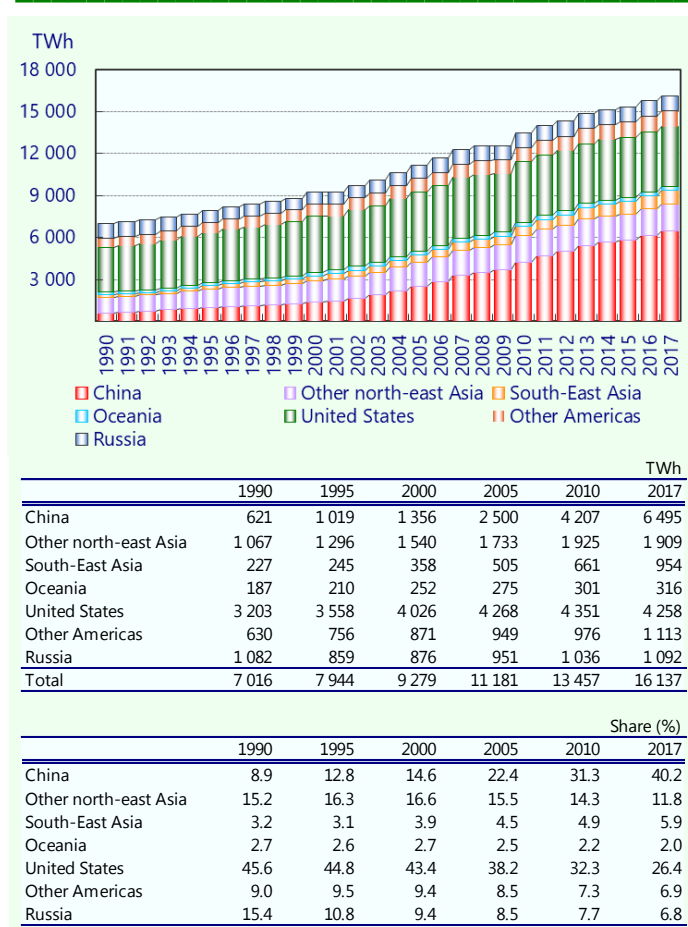
	TWh					
	1990	1995	2000	2005	2010	2017
Thermal	4 703	5 234	6 383	7 920	9 614	10 969
Hydro	1 079	1 248	1 250	1 452	1 780	2 434
Nuclear	1 094	1 326	1 496	1 608	1 658	1 615
Geothermal	35	34	41	48	53	59
Others	106	103	109	154	353	1 061
<b>Total</b>	<b>7 016</b>	<b>7 944</b>	<b>9 279</b>	<b>11 181</b>	<b>13 457</b>	<b>16 137</b>

	Share (%)					
	1990	1995	2000	2005	2010	2017
Thermal	67.0	65.9	68.8	70.8	71.4	68.0
Hydro	15.4	15.7	13.5	13.0	13.2	15.1
Nuclear	15.6	16.7	16.1	14.4	12.3	10.0
Geothermal	0.5	0.4	0.4	0.4	0.4	0.4
Others	1.5	1.3	1.2	1.4	2.6	6.6

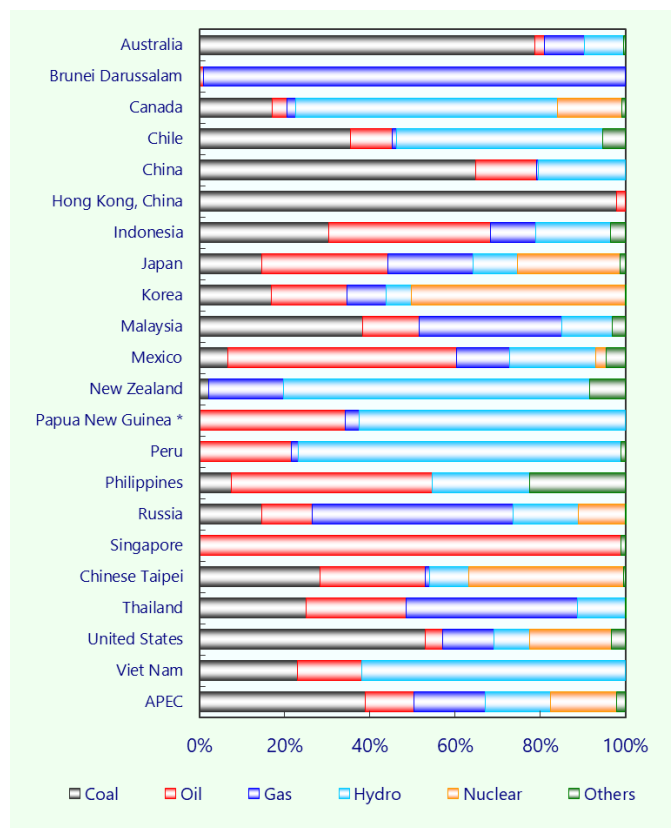
Note: Others comprise power generated from other renewable energy sources.



## Electricity generation by region APEC

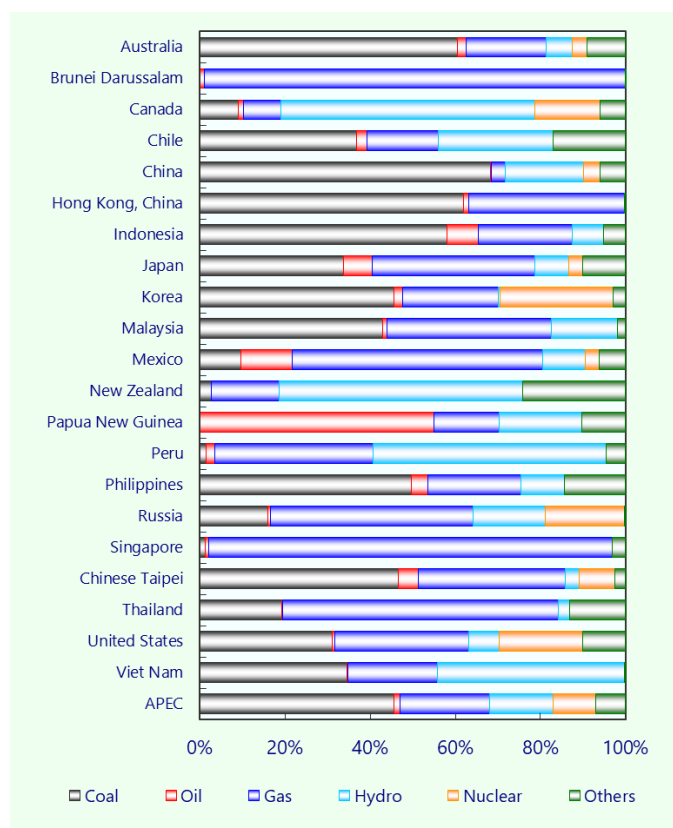


## Electricity generation by economy 1990



\*1994 data used for Papua New Guinea

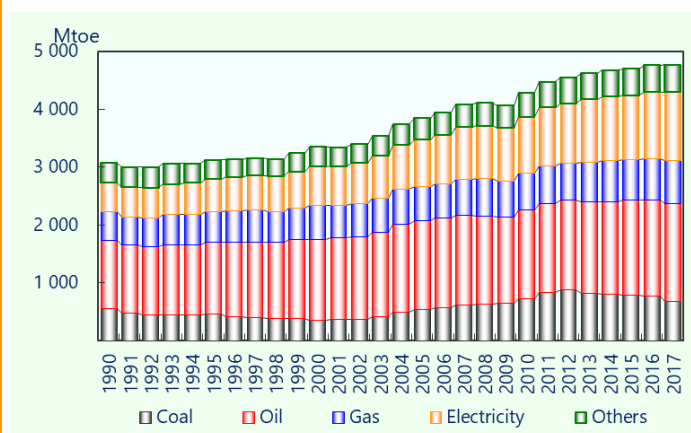
## Electricity generation by economy 2017



Transformation



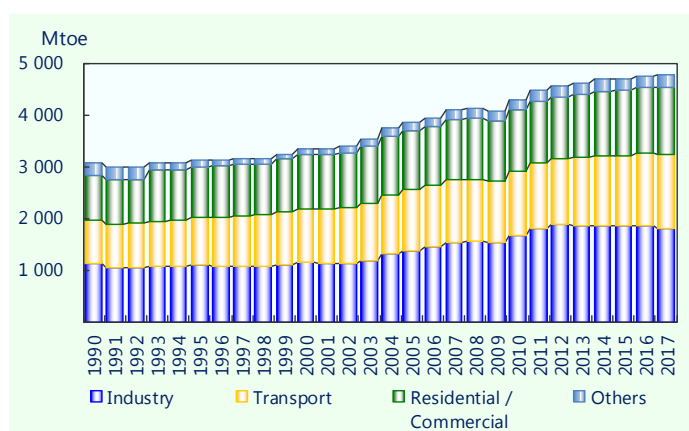
## Total final energy consumption by energy APEC



	1990	1995	2000	2005	2010	2017
Coal	549.9	452.4	351.8	541.0	723.2	672.3
Oil	1 177.0	1 244.1	1 399.2	1 536.5	1 541.3	1 693.2
Gas	504.7	523.8	587.5	585.4	626.7	748.3
Electricity	493.7	567.8	669.3	811.5	977.8	1 177.8
Others	339.2	333.5	337.7	368.1	415.9	475.8
<b>Total</b>	<b>3 064.4</b>	<b>3 121.6</b>	<b>3 345.5</b>	<b>3 842.4</b>	<b>4 284.9</b>	<b>4 767.5</b>

	1990	1995	2000	2005	2010	2017
Coal	17.9	14.5	10.5	14.1	16.9	14.1
Oil	38.4	39.9	41.8	40.0	36.0	35.5
Gas	16.5	16.8	17.6	15.2	14.6	15.7
Electricity	16.1	18.2	20.0	21.1	22.8	24.7
Others	11.1	10.7	10.1	9.6	9.7	10.0

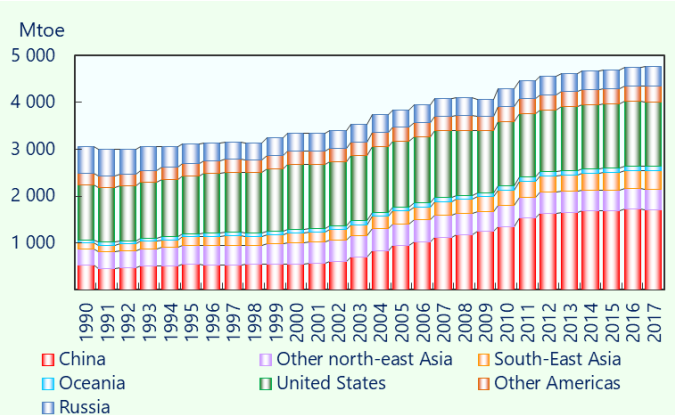
## Total final energy consumption by sector APEC



	1990	1995	2000	2005	2010	Mtoe 2017
Industry	1 115.4	1 081.3	1 147.6	1 368.3	1 662.4	1 802.0
Transport	854.2	919.2	1 036.5	1 173.0	1 236.2	1 425.7
Residential / Commercial	850.6	993.6	1 048.9	1 134.6	1 197.5	1 301.4
Others	244.2	127.4	112.5	166.5	188.8	238.4
<b>Total</b>	<b>3 064.4</b>	<b>3 121.6</b>	<b>3 345.5</b>	<b>3 842.4</b>	<b>4 284.9</b>	<b>4 767.5</b>

	1990	1995	2000	2005	2010	Share (%) 2017
Industry	36.4	34.6	34.3	35.6	38.8	37.8
Transport	27.9	29.4	31.0	30.5	28.8	29.9
Residential / Commercial	27.8	31.8	31.4	29.5	27.9	27.3
Others	8.0	4.1	3.4	4.3	4.4	5.0

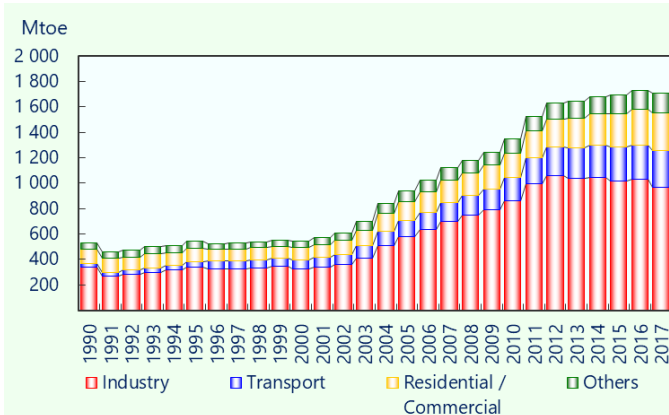
## Total final energy consumption by region APEC



	Mtoe					
	1990	1995	2000	2005	2010	2017
China	529.3	542.4	546.1	940.5	1 347.8	1 708.2
Other north-east Asia	342.6	412.0	448.5	462.0	450.3	443.5
South-East Asia	131.5	175.0	209.1	279.9	325.8	391.5
Oceania	61.8	70.3	78.8	81.8	87.0	93.4
United States	1 174.5	1 237.0	1 393.3	1 406.6	1 377.6	1 375.1
Other Americas	239.8	261.1	288.3	303.8	316.1	337.1
Russia	584.9	423.7	381.6	367.7	380.3	418.6
<b>Total</b>	<b>3 064.4</b>	<b>3 121.6</b>	<b>3 345.5</b>	<b>3 842.4</b>	<b>4 284.9</b>	<b>4 767.5</b>

	Share (%)					
	1990	1995	2000	2005	2010	2017
China	17.3	17.4	16.3	24.5	31.5	35.8
Other north-east Asia	11.2	13.2	13.4	12.0	10.5	9.3
South-East Asia	4.3	5.6	6.2	7.3	7.6	8.2
Oceania	2.0	2.3	2.4	2.1	2.0	2.0
United States	38.3	39.6	41.6	36.6	32.2	28.8
Other Americas	7.8	8.4	8.6	7.9	7.4	7.1
Russia	19.1	13.6	11.4	9.6	8.9	8.8

## Total final energy consumption by sector China



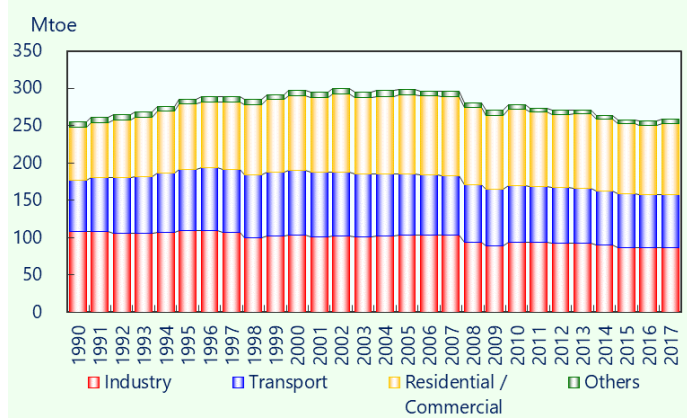
	1990	1995	2000	2005	2010	Mtoe 2017
Industry	340.2	341.3	324.1	581.1	863.1	970.1
Transport	29.7	38.8	70.4	124.3	181.6	287.1
Residential / Commercial	112.5	106.0	99.8	151.5	195.1	295.5
Others	46.9	56.4	51.8	83.7	108.1	155.5
<b>Total</b>	<b>529.3</b>	<b>542.4</b>	<b>546.1</b>	<b>940.5</b>	<b>1 347.8</b>	<b>1 708.2</b>

	1990	1995	2000	2005	2010	Share (%) 2017
Industry	64.3	62.9	59.4	61.8	64.0	56.8
Transport	5.6	7.1	12.9	13.2	13.5	16.8
Residential / Commercial	21.3	19.5	18.3	16.1	14.5	17.3
Others	8.9	10.4	9.5	8.9	8.0	9.1



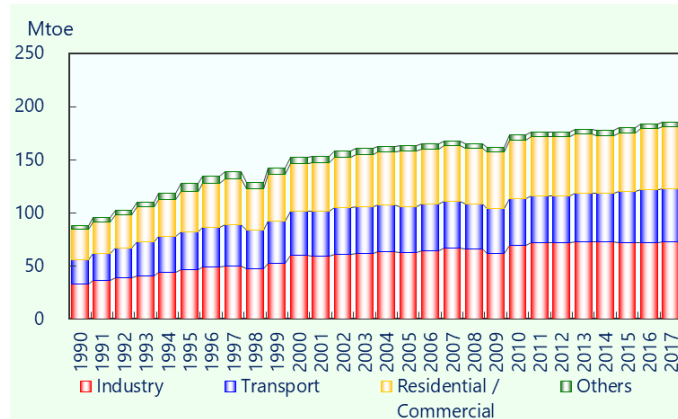
## Total final energy consumption by sector Japan



	1990	1995	2000	2005	2010	2017
Industry	108.3	108.6	103.7	103.4	93.3	86.4
Transport	68.4	82.2	85.7	81.2	75.9	70.8
Residential / Commercial	71.1	87.7	100.5	107.0	101.9	95.5
Others	6.6	6.2	6.7	7.0	6.0	5.5
<b>Total</b>	<b>254.4</b>	<b>284.7</b>	<b>296.6</b>	<b>298.5</b>	<b>277.2</b>	<b>258.2</b>

	1990	1995	2000	2005	2010	2017
Industry	42.6	38.1	35.0	34.6	33.7	33.5
Transport	26.9	28.9	28.9	27.2	27.4	27.4
Residential / Commercial	28.0	30.8	33.9	35.8	36.8	37.0
Others	2.6	2.2	2.3	2.3	2.2	2.1

### Total final energy consumption by sector Other north-east Asia\*

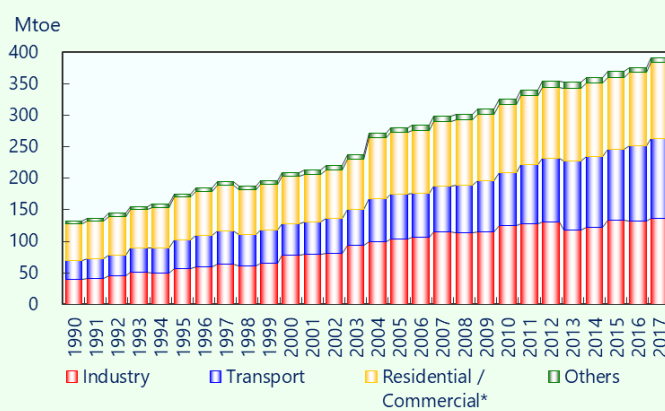


	1990	1995	2000	2005	2010	Mtoe 2017
Industry	33.0	46.0	60.0	62.0	69.0	72.4
Transport	22.5	36.2	41.2	44.0	44.0	50.1
Residential / Commercial	28.9	38.1	44.7	52.3	55.5	58.3
Others	3.8	7.1	6.1	5.3	4.6	4.6
<b>Total</b>	<b>88.2</b>	<b>127.4</b>	<b>151.9</b>	<b>163.6</b>	<b>173.1</b>	<b>185.3</b>

	1990	1995	2000	2005	2010	Share (%) 2017
Industry	37.4	36.1	39.5	37.9	39.9	39.1
Transport	25.6	28.5	27.1	26.9	25.4	27.0
Residential / Commercial	32.8	29.9	29.4	32.0	32.1	31.4
Others	4.3	5.6	4.0	3.2	2.6	2.5

\* In this page, Other north-east Asia includes Hong Kong, China; Republic of Korea and Chinese Taipei

### Total final energy consumption by sector South-East Asia

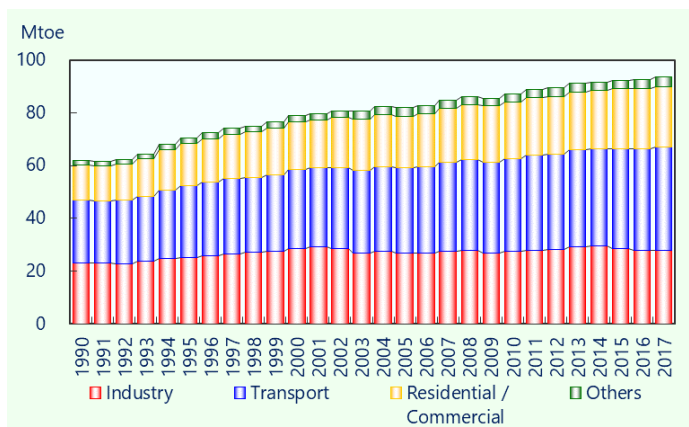


	Mtoe					
	1990	1995	2000	2005	2010	2017
Industry	40.3	57.1	78.3	103.1	124.6	135.9
Transport	29.1	45.6	49.5	71.4	84.6	127.3
Residential / Commercial*	58.2	67.6	75.3	97.6	108.3	120.9
Others	4.0	4.7	5.9	7.8	8.4	7.4
<b>Total</b>	<b>131.5</b>	<b>175.0</b>	<b>209.1</b>	<b>279.9</b>	<b>325.8</b>	<b>391.5</b>

	Share (%)					
	1990	1995	2000	2005	2010	2017
Industry	30.6	32.6	37.5	36.8	38.2	34.7
Transport	22.1	26.1	23.7	25.5	25.9	32.5
Residential / Commercial*	44.3	38.6	36.0	34.9	33.2	30.9
Others	3.0	2.7	2.8	2.8	2.6	1.9

\* Abrupt increase in 2004 is due to the availability of biomass data from Viet Nam

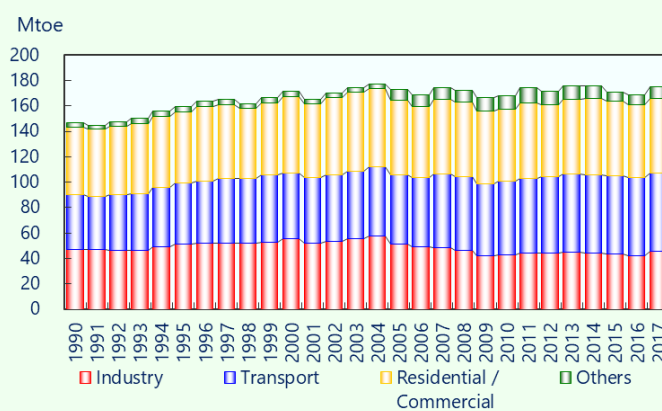
## Total final energy consumption by sector Oceania



	1990	1995	2000	2005	2010	Mtoe 2017
Industry	22.9	25.3	28.5	27.0	27.5	27.7
Transport	24.1	27.0	30.0	32.0	35.0	39.2
Residential / Commercial	13.0	15.9	17.9	19.7	21.5	23.0
Others	1.8	2.1	2.4	3.2	3.1	3.5
<b>Total</b>	<b>61.8</b>	<b>70.3</b>	<b>78.8</b>	<b>81.8</b>	<b>87.0</b>	<b>93.4</b>

	1990	1995	2000	2005	2010	Share (%) 2017
Industry	37.1	35.9	36.2	32.9	31.6	29.7
Transport	38.9	38.4	38.1	39.1	40.2	42.0
Residential / Commercial	21.0	22.7	22.7	24.0	24.7	24.6
Others	3.0	3.0	3.0	3.9	3.5	3.7

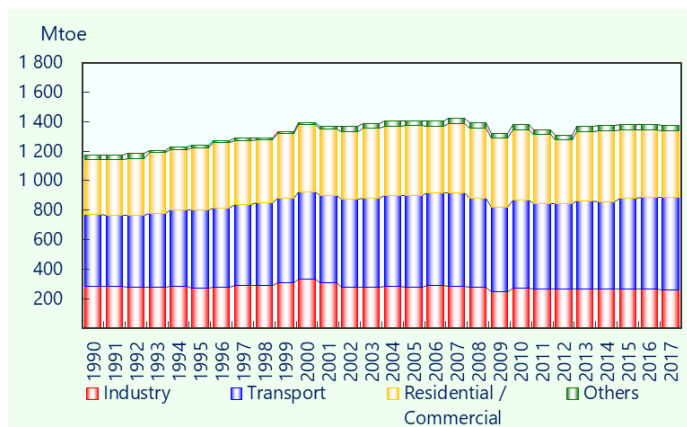
## Total final energy consumption by sector Canada



	1990	1995	2000	2005	2010	Mtoe 2017
Industry	47.2	51.3	55.2	51.0	42.4	45.6
Transport	43.1	47.8	52.1	54.6	58.6	61.3
Residential / Commercial	53.2	56.3	60.0	58.8	56.3	59.0
Others	3.2	3.8	4.2	8.7	10.6	9.0
<b>Total</b>	<b>146.8</b>	<b>159.1</b>	<b>171.5</b>	<b>173.3</b>	<b>167.9</b>	<b>174.9</b>

	1990	1995	2000	2005	2010	Share (%) 2017
Industry	32.2	32.2	32.2	29.5	25.3	26.1
Transport	29.4	30.0	30.4	31.5	34.9	35.0
Residential / Commercial	36.2	35.4	35.0	34.0	33.5	33.7
Others	2.2	2.4	2.4	5.0	6.3	5.2

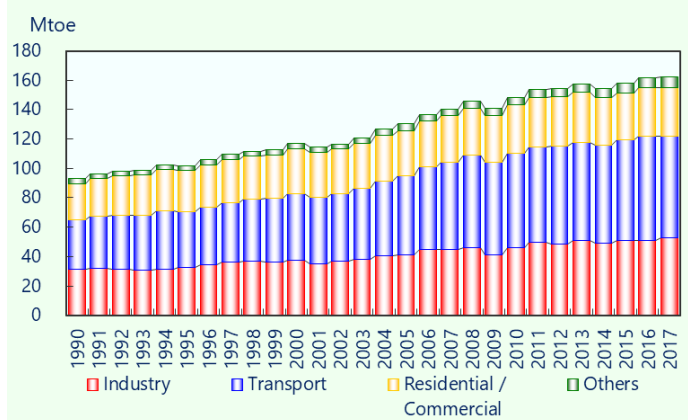
### Total final energy consumption by sector United States



	1990	1995	2000	2005	2010	2017
Industry	283.8	272.8	332.3	276.4	270.4	261.4
Transport	487.6	527.6	588.2	622.9	595.8	625.4
Residential / Commercial	369.2	421.0	457.1	472.1	477.5	452.3
Others	34.0	15.6	15.6	35.2	34.0	36.0
<b>Total</b>	<b>1 174.5</b>	<b>1 237.0</b>	<b>1 393.3</b>	<b>1 406.6</b>	<b>1 377.6</b>	<b>1 375.1</b>

	1990	1995	2000	2005	2010	2017
Industry	24.2	22.1	23.8	19.7	19.6	19.0
Transport	41.5	42.6	42.2	44.3	43.2	45.5
Residential / Commercial	31.4	34.0	32.8	33.6	34.7	32.9
Others	2.9	1.3	1.1	2.5	2.5	2.6

### Total final energy consumption by sector Other Americas\*

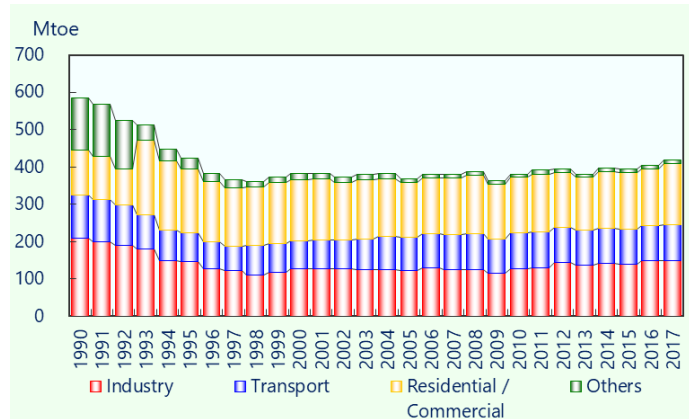


	1990	1995	2000	2005	2010	Mtoe 2017
Industry	31.1	32.4	37.6	41.2	45.8	53.0
Transport	33.8	38.0	44.9	54.0	64.3	68.7
Residential / Commercial	24.8	28.6	30.7	30.5	32.9	33.1
Others	3.4	3.1	3.4	4.8	5.2	7.5
<b>Total</b>	<b>93.1</b>	<b>102.0</b>	<b>116.7</b>	<b>130.6</b>	<b>148.2</b>	<b>162.2</b>

	1990	1995	2000	2005	2010	Share (%) 2017
Industry	33.4	31.7	32.3	31.6	30.9	32.6
Transport	36.4	37.2	38.5	41.4	43.4	42.3
Residential / Commercial	26.6	28.0	26.3	23.3	22.2	20.4
Others	3.6	3.0	2.9	3.7	3.5	4.6

\*Other Americas include Chile; Mexico and Peru.

## Total final energy consumption by sector Russia

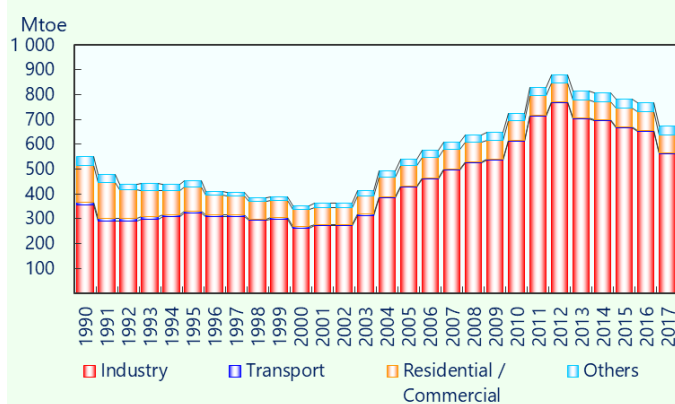


	1990	1995	2000	2005	2010	Mtoe 2017
Industry	208.7	146.7	127.8	123.0	126.3	149.5
Transport	115.9	76.1	74.5	88.6	96.5	95.9
Residential / Commercial	119.8	172.4	162.9	145.3	148.5	163.9
Others	140.5	28.4	16.3	10.8	9.0	9.3
<b>Total</b>	<b>584.9</b>	<b>423.7</b>	<b>381.6</b>	<b>367.7</b>	<b>380.3</b>	<b>418.6</b>

	1990	1995	2000	2005	2010	Share (%) 2017
Industry	35.7	34.6	33.5	33.5	33.2	35.7
Transport	19.8	18.0	19.5	24.1	25.4	22.9
Residential / Commercial	20.5	40.7	42.7	39.5	39.0	39.2
Others	24.0	6.7	4.3	2.9	2.4	2.2



### Coal\* demand by sector APEC

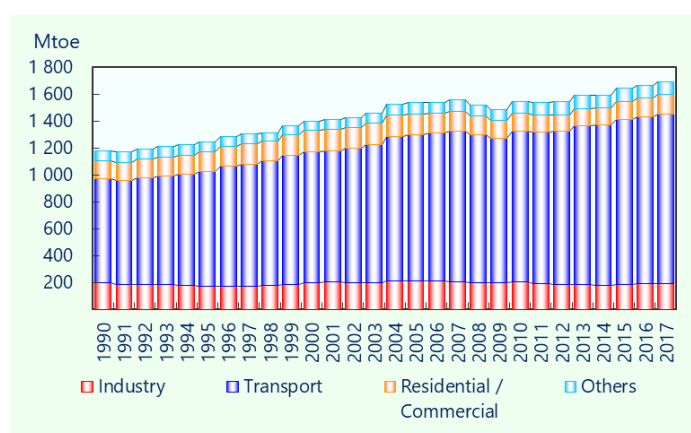


	1990	1995	2000	2005	2010	2017
Industry	356.4	323.8	262.7	428.3	613.9	562.6
Transport	11.2	6.9	4.7	4.4	3.2	1.8
Residential / Commercial	146.1	96.5	69.1	81.8	76.4	73.7
Others	36.3	25.1	15.3	26.4	29.7	34.2
<b>Total</b>	<b>549.9</b>	<b>452.4</b>	<b>351.8</b>	<b>541.0</b>	<b>723.2</b>	<b>672.3</b>

	1990	1995	2000	2005	2010	2017
Industry	64.8	71.6	74.7	79.2	84.9	83.7
Transport	2.0	1.5	1.3	0.8	0.4	0.3
Residential / Commercial	26.6	21.3	19.7	15.1	10.6	11.0
Others	6.6	5.6	4.3	4.9	4.1	5.1

\*Coal and Coal Products

## Oil demand by sector APEC

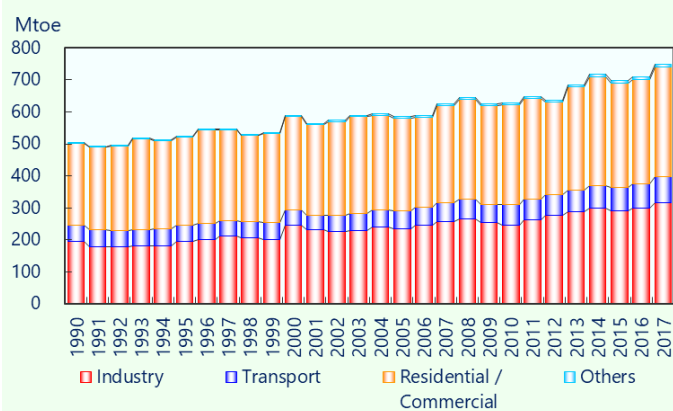


	Mtoe					
	1990	1995	2000	2005	2010	2017
Industry	195.8	173.0	202.0	209.7	205.0	190.2
Transport	778.3	848.6	969.0	1 087.0	1 119.1	1 259.1
Residential / Commercial	132.0	146.5	158.4	156.7	130.8	146.3
Others	70.9	76.0	69.8	83.0	86.5	97.6
<b>Total</b>	<b>1 177.0</b>	<b>1 244.1</b>	<b>1 399.2</b>	<b>1 536.5</b>	<b>1 541.3</b>	<b>1 693.2</b>

	Share (%)					
	1990	1995	2000	2005	2010	2017
Industry	16.6	13.9	14.4	13.6	13.3	11.2
Transport	66.1	68.2	69.3	70.7	72.6	74.4
Residential / Commercial	11.2	11.8	11.3	10.2	8.5	8.6
Others	6.0	6.1	5.0	5.4	5.6	5.8

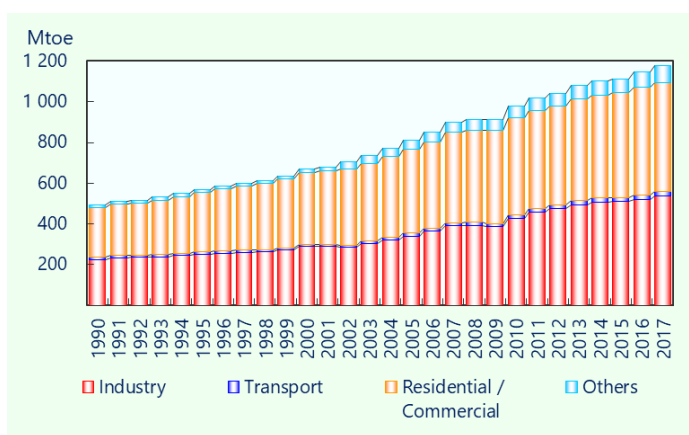
## Gas demand by sector APEC



	Mtoe					
	1990	1995	2000	2005	2010	2017
Industry	194.3	193.5	244.9	234.1	246.5	315.7
Transport	52.5	51.1	47.6	55.9	63.6	80.4
Residential / Commercial	255.7	277.0	292.3	291.2	311.5	343.7
Others	2.2	2.2	2.7	4.2	5.0	8.6
<b>Total</b>	<b>504.7</b>	<b>523.8</b>	<b>587.5</b>	<b>585.4</b>	<b>626.7</b>	<b>748.3</b>

	Share (%)					
	1990	1995	2000	2005	2010	2017
Industry	38.5	36.9	41.7	40.0	39.3	42.2
Transport	10.4	9.8	8.1	9.6	10.2	10.7
Residential / Commercial	50.7	52.9	49.8	49.7	49.7	45.9
Others	0.4	0.4	0.5	0.7	0.8	1.1

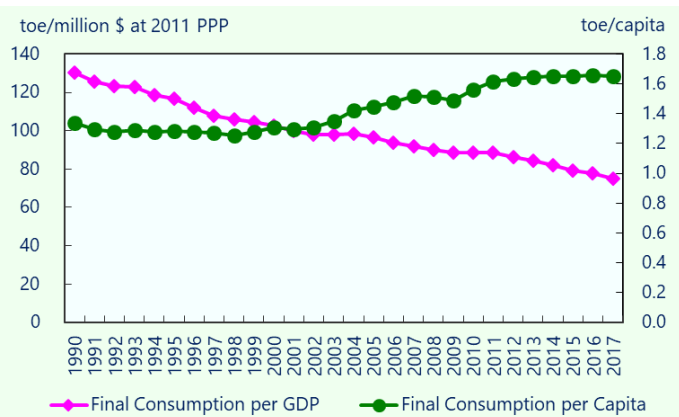
## Electricity demand by sector APEC



	1990	1995	2000	2005	2010	2017
Industry	224.6	251.8	290.3	340.0	427.7	536.8
Transport	12.3	9.9	10.6	14.3	17.2	23.5
Residential / Commercial	242.6	291.8	352.8	413.4	476.7	534.9
Others	14.2	14.2	15.6	43.9	56.2	82.6
<b>Total</b>	<b>493.7</b>	<b>567.8</b>	<b>669.3</b>	<b>811.5</b>	<b>977.8</b>	<b>1 177.8</b>

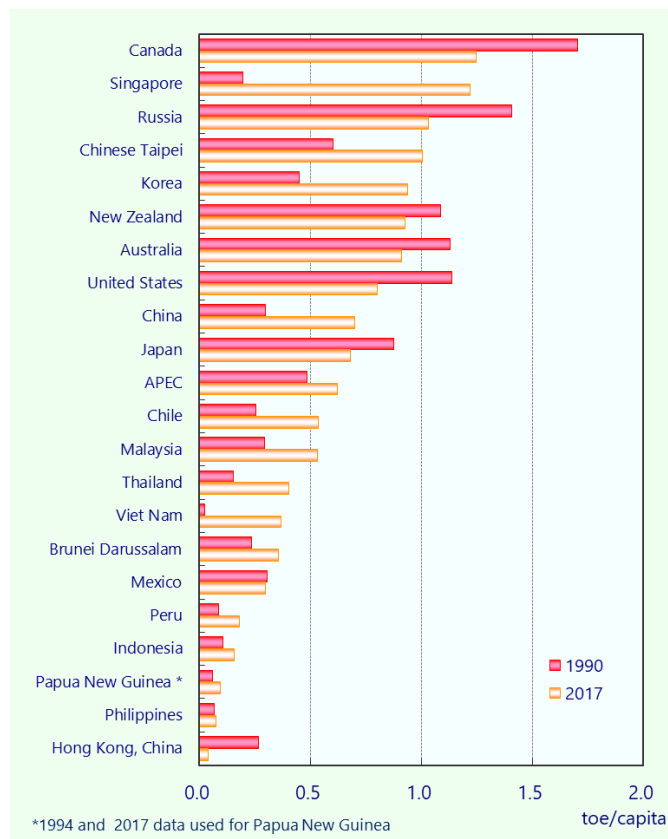
	1990	1995	2000	2005	2010	2017
Industry	45.5	44.4	43.4	41.9	43.7	45.6
Transport	2.5	1.7	1.6	1.8	1.8	2.0
Residential / Commercial	49.1	51.4	52.7	50.9	48.8	45.4
Others	2.9	2.5	2.3	5.4	5.8	7.0

## Final consumption per capita and GDP APEC



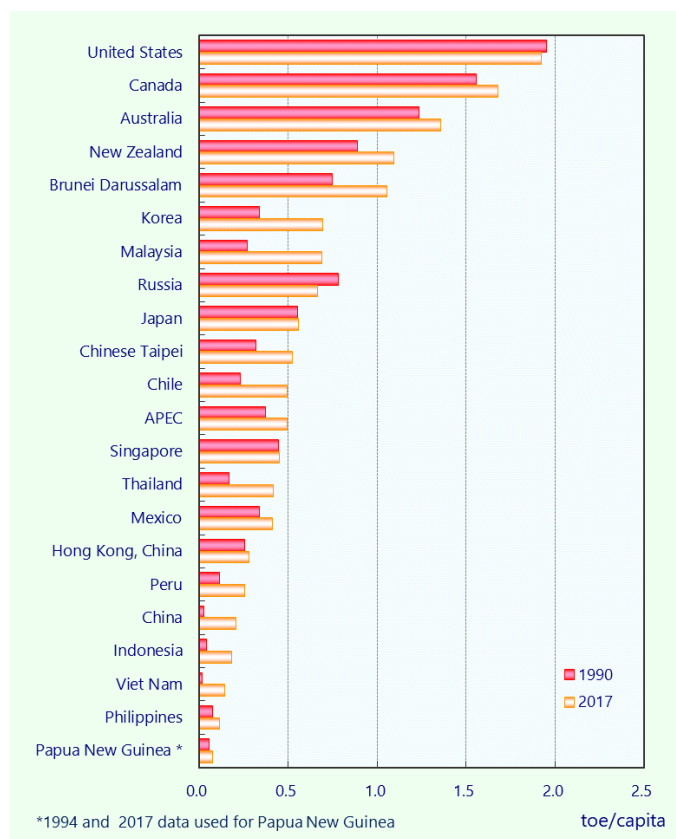
	1990	1995	2000	2005	2010	2016
Population (million)	2 287	2 429	2 554	2 654	2 750	2 885
Final Consumption per Capita (toe)	1.34	1.28	1.31	1.45	1.56	1.65
	1990	1995	2000	2005	2010	2016
GDP (billion \$ at 2011 PPP)	23 481	26 732	32 627	39 883	48 445	52 752
Final Consumption per GDP (toe/million \$ at 2011 PPP)	130.51	116.77	102.54	96.34	88.45	86.25

## Energy consumption in industry: APEC

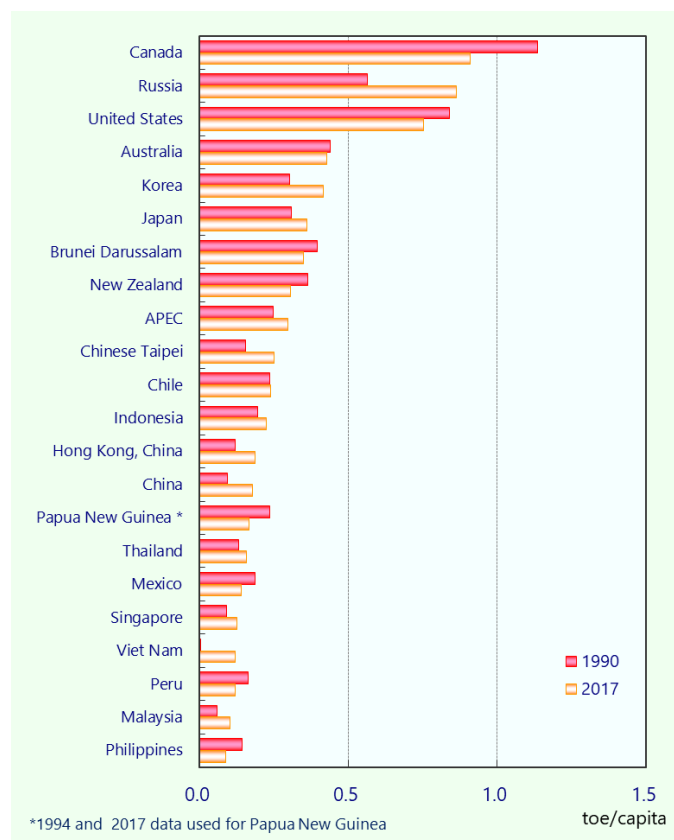


Final Energy Consumption

## Energy consumption in transportation: APEC



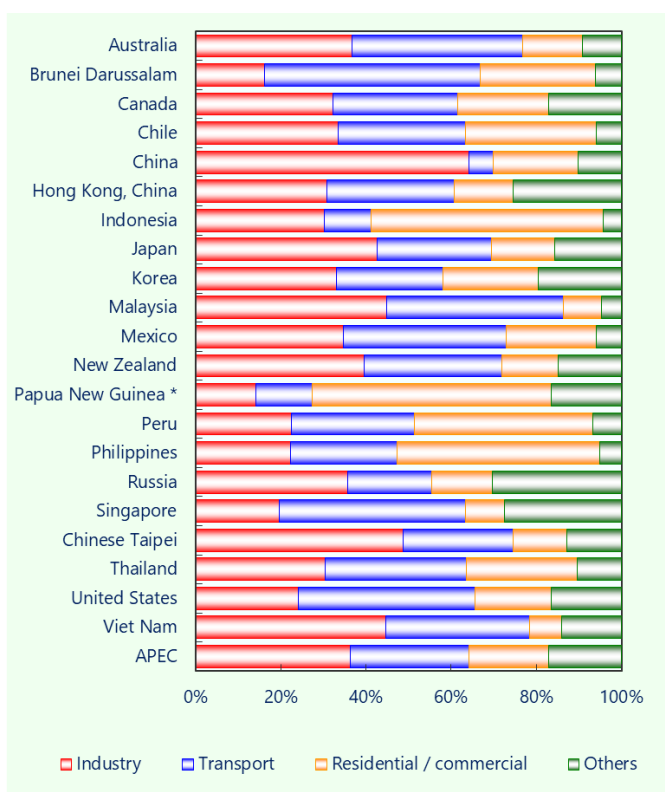
## Energy consumption in residential/ commercial: APEC



Final Energy Consumption

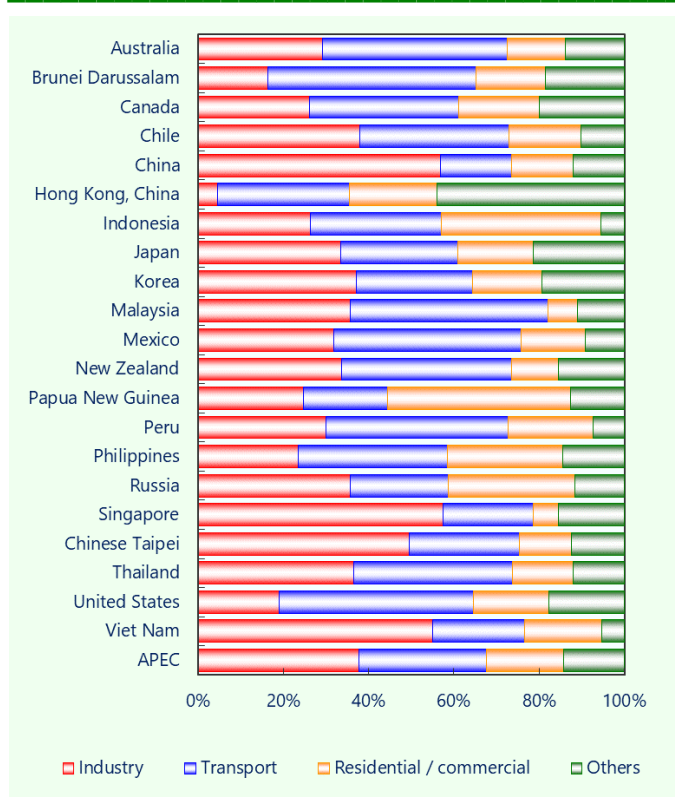


### Final energy consumption by sector 1990



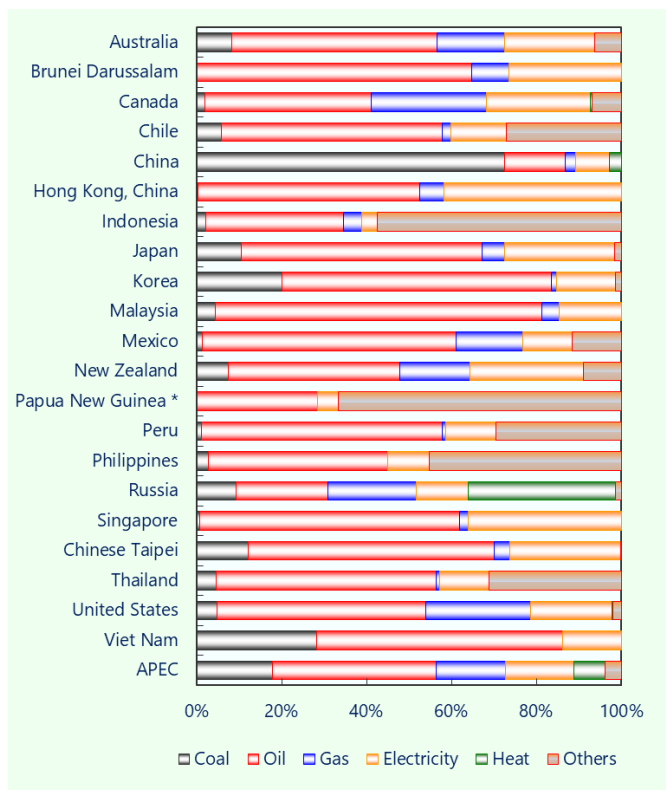
\*1994 data used for Papua New Guinea

## Final energy consumption by sector 2017



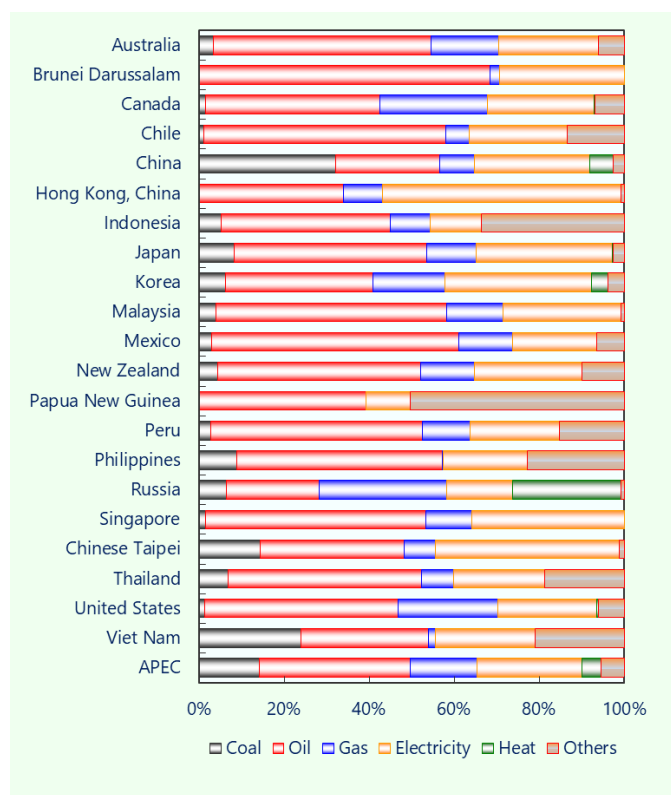
Final Energy Consumption

## Final energy consumption by energy 1990



\*1994 data used for Papua New Guinea

## Final energy consumption by energy 2017



Final Energy Consumption



## APEC, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production	3 004 949		1852 631	
2 Import	447 979	10 643	1451911	565 929
3 Export	- 624 650	- 9 549	- 643 519	- 659 912
4 International marine and aviation bunkers				- 213 396
5 Stock change	- 26 699	7 115	2 327	- 2 499
6 Total primary energy supply	2 801580	8 209	2 663 349	- 309 878
7 Transfers			- 113 901	124 282
8 Main activity producers	-1487 803	- 9 235	- 1504	- 36 158
9 Auto-producers	- 212 996	- 42 970	- 542	- 22 983
10 Gas processing	- 9 779	- 11		- 1623
11 Petroleum refineries			-2 536 664	2 448 237
12 Coal transformation	- 516 612	243 583		- 451
13 Other transformation			24 570	- 17 511
14 Loss & own-use	- 37 130	- 16 685	- 9 905	- 916 12
15 Discrepancy	22 329	- 118	- 13 235	15 583
16 Total final consumption	560 590	181 773	12 168	2 107 886
17 Total final energy consumption	510 713	161 599	729	1692 471
18 Industry sector	404 858	157 711	717	189 509
19 Transport sector	1 789	41		1 259 070
20 Other sector	104 066	3 847	12	243 892
20.1 Residential & Commercial	70 199	3 483		146 301
20.2 Agriculture	14 730	261	11	53 510
20.3 Other	19 137	102	1	44 081
21 Non-energy	49 877	20 174	11 438	4 154 15

## Australia, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production	293 104		15 316	
2 Import	69	120	16 656	28 627
3 Export	- 244 465	- 227	- 10 751	- 2 284
4 International marine and aviation bunkers				- 5 036
5 Stock change	- 4 697	5	28	345
6 Total primary energy supply	44 011	- 102	21249	21652
7 Transfers			- 328	3 801
8 Main activity producers	- 39 182	- 4		- 361
9 Auto-producers				- 854
10 Gas processing				
11 Petroleum refineries			- 23 368	22 094
12 Coal transformation	- 2 607	1465		
13 Other transformation				
14 Loss & own-use		- 922	- 58	- 4 009
15 Discrepancy	- 139	3	2 520	1319
16 Total final consumption	2 083	440	15	43 642
17 Total final energy consumption	2 083	440	15	39 527
18 Industry sector	2 072	439	15	3 564
19 Transport sector				32 374
20 Other sector	11	1		3 589
20.1 Residential & Commercial	11	1		1 172
20.2 Agriculture				2 417
20.3 Other				
21 Non-energy				4 115

Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables
18 10 994	209 547	4 18 781	118 959	360 816	52	7 776 729	642 136
420 998				5 196	11 181	2 913 837	5 196
- 476 419				- 5 120	- 10 667	- 2 429 836	- 5 120
				- 222		- 213 618	- 222
- 7 614				1094		- 26 276	1086
1747 959	209 547	4 18 781	118 959	361765	566	8 020 837	643 077
						10 381	
- 600 708	- 206 339	- 4 18 782	- 107 203	- 71649	1402 886	- 1536 496	- 350 955
- 120 662	- 3 208		- 7 980	- 24 681	240 213	- 195 809	- 30 185
9 139				- 3		- 2 277	- 3
						- 88 427	
						- 272 481	
- 10 882				- 6 290	- 4	- 10 118	- 6 290
- 169 917				- 516	- 253 796	- 579 561	- 367
- 18 917	1	1	- 2	- 488	1844	5997	- 317
836 011			3 774	258 138	1391708	5352 047	254 946
748 338			3 774	258 138	1391708	4 767 469	254 946
315 676			133	83 430	649 952	1801987	78 286
80 378				60 984	23 452	1425 714	60 983
352 284			3 641	113 724	718 304	1539 768	115 677
343 715			3 486	105 846	628 355	1301385	108 383
3 852			52	5 788	22 993	101 197	5 786
4 717			103	2 090	66 956	137 186	1647
87 673						584 578	

Unit: ktoe							
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables
87 821	1379		2 152	5 382		405 154	8 823
4 924						50 396	
- 61431						- 319 158	
						- 5 036	
						- 4 319	
31314	1379		2 152	5 382		127 037	8 823
						3 473	
- 8 409	- 1379		- 1 139	- 420	19 723	- 31 171	- 2 938
- 3 597			- 639	- 724	2 442	- 3 372	- 1363
						- 1274	
						- 1 142	
- 7 192					- 4 050	- 16 231	
821			1			4 525	
12 937			375	4 238	18 115	81845	4 522
12 222			375	4 238	18 115	77 015	4 522
6 975				2 960	6 457	22 482	2 870
372				100	504	33 350	100
4 875			375	1 178	11 154	21 183	1552
4 851			375	1 178	10 984	18 572	1552
24					170	2 611	
715						4 830	

## Brunei Darussalam, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production			5 961.2	
2 Import			0.0	454.9
3 Export			- 5 740.4	
4 International marine and aviation bunkers				- 75.6
5 Stock change			80.7	- 11.6
6 Total primary energy supply			30 14	367.7
7 Transfers				
8 Main activity producers				- 13.0
9 Autoproducers				
10 Gas processing				19.2
11 Petroleum refineries			- 30 14	240.2
12 Coal transformation				
13 Other transformation				
14 Loss & own-use				
15 Discrepancy			0.0	14.9
16 Total final consumption				629.1
17 Total final energy consumption				629.1
18 Industry sector				137.0
19 Transport sector				448.4
20 Other sector				43.6
20.1 Residential & Commercial				18.6
20.2 Agriculture				
20.3 Other				25
21 Non-energy				0.0

## Canada, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production	30 529		249 208	
2 Import	4 642	554	45 605	11 507
3 Export	- 18 470	- 28	- 180 618	- 24 129
4 International marine and aviation bunkers				- 10 12
5 Stock change	- 367	158	- 3 19	- 322
6 Total primary energy supply	16 334	684	113 876	- 13 956
7 Transfers			- 10 441	14 366
8 Main activity producers	- 13 777			- 1 409
9 Autoproducers		- 7		- 472
10 Gas processing				
11 Petroleum refineries			- 98 006	95 869
12 Coal transformation	- 1949	1 133		
13 Other transformation			2 882	
14 Loss & own-use				- 16 134
15 Discrepancy	429	- 184	- 8 311	112 71
16 Total final consumption	1 037	1 626		89 535
17 Total final energy consumption	1 001	1 579		71 681
18 Industry sector	993	1 579		5 853
19 Transport sector				55 049
20 Other sector	8			10 779
20.1 Residential & Commercial	8			5 620
20.2 Agriculture				5 159
20.3 Other				
21 Non-energy	36	47		17 854



							Unit: ktoe	
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables	
11050.6			0.1			17 011.9	0.1	
						454.9		
- 7 035.0						- 12 775.3		
						- 75.6		
0.0						69.0		
4 015.7			0.1			4 684.9	0.1	
- 1082.1			- 0.1		320.3	- 774.9	- 0.1	
- 150.1					37.2	- 112.8		
- 853.3						- 834.1		
						- 61.2		
- 1221.1					- 87.6	- 1308.7		
- 241.6					0.0	- 226.7		
467.5					270.0	1366.5		
19.5					270.0	918.5		
					13.8	150.9		
						448.4		
19.5					256.1	319.3		
19.5					256.1	294.2		
						25		
448.0						448.0		

							Unit: ktoe	
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables	
153 431	33 752	26 346	2 826	13 557		509 649	49 928	
20 081				13 16	851	84 556	13 16	
- 71 045				- 1 186	- 6 199	- 301 675	- 1 186	
						- 10 12		
- 1 603						- 2 453		
100 864	33 752	26 346	2 826	13 687	- 5 348	289 065	50 058	
						3 925		
- 7 883	- 31 148	- 26 346	- 2 598	- 9 17	52 204	- 31 874	- 34 599	
- 5 838	- 2 604		- 187	- 998	4 965	- 5 441	- 3 789	
						- 2 137		
						- 8 16		
- 2 845						37		
- 31 958				- 2	- 10 597	- 58 691	- 2	
- 4 745			2	10	3 085	1 557		
47 595			43	11 780	44 309	195 925	11 676	
44 523			43	11 780	44 309	174 916	11 676	
14 683				6 597	15 912	45 617	6 450	
3 416				2 166	675	61 306	2 166	
26 424			43	3 017	27 722	67 993	3 060	
25 590				3 017	24 724	58 959	3 017	
834					831	6 824		
			43		2 187	2 210	43	
3 072						21 009		

## Chile, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production	982		299	
2 Import	6 688		8 911	8 191
3 Export	- 370	- 36		- 499
4 International marine and aviation bunkers				- 753
5 Stock change	70	2	- 13	- 147
6 Total primary energy supply	7 370	- 34	9 197	6 792
7 Transfers			810	- 784
8 Main activity producers	- 6 929			- 375
9 Autoproducers				- 141
10 Gas processing				
11 Petroleum refineries			- 10 115	9 912
12 Coal transformation	- 337	237		
13 Other transformation			39	
14 Loss & own-use		- 143		- 297
15 Discrepancy	113	11	69	107
16 Total final consumption	217	71		15 214
17 Total final energy consumption	217	71		14 874
18 Industry sector	215	71		3 608
19 Transport sector				9 055
20 Other sector	2			2 211
20.1 Residential & Commercial				1 771
20.2 Agriculture				214
20.3 Other	2			226
21 Non-energy				340

## China, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production	1 770 059		198 550	
2 Import	118 435	12	4 19 462	6 1971
3 Export	- 4 755	- 5 520	- 4 861	- 57 261
4 International marine and aviation bunkers				- 19 740
5 Stock change	16 323	9 356	- 170 18	- 7 075
6 Total primary energy supply	1 900 061	3 847	596 134	- 22 106
7 Transfers				
8 Main activity producers	- 828 735	- 1 293	- 142	- 2 843
9 Autoproducers	- 185 826	- 34 344		- 4 333
10 Gas processing	- 7 836	- 11		- 57
11 Petroleum refineries			- 584 773	557 158
12 Coal transformation	- 379 515	169 392		
13 Other transformation				
14 Loss & own-use	- 36 123	- 6 212	- 3 442	- 3 434
15 Discrepancy	24 108	425	- 7 112	- 547
16 Total final consumption	486 134	130 954	665	523 837
17 Total final energy consumption	436 585	112 141	665	4 17 432
18 Industry sector	336 255	108 672	665	86 434
19 Transport sector	1 788	41		236 222
20 Other sector	98 541	3 229		94 775
20.1 Residential & Commercial	64 802	2 865		40 409
20.2 Agriculture	14 604	261		18 257
20.3 Other	19 135	102		36 110
21 Non-energy	49 550	18 813		106 406

							Unit: ktoe	
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables	
1030	1833		745	8 086		12 975	10 664	
3 505						27 295		
- 177					- 3	- 1085		
						- 753		
- 13				11		- 90	11	
4 345	1833		745	8 097	- 3	38 342	10 675	
						26		
- 2 168	- 1829		- 694	- 697	6 193	- 6 499	- 3 220	
- 107	- 4			- 3 933	635	- 3 550	- 3 937	
						- 203		
						- 100		
- 24				- 124		- 109	- 124	
- 230				- 14	- 626	- 1310	- 14	
- 120			- 1	133	- 197	115		
1696			50	3 462	6 002	26 712	3 511	
1482			50	3 462	6 002	26 158	3 511	
801				1650	3 578	9 923	1649	
17					83	9 155		
664			50	1812	2 341	7 080	1862	
642				1801	2 184	6 398	1801	
21				6	144	385	6	
1			50	5	13	297	55	
244						554		

							Unit: ktoe	
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables	
134 691	102 326	64 649	33 690	82 201		2 386 166	190 819	
84 229					552	684 662		
- 3 145					- 1674	- 77 218		
						- 19 740		
						1585		
215 775	102 326	64 649	33 690	82 201	- 1 122	2 975 454	190 819	
- 32 722	- 102 326	- 64 649	- 33 690	- 39 480	558 665	- 547 214	- 148 131	
- 9 786					109 486	- 124 804		
- 770						- 8 674		
						- 27 615		
						- 2 10 123		
				- 325		- 325	- 325	
- 24 720				- 145	- 104 749	- 178 824	- 145	
- 5362					- 1596	9 066	34	
142 415				42 252	560 683	1886 941	42 252	
138 430				42 252	560 683	1708 188	42 252	
66 554				6 384	364 889	970 053	6 384	
23 948				12 916	12 195	287 109	12 916	
47 929				22 952	183 600	451026	22 952	
43 116				17 376	126 917	295 484	17 376	
101				4 069	10 138	47 430	4 069	
4 712				1508	46 545	108 111	1508	
3 985						178 753		

## Hong Kong, China, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production				
2 Import	6 615			21463
3 Export				- 290
4 International marine and aviation bunkers				- 17 595
5 Stock change	- 343			393
6 Total primary energy supply	6 272			3 971
7 Transfers				
8 Main activity producers	- 6 272			- 100
9 Autoproducers				
10 Gas processing				- 299
11 Petroleum refineries				
12 Coal transformation				
13 Other transformation				
14 Loss & own-use				
15 Discrepancy				- 1293
16 Total final consumption				2 278
17 Total final energy consumption				2 278
18 Industry sector				81
19 Transport sector				2 000
20 Other sector				197
20.1 Residential & Commercial				197
20.2 Agriculture				
20.3 Other				
21 Non-energy				

## Indonesia, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production	27124		51443	
2 Import	2 665		21032	28 299
3 Export	- 175 072		- 15 249	- 2 020
4 International marine and aviation bunkers				
5 Stock change	- 41754		- 1282	3 739
6 Total primary energy supply	57 054		55 944	30 018
7 Transfers			- 949	8 15
8 Main activity producers	- 48 804			- 3 072
9 Autoproducers				
10 Gas processing				573
11 Petroleum refineries			- 55 533	42 065
12 Coal transformation	- 18	14		
13 Other transformation				- 2 256
14 Loss & own-use				- 83
15 Discrepancy			538	2 049
16 Total final consumption	8 232	14		70 109
17 Total final energy consumption	8 232	14		63 100
18 Industry sector	8 232			6 042
19 Transport sector				44 962
20 Other sector		14		12 096
20.1 Residential & Commercial		14		9 465
20.2 Agriculture				
20.3 Other				2 631
21 Non-energy				7 009

							Unit: ktoe	
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables	
			1	110		111	111	
3 017				3	1081	32 178	3	
					- 115	- 405		
						- 17 595		
						50		
3 017			1	112	966	14 339	114	
					3 174	- 5 600		
- 2 402				- 52	8	- 44	- 53	
						- 299		
				- 11		- 11	- 11	
					- 375	- 375		
						- 1294		
6 15			1	49	3 773	6 715	50	
6 15			1	49	3 773	6 715	50	
26				3	190	300	3	
				4	75	2 078	4	
589			1	43	3 508	4 337	43	
589			1	43	3 508	4 337	43	

							Unit: ktoe	
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables	
62 326	1602		10 980	52 939		450 505	65 521	
					96	52 092		
- 30 113				- 182		- 222 635	182	
					637	- 38 659	637	
32 213	1602		10 980	53 395	96	241 302	65 977	
						- 134		
- 9 704	- 1602		- 10 980	- 224	21 897	- 52 489	- 12 806	
4 805						5 377		
						- 13 469		
						- 3		
						- 2 256		
- 6 359					- 2 699	- 9 140		
- 3 070					105	- 588		
17 885				53 171	19 189	168 601	53 171	
14 720				53 171	19 189	158 427	53 171	
14 345				6 767	6 212	41 599	6 767	
				3 766	20	48 748	3 766	
375				42 638	12 957	68 080	42 638	
375				42 638	12 957	65 449	42 638	
						2 631		
3 165						10 174		

## Japan, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production	774		441	
2 Import	115 611	897	158 758	44 687
3 Export	- 2	- 860		- 17 658
4 International marine and aviation bunkers				- 113 17
5 Stock change		56	14 14	- 334
6 Total primary energy supply	116 383	93	160 6 13	15 378
7 Transfers			- 988	866
8 Main activity producers	- 61 719	- 5 106	- 1362	- 8 240
9 Auto-producers	- 4 085	- 1502	- 1	- 4 757
10 Gas processing				- 1384
11 Petroleum refineries			- 161 960	164 095
12 Coal transformation	- 40 665	21476		- 451
13 Other transformation			4 487	- 4 661
14 Loss & own-use	- 264	- 2 747	- 67	- 5907
15 Discrepancy	390	- 505	- 448	- 4 143
16 Total final consumption	10 040	11709	274	150 796
17 Total final energy consumption	10 040	11268	23	117 090
18 Industry sector	10 024	11 64	23	20 195
19 Transport sector				68 780
20 Other sector	15	104		28 115
20.1 Residential & Commercial	15	104		23 451
20.2 Agriculture				3 365
20.3 Other				1299
21 Non-energy		441	251	33 706

## Korea, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production	688		754	
2 Import	81437	231	152 837	38 036
3 Export			- 368	- 66 455
4 International marine and aviation bunkers				- 15 247
5 Stock change	242		- 184	- 280
6 Total primary energy supply	82 367	231	153 039	- 43 946
7 Transfers			- 790	887
8 Main activity producers	- 51378	- 2 013		- 1450
9 Auto-producers	- 3 872	- 2 299		- 1719
10 Gas processing				- 110
11 Petroleum refineries			- 164 455	159 349
12 Coal transformation	- 23 628	11739		
13 Other transformation			12 014	- 11 004
14 Loss & own-use		- 2 971		- 6 413
15 Discrepancy	505	- 78	192	- 2 738
16 Total final consumption	3 994	4 609		97 332
17 Total final energy consumption	3 994	4 096		45 336
18 Industry sector	3 994	3 597		3 583
19 Transport sector				33 663
20 Other sector		499		8 090
20.1 Residential & Commercial		499		5892
20.2 Agriculture				287
20.3 Other				2 211
21 Non-energy		513		51996

							Unit: ktoe	
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables	
2 562	7 124	8 575	7 765	4 022		41 263	22 791	
98 214				1 183		419 350	1 183	
						- 18 520		
						- 113 17		
120						1 256		
100 896	7 124	8 575	7 765	15 205		432 032	23 974	
						- 122		
- 67 366	- 6 930	- 8 575	- 3 261	- 5 178	78 750	- 88 987	- 12 075	
- 3 026	- 194		- 4 144	- 3 287	12 883	- 8 113	- 6 840	
1 656				- 3		269	- 3	
						2 135		
						- 19 640		
				- 12		- 186	- 12	
- 1 156				- 74	- 7 693	- 17 908	- 74	
- 10 12			- 1	- 429	- 525	- 6 673		
29 992			359	6 222	83 415	292 807	4 671	
29 768			359	6 222	83 415	258 185	4 671	
11 400			1	3 795	29 784	86 386	2 772	
51				420	1501	70 753	420	
18 317			358	2 007	52 130	101 046	1 479	
18 315			340	1 437	51 848	95 510	1 437	
- 1			8		246	3 620	8	
1			10	570	36	1916	34	
224						34 622		

							Unit: ktoe	
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables	
305	242	38 674	1 060	7 315	52	49 090	4 718	
43 626						316 167		
						- 66 823		
						- 15 247		
- 717				1		- 938	1	
43 214	242	38 674	1 060	7 316	52	282 249	4 719	
						97		
- 19 747	- 242	- 38 674	- 764	- 1 352	47 493	- 68 127	- 2 234	
- 1 661			- 71	- 1 220	6 558	- 4 284	- 449	
						- 110		
						- 6 106		
						- 11 889		
						10 110		
- 142					- 5 010	- 14 536		
504			- 1	3	983	4 840		
22 168			224	4 741	50 076	183 144	2 035	
22 168			224	4 741	50 076	130 635	2 035	
7 482			5	3 222	26 497	48 380	704	
1 186				526	246	35 623	526	
13 500			2 19	991	23 333	46 632	803	
13 497			191	922	21 959	42 660	706	
3			28	69	1 126	1 513	97	
					248	2 459		
						52 509		

## Malaysia, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production	1883		34 746	
2 Import	19 168		10 204	12 180
3 Export	- 523		- 14 960	- 7 624
4 International marine and aviation bunkers				- 2 917
5 Stock change	31		- 297	131
6 Total primary energy supply	20 559		29 693	1770
7 Transfers			- 1961	1960
8 Main activity producers	- 18 845			- 319
9 Autoproducers				- 46
10 Gas processing				410
11 Petroleum refineries			- 27 234	24 110
12 Coal transformation				
13 Other transformation				
14 Loss & own-use				- 201
15 Discrepancy	88		- 498	- 420
16 Total final consumption	1802			27 265
17 Total final energy consumption	1802			25 270
18 Industry sector	1802			2 423
19 Transport sector				20 949
20 Other sector				1898
20.1 Residential & Commercial				1530
20.2 Agriculture				97
20.3 Other				271
21 Non-energy				1995

## Mexico, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production	6 581		112 770	
2 Import	6 059	814	623	50 692
3 Export	- 2	- 67	- 65 061	- 7 918
4 International marine and aviation bunkers				- 4 771
5 Stock change	- 696		- 583	69
6 Total primary energy supply	11 942	747	47 749	38 072
7 Transfers			- 5 731	6 667
8 Main activity producers	- 8 245			- 7 535
9 Autoproducers		- 87		- 1 466
10 Gas processing				- 775
11 Petroleum refineries			- 47 106	45 105
12 Coal transformation	- 1 197	485		
13 Other transformation			86	- 56
14 Loss & own-use		- 385		- 4 341
15 Discrepancy	130	23	5 002	- 2 692
16 Total final consumption	2 630	783		72 979
17 Total final energy consumption	2 630	702		68 223
18 Industry sector	2 630	702		6 408
19 Transport sector				51 280
20 Other sector				10 535
20.1 Residential & Commercial				7 306
20.2 Agriculture				3 229
20.3 Other				
21 Non-energy		81		4 756



							Unit: ktoe	
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables	
51 258	2 286		28	1247		91 448	3 561	
6 555					1	48 108		
- 33 432				- 239	- 97	- 56 875	- 239	
						- 2 917		
				32		- 103	32	
24 381	2 286		28	1040	- 96	79 662	3 354	
						- 1		
- 10 475	- 2 285		- 28	- 67	13 651	- 18 369	- 2 381	
- 1078				- 713	744	- 1093	- 714	
2 704						3 114		
						- 3 123		
						- 679		
- 679						- 679		
					- 1482	- 1683		
3				119		- 709	119	
14 855				379	12 817	57 119	379	
6 176				379	12 817	46 445	379	
6 023					6 358	16 607		
130				379	39	21 498	379	
23					6 419	8 340		
23					6 369	7 922		
					50	147		
						271		
8 679						10 674		

							Unit: ktoe	
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables	
26 566	2 750	2 836	4 295	9 083		164 881	16 107	
35 705					185	94 078		
- 14					- 155	- 73 217		
						- 4 771		
341						- 869		
62 598	2 750	2 836	4 295	9 083	30	180 102	16 107	
						936		
- 27 026	- 2 669	- 2 836	- 3 155		22 277	- 29 189	- 5 824	
- 11 289	- 81		- 879	- 1916	5416	- 10 302	- 2 855	
34						- 741		
						- 2 001		
						- 712		
						30		
- 10 855					- 5243	- 20 824		
1670			- 2	4	901	5 036		
15 132			259	7 171	23 381	122 335	7 430	
14 736			259	7 171	23 381	117 102	7 430	
13 721			14	1 192	12 680	37 347	1206	
47					93	51 420		
968			245	5 979	10 608	28 335	6 224	
968			245	5 979	7 121	21 619	6 224	
					995	4 224		
					2 492	2 492		
396						5 233		

## New Zealand, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production	1653		1660	
2 Import	235		5489	2 980
3 Export	- 832		- 1400	- 245
4 International marine and aviation bunkers				- 1522
5 Stock change	108		34	173
6 Total primary energy supply	1164		5783	986
7 Transfers			- 198	206
8 Main activity producers	- 129			- 11
9 Autoproducers	- 6	- 177		
10 Gas processing				
11 Petroleum refineries			- 5690	5579
12 Coal transformation	- 443	267		
13 Other transformation				
14 Loss & own-use	- 70	- 50		- 353
15 Discrepancy	13	- 1	105	225
16 Total final consumption	529	39		6 642
17 Total final energy consumption	529	39		6 311
18 Industry sector	438	39		438
19 Transport sector				5227
20 Other sector	91			646
20.1 Residential & Commercial	29			260
20.2 Agriculture	62			330
20.3 Other				56
21 Non-energy				331

## Papua New Guinea, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production			1038	
2 Import			142	1008
3 Export			- 1038	- 458
4 International marine and aviation bunkers				
5 Stock change			- 81	- 11
6 Total primary energy supply			1331	540
7 Transfers				- 47
8 Main activity producers				
9 Autoproducers				- 594
10 Gas processing				
11 Petroleum refineries			- 142	1374
12 Coal transformation				
13 Other transformation				
14 Loss & own-use				
15 Discrepancy			90	1
16 Total final consumption				1274
17 Total final energy consumption				1274
18 Industry sector				483
19 Transport sector				639
20 Other sector				151
20.1 Residential & Commercial				50
20.2 Agriculture				101
20.3 Other				
21 Non-energy				

							Unit: ktoe	
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables	
4 179	2 165		5 076	1 283		16 016	8 500	
						8 304		
						- 2 477		
						- 1 522		
67						382		
4 246	2 165		5 076	1 283		20 703	8 500	
						8		
- 1 244	- 2 165		- 4 825	- 45	3 677	- 4 732	- 7 035	
- 41			- 47	- 150	145	- 276	- 173	
						- 111		
						- 176		
- 242					- 427	- 1 142		
83			1		- 49	377		
2 802			205	1 088	3 346	14 651	1 292	
1 656			205	1 088	3 346	13 174	1 292	
1 310			113	917	1 191	4 446	1 030	
				3	5	5 235	3	
346			92	168	2 150	3 493	259	
315			76	168	1 868	2 716	243	
31			16		215	654	16	
					67	123		
146						1 477		

							Unit: ktoe	
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables	
3 011	75		361	1 681		6 167	2 118	
						2 420		
- 2 558						- 4 054		
						- 92		
453	75		361	1 681		4 441	2 118	
						- 47		
- 56	- 57			- 35	114	- 35	- 93	
- 152	- 18		- 361	- 2	275	- 852	- 381	
39						39		
						- 47		
				- 13		- 13	- 13	
- 284					- 47	- 331		
					1	90		
				1 631	342	3 246	1 631	
				1 631	342	3 246	1 631	
				66	253	803	66	
						639		
				1 565	89	1 804	1 565	
				1 565	89	1 703	1 703	
						101		

## Peru, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production	196		5 499	
2 Import	306	44	6 326	4 218
3 Export	- 230		- 79	- 5 480
4 International marine and aviation bunkers				4
5 Stock change	381	9	- 65	- 227
6 Total primary energy supply	653	53	11 681	- 1485
7 Transfers			- 3 300	2 391
8 Main activity producers	- 160			- 316
9 Auto-producers	- 40			- 178
10 Gas processing				
11 Petroleum refineries			- 8 513	8 690
12 Coal transformation				
13 Other transformation				
14 Loss & own-use				- 161
15 Discrepancy			132	804
16 Total final consumption	453	53		9 745
17 Total final energy consumption	453	53		9 441
18 Industry sector	453	53		938
19 Transport sector				7 146
20 Other sector				1 357
20.1 Residential & Commercial				1 256
20.2 Agriculture				40
20.3 Other				61
21 Non-energy				304

## Philippines, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production	6 298		622	
2 Import	11 753		10 418	12 247
3 Export	- 3 258		- 598	- 1 420
4 International marine and aviation bunkers				- 16 76
5 Stock change	682		235	- 177
6 Total primary energy supply	15 475		10 677	8 974
7 Transfers				
8 Main activity producers	- 12 312			- 969
9 Auto-producers				
10 Gas processing				
11 Petroleum refineries			- 10 212	9 690
12 Coal transformation				
13 Other transformation				
14 Loss & own-use			- 163	
15 Discrepancy			- 302	108
16 Total final consumption	3 163			17 804
17 Total final energy consumption	3 008			16 346
18 Industry sector	3 008			1 470
19 Transport sector				11 352
20 Other sector				3 523
20.1 Residential & Commercial				3 233
20.2 Agriculture				59
20.3 Other				232
21 Non-energy	156			1 458

							Unit: ktoe	
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables	
12 498	2 499		153	3 038		23 883	5 690	
				291	1	11 186	291	
- 5 478						- 11 267		
							4	
160				23		281	23	
7 180	2 499		153	3 352	1	24 087	6 004	
						- 909		
- 3 713	- 2 441		- 117	- 89	4 339	- 2 496	- 2 646	
- 241	- 59		- 4	- 257	226	- 550	- 319	
							177	
							- 157	
- 991				- 157	- 541	- 1 693		
- 96					- 33	808		
2 139			33	2 850	3 993	19 266	2 883	
2 139			33	2 850	3 993	18 963	2 883	
1 336				495	2 406	5 681	495	
682				278	5	8 111	278	
121			33	2 076	1 583	5 170	2 109	
121			33	2 072	1 583	5 066	2 105	
							42	
							3	
							304	

							Unit: ktoe	
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables	
3 226	827		9 030	10 131		30 132	19 990	
				131		34 550	131	
						- 5 276		
						- 1 676		
						805	65	
3 226	827		9 030	10 327		58 535	20 186	
- 3 080	- 827		- 9 030	- 14	8 116	- 18 115	- 9 873	
				- 388		- 388	- 388	
							- 521	
							- 2 155	
- 93				- 43	- 1 426	- 1 681	- 43	
53				7 728	6 690	35 438	7 728	
53				7 728	6 690	33 824	7 728	
53				1 193	2 199	7 923	1 193	
				462	10	11 824	462	
				6 073	4 481	14 077	6 073	
				6 067	4 261	13 561	6 067	
				1	220	280	1	
				4		236	4	
						1 613		

## Russia, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production	222 235		548 999	
2 Import	17 146	73	625	1224
3 Export	- 118 591	- 2 024	- 254 054	- 127 208
4 International marine and aviation bunkers				- 17 148
5 Stock change	- 5 299	43	1626	- 99
6 Total primary energy supply	115 491	- 1908	297 196	- 143 231
7 Transfers				- 4
8 Main activity producers	- 43 356			- 813
9 Auto-producers	- 12 950	- 3 288	- 541	- 5 909
10 Gas processing				
11 Petroleum refineries			- 290 452	286 992
12 Coal transformation	- 45 518	27 278		
13 Other transformation				
14 Loss & own-use	- 642	- 960	- 6 176	- 12 195
15 Discrepancy	- 7 279	1	- 1	- 4 042
16 Total final consumption	5 746	21 123	26	120 798
17 Total final energy consumption	5 624	21 123	26	912 18
18 Industry sector	3 062	21 123	14	15 856
19 Transport sector				58 929
20 Other sector	2 562		12	16 433
20.1 Residential & Commercial	2 511			12 913
20.2 Agriculture	51		11	2 877
20.3 Other			1	643
21 Non-energy	122			29 580

## Singapore, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production				
2 Import	899		57 954	127 072
3 Export			- 785	- 100 843
4 International marine and aviation bunkers				- 57 066
5 Stock change			142	- 369
6 Total primary energy supply	899		57 311	- 312 066
7 Transfers			7 292	- 7 093
8 Main activity producers	- 298			- 11
9 Auto-producers				- 163
10 Gas processing				
11 Petroleum refineries			- 58 451	55 835
12 Coal transformation				
13 Other transformation				
14 Loss & own-use				- 2 180
15 Discrepancy	- 428		- 6 152	- 3 756
16 Total final consumption	173			18 938
17 Total final energy consumption	173			6 173
18 Industry sector	173			3 787
19 Transport sector				2 283
20 Other sector				103
20.1 Residential & Commercial				103
20.2 Agriculture				
20.3 Other				
21 Non-energy				12 765

							Unit: ktoe	
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables	
580 954	15 908	53 279	165	7 712		1429 252	18 643	
7 217				5	551	26 841	5	
- 187 555				- 30	- 1462	- 690 924	- 30	
- 12 281				154		- 15 856	146	
388 335	15 908	53 279	165	7 841	- 911	732 165	18 764	
						- 4		
- 130 771	- 15 803	- 53 280	- 165		144 009	- 100 179	- 15 968	
- 68 441	- 106			- 4 216	76 772	- 18 679	- 653	
						- 3 460		
						- 18 240		
- 2 833				- 84	- 4	- 2 921	- 84	
- 19 768				- 149	- 48 298	- 88 188		
- 1227	1	1		- 6		- 12 552		
165 295				3 386	171 568	487 942	2 058	
125 638				3 386	171 568	418 583	2 058	
38 003				1229	70 251	149 538	76	
30 261					6 671	95 861		
57 374				2 157	94 646	173 184	1982	
56 046				2 039	90 377	163 886	1917	
1327				118	4 229	8 613	65	
1					40	685		
39 657						69 359		

							Unit: ktoe	
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables	
			15	638		653	334	
8 885				68		194 878	68	
						- 10 1628		
						- 57 066		
46						- 181		
8 931			15	706		36 656	402	
						199		
- 6 680			- 15	- 706	3 972	- 3 738	- 402	
- 891					533	- 521		
						- 2 616		
- 11					- 236	- 2 427		
- 54						- 2 878		
1295					4 269	24 675		
1295					4 269	119 10		
1 150					1 730	6 840		
6					237	2 526		
139					2 302	2 544		
137					2 278	2 518		
2					24	26		
						12 765		

## Chinese Taipei, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production			5	
2 Import	37 649	182	44 783	19 457
3 Export	- 1	- 30	- 401	- 16 955
4 International marine and aviation bunkers				- 4 059
5 Stock change	- 19	5	- 1	145
6 Total primary energy supply	37 530	157	44 386	- 14 12
7 Transfers			265	- 5 55
8 Main activity producers	- 20 584			- 2 691
9 Autoproducers	- 4 8 10	- 971		- 736
10 Gas processing				
11 Petroleum refineries			- 44 375	46 028
12 Coal transformation	- 6 644	3 580		
13 Other transformation				
14 Loss & own-use		- 1 194		- 2 119
15 Discrepancy	97	37	- 277	3 18
16 Total final consumption	5 588	16 10		38 874
17 Total final energy consumption	5 574	1331		16 207
18 Industry sector	5 574	1331		1802
19 Transport sector				12 258
20 Other sector				2 147
20.1 Residential & Commercial				1827
20.2 Agriculture				4
20.3 Other				3 16
21 Non-energy	14	279		22 667

## Thailand, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production	4 065		19 563	
2 Import	6 343	7 679	46 686	2 888
3 Export	- 34	- 1	- 1 746	- 10 044
4 International marine and aviation bunkers				- 4 034
5 Stock change	- 2 520	- 2 532	6 203	- 3 607
6 Total primary energy supply	7 854	5 146	70 707	- 14 797
7 Transfers			- 6 553	6 555
8 Main activity producers	- 7 102	- 595		- 65
9 Autoproducers				
10 Gas processing				
11 Petroleum refineries			- 55 509	48 537
12 Coal transformation				
13 Other transformation				466
14 Loss & own-use				- 2 142
15 Discrepancy			- 1 887	- 1 032
16 Total final consumption	752	4 551	6 757	37 522
17 Total final energy consumption	752	4 551		34 867
18 Industry sector	752	4 551		5 110
19 Transport sector				24 573
20 Other sector				5 185
20.1 Residential & Commercial				2 533
20.2 Agriculture				2 652
20.3 Other				
21 Non-energy			6 757	2 655



							Unit: ktoe	
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables	
213	755	5 849	395	1460		8 677	3 049	
19 776						12 1846		
						- 17 386		
						- 4 059		
- 3						29		
19 985	755	5 849	395	1460		109 106	3 049	
						- 249		
- 16 962	- 755	- 5 849	- 156	- 31	20 145	- 25 884	- 911	
- 70			- 138	- 1036	3 099	- 4 661	- 1553	
278						278		
						1653		
						- 3 064		
- 311					- 2 215	- 5839		
- 357				- 3	- 260	- 445		
3 564			102	390	20 769	70 896	574	
3 564			102	390	20 769	47 937	574	
2 476				390	12 135	23 708	472	
					122	12 380		
1088			102		8 511	11848	102	
1084			102		8 250	11263	102	
3					175	182		
					86	402		
						22 960		

							Unit: ktoe	
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables	
26 384	372		497	25 091		75 973	25 960	
14 859				68	2 101	80 625	68	
				- 16	- 95	- 11935	- 16	
						- 4 034		
- 18				47		- 2 427	47	
41 225	372		497	25 191	2 006	138 201	26 060	
						2		
- 26 217	- 372		- 487	- 7 082	15 954	- 25 967	- 7 942	
						- 6 972		
				- 3 410		- 2 945	- 3 410	
- 6 488					- 1398	- 10 029		
- 772				428		- 4 119	- 428	
7 748			9	14 271	16 581	88 172	14 280	
5 821			9	14 271	16 581	76 832	14 280	
3 657				6 974	6 949	27 993	6 974	
2 161				1928	18	28 680	1928	
3			9	5 369	9 594	20 159	5 378	
3			9	5 369	9 568	17 482	5 378	
					26	2 677		
1927						11340		

## United States, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production	373 180		590 849	
2 Import	4 040	37	442 925	73 462
3 Export	- 56 797	- 756	- 78 868	- 209 447
4 International marine and aviation bunkers				- 47 981
5 Stock change	11 029	13	14 265	5 073
6 Total primary energy supply	331 452	- 706	969 171	- 178 893
7 Transfers			- 89 951	93 130
8 Main activity producers	- 306 554	- 224		- 5 398
9 Auto-producers	- 1 407	- 295		- 16 15
10 Gas processing	- 1 943			
11 Petroleum refineries			- 882 957	860 162
12 Coal transformation	- 13 092	6 516		
13 Other transformation			5 062	
14 Loss & own-use	- 31	- 1 101		- 31 643
15 Discrepancy	4 399		3 105	7 445
16 Total final consumption	12 824	4 190	4 430	743 188
17 Total final energy consumption	12 824	4 190		626 337
18 Industry sector	12 353	4 190		18 376
19 Transport sector				568 295
20 Other sector	471			39 666
20.1 Residential & Commercial	471			25 688
20.2 Agriculture				13 978
20.3 Other				
21 Non-energy			4 430	116 851

## Viet Nam, 2017

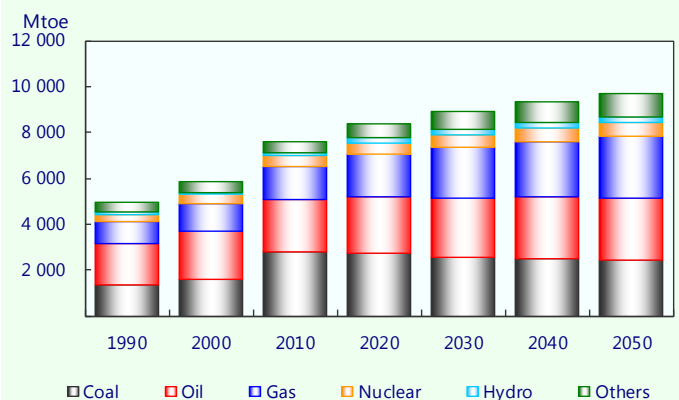
	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production	21 509		14 906	
2 Import	8 219		1 205	15 665
3 Export	- 1 248		- 6 942	- 16 74
4 International marine and aviation bunkers				- 1 450
5 Stock change	230		- 1 858	93
6 Total primary energy supply	28 710		7 310	12 634
7 Transfers			- 1 078	1 081
8 Main activity producers	- 13 422			- 177
9 Auto-producers				
10 Gas processing				
11 Petroleum refineries			- 6 232	6 351
12 Coal transformation				
13 Other transformation				
14 Loss & own-use				
15 Discrepancy	- 96			- 405
16 Total final consumption	15 192			19 484
17 Total final energy consumption	15 192			18 556
18 Industry sector	12 827			2 919
19 Transport sector				13 584
20 Other sector	2 365			2 352
20.1 Residential & Commercial	2 352			1 908
20.2 Agriculture	13			445
20.3 Other				
21 Non-energy				628

							Unit: ktoe	
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables	
641678	25998	218573	39696	102596		1992570	163883	
70405				2131	5648	598648	2131	
-74435				-3467	-806	-424576	-3467	
				-222		-48203	-222	
6286				124		36790	124	
643934	25998	218573	39696	101162	4842	2155229	162449	
						3179		
-217233	-25856	-218573	-36071	-15281	361378	-463812	-74165	
-14295	-142		-1510	-5790	15988	-9066	-6718	
1247						-696		
						-22795		
						-6576		
-4501						561		
-57896				-132	-54926	-145729	-132	
-4941				-1	157	10162		
346315			2114	80116	327280	1520457	81591	
322270			2114	80116	327280	1375131	81591	
124643				30298	71563	261423	29877	
18097				38034	953	625379	38033	
179530			2114	11784	254764	488329	13681	
178023			2114	10576	235473	452345	12474	
1507				1208	4053	20746	1207	
					15238	15238		
24045						145326		

							Unit: ktoe	
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables	
7811	7652		28	13245		65152	20925	
					114	25202		
					-61	-9925		
						-1450		
						-1536		
7811	7652		28	13245	53	77444	20925	
						2		
-6768	-7652		-28	-32	16834	-11244	-7712	
						19		
						-1671		
					357	-858		
1043				13214	14859	63792	13214	
1043				13214	14859	63464	13214	
1039				9299	8704	34788	9299	
4						13589		
				3915	6155	14788	3915	
				3600	5780	13640	3600	
				315	375	1147	315	
						628		



### Primary energy supply outlook by energy



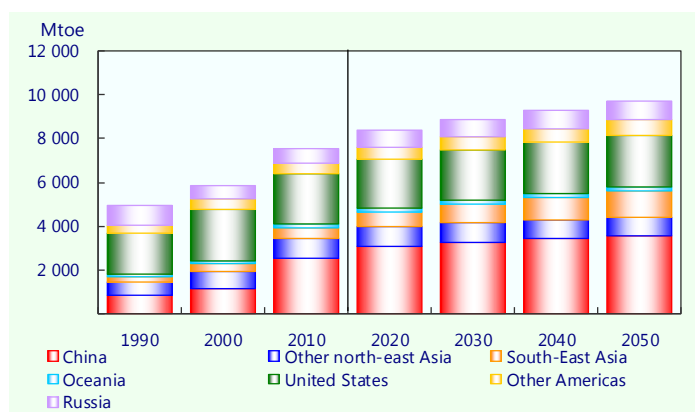
	Mtoe						
	1990	2000	2010	2020	2030	2040	2050
Coal	1 377	1 612	2 807	2 742	2 569	2 506	2 414
Oil	1 761	2 099	2 277	2 441	2 576	2 657	2 738
Gas	994	1 180	1 455	1 889	2 196	2 434	2 663
Nuclear	286	390	432	460	535	566	595
Hydro	92	107	152	214	239	256	268
Others	421	456	447	622	772	898	1 036
<b>Total</b>	<b>4 931</b>	<b>5 844</b>	<b>7 570</b>	<b>8 369</b>	<b>8 888</b>	<b>9 316</b>	<b>9 714</b>

	Share (%)						
	1990	2000	2010	2020	2030	2040	2050
Coal	27.9	27.6	37.1	32.8	28.9	26.9	24.9
Oil	35.7	35.9	30.1	29.2	29.0	28.5	28.2
Gas	20.2	20.2	19.2	22.6	24.7	26.1	27.4
Nuclear	5.8	6.7	5.7	5.5	6.0	6.1	6.1
Hydro	1.9	1.8	2.0	2.6	2.7	2.7	2.8
Others	8.5	7.8	5.9	7.4	8.7	9.6	10.7

Source: Asia Pacific Energy Research Centre, May 2019.

## Primary energy supply outlook by region



	Mtoe				
	1990	2000	2010	2020	2030
China	871	1 136	2 544	3 095	3 273
Other north-east Asia	589	817	888	870	867
South-East Asia	223	358	517	693	862
Oceania	100	130	150	168	181
United States	1 915	2 330	2 282	2 240	2 299
Other Americas	355	454	499	558	602
Russia	879	619	691	746	805
<b>APEC 21</b>	<b>4 931</b>	<b>5 844</b>	<b>7 570</b>	<b>8 369</b>	<b>8 888</b>

	Share (%)				
	1990	2000	2010	2020	2030
China	17.7	19.4	33.6	37.0	36.8
Other north-east Asia	11.9	14.0	11.7	10.4	9.8
South-East Asia	4.5	6.1	6.8	8.3	9.7
Oceania	2.0	2.2	2.0	2.0	2.0
United States	38.8	39.9	30.1	26.8	25.9
Other Americas	7.2	7.8	6.6	6.7	6.8
Russia	17.8	10.6	9.1	8.9	9.1

Other north-east Asia includes Hong Kong, China; Japan; Republic of Korea and Chinese Taipei.  
Other Americas includes Canada; Chile; Mexico and Peru.



## Selected energy indicators APEC region

	Population			Real GDP			Real GDP		
	Millions			Billion (constant 2010 USD)			Billion, PPP at constant 2011USD		
	1990	2005	2017	1990	2005	2017	1990	2005	2017
APEC	902	1 055	1 176	10 009	13 866	17 939	12 530	17 789	24 758
Other north-east Asia	192	206	209	5 326	7 117	8 298	4 765	6 793	8 324
Hong Kong, China	5.7	6.8	7.4	104	189	280.5	154	279	414.6
Japan	124	128	127	4 704	5 672	6 141	3 778	4 556	4 933
Korea	43	48	51	363	895	1 346	499	1 230	1 850
Chinese Taipei	20	23	24	155	362	530	335	728	1 127
South-East Asia	389	492	571	736	1 488	2 690	1 882	3 775	6 839
Brunei Darussalam	0.3	0.4	0.4	10	13	13.5	22	30	30.8
Indonesia	181	226	265	310	571	1 090	839	1 547	2 954
Malaysia	18	26	31	82	205	365	190	477	848
Philippines	62	86	105	95	157	303	248	412	797
Singapore	3.0	4.3	5.6	69	173	318.4	106	267	492.5
Thailand	57	65	69	142	284	424	376	754	1 127
Viet Nam	68	84	95	29	85	175	99	287	590
Oceania	25	31	38	728	1 185	1 642	580	944	1 310
Australia	17	20	25	638	1 037	1 441	489	795	1 104
New Zealand	3.3	4.1	4.8	84	138	180.6	80	132	172.8
Papua New Guinea	4.6	6.5	8.4	6.4	11	20.6	10	17	32.7
Other americas	147	182	211	1 804	2 794	3 625	2 243	3 504	4 648
Canada	28	32	37	1 012	1 524	1 869	868	1 307	1 603
Chile	13	16	18	79	182	272	119	275	412
Mexico	84	106	125	654	983	1 285	1 140	1 713	2 240
Peru	22	28	31	58	106	199	116	210	394
China	1 135	1 304	1 386	828	3 562	10 132	1 733	7 457	21 224
Russia	148	144	147	1 416	1 282	1 684	3 061	2 774	3 637
United States	250	296	325	9 001	14 332	17 349	9 189	14 632	17 711



Energy Indigenous Production			Net Import			Total Primary Energy Supply			
Mtoe			Mtoe			Mtoe			
1990	2005	2017	1990	2005	2017	1990	2005	2017	
2 346	2 843	3 398	- 156	- 183	- 298	2 133	2 563	2 890	
108	158	99	499	726	786	589	845	838	
0.0	0.0	0.1	11	23	32	8.9	14	14	HKC
74	102	41	378	436	401	439	522	432	JPN
23	43	49	70	176	249	93	210	282	ROK
11	13	9	40	91	104	48	99	109	CT
286	513	731	- 57	- 38	15	207	436	636	
16	23	17.0	- 15	- 20	- 12.3	1.3	3.1	4.7	BD
175	264	451	- 69	- 89	- 171	102	173	241	INA
46	94	91	- 27	- 27	- 9	19	66	80	MAS
16	21	30	11	17	29	26	38	59	RP
0.1	0.4	0.7	25	50	93.3	12	21	36.7	SIN
26	51	76	18	48	69	41	95	138	THA
5.8	59	65	- 0.2	- 18	15	5.3	39	77	VN
169	282	427	- 62	- 145	- 265	99	134	152	
158	265	405	- 65	- 149	- 269	86	113	127	AUS
12	13	16.0	2.1	4.9	5.8	13	17	20.7	NZ
N.A.	4.3	6.2	N.A.	- 1.0	- 1.6	N.A.	3.3	4.4	PNG
491	686	711	- 123	- 186	- 170	359	496	532	
276	402	510	- 59	- 130	- 217	211	273	289	CDA
7.9	9.3	13	7.0	20	26	14	28	38	CHL
196	264	165	- 70	- 80	21	124	181	180	MEX
11	10.8	24	- 0.6	3.0	- 0.3	10	14	24	PE
727	1 527	2 386	- 32	137	607	671	1 676	2 975	PRC
1 293	1 203	1 429	- 413	- 539	- 664	879	652	732	RUS
1 653	1 631	1 993	342	736	174	1 915	2 319	2 155	USA

Energy Indicators

	Total Final Energy Consumption			Final Consumption of Electricity			Total Primary Energy Supply		
	Mtoe			TWh			toe / Person		
	1990	2005	2017	1990	2005	2017	1990	2005	2017
APEC	1 361	1 495	1 684	5 741	9 437	13 770	2.37	2.43	2.46
Other north-east Asia	343	462	443	960	1 621	1 772	3.06	4.11	4.00
Hong Kong, China	4.9	6.7	6.7	24	40	44	1.56	2.06	1.94
Japan	254	298	258	765	1 025	964	3.55	4.09	3.41
Korea	58	110	131	94	358	523	2.17	4.36	5.48
Chinese Taipei	25	47	48	77	199	242	2.38	4.35	4.63
South-East Asia	132	280	392	128	438	943	0.53	0.88	1.12
Brunei Darussalam	0.4	0.7	0.9	1.2	2.6	3.1	4.93	8.51	11.04
Indonesia	65	119	158	28	107	223	0.56	0.77	0.91
Malaysia	12	34	46	20	81	149	1.04	2.55	2.56
Philippines	19	22	34	21	45	78	0.43	0.44	0.56
Singapore	3.1	7	12	13	35	50	3.78	4.93	6.53
Thailand	29	61	77	38	121	193	0.73	1.46	2.00
Viet Nam	3.8	35.0	63	6.2	46	248	0.08	0.47	0.82
Oceania	62	82	93	158	230	254	3.96	4.31	4.02
Australia	53	67	77	129	189	211	5.05	5.56	5.16
New Zealand	9	12	13	29	38	39	3.86	4.10	4.32
Papua New Guinea	N.A.	2.6	3.2	N.A.	3.0	4.0	N.A.	0.51	0.53
Other americas	240	304	337	545	774	897	2.44	2.72	2.52
Canada	147	173	175	418	513	509	7.63	8.48	7.91
Chile	10	19	26	15	48	70	1.06	1.75	2.08
Mexico	74	100	117	100	190	272	1.47	1.70	1.44
Peru	8.7	11	19	12	23	46	0.45	0.50	0.77
China	529	941	1 708	491	1 992	5 406	0.59	1.29	2.15
Russia	585	368	419	826	650	761	5.94	4.54	4.99
United States	1 175	1 407	1 375	2 633	3 731	3 737	7.67	7.85	6.63

Total Primary Energy Supply per Real GDP			Total Primary Energy Supply per Real GDP			Total Final Energy Consumption per Capita			
toe / Million USD at constant 2010 values			toe / Million USD at 2011 PPP			toe / Person			
1990	2005	2017	1990	2005	2017	1990	2005	2017	
213	185	161	170	144	117	1.51	1.42	1.43	
111	119	101	124	124	101	1.78	2.25	2.12	
86	75	51	58	50	35	0.86	0.98	0.91	HKC
93	92	70	116	115	88	2.06	2.34	2.04	JPN
256	235	210	186	171	153	1.36	2.28	2.54	ROK
311	273	206	144	136	97	1.24	2.06	2.03	CT
281	293	237	110	115	93	0.34	0.57	0.69	
133	234	348	58	103	152	1.47	1.81	2.16	BD
328	303	221	121	112	82	0.36	0.53	0.60	INA
230	320	219	99	137	94	0.65	1.34	1.49	MAS
280	242	193	107	92	73	0.30	0.26	0.32	RP
168	122	115	108	79	74	1.02	1.67	2.12	SIN
293	336	326	110	126	123	0.51	0.93	1.11	THA
180	462	442	54	137	131	0.06	0.42	0.67	VN
136	113	93	171	142	116	2.47	2.64	2.47	
135	109	88	176	143	115	3.09	3.30	3.13	AUS
154	123	115	161	128	120	2.75	2.90	2.75	NZ
N.A.	309	216	N.A.	194	136	N.A.	0.40	0.38	PNG
199	178	147	160	142	114	1.63	1.67	1.60	
209	179	155	243	209	180	5.30	5.37	4.79	CDA
178	156	141	118	103	93	0.77	1.20	1.42	CHL
189	184	140	109	105	80	0.88	0.94	0.94	MEX
170	131	121	86	66	61	0.39	0.40	0.60	PE
810	470	294	387	225	140	0.47	0.72	1.23	PRC
621	509	435	287	235	201	3.95	2.56	2.85	RUS
213	162	124	208	158	122	4.71	4.76	4.23	USA

	Energy Related CO <sub>2</sub> Emission			CO <sub>2</sub> Emission per Capita		
	Mt-CO <sub>2</sub>			t-CO <sub>2</sub> / Person		
	1990	2005	2017	1990	2005	2017
APEC	5,006	5,471	6,374	5.55	5.19	5.42
Other north-east Asia	1,408	1,902	2,013	7.32	9.25	9.62
Hong Kong, China	33	37	36	5.70	5.49	4.83
Japan	1,042	1,158	1,129	8.44	9.06	8.91
Korea	224	458	578	5.22	9.50	11.24
Chinese Taipei	109	249	270	5.40	10.94	11.45
South-East Asia	335	851	1,302	0.86	1.73	2.28
Brunei Darussalam	4	7	8	15.30	19.94	18.21
Indonesia	102	322	495	0.56	1.42	1.87
Malaysia	63	138	201	3.51	5.38	6.47
Philippines	38	69	122	0.61	0.79	1.16
Singapore	29	38	46	9.55	8.92	8.23
Thailand	82	202	238	1.45	3.08	3.44
Viet Nam	16	76	193	0.24	0.91	2.04
Oceania	275	392	423	10.98	12.64	11.19
Australia	252	354	384	14.75	17.34	15.61
New Zealand	23	34	32	6.89	8.18	6.74
Papua New Guinea	N.A.	5	7	N.A.	0.74	0.83
Other americas	725	985	1,097	4.93	5.40	5.19
Canada	416	519	514	15.03	16.08	14.08
Chile	31	55	86	2.37	3.39	4.68
Mexico	258	383	448	3.07	3.61	3.59
Peru	20	29	49	0.89	1.03	1.55
China	2,496	5,205	8,888	2.20	3.99	6.41
Russia	2,264	1,341	1,538	15.30	9.34	10.5
United States	5,038	5,992	5,142	20.18	20.28	15.82

CO <sub>2</sub> Emission per Real GDP			CO <sub>2</sub> Emission per Real GDP			CO <sub>2</sub> Emission per Total Primary Energy Supply			
kt-CO <sub>2</sub> / Billion USD at constant 2010 values			kt-CO <sub>2</sub> / Billion USD at 2011 PPP			t-CO <sub>2</sub> / toe			
1990	2005	2017	1990	2005	2017	1990	2005	2017	
500.2	394.6	355.3	399.5	307.5	257.5	2.35	2.13	2.21	
264.3	267.2	242.6	295.4	280.0	241.9	2.39	2.25	2.40	
312.4	198.3	127.3	211.4	134.1	86.1	3.65	2.66	2.49	HKC
221.5	204.2	183.9	275.8	254.2	228.9	2.38	2.22	2.61	JPN
616.4	511.6	429.8	448.6	372.3	312.8	2.41	2.18	2.05	ROK
705.6	687.5	509.0	327.2	341.4	239.6	2.27	2.52	2.47	CT
455.4	572.0	484.2	178.0	225.5	190.4	1.62	1.95	2.05	
412.6	548.9	573.5	180.6	240.3	251.1	3.10	2.34	1.65	BD
330.5	563.0	453.6	122.0	207.9	167.4	1.01	1.86	2.05	INA
773.6	674.4	552.2	332.5	289.9	237.3	3.36	2.11	2.53	MAS
401.9	437.3	401.8	152.9	166.4	152.9	1.43	1.81	2.08	RP
423.1	220.3	145.0	273.5	142.4	93.8	2.52	1.81	1.26	SIN
580.3	710.4	561.2	218.4	267.3	211.2	1.98	2.12	1.72	THA
547.5	889.3	1,099.5	162.8	264.4	326.8	3.04	1.92	2.49	VN
377.1	330.9	257.9	473.9	415.6	323.2	2.77	2.93	2.78	
394.4	341.1	266.6	514.5	445.0	347.8	2.92	3.12	3.02	AUS
274.4	245.1	178.8	286.8	256.2	186.9	1.78	1.99	1.56	NZ
N.A.	449.9	338.8	N.A.	282.6	212.8	N.A.	1.46	1.57	PNG
401.9	352.5	302.7	323.1	281.0	236.0	2.02	1.98	2.06	
411.1	340.3	275.2	479.3	396.8	320.9	1.97	1.90	1.78	CDA
399.0	302.4	317.0	263.9	200.0	209.7	2.24	1.94	2.25	CHL
394.0	389.3	348.5	226.1	223.4	199.9	2.08	2.12	2.49	MEX
334.7	271.9	245.2	168.8	137.2	123.7	1.96	2.08	2.02	PE
3,016.0	1,461.3	877.2	1,440.7	698.1	418.8	3.72	3.11	2.99	PRC
1,598.7	1,046.2	913.2	739.7	483.4	422.9	2.57	2.06	2.10	RUS
559.7	418.0	296.4	548.3	409.5	290.3	2.63	2.58	2.39	USA



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## Glossary

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### General note

The definition for some items are different from the APEC Energy Statistics publication in order to match with the aggregated product categories. In the energy balance, the definition of all items are the same as those in the APEC Energy Statistics publication.

### Energy products

#### Coal

Includes coal, i.e. solid fossil fuel consisting of carbonized vegetal matter, and coal products derived directly or indirectly from various classes of coal by carbonization or pyrolysis processes, by the aggregation of finely divided coal or by chemical reactions with oxidizing agents, including water.

#### Oil

Liquid hydrocarbons of fossil origins comprising (i) crude oil; (ii) liquids extracted from natural gas (NGL); (iii) fully or partly processed products from the refining of crude oil, and (iv) functionally similar liquid hydrocarbons and organic chemicals from vegetal or animal origins.

#### Petroleum products

Products obtained from crude oil, non-conventional oils or gases from oil and gas fields. They may be produced through refining of conventional crude and non-conventional oils or during the separation of natural gas from gases extracted from oil or gas fields.

#### Mogas (Motor gasoline)

A mixture of some aromatics (e.g., benzene and toluene) and aliphatic hydrocarbons in the C<sub>5</sub> to C<sub>12</sub> range. The distillation range is 25 °C to 220 °C.

#### Naphtha

Light or medium oils distilling between 30 °C and 210 °C which do not meet the specification for motor gasoline.

#### Jet fuel

Jet fuel comprises both gasoline and kerosene type jet fuels meeting specifications for use in aviation turbine power units.

Gasoline type: Light hydrocarbon for use in aviation turbine power units, distilling between 100 °C and 250 °C. They are obtained by blending kerosene and gasoline or naphtha in such a way that the aromatic content does not exceed 25 per cent in volume, and the vapour pressure is between 13.7 kPa and 20.6 kPa.

Kerosene type: A blend of kerosenes suited to flight conditions with particular specifications, such as freezing points.

#### Kerosene

Mixtures of hydrocarbons in the range C<sub>9</sub> to C<sub>16</sub> and distilling over the temperature interval 145 °C to 300 °C, but not usually above 250 °C and with a flash point above 38 °C.

#### Diesel oil

Diesel oil includes heavy gas oils. Gas oils are obtained from the lowest fraction from atmospheric distillation of crude oil, while heavy gas oils obtained by vacuum re-distillation of the residual from atmospheric distillation.

#### Fuel oil

Comprises residual fuel oil and heavy fuel oil. Residual fuel oils have a distillation range of 350 °C to 650 °C and a kinematic viscosity in the range 6 to 55 centistokes (cSt) at 100 °C. Their flash point is always above 60 °C and their specific gravity is above 0.95. Heavy fuel oil is a general term describing a blended product based on the residues from various refinery processes.

#### LPG

LPG refers to liquefied propane (C<sub>3</sub>H<sub>8</sub>) and butane (C<sub>4</sub>H<sub>10</sub>) or mixtures of both. Commercial grades are usually mixtures of the gases with small amounts of propylene, butylene, isobutene and isobutylene stored under pressure in containers.

#### Others

The category, "Other oil products", groups together white spirit and SBP, lubricants, bitumen, paraffin waxes, refining gas and others (tar, sulfur and grease).

#### Gas

A mixture of gaseous hydrocarbons, primarily methane, but generally also including ethane, propane and higher hydrocarbons in much smaller amounts and some non-combustible gases such as nitrogen and carbon dioxide.

The separation process produces natural gas by removing or reducing the hydrocarbons other than methane to levels which are acceptable in the marketable gas.

Natural gas also includes methane recovered from coal mines (colliery gas) or from coal seams and shale formation. When distributed it may contain methane from anaerobic fermentation or the methanation of biomass.

Natural gas may be liquefied (LNG) by reducing its temperature in order to simplify storage and transportation when production sites are remote from



centres of consumption and pipeline transportation is not economically practicable.

#### Hydro

The primary equivalent of electricity generated from hydroelectric power plants.

#### Nuclear

The primary equivalent of electricity and heat generated from nuclear fuels.

#### Others

Others is the sum of geothermal power, wind, tide, photovoltaic power, biomass, etc.

#### Total renewables

Total renewables is the sum of hydro and others minus non-renewable parts of industrial wastes and municipal solid wastes.

### Sectors

#### Indigenous production

Quantities of fuels extracted within the economy.

#### Net imports

Defined as imports minus exports.

#### Total primary energy supply (TPES)

Calculated from indigenous production plus imports minus exports minus international marine and aviation bunkers plus or minus stock change.

#### Refining

The transformation of crude oil, NGL and condensate to petroleum products.

#### Power generation

Production of electricity from thermal, hydro, nuclear, geothermal and other power plants of public utilities and auto-producers. An auto-producer is an establishment which, in addition to its main activities, generates electricity wholly or partially for its own use, such as industries, railways, refineries, etc.

#### Total final consumption

This is the sum of total final energy consumption and non-energy use.

#### Total final energy consumption (TFEC)

Total energy consumption of industry, transport, residential, commercial and other sectors. This excludes non-energy use.

#### Industry

These sector include the following branches:

- Iron and steel industry
- Chemical industry
- Non-ferrous metals basic industries

- Non-metallic mineral products such as glass, ceramic, cement, etc.
- Transport equipment
- Machinery. Fabricated metal products, machinery and equipment other than transport equipment
- Mining (excluding fuels) and quarrying
- Food processing, beverages and tobacco
- Pulp, paper and printing
- Wood and wood products (other than pulp and paper)
- Construction
- Textiles and leather
- Collection, purification and distribution of water
- Non-specified (any manufacturing industry not included above)

#### Transport

The transportation sector is disaggregated into the following sub-sectors:

- Domestic air transport
- Road transport
- Railways
- Internal navigation
- Pipeline transport
- Other transport

#### Residential and commercial

Residential shows all consumption by households

Commercial shows consumption of the commercial and public sectors.

#### Others

Agriculture, fishing and others.

#### Non-energy

Non-energy use in industry, transport and other sectors. Examples of these are the feedstocks in the production of chemicals, lubricants used in equipment, bitumen used for paving of roads, etc.