

Thailand

Energy Statistics

2005



Department of Alternative Energy Development and Efficiency

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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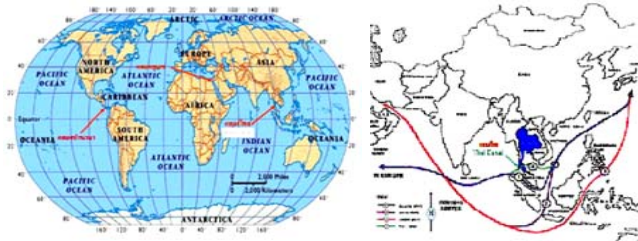
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Abbreviations

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

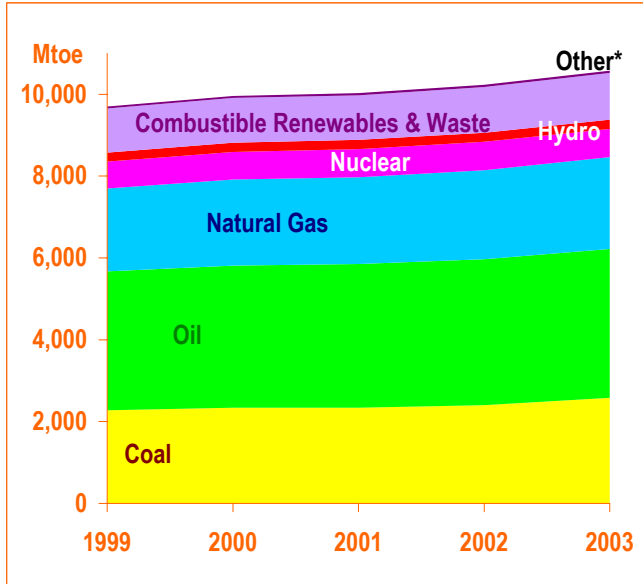
General Information on Thailand 2005^e



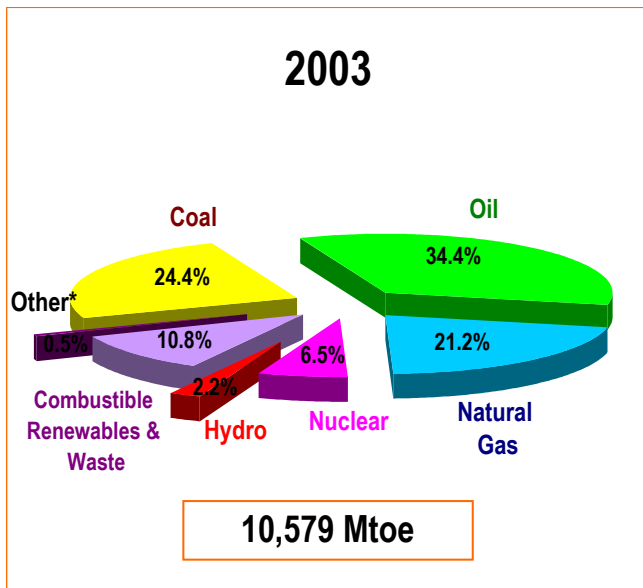
Area	:	513,115 km ²
Population	:	62,418 thousand
Number of Provinces	:	76
Number of Households	:	19,016,784
Average Size of Households	:	3.3 persons
GDP (1988 Prices)	:	3,843 10 ⁹ Baht
GDP Growth	:	4.7 %
GDP per capita	:	61,569 Baht/capita
GDP per household	:	202,085 Baht/household
Export	:	4,437 10 ⁹ Baht
Import	:	4,756 10 ⁹ Baht
Currency	:	1 USD = 40.36 Baht

World Energy

Total Primary Energy Supply by Fuel



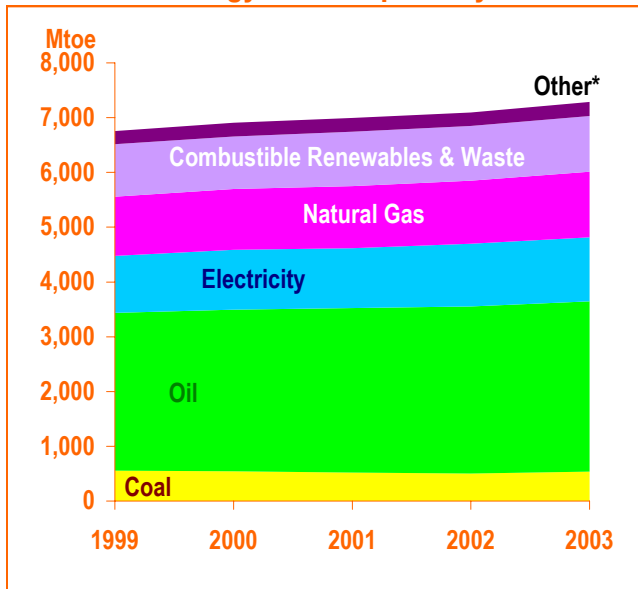
Source : IEA's Key World Energy Statistics 2005



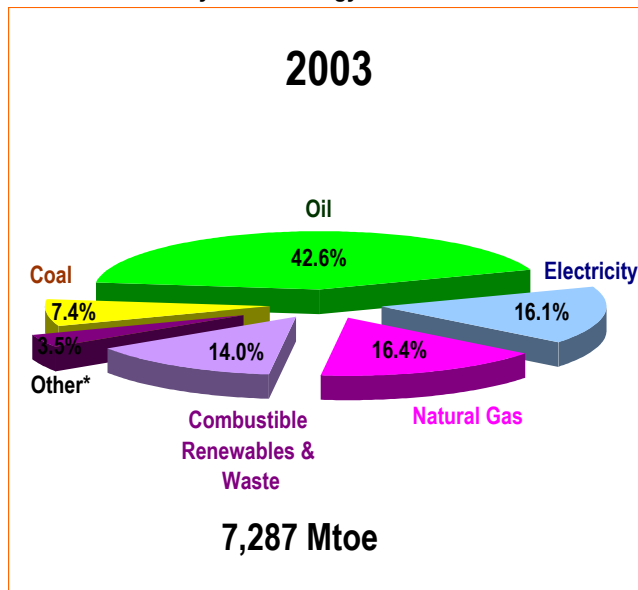
* Others include geothermal, solar, wind and heat, etc.

World Energy

Total Final Energy Consumption by Fuel



Source : IEA's Key World Energy Statistics 2005⁶



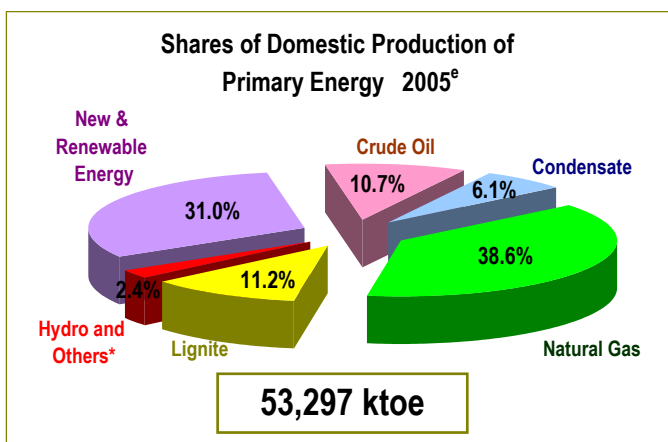
* Others include geothermal, solar, wind and heat, etc.

Production

Domestic Production of Primary Energy

Domestic Production of Primary Energy (ktoe)	2001	2002	2003	2004	2005 ^e
Total	42,543	45,227	48,149	49,838	53,297
Commercial Energy	29,518	31,413	33,345	33,808	36,799
Crude Oil	3,091	3,785	4,782	4,297	5,696
Condensate	2,350	2,437	2,882	3,115	3,281
Natural Gas	17,035	17,846	18,809	19,446	20,554
Lignite	5,645	5,689	5,254	5,610	5,983
Hydro and Others*	1,397	1,656	1,618	1,340	1,285
New & Renewable Energy	13,025	13,814	14,804	16,030	16,498

*Others include geothermal, solar cell and wind power.



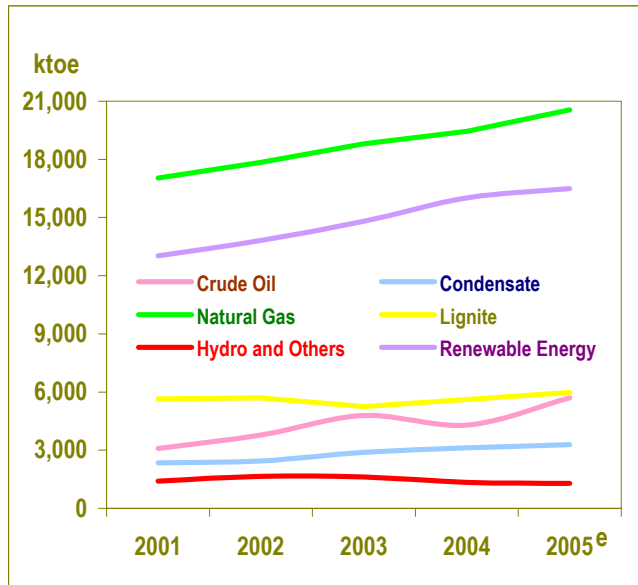
Domestic Production of Primary Energy

(Physical unit)

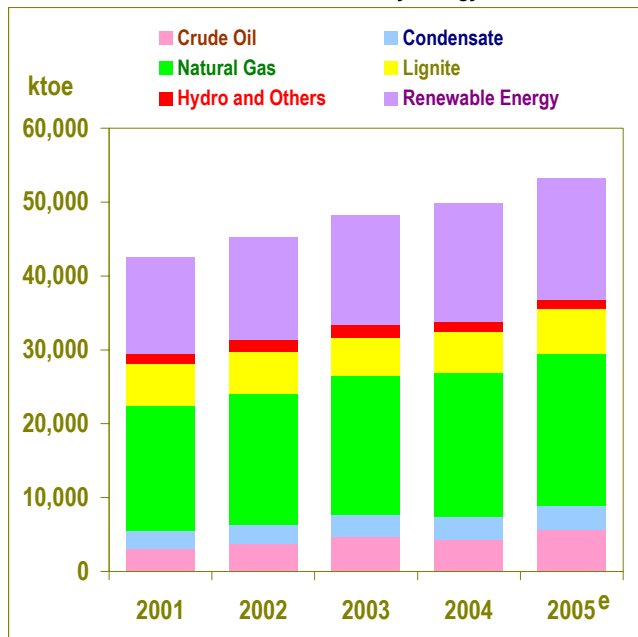
Domestic Production of Primary Energy	2001	2002	2003	2004	2005 ^e
Commercial Energy					
Crude Oil (mill. Litres)	3,594	4,401	5,561	4,997	6,624
Condensate (mill. Litres)	3,002	3,114	3,682	3,980	4,191
Natural Gas (MMscf)	693,304	726,349	765,510	791,470	836,555
Lignite (10 ³ ton)	19,617	19,602	18,843	20,060	20,878
Hydro and Others* (Gwh)	6,305	7,473	7,301	6,042	5,803
New & Renewable Energy (10³ ton)	41,192	45,156	49,258	52,627	53,616

Production

Trends of Domestic Production of Primary Energy 2001 - 2005^e



Shares of Domestic Production of Primary Energy 2001 - 2005^e

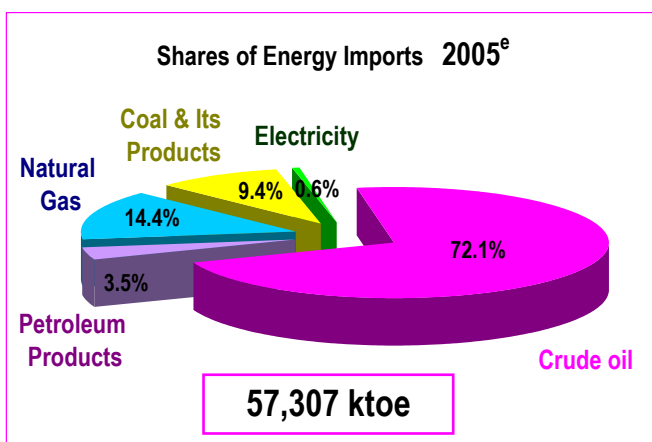


Imports & Exports

Energy Imports

Energy Imports* (ktoe)	2001	2002	2003	2004	2005 ^e
Commercial Energy	44,981	47,445	51,299	57,691	57,307
Crude Oil	35,592	36,359	38,721	43,535	41,308
Petroleum Products	388	818	860	1,511	1,980
Natural Gas	5,644	6,465	7,006	7,607	8,236
Coal & Its Products	3,111	3,564	4,501	4,749	5,411
Electricity	246	239	211	289	372

*Energy imports exclude renewable energy.



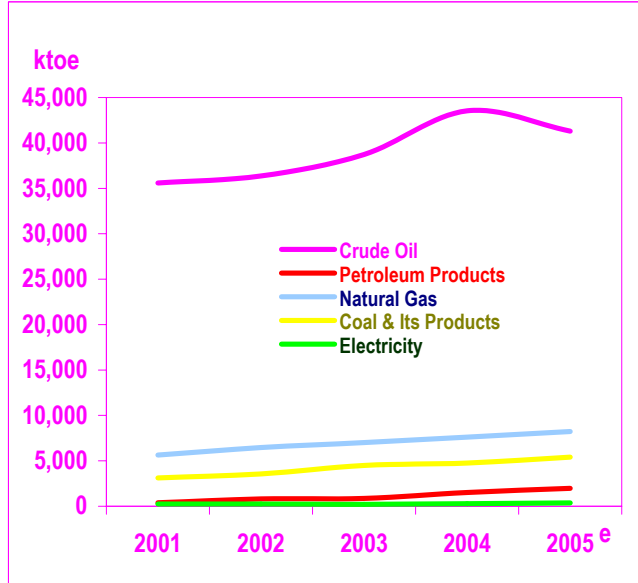
Energy Imports

(Physical unit)

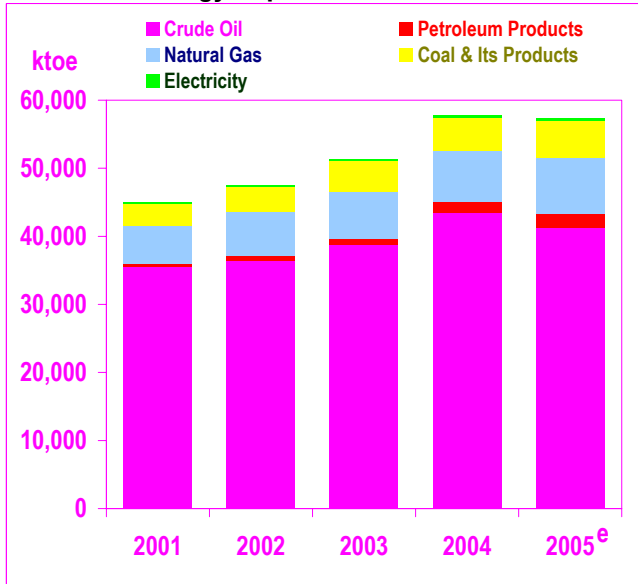
Energy Imports	2001	2002	2003	2004	2005 ^e
Commercial Energy					
Crude Oil (mil. litres)	41,386	42,278	45,025	50,622	48,032
Petroleum Products (mil. litres)	470	981	998	1,715	2,165
Natural Gas (MMscf)	229,719	263,120	285,125	309,587	335,188
Coal & Its Products (10 ³ ton)	4,937	5,596	7,107	7,536	8,572
Electricity (Gwh)	2,881	2,812	2,479	3,388	4,370

Imports & Exports

Trends of Energy Imports 2001 - 2005^e



Shares of Energy Imports 2001-2005^e

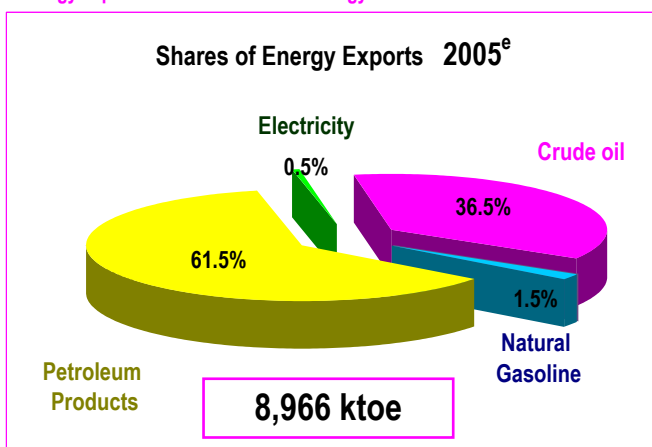


Imports & Exports

Energy Exports

Energy Exports* (ktoe)	2001	2002	2003	2004	2005 ^e
Commercial Energy	7,488	8,191	7,945	8,385	8,966
Crude Oil	1,826	2,434	3,026	2,827	3,273
Condensate	-	228	-	-	-
Natural Gasoline	81	44	38	59	135
Petroleum Products	5,558	5,462	4,856	5,467	5,515
Electricity	23	23	25	32	43

*Energy exports exclude renewable energy.



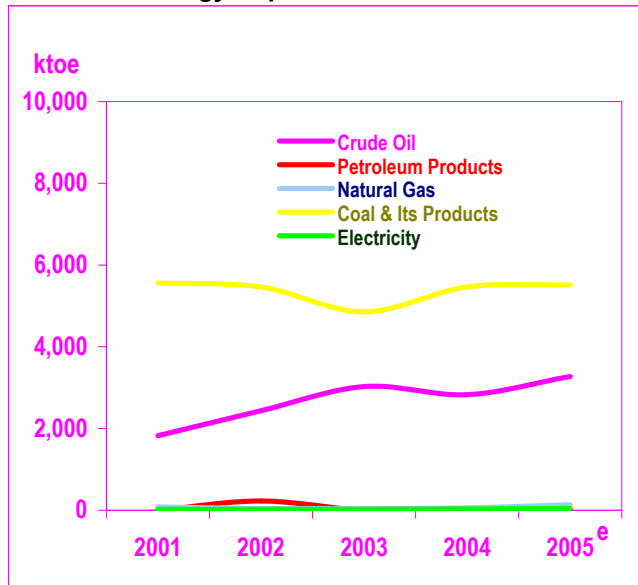
Energy Exports

(Physical unit)

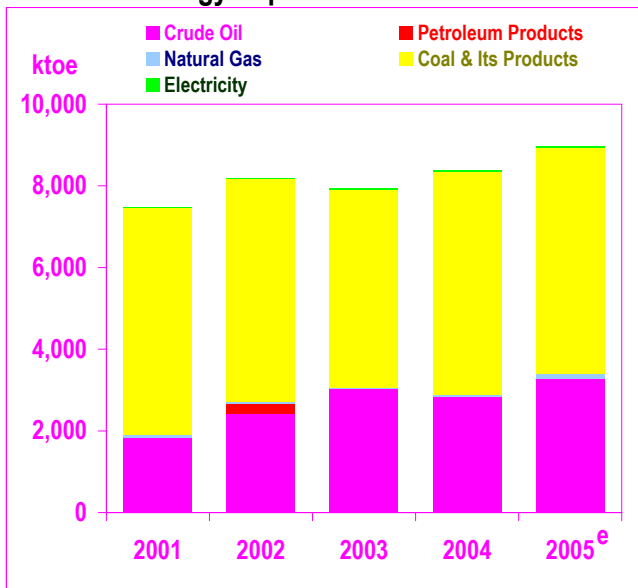
Energy Exports	2001	2002	2003	2004	2005 ^e
Commercial Energy					
Crude Oil (mil. litres)	2,123	2,830	3,519	3,287	3,806
Condensate (mil. litres)	-	291	-	-	-
Natural Gasoline (MMscf)	104	56	48	76	172
Petroleum Products (mil. litres)	6,941	6,838	6,130	6,894	7,091
Electricity (Gwh)	267	273	296	372	501

Imports & Exports

Trends of Energy Exports 2001 - 2005^e



Shares of Energy Exports 2001-2005^e

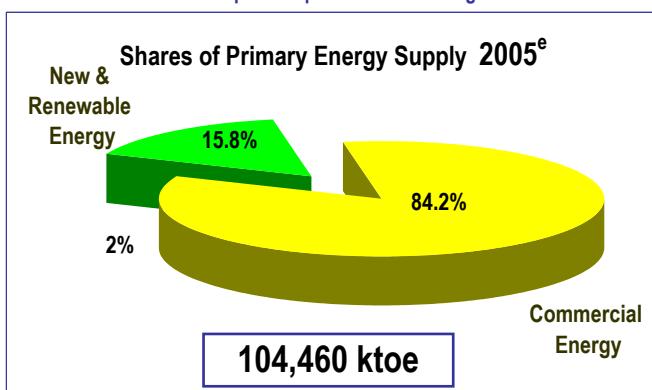


Supply

Primary Energy Supply

Primary Energy Supply (ktoe)	2001	2002	2003	2004	2005 ^e
Total*	80,307	85,854	92,491	100,193	104,460
Commercial Energy	67,276	72,033	77,673	84,143	87,941
Crude Oil	37,594	39,431	42,635	46,685	45,698
Condensate & NGL	2,308	2,079	2,618	2,712	2,600
Natural Gas	22,679	24,311	25,815	27,053	28,790
Coal & Its Products	8,816	9,219	9,405	10,575	11,776
Petroleum Products	-5,741	-4,879	-4,604	-4,479	-2,537
Electricity	1,620	1,872	1,804	1,597	1,614
New & Renewable Energy	13,031	13,821	14,818	16,050	16,519

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



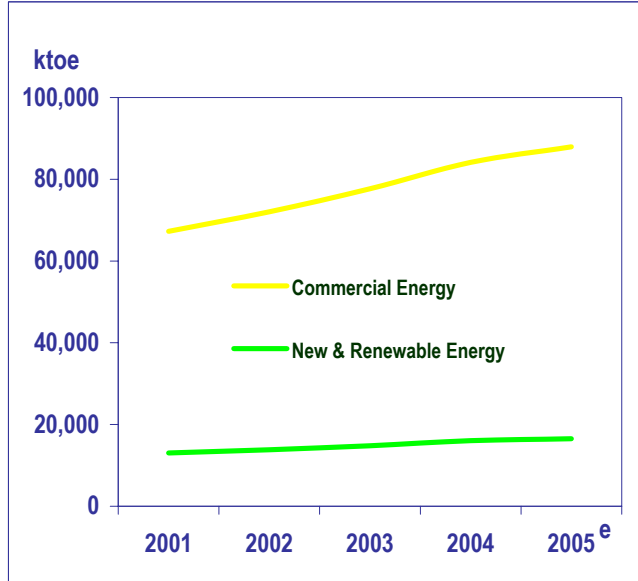
Primary Energy

(Physical unit)

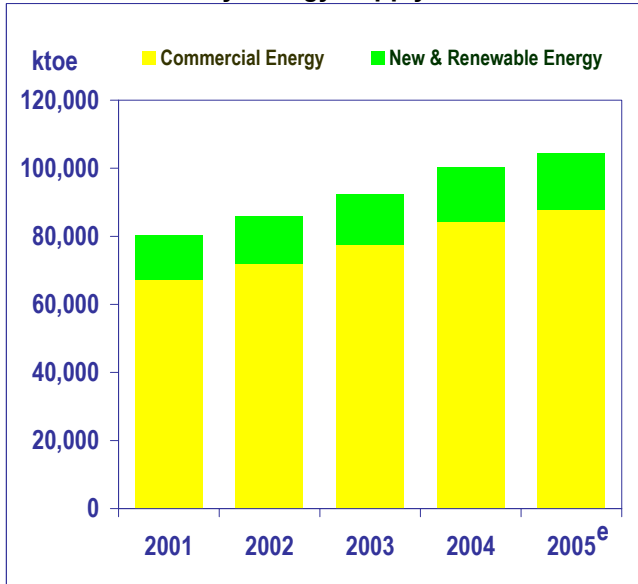
Primary Energy Supply (ktoe)	2001	2002	2003	2004	2005 ^e
Commercial Energy					
Crude Oil (mil. litres)	43,714	45,850	49,576	54,285	53,138
Condensate & NGL (mil. litres)	2,949	2,657	3,345	3,464	3,322
Natural Gas (Bcf)	923,023	989,469	1,051	1,101	1,172
Coal & Its Products (10 ³ ton)	24,869	25,136	25,071	28,084	29,578
Petroleum Products (mil. litres)	-7,141	-6,103	-5,832	-5,869	-2,507
Electricity (Gwh)	8,919	10,012	9,484	9,058	9,672
New & Renewable Energy (10³ ton)	41,201	45,167	49,278	52,656	53,647

Supply

Trends of Primary Energy Supply 2001 - 2005^e



Shares of Primary Energy Supply 2001-2005^e



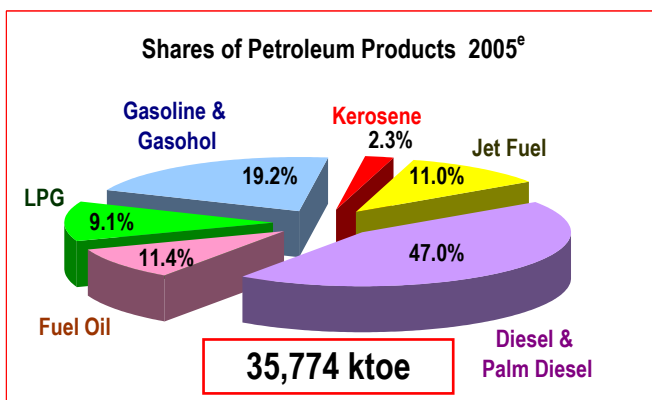
Transformation

Petroleum Products

Petroleum Products* (ktoe)	2001	2002	2003	2004	2005 ^e
Total	33,493	34,081	35,523	37,658	35,774
LPG	3,783	3,714	3,894	4,159	3,250
Gasoline & Gasohol	6,196	6,147	6,435	6,674	6,878
Kerosene	480	453	575	920	835
Jet Fuel	3,386	3,812	3,464	3,774	3,952
Diesel & Palm Diesel	14,269	14,940	16,110	17,407	16,796
Fuel Oil	5,379	5,015	5,045	4,724	4,063

*Including petroleum products from petroleum refineries & NG

processing plants



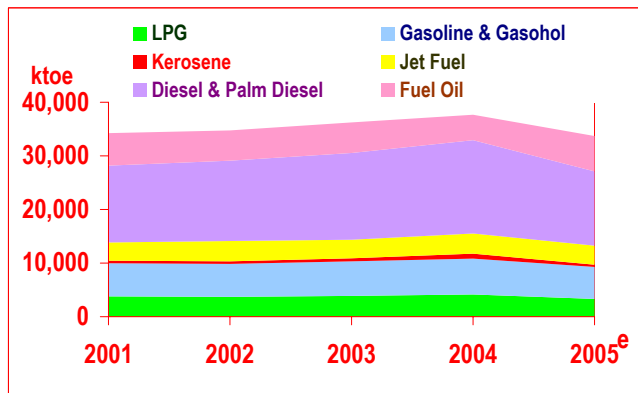
Petroleum Products

(Physical unit)

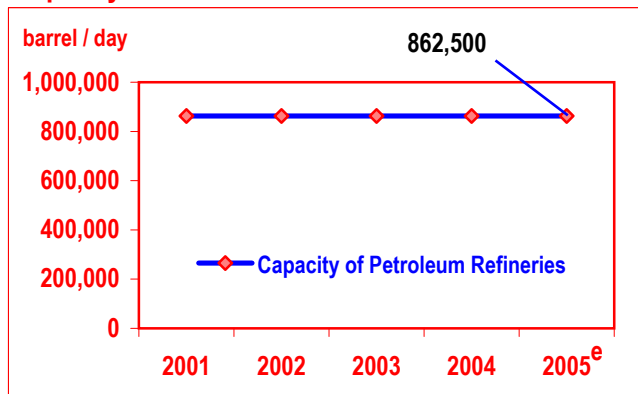
Petroleum Products* (mil.litres)	2001	2002	2003	2004	2005 ^e
Total	41,320	42,023	43,810	46,514	44,116
LPG	6,004	5,894	6,180	6,601	5,225
Gasoline & Gasohol	8,317	8,251	8,638	8,958	9,231
Kerosene	587	554	704	1,125	1,022
Jet Fuel	4,142	4,664	4,238	4,617	4,835
Diesel & Palm Diesel	16,555	17,332	18,690	20,194	19,486
Fuel Oil	5,715	5,328	5,360	5,019	4,317

Transformation

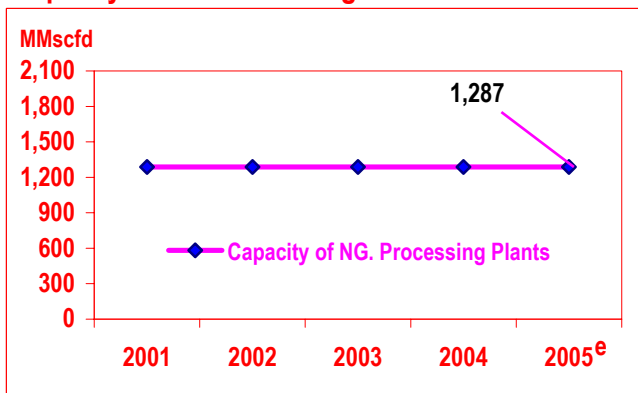
Trends of Petroleum Products 2001 - 2005^e



Capacity of Petroleum Refineries



Capacity of NG. Processing Plants

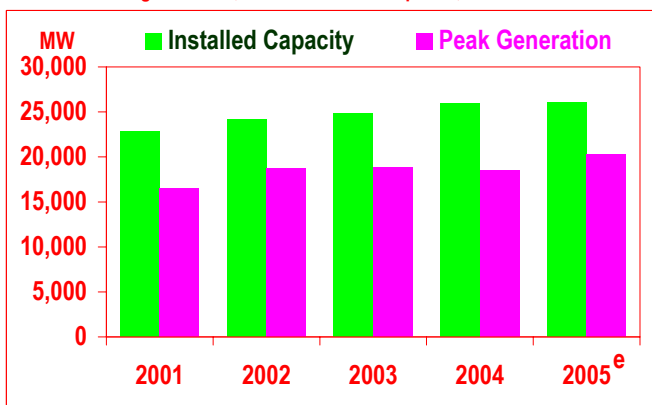


Transformation

Electricity (Installed Capacity)

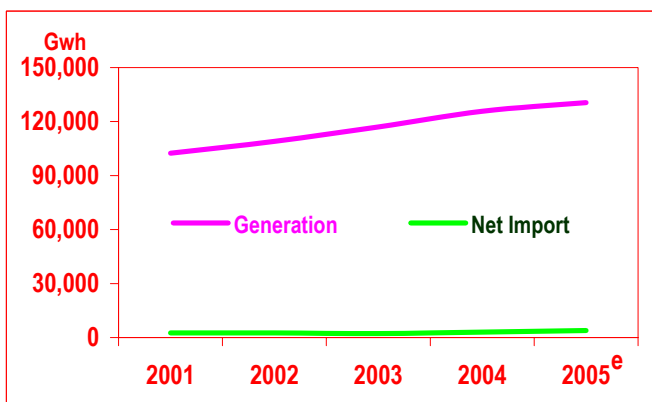
Installed Capacity (MW)	2001	2002	2003	2004	2005 ^e
Thermal Plants	19,951	21,220	21,831	22,430	22,634
Hydro Power	2,936	2,936	2,973	3,476	3,476
Other*	1	1	1	1	1

* Other include geothermal, solar cell and wind power, etc.



Electricity (National Grid Generation)

Electricity (Gwh)	2001	2002	2003	2004	2005 ^e
Total	105,034	111,552	119,166	128,743	134,421
Generation	102,420	109,013	116,983	125,727	130,552
Net Import	2,614	2,539	2,183	3,016	3,869

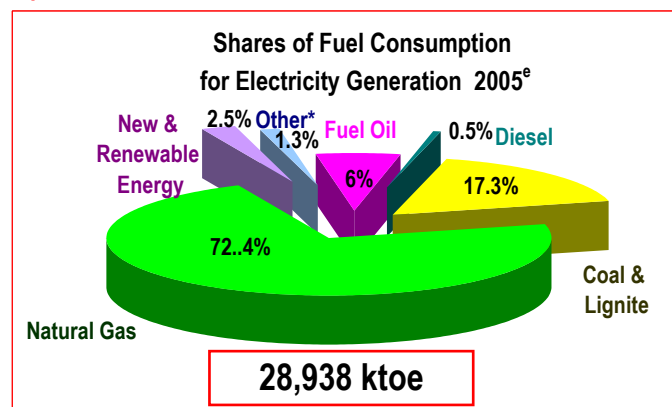


Transformation

Fuel Consumption for Electricity Generation

Fuel Consumption (ktoe)	2001	2002	2003	2004	2005 ^e
Total	22,822	24,072	25,543	27,316	28,938
Fuel Oil	659	617	664	1,611	1,744
Diesel	72	40	45	104	155
Coal & Lignite	4,439	4,335	4,418	4,657	4,989
Natural Gas	17,239	18,526	19,465	19,912	20,942
New & Renewable Energy	344	499	712	730	730
Other*	69	55	239	302	378

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



Electricity (Fuel Consumption)

(Physical unit)

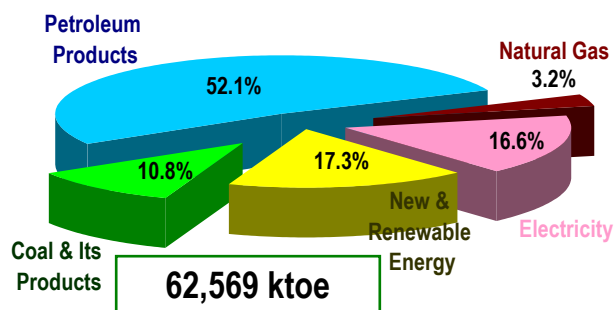
Fuel Consumption	2001	2002	2003	2004	2005 ^e
Fuel Oil (mil.litres)	700	656	705	1,711	1,852
Diesel (mil.litres)	83	47	52	121	180
Coal & Lignite (10 ³ ton)	16,625	15,954	16,353	17,426	17,460
Natural Gas (MMscf)	705,827	758,169	796,614	818,264	859,177
New & Renewable Energy (10 ³ ton)	1,465	2,248	3,067	3,076	3,085
Other* (TJ)	2,925	2,318	10,104	12,776	15,971

Consumption

Final Energy Consumption by Fuel

Final Energy Consumption (ktoe)	2001	2002	2003	2004	2005 ^e
Total	49,542	52,979	56,289	61,262	62,569
Coal & Its Products	4,377	4,884	4,987	5,918	6,787
Petroleum Products	27,300	28,765	30,447	32,684	32,576
Natural Gas	1,558	1,751	1,990	2,341	1,977
Electricity	7,864	8,536	9,114	9,803	10,405
New & Renewable Energy	8,443	9,043	9,751	10,516	10,824

Shares of Final Energy Consumption
by Fuel 2005^e



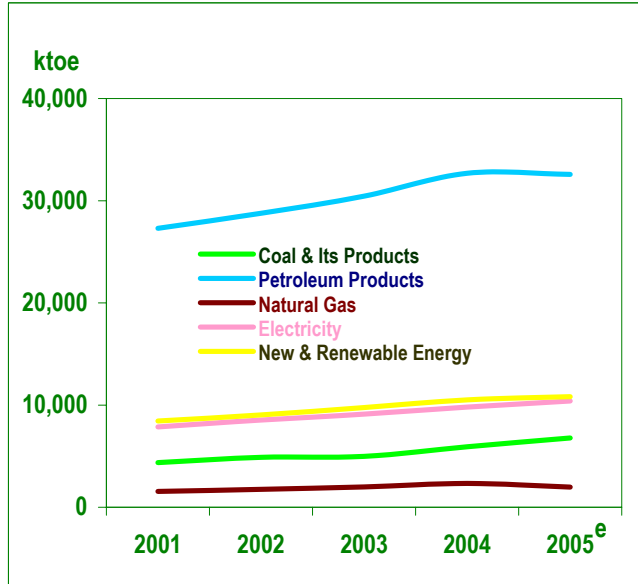
Final Energy Consumption by Fuel

(Physical unit)

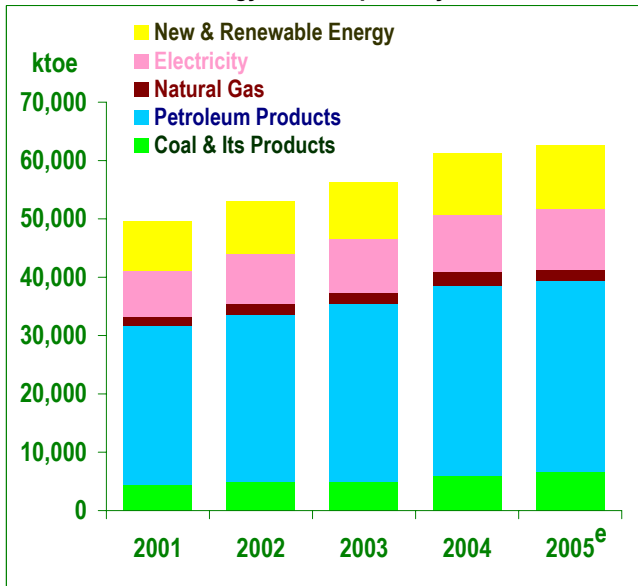
Final Energy Consumption	2001	2002	2003	2004	2005 ^e
Coal & Its Products (10 ³ ton)	8,244	9,182	8,718	10,658	12,118
Petroleum Products (mil. Litres)	33,461	35,227	37,129	39,859	40,560
Natural Gas (MMscf)	64,426	72,414	82,280	96,825	81,782
Electricity (Gwh)	92,290	100,173	106,959	115,044	122,110
New & Renewable Energy (10 ³ ton)	25,770	28,840	31,888	33,769	34,231

Consumption

Trends of Final Energy Consumption by Fuel 2001 - 2005^e



Shares of Final Energy Consumption by Fuel 2001-2005^e



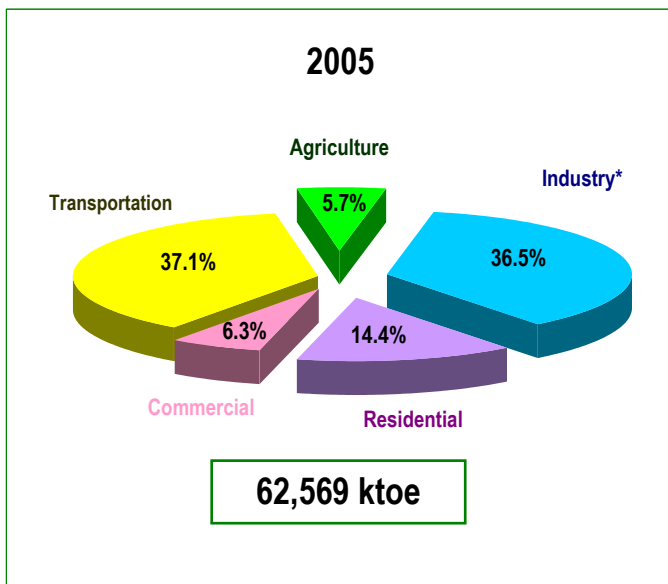
Consumption

Final Energy Consumption by Economic Sector

Final Energy Consumption (ktoe)	2001	2002	2003	2004	2005 ^e
Total	49,542	52,979	56,289	61,262	62,569
Agriculture	2,847	3,032	3,308	3,520	3,566
Industry*	17,143	18,934	20,255	22,263	22,838
Residential	7,483	7,909	8,173	8,801	8,986
Commercial	3,437	3,468	3,626	3,866	3,942
Transportation	18,632	19,636	20,927	22,812	23,237

*Industry = Manufacturing + Mining + Construction

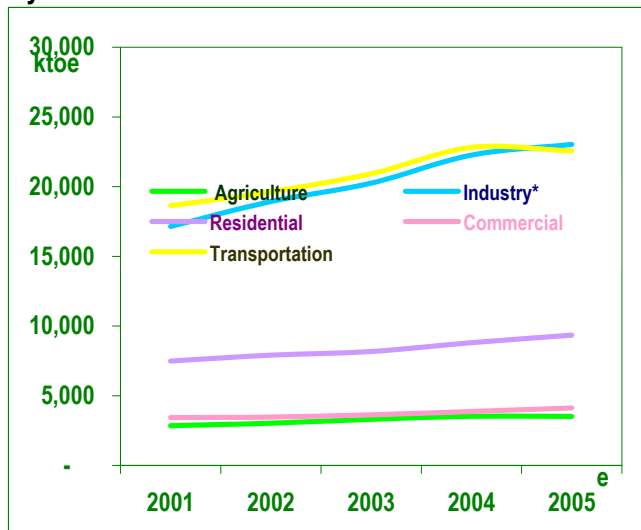
Shares of Final Energy Consumption by Economic Sector 2005^e



Consumption

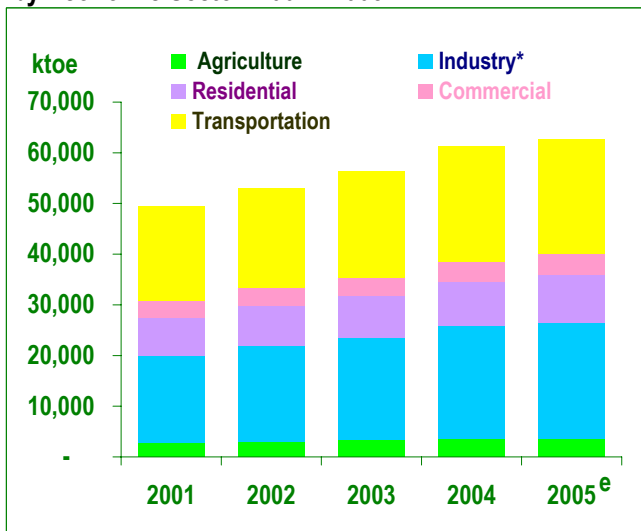
Trends of Final Energy Consumption

by Economic Sector 2001 - 2005^e



Shares of Final Energy Consumption

by Economic Sector 2001 - 2005^e



*Industry = Manufacturing + Mining + Construction

Consumption

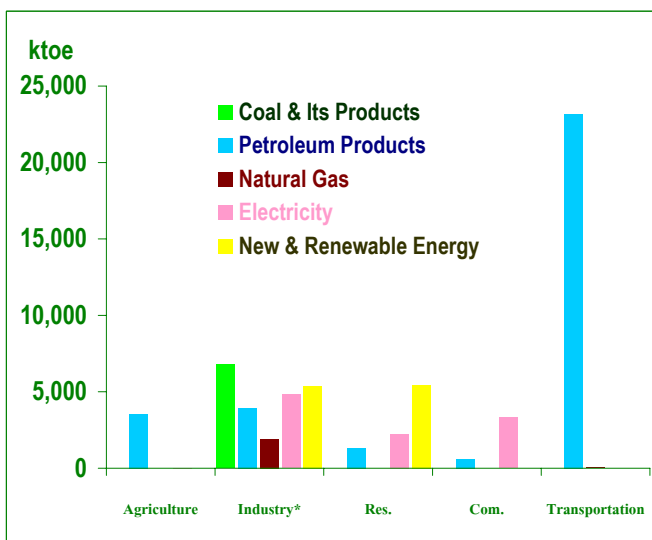
Final Energy Consumption for Economic Sector

by Fuel 2005^e

Final Energy Consumption (ktoe)	Agriculture	Industry*	Res.	Com.	Transportation	Total
Coal & Its Products	-	6,787	-	-	-	6,787
Petroleum Products	3,546	3,927	1,306	613	23,184	32,576
Natural Gas	-	1,928	-	-	49	1,977
Electricity	20	4,814	2,238	3,329	4	10,405
New & Renewable Energy	-	5,382	5,442	-	-	10,824
Total	3,566	22,838	8,986	3,942	23,237	62,569

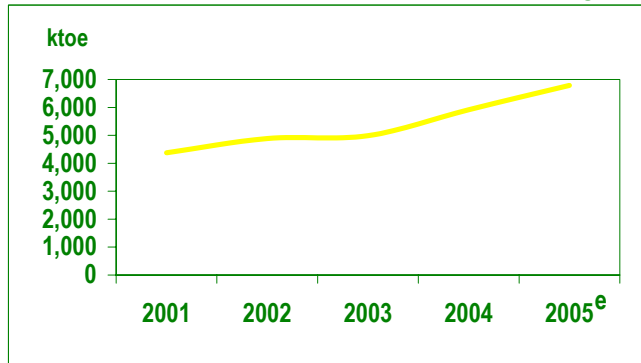
*Industry = Manufacturing + Mining + Construction

Shares of Final Energy Consumption for Economic Sector by Fuel 2005^e

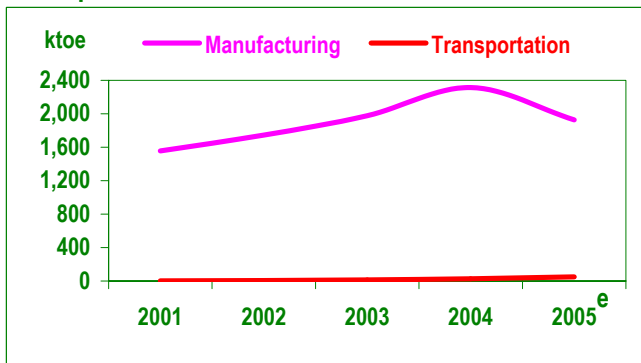


Consumption

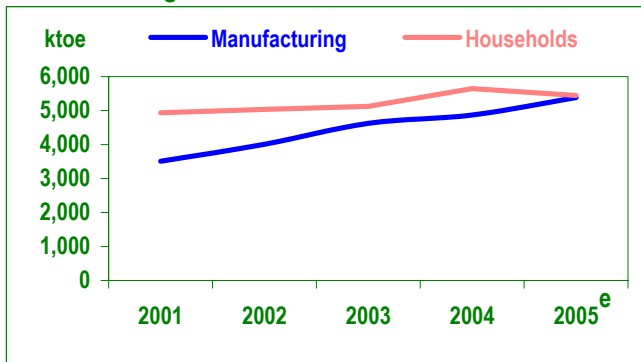
Coal & Its Products Consumption in Manufacturing



Natural Gas Consumption in Manufacturing and Transportation



New & Renewable Energy Consumption in Manufacturing and Households

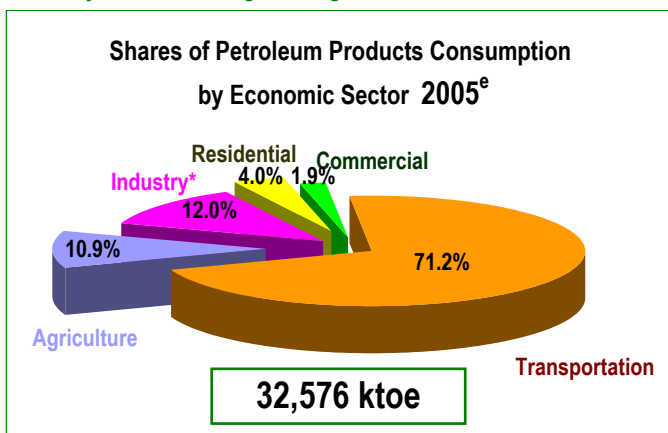


Consumption

Petroleum Products Consumption by Economic Sector

Petroleum Products (ktoe)	2001	2002	2003	2004	2005 ^e
Total	27,300	28,765	30,447	32,684	32,576
Agriculture	2,832	3,015	3,289	3,501	3,546
Industry*	4,132	4,401	4,485	4,626	3,927
Residential	753	989	1,045	1,046	1,306
Commercial	956	733	717	730	613
Transportation	18,627	19,627	20,911	22,781	23,184

*Industry = Manufacturing + Mining + Construction



Petroleum Products Consumption by Economic Sector

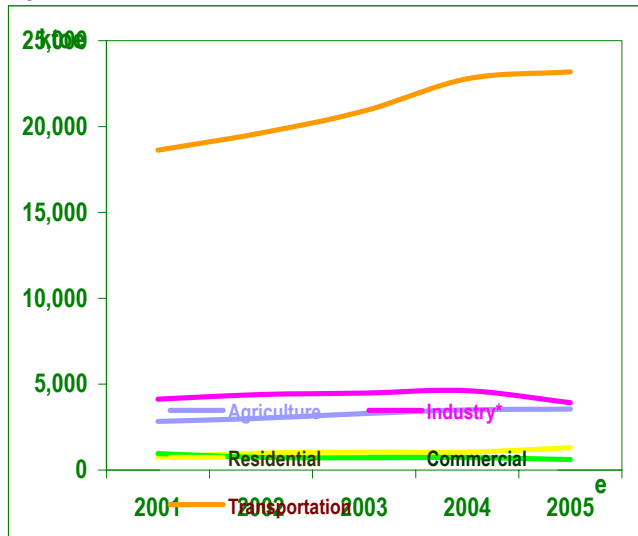
(Physical unit)

Petroleum Products (million litres)	2001	2002	2003	2004	2005 ^e
Total	33,461	35,227	37,229	39,859	40,560
Agriculture	3,295	3,509	3,827	3,982	4,196
Industry*	4,682	5,009	5,135	5,300	4,611
Residential	1,193	1,557	1,657	1,659	2,112
Commercial	1,515	1,172	1,135	1,154	991
Transportation	22,776	23,980	25,475	27,764	28,650

Consumption

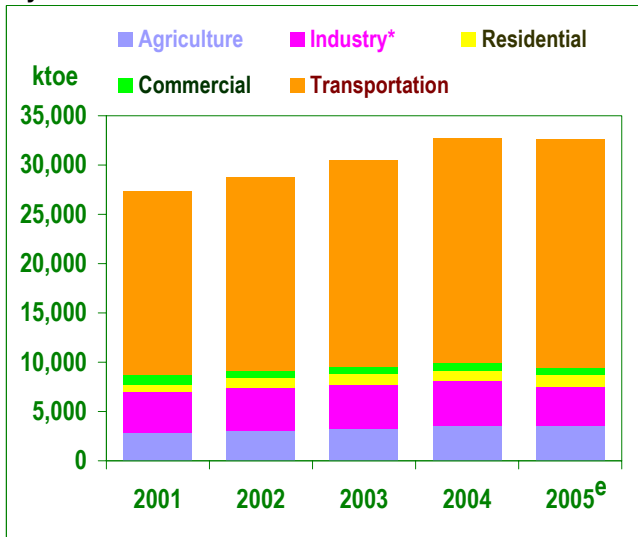
Trends of Petroleum Products Consumption

by Economic Sector 2001 - 2005^e



Shares of Petroleum Products Consumption

by Economic Sector 2001 - 2005^e



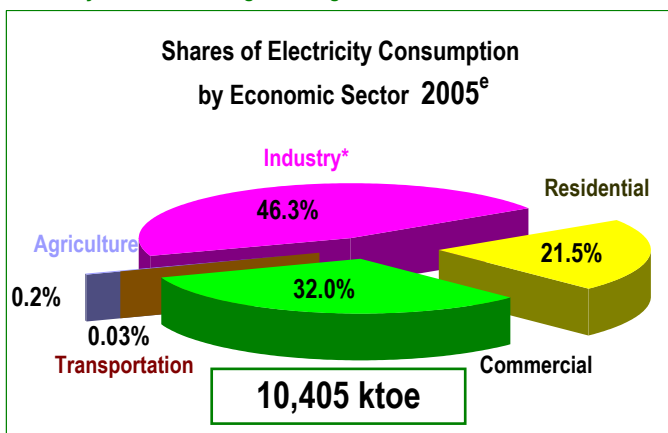
*Industry = Manufacturing + Mining + Construction

Consumption

Electricity Consumption by Economic Sector

Electricity Consumption (ktoe)	2001	2002	2003	2004	2005 ^e
Total	7,863	8,536	9,114	9,803	10,405
Agriculture	15	17	19	19	20
Industry*	3,571	3,897	4,181	4,536	4,814
Residential	1,794	1,884	2,002	2,108	2,238
Commercial	2,480	2,735	2,909	3,136	3,329
Transportation	3	3	3	4	4

*Industry = Manufacturing + Mining + Construction



Electricity Consumption by Economic Sector

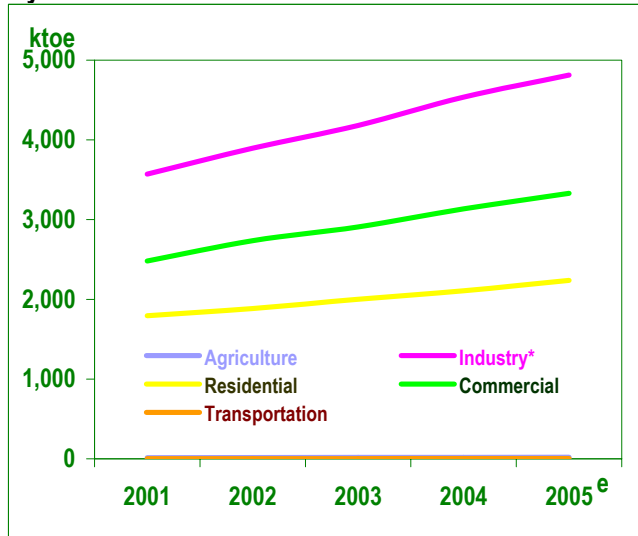
(Physical unit)

Electricity Consumption (Gwh)	2001	2002	2003	2004	2005 ^e
Total	92,290	100,173	106,959	115,044	122,110
Agriculture	178	196	223	224	232
Industry*	41,904	45,732	49,062	53,232	56,500
Residential	21,066	22,112	23,499	24,734	26,266
Commercial	29,105	32,099	34,141	36,808	39,063
Transportation	37	34	34	46	49

Consumption

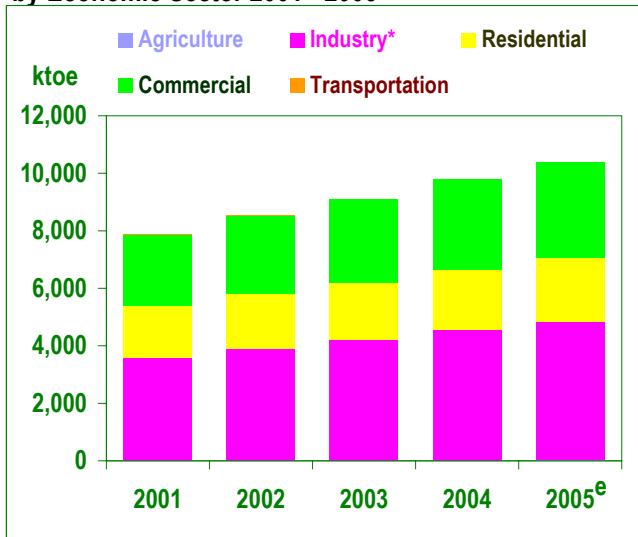
Trends of Electricity Consumption

by Economic Sector 2001 - 2005^e



Shares of Electricity Consumption

by Economic Sector 2001 - 2005^e



*Industry = Manufacturing + Mining + Construction

Emissions

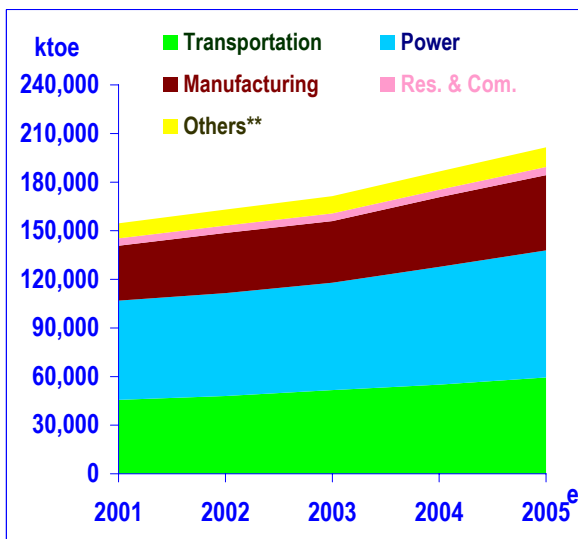
CO₂ Emissions*

CO ₂ Emissions (10 ³ ton)	2001	2002	2003	2004	2005 ^e
Total	154,535	163,039	171,370	186,593	201,520
Transportation	45,623	48,026	51,626	55,029	59,431
Power	61,264	63,458	66,299	72,637	78,448
Manufacturing	33,900	37,135	38,043	42,973	46,411
Res. & Com.	4,535	4,569	4,675	4,713	5,090
Others**	9,213	9,851	10,727	11,241	12,140

* CO₂ emission exclude emission from renewable energy

and international bunker oil, diesel and jet fuel.

**Others include agriculture, construction and mining.



Energy Balances

Thailand Energy Commodity Account 2004

Unit : physical - unit

SUPPLY AND CONSUMPTION	Coal & Its Products	Crude Oil	Natural Gas	Condensate & NGL	Petroleum Products	Hydro	Electricity	New & Renewable and Waste*	Others**	Black Liquor	Total
	(10 ³ ton)	(10 ⁶ litre)	(MMscf)	(10 ⁶ litre)	(10 ⁶ litre)	(Gwh)	(Gwh)	(10 ³ ton)	(Gwh)	(GJ)	
Domestic Production	20,060	4,997	791,470	3,980	-	6,040	-	52,627	2	12,776,227	
Imports	7,536	50,622	309,587	-	1,715	-	3,388	34	-	-	
Exports	-	-3,287	-	-76	-6,894	-	-372	-5	-	-	
Stock Changes/Statistical Differences	488	1,953	-	-440	-690	-	-	-	-	-	
Total Primary Energy Supply	28,084	54,285	1,101,057	3,464	-5,869	6,040	3,016	52,656	2	12,776,227	
Petroleum Refineries	-	-54,068	-	-676	44,801	-	-	-	-	-	
NG. Processing Plants	-	-	-	639	3,160	-	-	-	-	-	
Power Plants	-17,426	-	-818,264	-	-1,832	-6,040	125,727	-3,076	-2	-12,776,227	
Other Transformation	-	-	-	-	385	-	-	-15,811	-	-	
Total Transformation	-17,426	-54,068	-818,264	-37	46,514	-6,040	125,727	-18,887	-2	-12,776,227	
Own Uses	-	-	-185,968	-	-	-	-3,718	-	-	-	
Losses	-	-217	-	-	-	-	-9,981	-	-	-	
Total Final Energy Consumption	10,658	-	96,825	3,427	40,645	-	115,044	33,769	-	-	
Non - Energy Uses	-	-	-	3,427	786	-	-	-	-	-	
Final Energy Consumption	10,658	-	96,825	-	39,859	-	115,044	33,769	-	-	
Agriculture	-	-	-	-	3,982	-	224	-	-	-	
Industry ***	10,658	-	95,702	-	5,300	-	53,232	21,912	-	-	
Residential	-	-	-	-	1,659	-	24,734	11,857	-	-	
Commercial	-	-	-	-	1,154	-	36,808	-	-	-	
Transportation	-	-	1,123	-	27,764	-	46	-	-	-	
CO ₂ emission (unit : Mt)											187

* New & Renewable and Waste excludes biogas.

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

*** Industry includes manufacturing, mining and construction.

Energy Balances

Thailand Energy Balance 2004

Unit : ktoe

SUPPLY AND CONSUMPTION	Coal & Its Products	Crude Oil	Natural Gas	Condensate & NGL	Petroleum Products	Hydro	Electricity	New & Renewable and Waste*	Others**	Black Liquor	Total
Domestic Production	5,610	4,297	19,446	3,115	-	1,338	-	16,030	2	302	50,140
Imports	4,749	43,535	7,607	-	1,511	-	289	23	-	-	57,714
Exports	-	-2,827	-	-59	-5,467	-	-32	-3	-	-	-8,388
Stock Changes/Statistical Differences	216	1,680	-	-344	-523	-	-	-	-	-	1,029
Total Primary Energy Supply	10,575	46,685	27,053	2,712	-4,479	1,338	257	16,050	2	302	100,495
Petroleum Refineries	-	-46,498	-	-529	37,140	-	-	-	-	-	-9,887
NG. Processing Plants	-	-	-262 ***	500	1,991	-	-	-	-	-	2,229
Power Plants	-4,657	-	-19,912	-	-1,715	-1,338	10,713	-730	-2	-302	-17,943
Other Transformation	-	-	-	-	242	-	-	-4,804	-	-	-4,562
Total Transformation	-4,657	-46,498	-20,174	-29	37,658	-1,338	10,713	-5,534	-2	-302	-30,163
Own Uses	-	-	-4,538	-	-	-	-317	-	-	-	-4,855
Losses	-	-187	-	-	-	-	-850	-	-	-	-1,037
Total Final Energy Consumption	5,918	-	2,341	2,683	33,179	-	9,803	10,516	-	-	64,440
Non - Energy Uses	-	-	-	2,683	495	-	-	-	-	-	3,178
Final Energy Consumption	5,918	-	2,341	-	32,684	-	9,803	10,516	-	-	61,262
Agriculture	-	-	-	-	3,501	-	19	-	-	-	3,520
Industry ****	5,918	-	2,314	-	4,626	-	4,536	4,869	-	-	22,263
Residential	-	-	-	-	1,046	-	2,108	5,647	-	-	8,801
Commercial	-	-	-	-	730	-	3,136	-	-	-	3,866
Transportation	-	-	27	-	22,781	-	4	-	-	-	22,812
CO₂ emission (unit : Mt)											187

* New & Renewable and Waste excludes biogas.

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

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

**** Industry includes manufacturing, mining and construction.

Energy Balances

Thailand Energy Commodity Account 2005^e

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)	New & Renewable and Waste* (10 ³ ton)	Others** (Gwh)	Black Liquor (GJ)	Total
Domestic Production	20,878	6,624	836,555	4,191	-	5,801	-	53,616	2	15,970,897	
Imports	8,572	48,032	335,188	-	2,165	-	4,370	33	-	-	
Exports	-	-3,806	-	-172	-7,091	-	-501	-2	-	-	
Stock Changes/Statistical Differences	128	2,288	-	-697	2,419	-	-	-	-	-	
Total Primary Energy Supply	29,578	53,138	1,171,743	3,322	-2,507	5,801	3,869	53,647	2	15,970,897	
Petroleum Refineries	-	-52,926	-	-639	43,853	-	-	-	-	-	
NG. Processing Plants	-	-	-	732	2,096	-	-	-	-	-	
Power Plants	-17,460	-	-859,177	-	-2,032	-5,801	130,552	-3,085	-2	-15,970,897	
Other Transformation	-	-	-	-	199	-	-	-16,340	-	-	
Total Transformation	-17,460	-52,926	-859,177	93	44,116	-5,801	130,552	-19,425	-2	-15,970,897	
Own Uses	-	-	-230,784	-	-	-	-3,972	-	-	-	
Losses	-	-212	-	-	-	-	-8,339	-	-	-	
Total Final Energy Consumption	12,118	-	81,782	3,415	41,609	-	122,110	34,231	-	-	
Non - Energy Uses	-	-	-	3,415	1,049	-	-	-	-	-	
Final Energy Consumption	12,118	-	81,782	-	40,560	-	122,110	34,231	-	-	
Agriculture	-	-	-	-	4,196	-	232	-	-	-	
Industry ***	12,118	-	79,750	-	4,611	-	56,500	23,023	-	-	
Residential	-	-	-	-	2,112	-	26,266	11,208	-	-	
Commercial	-	-	-	-	991	-	39,063	-	-	-	
Transportation	-	-	2,032	-	28,650	-	49	-	-	-	
CO ₂ emission (unit : Mt)											202

* New & Renewable and Waste excludes biogas.

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

*** Industry includes manufacturing, mining and construction.

Energy Balances

Thailand Energy Balance 2005^e

Unit : ktOE

SUPPLY AND CONSUMPTION	Coal & Its Products	Crude Oil	Natural Gas	Condensate & NGL	Petroleum Products	Hydro	Electricity	New & Renewable and Waste*	Others**	Black Liquor	Total
Domestic Production	5,983	5,696	20,554	3,281	-	1,283	-	16,498	2	378	53,675
Imports	5,411	41,308	8,236	-	1,980	-	372	23	-	-	57,330
Exports	-	-3,273	-	-135	-5,155	-	-43	-2	-	-	-8,608
Stock Changes/Statistical Differences	382	1,967	-	-546	638	-	-	-	-	-	2,441
Total Primary Energy Supply	11,776	45,698	28,790	2,600	-2,537	1,283	329	16,519	2	378	104,838
Petroleum Refineries	-	-45,516	-	-500	36,268	-	-	-	-	-	-9,748
NG. Processing Plants	-	-	-335 ***	573	1,280	-	-	-	-	-	1,518
Power Plants	-4,989	-	-20,942	-	-1,899	-1,283	11,124	-730	-2	-378	-19,099
Other Transformation	-	-	-	-	125	-	-	-4,965	-	-	-4,840
Total Transformation	-4,989	-45,516	-21,277	73	35,774	-1,283	11,124	-5,695	-2	-378	-32,169
Own Uses	-	-	-5,536	-	-	-	-338	-	-	-	-5,874
Losses	-	-182	-	-	-	-	-710	-	-	-	-892
Total Final Energy Consumption	6,787	-	1,977	2,673	33,237	-	10,405	10,824	-	-	65,903
Non - Energy Uses	-	-	-	2,673	661	-	-	-	-	-	3,334
Final Energy Consumption	6,787	-	1,977	-	32,576	-	10,405	10,824	-	-	62,569
Agriculture	-	-	-	-	3,546	-	20	-	-	-	3,566
Industry ****	6,787	-	1,928	-	3,927	-	4,814	5,382	-	-	22,838
Residential	-	-	-	-	1,306	-	2,238	5,442	-	-	8,986
Commercial	-	-	-	-	613	-	3,329	-	-	-	3,942
Transportation	-	-	49	-	23,184	-	4	-	-	-	23,237
CO ₂ emission (unit : Mt)											202

* New Renewable and Waste excludes biogas.

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

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

**** Industry includes manufacturing, mining and construction.

Imported Prices

Average Prices of Energy Imports

TYPE	2001	2002	2003	2004	2005 ^e
Crude Oil					
1,000 Baht / toe	8.00	7.82	8.93	11.18	15.61
US.\$ / toe	179.41	181.29	214.41	276.93	386.79
US.\$ / bbl	24.53	24.79	29.32	37.86	52.89
Natural Gas					
1,000 Baht / toe	5.29	5.06	5.66	5.32	6.91
US.\$ / toe	118.68	117.35	136.04	131.74	171.32
US.\$ / 1,000 scf	2.92	2.88	3.34	3.24	4.21
Petroleum Products					
1,000 Baht / toe	10.13	9.38	10.36	10.40	14.83
US.\$ / toe	227.27	217.64	248.95	257.58	367.39
US.\$ / bbl	29.83	27.72	34.06	36.10	53.43
Coal & Its Products*					
1,000 Baht / toe	2.40	2.14	2.07	2.57	2.84
US.\$ / toe	53.91	49.65	49.63	63.54	70.48
US.\$ / ton	33.97	31.62	31.44	40.05	44.49
Electricity					
1,000 Baht / toe	18.96	18.75	18.47	19.53	19.18
US.\$ / toe	425.38	434.91	443.68	483.78	475.30
US.\$ / kWh	1.62	1.59	1.57	1.66	1.63

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

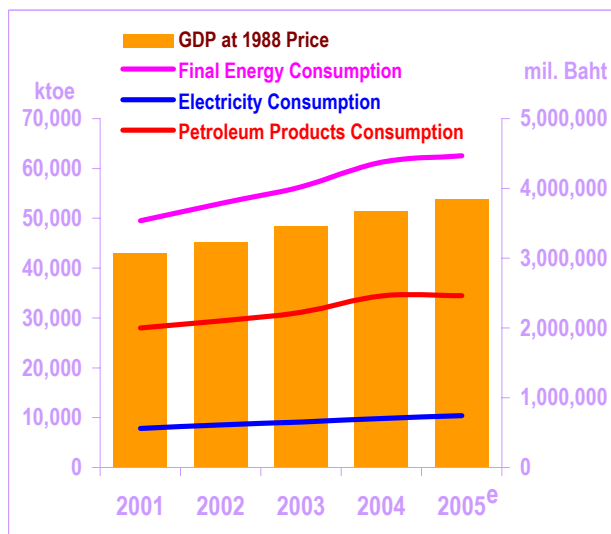
Energy and Economy

Final Energy Consumption, Electricity Consumption,

Petroleum Products Consumption and GDP

Year	Final Energy Consump- tion (ktoe)	Electricity Consump- tion (ktoe)	Petroleum Products Consumption (ktoe)	GDP at 1988 Prices (mil. Baht)
2001	49,542	7,863	28,031	3,073,601
2002	52,979	8,536	29,422	3,237,042
2003	56,289	9,114	31,156	3,464,701
2004	61,262	9,803	34,399	3,678,511 ^p
2005 ^e	62,569	10,405	34,475	3,842,527 ^p

Relations of Energy and Economy

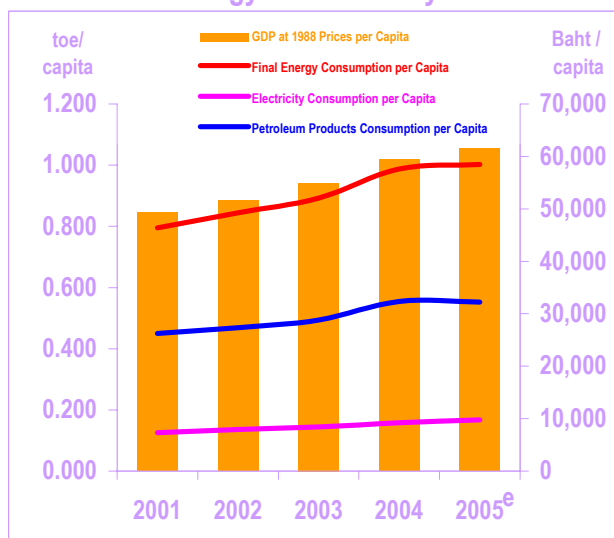


Energy and Economy

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)
2001	49,328	0.795	0.126	0.450
2002	51,545	0.844	0.136	0.469
2003	54,926	0.892	0.144	0.494
2004	59,357	0.988	0.158	0.555
2005 ^e	61,561	1.002	0.167	0.552

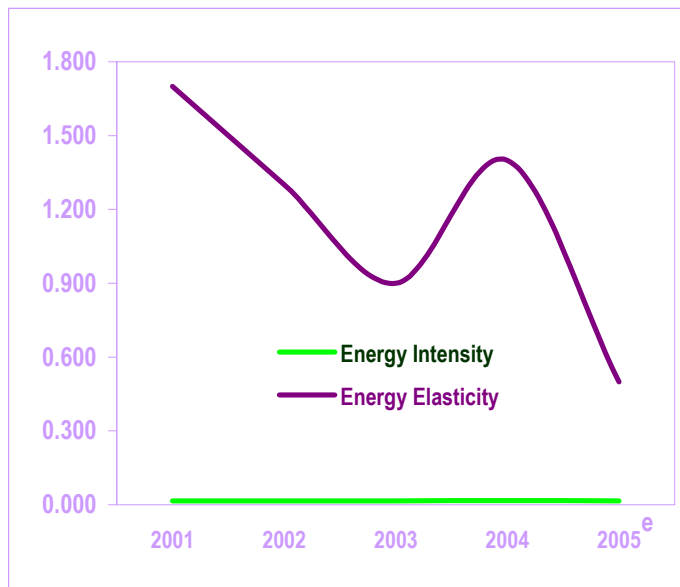
Relations of Energy and Economy



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
2001	3,073,601	49,542	0.016	1.7	2.1	3.6
2002	3,237,042	52,979	0.016	1.3	5.4	6.9
2003	3,464,701	56,289	0.016	0.9	6.8	6.2
2004	3,678,511 ^P	61,262	0.017	1.4	6.2	8.8
2005 ^e	3,842,527 ^P	62,569	0.016	0.5	4.5	2.1



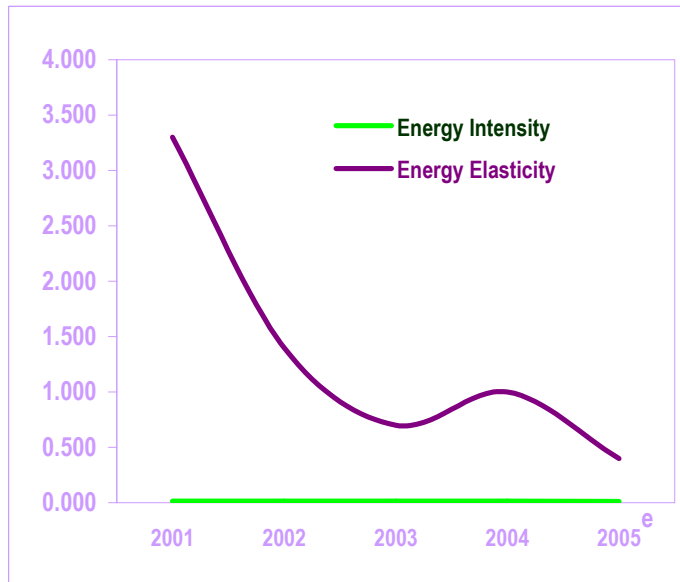
Energy and Economy

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**
2001	1,252,550	17,143	0.014	3.3	1.3	4.3
2002	1,343,163	18,934	0.014	1.4	7.2	10.4
2003	1,471,058	20,255	0.014	0.7	9.5	7.0
2004	1,595,647 ^P	21,961	0.014	1.0	8.5	8.4
2005 ^e	1,688,466 ^P	22,525	0.013	0.4	5.8	2.6

*GDP at 1988 prices for Manufacturing

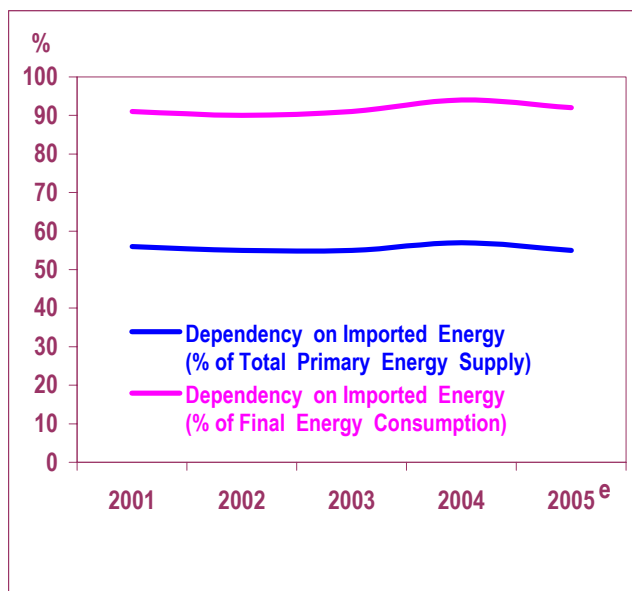
** Final Energy Consumption for Manufacturing



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) (%)
2001	80,307	49,542	44,989	56	91
2002	85,913	52,979	47,455	55	90
2003	92,491	56,289	51,316	55	91
2004	100,495	61,262	57,714	57	94
2005 ^e	104,838	62,569	57,330	55	92



Energy Indicators

Energy Values

Energy Values (thousand mil. Baht)	2001	2002	2003	2004	2005 ^e
1. Energy Imports	331	336	407	561	753
Petroleum	318	324	394	543	731
Coal & It Products	8	8	9	12	15
Electricity	5	4	4	6	7
New & Renewable Energy	0	0	0	0	0
2. Energy Exports	65	70	78	110	154
Petroleum	64	69	77	109	153
Electricity	1	1	1	1	1
New & Renewable Energy	0	0	0	0	0
3. Net Energy Imports	266	266	329	451	599
4. Commodity Imports	2,752	2,775	3,139	3,801	4,756
5. Commodity Exports	2,885	2,924	3,326	3,875	4,437
6. GDP (at Current Market Prices)*	5,133	5,451	5,929	6,503	7,103
7. Energy Import Value as a Percentage of					
GDP	6.4	6.2	6.9	8.6	10.6
Commodity Import	12.0	12.1	13.0	14.8	15.8
Commodity Export	11.5	11.5	12.2	14.5	17.0
8. Final Energy Consumption Value	722	759	849	972	1,194

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

Energy Indicators

Key Energy Indicators

	2001	2002	2003	2004	2005 ^e
1. Primary Energy	80,307	85,913	92,491	100,495	104,838
Supply (ktoe)					
Growth(%)	4.5	7.0	7.7	8.7	4.3
Per capita(toe/capita)	1.3	1.4	1.5	1.6	1.7
2. Final Energy	49,542	52,979	56,289	61,262	62,569
Consumption (ktoe)					
Growth(%)	3.6	6.9	6.2	8.8	2.1
Per capita(toe/capita)	0.8	0.8	0.9	1.0	1.0
3. GDP at 1988 prices	3,074	3,237	3,465	3,679	3,843
(thousand mil. Baht)					
Growth(%)	2.2	5.3	7.0	6.2	4.5
Per capita(Baht/capita)	49,328	51,545	54,926	59,357	61,561
4. Petroleum Products	33,474	35,237	37,239	39,874	40,560
(million litres)					
Growth(%)	2.5	5.3	5.7	7.1	1.7
Per capita(litres/capita)	537	561	590	643	650
5. Electricity (Gwh)	92,290	100,173	106,959	115,044	122,110
Growth(%)	5.0	8.5	6.8	7.6	6.1
Per capita(kwh/capita)	1,481	1,595	1,696	1,856	1,956
6. Value of Net Energy	266,244	266,584	329,298	451,182	599,705
Imports(mil. Baht)					
Growth(%)	7.9	-0.1	23.5	37.0	32.9
Per capita(Baht/capita)	4,274	4,239	5,221	7,280	9,607
7. Value of Final Energy	721,658	758,792	848,671	972,144	1,193,732
Consumption(mil. Baht)					
Growth(%)	9.1	5.2	11.8	14.5	22.8
Per capita(Baht/capita)	11,582	12,083	13,454	15,686	19,125
8. Energy Intensity	0.016	0.016	0.016	0.017	0.016
(ktoe / mil. Baht)					
9. Energy Elasticity	1.714	1.278	0.912	1.419	0.467
10. Populations(mil. inhabitants)	62,309	62,800	63,080	61,973	62,418

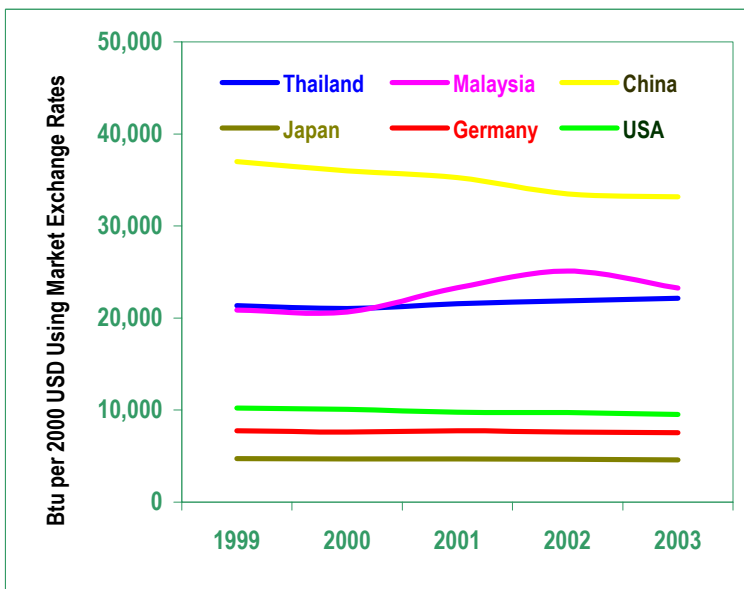
International Comparisons

International Comparisons 2003

	Thailand	Malaysia	China	Japan	Germany	USA
Population mil.inhabitants	62.8	24.4	1,304.2	127.7	82.5	290.8
Gross Domestic Products (GDP) in bil 2000 USD	323.2	99.5	1,371.0	4,869.1	1,887.6	10,381.3
Primary Energy Consumption 10^{15} Btu	3.1	2.3	45.5	22.4	14.2	98.8
Primary Energy Consumption/GDP Btu/2000 USD	22,158	23,267	33,175	4,605	7,545	9,521
Primary Energy Consumption 10^6 Btu/capita	49.7	94.8	34.9	175.6	172.7	339.9
Electricity Consumption kwh/capita	1,709.2	3,017.6	1,281.4	7,410.1	6,186.3	12,573.9
CO ₂ Emission tons/capita	3.1	5.8	2.7	9.4	10.2	20.0

Source : <http://www.eia.doe.gov>

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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