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THAILAND



ENERGY



STATISTICS

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DEDE

The Department of Alternative Energy Development and Efficiency (DEDE), Ministry of Energy has the main role and functions in research development and promotion of alternative energy, as well as energy conservation. DEDE also publishes the annual publications of "Oil and Thailand", "Electric Power in Thailand" and "Thailand Energy Situation", apart from the main duties, in order to disseminate data and information on statistics of crude oil, natural gas, petroleum products, electricity, coal & lignite, renewable and related details gathered during the calendar year.

In 2004, DEDE produced a handy, pocket - sized summary of key energy data. This new report is the First Issue of Thailand Energy Summary. Key Thailand Energy Statistics contains timely data on the statistics of energy production, import, export, transformation and consumption, energy & economy and related details, which may be useful for further studies and references.

In this regard, DEDE would like to take this opportunity to express our sincere appreciation to all government agencies and state enterprises as well as energy production and distribution companies for their excellent cooperation in providing useful data and information for this publication.

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Abbreviations

Com.	= Commercial
GDP	= Gross Domestic Product
HSD	= High Speed Diesel
LPG	= Liquefied Petroleum Gas
NG.	= Natural Gas
NGL	= Natural Gasoline
Res.	= Residential
ULG	= Unleaded Premium Gasoline

Bcf	= Billion Cubic Feet
bil	= Billion
Btu	= British Thermal Unit
e	= Estimated Data
Gcal	= Gigacalories
Gj	= Gigajoules
Gwh	= Gigawatt - Hour
kcal	= Kilocalories (10^3 Calories)
ktoe	= Kilo Ton of Oil Equivalent
mil	= Million
MMscf	= Million Standard Cubic Feet
MMscfd	= Million Standard Cubic Feet Per Day
scf	= Standard Cubic Feet
toe	= Ton of Oil Equivalent

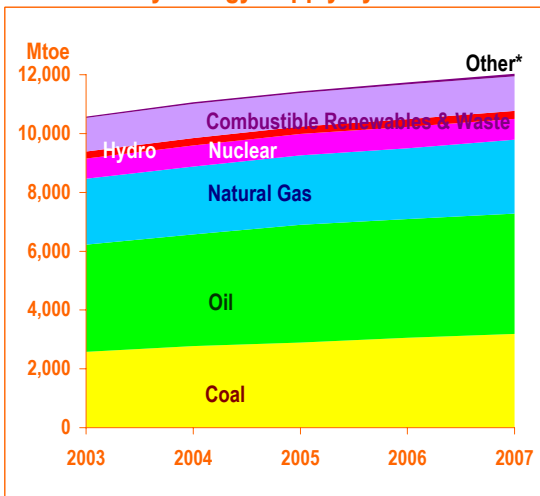
General Information on Thailand 2008



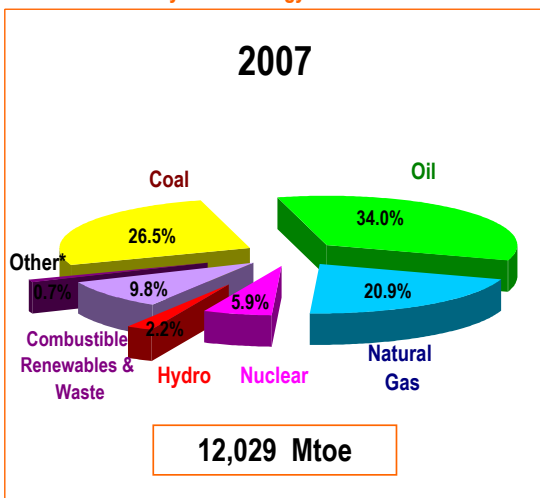
Area	:	513,115 km ²
Population	:	63,390 thousand
Number of Provinces	:	76
Number of Households	:	20,608,269
Average Size of Households	:	3.3 persons
GDP (1988 Prices)	:	4,369 10 ⁹ Baht
GDP Growth	:	2.8 %
GDP per capita	:	68,930 Baht/capita
GDP per household	:	212,026 Baht/household
Export	:	5,854 10 ⁹ Baht
Import	:	5,944 10 ⁹ Baht
Currency	:	1 USD = 33.49 Baht

World Energy

Total Primary Energy Supply by Fuel



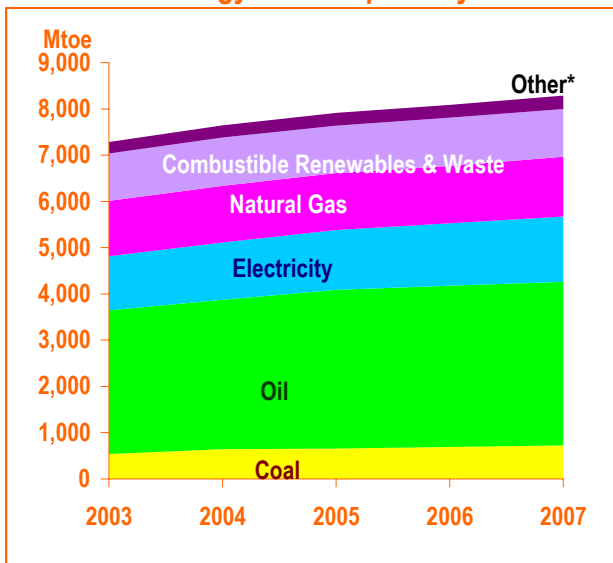
Source : IEA's Key World Energy Statistics 2009



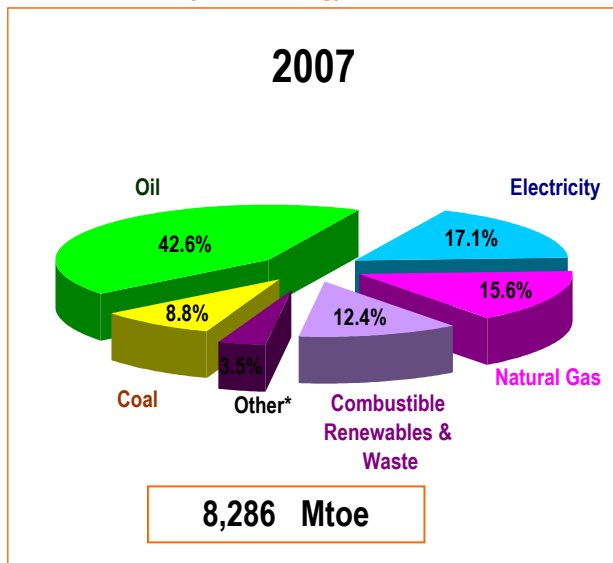
* Other includes geothermal, solar, wind and heat, etc.

World Energy

Total Final Energy Consumption by Fuel



Source : IEA's Key World Energy Statistics 2009



* Other includes geothermal, solar, wind and heat, etc.

Production

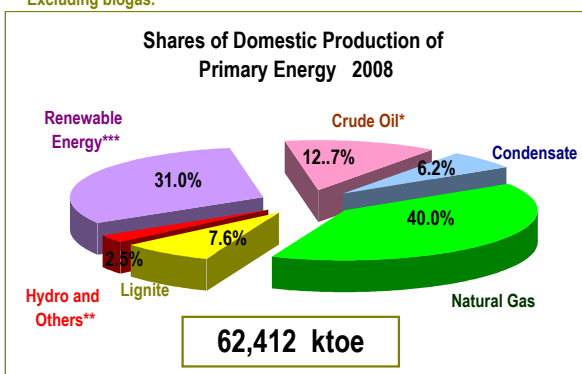
Domestic Production of Primary Energy

Domestic Production of Primary Energy (ktoe)	2004	2005	2006	2007	2008
Total	49,838	53,369	55,196	57,975	62,412
Commercial Energy	33,808	36,712	38,169	39,748	43,133
Crude Oil*	4,297	5,754	6,512	6,907	7,944
Condensate	3,115	3,156	3,418	3,581	3,900
Natural Gas	19,446	20,534	21,131	22,549	24,969
Lignite	5,610	5,983	5,307	4,912	4,743
Hydro and Others**	1,340	1,285	1,801	1,799	1,577
Renewable Energy***	16,030	16,657	17,027	18,227	19,279

*Including feedstocks, ethanol and biodiesel.

**Others include geothermal, solar cell and wind power.

***Excluding biogas.



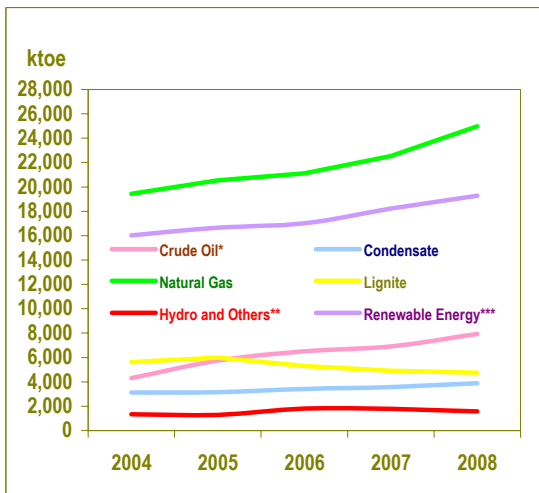
Domestic Production of Primary Energy

(Physical unit)

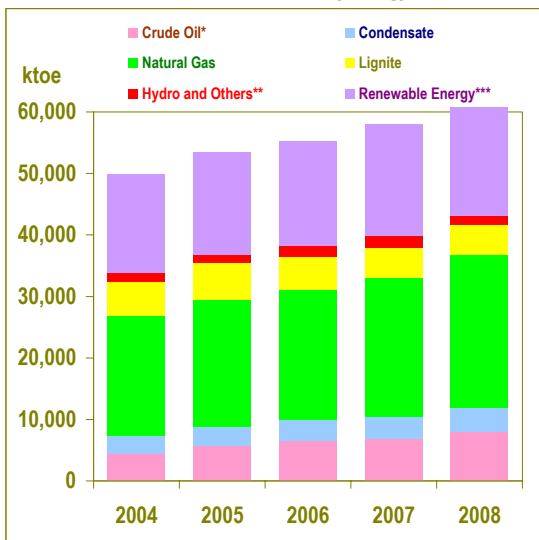
Domestic Production of Primary Energy	2004	2005	2006	2007	2008
Commercial Energy					
Crude Oil* (mil. litres)	4,997	6,700	7,585	8,057	9,279
Condensate (mil. litres)	3,980	4,032	4,367	4,575	4,983
Natural Gas (MMscf)	791,470	835,743	860,026	917,726	1,016,238
Lignite (10 ³ ton)	20,060	20,878	19,001	18,239	17,982
Hydro and Others** (Gwh)	6,042	5,800	8,128	8,117	7,118
Renewable Energy*** (10³ ton)	49,258	54,880	55,013	59,572	63,352

Production

Trends of Domestic Production of Primary Energy 2004 - 2008



Shares of Domestic Production of Primary Energy 2004 - 2008

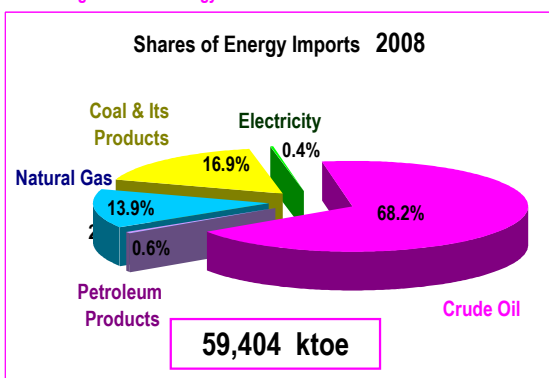


Imports & Exports

Energy Imports

Energy Imports* (ktoe)	2004	2005	2006	2007	2008
Commercial Energy	57,691	57,311	58,727	58,870	59,404
Crude Oil	43,535	41,308	41,388	39,846	40,516
Petroleum Products	1,511	1,980	1,383	825	364
Natural Gas	7,607	8,236	8,484	8,869	8,261
Coal & Its Products	4,749	5,410	7,032	8,947	10,026
Electricity	289	377	440	383	237

*Excluding renewable energy.



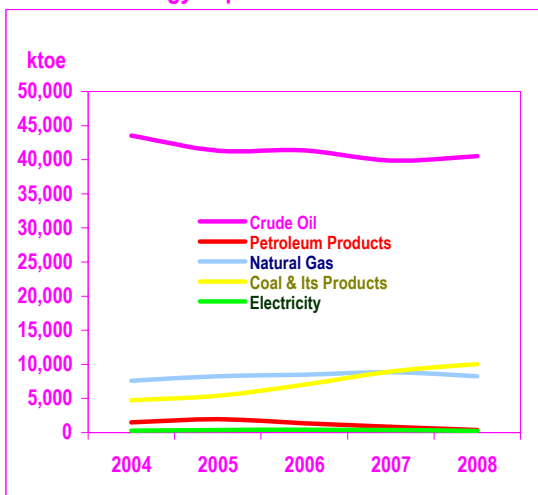
Energy Imports

(Physical unit)

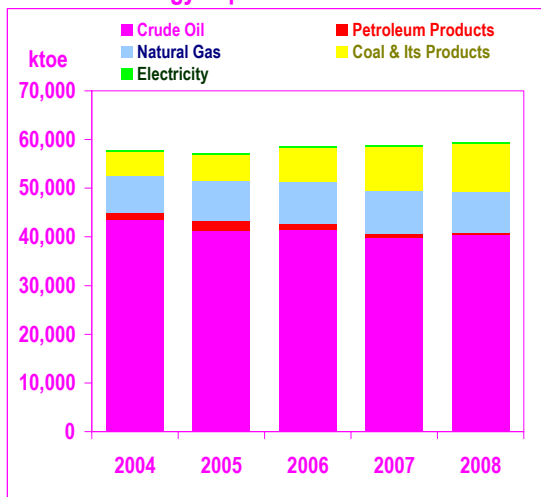
Energy Imports*	2004	2005	2006	2007	2008
Commercial Energy					
Crude Oil (mil. litres)	50,622	48,033	48,126	46,333	47,112
Petroleum Products (mil. litres)	1,715	2,165	1,504	932	404
Natural Gas (MMscf)	309,587	335,188	345,292	360,985	336,230
Coal & Its Products (10 ³ ton)	7,536	8,572	11,157	14,271	16,012
Electricity (Gwh)	3,388	4,419	5,159	4,491	2,785

Imports & Exports

Trends of Energy Imports 2004 - 2008



Shares of Energy Imports 2004 - 2008



Imports & Exports

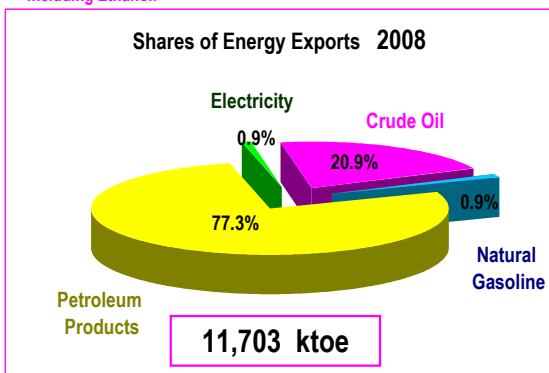
Energy Exports

Energy Exports* (ktoe)	2004	2005	2006	2007	2008
Commercial Energy	8,385	8,981	10,315	9,337	11,703
Coal & Its Products	-	3	-	**	47
Crude Oil***	2,827	3,273	3,318	2,607	2,437
Condensate	-	-	-	-	-
Natural Gasoline	59	135	99	102	109
Petroleum Products	5,467	5,515	6,834	6,549	9,009
Electricity	32	55	64	79	101

*Excluding renewable energy.

**Less than 0.5.

***Including Ethanol.



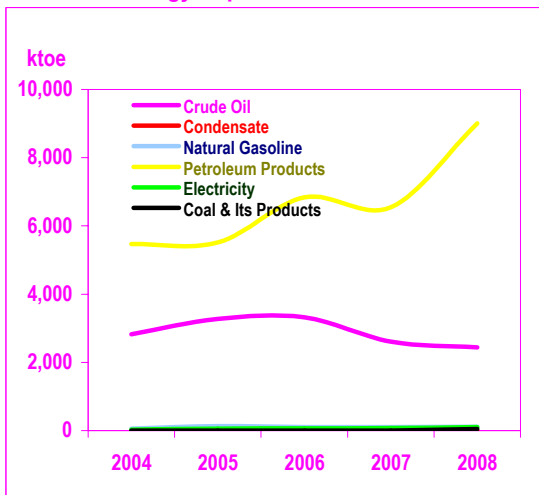
Energy Exports

(Physical unit)

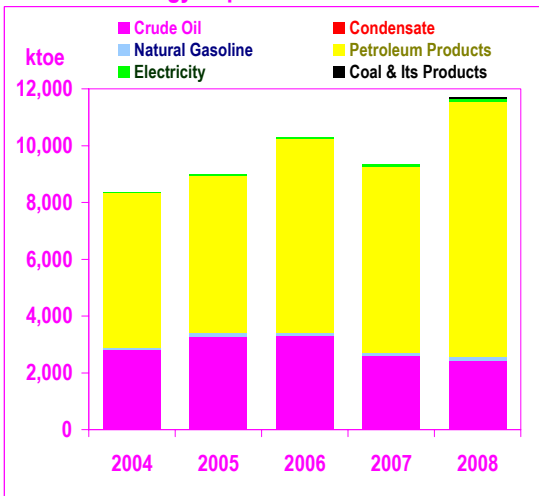
Energy Exports*	2004	2005	2006	2007	2008
Commercial Energy					
Coal & Its Products (10 ³ ton)	-	4	-	**	75
Crude Oil*** (mil. litres)	3,287	3,806	3,858	3,034	2,843
Condensate (mil. litres)	-	-	-	-	-
Natural Gasoline (MMscf)	76	172	126	130	139
Petroleum Products (mil. litres)	6,894	7,093	8,399	7,747	10,403
Electricity (Gwh)	372	642	750	926	1,180

Imports & Exports

Trends of Energy Exports 2004 - 2008



Shares of Energy Exports 2004 - 2008



Supply

Primary Energy Supply

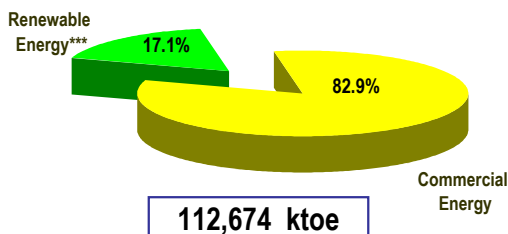
Primary Energy Supply (ktoe)	2004	2005	2006	2007	2008
Total*	100,193	103,041	105,640	109,808	112,674
Commercial Energy	84,143	86,363	88,586	91,587	93,360
Crude Oil**	46,685	45,713	47,371	47,618	49,329
Condensate & NGL	2,712	2,674	2,963	2,991	3,345
Natural Gas	27,053	28,770	29,615	31,418	33,230
Coal & Its Products	10,575	11,457	12,263	13,866	14,947
Petroleum Products	(4,479)	(3,858)	(5,803)	(6,409)	(9,204)
Electricity	1,597	1,607	2,177	2,103	1,713
Renewable Energy***	16,050	16,678	17,054	18,221	19,314

*Domestic Production + Import - Export +/- Stock Change

**Including feedstocks, ethanol and biodiesel.

***Excluding biogas.

Shares of Primary Energy Supply 2008



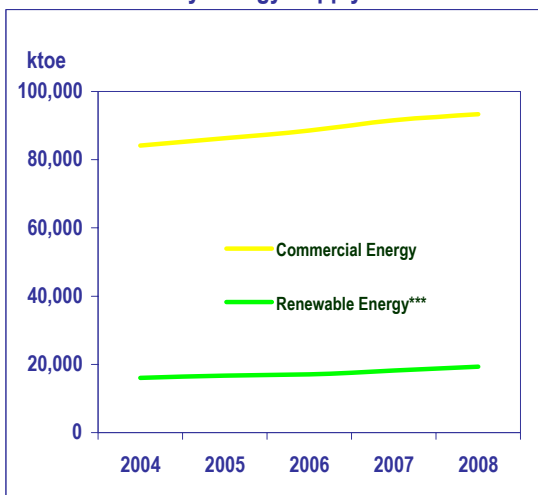
Primary Energy

(Physical unit)

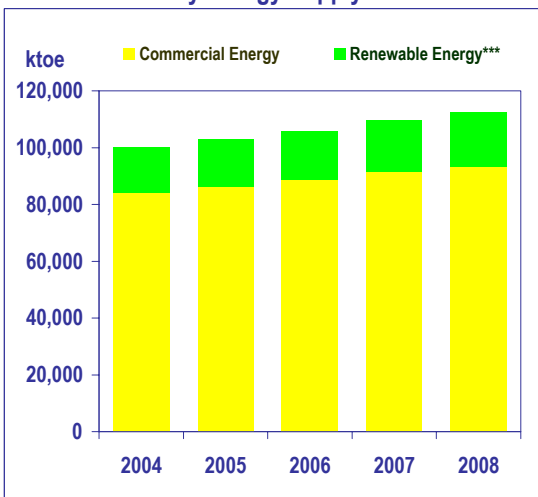
Primary Energy Supply (ktoe)	2004	2005	2006	2007	2008
Commercial Energy					
Crude Oil** (mil. litres)	54,285	53,164	55,099	55,393	57,403
Condensate & NGL (mil. litres)	3,464	3,257	3,786	3,821	4,273
Natural Gas (Bcf)	1,101	1,171	1,205	1,279	1,352
Coal & Its Products (10 ³ ton)	28,084	29,614	30,009	32,392	34,429
Petroleum Products (mil. litres)	(5,869)	(5,307)	(7,400)	(7,699)	(10,776)
Electricity (Gwh)	9,058	9,577	12,537	11,682	8,723
New & Renewable Energy*** (10 ³ ton)	52,656	54,911	55,052	59,563	63,403

Supply

Trends of Primary Energy Supply 2004 - 2008



Shares of Primary Energy Supply 2004 - 2008



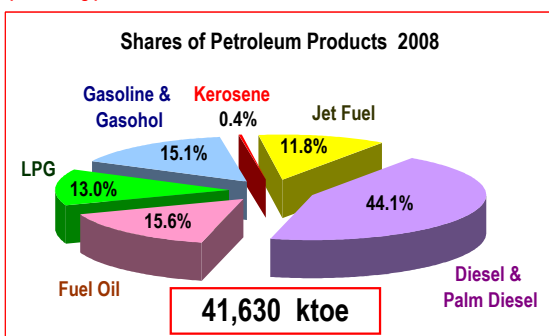
Transformation

Petroleum Products

Petroleum Products* (ktoe)	2004	2005	2006	2007	2008
Total	37,658	38,956	40,050	40,351	41,630
LPG	4,159	4,533	4,556	4,885	5,394
Gasoline & Gasohol	6,674	6,878	6,774	6,485	6,296
Kerosene	920	835	857	107	159
Jet Fuel	3,774	3,952	4,578	4,351	4,906
Diesel & Palm Diesel	17,407	16,951	17,325	18,421	18,375
Fuel Oil	4,724	5,807	5,960	6,102	6,500

*Including petroleum products from petroleum refineries & NG.

processing plants



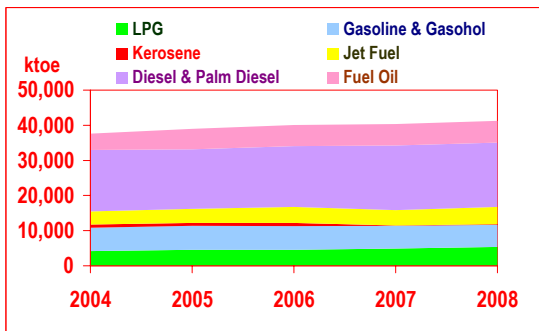
Petroleum Products

(Physical unit)

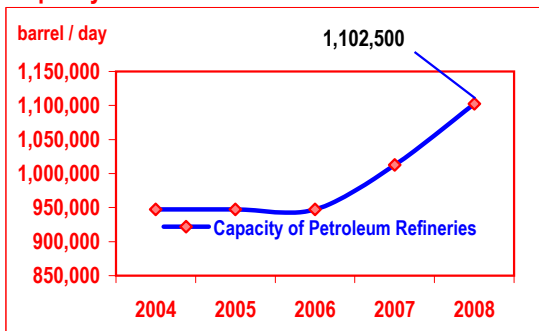
Petroleum Products* (mil.litres)	2004	2005	2006	2007	2008
Total	46,514	47,749	49,399	49,762	51,429
LPG	6,601	6,825	7,230	7,752	8,560
Gasoline & Gasohol	8,958	9,231	9,091	8,703	8,449
Kerosene	1,125	1,022	1,048	131	195
Jet Fuel	4,617	4,835	5,601	5,323	6,002
Diesel & Palm Diesel	20,194	19,666	20,097	21,370	21,317
Fuel Oil	5,019	6,170	6,332	6,483	6,906

Transformation

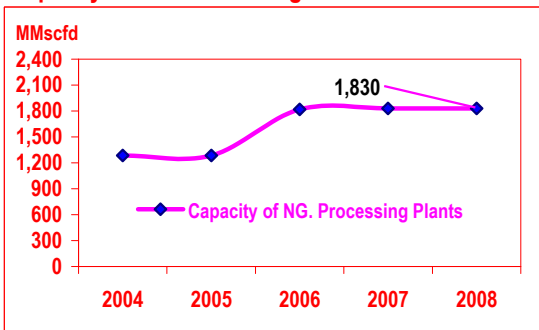
Trends of Petroleum Products 2004 - 2008



Capacity of Petroleum Refineries



Capacity of NG. Processing Plants

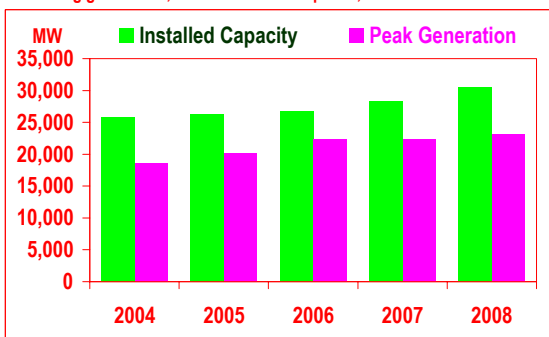


Transformation

Electricity (Installed Capacity)

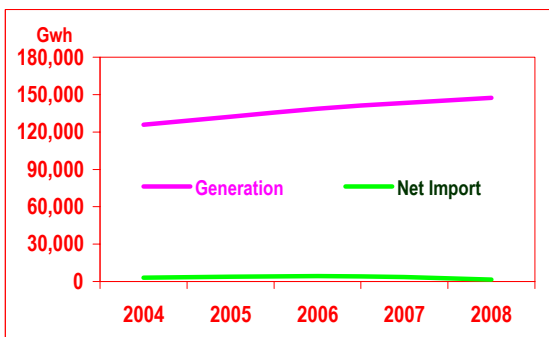
Installed Capacity (MW)	2004	2005	2006	2007	2008
Thermal Plants	22,388	22,792	23,338	24,807	27,024
Hydro Power	3,476	3,476	3,476	3,475	3,481
Other*	1	1	1	3	3

*Including geothermal, solar cell and wind power, etc.



Electricity (National Grid Generation)

Electricity (Gwh)	2004	2005	2006	2007	2008
Total	128,743	135,974	143,151	146,943	149,032
Generation	125,727	132,197	138,742	143,378	147,427
Net Import	3,016	3,777	4,409	3,565	1,605



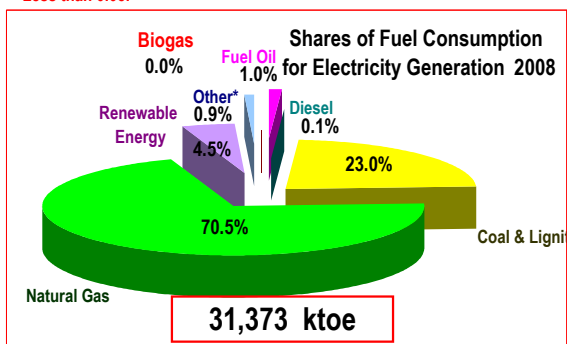
Transformation

Fuel Consumption for Electricity Generation

Fuel Consumption (ktoe)	2004	2005	2006	2007	2008
Total	27,316	28,778	28,755	30,598	31,373
Fuel Oil	1,611	1,895	1,911	888	337
Diesel	104	72	35	21	39
Coal & Lignite	4,657	4,700	4,774	6,885	7,203
Natural Gas	19,912	20,901	20,860	21,368	22,097
Renewable Energy	730	889	916	1,138	1,414
Other*	302	320	255	292	267
Biogas (mil.m ³)	**	1	4	6	16

*Including black liquor and residual gas from production processes, etc.

**Less than 0.05.



Electricity (Fuel Consumption)

(Physical unit)

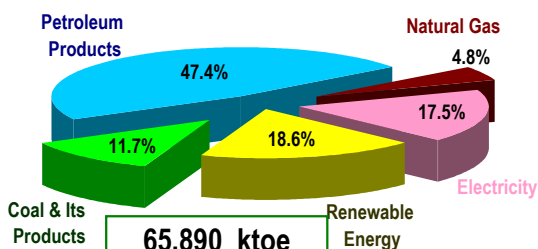
Fuel Consumption	2004	2005	2006	2007	2008
Fuel Oil (mil.litres)	1,711	2,013	2,030	943	358
Diesel (mil.litres)	121	84	41	24	45
Coal & Lignite (10 ³ ton)	17,426	17,488	17,166	20,549	21,435
Natural Gas (MMscf)	818,264	858,959	857,103	877,862	907,327
Renewable Energy (10 ³ ton)	3,076	3,839	3,916	4,995	6,102
Other* (TJ)	12,776	13,539	10,766	12,335	11,286
Biogas (mil.m ³)	**	1	8	12	32

Consumption

Final Energy Consumption by Fuel

Final Energy Consumption (ktoe)	2004	2005	2006	2007	2008
Total	61,262	62,397	63,257	64,866	65,890
Coal & Its Products	5,918	6,757	7,489	6,981	7,744
Petroleum Products	32,684	32,460	31,650	32,298	31,207
Natural Gas	2,341	2,026	2,234	2,594	3,153
Electricity	9,803	10,330	10,891	11,348	11,541
Renewable Energy	10,516	10,824	10,993	11,645	12,245

Shares of Final Energy Consumption by Fuel 2008



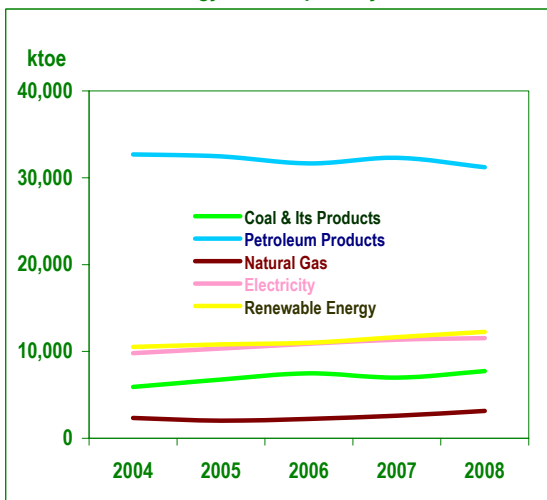
Final Energy Consumption by Fuel

(Physical unit)

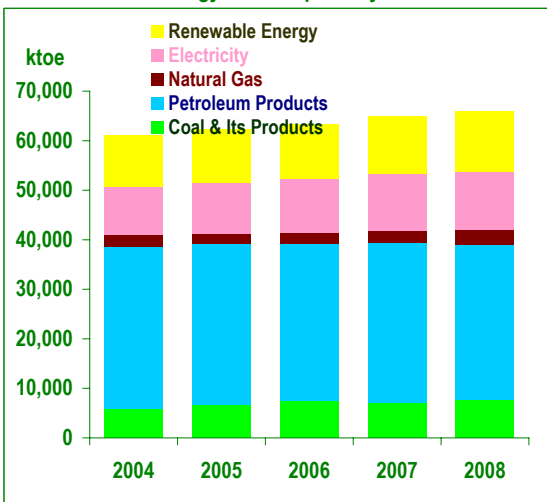
Final Energy Consumption	2004	2005	2006	2007	2008
Coal & Its Products (10 ³ ton)	10,658	12,126	12,843	11,843	12,994
Petroleum Products (mil. litres)	39,859	39,653	38,916	39,939	38,912
Natural Gas (MMscf)	96,825	83,814	92,416	107,293	130,403
Electricity (Gwh)	115,044	121,229	127,811	133,178	135,449
Renewable Energy (10 ³ ton)	33,769	34,231	34,744	36,664	38,677

Consumption

Trends of Final Energy Consumption by Fuel 2004 - 2008



Shares of Final Energy Consumption by Fuel 2004 - 2008



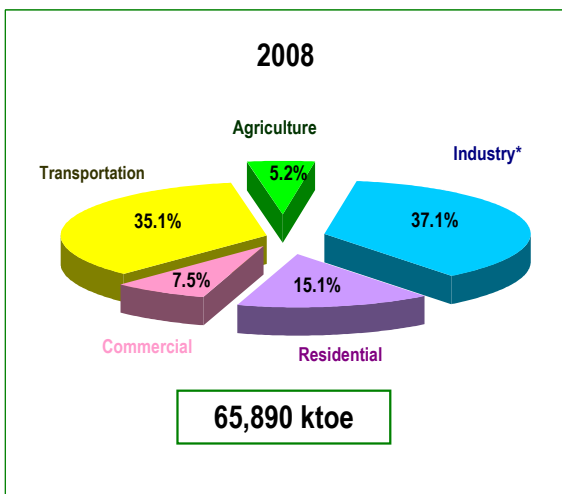
Consumption

Final Energy Consumption by Economic Sector

Final Energy Consumption (ktoe)	2004	2005	2006	2007	2008
Total	61,262	62,397	63,257	64,866	65,890
Agriculture	3,520	3,207	3,312	3,448	3,446
Industry*	22,263	22,920	23,711	23,781	24,421
Residential	8,801	8,933	9,034	9,533	9,958
Commercial	3,866	3,846	4,215	4,489	4,968
Transportation	22,812	23,491	22,985	23,615	23,097

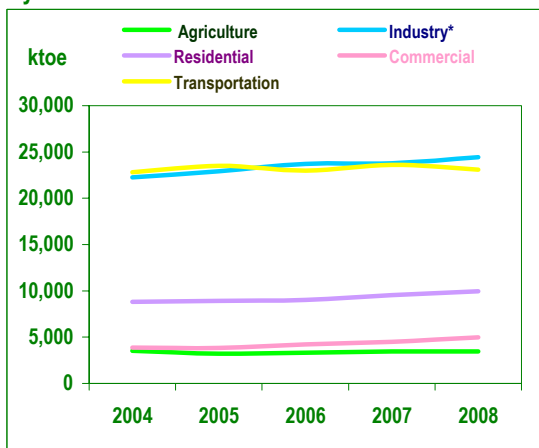
*Industry = Manufacturing + Mining + Construction

Shares of Final Energy Consumption by Economic Sector 2008

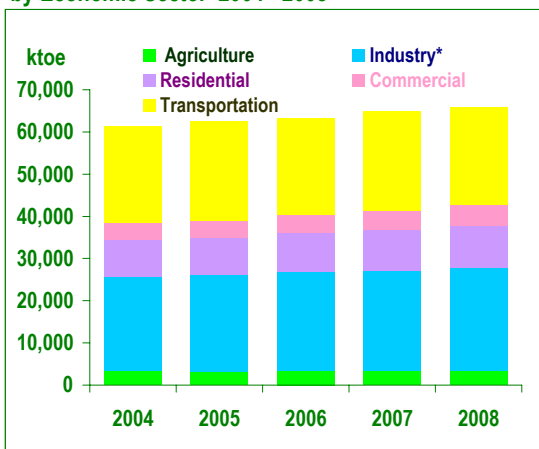


Consumption

Trends of Final Energy Consumption by Economic Sector 2004 - 2008



Shares of Final Energy Consumption by Economic Sector 2004 - 2008



*Industry = Manufacturing + Mining + Construction

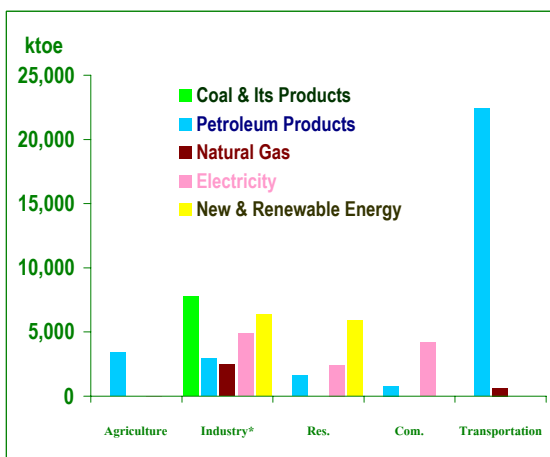
Consumption

Final Energy Consumption for Economic Sector by Fuel 2008

Final Energy Consumption (ktoe)	Agriculture	Industry*	Res.	Com.	Transportation	Total
Coal & Its Products	-	7,744	-	-	-	7,744
Petroleum Products	3,422	2,938	1,607	802	22,438	31,207
Natural Gas	-	2,499	-	-	654	3,153
Electricity	24	4,893	2,453	4,166	5	11,541
Renewable Energy	-	6,347	5,898	-	-	12,245
Total	3,446	24,421	9,958	4,968	23,097	65,890

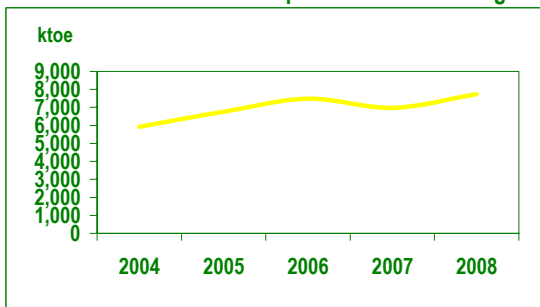
*Industry = Manufacturing + Mining + Construction

Shares of Final Energy Consumption for Economic Sector by Fuel 2008

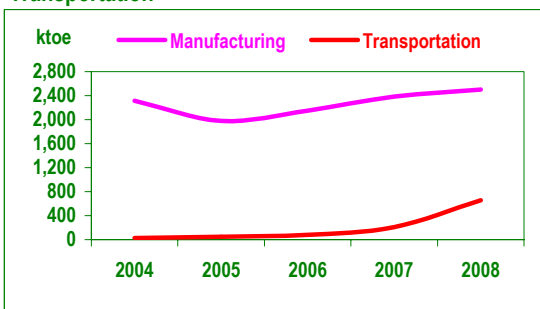


Consumption

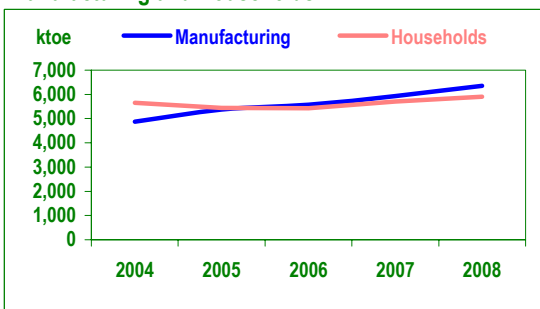
Coal & Its Products Consumption in Manufacturing



Natural Gas Consumption in Manufacturing and Transportation



New & Renewable Energy Consumption in Manufacturing and Households



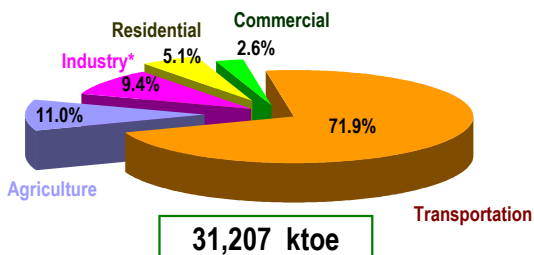
Consumption

Petroleum Products Consumption by Economic Sector

Petroleum Products (ktoe)	2004	2005	2006	2007	2008
Total	32,684	32,460	31,650	32,298	31,207
Agriculture	3,501	3,186	3,291	3,425	3,422
Industry*	4,626	3,957	3,446	3,266	2,938
Residential	1,046	1,309	1,310	1,435	1,607
Commercial	730	571	705	770	802
Transportation	22,781	23,437	22,898	23,402	22,438

*Industry = Manufacturing + Mining + Construction

Shares of Petroleum Products Consumption by Economic Sector 2008



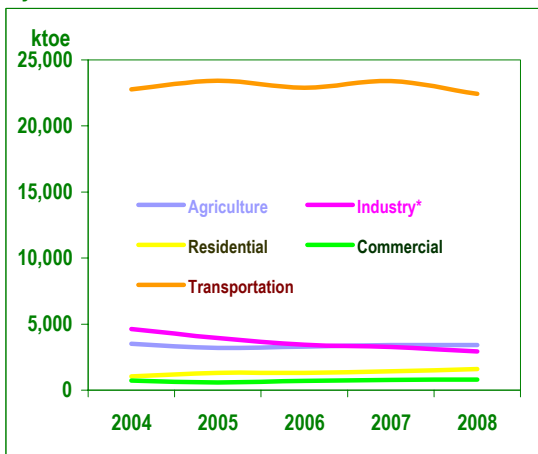
Petroleum Products Consumption by Economic Sector

(Physical unit)

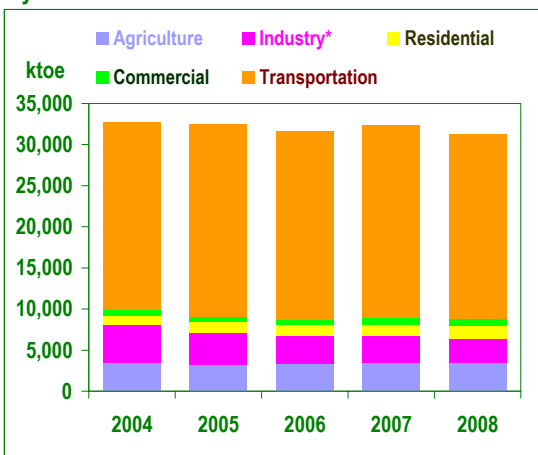
Petroleum Products (million litres)	2004	2005	2006	2007	2008
Total	39,859	39,653	38,916	39,939	38,912
Agriculture	3,982	3,707	3,827	3,984	3,979
Industry*	5,300	4,587	4,060	3,940	3,624
Residential	1,659	2,075	2,077	2,273	2,548
Commercial	1,154	904	1,118	1,222	1,273
Transportation	27,764	28,380	27,834	28,520	27,488

Consumption

Trends of Petroleum Products Consumption by Economic Sector 2004 - 2008



Shares of Petroleum Products Consumption by Economic Sector 2004 - 2008



*Industry = Manufacturing + Mining + Construction

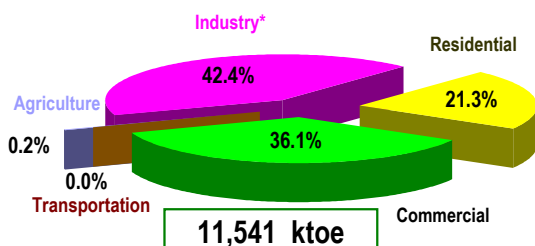
Consumption

Electricity Consumption by Economic Sector

Electricity Consumption (ktoe)	2004	2005	2006	2007	2008
Total	9,803	10,330	10,891	11,348	11,541
Agriculture	19	21	21	23	24
Industry*	4,536	4,847	5,054	5,212	4,893
Residential	2,108	2,182	2,301	2,389	2,453
Commercial	3,136	3,275	3,510	3,719	4,166
Transportation	4	5	5	5	5

*Industry = Manufacturing + Mining + Construction

Shares of Electricity Consumption by Economic Sector 2008



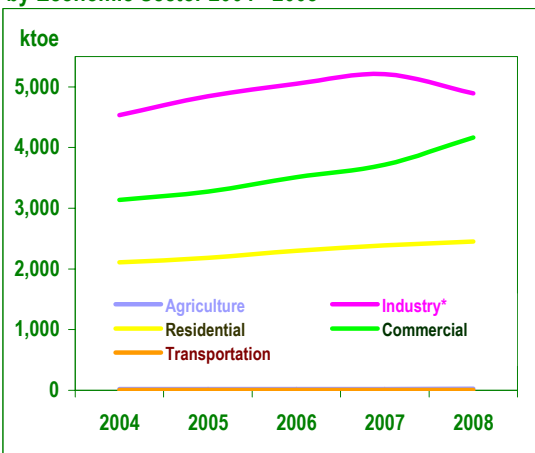
Electricity Consumption by Economic Sector

(Physical unit)

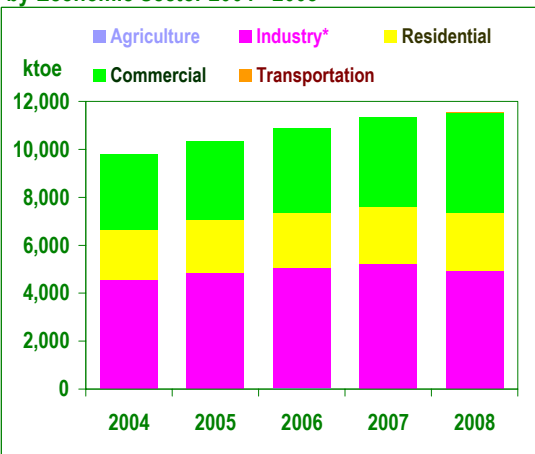
Electricity Consumption (Gwh)	2004	2005	2006	2007	2008
Total	115,044	121,229	127,811	133,178	135,449
Agriculture	224	245	240	268	282
Industry*	53,232	56,885	59,315	61,168	57,429
Residential	24,734	25,613	27,005	28,041	28,785
Commercial	36,808	38,430	41,193	43,643	48,893
Transportation	46	56	58	58	60

Consumption

Trends of Electricity Consumption by Economic Sector 2004 - 2008



Shares of Electricity Consumption by Economic Sector 2004 - 2008



*Industry = Manufacturing + Mining + Construction

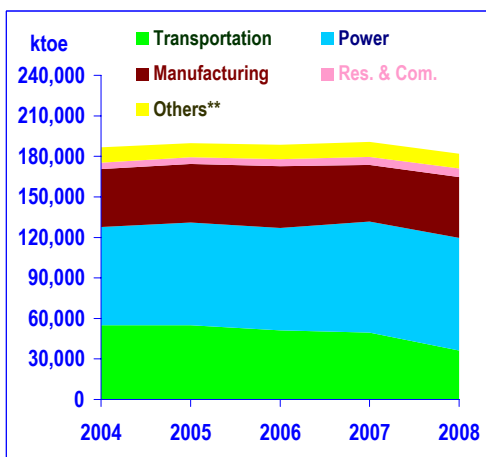
Emissions

CO₂ Emissions*

CO ₂ Emissions (10 ³ ton)	2004	2005	2006	2007	2008
Total	186,593	189,803	188,663	190,655	181,941
Transportation	55,029	54,986	51,212	49,530	36,192
Power	72,637	75,956	75,839	82,087	83,370
Manufacturing	42,973	43,450	45,555	42,151	45,007
Res. & Com.	4,713	4,988	5,345	5,848	6,388
Others**	11,241	10,423	10,712	11,039	10,984

*Excluding emission from renewable energy and international bunker oil, diesel and jet fuel.

**Including agriculture, construction and mining.



Energy Balances

Thailand Energy Commodity Account 2007

Unit : physical - unit

SUPPLY AND CONSUMPTION	Coal & Its Products (10 ³ ton)	Crude Oil* (10 ⁶ litre)	Natural Gas MMscf	Condensate & NGL (10 ⁶ litre)	Petroleum Products (10 ⁶ litre)	Hydro (Gwh)	Electricity (Gwh)	Renewable and Waste** (10 ³ ton)	Others*** (Gwh)	Black Liquor & Residual Gas (GJ)	Total
Domestic Production	18,239	8,062	917,726	4,575	-	8,114	-	59,572	3	12,334,604	
Imports	14,271	46,333	360,985	-	932	-	4,491	31	-	-	
Exports	(0)	(3,034)	-	(130)	(7,747)	-	(926)	(40)	-	-	
Stock Changes/Statistical Differences	(118)	4,032	-	(624)	(906)	-	-	-	-	-	
Total Primary Energy Supply	32,392	55,393	1,278,711	3,821	(7,721)	8,114	3,565	59,563	3	12,334,604	
Petroleum Refineries	-	(55,185)	-	(376)	44,905	-	-	-	-	-	
NG. Processing Plants	-	-	-	789	4,414	-	-	-	-	-	
Power Plants	(20,549)	-	(877,862)	-	(967)	(8,114)	143,378	(4,995)	(3)	(12,334,604)	
Other Transformation	-	-	-	-	443	-	-	(17,904)	-	-	
Total Transformation	(20,549)	(55,185)	(877,862)	413	48,795	(8,114)	143,378	(22,899)	(3)	(12,334,604)	
Own Uses	-	-	(293,556)	-	-	-	(4,496)	-	-	-	
Losses	-	(208)	-	-	-	-	(9,269)	-	-	-	
Total Final Energy Consumption	11,843	-	107,293	4,234	41,074	-	133,178	36,664	-	-	
Non - Energy Uses	-	-	-	4,234	1,135	-	-	-	-	-	
Final Energy Consumption	11,843	-	107,293	-	39,939	-	133,178	36,664	-	-	
Agriculture	-	-	-	-	3,984	-	268	-	-	-	
Industry ****	11,843	-	98,677	-	3,940	-	61,168	25,028	-	-	
Residential	-	-	-	-	2,273	-	28,041	11,636	-	-	
Commercial	-	-	-	-	1,222	-	43,643	-	-	-	
Transportation	-	-	8,616	-	28,520	-	58	-	-	-	
CO ₂ emission (unit : Mt)											191

*Including feedstocks, ethanol and biodiesel.

**Excluding biogas.

***Including geothermal, solar cell and wind power, etc.

****Including manufacturing, mining and construction.

(0) Less than 0.5.

Energy Balances

Thailand Energy Balance 2007											Unit : ktce
SUPPLY AND CONSUMPTION	Coal & Its Products	Crude Oil*	Natural Gas	Condensate & NGL	Petroleum Products	Hydro	Electricity	Renewable and Waste**	Others***	Black Liquor & Residual Gas	Total
Domestic Production	4,912	6,911	22,549	3,581	-	1,797	-	18,227	2	292	58,271
Imports	8,947	39,846	8,869	-	825	-	383	21	-	-	58,891
Exports	(0)	(2,607)	-	(102)	(6,549)	-	(79)	(27)	-	-	(9,364)
Stock Changes/Statistical Differences	7	3,468	-	(488)	(705)	-	-	-	-	-	2,282
Total Primary Energy Supply	13,866	47,618	31,418	2,991	(6,429)	1,797	304	18,221	2	292	110,080
Petroleum Refineries	-	(47,439)	-	(295)	37,290	-	-	-	-	-	(10,444)
NG. Processing Plants	-	-	(304) ****	618	2,782	-	-	-	-	-	3,096
Power Plants	(6,885)	-	(21,368)	-	(909)	(1,797)	12,217	(1,138)	(2)	(292)	(20,174)
Other Transformation	-	-	-	-	279	-	-	(5,438)	-	-	(5,159)
Total Transformation	(6,885)	(47,439)	(21,672)	323	39,442	(1,797)	12,217	(6,576)	(2)	(292)	(32,681)
Own Uses	-	-	(7,152)	-	-	-	(383)	-	-	-	(7,535)
Losses	-	(179)	-	-	-	-	(790)	-	-	-	(969)
Total Final Energy Consumption	6,981	-	2,594	3,314	33,013	-	11,348	11,645	-	-	68,895
Non - Energy Uses	-	-	-	3,314	715	-	-	-	-	-	4,029
Final Energy Consumption	6,981	-	2,594	-	32,298	-	11,348	11,645	-	-	64,866
Agriculture	-	-	-	-	3,425	-	23	-	-	-	3,448
Industry *****	6,981	-	2,386	-	3,266	-	5,212	5,936	-	-	23,781
Residential	-	-	-	-	1,435	-	2,389	5,709	-	-	9,533
Commercial	-	-	-	-	770	-	3,719	-	-	-	4,489
Transportation	-	-	208	-	23,402	-	5	-	-	-	23,615
CO ₂ emission (unit : Mt)											191

*Including feedstocks, ethanol and biodiesel.

**Excluding biogas.

***Including geothermal, solar cell and wind power, etc.

****Statistical Differences from wet and dry of NG.

*****Including manufacturing, mining and construction.

Energy Balances

Thailand Energy Commodity Account 2008										Unit : physical - unit	
SUPPLY AND CONSUMPTION	Coal & Its Products	Crude Oil*	Natural Gas	Condensate & NGL	Petroleum Products	Hydro	Electricity	Renewable and Waste**	Others***	Black Liquor & Residual Gas	Total
	(10 ³ ton)	(10 ⁶ litre)	MMscf	(10 ⁶ litre)	(10 ⁶ litre)	(Gwh)	(Gwh)	(10 ³ ton)	(Gwh)	(GJ)	
Domestic Production	17,982	9,279	1,016,238	4,983	-	7,113	-	63,352	5	11,286,122	
Imports	16,012	47,112	336,230	-	404	-	2,785	62	-	-	
Exports	(75)	(2,843)	-	(139)	(10,403)	-	(1,180)	(11)	-	-	
Stock Changes/Statistical Differences	(510)	3,855	-	(571)	(777)	-	-	-	-	-	
Total Primary Energy Supply	34,429	57,403	1,352,468	4,273	(10,776)	7,113	1,605	63,403	5	11,286,122	
Petroleum Refineries	-	(57,189)	-	(579)	46,354	-	-	-	-	-	
NG. Processing Plants	-	-	-	805	4,623	-	-	-	-	-	
Power Plants	(21,435)	-	(907,327)	-	(403)	(7,113)	147,427	(6,102)	(5)	(11,286,122)	
Other Transformation	-	-	-	-	452	-	-	(18,624)	-	-	
Total Transformation	(21,435)	(57,189)	(907,327)	226	51,026	(7,113)	147,427	(24,726)	(5)	(11,286,122)	
Own Uses	-	-	(314,738)	-	-	-	(4,629)	-	-	-	
Losses	-	(214)	-	-	-	-	(8,954)	-	-	-	
Total Final Energy Consumption	12,994	-	130,403	4,499	40,250	-	135,449	38,677	-	-	
Non - Energy Uses	-	-	-	4,499	1,338	-	-	-	-	-	
Final Energy Consumption	12,994	-	130,403	-	38,912	-	135,449	38,677	-	-	
Agriculture	-	-	-	-	3,979	-	282	-	-	-	
Industry ****	12,994	-	103,360	-	3,624	-	57,429	26,731	-	-	
Residential	-	-	-	-	2,548	-	28,785	-	-	-	
Commercial	-	-	-	-	1,273	-	48,893	11,946	-	-	
Transportation	-	-	27,043	-	27,488	-	60	-	-	-	
CO ₂ emission (unit : Mt)											182

*Including feedstocks, ethanol and biodiesel.

**Excluding biogas.

***Including geothermal, solar cell and wind power, etc.

****Including manufacturing, mining and construction.

(0) Less than 0.5.

Energy Balances

Thailand Energy Balance 2008											Unit : ktoe
SUPPLY AND CONSUMPTION	Coal & Its Products	Crude Oil*	Natural Gas	Condensate & NGL	Petroleum Products	Hydro	Electricity	Renewable and Waste**	Others***	Black Liquor & Residual Gas	Total
Domestic Production	4,743	7,944	24,969	3,900	-	1,573	-	19,279	4	267	62,679
Imports	10,026	40,516	8,261	-	364	-	237	43	-	-	59,447
Exports	(47)	(2,437)	-	(109)	(9,009)	-	(101)	(8)	-	-	(11,711)
Stock Changes/Statistical Differences	225	3,306	-	(446)	(559)	-	-	-	-	-	2,526
Total Primary Energy Supply	14,947	49,329	33,230	3,345	(9,204)	1,573	136	19,314	4	267	112,941
Petroleum Refineries	-	(49,145)	-	(453)	38,432	-	-	-	-	-	(11,166)
NG. Processing Plants	-	-	(307)	630	2,913	-	-	-	-	-	3,236
Power Plants	(7,203)	-	(22,097)	-	(376)	(1,573)	12,562	(1,414)	(4)	(267)	(20,372)
Other Transformation	-	-	-	-	285	-	-	(5,655)	-	-	(5,370)
Total Transformation	(7,203)	(49,145)	(22,404)	177	41,254	(1,573)	12,562	(7,069)	(4)	(267)	(33,672)
Own Uses	-	-	(7,673)	-	-	-	(394)	-	-	-	(8,067)
Losses	-	(184)	-	-	-	-	(763)	-	-	-	(947)
Total Final Energy Consumption	7,744	-	3,153	3,522	32,050	-	11,541	12,245	-	-	70,255
Non - Energy Uses	-	-	-	3,522	843	-	-	-	-	-	4,365
Final Energy Consumption	7,744	-	3,153	-	31,207	-	11,541	12,245	-	-	65,890
Agriculture	-	-	-	-	3,422	-	24	-	-	-	3,446
Industry *****	7,744	-	2,499	-	2,938	-	4,893	6,347	-	-	24,421
Residential	-	-	-	-	1,607	-	2,453	5,898	-	-	9,958
Commercial	-	-	-	-	802	-	4,166	-	-	-	4,968
Transportation	-	-	654	-	22,438	-	5	-	-	-	23,097
CO ₂ emission (unit : Mt)											182

*Including feedstocks, ethanol and biodiesel.

**Excluding biogas.

***Including geothermal, solar cell and wind power, etc.

****Statistical Differences from wet and dry of NG.

*****Including manufacturing, mining and construction.

Imported Prices

Average Prices of Energy Imports

TYPE	2004	2005	2006	2007	2008
Crude Oil					
1,000 Baht / toe	11.18	15.61	18.19	17.95	24.68
US.\$ / toe	276.93	386.79	478.41	517.39	736.98
US.\$ / bbl	37.86	52.89	65.41	70.77	100.77
Natural Gas					
1,000 Baht / toe	5.32	6.91	8.24	7.94	10.22
US.\$ / toe	131.74	171.32	216.61	228.80	305.34
US.\$ / 1,000 scf	3.24	4.21	5.32	5.62	7.50
Petroleum Products					
1,000 Baht / toe	10.40	14.83	17.01	18.68	24.09
US.\$ / toe	257.58	367.39	447.33	538.41	719.44
US.\$ / bbl	36.10	53.43	65.38	75.77	102.94
Coal & Its Products*					
1,000 Baht / toe	2.57	2.84	2.66	2.99	3.64
US.\$ / toe	63.54	70.48	70.03	86.10	108.65
US.\$ / ton	40.05	44.49	44.13	53.18	68.03
Electricity					
1,000 Baht / toe	19.53	19.18	19.01	19.68	18.24
US.\$ / toe	483.78	475.30	499.82	567.42	544.77
US.\$ / kWh	1.66	1.63	1.62	1.68	1.55

*Average from anthracite, bituminous, coke, briquettes, and other coal.

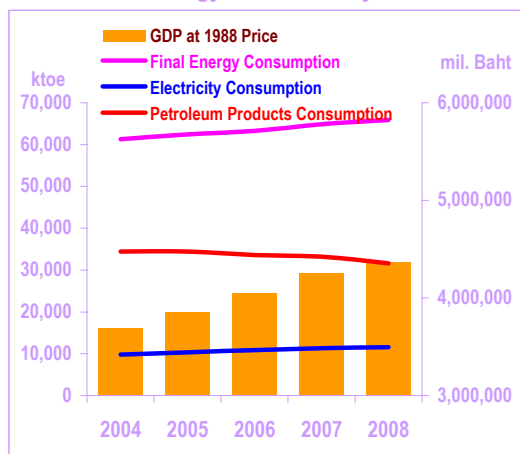
Energy and Economy

Final Energy Consumption, Electricity Consumption, Petroleum Products Consumption and GDP

Year	Final Energy Consumption (ktoe)	Electricity Consumption (ktoe)	Petroleum Products Consumption* (ktoe)	GDP at 1988 Prices (mil. Baht)
2004	61,262	9,803	34,399	3,688,189
2005	62,397	10,330	34,427	3,855,111
2006	63,257	10,891	33,596	4,052,645
2007	64,886	11,348	33,227	4,259,633 ^p
2008	65,890	11,541	31,583	4,369,481 ^p

*Including petroleum products consumption for electricity generation.

Relations of Energy and Economy

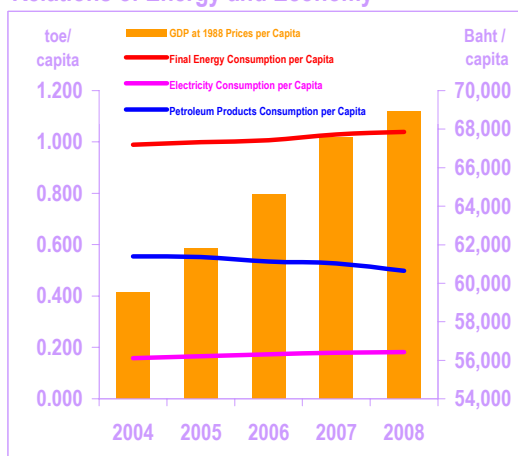


Energy and Economy

Energy Consumption Per Capita

Year	GDP at 1988 Prices per Capita (Baht/capita)	Final Energy Consumption per Capita (toe/capita)	Electricity Consumption per Capita (toe/capita)	Petroleum Products Consumption per Capita (toe/capita)
2004	59,513	0.989	0.158	0.555
2005	61,809	1.000	0.166	0.552
2006	64,614	1.007	0.173	0.535
2007	67,573	1.029	0.180	0.527
2008	68,930	1.039	0.182	0.498

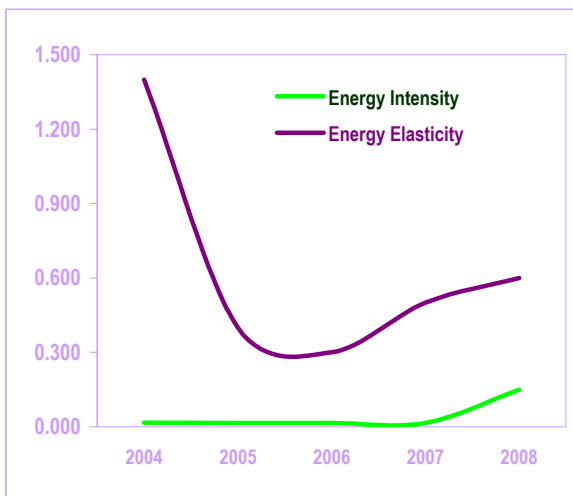
Relations of Energy and Economy



Energy and Economy

Energy Intensity & Elasticity

Year	GDP at 1988 Prices (million Baht)	Final Energy Consump- tion (ktoe)	Energy Intensity (ktoe / million Baht)	Energy Elasticity	% Change of GDP	% Change of Consump- tion
2004	3,688,189	61,262	0.017	1.4	6.3	8.8
2005	3,855,111	62,397	0.016	0.4	4.5	1.9
2006	4,052,645	63,257	0.016	0.3	5.1	1.4
2007	4,259,633 ^P	64,886	0.015	0.5	5.1	2.6
2008	4,369,481 ^P	65,890	0.015	0.6	2.6	1.6



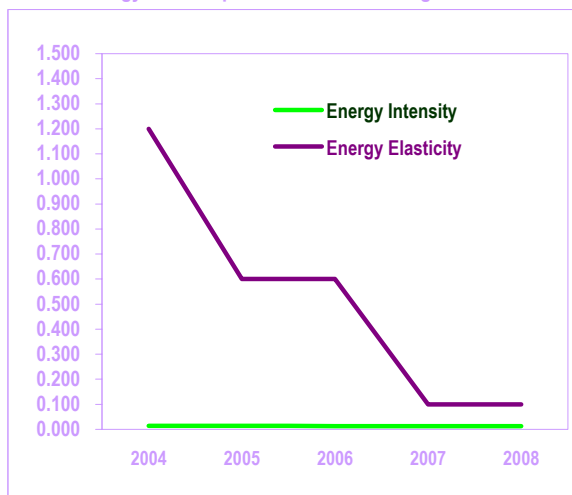
Energy and Economy

Energy Intensity & Elasticity (Manufacturing)

Year	GDP at 1988 Prices* (million Baht)	Final Energy Consump- tion** (ktoe)	Energy Intensity (ktoe / million Baht)	Energy Elasticity	% Change of GDP*	% Change of Consump- tion**
2004	1,595,965	22,263	0.014	1.2	8.0	9.9
2005	1,681,772	22,920	0.014	0.6	5.4	3.0
2006	1,778,578	23,711	0.013	0.6	5.8	3.5
2007	1,881,754 ^P	23,781	0.013	0.1	5.8	0.3
2008	1,945,176 ^P	24,421	0.013	0.1	3.4	0.3

*GDP at 1988 prices for Manufacturing.

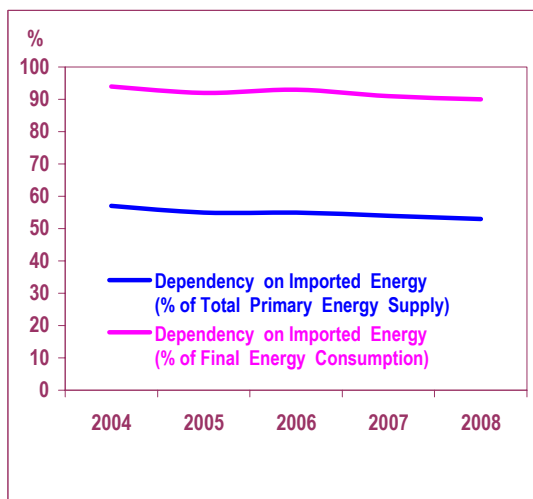
** Final Energy Consumption for Manufacturing.



Energy Indicators

Proportion of Imported Energy Dependency

Year	Total Primary Energy Supply (ktoe)	Final Energy Consumption (ktoe)	Energy Imports (ktoe)	Dependency on Imported Energy (% of Total Primary Energy Supply) (%)	Dependency on Imported Energy (% of Final Energy Consumption) (%)
2004	100,506	61,262	57,714	57	94
2005	103,420	62,397	57,333	55	92
2006	106,006	63,257	58,755	55	93
2007	110,086	64,886	58,891	54	91
2008	112,957	65,890	59,446	53	90



Energy Indicators

Energy Values

Energy Values (thousand mil. Baht)	2004	2005	2006	2007	2008
1. Energy Imports	561	753	873	835	1,134
Petroleum	543	731	846	801	1,093
Coal & Its Products	12	15	19	26	37
Electricity	6	7	8	8	4
New & Renewable Energy	0	0	0	0	0
2. Energy Exports	110	154	197	177	284
Petroleum	109	153	195	175	281
Electricity	1	1	2	2	3
New & Renewable Energy	0	0	0	0	0
3. Net Energy Imports	451	599	676	658	850
4. Commodity Imports	3,801	4,754	4,943	4,872	5,944
5. Commodity Exports	3,875	4,439	4,937	5,302	5,854
6. GDP (at Current Market Prices)	6,489	7,093	7,841	8,493	9,103
7. Energy Import Value as a Percentage of					
GDP	8.6	10.6	11.1	9.8	12.5
Commodity Import	14.8	15.8	17.7	17.1	19.1
Commodity Export	14.5	17.0	17.7	15.7	19.4
8. Final Energy Consumption Value	970	1,184	1,357	1,383	1,593

Note : Data shown as "0" means figure is less than 0.5.

Energy Indicators

Key Energy Indicators

	2004	2005	2006	2007	2008
1. Primary Energy Supply (ktoe)	100,506	103,420	106,006	110,086	112,957
Growth(%)	8.7	2.9	2.5	3.9	2.6
Per capita(toe/capita)	1.6	1.7	1.7	1.7	1.8
2. Final Energy Consumption (ktoe)	61,262	62,397	63,257	64,866	65,890
Growth(%)	8.8	1.9	1.4	2.5	1.6
Per capita(toe/capita)	1.0	1.0	1.0	1.0	1.0
3. GDP at 1988 prices (thousand mil. Baht)	3,688	3,858	4,060	4,260	4,370
Growth(%)	6.3	4.6	5.2	4.9	2.6
Per capita(Baht/capita)	59,510	61,809	64,020	67,578	68,938
4. Petroleum Products (million litres)	39,859	39,653	38,916	39,961	38,912
Growth(%)	7.1	(0.5)	(1.9)	2.7	(2.6)
Per capita(litres/capita)	643	635	619	634	614
5. Electricity (Gwh)	115,044	121,229	127,811	133,178	135,449
Growth(%)	7.6	5.4	5.4	4.2	1.7
Per capita(kwh/capita)	1,856	1,942	2,034	2,113	2,137
6. Value of Net Energy Imports(mil. Baht)	451,182	599,705	676,869	658,175	850,066
Growth(%)	37.0	32.9	12.9	(2.8)	29.2
Per capita(Baht/capita)	7,280	9,607	10,773	10,441	13,410
7. Value of Final Energy Consumption(mil. Baht)	969,953	1,184,407	1,357,411	1,382,692	1,592,675
Growth(%)	14.3	22.1	14.6	1.9	15.2
Per capita(Baht/capita)	15,651	18,975	21,605	21,934	25,125
8. Energy Intensity (ktoe / mil. Baht)	0.017	0.016	0.016	0.015	0.150
9. Energy Elasticity	1.397	0.422	0.275	0.510	0.615
10. Populations(mil. inhabitants)	61,973	62,418	62,829	63,038	63,390

International Comparisons

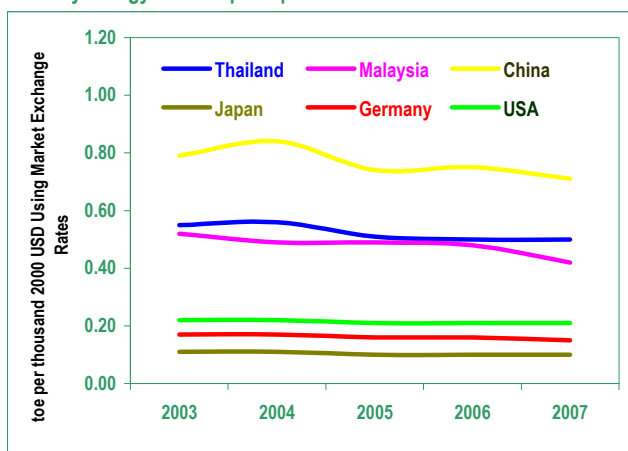
International Comparisons 2007

	Thailand	Malaysia	China	Japan	Germany	USA
Population mil.Inhabitants	63.8	26.5	1,327.0	127.8	82.3	302.1
Gross Domestic Products (GDP) in bil 2000 USD	173.2	133.0	2,623.0	5,205.0	2,065.4	11,468.0
Primary Energy Consumption Mtoe	86.0	56.4	1,862.8	515.8	309.3	2,359.6
Primary Energy Consumption/GDP toe/ thousand 2000 USD	0.50	0.42	0.71	0.10	0.15	0.21
Primary Energy Consumption toe/capita	1.3	2.1	1.4	4.0	3.8	7.8
Electricity Consumption kWh/capita	2,157.0	3,668.0	2,346.0	8,475.0	7,185.0	13,616.0
CO ₂ Emission tons/capita	3.5	6.7	4.6	9.7	9.7	19.1

Source : IEA's Key World Energy Statistics 2009

Bp Statistical Review of World Energy 2009

Primary Energy Consumption per USD of GDP



Conversion Factors

TYPE OF ENERGY AND FUEL		UNIT	toe/ 10 ⁶ unit
COMMERCIAL ENERGY			
1.	Crude Oil	litre	860.00
2.	Condensate	litre	782.72
3.	Natural Gas	scf.	24.18
4.	Petroleum Products		
4.1	LPG	litre	630.14
4.2	Gasoline	litre	745.07
4.3	Kerosene	litre	817.40
4.4	Aviation Fuel	litre	817.40
4.5	Diesel	litre	861.98
4.6	Fuel Oil	litre	941.24
4.7	Bitumen	litre	974.93
5.	Electricity	kWh	85.21
6.	Coal (Import)	kg.	624.19
7.	Coke	kg.	653.92
8.	Anthracite	kg.	743.09
9.	Lignite	kg.	247.70
RENEWABLE ENERGY			
1.	Fuel Wood	kg.	378.48
2.	Charcoal	kg.	683.64
3.	Paddy Husk	kg.	340.83
4.	Bagasse	kg.	178.34
5.	Garbage	kg.	114.93
6.	Saw Dust	kg.	257.60
7.	Agricultural Waste	kg.	300.21
General			
1 kcal	=	4186	Joules
	=	3.968	Btu
1 toe	=	10.093	Gcal
	=	42.244	GJ
	=	40.047 x 10 ⁶	Btu
1 barrel	=	158.99	Litres

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