

PASCN Discussion Paper No. 98-07

**APEC Early Voluntary  
Sectoral Liberalization: Energy**

*Joel Tanchuco*



The *PASCN Discussion Paper Series* constitutes studies that are preliminary and subject to further revisions and review. They are being circulated in a limited number of copies only for purposes of soliciting comments and suggestions for further refinements.

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## **APEC Early Voluntary Sectoral Liberalization: Energy Sector\***

**Mr. Joel Tanchuco**

### **Abstract**

Effects of tariff reduction on energy products are expected to be minimal , except on natural gas. Liberalizing non-tariff measures should concentrate on removing/minimizing tax differentials across petroleum products.

On the provision of services within the energy sector, liberalization would involve instituting greater transparency when awarding contracts and relaxing entry requirements into the industry. Most of the ecotech measures proposed involve demand management, efficiency, transmission, exploration and survey technologies and the setting up of the proposed electricity contract markets.

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\* The views expressed herein do not necessarily represent the official views of the Philippine government in general, and/or the WTO/AFTA Advisory Commission in particular. This industry paper was prepared to provide some basic or background information; hence, in no way it is exhaustive. The intent is to offer the initial set of information for discussion and in the process, elicit the ideas that could be helpful in formulating the appropriate strategies in the development of this industry sector.

This industry paper is one of the 15 papers generated under the "APEC Early Voluntary Sectoral Liberalization" project which was jointly funded by the WTO/AFTA Commission and the Philippine APEC Study Center Network (PASCN) in furtherance of the general objective of undertaking consensus building activities and other necessary measures to promote the Philippines as a competitive player in the global economy.

## APEC Early Voluntary Sectoral Liberalization: Energy Sector

By Joel Tanchuco\*

### The Philippine Oil Industry Situation

The Philippines has three refineries: the Petron Bataan Refinery (PBR), Caltex and Shell. Of these, the Petron Refinery is considered the largest with a current capacity of 165 thousand barrels per stream day (MBSD). This is followed by Shell with 155 MBSD and Caltex with 72 MBSD, slightly lower than its capacity of 73.7 MBSD from 1970 to 1977.

In 1996, the overall production of the three refineries increased by 8.8% from (see Table 2). Fuel oil, diesel oil, and premium gas comprised about 70% of total refinery production for 1996. Fuel oil was primarily intended for the power sector and partly for industrial use. Significant users of diesel were the public transport sector, industry, and some power plants. Premium gas was mainly for private transportation use.

In 1996, aviation turbo exhibited the highest increase in production, with 22.5%, followed by premium gas and diesel with about 10% each. The total refinery production of the different petroleum products for 1996 amounted to 351 MBSD, or approximately 89% of the total domestic refineries' capacity. This figure shows good utilization of existing capacities.

Consumption of petroleum products (see Table 3) consisted mainly of fuel oil, premium gas, and diesel oil, which have a combined share of 75% of the total petroleum consumption in 1996. Total consumption of petroleum products in 1996 increased by 5.8%, which was comparatively lower than the 8.8 % increase in refinery production in the same year. Among the different petroleum products listed, aviation turbo and unleaded premium gas showed the fastest increase in 1996, with growth rates of 14.3% and 44.9%, respectively.

A comparison of the figures in Tables 2 and 3 indicates an imbalance between production and consumption in the domestic petroleum industry. The imbalance was generally in favor of consumption, but its relatively small size suggested that total refining capacity was adequate. Consumption of petroleum products such as aviation gas, premium gasoline, unleaded premium, regular gas, diesel, and LPG exceeded domestic production. Conversely, petroleum products such as naphtha, aviation turbo, kerosene, fuel oil, asphalts, and solvents exhibited excess domestic production relative to consumption.

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**Table 1. Historical Refinery Capacity (Thousand Barrels per Stream Day, MBSD)**

<b>YEAR</b>	<b>PBR</b>	<b>CALTEX</b>	<b>SHELL</b>	<b>FILOIL</b>	<b>Total Industry</b>
1954-1955	-	14.7	-	-	14.7
1956-1960	-	35.8	-	-	35.8
1961	24.8	35.8	-	-	60.6
1962	24.8	35.8	16.3	11.1	88.0
1963-1965	34.0	35.8	26.3	11.1	107.2
1966	42.0	35.8	26.3	11.1	115.2
1967	42.0	55.8	63.2	18.9	179.9
1968	45.0	69.5	63.2	18.9	196.6
1969	45.0	69.5	63.2	27.8	205.5
1970	45.0	73.7	63.2	27.8	209.7
1971	45.0	73.7	68.4	30.0	217.1
1972-1975	117.0	73.7	68.4	30.0	289.1
1976-1977	117.0	73.7	68.4	-	259.1
1978-1979	130.0	71.6	68.4	-	270.0
1980	155.0	68.5	68.0	-	291.5
1981	155.0	68.5	68.0	-	291.5
1982	155.0	70.0	68.0	-	293.0
1983	155.0	72.0	62.0	-	289.0
1984	155.0	72.0	60.0	-	287.0
1985-1987	155.0	68.0	66.0	-	289.0
1988	155.0	68.0	67.5	-	290.5
1989	155.0	68.0	74.0	-	297.0
1990	155.0	61.6	72.0	-	288.6
1991	155.0	68.4	72.8	-	296.2
1992	155.0	70.8	72.7	-	298.6
1993	147.0	70.8	72.8	-	290.6
1994	147.0	70.8	72.8	-	290.6
1995	155.0	72.0	155.0	-	382.0
1996	165.0	72.0	155.0	-	392.0
1997	165.0	72.0	155.0	-	392.0

Source: Department of Energy

**Table 2. Refinery Production (Thousand Barrels, MB)**

Products	1996	1995	Percent Change
Avturbo	6,237	5,090	22.5
Premium gas	11,633	10,533	10.4
Regular lead	4,013	3,925	2.2
Unleaded premium gas	1,830	1,762	3.9
Kerosene	4,629	4,336	7.0
Diesel oil	38,319	34,652	10.6
Fuel oil	46,318	43,477	6.5
LPG	4,822	4,391	9.8
Asphalts	280	291	(3.8)
Hydro/Solvents	303	348	(12.9)
Naphtha	6,037	5,517	9.4
Avgas	-	-	-
Total marketable products	124,431	114,322	8.8
In-process and intermediate	-	-	-
Add: Refinery and fuel loss	4,078	3,505	16.3
<b>Total</b>	<b>128,509</b>	<b>117,827</b>	<b>9.1</b>
MBSD	351	323	8.7
RF&L as a % of total output	3.2	3.0	6.7

Source: Department of Energy

**Table 3. Petroleum Product Consumption, 1995-1997 (Thousand Barrels, MB)**

Petroleum Products	1995	1996	1997	% Change (1996-1997)
<b>Energy Products</b>	<b>118,854</b>	<b>125,264</b>	<b>130,663</b>	<b>4.3</b>
Aviation gasoline	34	35	35	0
Aviation turbo	4,838	6,103	6,978	14.3
Premium gasoline	11,871	13,620	13,823	1.5
Unleaded premium	1,779	2,145	3,215	49.9
Regular gasoline	3,942	4,142	4,456	7.6
Kerosene	4,366	4,563	4,681	2.6
Diesel	38,940	40,211	42,998	6.9
Fuel oil	45,241	45,158	45,039	(0.3)
LPG	8,293	9,287	9,438	1.6
<b>Non-Energy Products</b>	<b>2,161</b>	<b>2,260</b>	<b>2,137</b>	<b>(5.4)</b>
Asphalts	293	273	297	8.8
Solvents	229	302	284	(6.0)
Lubes and greases	1,179	1,244	1,279	2.8
Naphtha	433	402	242	(39)
Others	27	39	35	(10.3)
<b>Refinery Fuel/Losses</b>	<b>3,330</b>	<b>4,077</b>	<b>3,929</b>	<b>(3.6)</b>
<b>TOTAL</b>	<b>124,344</b>	<b>131,600</b>	<b>136,729</b>	<b>3.9</b>
<b>MBCD (Thousand barrels per calendar day)</b>	<b>341</b>	<b>360</b>	<b>374</b>	<b>3.9</b>

Source: Department of Energy

Imports of the different petroleum products for 1996 stood at 130,869 thousand barrels (MB) valued at \$2.9 billion (see Tables 4 and 5). The bulk of imports consisted of crude oil. Among the processed petroleum products, diesel oil, fuel oil, LPG, and reformates registered high import volumes. The first three among the most heavily subsidized petroleum products in the Philippines. Of the oil product imports, reformates posted the highest increase at 47% in 1996.

In 1996 exports of petroleum products amounted to \$212.8 million (see Table 4). Of these naphtha exports in 1996 accounted for about half of the total oil exports with 5,361 MB. Diesel and fuel oil exports in the same year represented about 80% of the total petroleum product exports during.

**Table 4. Crude and Product Imports/Exports (Thousand Barrels, MB)**

	<b>1996</b>	<b>1995</b>	<b>Percent Change</b>
<b>Imports</b>	141,335	134,470	5.2
Crude	128,016	119,084	7.5
Products	13,319	15,286	(12.9)
Diesel oil	3,313	5,270	(37.1)
Fuel oil	2,778	3,419	(18.8)
Aviation gas	33	31	5.9
Kerosene	4	219	(98.3)
LPG	3,912	3,635	7.6
Lubes	83	124	(33.1)
Reformate	2,033	1,383	47.0
Regular gasoline	137	314	(56.3)
Unleaded gasoline	97	-	-
Low Lead gas	-	126	(100.0)
Solvents	-	25	(100.0)
Feedstock	694	740	(6.2)
Jet fuel	1,459	-	-
Used lube oil	29	-	-
Naphtha	46	-	-
<i>Less:</i>			
<b>Exports</b>	10,466	7,730	35.4
Diesel oil	1,639	1,359	20.6
Jet fuel	357	230	55.4
Fuel oil	2,879	381	655.7
Lubes	-	-	-
Naphtha	5,361	4,860	10.3
Reformate	230	153	50.6
LPG	-	21	(100.0)
Kerosene	-	40	(100.0)
Crude	-	686	(100.0)
<b>Total</b>	<b>130,869</b>	<b>126,640</b>	<b>3.3</b>

Source: Department of Energy

**Table 5. Philippine Oil Import Bill, Full Year (Million U.S. Dollars)**

	Total Cost (CIF)			
	1996	1995	Difference	Percent Change
<b>Imports</b>	2,879.1	2,402.5	476.6	19.8
Crudes	2,556.5	2,054.7	501.8	24.4
Products	313.8	329.8	(16.0)	(4.9)
Lubes/Additives				
<i>Less:</i>				
<b>Exports</b>	212.8	142.0	70.8	49.9
Products	212.8	131.2	81.6	62.2
Crudes	-	10.8	(10.8)	(100.0)
<b>Net Imports</b>	<b>2,666.3</b>	<b>2,260.5</b>	<b>405.8</b>	<b>18.0</b>

Source: Department of Energy

By January 1998 prices of premium gas, unleaded gas, regular gas, kerosene, diesel, and LPG had increased from their pre-deregulation (see Table 6). Petroleum products, premium gasoline and unleaded gasoline posted the highest increase; diesel and LPG the lowest. The difference in growth rates can be attributed to the cross-subsidy of gasoline to the latter types of fuels.

**Table 6. Historical Domestic Prices of Petroleum Products (Pesos per Liter)**

Effectivity	Retail Prices					
	Premium	Unleaded	Regular	Kerosene	Diesel	LPG
<i>Pre-Dereg</i>						
01 Jul 96	9.5000	9.5000	9.0000	7.0300	7.0300	6.2751*
17 Jan 97	10.8900	10.8900	10.2000	7.6000	8.4300	7.2021*
<i>Deregulated</i>						
08 Feb 97	11.3000	10.9000	10.1700	7.5200	8.2700	7.8200*
10 Mar 97	11.2700	10.8800	10.1900	7.1100	7.6000	7.5700*
27 Sep 97	12.1000	11.5800	10.6300	6.9400	7.8300	8.8700*
10 Oct 97	12.1000	11.6300	10.6300	6.9400	7.8300	165.4000**
16-Jan-98	13.3000	12.6200	11.6800	7.4400	8.3300	7.1160*

\* Wholesale Price

\*\*Retail Price in Peso/11 kg. cylinder

The downstream petroleum industry was initially subjected to deregulation on May 1996 to eliminate government and cross-subsidies on fuels, promote stable and reasonable pricing, enable petroleum prices to reflect actual costs, introduce competition, and attract more investments in the country, Republic Act (RA) 8180 authorized the first round of deregulation in the country.

Among other significant provisions, the law imposed a 4% tariff differential between crude and processed petroleum products, specified the entry requirements, stipulated the maintenance of minimum inventory, imposed penalties for cartelization and of predatory pricing, and authorized the monitoring of the requirements, and the eventual institution of an automatic pricing mechanism based on Singapore Posted Prices (SPP). These deregulation measures were initially intended to be fully implemented by March 1997 but was accelerated to February 8, 1997.



The Supreme Court declared the initial deregulation, unconstitutional by the latter part of 1997, citing three specific provisions of RA 8180: the 4% tariff differential, the provisions on predatory pricing, and the minimum inventory requirements. The Supreme Court said these provisions were detrimental to competition as they gave the existing three oil firms undue advantage over the new entrants to the industry.

While RA 8180 was in effect, about 30 new firms were able to enter the industry. But as they did not concentrate on “low value-added” activities such as storage/transshipment facilities, LPG bulk marketing, LPG refilling, and gasoline stations, they made no significant additions to productive capacities.

When Republic Act 8479 superseded RA 8180, among the salient features of the new were the removal of the 4% tariff differential, the minimum inventory requirements, simplification of entry requirements the inclusion of provisions promoting retail competition and the spelling out what constitutes predatory pricing, information campaign on investment opportunities, and the provision of investment incentives for the new players in the industry. The inclusion of investment incentives can be considered as the most significant provision of RA 8479 (see Table 7 for the comparative features of RA’s 8180 and 8479) as these have the potential of inducing competition within the petroleum industry.

The new law provides the following incentives in its investment package: income tax holidays, additional deduction for labor expenses, minimum tax and duty of 3% and value-added tax on imported capital equipment, tax credit on domestic capital equipment, exemptions from contractor’s tax, unrestricted use of consigned equipment, exemptions from real property tax on production equipment and machinery, and exemption from taxes and duties on imported spare parts. A training program (accompanied by the requisite funds and lending program) for management and skills training in the operation of gasoline stations is another significant aspect of the investment package.

**Table 7. Comparative Features of Republic Acts 8479 and 8180**

	<b>RA 8479</b>	<b>RA 8180</b>
Tariff Rates	3% for both crude and processed petroleum products except natural gas; which was set at 10%	3% imported crude 7% processed petroleum products
Entry Requirements	Any person or entity may import crude and petroleum products, lease, own, operate refineries and other downstream facilities, market petroleum products. File notice to DOE for monitoring services. Secure certificates of quality, health, safety, and environmental clearances.	File notice to EIAB prior to operation, importation. Submission of business plans, list of facilities, business permits, and zoning clearances. For imports of slops, sludges and petroleum by-products, permits from EMB. Additionally, quality, health, safety and environmental clearances are required.
Inventory requirements	none	10% of annual sales volume, or 40 days, whichever is lower
Anti-trust provisions	Penalizes cartelization, specifies predatory pricing when $P < AVC$ Other measures: reportorial requirements; clear and safe technology; registration of any fuel additive.	Penalizes cartelization and predatory pricing reportorial requirements clean and safe technology
Transition phase	Buffer fund $\leq$ P2.9B automatic pricing mechanism; ERB sets prices based on Dubai crude cost	Buffer fund $>$ P1B automatic pricing mechanism; ERB sets prices based on Singapore postings.
Full Deregulation	may be accelerated 5 months since March 15, 1998	may be accelerated but must not be later than March 1997; actually begun Feb. 8, 1997

Source: Tariff Commission

Problems encountered. Upon the initiation of deregulation, significant uncertainties pervaded the oil industry. Consumers and producers alike expressed concerns that deregulation (and its automatic pricing mechanism) could bring about excessive fluctuation in domestic oil prices. Compounding these concerns is the fact that oil price fluctuations are brought about by changes in the peso exchange rate and the international price of crude, both of which are heavily influenced by external factors.

The uncertainties currently surrounding the oil industry have placed on hold many of the planned investments by both the newcomers and previously existing firms. These include the planned introduction of new technologies/products, expansion of capacities, and infrastructure improvements.

There is a lingering suspicion that the three existing oil firms are colluding to the detriment of the consuming public and new players. The current situation in the oil industry tends to reinforce this suspicion, coupled by the fact that the three oil firms have several built-in advantages that may be hard to overcome—good infrastructure, networks of gasoline stations, transportation/hauling capabilities, existing refineries, and handling/berthing facilities.

Despite the deregulation, unequal taxes are still imposed across petroleum products. This policy does not reflect the optimal product composition of existing refineries and inhibits inter-fuel competition. Moreover, unequal taxation has artificially encouraged the consumption of certain oil products like diesel and fuel oil.

The additional functions of the Department of Energy (DOE) in line with the government's deregulatory efforts are likewise cause for concern. Many of these additional tasks involve testing and monitoring, which consumer groups and some of the new firms believe may not be within the capability of the DOE to undertake.

The downstream oil industry stands to benefit from further increasing its value added. The establishment of new firm(s) located in the midstream stage of the industry will be a big step in this direction. There are indications that several firms (naphtha cracker, polypropylene and polyethelene plants) will be established. However, potential midstream entrants must contend with a small domestic market for the scale economies, insufficient infrastructure, and the relatively high cost of electricity

### ***Power Sector***

Since end-1996, the Philippine power industry has had a total capacity of 10,332 megawatts (MW) (see Table 8). Seventy-four percent of this capacity came from in the Luzon grid. The remaining 26% of the total system capacity is subdivided among the Visayas, Mindanao, and small island grids. The bulk of the system capacity consists of oil-fired power plants and hydro-electric plants with shares of 51.5% and 21.86 %, respectively.

In 1996, Luzon dominated the distribution of energy generation across regional grids contributing 26,709 million kilowatts out of a total of 35,613 million kilowatts (see Table 9). The dominance of the Luzon grid was likewise true during the periods 1987 to 1989 and 1990 to 1995. Reliance upon energy generation among the sources, however, is not completely reflective of system capacities.

While oil and hydro-electric plants dominate the system capacities, the entire Philippine grid relied more upon geothermal and coal power plants. For instance, while the share of geothermal plants to existing capacity was 12.42%, these power sources contributed 18.42% of total energy generation in 1996. This situation reflects the lower cost of generating electricity from either geothermal energy or coal.

**Table 8. System Capacity by End-1996 (Megawatts)**

<b>Grid</b>	<b>NPC<sup>a/</sup></b>	<b>Private</b>	<b>Total</b>
<b>Luzon</b>	5,519	2,178	7,697
Hydro	1,244	24	1,268
Geothermal	846	0	846
Coal	600	700	1,300
Oil	2,789	1,454	4,243
<b>Visayas</b>	900	103	1,003
Hydro	2	5	7
Geothermal	308	42	350
Coal	105	55	160
Oil	485	1	486
<b>Mindanao</b>	1,479	153	1,632
Hydro	984	0	984
Geothermal	0	47	47
Coal	0	0	0
Oil	495	98	593
New & renewable	0	8	8
<b>Philippines</b>	7,898	2,434	10,332
Hydro	2,230	29	2,259
Geothermal	1,194	89	1,283
Coal	705	755	1,460
Oil	3,769	1,553	5,322
New & renewable	0	8	8

Source: 1997 Power Development Program

a/: includes NPC-owned but privately operated power plants

**Table 9. Gross Energy Generation by Grid & Energy Source (Million Kilowatts)**

	<b>1987-89 Average</b>	<b>% change</b>	<b>1990-95 Average</b>	<b>% change</b>	<b>1996</b>
Philippines	22,675.3		27,743.8		35,613
Energy source					
Oil	9,505.7	30.33	12,388.8	31.47	16,287
Hydro	5,973.3	(9.62)	5,398.7	26.14	6,810
Geothermal	4,891.3	19.33	5,836.7	12.39	6,560
Coal	2,209.3	(10.52)	1,982.8	163.97	5,234
Gas turbine	287 <sup>a/</sup>	644.84	2,137.7	(66.22)	722
Luzon	17,230.3	22.39	21,088.7	26.65	26,709
Visayas	1,856	43.51	2,663.7	38.45	3,688
Mindanao	3,589	8.12	3,880.3	28.29	4,978

Source: NPC 1996 Annual Report

a/gas turbines were introduced only in 1989

Luzon used most of the electricity generated or 75.66% of the total sales. The Mindanao grid was the next largest user, with a 13.42% share. Within each grid, most of the electricity was sold to utilities. Meanwhile, the share of industries was higher in the Visayas and Mindanao grids. Over time, while utilities generally had a larger share of the sales, the proportion of both industries and miscellaneous loadings was on the decline.

**Table 10. Energy Sales by Grid and Customer Type (Million Kilowatts)**

	1987-89	% share	1990-95	% share	1996	% share
<b>Philippines</b>	20,920.3		25,842.3		33,381	
Utilities	17,056.7	81.53	22,291	86.26	29,238	87.59
Industries	3,337.3	15.95	3,187.5	12.33	3,742	11.21
Misc. load	526.3	2.5	363.8	1.41	401	1.2
<b>Luzon</b>	15,864.3		19,741.2		25,256	
Utilities	14,072.3	88.70	18,034.3	91.35	23,310	92.30
Industries	1,271.3	8.01	1,449.3	7.34	1,725	6.83
Misc. load	520.7	3.28	257.5	1.3	221	0.88
<b>Visayas</b>	1,634		2,400		3,346	
Utilities	1,235	75.58	1,888.5	78.69	2,661	79.53
Industries	395.3	24.19	407.5	16.98	508	15.18
Misc. load	3.7	0.23	104	4.33	177	5.29
<b>Mindanao</b>	3,422		3,701.2		4,779	
Utilities	1,749.3	51.12	2,368.2	63.98	3,267	68.36
Industries	1,670.7	48.82	1,330.7	35.95	1,509	31.58
Misc. load	2	0.06	2.33	0.06	3	0.06

Source: NPC 1996 Annual Report

Electricity charges generally showed an increasing trend (see Table 11). The Visayas grid exhibited a relatively faster rate of increase than either the Luzon grid or Mindanao grid. This situation reflects the lower scale economies of power plants in the region and the higher transmission or distribution inherent in a grid characterized by separate islands. The lower average charges in Mindanao reflect the subsidization of electricity in that grid.

**Table 11. Regional Selling Rates (Pesos per Kilowatt)**

	1987-89 average	1990-95 average	1996
Philippines	0.9258	1.5895	1.9551
Luzon	0.99	1.6192	2.0830
Visayas	0.9436	1.6592	2.0230
Mindanao	0.6193	1.0327	1.2538

Source: NPC 1996 Annual Report

Problems encountered. The deregulation of the power sector requires the passage of the Omnibus Power Bill, which is expected to be passed before the end of 1998. The express objectives of deregulating the power sector are: to ensure affordable, adequate, and reliable power supply; to encourage private sector investments; and, to promote efficiency gains throughout the industry.

Among the provisions of the bill are the horizontal unbundling of the National Power Corporation (NPC) generating functions into a number of distinct generating entities and the vertical unbundling of electricity prices into generating and transmission or distribution components. The unbundling or segregation of prices and functions is expected to rationalize domestic electricity charges. That is, electricity charges will begin to reflect the actual cost of generation, distribution, and transmission and avoid the serious distortions inherent in bulk pricing.

The privatization of NPC's power plants will be done through a series of bidding. However, the existing differences in plant ages and efficiencies may prevent some plants from being sold. This means that deregulation involving the generating segment may not be completed at all.

Some segments in the distribution and transmission of electricity may also be difficult to deregulate. Interconnection difficulties as well as the unplanned emergence of a dominant transmission or distribution firm may negate the intended benefits of deregulating power.

With deregulation, the planned electrification of remote locations and small island grids may also be difficult to undertake. The attendant costs of transmission and distribution may also prove to be extremely burdensome for the average consumers.

This being the first time the Philippines has deregulated its power sector, problems in implementing the proposed contracts and spot market for electricity are likely to occur and electricity trading may lead to unfavorable allocation and pricing scheme.

#### **LIKELY IMPACT OF EVSL: ENERGY SECTOR**

Tariffs. Tariff levels across the different oil products are already low. In the current deregulation, tariff rates are spelled out in Executive Order 461 (see Table 12). All of the listed oil products (processed as well as crude oil imports) have tariff rates of 3%, except natural gas. Natural gas imports will be levied a higher rate of 10%, partly to accord a higher tariff shield for these emerging indigenous fuel sources.

**Table 12. Features of Executive Order 461**

Heading No.	HC Code	Description	Rates of Duty 01 January		
			1998	1999	2000
27.09	2709.0000	Petroleum oils and oils obtained from bituminous minerals, crude	3	3	3
27.10	2710.00	Petroleum oils and oils obtained from bituminous minerals, other than crude: preparations not elsewhere specified or included, containing 70% or more of petroleum oils or of oils obtained from bituminous minerals, these oils being the basic constituents of the preparations.			
	2710.0010	Propylene tetramer	3	3	3
	2710.00.20	Carbon black feedstock oil	3	3	3
	2710.00.30	Fuel oils	3	3	3
	2710.00.40	Lubricating oils, including lubricating oil base stock	3	3	3
	2710.0050	Naphtha	3	3	3
	2710.0060	Low prematic solvents with less than 1% aromatic content	3	3	3
	2710.0070	Other low aromatic solvents	3	3	3
	2710.0080	Gas oils (including diesel oil), kerosene (including kerosene type jet fuel) and major gasoline: other heavy oils	3	3	3
	2710.0090	Other oils and preparations	3	3	3
27.11		Petroleum gases and other gaseous hydrocarbons -Liquified			
	2711.1100	Natural Gas	10	10	10
	2711.1200	Propane	3	3	3
	2711.13.00	Butanes	3	3	3
	2711.1400	Ethylene, propylene, butylene, and buladlene	3	3	3
	2711.18	Other			
	2711.1910	Mixture of propane and butanes	3	3	3
	2711.1990	Other XXX	3	3	3
	2711.2100	XXX			
	2711.2900	XXX			
27.12		Petroleum jelly; paraffin wax, microcrystalline petroleum wax, slack wax, ozokerile, lignits wax, peat wax, other mineral waxes, and similar products obtained by synthesis or by synthesis or by other processes, whether or not coloured			
	2712.1000	Petroleum jelly	3	3	3
	2712.2000	Paraffin wax containing 0.75% of oil	3	3	3
	2712.5000	Other			
27.13		Petroleum coke, petroleum bitumen and other residues of petroleum oils or of oils obtained from the bituminous minerals			
		Petroleum coke:			
	2713.1100	Not calcined	3	3	3
	2713.1200	Calcined	3	3	3
	2713.2000	Petroleum bitumen	3	3	3
	2713.9000	Other residues of petroleum oils obtained from bituminous minerals	3	3	3

Source: Tariff Commission

Comparatively, these tariff rates are already approaching similar CEPT rates of oil producers such as Indonesia, Brunei, and Malaysia. The only exception is natural gas.

The liberalization of trade via favorable tariffs within the framework of EVSL is expected to exert very minimal impact on the tariff rates of oil products.

The tariff rates given here should, however, be considered with caution. Executive Order 264 (July 1995) mandates the imposition of a uniform tariff of 5% across all products by 2004. Therefore, these tariff rates may have to be adjusted upwards by 2%.

*Non-tariff Measures.* Even with the current deregulation of the oil industry, different taxes are still specified across products. This policy is a reflection of the continuing cross subsidization of oil products. Oil products, which are intended for affluent consumption (such as premium and unleaded gasoline), are used to subsidize fuels which have a more direct impact on the poor, mass transport sector, and the power sector (diesel, kerosene, fuel oil and liquefied petroleum gas). The various taxes for oil products are spelled out in RA 8184 (see Table 13).



**Table 13. Features of Republic Act 8184**

<b>Petroleum Product</b>	<b>Tax Rate</b>	<b>Volume</b>
Lubricating oils and greases including, but not limited to, basestock for lube oils and greases, high vacuum distillates, and other similar preparation, and additives for lubricating oils and greases, whether such additives are petroleum based or not	P4.50	per liter
Process gas	P0.05	per liter
Waxes	P3.50	per kilogram
Denatured alcohol to be used for motive power	P0.05	per liter
Naphtha, regular gasoline, and other similar products of distillation	P4.80	per liter
Leaded premium gasoline	P5.35	per liter
Unleaded premium gasoline	P4.35	per liter
Aviation turbo jet fuel	P3.67	per liter
Kerosene	P0.60	per liter
Diesel fuel oil and similar fuel oils having more or less the same generating power	P1.63	per liter
Liquified petroleum gas	P0.00	per liter
Asphalts	P0.56	per kilogram
Bunker fuel oil and similar fuel oils having more or less the same generating power	P0.30	per liter
All non-metallic minerals and quarry resources	2%	
Indigenous petroleum	3%	
Refined and manufactured products of petroleum produced from crude oil and/or indigenous petroleum	*	

Source: Department of Energy

Differences in taxation of oil products have an impact on market prices. They artificially induce preference for the consumption of those products which are priced lower due to lower taxes, thus hindering inter-fuel competition.

With EVSL the current taxation structure of oil products is expected to be rationalized. Specifically, the differences in taxes will be brought down to better reflect production realities.

Electricity prices showed significant differences across the regional grids. These differences are a result of cross subsidization across grids practiced by Napocor. Either an adoption of EVSL provision or the unbundling provisions in the Omnibus Power Bill might lead to lower prices of consumers in the Luzon grid and higher prices for consumers connected to other grids.

Barriers and impediments to services. Geophysical, geological, and exploration service contracts as well as drilling services are currently being bid among a short list of pre-selected private sector companies and selected government-owned corporations. Current bidding procedures and rules leave some areas for improvement. The same situation applies to government procurement of certain energy products (e.g., imported coal) and equipment with energy-related applications. EVSL provisions will have an impact on the awarding of service contracts by making the procedures more transparent and harmonizing the rules with those of the other APEC economies.

Operation and maintenance of mines for energy-related minerals (particularly coal mines and geothermal sites) are currently reserved for selected government-owned corporations and agencies. This policy is usually justified using the clause on "preservation of national patrimony." The implementation of EVSL provisions may lead to force an examination of existing guidelines and policies. Moreover, depending on how the EVSL program will be implemented, some currently underutilized and non-productive sites may be made operational.

Liberalization of entry requirements and an improvement of conditions for new firms into both the oil and power sectors will result in greater participation of APEC investors. Due to the large investment requirements of energy projects, greater participation significantly reduces capital constraints. This situation could bring greater competitive pressures on existing firms and benefit the consumers in the long run. To compete, some of the existing firms may well invest in diversifying products, improving product quality, and upgrading standards.

## **Action Plan**

Tariff reduction schedule. Natural gas is the only product within the energy sector whose tariff will be reduced. Tariffs for natural gas will either be reduced to 5%, as stipulated in Executive Order by 2004, or subject to the same 3% rate applied to other oil products. The tariff commission will have to conduct hearings on this matter.

Facilitation measures. The major barrier to trade involving services in the energy sector are the rules and procedures involved in the bidding out of contracts. Adoption of greater transparency is imperative. This can be done by establishing a definite set of rules

and procedures and considering other APEC economies. The participation of government-owned corporations in these biddings may have to be curtailed.

The remaining government regulations (such as tax differences among fuels and cross subsidization of electricity charges across grids) in the energy sector need to be eliminated or reconciled with efforts to encourage competition and greater private sector participation. These remaining regulations have also resulted in the distortion of consumption patterns and regional distribution of energy products. The creation of a database for different projects coming on line should be made.

Laws governing the deregulation of both oil and power sectors have provisions for an information campaign involving the projects covered. These provisions should be fully utilized. Service contracts involving deposits or mines should be included. For instance, more information should be disseminated to exploit the energy resource potentials shown in Tables 14 and 15.

**Table 14. Resource Potential**

Hydro		Geothermal		Coal
Existing	: 2,300 megawatts	Producing:	1,445 megawatts	Resource potential: 2,366.7 metric tons
Pre-feasibility:	4,639 megawatts	Development stage:	469 megawatts	Mineable reserves: 298.53 metric tons
Feasibility	: 4,143 megawatts	Advanced exploration:	11 megawatts	
Total	: 11,082 megawatts	Planned:	4,329 megawatts	
		Total	: 6,254 megawatts	

Source: 1997 Power Development Program

**Table 15. Gas Resource Potential (Trillion Cubic Feet)**

Estimated Reserves	Potential Reserves
Camago-Malampaya (3.2)	San Martin (0.297)
Octon (1.1)	Destacado (1.238)
San Antonio (0.002)	San Marcelino (0.719) <sup>a/</sup>
Libertad (0.003)	Pagasa Objective (0.58)
	Nido Objective (1.384)
	Iloc (0.642)
	Princesa (4.931)

Source: 1997 Power Development Plan

a/ untested

Ecotech measures. Several ecotech measures are necessary for the application of EVSL to the energy sector. Domestic energy standards (fuels, lubes, and electricity) may have to be brought in line with international standards. Along with this measure, testing and monitoring technologies from other APEC economies may have to be introduced.

In addition, technology transfers involving the following areas need to be promoted:

- energy efficiency promotion among existing or new power plants, equipment, and machinery
- energy services pertaining to exploration, geological assays and geophysical surveys. The DOE has recommended equipment listed in table 16 for new and renewable energy (see Table 16 for the requirements to implement this program)
- demand side management in the power sector
- environmental with energy-related applications (catalytic converters, scrubbers, desulphurizing units)
- transmission (small island grids and remote locations)
- operation or monitoring of long-term contracts and spot markets for electricity

**Table 16. List of Imported Equipment for New and Renewable Energy System/Technologies**

<b><u>Biomass Energy Systems</u></b>	
Anaerobic digestion	Biogas system (a system producing methane gas out of biodegradable materials through anaerobic digestion)
Digest combustion/Gasification pyrolysis	Synchronous generators (Biomass fired); Heat exchangers; Condensers; Biomass fired boilers; Steam turbines; Steam engines; Steam generators (Biomass fired); Biomass fired gasifiers; Gas engines for landfill and cogeneration applications; biomass fired pyrolysis systems; Condensers; Cyclone separators; Reactors/Furnaces
<b><u>Solar Energy Systems</u></b>	
Solar photovoltaic systems	Solar Cell; Solar PV.Module/Solar Panel; Lead-acid Battery, Stationery Type; Battery Control Unit/Charge Regulator; DC-AC Inverter (individual and grid); 12V - 48V Energy Efficient/Savings Lamps and Fixtures; DC Refrigerators/Cooling Boxes; Desalination Equipment; DC Input Pumps; Other, Raw Materials for Manufacturing; Solar Energy Systems; Other, Monitoring/Laboratory and Analytical Equipment
Solar water heaters	Flat Plate Collectors/Solar Collector; Solar Water Heater Storage Tank; Solar Water Heater Circulating Pumps; Other, Monitoring/Laboratory and Analytical Equipment
<b><u>Wind Energy Systems</u></b>	
Control system/monitoring equipment	Hydrolic Power Plant; Power Quality Sensors; Top Control; Electronic Control Unit; Data Logger; Speed Wind Sensors
Wind Turbine Generators	Rotor Blades and Pitch Bearings; Brake System; Yaw Drive; Nacelle (Geatbox/Generator Housing); Inverter with Power Conditioning Unit; Tower
<b><u>Hydro Power Systems</u></b>	
Micro-Hydro (100 KW and below)	Turbines: Cross flow, Propeller, Kaplan Francis, Turgo, Pelton, Multi-purpose, and River Current; Electric Flow Governor; Mechanical Flow Governor; Load Control Governor; Automotive Alternator; Synchronous Generator; Inductor Generator; Gear Boxes; Switch

	Gears; Control Panels and Panel Meters; DC-AC Inverters; DC-AC Inverters with Grid Feeding Capability
<b>Ocean Energy Systems</b>	
Measuring equipment	Eco-Sounder; Wave Meter; Current Meter; Tide Gauge; Salinometer; C.T.D. (Current/Temperature/Depth); Other Accessories
OTEC systems	Ocean Platform; Power Module; Cold Water Pipe; Underwater Transmission Cables; Propulsion System
Tidal energy	Bulb Turbine; Tube Turbine; Straight-Flow Turbine; Generator; Control and Crane Gallery
Wave energy system	Salter Device; Pneumatic Wave Converter; Taut Line Bouy
<b>Current energy system</b>	Tyson Turbine
Hydrogen based fuel system	Reformers; Operation; Controller; DC-AC Inverters; Peripheral Equipment; Energy Storage System; Solid Fuel Cells

Source: Department of Energy