

# **APEC**

## **ENERGY HANDBOOK**

# **2017**

**ENERGY WORKING GROUP**  
**MARCH 2020**

ENERGY STATISTICS AND TRAINING OFFICE  
ASIA-PACIFIC ENERGY RESEARCH CENTRE

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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 March 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 2050 taken from the APEC Energy Demand and Supply Outlook 7<sup>th</sup> Edition published by the Asia Pacific Energy Research Centre in May 2019. 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:

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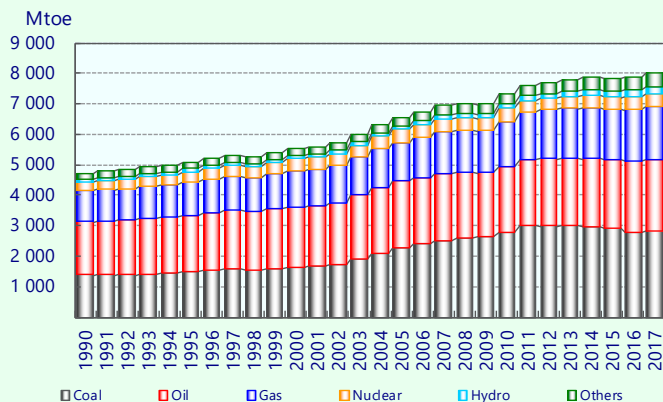
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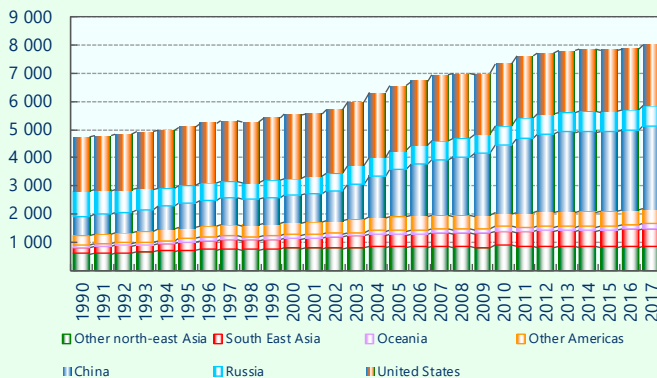
# Total primary energy supply by energy APEC



	Mtoe					
	1990	1995	2000	2005	2010	2017
Coal	1 381.4	1 510.9	1 620.3	2 272.0	2 787.0	2 810.0
Oil	1 762.3	1 830.3	1 990.2	2 195.0	2 166.3	2 352.5
Gas	997.1	1 076.6	1 196.8	1 269.6	1 472.1	1 763.5
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	277.2	334.0	459.4
<b>Total</b>	<b>4 719.4</b>	<b>5 093.5</b>	<b>5 545.0</b>	<b>6 557.9</b>	<b>7 344.9</b>	<b>8 013.6</b>
	Share (%)					
	1990	1995	2000	2005	2010	2017
Coal	29.3	29.7	29.2	34.6	37.9	35.1
Oil	37.3	35.9	35.9	33.5	29.5	29.4
Gas	21.1	21.1	21.6	19.4	20.0	22.0
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	4.2	4.4	4.3	4.2	4.5	5.7

## Total primary energy supply by region APEC

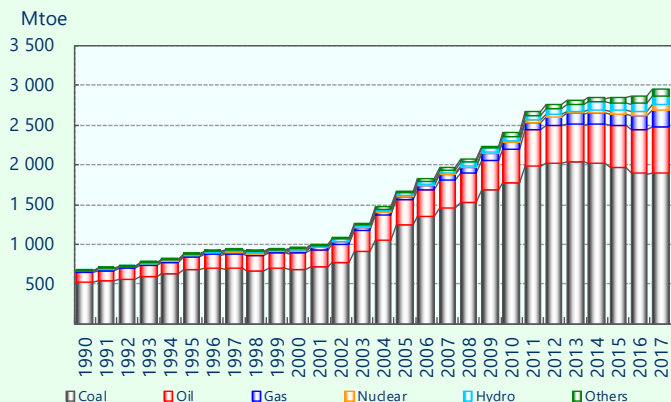
Mtoe



	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	207.7	291.7	336.0	435.8	527.0	650.7
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	2 402.8	2 954.1
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>4 719.4</b>	<b>5 093.5</b>	<b>5 545.0</b>	<b>6 557.9</b>	<b>7 344.9</b>	<b>8 013.6</b>

	Share (%)					
	1990	1995	2000	2005	2010	2017
Other north-east Asia	12.5	14.0	14.3	12.9	11.9	10.5
South East Asia	4.4	5.7	6.1	6.6	7.2	8.1
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	32.7	36.9
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

# Total primary energy supply by energy China

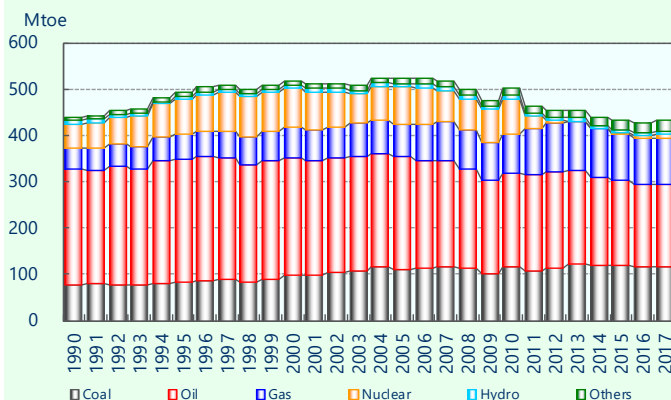


	Mtoe					
	1990	1995	2000	2005	2010	2017
Coal	531.5	685.0	674.7	1 246.8	1 767.5	1 903.9
Oil	114.5	155.8	221.0	317.8	427.6	574.0
Gas	13.6	16.0	21.4	41.2	84.8	215.8
Nuclear	-	3.3	4.4	13.8	19.3	64.6
Hydro	10.9	16.4	19.1	34.1	62.1	102.3
Others	.2	3.8	11.0	22.1	41.5	93.4
Total	670.6	880.4	951.6	1 675.9	2 402.8	2 954.1

	Share (%)					
	1990	1995	2000	2005	2010	2017
Coal	79.3	77.8	70.9	74.4	73.6	64.5
Oil	17.1	17.7	23.2	19.0	17.8	19.4
Gas	2.0	1.8	2.3	2.5	3.5	7.3
Nuclear	-	0.4	0.5	0.8	0.8	2.2
Hydro	1.6	1.9	2.0	2.0	2.6	3.5
Others	0.0	0.4	1.2	1.3	1.7	3.2



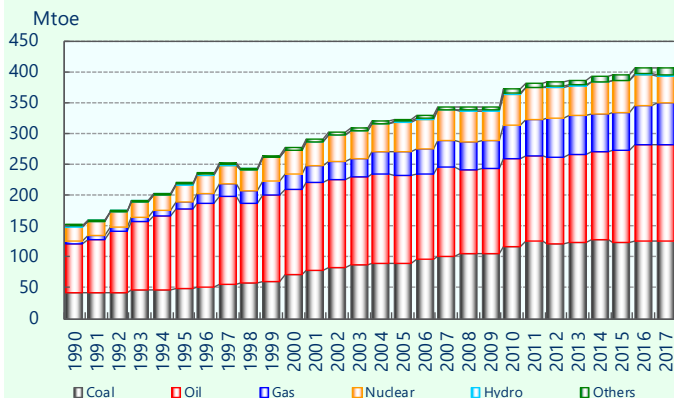
# Total primary energy supply by energy Japan



	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
Total	438.7	493.2	518.2	522.3	501.4	432.0

	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

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

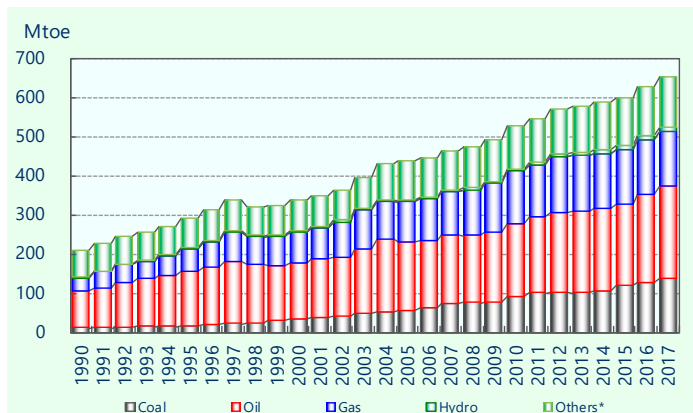


	Mtoe					
	1990	1995	2000	2005	2010	2017
Coal	42.2	48.7	70.9	90.1	115.8	126.6
Oil	79.3	129.2	137.5	140.7	142.9	156.0
Gas	4.3	12.0	25.4	38.4	55.5	66.2
Nuclear	22.3	26.7	38.4	48.7	49.6	44.5
Hydro	1.3	1.0	1.1	1.0	0.9	1.0
Others	0.7	1.6	3.0	4.3	6.3	11.4
<b>Total</b>	<b>150.1</b>	<b>219.2</b>	<b>276.3</b>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

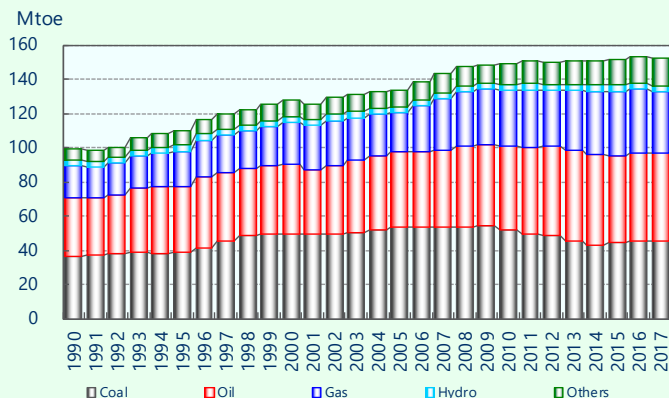


	Mtoe					
	1990	1995	2000	2005	2010	2017
Coal	12.7	17.7	32.3	55.1	91.5	135.9
Oil	93.4	137.0	144.2	174.4	185.6	238.8
Gas	31.2	57.2	77.7	104.4	134.1	137.3
Nuclear	-	-	-	-	-	-
Hydro	2.2	3.3	3.9	4.2	5.6	12.7
Others	68.2	76.5	77.9	97.8	110.3	126.0
<b>Total</b>	<b>207.7</b>	<b>291.7</b>	<b>336.0</b>	<b>435.8</b>	<b>527.0</b>	<b>650.7</b>

	Share (%)					
	1990	1995	2000	2005	2010	2017
Coal	6.1	6.1	9.6	12.6	17.4	20.9
Oil	45.0	47.0	42.9	40.0	35.2	36.7
Gas	15.0	19.6	23.1	24.0	25.4	21.1
Nuclear	-	-	-	-	-	-
Hydro	1.1	1.1	1.2	1.0	1.1	2.0
Others	32.8	26.2	23.2	22.4	20.9	19.4

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

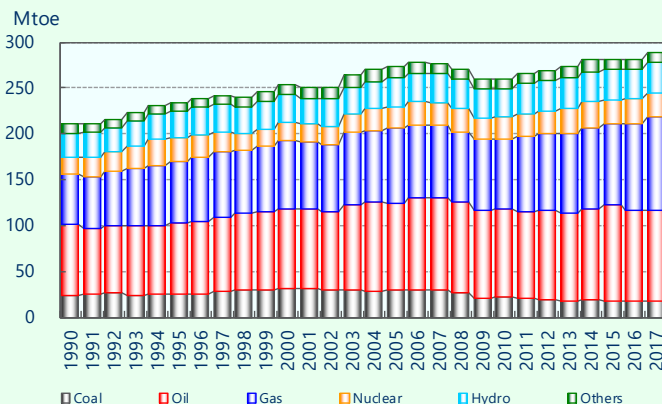
# Total primary energy supply by energy Oceania



	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
Total	99.0	109.6	127.8	133.7	149.4	152.2

	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

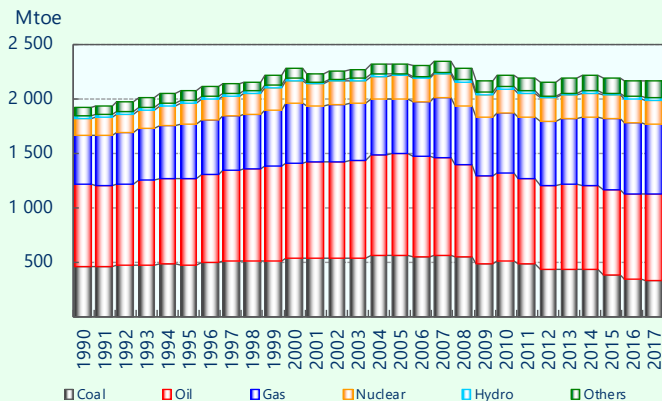
## Total primary energy supply by energy Canada



	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

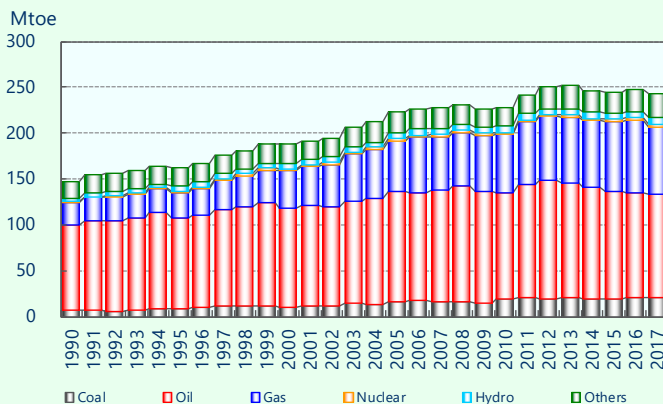
## Total primary energy supply by energy United States



	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
Total	1,915.0	2,067.3	2,273.8	2,318.9	2,216.9	2,155.2

	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

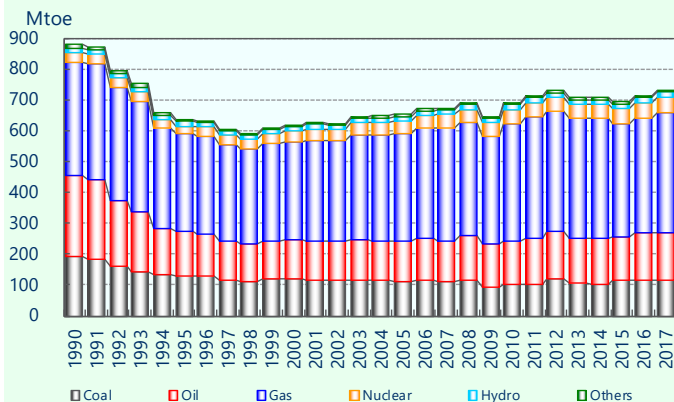


	Mtoe					
	1990	1995	2000	2005	2010	2017
Coal	6.8	8.5	10.6	15.8	18.5	20.7
Oil	93.1	99.5	107.4	121.0	116.4	112.0
Gas	24.7	26.4	41.2	54.5	64.2	74.1
Nuclear	0.8	2.2	2.1	2.8	1.5	2.8
Hydro	3.7	5.1	5.8	6.2	6.8	7.1
Others	18.7	19.9	21.2	22.5	20.0	25.8
<b>Total</b>	<b>147.7</b>	<b>161.5</b>	<b>188.4</b>	<b>222.8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



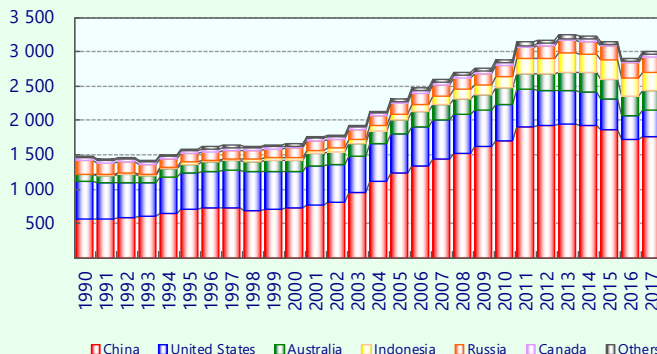
	Mtoe					
	1990	1995	2000	2005	2010	2017
Coal	191.1	129.2	120.0	112.6	101.4	113.6
Oil	263.8	142.7	126.1	129.2	139.1	154.0
Gas	367.4	316.6	319.0	349.7	383.5	388.3
Nuclear	31.3	26.2	34.4	39.2	44.8	53.3
Hydro	14.3	15.1	14.1	14.8	14.3	15.9
Others	11.5	6.9	5.7	6.2	5.9	7.1
<b>Total</b>	<b>879.3</b>	<b>636.8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

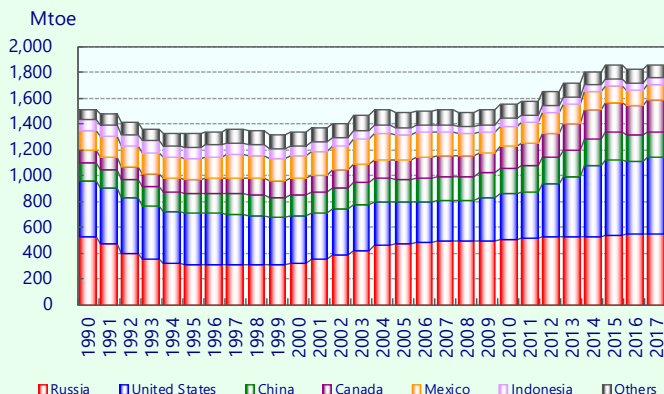


	Mtoe					
	1990	1995	2000	2005	2010	2017
China	564.5	707.7	717.8	1 231.4	1 700.9	1 770.1
United States	542.3	529.8	536.9	565.3	531.8	373.2
Australia	106.1	127.8	164.6	201.6	246.6	293.1
Indonesia	6.3	24.6	45.3	89.8	161.8	271.2
Russia	192.4	130.7	128.5	157.4	166.4	222.2
Canada	37.9	40.8	34.4	34.6	33.9	30.5
Others	25.6	24.4	25.8	38.6	48.1	44.6
Total	1 475.2	1 585.8	1 653.3	2 318.7	2 889.5	3 004.9

	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

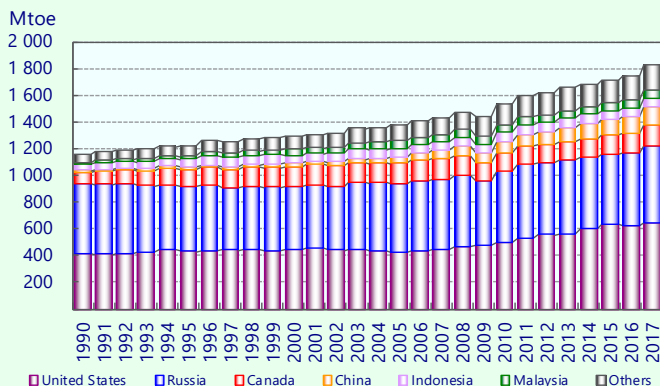
# Indigenous production of crude oil\* APEC



	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	83.2	99.7	108.9	117.2	116.8	100.8
<b>Total</b>	<b>1 513.3</b>	<b>1 320.0</b>	<b>1 338.2</b>	<b>1 488.3</b>	<b>1 555.0</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	8.1	7.9	7.5	5.4

\*Crude oil includes NGL and condensates

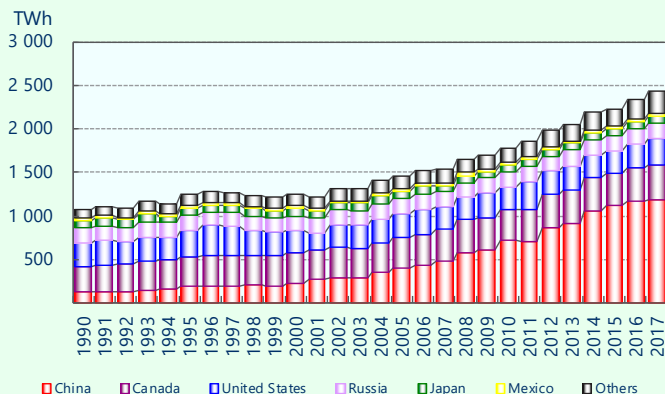
## Indigenous production of natural gas APEC



	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	15.5	26.7	44.8	57.4	56.7	65.0
Others	60.8	76.0	99.6	114.0	155.9	185.9
<b>Total</b>	<b>1 157.6</b>	<b>1 225.0</b>	<b>1 295.1</b>	<b>1 373.0</b>	<b>1 536.4</b>	<b>1 824.0</b>

	Share (%)					
	1990	1995	2000	2005	2010	2017
United States	36.1	35.5	34.5	30.7	32.2	35.2
Russia	44.6	39.2	36.3	37.6	35.2	31.8
Canada	7.7	10.6	11.5	11.3	8.4	8.4
China	1.2	1.3	1.9	3.2	5.5	7.4
Indonesia	3.8	5.0	4.7	4.8	4.8	3.4
Malaysia	1.3	2.2	3.5	4.2	3.7	3.6
Others	5.2	6.2	7.7	8.3	10.2	10.2

# Indigenous production of hydro power APEC

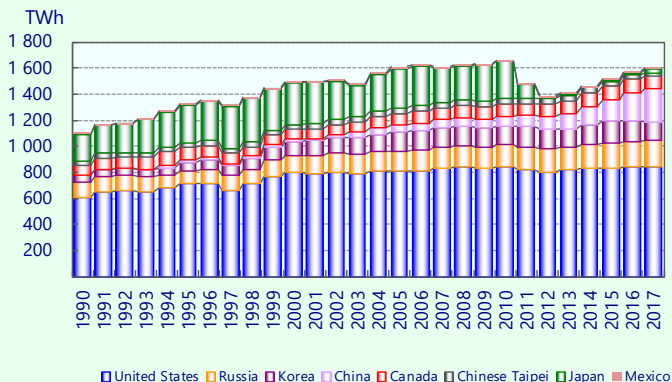


	TWh					
	1990	1995	2000	2005	2010	2017
China	126.7	190.6	222.4	397.0	722.2	1 189.8
Canada	296.7	335.9	358.4	361.9	351.3	392.5
United States	273.1	314.1	253.2	272.4	262.2	302.3
Russia	165.9	175.4	164.0	172.7	166.5	185.0
Japan	87.9	78.8	84.0	76.9	83.8	82.8
Mexico	23.5	27.5	33.1	27.7	37.1	32.0
Others	97.3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

	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

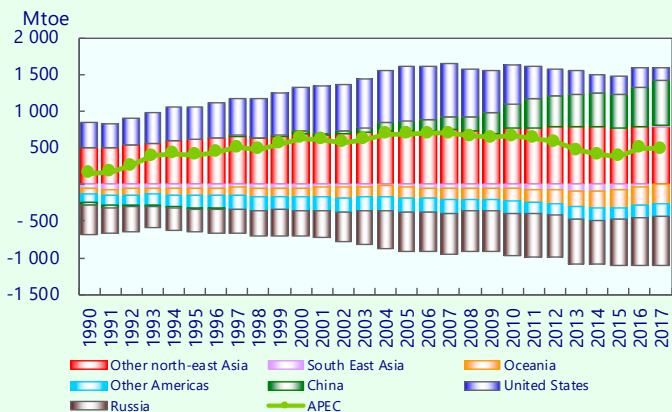
## APEC



	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
Total	1 093.8	1 326.1	1 495.7	1 607.6	1 658.2	1 605.9

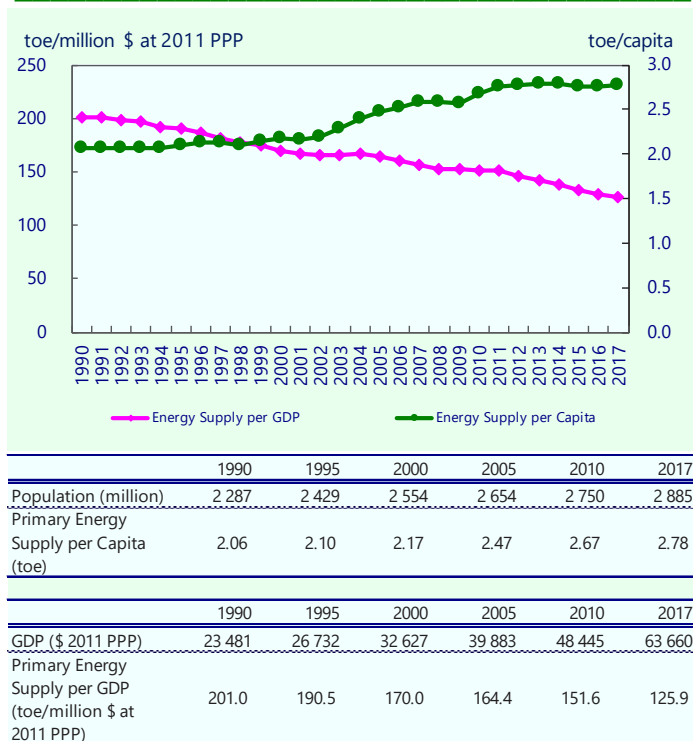
	Share (%)					
	1990	1995	2000	2005	2010	2017
United States	55.9	53.8	53.3	50.4	50.6	52.2
China	-	1.0	1.1	3.3	4.5	15.4
Russia	10.8	7.5	8.7	9.3	10.3	12.7
Korea	4.8	5.1	7.3	9.1	9.0	9.2
Canada	6.7	7.4	4.9	5.7	5.5	6.3
Chinese Taipei	3.0	2.7	2.6	2.5	2.5	1.4
Japan	18.5	22.0	21.5	19.0	17.4	2.0
Mexico	0.3	0.6	0.5	0.7	0.4	0.7

## Net import by region APEC

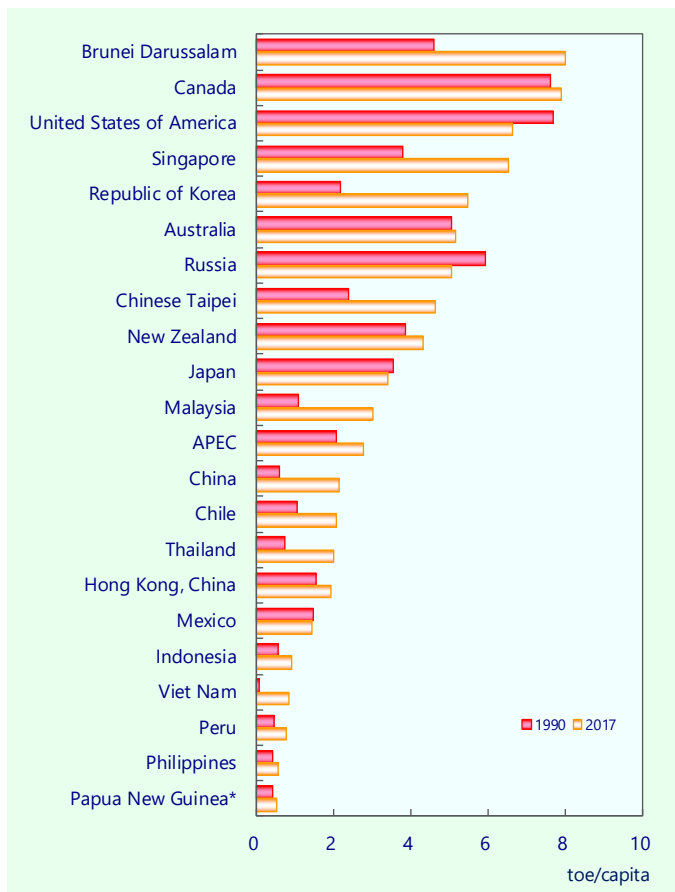


	Mtoe					
	1990	1995	2000	2005	2010	2017
Australia	-64.5	-89.2	-127.1	-148.8	-185.9	-268.8
Brunei Darussalam	-14.2	-16.2	-17.8	-19.0	-15.6	-12.9
Canada	-59.3	-119.7	-127.7	-129.9	-144.0	-217.1
Chile	7.0	10.8	17.7	20.5	22.3	26.2
China	-32.4	-10.3	33.5	137.4	333.0	607.4
Hong Kong, China	10.9	14.5	19.4	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	-25.9	-28.3	-27.3	-28.4	-15.5	-8.0
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
Total	155.2	399.0	630.2	689.9	654.1	484.1

## Total primary energy supply per GDP & capita APEC



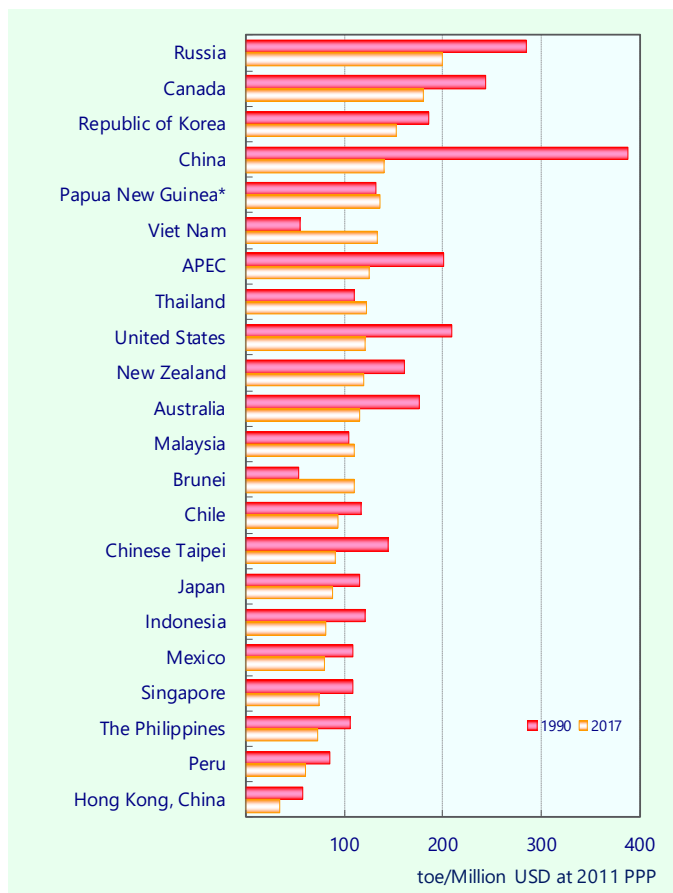
## Total primary energy supply per capita 1990 vs 2017 by economy



\*1994 and 2017 data used for Papua New Guinea

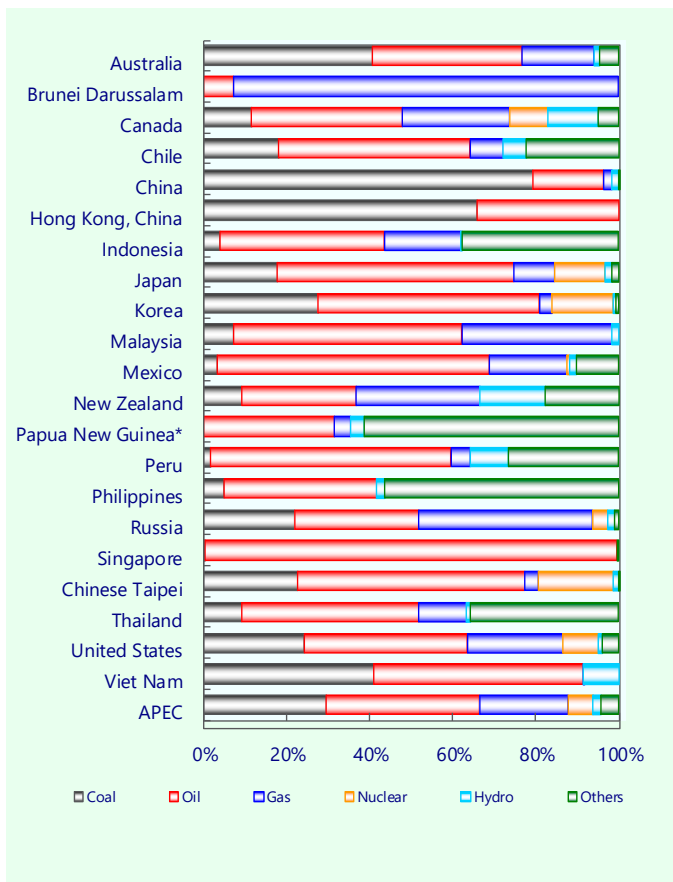


## Total primary energy supply per GDP 1990 vs 2017 by economy



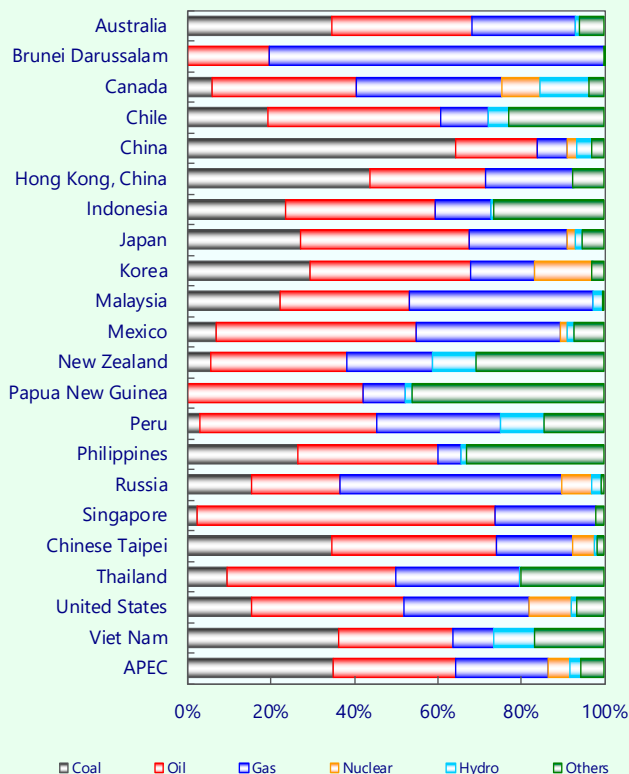
\*1994 and 2017 data used for Papua New Guinea

# Primary energy mix by economy 1990

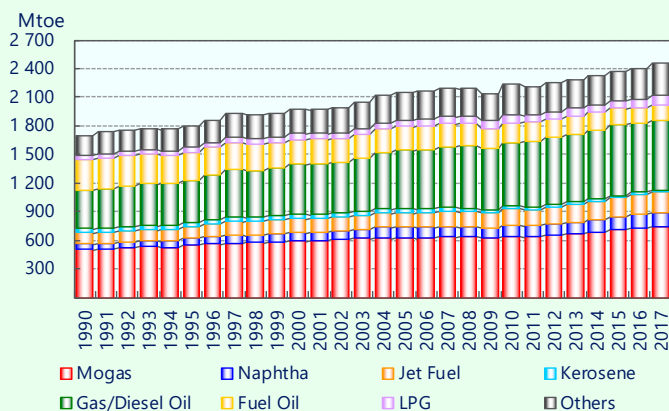


\*1994 data used for Papua New Guinea

## Primary energy mix by economy 2017



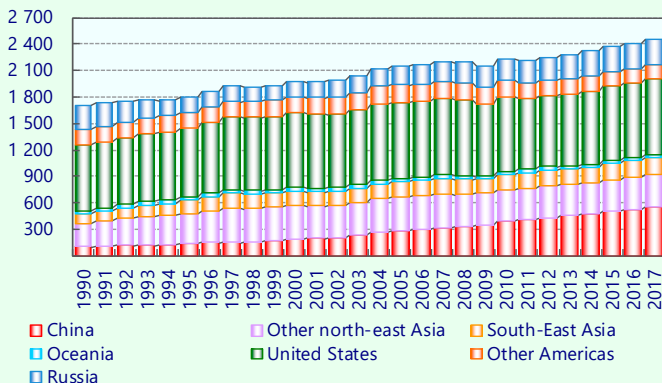
## Petroleum refining by product APEC



	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	123.5	123.1	146.1	156.4	166.3	218.0
Kerosene	40.1	45.1	54.1	44.4	28.8	21.4
Gas/Diesel Oil	402.3	442.9	517.9	605.2	661.8	737.6
Fuel Oil	320.3	292.6	262.9	250.6	216.6	163.6
LPG	43.2	51.1	61.7	67.3	81.9	96.2
Others	209.3	229.7	261.5	284.8	316.8	329.9
<b>Total</b>	<b>1 698.1</b>	<b>1 801.5</b>	<b>1 980.4</b>	<b>2 145.7</b>	<b>2 232.7</b>	<b>2 451.1</b>
	Share (%)					
	1990	1995	2000	2005	2010	2017
Mogas	29.7	30.3	29.9	29.4	28.8	29.9
Naphtha	3.3	4.0	4.2	5.0	5.2	6.1
Jet Fuel	7.3	6.8	7.4	7.3	7.4	8.9
Kerosene	2.4	2.5	2.7	2.1	1.3	0.9
Gas/Diesel Oil	23.7	24.6	26.1	28.2	29.6	30.1
Fuel Oil	18.9	16.2	13.3	11.7	9.7	6.7
LPG	2.5	2.8	3.1	3.1	3.7	3.9
Others	12.3	12.8	13.2	13.3	14.2	13.5

## Petroleum refining by region APEC

Mtoe



Mtoe

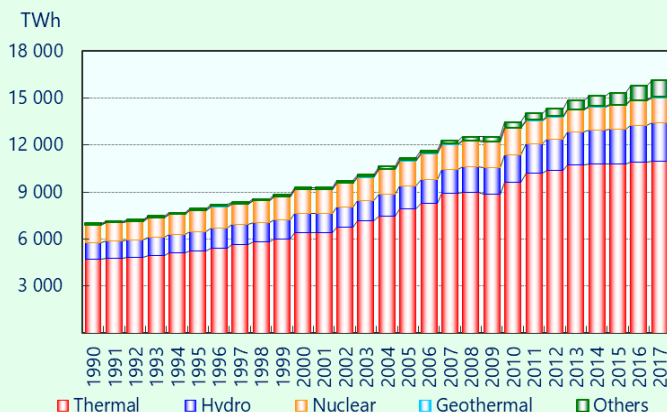
	1990	1995	2000	2005	2010	2017
China	107.3	140.5	196.3	278.1	395.3	557.2
Other north-east Asia	251.0	341.6	379.0	390.2	356.9	368.5
South-East Asia	110.6	147.2	157.9	172.6	168.7	189.9
Oceania	37.0	41.2	43.5	40.8	38.5	29.0
United States	753.8	778.9	843.8	861.4	840.7	860.2
Other Americas	168.6	173.2	180.0	193.8	182.5	159.3
Russia	269.7	178.9	179.9	208.9	250.0	287.0
<b>Total</b>	<b>1 698.1</b>	<b>1 801.5</b>	<b>1 980.4</b>	<b>2 145.7</b>	<b>2 232.7</b>	<b>2 451.1</b>

Share (%)

	1990	1995	2000	2005	2010	2017
China	6.3	7.8	9.9	13.0	17.7	22.7
Other north-east Asia	14.8	19.0	19.1	18.2	16.0	15.0
South-East Asia	6.5	8.2	8.0	8.0	7.6	7.7
Oceania	2.2	2.3	2.2	1.9	1.7	1.2
United States	44.4	43.2	42.6	40.1	37.7	35.1
Other Americas	9.9	9.6	9.1	9.0	8.2	6.5
Russia	15.9	9.9	9.1	9.7	11.2	11.7

## Electricity generation by type

### APEC

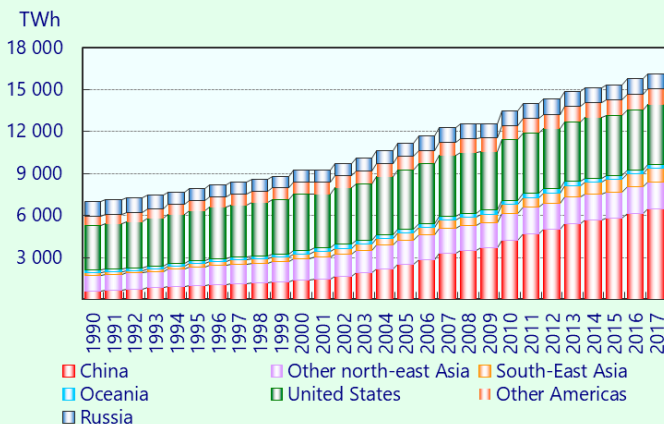


	TWh					
	1990	1995	2000	2005	2010	2017
Thermal	4 703	5 234	6 383	7 920	9 614	10 969
Hydro	1 079	1 248	1 250	1 452	1 780	2 434
Nuclear	1 094	1 326	1 496	1 608	1 658	1 615
Geothermal	35	34	41	48	53	59
Others	106	103	109	154	353	1 061
Total	7 016	7 944	9 279	11 181	13 457	16 137

	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.

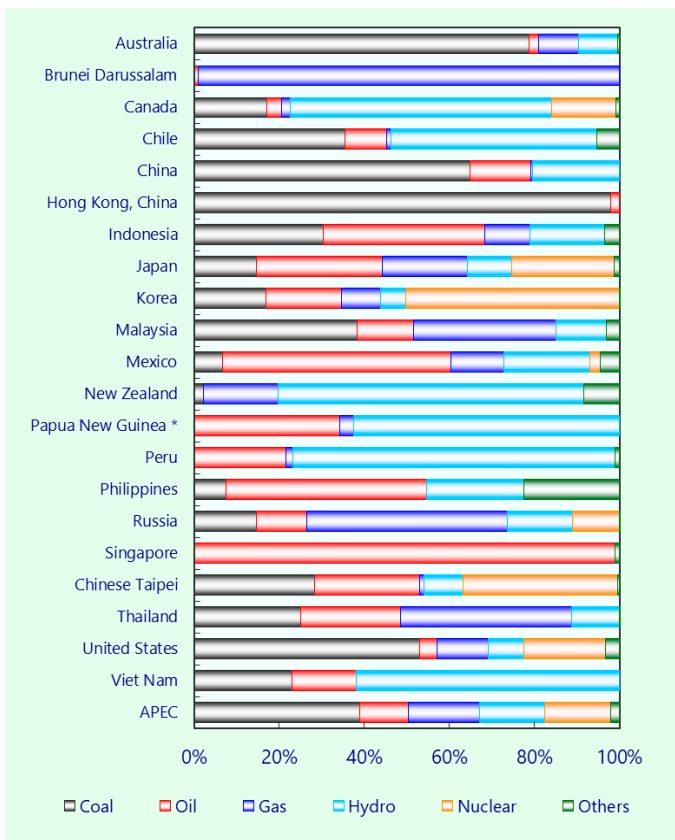
## Electricity generation by region APEC



	TWh					
	1990	1995	2000	2005	2010	2017
China	621	1 019	1 356	2 500	4 207	6 495
Other north-east Asia	1 067	1 296	1 540	1 733	1 925	1 909
South-East Asia	227	245	358	505	661	954
Oceania	187	210	252	275	301	316
United States	3 203	3 558	4 026	4 268	4 351	4 258
Other Americas	630	756	871	949	976	1 113
Russia	1 082	859	876	951	1 036	1 092
Total	7 016	7 944	9 279	11 181	13 457	16 137

	Share (%)					
	1990	1995	2000	2005	2010	2017
China	8.9	12.8	14.6	22.4	31.3	40.2
Other north-east Asia	15.2	16.3	16.6	15.5	14.3	11.8
South-East Asia	3.2	3.1	3.9	4.5	4.9	5.9
Oceania	2.7	2.6	2.7	2.5	2.2	2.0
United States	45.6	44.8	43.4	38.2	32.3	26.4
Other Americas	9.0	9.5	9.4	8.5	7.3	6.9
Russia	15.4	10.8	9.4	8.5	7.7	6.8

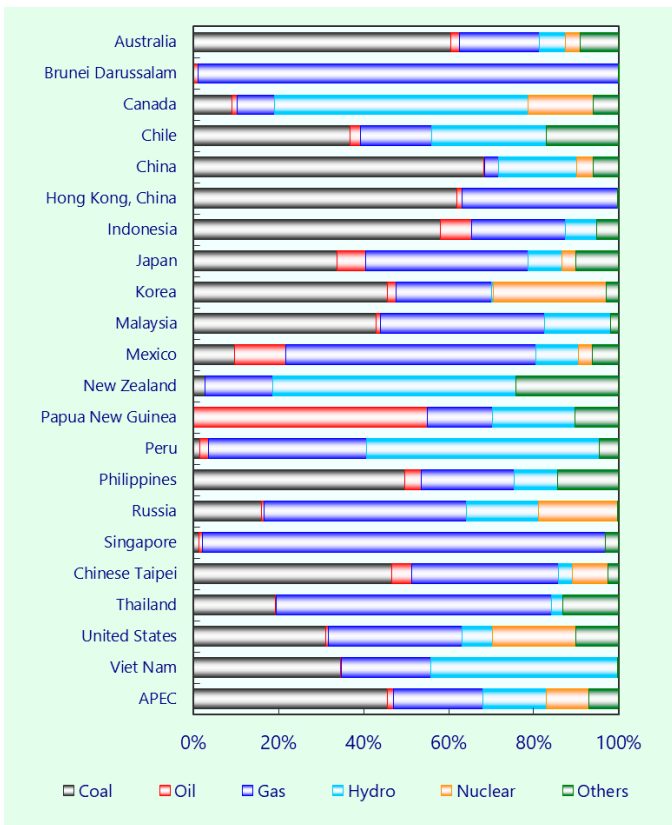
## Electricity generation by economy 1990



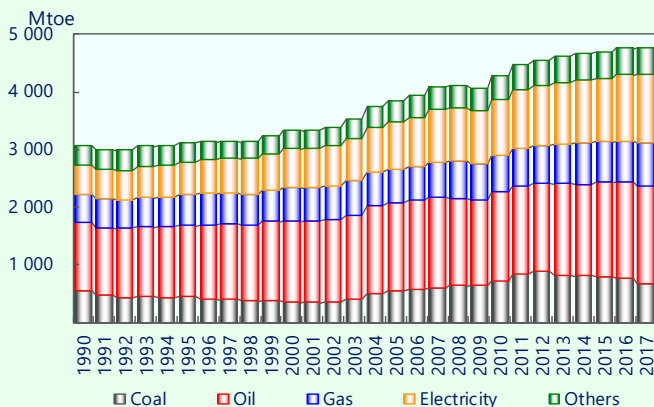
\*1994 data used for Papua New Guinea



## Electricity generation by economy 2017

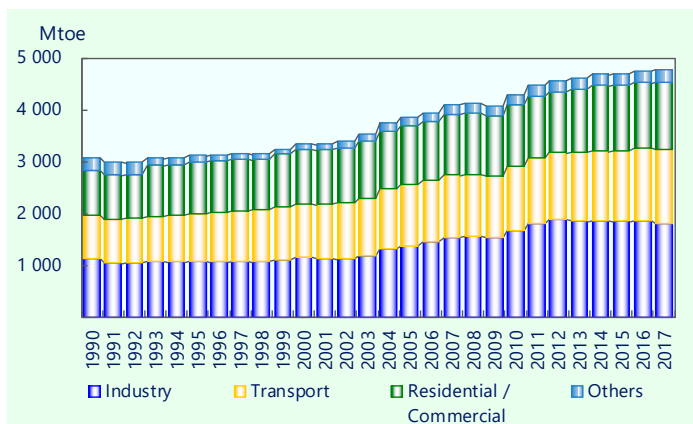


# Total final energy consumption by energy APEC



	Mtoe					
	1990	1995	2000	2005	2010	2017
Coal	549.9	452.4	351.8	541.0	723.2	672.3
Oil	1 177.1	1 243.1	1 399.4	1 536.8	1 540.8	1 695.0
Gas	504.7	523.6	587.5	585.5	627.0	749.2
Electricity	493.7	567.8	669.3	811.5	977.8	1 177.6
Others	339.2	333.5	337.7	368.1	415.9	475.8
Total	3 064.5	3 120.3	3 345.7	3 842.9	4 284.6	4 769.8
	Share (%)					
	1990	1995	2000	2005	2010	2017
Coal	17.9	14.5	10.5	14.1	16.9	14.1
Oil	38.4	39.8	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

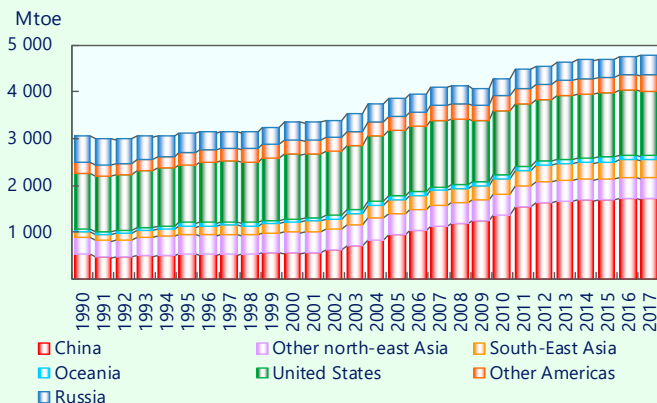
## Total final energy consumption by sector APEC



	Mtoe					
	1990	1995	2000	2005	2010	2017
Industry	1 115.4	1 079.8	1 147.5	1 368.2	1 661.1	1 802.8
Transport	854.3	919.4	1 036.8	1 173.6	1 237.2	1 427.1
Residential / Commercial	850.6	993.6	1 048.9	1 134.6	1 197.5	1 301.3
Others	244.2	127.4	112.5	166.5	188.8	238.6
Total	3 064.5	3 120.3	3 345.7	3 842.9	4 284.6	4 769.8

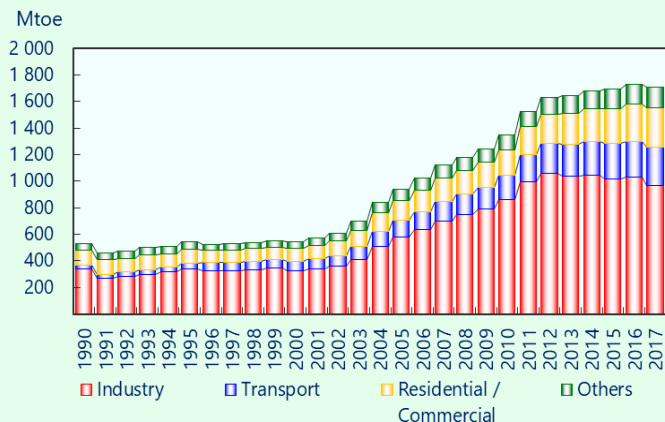
	Share (%)					
	1990	1995	2000	2005	2010	2017
Industry	36.4	34.6	34.3	35.6	38.8	37.8
Transport	27.9	29.5	31.0	30.5	28.9	29.9
Residential / Commercial	27.8	31.8	31.4	29.5	27.9	27.3
Others	8.0	4.1	3.4	4.3	4.4	5.0

## 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	131.6	173.7	209.3	280.3	325.5	393.9
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>3 064.5</b>	<b>3 120.3</b>	<b>3 345.7</b>	<b>3 842.9</b>	<b>4 284.6</b>	<b>4 769.8</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	6.3	7.3	7.6	8.3
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

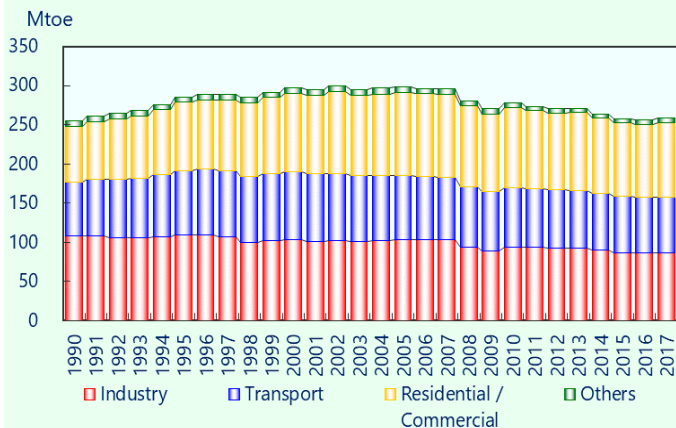
## Total final energy consumption by sector China



	Mtoe					
	1990	1995	2000	2005	2010	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>

	Share (%)					
	1990	1995	2000	2005	2010	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

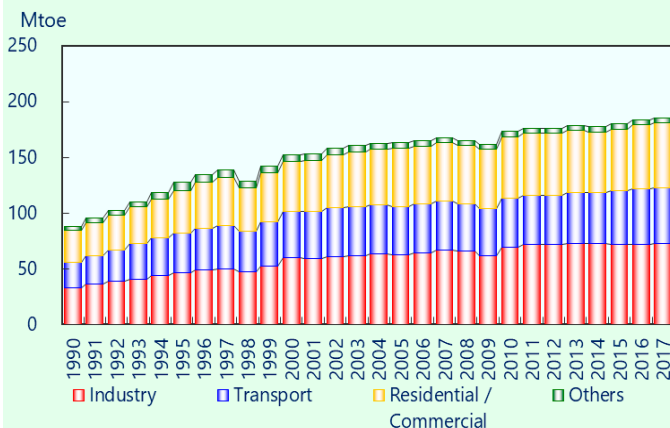
## Total final energy consumption by sector Japan



	Mtoe					
	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>

	Share (%)					
	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\*

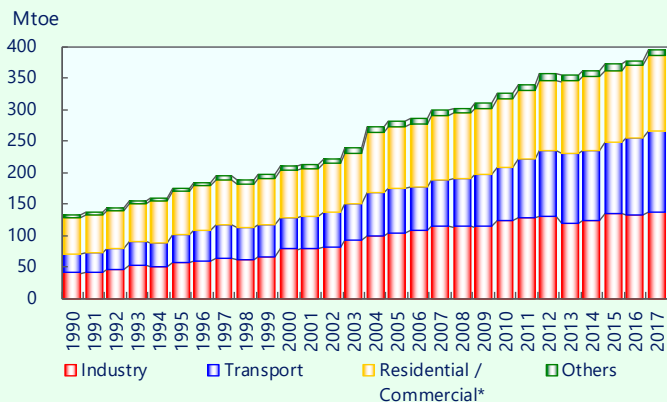


	Mtoe					
	1990	1995	2000	2005	2010	2017
Industry	33.0	46.0	60.0	62.0	69.0	72.4
Transport	22.5	36.2	41.2	44.0	44.0	50.1
Residential / Commercial	28.9	38.1	44.7	52.3	55.5	58.3
Others	3.8	7.1	6.1	5.3	4.6	4.6
<b>Total</b>	<b>88.2</b>	<b>127.4</b>	<b>151.9</b>	<b>163.6</b>	<b>173.1</b>	<b>185.3</b>

	Share (%)					
	1990	1995	2000	2005	2010	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

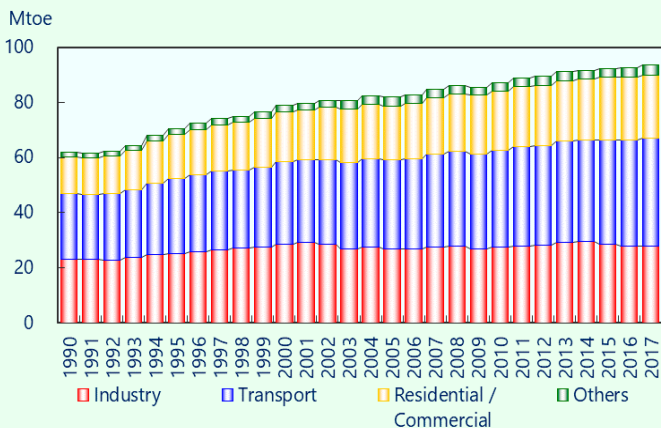


	Mtoe					
	1990	1995	2000	2005	2010	2017
Industry	40.2	55.6	78.2	103.0	123.2	136.7
Transport	29.2	45.8	49.8	71.9	85.6	128.7
Residential / Commercial*	58.2	67.6	75.3	97.6	108.3	120.7
Others	4.0	4.7	5.9	7.8	8.4	7.7
<b>Total</b>	<b>131.6</b>	<b>173.7</b>	<b>209.3</b>	<b>280.3</b>	<b>325.5</b>	<b>393.9</b>
	Share (%)					
	1990	1995	2000	2005	2010	2017
Industry	30.6	32.0	37.4	36.8	37.9	34.7
Transport	22.2	26.4	23.8	25.6	26.3	32.7
Residential / Commercial*	44.2	38.9	36.0	34.8	33.3	30.7
Others	3.0	2.7	2.8	2.8	2.6	2.0

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



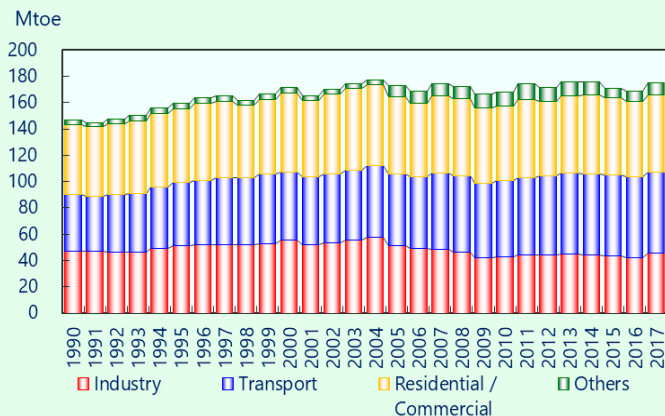
## Total final energy consumption by sector Oceania



	Mtoe					
	1990	1995	2000	2005	2010	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>

	Share (%)					
	1990	1995	2000	2005	2010	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

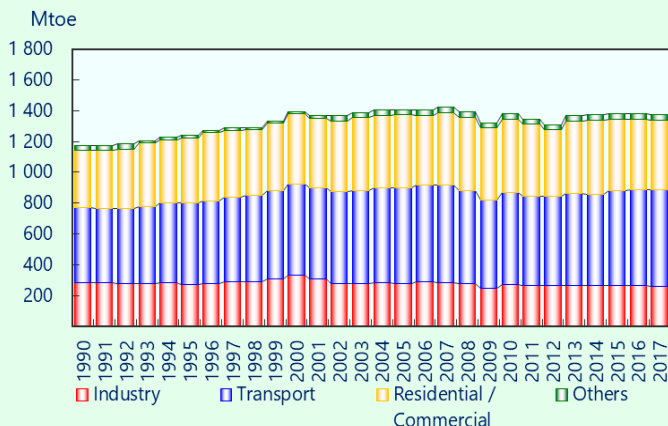
# Total final energy consumption by sector Canada



	Mtoe					
	1990	1995	2000	2005	2010	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>

	Share (%)					
	1990	1995	2000	2005	2010	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

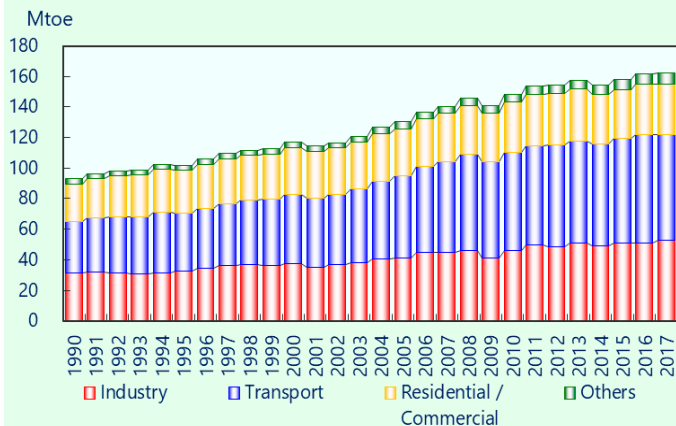
# Total final energy consumption by sector United States



	Mtoe					
	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
Total	1 174.5	1 237.0	1 393.3	1 406.6	1 377.6	1 375.1

	Share (%)					
	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\*

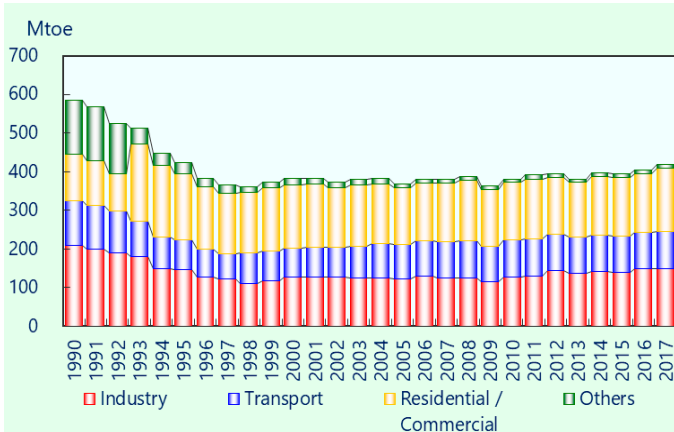


	Mtoe					
	1990	1995	2000	2005	2010	2017
Industry	31.1	32.4	37.6	41.2	45.8	53.0
Transport	33.8	38.0	44.9	54.0	64.3	68.7
Residential / Commercial	24.8	28.6	30.7	30.5	32.9	33.1
Others	3.4	3.1	3.4	4.8	5.2	7.5
Total	93.1	102.0	116.7	130.6	148.2	162.2

	Share (%)					
	1990	1995	2000	2005	2010	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.

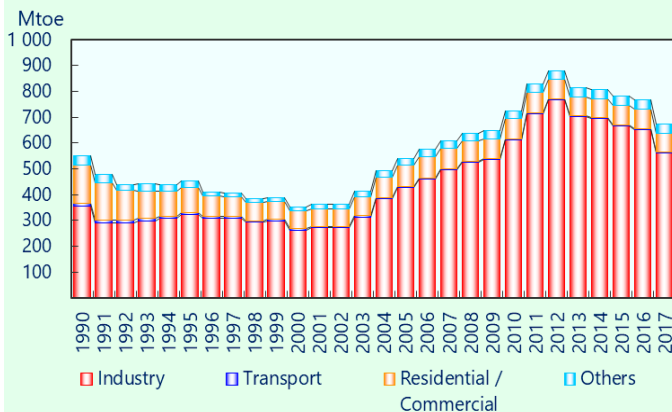
## Total final energy consumption by sector Russia



	Mtoe					
	1990	1995	2000	2005	2010	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
Total	584.9	423.7	381.6	367.7	380.3	418.6

	Share (%)					
	1990	1995	2000	2005	2010	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

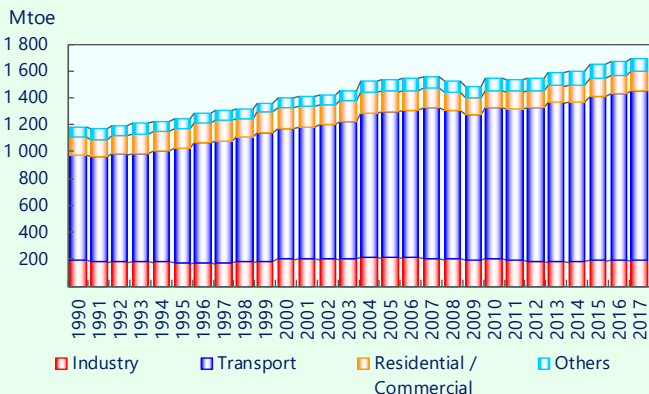


	Mtoe					
	1990	1995	2000	2005	2010	2017
Industry	356.4	323.8	262.7	428.3	613.9	562.6
Transport	11.2	6.9	4.7	4.4	3.2	1.8
Residential / Commercial	146.1	96.5	69.1	81.8	76.4	73.7
Others	36.3	25.1	15.3	26.4	29.7	34.2
Total	549.9	452.4	351.8	541.0	723.2	672.3

	Share (%)					
	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

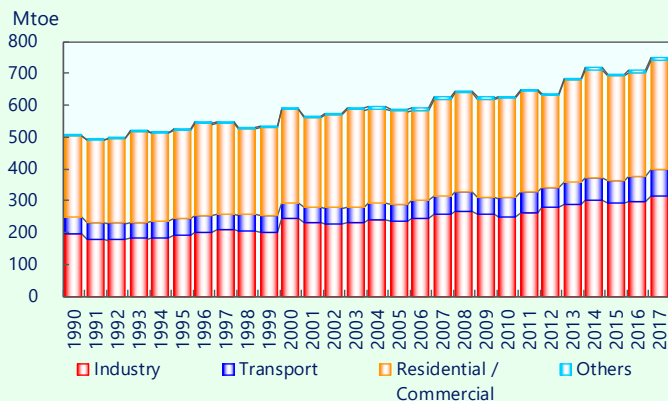
\*Coal and Coal Products

## Oil demand by sector APEC



	Mtoe					
	1990	1995	2000	2005	2010	2017
Industry	195.8	171.7	201.9	209.6	203.6	190.5
Transport	778.4	848.8	969.3	1 087.5	1 119.9	1 260.5
Residential / Commercial	132.0	146.5	158.4	156.7	130.8	146.2
Others	70.9	76.0	69.8	83.0	86.5	97.9
Total	1 177.1	1 243.1	1 399.4	1 536.8	1 540.8	1 695.0
	Share (%)					
	1990	1995	2000	2005	2010	2017
Industry	16.6	13.8	14.4	13.6	13.2	11.2
Transport	66.1	68.3	69.3	70.8	72.7	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

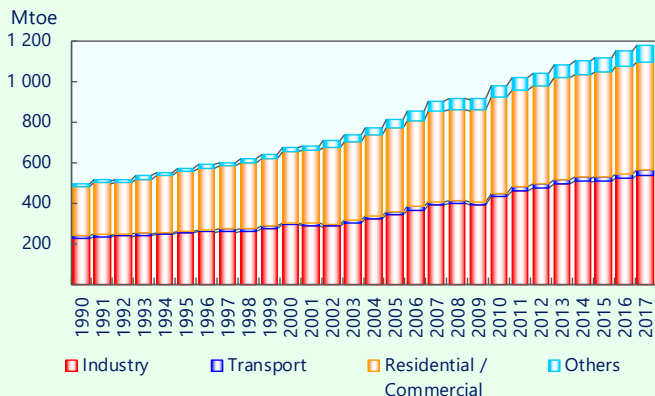


	Mtoe					
	1990	1995	2000	2005	2010	2017
Industry	194.2	193.2	245.0	234.1	246.5	316.5
Transport	52.5	51.1	47.6	56.0	63.9	80.4
Residential / Commercial	255.7	277.0	292.3	291.2	311.5	343.7
Others	2.2	2.2	2.7	4.2	5.0	8.6
Total	504.7	523.6	587.5	585.5	627.0	749.2

	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



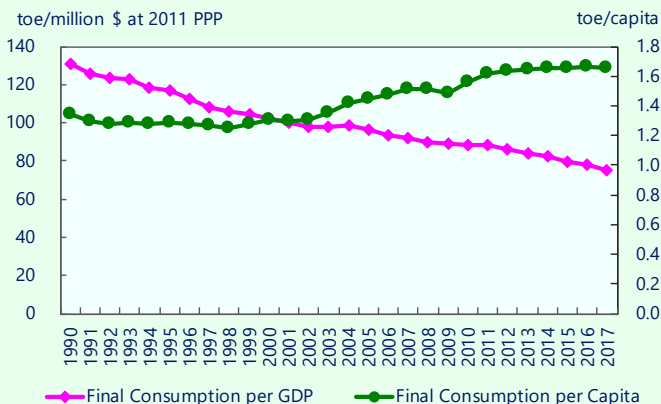
## Electricity demand by sector APEC



	Mtoe					
	1990	1995	2000	2005	2010	2017
Industry	224.6	251.8	290.3	339.9	427.7	536.6
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
Total	493.7	567.8	669.3	811.5	977.8	1 177.6

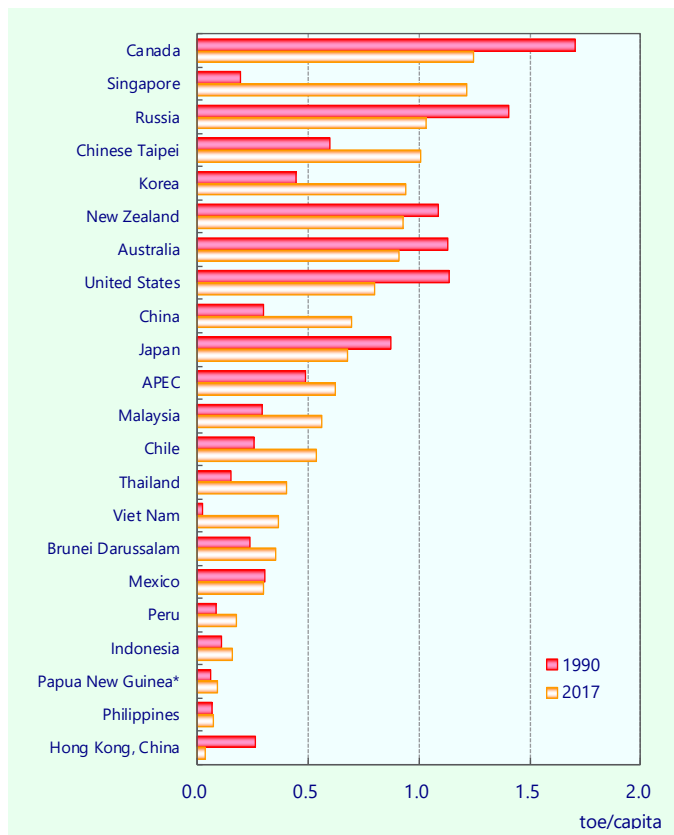
	Share (%)					
	1990	1995	2000	2005	2010	2017
Industry	45.5	44.4	43.4	41.9	43.7	45.6
Transport	2.5	1.7	1.6	1.8	1.8	2.0
Residential / Commercial	49.1	51.4	52.7	50.9	48.8	45.4
Others	2.9	2.5	2.3	5.4	5.8	7.0

## Final consumption per capita and GDP APEC



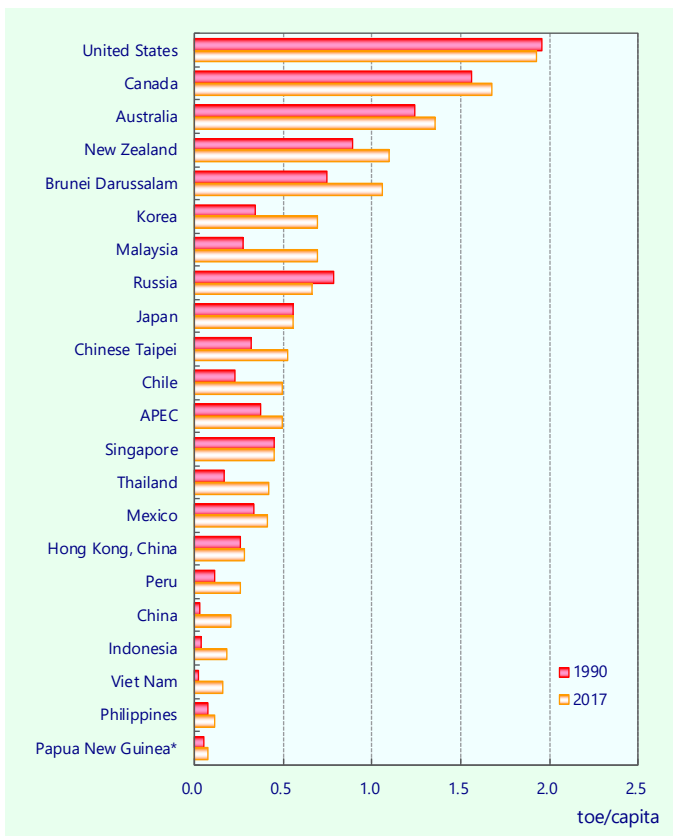
	1990	1995	2000	2005	2010	2016
Population (million)	2 287	2 429	2 554	2 654	2 750	2 885
Final Consumption per Capita (toe)	1.34	1.28	1.31	1.45	1.56	1.65
	1990	1995	2000	2005	2010	2016
GDP (billion \$ at 2011 PPP)	23 481	26 732	32 627	39 883	48 445	52 752
Final Consumption per GDP (toe/million \$ at 2011 PPP)	130.51	116.73	102.54	96.35	88.44	86.29

## Energy consumption in industry: APEC



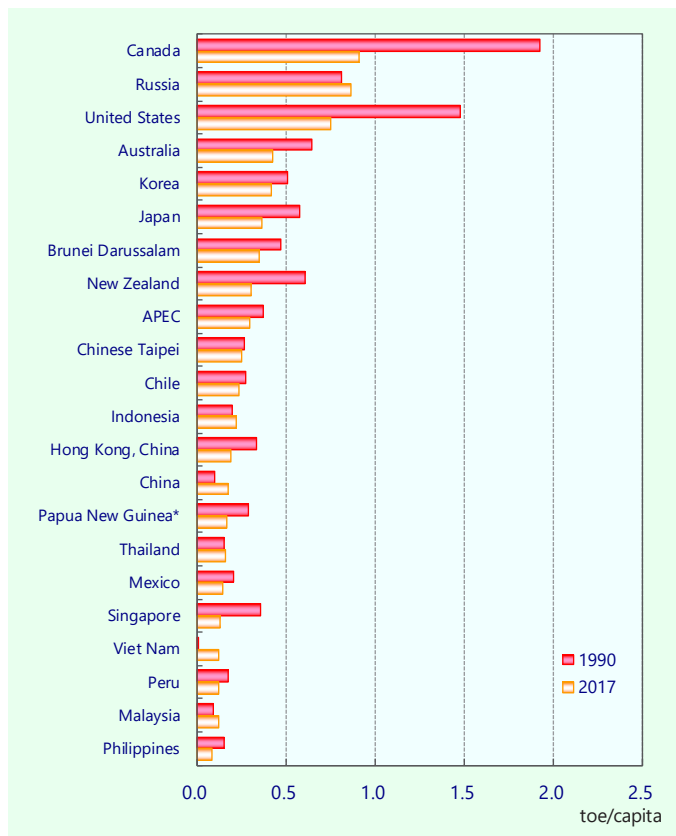
\*1994 and 2017 data used for Papua New Guinea

## Energy consumption in transportation: APEC



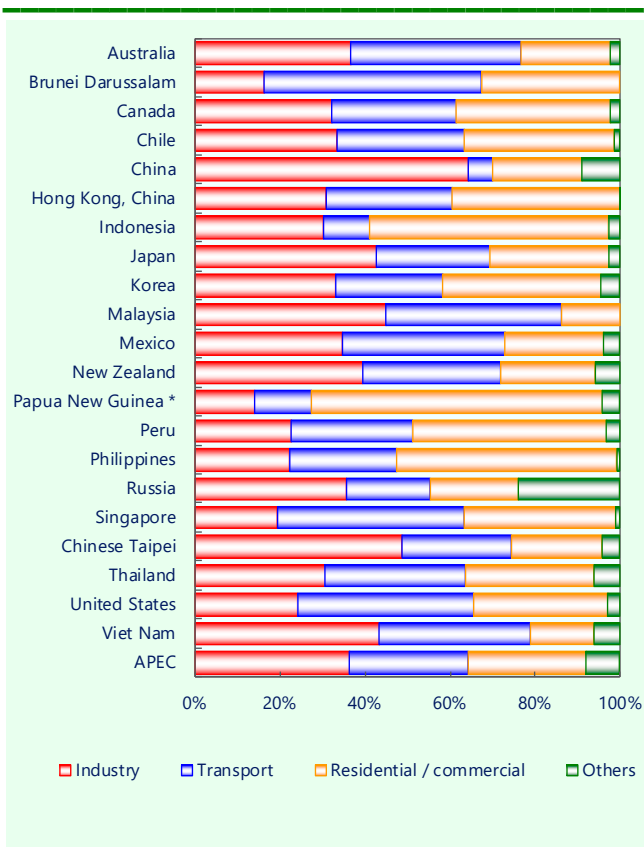
\*1994 and 2017 data used for Papua New Guinea

## Energy consumption in residential/ commercial: APEC



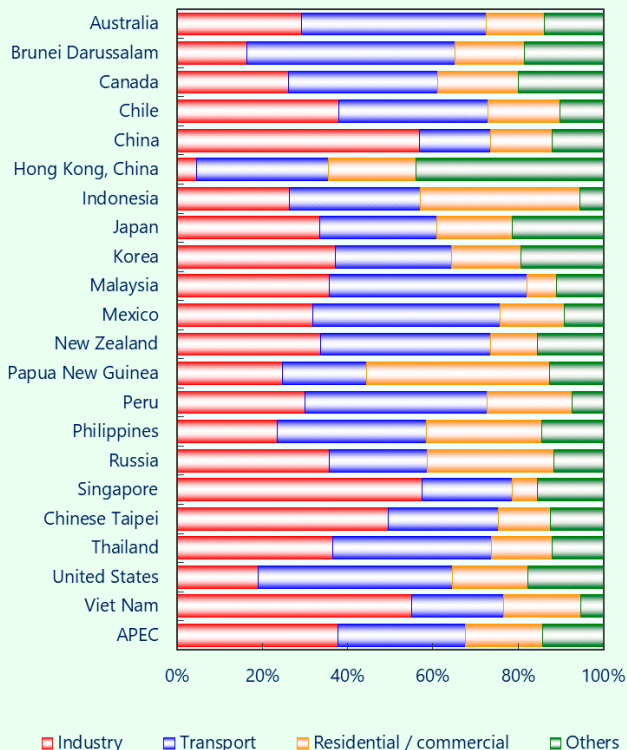
\*1994 and 2017 data used for Papua New Guinea

## Final energy consumption by sector 1990

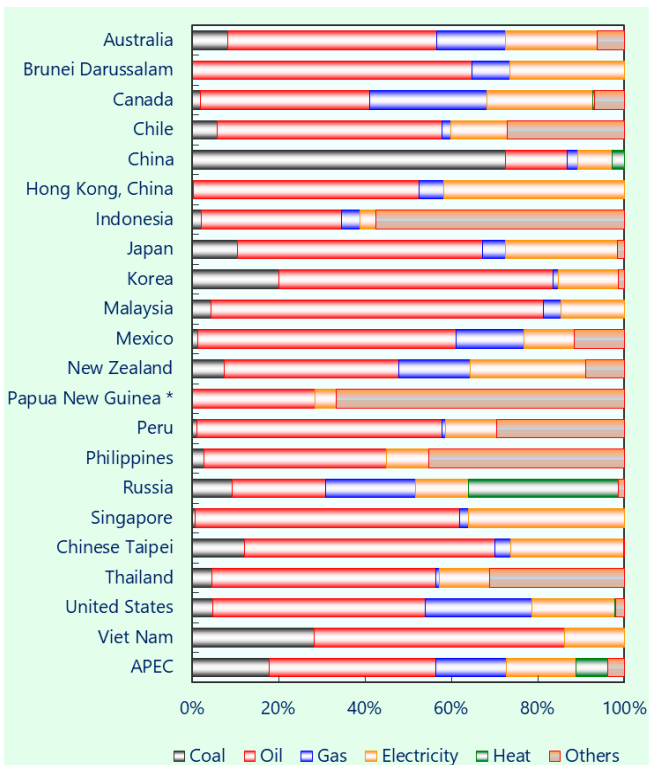


\*1994 data used for Papua New Guinea

## Final energy consumption by sector 2017



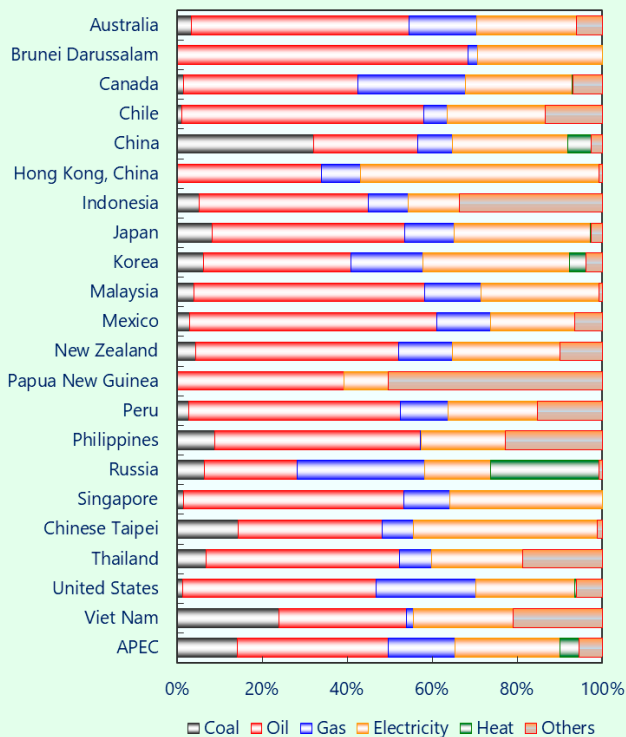
## Final energy consumption by energy 1990



\*1994 data used for Papua New Guinea



## Final energy consumption by energy 2017



## APEC, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production	3 004 949		1 852 630	
2 Import	447 979	10 643	1 451 911	566 992
3 Export	- 624 509	- 9 549	- 643 519	- 663 343
4 International marine and aviation bunkers				- 211 988
5 Stock change	- 26 672	7 115	2 327	- 2 487
6 Total primary energy supply	2 801 747	8 209	2 663 348	- 310 827
7 Transfers			- 113 900	124 282
8 Main activity producers	-1 487 912	- 9 235	- 1 504	- 36 085
9 Autoproducers	- 212 996	- 42 970	- 542	- 22 937
10 Gas processing	- 9 779	- 11		- 1 485
11 Petroleum refineries			-2 536 727	2 451 335
12 Coal transformation	- 515 612	243 583		- 451
13 Other transformation			24 570	- 17 511
14 Loss & own-use	- 37 130	- 16 685	- 10 125	- 91 932
15 Discrepancy	22 272	- 1 118	- 12 953	15 954
16 Total final consumption	560 590	181 773	12 168	2 110 343
17 Total final energy consumption	510 713	161 599	729	1 694 245
18 Industry sector	404 858	157 711	717	189 772
19 Transport sector	1 789	41		1 260 458
20 Other sector	104 066	3 847	12	244 015
20.1 Residential & Commercial	70 199	3 483		146 169
20.2 Agriculture	14 730	261	11	53 448
20.3 Other	19 137	102	1	44 398
21 Non-energy	49 877	20 174	11 438	416 098

## 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	21 249	21 652
7 Transfers			- 328	3 801
8 Main activity producers	- 39 182	- 4		- 361
9 Autoproducers				- 854
10 Gas processing				
11 Petroleum refineries			- 23 368	22 094
12 Coal transformation	- 2 607	1 465		
13 Other transformation				
14 Loss & own-use		- 922	- 58	- 4 009
15 Discrepancy	- 139	3	2 520	1 319
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

Unit: ktoe

Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables
1 824 041	209 547	418 781	118 959	338 900	52	7 767 859	641 590
421 436				5 196	11 181	2 915 338	5 196
- 474 402				- 5 120	- 10 667	-2 431 110	- 5 120
				- 222		- 212 210	- 222
- 7 614				1 094		- 26 237	1 086
1 763 460	209 547	418 781	118 959	339 849	566	8 013 638	642 531
						10 382	
- 602 026	- 206 340	- 418 782	- 107 203	- 50 330	1 402 929	-1 516 487	- 350 980
- 120 612	- 3 208		- 7 980	- 24 111	239 920	- 195 435	- 29 614
- 3 125				- 3		- 14 403	- 3
						- 85 392	
						- 272 481	
- 10 203				- 6 290	- 4	- 9 439	- 6 290
- 170 605				- 516	- 253 371	- 580 362	- 367
- 18 937	1	1	- 2	- 462	1 449	6 204	- 471
837 951			3 774	258 138	1 391 489	5 356 225	254 946
749 156			3 774	258 138	1 391 489	4 769 842	254 946
316 476			133	83 430	649 735	1 802 832	78 286
80 396				60 984	23 452	1 427 119	60 983
352 285			3 641	113 724	718 302	1 539 891	115 677
343 716			3 486	105 846	628 354	1 301 253	108 383
3 852			52	5 788	22 993	101 135	5 786
4 717			103	2 090	66 956	137 503	1 647
88 795						586 383	

Unit: ktoe

Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables
87 821	1 379		2 152	5 382		405 154	8 823
4 924						50 396	
- 61 431						- 319 158	
						- 5 036	
						- 4 319	
31 314	1 379		2 152	5 382		127 037	8 823
						3 473	
- 8 409	- 1 379		- 1 139	- 420	19 723	- 31 171	- 2 938
- 3 597			- 639	- 724	2 442	- 3 372	- 1 363
						- 1 274	
						- 1 142	
- 7 192					- 4 050	- 16 231	
821			1			4 525	
12 937			375	4 238	18 115	81 845	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	1 552
4 851			375	1 178	10 984	18 572	1 552
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			301.4	367.7
7 Transfers				
8 Main activity producers				- 13.0
9 Autoproducers				
10 Gas processing				19.2
11 Petroleum refineries			- 301.4	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				- 1 012
5 Stock change	- 367	158	- 319	- 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	- 1 949	1 133		
13 Other transformation			2 882	
14 Loss & own-use				- 16 134
15 Discrepancy	429	- 184	- 8 311	11 271
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
10 316.6			0.1			16 277.9	0.1
						454.9	
- 7 591.6						- 13 332.0	
						- 75.6	
0.0						69.0	
2 725.0			0.1			3 394.3	0.1
- 1 010.2			- 0.1		320.3	- 703.0	- 0.1
- 140.1					37.2	- 102.9	
262.1						281.3	
						- 61.2	
- 1 140.0					- 87.6	- 1 227.6	
- 260.5					0.0	- 245.5	
436.4					270.0	1 335.5	
18.2					270.0	917.2	
					13.8	150.9	
						448.4	
18.2					256.1	318.0	
18.2					256.1	292.9	
						25	
418.2						418.2	

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				1 316	851	84 556	1 316
- 71 045				- 1 186	- 6 199	- 301 675	- 1 186
						- 1 012	
- 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	- 917	52 204	- 31 874	- 34 599
- 5 838	- 2 604		- 187	- 998	4 965	- 5 141	- 3 789
						- 2 137	
						- 816	
- 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		2 167	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	419 462	61 971
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	- 17 018	- 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	417 432
18 Industry sector	336 255	108 872	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: ktce
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables
1 030	1 833		745	8 086		12 975	10 664
3 505						27 295	
- 177					- 3	- 1 085	
						- 753	
- 13				11		- 90	11
4 345	1 833		745	8 097	- 3	38 342	10 675
						26	
- 2 168	- 1 829		- 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	- 1 310	- 14
- 120			- 1	133	- 197	115	
1 696			50	3 462	6 002	26 712	3 511
1 482			50	3 462	6 002	26 158	3 511
801				1 650	3 578	9 923	1 649
17					83	9 155	
664			50	1 812	2 341	7 080	1 862
642				1 801	2 184	6 398	1 801
21				6	144	385	6
1			50	5	13	297	55
214						554	

							Unit: ktce
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables
134 691	102 326	64 649	33 690	60 830		2 364 795	190 819
84 229					552	684 662	
- 3 145					- 1 674	- 77 218	
						- 19 740	
						1 585	
215 775	102 326	64 649	33 690	60 830	- 1 122	2 954 084	190 819
- 32 722	- 102 326	- 64 649	- 33 690	- 18 135	558 665	- 525 870	- 148 131
- 9 786					109 486	- 124 804	
- 770						- 8 674	
						- 27 615	
						- 210 123	
				- 325		- 325	- 325
- 24 720				- 145	- 104 749	- 178 824	- 145
- 5 362				26	- 1 596	9 092	
142 415				42 252	560 683	1 886 941	42 252
138 430				42 252	560 683	1 708 188	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	451 026	22 952
43 116				17 376	126 917	295 484	17 376
101				4 069	10 138	47 430	4 069
4 712				1 508	46 545	108 111	1 508
3 985						178 753	

## Hong Kong, China, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production				
2 Import	6 615			21 463
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				- 1 293
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	271 214		51 443	
2 Import	2 665		21 032	28 299
3 Export	- 175 072		- 15 249	- 2 020
4 International marine and aviation bunkers				
5 Stock change	- 41 754		- 1 282	3 739
6 Total primary energy supply	57 054		55 944	30 018
7 Transfers			- 949	815
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: ktce
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables
			1	110		111	111
3 017				3	1 081	32 178	3
					- 115	- 405	
						- 17 595	
						50	
3 017			1	112	966	14 339	114
- 2 402					3 174	- 5 600	
				- 52	8	- 44	- 53
						- 299	
				- 11		- 11	- 11
					- 375	- 375	
						- 1 294	
615			1	49	3 773	6 715	50
615			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: ktce
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables
62 326	1 602		10 980	52 939		450 505	65 521
					96	52 092	
- 30 113				- 182		- 222 635	- 182
				637		- 38 659	637
32 213	1 602		10 980	53 395	96	241 302	65 977
						- 134	
- 9 704	- 1 602		- 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				- 11 317
5 Stock change		56	1 414	- 334
6 Total primary energy supply	116 383	93	160 613	15 378
7 Transfers			- 988	866
8 Main activity producers	- 61 719	- 5 106	- 1 362	- 8 240
9 Autoproducers	- 4 085	- 1 502	- 1	- 4 757
10 Gas processing				- 1 384
11 Petroleum refineries			- 161 960	164 095
12 Coal transformation	- 40 665	21 476		- 451
13 Other transformation			4 487	- 4 661
14 Loss & own-use	- 264	- 2 747	- 67	- 5 907
15 Discrepancy	390	- 505	- 448	- 4 143
16 Total final consumption	10 040	11 709	274	150 796
17 Total final energy consumption	10 040	11 268	23	117 090
18 Industry sector	10 024	11 164	23	20 195
19 Transport sector	1			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				1 299
21 Non-energy		441	251	33 706

## Korea, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production	688		754	
2 Import	81 437	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	- 51 378	- 2 013		- 1 450
9 Autoproducers	- 3 872	- 2 299		- 1 719
10 Gas processing				- 110
11 Petroleum refineries			- 164 455	158 349
12 Coal transformation	- 23 628	11 739		
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		5 592
20.2 Agriculture				287
20.3 Other				2 211
21 Non-energy		513		51 996

Unit: ktce							Total	Total Renewables
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat			
2 562	7 124	8 575	7 765	14 022			41 263	22 791
98 214				1 183			419 350	1 183
							- 18 520	
							- 11 317	
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
- 1 012			- 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	1 501		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		1 916	34
224							34 622	

Unit: ktce							Total	Total Renewables
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat			
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	
							1 010	
- 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				528	246		35 623	528
13 500			219	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	1 883		34 745	
2 Import	19 168		10 204	13 243
3 Export	- 382		- 14 960	- 11 056
4 International marine and aviation bunkers				- 2 959
5 Stock change	58		- 297	143
6 Total primary energy supply	20 727		29 692	- 629
7 Transfers			- 1 960	1 960
8 Main activity producers	- 18 954			- 246
9 Autoproducers				
10 Gas processing				548
11 Petroleum refineries			- 27 297	27 208
12 Coal transformation				
13 Other transformation				
14 Loss & own-use			- 219	- 520
15 Discrepancy	30		- 216	- 49
16 Total final consumption	1 803			28 272
17 Total final energy consumption	1 803			25 594
18 Industry sector	1 803			2 685
19 Transport sector				20 888
20 Other sector				2 021
20.1 Residential & Commercial				1 398
20.2 Agriculture				35
20.3 Other				588
21 Non-energy				2 678

## 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: ktce							Total	Total Renewables
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat			
65 039	2 286		28	702		104 683		3 016
6 993					1	49 609		
- 30 859				- 239	- 97	- 57 593		- 239
						- 2 959		
				32		- 64		32
41 172	2 286		28	495	- 96	93 675		2 809
- 11 864	- 2 286		- 28	- 92	13 694	- 19 777		- 2 406
- 1 038				- 143	452	- 729		- 143
- 10 676						- 10 128		
						- 89		
- 769					- 1 056	- 2 565		
1				119	- 395	- 509		
16 826				379	12 598	59 879		379
6 995				379	12 598	47 370		379
6 823					6 141	17 452		
147				379	39	21 454		379
25					6 418	8 464		
25					6 368	7 791		
					50	85		
						588		
9 831						12 509		

Unit: ktce							Total	Total Renewables
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat			
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	- 1 916	5 416	- 10 302		- 2 855
34						- 741		
						- 2 001		
						- 712		
						30		
- 10 855					- 5 243	- 20 824		
1 670			- 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		1 206
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	1 653		1 660	
2 Import	235		5 489	2 580
3 Export	- 832		- 1 400	- 245
4 International marine and aviation bunkers				- 1 522
5 Stock change	108		34	173
6 Total primary energy supply	1 164		5 783	986
7 Transfers			- 198	206
8 Main activity producers	- 129			- 1
9 Autoproducers	- 6	- 177		
10 Gas processing				
11 Petroleum refineries			- 5 690	5 579
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				5 227
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			1 038	
2 Import			1 412	1 008
3 Export			- 1 038	- 458
4 International marine and aviation bunkers				
5 Stock change			- 81	- 11
6 Total primary energy supply			1 331	540
7 Transfers				- 47
8 Main activity producers				
9 Autoproducers				- 594
10 Gas processing				
11 Petroleum refineries			- 1 421	1 374
12 Coal transformation				
13 Other transformation				
14 Loss & own-use				
15 Discrepancy			90	1
16 Total final consumption				1 274
17 Total final energy consumption				1 274
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: ktce							Total	Total Renewables
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat			
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	
1 146							1 477	

Unit: ktce							Total	Total Renewables
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat			
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	- 1 485
7 Transfers			- 3 300	2 391
8 Main activity producers	- 160			- 316
9 Autoproducers	- 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				- 1 676
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 Autoproducers				
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	155			1 458



Unit: ktoe							Total Renewables
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	
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		- 157	- 157
- 991					- 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
				2		42	2
				3		63	3
						304	

Unit: ktoe							Total Renewables
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	
3 226	827		9 030	10 131		30 132	19 990
				131		34 550	131
						- 5 276	
						- 1 676	
				65		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		- 2 155	- 2 155
- 93					- 1 426	- 1 681	
				- 43		- 237	- 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	1 224
3 Export	- 118 591	- 2 024	- 254 054	- 127 208
4 International marine and aviation bunkers				- 17 148
5 Stock change	- 5 299	43	1 626	- 99
6 Total primary energy supply	115 491	- 1 908	297 196	- 143 231
7 Transfers				- 4
8 Main activity producers	- 43 356			- 813
9 Autoproducers	- 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	91 218
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	- 31 206
7 Transfers			7 292	- 7 093
8 Main activity producers	- 298			- 11
9 Autoproducers				- 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							Total	Total Renewables
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat			
580 954	15 908	53 279	165	7 712			1 429 252	18 643
7 217				5	551		26 841	5
- 187 555				- 30	- 1 462		- 690 924	- 30
							- 17 148	
- 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	
- 1 227	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				1 229	70 251		149 538	76
30 261					6 671		95 861	
57 374				2 157	94 646		173 184	1 982
56 046				2 039	90 377		163 886	1 917
1 327				118	4 229		8 613	65
1					40		685	
39 657							69 359	

Unit: ktOE							Total	Total Renewables
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat			
			15	638			653	334
8 885				68			194 878	68
							- 101 628	
							- 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	
1 295					4 269		24 675	
1 295					4 269		11 910	
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	- 119	5	- 1	145
6 Total primary energy supply	37 530	157	44 386	- 14 12
7 Transfers			265	- 515
8 Main activity producers	- 20 584			- 2 691
9 Autoproducers	- 4 810	- 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	318
16 Total final consumption	5 588	16 10		38 874
17 Total final energy consumption	5 574	13 31		16 207
18 Industry sector	5 574	13 31		1802
19 Transport sector				12 258
20 Other sector				2 147
20.1 Residential & Commercial				1827
20.2 Agriculture				4
20.3 Other				316
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	- 1746	- 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			- 1887	- 1032
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: kt oe							
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar, etc.	Others	Electricity and Heat	Total	Total Renewables
213	755	5 849	395	1 460		8 677	3 049
19 776						121 846	
						- 17 386	
						- 4 059	
- 3						29	
19 985	755	5 849	395	1 460		109 106	3 049
						- 249	
- 15 962	- 755	- 5 849	- 156	- 31	20 145	- 25 884	- 911
- 70			- 138	- 1 036	3 099	- 4 661	- 1 553
278						278	
						1 653	
						- 3 064	
- 311					- 2 215	- 5 839	
- 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	
1 088			102		8 511	11 848	102
1 084			102		8 250	11 263	102
3					175	182	
					86	402	
						22 960	

Unit: kt oe							
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	- 11 935	- 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					- 1 398	- 10 029	
- 772				- 428		- 4 119	- 428
7 748			9	14 271	16 561	88 172	14 280
5 821			9	14 271	16 561	76 832	14 280
3 657				6 974	6 949	27 993	6 974
2 161				1 928	18	28 680	1 928
3			9	5 369	9 594	20 159	5 378
3			9	5 369	9 568	17 482	5 378
					26	2 677	
1 927						11 340	

## 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	11029	13	14 265	5073
6 Total primary energy supply	331452	- 706	969 171	- 178 893
7 Transfers			- 89 951	93 130
8 Main activity producers	- 306 554	- 224		- 5 398
9 Autoproducers	- 1407	- 295		- 1615
10 Gas processing	- 1943			
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		- 3 1643
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

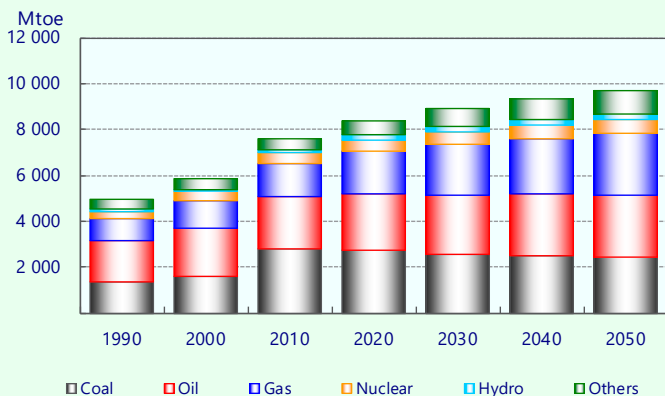
## Viet Nam, 2017

	Coal	Coal products	Crude oil, NGL	Petroleum products
1 Indigenous production	21509		14 906	
2 Import	8 219		1205	15 665
3 Export	- 1248		- 6 942	- 1674
4 International marine and aviation bunkers				
5 Stock change	230		- 1858	93
6 Total primary energy supply	28 710		7 310	14 083
7 Transfers			- 1078	1081
8 Main activity producers	- 13 422			- 177
9 Autoproducers				
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			20 934
17 Total final energy consumption	15 192			20 306
18 Industry sector	12 827			2 919
19 Transport sector				15 034
20 Other sector	2 365			2 352
20.1 Residential & Commercial	2 352			1908
20.2 Agriculture	13			445
20.3 Other				
21 Non-energy				628

Unit: ktce							Total
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar etc.	Others	Electricity and Heat	Total	Total Renewables
641 678	25 998	218 573	39 696	102 596		1 992 570	163 883
70 405				2 131	5 648	598 648	2 131
- 74 435				- 3 467	- 806	- 424 576	- 3 467
				- 222		- 48 203	- 222
6 286				124		36 790	124
643 934	25 998	218 573	39 696	101 162	4 842	2 155 229	162 449
						3 179	
- 217 233	- 25 856	- 218 573	- 36 071	- 15 281	361 378	- 463 812	- 74 165
- 14 295	- 142		- 1 510	- 5 790	15 988	- 9 066	- 6 718
1 247						- 696	
						- 22 795	
						- 6 576	
- 4 501						561	
- 57 896				- 132	- 54 926	- 145 729	- 132
- 4 941			- 1	157	- 2	10 162	
346 315			2 114	80 116	327 280	1 520 457	81 591
322 270			2 114	80 116	327 280	1 375 131	81 591
124 643				30 298	71 563	261 423	29 877
18 097				38 034	953	625 379	38 033
179 530			2 114	11 784	254 764	488 329	13 681
178 023			2 114	10 576	235 473	452 345	12 474
1 507				1 208	4 053	20 746	1 207
					15 238	15 238	
24 045						145 326	

Unit: ktce							Total
Natural gas, LNG	Hydro	Nuclear	Geothermal, solar etc.	Others	Electricity and Heat	Total	Total Renewables
7 811	7 652		28	13 245		65 152	20 925
					114	25 202	
					- 61	- 9 925	
						- 1 536	
7 811	7 652		28	13 245	53	78 893	20 925
						2	
- 6 768	- 7 652		- 28	- 32	16 834	- 11 244	- 7 712
						119	
					- 1 671	- 1 671	
					- 357	- 858	
1 043				13 214	14 859	65 242	13 214
1 043				13 214	14 859	64 614	13 214
1 039				9 299	8 704	34 788	9 299
4						15 038	
				3 915	6 155	14 788	3 915
				3 600	5 780	13 640	3 600
				315	375	1 147	315
						628	

## Primary energy supply outlook by energy



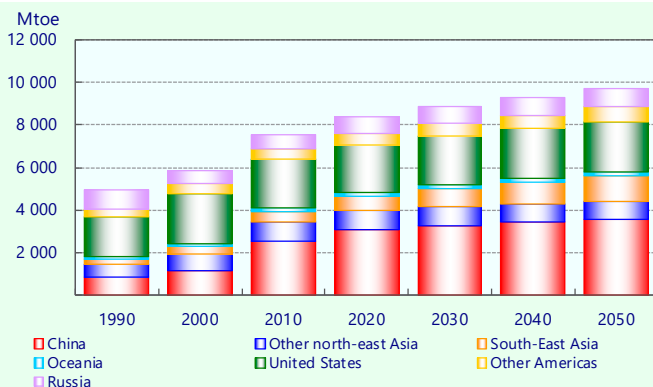
	Mtoe						
	1990	2000	2010	2020	2030	2040	2050
Coal	1 377	1 612	2 807	2 742	2 569	2 506	2 414
Oil	1 761	2 099	2 277	2 441	2 576	2 657	2 738
Gas	994	1 180	1 455	1 889	2 196	2 434	2 663
Nuclear	286	390	432	460	535	566	595
Hydro	92	107	152	214	239	256	268
Others	421	456	447	622	772	898	1 036
<b>Total</b>	<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	2040	2050
China	871	1 136	2 544	3 095	3 273	3 426	3 556
Other north-east Asia	589	817	888	870	867	843	820
South-East Asia	223	358	517	693	862	1 045	1 222
Oceania	100	130	150	168	181	184	188
United States	1 915	2 330	2 282	2 240	2 299	2 329	2 377
Other Americas	355	454	499	558	602	645	690
Russia	879	619	691	746	805	845	861
APEC 21	4 931	5 844	7 570	8 369	8 888	9 316	9 714

	Share (%)						
	1990	2000	2010	2020	2030	2040	2050
China	17.7	19.4	33.6	37.0	36.8	36.8	36.6
Other north-east Asia	11.9	14.0	11.7	10.4	9.8	9.0	8.4
South-East Asia	4.5	6.1	6.8	8.3	9.7	11.2	12.6
Oceania	2.0	2.2	2.0	2.0	2.0	2.0	1.9
United States	38.8	39.9	30.1	26.8	25.9	25.0	24.5
Other Americas	7.2	7.8	6.6	6.7	6.8	6.9	7.1
Russia	17.8	10.6	9.1	8.9	9.1	9.1	8.9

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
APEC	2 286	2 654	2 887	19 838	31 761	45 419	23 452	39 878
Other north-east Asia	192	206	209	5 326	7 117	8 298	4 765	6 793
Hong Kong, China	5.7	6.8	7.4	104	189	280.5	154	279
Japan	124	128	127	4 704	5 672	6 141	3 778	4 556
Korea	43	48	51	363	895	1 346	499	1 230
Chinese Taipei	20	23	24	155	362	530	335	728
South-East Asia	389	492	571	736	1 488	2 690	1 882	3 775
Brunei Darussalam	0.3	0.4	0.4	10	13	13.5	22	30
Indonesia	181	226	265	310	571	1 090	839	1 547
Malaysia	18	26	31	82	205	365	190	477
Philippines	62	86	105	95	157	303	248	412
Singapore	3.0	4.3	5.6	69	173	318.4	106	267
Thailand	57	65	69	142	284	424	376	754
Viet Nam	68	84	95	29	85	175	99	287
Oceania	25	31	38	728	1 185	1 642	580	944
Australia	17	20	25	638	1 037	1 441	489	795
New Zealand	3.3	4.1	4.8	84	138	180.6	80	132
Papua New Guinea	4.6	6.5	8.4	6.4	11	20.6	10	17
Other americas	147	182	211	1 804	2 794	3 625	2 243	3 504
Canada	28	32	37	1 012	1 524	1 869	868	1 307
Chile	13	16	18	79	182	272	119	275
Mexico	84	106	125	654	983	1 285	1 140	1 713
Peru	22	28	31	58	106	199	116	210
China	1 135	1 304	1 386	828	3 562	10 132	1 733	7 457
Russia	148	144	147	1 416	1 282	1 684	3 061	2 774
United States	250	296	325	9 001	14 332	17 349	9 189	14 632

	Energy Indigenous Production			Net Import			Total Primary Energy Supply			
	Mtoe			Mtoe			Mtoe			
2017	1990	2005	2017	1990	2005	2017	1990	2005	2017	
63 693	4 725	6 002	7 768	155	690	484	4 719	6 558	8 014	
8 324	108	158	99	499	726	786	589	845	838	
414.6	0.0	0.0	0.1	11	23	32	8.9	14	14	HKC
4 933	74	102	41	378	436	401	439	522	432	JPN
1 850	23	43	49	70	176	249	93	210	282	ROK
1 127	11	13	9	40	91	104	48	99	109	CT
6 839	285	514	743	- 55	- 39	15	208	436	651	
30.8	15	22	16.3	- 14	- 19	- 12.9	1.2	2.6	3.4	BD
2 954	175	264	451	- 69	- 89	- 171	102	173	241	INA
848	46	96	105	- 26	- 28	- 8	20	66	94	MAS
797	16	21	30	11	17	29	26	38	59	RP
492.5	0.1	0.4	0.7	25	50	93.3	12	21	37	SIN
1 127	26	51	76	18	48	69	41	95	138	THA
590	5.8	59	65	- 0.2	- 18	15	5.4	40	79	VN
1 310	169	282	427	- 62	- 145	- 265	99	134	152	
1 104	158	265	405	- 65	- 149	- 269	86	113	127	AUS
172.8	12	13	16.0	2.1	4.9	5.8	13	17	20.7	NZ
32.7	N.A.	4.3	6.2	N.A.	- 1.0	- 1.6	N.A.	3.3	4.4	PNG
4 648	491	686	711	- 123	- 186	- 170	359	496	532	
1 603	276	402	510	- 59	- 130	- 217	211	273	289	CDA
412	7.9	9.3	13	7.0	20	26	14	28	38	CHL
2 240	196	264	165	- 70	- 80	21	124	181	180	MEX
394	11	10.8	24	- 0.6	3.0	- 0.3	10	14	24	PE
21 224	727	1 527	2 365	- 32	137	607	671	1 676	2 954	PRC
3 637	1 293	1 203	1 429	- 413	- 539	- 664	879	652	732	RUS
17 711	1 653	1 631	1 993	342	736	174	1 915	2 319	2 155	USA

	Total Final Energy Consumption			Final Consumption of Electricity			Total Primary Energy Supply	
	Mtoe			TWh			toe / Person	
	1990	2005	2017	1990	2005	2017	1990	2005
APEC	3 064	3 843	4 770	5 741	9 436	13 693	2.06	2.47
Other north-east Asia	343	462	443	960	1 621	1 772	3.06	4.11
Hong Kong, China	4.9	6.7	6.7	24	40	44	1.56	2.06
Japan	254	298	258	765	1 025	964	3.55	4.09
Korea	58	110	131	94	358	523	2.17	4.36
Chinese Taipei	25	47	48	77	199	242	2.38	4.35
South-East Asia	132	280	394	128	438	866	0.53	0.89
Brunei Darussalam	0.4	0.7	0.9	1.2	2.6	3.1	4.60	7.08
Indonesia	65	119	158	28	107	223	0.56	0.77
Malaysia	12	34	47	20	81	146	1.11	2.57
Philippines	19	22	34	21	45	78	0.43	0.44
Singapore	3.1	7	12	13	35	50	3.78	4.93
Thailand	29	61	77	38	121	193	0.73	1.46
Viet Nam	3.9	35.4	65	6.2	46	173	0.08	0.48
Oceania	62	82	93	158	230	254	3.96	4.31
Australia	53	67	77	129	189	211	5.05	5.56
New Zealand	9	12	13	29	38	39	3.86	4.10
Papua New Guinea	N.A.	2.6	3.2	N.A.	3.0	4.0	N.A.	0.51
Other americas	240	304	337	545	774	897	2.44	2.72
Canada	147	173	175	418	513	509	7.63	8.48
Chile	10	19	26	15	48	70	1.06	1.75
Mexico	74	100	117	100	190	272	1.47	1.70
Peru	8.7	11	19	12	23	46	0.45	0.50
China	529	941	1 708	491	1 992	5 406	0.59	1.29
Russia	585	368	419	826	650	761	5.94	4.54
United States	1 175	1 407	1 375	2 633	3 731	3 737	7.67	7.85

	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			
2017	1990	2005	2017	1990	2005	2017	1990	2005	2017	
2.78	238	206	176	201	164	126	1.34	1.45	1.65	
4.00	111	119	101	124	124	101	1.78	2.25	2.12	
1.94	86	75	51	58	50	35	0.86	0.98	0.91	HKC
3.41	93	92	70	116	115	88	2.06	2.34	2.04	JPN
5.48	256	235	210	186	171	153	1.36	2.28	2.54	ROK
4.63	311	273	206	144	136	97	1.24	2.06	2.03	CT
1.14	282	293	242	110	115	95	0.34	0.57	0.69	
8.00	124	195	252	54	85	110	1.46	1.80	2.16	BD
0.91	328	303	221	121	112	82	0.36	0.53	0.60	INA
3.01	244	322	257	105	138	110	0.65	1.34	1.52	MAS
0.56	280	242	193	107	92	73	0.30	0.26	0.32	RP
6.53	168	122	115	108	79	74	1.02	1.67	2.12	SIN
2.00	293	336	326	110	126	123	0.51	0.93	1.11	THA
0.83	184	467	450	55	139	134	0.06	0.42	0.68	VN
4.02	136	113	93	171	142	116	2.47	2.64	2.47	
5.16	135	109	88	176	143	115	3.09	3.30	3.13	AUS
4.32	154	123	115	161	128	120	2.75	2.90	2.75	NZ
0.53	N.A.	309	216	N.A.	194	136	N.A.	0.40	0.38	PNG
2.52	199	178	147	160	142	114	1.63	1.67	1.60	
7.91	209	179	155	243	209	180	5.30	5.37	4.79	CDA
2.08	178	156	141	118	103	93	0.77	1.20	1.42	CHL
1.44	189	184	140	109	105	80	0.88	0.94	0.94	MEX
0.77	170	131	121	86	66	61	0.39	0.40	0.60	PE
2.13	810	470	292	387	225	139	0.47	0.72	1.23	PRC
4.99	621	509	435	287	235	201	3.95	2.56	2.85	RUS
6.63	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	12,533	16,669	20,418	5.48	6.28	7.07
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	327	852	1,316	0.84	1.73	2.31
Brunei Darussalam	4	7	7	13.84	17.91	17.30
Indonesia	102	322	495	0.56	1.42	1.87
Malaysia	55	138	211	3.07	5.38	6.78
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	77	197	0.24	0.92	2.08
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			
t-CO <sub>2</sub> / Million USD at constant 2010 values			t-CO <sub>2</sub> / Million USD at 2011 PPP			t-CO <sub>2</sub> / toe			
1990	2005	2017	1990	2005	2017	1990	2005	2017	
631.8	524.8	449.5	534.4	418.0	320.6	2.66	2.54	2.55	
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
444.6	572.5	489.3	173.8	225.7	192.4	1.57	1.95	2.02	
373.3	493.0	544.9	163.5	215.9	238.6	3.01	2.53	2.16	BD
330.5	563.0	453.6	122.0	207.9	167.4	1.01	1.86	2.05	INA
676.7	675.1	578.6	290.8	290.1	248.7	2.77	2.10	2.25	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
557.9	904.9	1,124.5	165.8	269.0	334.3	3.04	1.94	2.50	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	3.01	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 definitions 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 definitions 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  $C_9$  to  $C_{16}$  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 ( $C_3H_8$ ) and butane ( $C_4H_{10}$ ) 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 sectors 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.

