



# Thailand



Photo: Bloomberg

Thailand's energy sector is undergoing a period of restructuring and privatisation. The Thai electric utility and petroleum industries, which historically have been state-controlled monopolies, are currently being restructured. For the very first time, Thailand will be buying electricity from China. Thailand, whose current installed capacity of power generation rests at 28,552 MW (megawatts), plans to buy 3,000 MW of electricity from China in 2014, to meet its country's increasing demand, which has been estimated to grow at 5 per cent annually over the next decade. The country further plans to buy 5,000 MW of electricity from hydropower projects in Laos, which will be delivered in 2021.

Electricite de France, Europe's biggest power producer, Kansai Electric Power Co., Japan's second-biggest utility, and Thai companies are building a hydropower plant on the Nam Theun river in Laos. Under the present power development plan, Thailand's current installed capacity is expected to increase by 39,676 MW between 2007 and 2021.

Along with "power-buying" and simultaneous privatisations, Thailand now plans to invest six billion dollars to build the country's first nuclear power plant, expected to start operations in 2020 where each plant will generate 2,000 megawatts of electricity.

To finance the six-billion-dollar nuclear

## PROFILE

Capital	Bangkok	Installed Capacity	25,647 MW
Area	514,000 km <sup>2</sup>	Population Electrified	99%
Population	64.9 million	Main Voltages (kV)	500, 230, 165, 69, 33, 22
GDP	US\$599.6 billion	Natural Resources	lignite, natural gas, bunker oil
Currency	Baht		

investment the EGAT, a state enterprise under the ministry, will consider issuing bonds and seek offshore loans. Thailand first flirted with nuclear power 30 years ago but the idea was dropped after it found natural gas reserves in the Gulf of Thailand. But with natural gas now running low, the government's latest 15-year Power Development Plan, which runs through 2021, for the first time called for considering nuclear as a new energy source.

It currently relies on natural gas for 70 percent of its electricity, with the rest coming from oil, coal and hydro-power. One third of the natural gas consumed in Thailand is imported, mainly from neighbouring Myanmar. Thailand spent 912 billion baht (26 billion dollars) on energy imports last year, up 16 percent, according to the energy ministry. Environmentalists argue that building a nuclear plant is costly, and the construction costs frequently run over budget – sometimes by as much as 300 percent.

#### Demand for electricity:

While 100 percent of the urban sector, in Thailand, is electrified, the rural sector isn't too far behind either. 99.11 percent of the rural sector gets access to electricity. Demand for electricity, in 2006, reached a peak after it hit 21,064 MW and 134,170 Gwh. In 2007, demand peaked to 22,586.1 MW corresponding to which the forecasted energy for the same year is 142,410 Hwh. Energy consumption in 2008 is forecasted to be 150,283 Gwh. out of which, 71 % is expected to come from the industrial sector, 3.4 % from small business, 22.2 % from residential, and 3.3



Photo: Bloomberg

% from others.

After five months it was observed that the peak demand was about the same as forecasted, while energy demand was lower than expected, due to political issues. Forecast peak demand is 22,513MW, actual demand was 22,586, showing a variation of + 0.30% Projection for energy demand (Gwh) at the beginning of the year was 141,611 Gwh which is expected to increase by 5.54 %. Methods of generating electricity from renewable sources like bagasse, rice husk, bark, waste wood are also practiced.

Year	New Power Plant			SPP	Import	Total
	Gas	Coal	Nuclear			
2007	734	673	-	21	-	1,428
2008	2,882	-	-	42	-	2,924
2009	1,504	-	-	126	-	1,630
2010	685	-	-	33	-	718
2011	-	-	-	-	597	597
2012	-	-	-	200	-	200
2013	1,400	-	-	200	963	2,563
2014	1,400	700	-	200	-	2,300
2015	1,400	1,400	-	200	-	3,000

<b>Installed Capacity by Type of Power Plant and Type of Fuel</b>		
<b>Detail</b>	<b>Installed Capacity</b>	
	<b>MW</b>	<b>Percentage</b>
Hydro	3,424	12.01
Thermal	6,370	22.33
Combined cycle	5,147	18.05
Gas turbine	847	2.97
Diesel	5.4	0.02
Renewable energy	1.0339	--
Sub Total	15,794	55.38

<b>Installed Capacity by Type of Power Plant and Type of Fuel</b>		
<b>Purchase from Domestic IPPs</b>	<b>Installed Capacity</b>	
	<b>MW</b>	<b>Percentage</b>
REGCO	1,175	4.12
KEGCO	818	2.87
RGCO	3,481	12.21
IPT	700	2.45
TECO	700	2.45
GLOW	713	2.50
EPEC	350	1.23
BLCP	1,347	4.72
GPG	734	2.57
TOTAL	10,018	35.12

<b>Installed Capacity by Type of Power Plant and Type of Fuel</b>		
<b>Purchase from Neighbouring Countries</b>	<b>Installed Capacity</b>	
	<b>MW</b>	<b>Percentage</b>
Laos (IPP)		
Theun Hinboun	214	0.75
Houay Ho	126	0.44
EGAT-TNB HVDC Interconnection system	300	1.05
TOTAL NEIGHBOURING COUNTRIES	640	2.24
TOTAL DOMESTIC IPPS & NEIGHBOURING COUNTRIES	10,658	37.36
Purchase from domestic SPPs	2,070	7.26
TOTAL NEIGHBOURING COUNTRIES, DOMESTIC IPPS, DOMESTIC SPPS	28,522	100

Installed Capacity by Type of Power Plants		
Power Plant	Total Capacity MW	Fuel
Bhumibol	779	--
Sirikit	500	--
Ubol Ratana	25	--
Sirindhorn	36	--
Chulabhorn	40	--
Nam Pung	6	--
Srinagarind	720	--
Vajiralongkorn	300	--
Tha Thung Na	39	--
Kaeng Krachan	19	--
Bang Lang	72	--
Ban Santi	1.3	--
Mae Ngat	9	--
Huai Kum	1	--
Rajjaprabha	240	--
Pak Mun	136	--
Lamtakong	500	--
SUB TOTAL	3,424	
<b>Small Hydro:</b>		
Khlong Chong Klum	0.02	--
Ban Yang	0.12	--
Ban Khun Klang	0.2	--
Huai Kui Mang	0.1	--
SUB TOTAL	0.44	--
<b>Thermal:</b>		
South Bangkok unit 1,2	400	Fuel oil
South Bangkok unit 3,4	930	Natural gas/ Fuel oil
Bang Pakong	2,300	Natural gas/ Fuel oil
Mae Moh	2,400	Lignite
Krabi	340	Fuel oil
SUB TOTAL	6,370	--
<b>Gas turbine:</b>		
Lan Krabu	237	Natural gas
Nong Chok	366	Diesel oil
Surat Thani	244	Diesel oil