

Energy

Energy is vital to industry, transport, infrastructure, information technology, agriculture, household uses and more. Any nation that wants to grow its economy and improve living standards must secure a robust energy supply. Energy use increases with the rise of incomes. As more countries rise out of poverty and develop their economies, energy demand rises correspondingly. The energy is costlier. Due to volatility in prices, supplies are becoming less secure, even for several fast-growing countries. Therefore, lowest-cost energy become important. Earlier coal was considered as cheaper source of energy but it is now become more climatic risky. Fast growing economies, therefore, trying to find low-cost gas as best alternative. Responding to the challenge that domestic supplies cannot keep up with demand, a multifaceted approach will be required. One key task will be to increase resource efficiency and productivity. Innovation is also expanding. There is also rapid growth in renewable energy resources, most notably wind and solar power. Still fossil fuels are the dominant sources of energy powering the global economy.

Oil is the most geopolitically important commodity as any structural change in oil markets can reverberate throughout the world. Rapid economic expansion had been witnessed in Middle East and North Africa (MENA) and Gulf Cooperation Council (GCC) over the past fifteen years. It was the view that these economies had enjoyed growth on the back of booming oil prices. For last two years, the world is awash with oil which resulted in dramatic fall in prices. Thus recent plunging of oil prices have raised concern about the risk of slow growth, unemployment and inequality in these economies as well. The dropped in oil prices had adversely affected many countries, thus making economic activity in the world lackluster. There is less possibility of turning around of oil prices in 2016. Thus persistent weakness in aggregate demand in

developed economies will remain a drag on global growth, while low commodity prices, mounting fiscal and current account imbalances and policy tightening will further dampen prospects for many commodity-exporting economies.

Attempting to understand how the oil market will look during the next few years has become a task of enormous complexity. There was claim that oil prices falling to twelve-year low will lead to a strong demand growth spurt but not observed as expected. Crude oil shipments totaled to US\$ 786.3 billion in 2015. A decline of 50.3 percent in value is observed since 2011, and 44.4 percent decline if to compare 2015 with 2014. Middle Eastern countries accounted the highest dollar value of crude oil exports during 2015 with shipments valued at \$325 billion or 41.3 percent of global crude oil exports. It can be seen that this amount can be compared with 18 percent of Europe, 9.9 percent of North America and 7.7 percent of Latin America (excluding Mexico) and Caribbean exporters¹. The other claim was that falling oil prices to twelve-year lows will force the largest group of producing countries to cut output to stabilize the oil prices but supply exceeded the demand by massive margins.

In principle, oil importing countries should benefit from the decline in oil prices, but these are not yet been materialized on account of global uncertain economic environment. Many emerging economies are facing slow economic growth, However, Pakistan's growth over last three years is rising due to prudent government policies. Falling oil prices to some extent benefitted in the face of lowering import cost for industrial production. Further, the government has passed on the benefits of decreased oil prices to general public which also helped in containing inflation. Correspondingly, Pakistan has responded to these

¹ <http://www.worldstopexports.com/worlds-top-oil-exports-country>

developments by effective monetary policy and sound fiscal policies.

Despite a plunge in crude prices, the Exploration and Production (E&P) companies operating in many parts of the world are reducing their costs by adopting different means. Pakistan thus got a chance to attract these companies to undertake new E&P activities as Petroleum Policy extends attractive incentives to oil and gas firms. Thus no international Oil/Gas E&P Company is considering of stopping operations as still Pakistan's current Petroleum Policy is offering best incentives. During July-April FY 2016, foreign direct investment in oil and gas exploration remained US \$ 234.8 million compared to US \$ 230.1 million in corresponding period last year thus posting a growth of 2 percent. Government of Pakistan is also pursuing to enhance gas production in order to meet the increasing demand of energy in the country. One of the milestone is import of LNG. In this regard a license for construction of LNG terminal was granted to M/s Engro Elengy Terminal Limited (EETL) with a construction validity period of two years. During July to Feb FY 2016, 175 mmcf/d volume of Regasified liquid natural gas (RLNG) was imported. In the next couple of years Pakistan is expected to become a mature LNG import market with few more projects to come online along with natural gas pipeline capacity enhancement projects of the country. The government has planned to establish 2nd LNG terminal which will be built at Port Qasim Karachi, to be operational by around mid-2017. Another company naming Bahria Foundation has also applied to OGRA for grant of LNG Terminal construction License.

Due to increased content of Carbon Dioxide in atmosphere causing "Global Warming Effect" economies are shifting toward alternative energy sources that have no undesired consequences. The government is taking all possible measures to ensure energy security and sustainable development in the country. Efforts are underway to improve power sector fuel mix in the country to reduce price of power basket and improve financial viability. Under the reforms, large capacity addition is planned from wind, solar, nuclear, hydel and coal power projects in the medium term. The emphasis is towards achieving a less oil dependent power generation mix through

development of indigenous energy resources particularly hydel, coal and renewable energy resources for sustainable and affordable energy supply in the country. Three hydel plants Tarbela-4th extension, Chashma, Neelum-Jhelum and few other small dams are expected to provide additional generation within next two years. Independent power producers (IPPs) and Generation Companies (GENCOs) are also being encouraged to convert from oil to coal based power generation, with the current coal tariff of 8.9 cents per unit being a significant incentive in this regard. In addition, 1000MW under Central Asia-South Asia-1000 (CASA-1000) power project is also included in the plan. Power sector has been given priority in terms of allocation of gas for power generation. All these efforts will improve the energy mix whereby, reducing dependence on oil for power generation, and ensure reasonable tariffs for consumers, ultimately leading to financial sustainability. With concrete and sincere efforts of the government, almost 12 percent growth has been observed in real value addition of electricity generation & distribution and Gas distribution during FY 2015 and FY 2016 which in turn helped the real GDP growth of 4.7 percent during FY 2016.

Understanding the importance of robust energy supply, the government is doing its utmost to address the energy sector challenges. It is evident from the fact that the energy sector is now one of the major recipients of federal PSDP share. Further special attention is being given to Diamir Basha dam project. The government is also determined to complete the 969 MW Neelum Jhelum Hydropower project at the earliest. The other measures include earmarking of almost 80 percent of CPEC estimated outlay for electricity sector, import of LNG, extended cooperation with USA and other bilateral agencies to build capacity in the energy sector and improvement in the efficacy of regulatory regime. Further, renewable potentials like wind and solar are under implementation.

Pakistan Energy Sources:

14.1 Oil (Petroleum Product)

Pakistan mainly depends upon oil and gas resources to fulfill energy requirements. Indigenous resources of oil are not enough to

quench energy thirst of a growing economy. As a result Pakistan has to import large quantity of oil and oil based products from Middle East countries especially from Saudi Arabia. The domestic

production of crude oil remained 24.02 million barrels during July-March FY 2016. The oil fields where production of oil is decreasing is given below:

Table 1: Comparison of Oil production in oil fields

Company	Field	2014-15	2015-16	Difference
		Oil (BOPD)*	Oil (BOPD)	Oil (BOPD)
UEPL	Aassu	5,034.59	2,156.92	(2,877.7)
MOL	Makori East	14,325.83	12,462.10	(1,863.7)
OGDCL	Nashpa	20,731.97	19,227.74	(1,504.2)
OMV Maurice	Mehar	2,294.96	1,170.52	(1,124.5)
UEPL	Sonro	1,631.86	693.35	(938.5)
UEPL	Murid	1,181.33	404.99	(776.4)
OGDCL	Bobi	977.23	427.96	(549.3)
MOL	Mamikhel	1,157.29	669.95	(487.4)
BHP	Zamzama	836.11	549.15	(286.96)

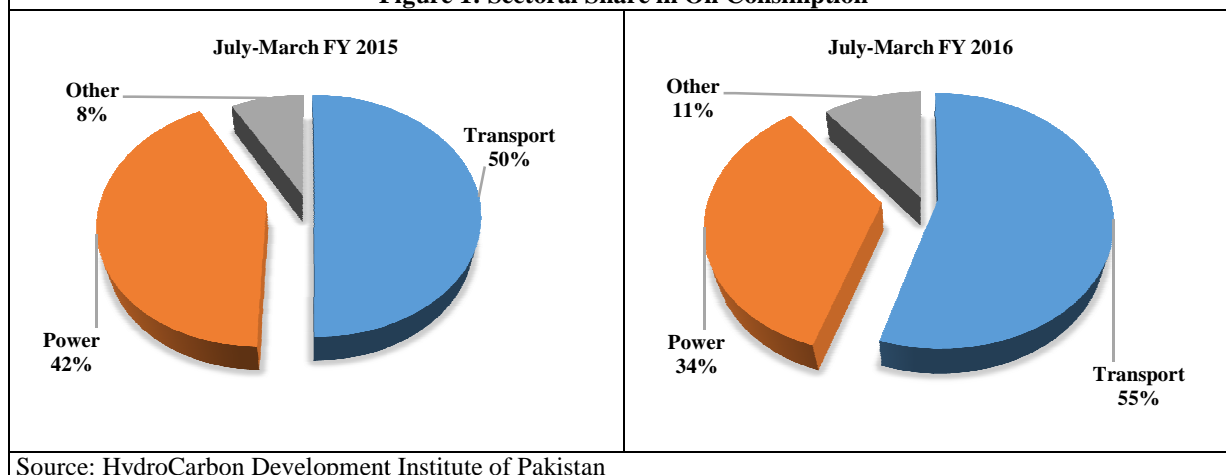
Source: Directorate General Petroleum Concession

*BOPD stands for Barrels of Oil per Day

Transport and power are the two major users of oil. During FY 2012, the share of oil consumption in transport and power was 49 percent and 40 percent, respectively. During July-March FY 2015, this share increased by 50 percent for transport and 42 percent for power while during

July-March FY 2016, the share of transport and power in oil consumption remained 55 percent and 35 percent, respectively. One reason is shifting of power sector from oil to gas as gas being the cheaper source, and other is decline in oil prices has increased its use in transport sector.

Figure 1: Sectoral Share in Oil Consumption

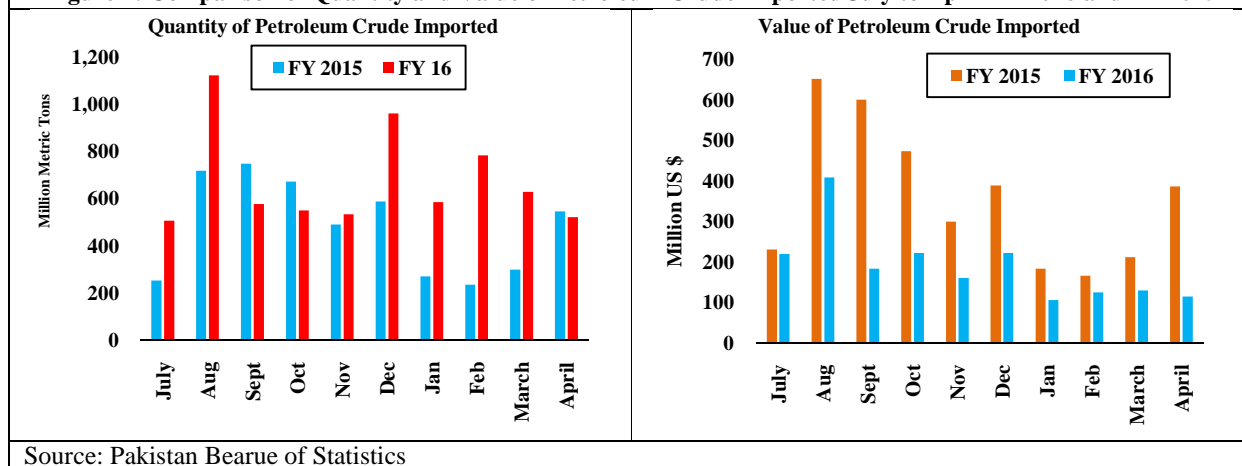


Source: HydroCarbon Development Institute of Pakistan

Import of crude oil is a financial burden on the exchequer as almost 17.2 percent of import bills is on petroleum product. During July-April FY 2016, 4.98 million metric tons was imported compared to 4.81 million tons of the corresponding period last year showing a growth of 3.5 percent, while in values US \$ 1.95 billion was imported compared to US \$ 3.59 billion

during period under discussion thus showing a decline of 47 percent. The recent decline in oil prices became a significant reason in contracting the trade deficit. The month-wise import of petroleum crude in both quantity and value term during FY 2016 compared with of FY 2015 is given below:

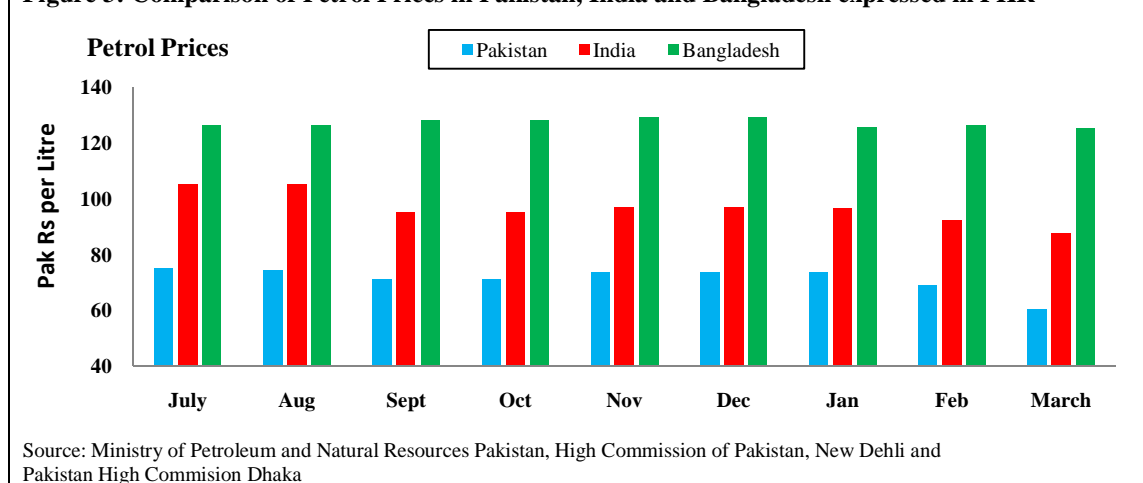
Figure 2: Comparison of Quantity and Value of Petroleum Crude Imported July to April FY 2016 and FY 2015



Contrary to neighboring countries response to decline in oil prices, the present government has passed the effect of decline in oil prices to consumers which helped in increasing their purchasing power and also eased their travelling fare. Bangladesh remained almost insensitive in

decreasing domestic prices of petrol, while India is revising prices fortnightly by partially transferring the impact of decrease in oil prices. The comparison of decline in petrol prices in Pakistani rupees for Pakistan, India and Bangladesh is given below:

Figure 3: Comparison of Petrol Prices in Pakistan, India and Bangladesh expressed in PKR



To enhance oil and gas reserves, the government is trying to attract companies to undertake new exploration and production activities. In pursuit to its exploration led growth strategy, during July – March FY 2016, OGDCL spud sixteen (16) wells including five (5) exploratory/appraisal wells viz., Bachani-1, Bitrism West-1, Thal West-1, Pirkoh Deep-1 and Jand-2 and eleven (11) development wells viz., Qadirpur- 54 & 55, Qadirpur HRL-9 & 10, Buzdar North-2, Pirkoh-54, Pasahki Deep-6, Palli-2, Kunnar Deep-11 and

Kunnar-10 & 11. Furthermore, drilling and testing of nine (9) wells spud in the previous fiscal year have been completed during the period under discussion. In order to exploit unconventional oil and gas resources, first phase of the study to evaluate shale gas/oil and tight gas/oil potential carried out by an international consultant in OGDCL's operated blocks is completed while second and third phase of the study is underway. OGDCL's aggressive exploratory endeavors to locate new hydrocarbon reserves during the nine

months led to oil and gas discoveries at Chak Naurang South-1 in district Chakwal, Punjab province, Aradin-1 in district Khairpur, Sindh province, Thal East-1 in district Sukkur, Sindh province and Nashpa X-5 in district Karak, Khyber Pakhtunkhwa province. These discoveries have an average daily production potential of 29 MMcf of gas and 1,212 barrels of oil. Thus, it is expected the recent decline of domestic production of oil will be compensated by new wells and also with exploration of unconventional oil and gas resource.

14.2 Natural Gas

Natural Gas is a clean, safe, efficient and environment friendly fuel. It contributes about 48 percent of the total primary energy supply mix in the country. Pakistan has an extensive gas network of over 11,538 km transmission, 1,14,982 km distribution and 31,058 Services gas pipelines to cater the requirement of more than 7.9 million consumers across the country by providing, about 4 billion cubic feet per day natural gas. The government is pursuing its policies to enhance gas production to meet the increasing demand of energy in the country. The average natural gas consumption was about 3,387 million cubic feet per day (mmcf) including 175 mmcf volume of re-gasified liquid natural gas (RLNG) during July 2015 to February 2016. During July 2015 to February 2016, the two gas utility companies (SNGPL & SSGCL) have laid 116 km gas transmission network, 1,848 km distribution and 679 km services lines and connected 203 villages/towns to gas network. During this period, the gas utility companies have invested Rs.9,959 million on transmission projects, Rs.8,705 million on distribution projects and Rs.13,225 million on other projects bringing total investment to about Rs.31,919 million. During this period 254,870 additional gas connections including 254,648 domestic, 202 commercial and 20 industrial were provided across the country. It is expected that gas will be supplied to approximately 412,058 new consumers during FY 2017. Gas utility companies have planned to invest Rs.13,896 million on transmission projects, Rs.32,739 million on distribution projects and Rs.24,408 million on other projects bringing the total investment of Rs.71,043 million during FY 2017.

Liquefied Petroleum Gas (LPG) Sector

Entry into the LPG business has been facilitated by the government resulting in rapid investment in production, storage and establishment of auto stations of LPG. The regulator is playing a vital role to increase private investment in midstream and downstream petroleum industry. During the FY 2016, so far an approximate investment of Rs. 2.38 billion has been made in the LPG supply infrastructure whereas total investment in the sector till Feb 2016 is estimated at about Rs. 22.33 billion. During the FY 2016, OGRA has so far issued 12 licenses for Operational Marketing of Storage and Filling plants, 37 licenses for Construction of LPG Storage and Filling plants, 20 licenses for Construction of LPG Auto-Refueling Stations and one license for Storage and Refueling of LPG was issued. Further, one license for construction of Production & Storage of LPG facility is also issued by OGRA which shall result in improving supply and distribution of LPG as well as create job opportunities in the sector.

Liquefied Natural Gas (LNG) Sector

In an effort to bridge the widening natural gas demand supply gap of the country, the government is importing LNG and in this regard a license for construction of LNG terminal was granted to M/s Engro Elengy Terminal Limited (EETL), on 18th June 2014 with a construction validity period of two years. The said construction license was granted keeping in view the provisions of LNG Policy 2011, OGRA Ordinance 2002 and OGRA (LNG) Rules 2007. Subsequent to confirmation by the appointed consultant firm (SGS), OGRA on 18th March 2016 granted Operation Licence to M/s EETL. Furthermore, M/s Pakistan State Oil Company Limited (PSO) has been mandated the task for import of LNG on behalf of the government. In the next couple of years, Pakistan is expected to become a LNG import market with few more projects to come online along with natural gas pipeline capacity enhancement projects of the country. The government has also planned to establish 2nd LNG terminal which will be built at Port Qasim Karachi. It will be operational by around mid-2017. Another company naming Bahria Foundation has also applied to OGRA for grant of LNG Terminal construction License.

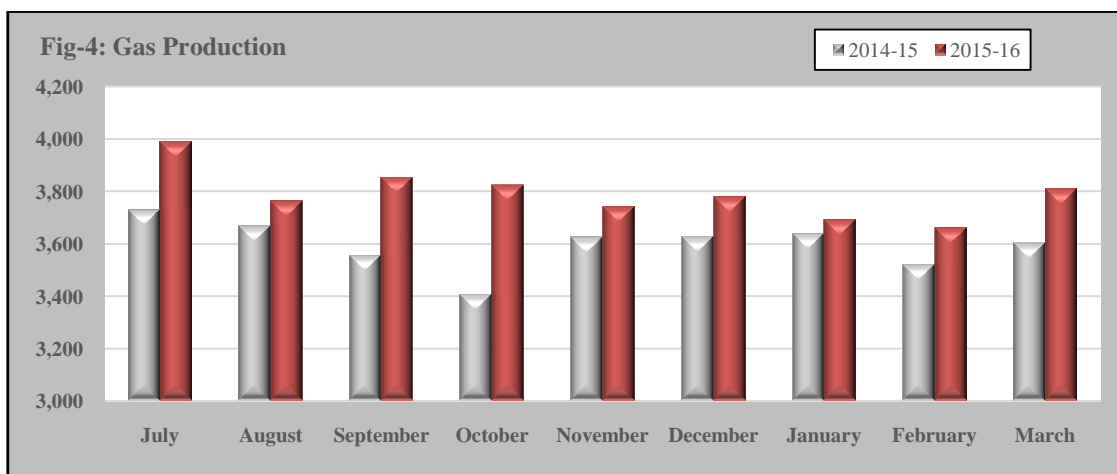
Compressed Natural Gas (CNG):

The government initially encouraged the use of compressed natural gas (CNG) as an alternate fuel for automotive in order to control environmental degradation, reduce foreign exchange expenditure on import of liquid fuel and generate employment. Pakistan has become the world leading CNG user country with more than 3 million NGVs (Natural Gas Vehicles) plying on the roads. Currently more than 3,416 CNG stations are operational in the country fulfilling the fuel need of the NGVs. However, keeping in view the mushroom growth of CNG stations in the country vis-à-vis depletion of natural gas reserves, government has imposed a

ban on establishment of new CNG stations in the country w.e.f. 07.02.2008. For sustainable growth of this sector, the government has approved the provision of RLNG to this sector with fiscal incentives of GIDC at the rate of zero and Sales Tax at the rate of five percent.

It is expected that closed CNG Stations of Punjab owing to the gas supply constraints may renew operations in near future through supply of Re-gasified Liquefied Natural Gas.

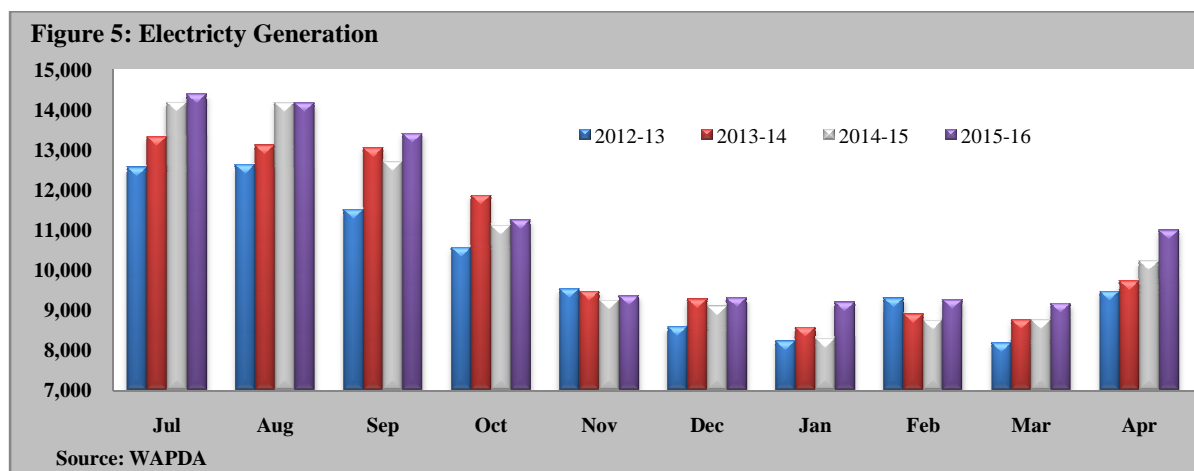
A comparison of gas production during July – March of current year and last year is shown in figure below:



Electricity

Electricity although the secondary source of energy has become indispensable not only for household but for all other sphere like industry, transport etc. Considering power shortages as a

prime economic challenge, the government has given electricity generation top priority and taken effective measure to address it. A comparison of electricity generation during July – April since 2012-13 is shown in Figure below:



During July-March FY 2016, the installed capacity in the PEPCO system remained 23,101 MW compared to 23,212 MW during the corresponding period last year with hydro 7,027 MW, thermal 15,324 MW, and nuclear 750 MW. During the period under discussion, electricity generation through thermal remained 45,252 Gwh

compared to 43,611 Gwh last year posting a growth of 4 percent while electricity generation through hydel remained 24,544 Gwh compared to 23,478 Gwh last year posting a growth of 5 percent. Thus in total there was an increase of 2 percent in electricity generation.

Table 2: Electricity Generation for July – March since 2008-09

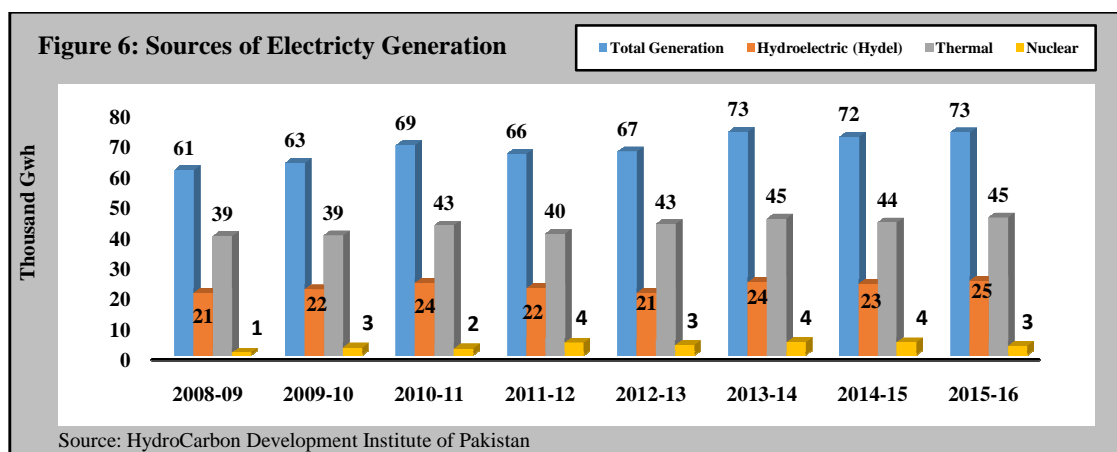
	Electricity		Electricity						Imported (Gwh)
	Installed Capacity (MW)(a)	Generation (Gwh)(b)	Hydroelectric (Hydel)		Thermal		Nuclear		
			Installed Capacity (MW)	Generation (Gwh)	Installed Capacity (MW)	Generation (Gwh)	Installed Capacity (MW)	Generation (Gwh)	
Jul-Mar									
2008-09	19,575	60,793	6,481	20,526	12,632	39,154	462	918	195
2009-10	19,650	63,178	6,481	21,671	12,707	39,342	462	2,521	185
2010-11	20,729	68,970	6,481	23,817	13,785	42,664	462	2,260	229
2011-12	22,578	66,130	6,557	22,044	15,234	39,940	787	4,146	..
2012-13	22,851	66,962	6,650	20,536	15,414	43,125	787	3,301	..
2013-14	23,048	73,435	6,858	23,953	15,440	44,847	750	4,331	304
2014-15	23,212	71,712	7,027	23,478	15,435	43,611	750	4,273	350
2015-16	23,101	73,209	7,027	24,544	15,324	45,252	750	3,078	335

Source: HydroCarbon Development Institute of Pakistan

An amount of Rs. 317.18 billion was allocated for the energy sector development projects in 2015-16. It is also worth mentioning that there was not only increase in electricity generation by thermal, but also by hydel which suggests that electricity generation plan through cheap resources is moving in right direction.

During July-March FY 2016, electricity import

remained 335 Gwh compared to 350 Gwh in corresponding period last year, the reason in decline on account of maintenance and improvement in the infrastructure of the system. It is expected that import of electricity will maintain the level of 443 Gwh as per 2014-15. The comparison of electricity generation for period July-March since 2008 is shown below.



The comparison is drawn without taking into account of electricity generation from renewable resources and import of electricity. During FY 2015, 438 MW installed capacity was through

renewable resources that helped in electricity generation of 802 Gwh. The detail is given below: The data for current year is yet to be updated,

Pakistan Economic Survey 2015-16

however, the detail as per FY 2015 is given below:

Table 3: Electricity through Renewable Resources

Sr. #	Name of project	Province	Capacity (MW)	Generation (Gwh)
Technology: Wind Energy				
1	Fauji Fertilizer Company (FFC) Energy Ltd	Sindh	50	139
2	Zorlu Energy	Sindh	56	156
3	Three Gorges First Wind Farm (Pvt) Ltd. (TGF)	Sindh	50	80
4	Foundation Wind Energy - I	Sindh	50	56
5	Foundation Wind Energy - II	Sindh	50	26
Technology: Solar Energy				
1	Quaid-i-Azam Solar (Pvt) Ltd	Punjab	100	25
Technology: Bagasse Co-generation				
1	Jamaldin Wali (JDW)-II	Punjab	26	163
2	Jamaldin Wali (JDW)-III	Sindh	26	124
3	Rahim Yar Khan (RYK) Mills Ltd	Punjab	30	32
Total Addition 2014-15			438	802

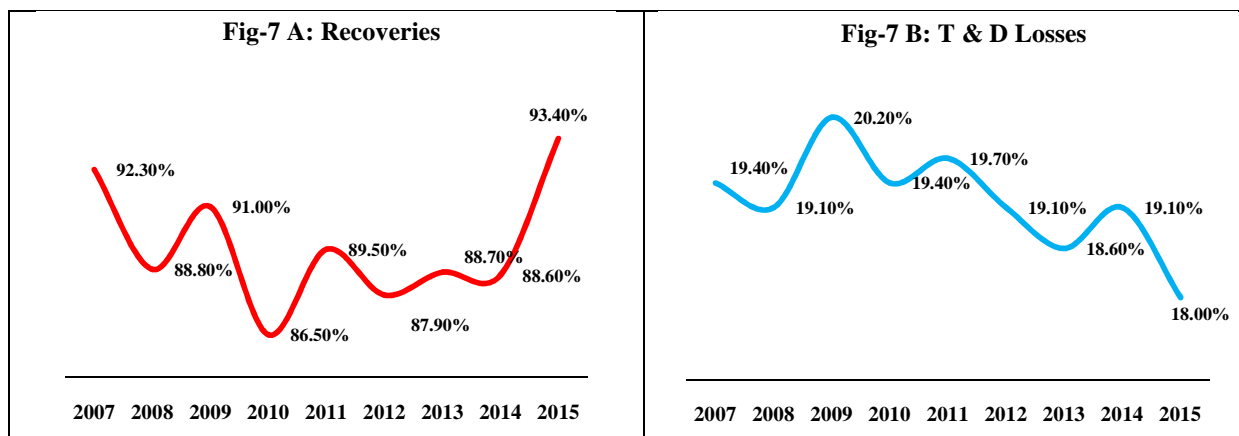
Source: HydroCarbon Development Institute of Pakistan

One critical issue in electricity generation is the inefficient recovery system while the other is transmission and distribution losses. National Power Policy 2013 is designed to address these issues. Various steps taken in this regard are:

- ▶ Installation of SCADA (Supervisory Control And Data Acquisition) software to optimize transmission and monitor losses
- ▶ Incentives to private sector to build transmission infrastructure

- ▶ Redesigning of national grids to minimize line losses
- ▶ Signing of contracts with Discos' heads to reduce distribution losses

It is worth mentioning that Ministry of Water and Power has shown significant improvement in both issues. There was 93.40 percent recoveries during 2015 (an amount of Rs. 51 billion) highest in past ten years while transmission and distribution losses declined to 18 percent during the said period.

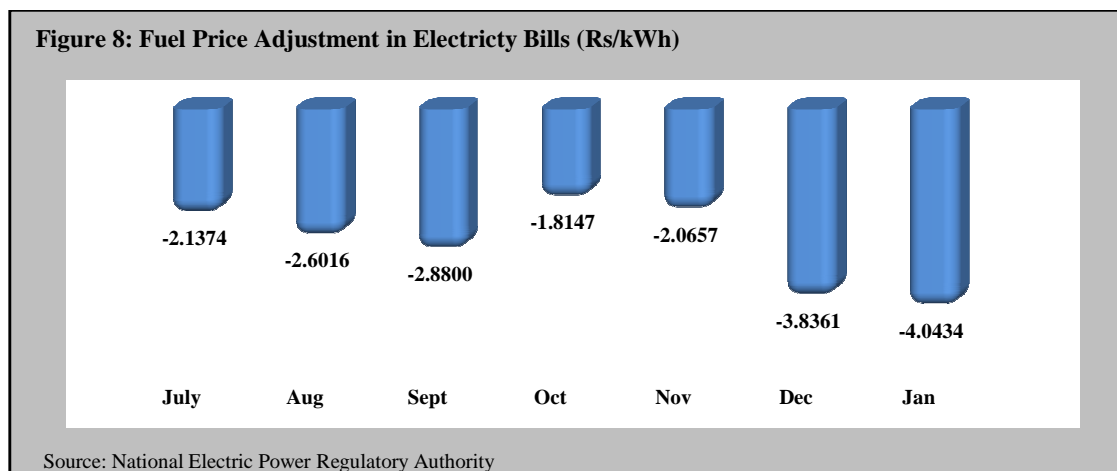


Source: Ministry of Water and Power

One of the most mentionable feature in context of decline in international oil prices is that the cost of generating electricity through thermal was also

reduced. The government has transferred the effect to common consumer by reducing fuel price

adjustment. Month-wise fuel price adjustment in electricity is given below:



For sustainable resolution of energy crisis, the government on one side has made some power reforms (Box-I) to supplement investor friendly

Power Generation Policy 2015 while on the other side it is also promoting private sector participation in the power sector (Box-II).

Box-I: Power Sector Reforms

- ▶ Implementation of National Power Policy 2013 has pushed forward the structural reforms agenda in the power sector. In an effort to move to full cost recovery, the current government has rationalized tariffs. The new tariff as determined by NEPRA for FY 2015 has been notified by the government. The timely payment of tariff differential subsidy (TDS) is being ensured on a monthly basis. The gap between the government notified tariff and NEPRA determined tariff has narrowed to Rs. 0.88 per unit in FY 2015 in comparison to Rs. 2.29 per unit in FY 2014, which has resulted in reduction in TDS, with subsidies being targeted to vulnerable consumers in the residential and agriculture categories.
- ▶ Significant efforts are being made to ensure financial sustainability of the system. During FY 2014, the government picked up debt stock of power sector amounting to Rs. 480 billion. A Circular Debt Capping Plan has been finalized to effectively manage the power sector financial flows, stocks and subsidy budget. Mechanism of at source deduction is being implemented for clearance of outstanding receivables from the government departments and a feeder to feeder monitoring to curtail losses is being pursued. An effort is underway to incorporate all costs to reflect in the tariff structure to arrest buildup of Circular Debt. In addition, three distribution companies (IESCO, LESCO and FESCO) have been issued multi-year tariff determinations by NEPRA.
- ▶ New Electricity Act will help improve litigation mechanism for power sector receivables. Revenue based load management is being carried out in order to ensure smooth recovery of payables.
- ▶ Operationalization of Central Power Purchase Authority (CPPA) as an effective financial manager of the system is a significant step in power sector reforms. Overhaul of financial and management system in Distribution Companies (DISCOs) and Generation Companies (GENCOs) is being carried out to improve their performance to sustainable levels. To increase transparency in the system, monthly amount due and payment by the DISCOs to CPPA, and by CPPA to the generators has been made available on the website of CPPA.
- ▶ Performance contracts have been signed with DISCOs to tackle losses, raise payment compliance and improve energy efficiency and service delivery. Professionals Boards of DISCOs have been appointed to improve corporate governance.
- ▶ On the regulatory side, a diagnostic audit of NEPRA has been carried out to identify areas where reforms are required.
- ▶ NEPRA is effectively overseeing performance of the power sector by publishing quarterly performance standards and indicators of the DISCOs on its website.
- ▶ NEPRA has been allowed to pass on Fuel Price Adjustments (FPA) without prior clearance from the government. Entry and middle management positions in NEPRA have been added to strengthen technical capacity of NEPRA. Development and effective implementation of energy efficiency codes – Pakistan Energy Efficiency and Conservation Act to promote energy efficiency in the country shall play a critical role towards meeting energy needs in the country.

Box-II: Private Sector Participation in the Power Sector

The Private Power and Infrastructure Board (PPIB) is considered as "One Window Facilitator" for promoting private sector participation in the power sector. The objective is to facilitate investors in establishing private power projects and related infrastructure. It executes Implementation Agreement (IA) with Project Sponsors and issues sovereign guarantees on behalf of Government of Pakistan.

PPIB is currently processing twenty seven (27) multiple fuel (oil, coal, gas, and hydel) based Independent Power Producers (IPPs) projects with a cumulative capacity of 15,852 MW. Out of these, 16 projects of 6339 MW cumulative capacity are hydropower projects, whereas, (10) projects of 9393 MW are based on coal. In addition, PPIB is also processing R-LNG based power projects of around 4600 MW power generation capacity in public as well as private sector.

A table summarizing PPIB's portfolio of upcoming IPPs is as follows:

Table: PPIB's portfolio of upcoming IPPs

Description/ Year	Hydel		Coal		Gas		Total (MW)	No. of Projects
	MW	No.	MW	No.	MW	No.		
2017	147	1	1,320	1	-	-	1,467	2
2018	-	-	2,640	2	-	-	2,640	2
2019	102	1	5,433	7	-	-	5,535	8
2020	720	1	-	-	-	-	720	1
2021	130	1	-	-	-	-	130	1
2022	2,382	5	-	-	120	1	2,502	6
2023	1,100	1	-	-	-	-	1,100	1
2024	1,138	2	-	-	-	-	1,138	2
Four hydropower projects of 620 MW cumulative power generation capacity are under various stages of processing and their COD's shall be confirmed after certain activities								
Grand Total	6,339	16	9,393	10	120	1	15,852	27

Source: Private Power and Infrastructure Board (PPIB)

Private sector new initiatives/ activities/ achievements:

1. Development of Imported and Local Coal Based Power Generation Projects

- i. 1320 MW Imported Coal based power project at Port Qasim, Karachi by Sinohydro Resources Limited and Al Mirqab Capital.
- ii. 1320 MW Imported Coal based Power Project at Sahiwal by M/s. Huaneng Shandong Ruyi (Pakistan) Energy (Private) Limited.
- iii. 1320 MW Thar Coal based Power Project at Thar Block-II Sindh by M/s. Engro Powergen Thar Limited.
- iv. 300 MW local Coal based power project at PindDadan Khan by M/s. China Machinery Engineering Corporation (CMEC).
- v. 1320 MW Thar Coal based power project at Thar Block-I by M/s. Shanghai Electric Group Company Limited.
- vi. 1320 MW Imported Coal based Power project at Hub Balochistan by M/s. Hub Power Company Limited.
- vii. 660 MW Imported Coal based Power Project at Port Qasim by M/s. Lucky Electric Power Company Limited.
- viii. 350 MW Imported Coal based Power Project at Port Qasim by M/s. Siddiqsons Energy Limited.
- ix. 163 MW Imported Coal based Power Project at Arifwala, Punjab by M/s. Grange Power Limited (GPL).
- x. 1320 MW Thar Coal based Power Project at Thar Block-VI, Sindh by Oracle Coalfields PLC, England

2. Development of Hydropower Projects:

- a. 102 MW Gulpur Hydropower Project
- b. 720 MW Karot Hydropower Project
- c. 870 MWSukiKinari Hydropower Project
- d. 1100 MW Kohala Hydropower Project
- e. 590 MW Mahl hydropower project
- f. 58 MW Turtonas-Uzghor hydropower project
- g. 80 MW Neckeherdm-Paur hydropower project
- h. 350 MW Athmuqam hydropower project

3. Development of R-LNG Based Power Projects:

- i. Processing of around 3600 MW R-LNG based power projects by Quaid-e-Azam thermal Power Limited and National Power Park Management Company Limited.
- ii. Development of around 1,000 MW R-LNG based power projects through International Competitive Bidding.

New Initiatives

Sustainable Energy for ALL (SE4ALL) is a global initiative that has been launched by United Nations Secretary General, with an extensive participation from all sectors to achieve a sustainable transformation of global energy system for a clean and better future. SE4ALL has been launched with a view to achieve following three goals by 2030:

- (i) Universal energy access;
- (ii) Doubling the rate of improvement in energy efficiency; and
- (iii) Doubling the share of renewable energy in the global energy mix.

The government is highly committed in playing its part to achieve these three important goals by joining this global initiative of SE4ALL. Rapid Assessment and Gap Analysis (RAGA) report has already been prepared with support from UNDP with participation of various stakeholders. The focal agency at the government level is the Ministry of Planning Development and Reforms. The ministry has been assigned to coordinate its activities with various stakeholders in the country. In this regard, a National Steering Committee has been established to prepare the Country Action Agenda to steer and monitor various SE4ALL activities in Pakistan. The consultative meetings and policy dialogues will be organized to get policy recommendations and inputs from all the stakeholder for an effective formulation of the National Action Agenda. Once the National Action Agenda has been prepared, in the next phase, the Investment Prospectus and Implementation Agenda will be planned to achieve the outlined targets for SE4ALL.

Nuclear Energy

Pakistan Atomic Energy Commission (PAEC) has been actively engaged in harnessing nuclear power technology. At present, three nuclear power plants i.e. Karachi Nuclear Power Plant (KANUPP), Chashma Nuclear Power Plant Unit-I & Unit-2 (C-1 & C-2) with gross capacity of 755

MW are already operating at Karachi and Chashma (Mianwali), contributing 695 MW to the grid. Chashma Nuclear Power Plant (C-1 & C-2) are operating very well and setting high standards in the power industry. Some performance parameters of these operating plants are highlighted in the following table;

Table 4: Electricity Generation by Nuclear Energy

Plant	Capacity (MW)		Grid Connection Date	Electricity sent to Grid (million kWh)	
	Gross	Net		1 st July 2015 to 31 st March 2016	Lifetime up to 31 st March, 2016
KANUPP	100	90	18 October 1971	232	13,587
C-1	325	300	13 June 2000	887	30,478
C-2	330	305	14 March 2011	1,706	10,685

Source: Pakistan Atomic Energy Commission (PAEC)

Construction of the fourth and fifth nuclear power plants, Chashma Nuclear Power Plants Unit-3 & Unit-4 (C-3- & C-4) at Chashma, 340 MW each, is underway and is on schedule. It is expected that C-3 will be operational by July 2016 and C-4 by January 2017. Sixth and seventh nuclear power plants, Karachi Nuclear Power Unit-2 and Unit-3 (K-2 & K-3) are also under construction.

PAEC is planning to meet of 8,800 MW nuclear capacity by 2030, thus PAEC is actively planning to develop additional sites to install future nuclear power plants. Sites have been identified and acquired throughout the country which are being investigated for development.

Renewable Energy

Alternative Energy Development Board (AEDB) is the sole representing agency of the federal government that was established with the main objective to facilitate, promote and encourage development of Renewable Energy in Pakistan. The administrative control of AEDB is by Ministry of Water and Power. The government is taking all possible measures to ensure energy security and sustainable development in the country. In its bid to diversify its energy mix, due attention is being given on fast track development of the Alternative / Renewable Energy (ARE) resources in the country. Alternative Energy Development Board (AEDB) has been pursuing

Pakistan Economic Survey 2015-16

the development of Alternative and Renewable Energy (ARE) based power projects through private investors. The following progress has been achieved on development of renewable energy based projects during the 2015-16 so far:

- ▶ One wind power project (M/s Sapphire Wind Power Pvt. Ltd.) of 52.8 MW capacity achieved Commercial Operations Date (COD). Another wind power project (M/s Yunus Energy Ltd.) of 50 MW capacity is undergoing commissioning tests after completion of construction and is expected to be completed by June 2016. One wind power project of 49.5 MW capacity (M/s Sachal Energy Development Pvt. Ltd.) achieved Financial Closing and is under construction.
- ▶ One solar project of 100 MW capacity (M/s QA Solar Pvt. Ltd) become operational. Three

solar power projects of 100 MW capacity each achieved Financial Closing and are under construction with completion expected in June, 2016.

- ▶ Two bagasse co-generation projects with a cumulative capacity of 92.4 MW became operational.

Current Status of the Projects

A Wind

Twenty Seven (27) wind power projects having a cumulative capacity of 1347.4 MW are at different stages of development / operation.

- (i) Six wind power projects of 308.2 MW cumulative capacity have started Commercial Operation and are supplying electricity to National Grid;

Table 5: Operational Wind Projects

Sr. #	Name of Project	Capacity (MW)	Location
1	FFC Energy Limited	49.5	Jhampir, Dist. Thatta
2	ZorluEnerji Pakistan (Pvt.) Ltd	56.4	Jhampir, Dist. Thatta
3	Three Gorges First Wind Farm Pakistan (Pvt.) Limited	49.5	Jhampir, Dist. Thatta
4	Foundation Wind Energy – II Ltd.	50.0	Gharo, Dist. Thatta
5	Foundation Wind Energy – I Ltd.	50.0	Gharo, Dist. Thatta
6	Sapphire Wind Power Company Ltd	52.8	Jhampir, Dist. Thatta

Source: Alternative Energy Development Board (AEDB)

- (ii) The following nine (09) projects are adding a cumulative capacity of 479 MW have achieved financial close and are under construction.

Table 6: Wind Projects under construction

Sr. No.	Name of Project	Capacity (MW)	Expected COD	Location
1	Yunus Energy Ltd.	50	Jun 2016	Jhampir, Dist. Thatta
2	Metro Power Company Ltd.	50	Sep 2016	Jhampir, Dist. Thatta
3	Tapal Wind Energy Pvt. Ltd.	30	Sep 2016	Jhampir, Dist. Thatta
4	Gul Wind Energy Ltd.	50	Sep 2016	Jhampir, Dist. Thatta
5	United Energy Pakistan Pvt. Ltd	99	Sep 2016	Jhampir, Dist. Thatta
6	Hydro China Dawood Power Pvt. Ltd.	50	Sep 2016	Gharo, Dist. Thatta
7	Master Wind Energy Pvt. Ltd.	50	Sep 2016	Jhampir, Dist. Thatta
8	Tenaga Generasi Ltd.	50	Sep 2016	Gharo, Dist. Thatta
9	Sachal Energy Development Pvt. Ltd.	50	May 2017	Jhampir, Dist. Thatta

Source: Alternative Energy Development Board (AEDB)

- (iii) Twelve (12) wind power projects with a cumulative capacity of 562.2 MW are at different

stages of project development and are expected to be completed by 2017-2018.

Table 7: Wind Projects Expected to be complete by 2017-18

S#	Name	Capacity (MW)	Location
1	Jhampir Wind Power Limited	50	Jhampir, Dist. Thatta
2	Hawa Energy Pvt. Ltd.	50	Jhampir, Dist. Thatta
3	China Sunec Energy	50	Nooriabad
4	Three Gorges Second Wind Farm Pvt. Ltd.	50	Jhampir, Dist. Thatta
5	Three Gorges Third Wind Farm Pvt. Ltd.	50	Jhampir, Dist. Thatta
6	Tricon Boston Consulting Corporation Pvt. Limited	50	Jhampir, Dist. Thatta
7	Tricon Boston Consulting Corporation Pvt. Limited	50	Jhampir, Dist. Thatta
8	Tricon Boston Consulting Corporation Pvt. Limited	50	Jhampir, Dist. Thatta
9	Western Energy Pvt. Limited	50	Jhampir, Dist. Thatta
10	Burj Wind Energy Pvt. Limited	14	Gujju, District Thatta
11	Hartford Alternative Energy Pvt. Limited	50	Jhampir, Dist. Thatta
12	Zephyr Power (Pvt.) Ltd	50	Gharo, Distract Thatta

Source: Alternative Energy Development Board (AEDB)

B. Solar Power Projects

AEDB is pursuing 28 solar PV power projects of cumulative capacity of approximately 956.52 MW On-Grid Solar PV power plants. M/s QA Solar

Pvt. Ltd of 100 MW is operational. The Following three solar power projects of cumulative capacity of 300 MW have achieved Financial Closing and are under construction;

Table 8: Solar Power Projects under Construction

Sr. #	Name of Project	Capacity (MW)	Location	Expected COD
1	M/s Appolo Solar Pakistan Ltd.	100	Quaid-e-Azam Solar Park, Bahawalpur	Jun 2016
2	M/s Crest Energy Pakistan Ltd.	100	Quaid-e-Azam Solar Park, Bahawalpur	Jun 2016
3	M/s Best Green Energy Pakistan Ltd.	100	Quaid-e-Azam Solar Park, Bahawalpur	Jun 2016

Source: Alternative Energy Development Board (AEDB)

Seven (07) IPPs with a cumulative capacity of 72.52 MW have obtained Letter of Support (LOS)

from AEDB and are in the process of achieving Financial Closing of their projects

Table 9: Solar Projects obtained Letter of Support

Sr. #	Name of Project	Capacity(MW)	Location
1	M/s Access Electric Pvt. Ltd.	10	PindDadan Khan
2	M/s Bukhsh Solar (Pvt.) Ltd.	10	Lodhran
3	M/s Safe Solar Power Pvt. Ltd	10	Bahawalnagar
4	M/s Access Solar Pvt. Ltd.	11.52	PindDadan Khan
5	M/s Blue Star Hydel Pvt. Ltd.	1	PindDadan Khan
6	Harappa Solar Pvt. Ltd.	18	Sahiwal
7	AJ Power Pvt. Ltd.	12	PindDadan Khan

Source: Alternative Energy Development Board (AEDB)

Seventeen (17) solar power projects of 484 MW cumulative capacity have obtained LOI from

AEDB and are at different stages of project development.

Pakistan Economic Survey 2015-16

Table 10: Solar Projects obtained LOI

Sr. #	Name	Capacity (MW)	Location
1	M/s Integrated Power Solution	50	Nooriabad
2	M/s Jafri & Associates	50	Nooriabad
3	M/s Solar Blue Pvt. Ltd.	50	Nooriabad
4	M/s R.E. Solar I Pvt. Ltd.	20	Jamshoro
5	M/s R.E. Solar II Pvt. Ltd.	20	Jamshoro
6	Forshine (Pakistan)	50	Gharo ,Thatta
7	ET Solar (Pvt.) Ltd.	25	Thatta
8	ACT Solar (Pvt.) Ltd.	50	Thatta
9	Janpur Energy Limited	12	Sultanabad, Rahim Yar Khan
10	Janpur Energy Limited	12	Mehmood Kot, Muzafargarh
11	Blue Star Electric Pvt. Ltd.	1	PindDadan Khan
12	Siddiqsons Energy Karachi	50	KalarKahar, Chakwal
13	Adamjee Power Generation Pvt. Ltd.	10	Noorsar, Bahawalnager
14	ET Solar (Pvt.) Ltd.	50	Fateh Jang, Attock
15	Crystal Energy (Pvt.) Ltd.	2	Sambrayal, Sialkot
16	Asia Petroleum Limited	30	Punjab
17	First Solar (Pvt.) Ltd.	2	Jhelum

Source: Alternative Energy Development Board (AEDB)

C. Biomass / Waste-to-Energy

In order to tap the potential of electricity generation from the sugar mills in Pakistan, the government on recommendation of AEDB announced the Framework for Power Co-Generation 2013 (Baggase/Biomass) in February

2013. NEPRA announced an Upfront Tariff of Rs. 10.7291 per kWh (Levellized) for bagasse based co-generation projects under the Framework. The following four (04) companies / sugar mills have achieved Commercial Operations Date (COD) and are operational:

Table 11: Projects achieved (COD)

i	M/s JDW Sugar Mills (Unit-II), Rahim Yar Khan	26.35 MW
ii	M/s JDW Sugar Mills (Unit-III), Ghotiki	26.35 MW
iii	M/s RYK Mills Limited, Rahim Yar Khan	30 MW
iv	M/s Chiniot Power Ltd., Chiniot	62.4 MW

Source: Alternative Energy Development Board (AEDB)

Nine (9) other companies / sugar mills have been issued LOIs for a cumulative capacity of 297 MW

and are in different stages of project development, as listed below:

Table 12: Biomass / Waste-To-Energy Projects

S. No.	Name of Project	Capacity (MW)	Location
1	M/s Hamza Sugar Mill Limited	15	Rahim Yar Khan
2	M/s Alliance Sugar Mills Ltd	19	Ghotki
3	M/s Layyah Sugar Mills ltd	41	District Layyah
4	M/s Safina Sugar Mills	20	District Chiniot
5	M/s Almoiz Industries Ltd,	45	District Mianwali
6	M/s Etihad Power Generation Limited,	67	Rahim Yar Khan
7	M/s Shahtaj Sugar Mills Ltd,	32	Mandi Bahauddin
8	Chanar Energy Limited	22	Faisalabad
9	RYK Energy	36	Rahim Yar Khan

Source: Alternative Energy Development Board (AEDB)

Conclusion

Realizing the importance of energy, the government is making all efforts to achieve the long-term vision of the power sector to overcome its challenges. The development of indigenous energy resources, such as coal, hydro, alternative and renewable sources, is critical for sustainable economic growth, as envisaged in the Vision 2025. The government is attracting foreign companies to undertake new exploration and production activities by giving attractive incentives. Further, the government is also engaged in making coordination with

development partners to support energy related projects.

The China-Pakistan Economic Corridor (CPEC) is expected to add 10,400 MW to the grid by the year 2018. The projects include coal, hydro and wind. It will also significantly change the energy mix, replacing expensive oil and resulting in reduction of the average cost of generation. It is believed that with sincere efforts of the government, it will be possible to build a power generation capacity that can meet Pakistan's energy needs in a sustainable manner.



ENERGY

TABLE 14.1

COMMERCIAL ENERGY CONSUMPTION

Fiscal Year	1. Oil/Petroleum (tons)						Total
	Households	Industry	Agriculture	Transport	Power	Other Govt.	
2000-01	450,960	1,924,048	254,833	8,157,893	6,487,988	372,176	17,647,898
2001-02	334,501	1,611,995	225,742	8,018,777	6,305,419	463,654	16,960,088
2002-03	282,521	1,604,068	196,747	8,082,273	6,019,958	266,387	16,451,954
2003-04	231,459	1,493,080	183,506	8,464,042	2,739,763	309,263	13,421,113
2004-05	192,750	1,542,398	142,062	9,024,783	3,452,581	316,686	14,671,260
2005-06	128,651	1,681,517	81,896	8,156,831	4,218,982	358,807	14,626,684
2006-07	106,148	1,595,981	97,232	7,981,893	6,740,559	325,318	16,847,131
2007-08	120,961	1,071,191	109,351	9,384,482	7,083,933	310,501	18,080,419
2008-09	97,332	969,193	69,793	8,837,197	7,570,418	367,266	17,911,199
2009-10	90,312	984,690	58,072	8,860,880	8,814,274	323,472	19,131,700
2010-11	85,449	1,355,443	40,597	8,892,268	8,138,956	373,794	18,886,507
2011-12	79,448	1,419,125	23,297	9,265,883	7,594,663	295,847	18,678,263
2012-13	97,847	1,379,096	31,828	9,817,546	7,749,007	317,805	19,393,129
2013-14	100,679	1,297,035	46,655	10,299,718	9,006,085	358,512	21,108,684
2014-15 (P)	89,017	1,300,151	37,197	11,371,283	8,995,231	365,471	22,158,350
<u>Jul-Mar</u>							
2014-15	74,069	937,355	30,420	7,988,699	6,635,238	259,337	15,925,118
2015-16*	55,543	1,088,255	9,270	7,056,345	4,446,597	216,639	12,872,649

P : Provisional

(Contd...)

Note : '(a): HSD consumption in agricultural sector is not available separately and is included under transport sector. Agricultural sector represents LDO only.

* Oil/POL product consumption for the month of Feb-2016 and Mar-2016 are not available

Source : Oil Companies Advisory Committee.

TABLE 14.1

COMMERCIAL ENERGY CONSUMPTION

Fiscal Year	2. Gas (mm cft)*							Total
	Households	Commercial	Cement	Fertilizer	Power	Industry	Transport CNG**	
2000-01	140,899	20,618	6,977	175,393	281,255	138,503	4,423	768,068
2001-02	144,186	22,130	7,063	177,589	314,851	151,416	7,369	824,604
2002-03	153,508	22,776	3,445	180,611	335,636	164,968	11,320	872,264
2003-04	155,174	24,192	7,711	185,350	469,738	193,395	15,858	1,051,418
2004-05	172,103	27,191	13,383	190,409	507,398	226,116	24,443	1,161,043
2005-06	171,109	29,269	15,335	198,175	491,766	278,846	38,885	1,223,385
2006-07	185,533	31,375	14,686	193,682	433,672	306,600	56,446	1,221,994
2007-08	204,035	33,905	12,736	200,063	429,892	322,563	72,018	1,275,212
2008-09	214,113	35,536	7,305	201,100	404,140	319,003	88,236	1,269,433
2009-10	219,382	36,955	1,944	220,124	366,906	333,508	99,002	1,277,821
2010-11	232,244	36,466	1,378	228,460	337,401	291,667	113,055	1,240,671
2011-12	261,915	39,627	1,266	211,828	358,381	296,181	119,000	1,288,198
2012-13	291,917	40,689	586	188,020	362,262	284,278	100,228	1,267,980
2013-14	269,135	38,117	522	216,518	349,535	259,032	87,634	1,220,493
2014-15 (P)	278,069	35,187	831	225,512	371,562	247,214	66,517	1,224,892
<u>Jul-Mar</u>								
2014-15	213,950	26,125	825	166,100	248,050	171,050	53,075	879,175
2015-16***	213,675	25,300	-	174,075	303,600	167,475	47,300	931,425

P : Provisional - : Not available

* : Excluding LPG ** : Compressed Natural Gas

*** : Sector wise natural gas consumption for the month of March 2016 is not available

(Contd...)

TABLE 14.1

COMMERCIAL ENERGY CONSUMPTION

Fiscal Year	3. Electricity (Gwh)								4. Coal (000 metric ton)					
	Trac-tion	House-hold	Comm-ercial	Indus-trial	Agricul-tural	Street Lights	Other Govt.	Total	House-hold	Power	Brick Kilns	Cement	Other Govt.	Total
2000-01	13	22,765	2,774	14,349	4,924	213	3,547	48,585	1.0	205.8	2,837.9	1,000.0	-	4044.7
2001-02	11	23,210	2,951	15,141	5,607	212	3,490	50,622	1.1	249.4	2,577.5	1,580.6	-	4408.6
2002-03	10	23,624	3,218	16,181	6,016	244	3,363	52,656	1.1	203.6	2,607.0	2,078.2	-	4,889.9
2003-04	9	25,846	3,689	17,366	6,669	262	3,650	57,491	1.0	184.9	2,589.4	3,289.2	-	6,064.5
2004-05	12	27,601	4,080	18,591	6,988	305	3,750	61,327	-	179.9	3,906.7	3,807.2	-	7,893.8
2005-06	13	30,720	4,730	19,803	7,949	353	4,035	67,603	-	149.3	4,221.8	3,342.8	-	7,714.0
2006-07	12	33,335	5,363	21,066	8,176	387	4,373	72,712	1.0	164.4	3,277.5	4,451.2	-	7,894.1
2007-08	8	33,704	5,572	20,729	8,472	415	4,500	73,400	1.0	162.0	3,760.7	6,186.9	-	10,110.6
2008-09	5	32,282	5,252	19,330	8,795	430	4,277	70,371	0.8	112.5	3,274.8	5,001.8	-	8,389.9
2009-10	2	34,272	5,605	19,823	9,689	458	4,499	74,348	-	125.5	3,005.2	5,007.8	-	8,138.5
2010-11	1	35,885	5,782	21,207	8,971	456	4,797	77,099	-	96.5	3,003.6	4,617.1	-	7,717.1
2011-12	1	35,589	5,754	21,801	8,548	478	4,590	76,761	-	104.6	3,108.2	4,456.9	-	7,669.7
2012-13	-	36,116	6,007	22,313	7,697	457	4,199	76,789	-	63.0	2,696.0	4,129.9	-	6,889.0
2013-14	-	39,549	6,375	24,356	8,290	458	4,381	83,409	-	160.7	2,727.6	3,669.2	-	6,557.5
2014-15 (P)	-	41,450	6,512	24,979	8,033	441	4,403	85,818	-	151.8	2,960.4	5,603.8	-	8,716.0
Jul-Mar														
2014-15 (e)	-	30,040	4755	18,445	5,985	331	3,290	62,846	-	110.0	2,688.0	3,000.0	-	5,798.0
2015-16*	-	31,655	5134	18,955	6,164	306	7,331	69,545	-	158.2	2,885.8	1,800.0	-	4,844.0

P : Provisional - : Not available

e : Consumption of coal and electricity is estimated

* : Consumption of coal of the period July-15 to March-16 is estimated

Source: Ministry of Petroleum & Natural Resources
Hydrocarbon Development Institute of Pakistan (HDIP)

TABLE 14.2

COMMERCIAL ENERGY SUPPLIES (ELECTRICITY)

Fiscal Year	Installed Capacity MW	Generation GW/h (a)	Hydroelectric		Thermal		Nuclear		Renewable		Imported (GW/h)
			Installed Capacity (MW) (b)	Generation (GW/h)	Installed Capacity (MW)	Generation (GW/h)	Installed Capacity (MW)	Generation (GW/h)	Installed Capacity (MW)	Generation (GW/h)	
2000-01	17,498	68,117	4,867	17,194	12,169	48,926	462	1,997	-	-	-
2001-02	17,799	72,406	5,051	18,941	12,286	51,174	462	2,291	-	-	-
2002-03	17,798	75,682	5,051	22,351	12,285	51,591	462	1,740	-	-	0.36
2003-04	19,257	80,826	6,496	26,944	12,299	52,122	462	1,760	-	-	73
2004-05	19,384	85,737	6,499	25,671	12,423	57,162	462	2,795	-	-	109
2005-06	19,450	93,775	6,499	30,862	12,489	60,283	462	2,484	-	-	146
2006-07	19,419	98,384	6,479	31,953	12,478	63,972	462	2,288	-	-	171
2007-08	19,420	95,860	6,480	28,707	12,478	63,877	462	3,077	-	-	199
2008-09	19,786	91,843	6,481	27,784	12,843	62,214	462	1,618	-	-	227
2009-10	20,921	95,607	6,481	28,093	13,978	64,371	462	2,894	-	-	249
2010-11	22,477	94,653	6,481	31,811	15,209	59,153	787	3,420	-	-	269
2011-12	22,797	95,364	6,556	28,517	15,454	61,308	787	5,265	-	-	274
2012-13	22,812	96,496	6,773	29,857	15,289	61,711	750	4,553	-	-	375
2013-14 (P)	23,531	104,089	6,893	31,873	15,887	66,707	750	5,090	-	-	419
2014-15	23,759	102,448	7,030	32,474	15,541	62,925	750	5,804	438	802	443
Jul-Mar											
2014-15 (e)	23,212	71,712	7,027	23,478	15,435	43,611	750	4,273	-	-	350
2015-16 #	23,101	73,209	7,027	24,544	15,324	45,252	750	3,078	-	-	335

P : Provisional - : Not Available

(a) GWh: Giga Watt hour (b) MW: Mega Watt

: Electricity generation of about 6 IPP's is not available

Source: Hydrocarbon Development Institute of Pakistan (HDIP)

TABLE 14.3

COMMERCIAL ENERGY SUPPLIES (OIL, GAS, PETROLEUM, COAL)

Fiscal Year	Oil		Gas		Petroleum Products		Coal	
	Crude Oil Imports 000 barrels	Local Crude Extraction 000 barrels	Production mcf*	Imports mcf	Imports 000 tons	Production 000 tons	Imports 000 tons	Production 000 tons
2000-01	52,505	21,084	857,433	-	10,029	8,337	950	3,095
2001-02	51,982	23,195	923,758	-	9,023	9,028	1,081	3,328
2002-03	52,512	23,458	992,589	-	8,437	9,084	1,578	3,312
2003-04	57,699	22,625	1,202,750	-	5,170	9,740	2,789	3,275
2004-05	61,161	24,119	1,344,953	-	5,676	10,474	3,307	4,587
2005-06	63,546	23,936	1,400,026	-	6,009	10,498	2,843	4,871
2006-07	60,694	24,615	1,413,581	-	8,330	10,314	4,251	3,643
2007-08	64,912	25,603	1,454,194	-	9,025	10,754	5,987	4,124
2008-09	62,115	24,033	1,460,679	-	9,974	9,828	4,652	3,738
2009-10	53,081	23,706	1,482,847	-	11,178	8,996	4,658	3,481
2010-11	51,306	24,041	1,471,591	-	12,371	8,911	4,267	3,450
2011-12	47,104	24,573	1,558,959	-	11,507	8,395	4,057	3,613
2012-13	57,037	27,841	1,505,841	-	10,489	9,914	3,710	3,179
2013-14 (P)	59,920	31,585	1,493,508	-	11,523	10,926	3,119	3,438
2014-15	62,109	34,490	1,465,760	20,191	13,347	11,243	5,004	3,712
Jul-Mar								
2014-15 (e)	43,278	26,171	1,098,869	13,564	9,174	8,300	3,928	2,500
2015-16 #	49,720	24,022	1,115,203	15,811 **	9,465	8,426	3,733	1,111

P : Provisional

* : Million cubic feet

Source: Hydrocarbon Development Institute of Pakistan (HDIP)

: Electricity generation of about 6 IPP's is not available

(e): Figures for the period Jul-14 to Mar-15 are estimated on the basis of 06 months data.

** : LNG import is available till September 2015

TABLE 14.4

SCHEDULE OF ELECTRICITY TARIFFS

DESCRIPTION	Fixed Charge Rs./kW/M.	Variable Charge w.e.f 11-10-2014										GOP Applicable Rate
		IESCO	GEPCO	LESCO	FESCO	MEPCO	PESCO	HESCO	QESCO	SEPCO	TESCO	
Residential												
Up to 50 Units		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	2.00
Load up to 5 kW												
01-100 Units		10.50	13.26	10.00	11.09	13.00	13.00	11.06	10.50	10.50	12.70	5.79
101-200 Units		12.50	16.90	12.33	14.00	16.90	16.24	12.50	12.50	12.50	14.50	8.11
201-300 Units		12.50	16.90	12.33	14.00	16.90	16.24	12.50	12.50	12.50	14.50	12.09
301-700 Units		15.00	17.90	15.00	15.00	17.90	17.90	15.50	15.00	15.50	16.50	15.00
Above 700 Units		17.50	19.00	17.50	17.50	19.00	19.00	17.50	17.50	17.50	17.50	17.50
Load Exceeding 5 kW												
Time of Use (TOU) - Peak		17.50	19.00	17.50	17.50	19.00	19.00	17.50	17.50	17.50	17.50	17.50
Time of Use (TOU) - Off-Peak		11.50	13.50	11.50	11.50	13.30	13.30	11.50	11.50	11.50	11.50	11.50
Total Residential												
Commercial - A2												
Load up to 5 kW		17.50	19.00	17.50	17.50	19.00	19.00	17.50	17.50	17.50	17.50	17.50
Load Exceeding 5 kW												
Regular	400.00	15.00	16.00	15.00	15.00	16.00	16.00	15.00	15.00	15.00	15.00	15.00
Time of Use (TOU) - Peak		17.50	19.00	17.50	17.50	19.00	19.00	17.50	17.50	17.50	17.50	17.50
Time of Use (TOU) - Off-Peak	400.00	11.50	13.50	11.50	11.50	13.30	13.30	11.50	11.50	11.50	11.50	11.50
Total Commercial												
Industrial												
B1		14.50	15.50	14.50	14.50	15.50	15.50	14.50	14.50	14.50	14.50	14.50
B1 Peak		17.50	19.00	17.50	17.50	19.00	19.00	17.50	17.50	17.50	17.50	17.50
B1 Off Peak		11.50	13.50	11.50	11.50	13.30	13.30	11.50	11.50	11.50	11.50	11.50
B2	400.00	14.00	15.00	14.00	14.00	15.00	15.00	14.00	14.00	14.00	14.00	14.00
B2 - TOU (Peak)		17.50	19.00	17.50	17.50	19.00	19.00	17.50	17.50	17.50	17.50	17.50
B2 - TOU (Off-peak)	400.00	11.30	13.30	11.30	11.30	13.10	13.10	11.30	11.30	11.30	11.30	11.30
B3 - TOU (Peak)		17.50	19.00	17.50	17.50	19.00	19.00	17.50	17.50	17.50	17.50	17.50
B3 - TOU (Off-peak)	380.00	11.20	13.20	11.20	11.20	13.00	13.00	11.20	11.20	11.20	11.20	11.20
B4 - TOU (Peak)		17.50	19.00	17.50	17.50	19.00	19.00	17.50	17.50	17.50	17.50	17.50
B4 - TOU (Off-peak)	360.00	11.10	13.10	11.10	11.10	12.90	12.90	11.10	11.10	11.10	11.10	11.10
Total Industrial												
Bulk Supply												
C1(a) Supply at 400 Volts- up to 5 kW		15.00	16.00	15.00	15.00	16.00	16.00	15.00	15.00	15.00	15.00	15.00
C1(b) Supply at 400 Volts-exceeding 5 kW												
Time of Use (TOU) - Peak	400.00	14.50	15.50	14.50	14.50	15.50	15.50	14.50	14.50	14.50	14.50	14.50
Time of Use (TOU) - Off-Peak	400.00	11.50	13.50	11.50	11.50	13.30	13.30	11.50	11.50	11.50	11.50	11.50
C2 Supply at 11 kV	380.00	14.30	15.30	14.30	14.30	15.30	15.30	14.30	14.30	14.30	14.30	14.30
Time of Use (TOU) - Peak		17.50	19.00	17.50	17.50	19.00	19.00	17.50	17.50	17.50	17.50	17.50
Time of Use (TOU) - Off-Peak	380.00	11.30	13.30	11.30	11.30	13.10	13.10	11.30	11.30	11.30	11.30	11.30
C3 Supply above 11 kV	360.00	14.20	15.20	14.20	14.20	15.20	15.20	14.20	14.20	14.20	14.20	14.20
Time of Use (TOU) - Peak		17.50	19.00	17.50	17.50	19.00	19.00	17.50	17.50	17.50	17.50	17.50
Time of Use (TOU) - Off-Peak	360.00	11.20	13.20	11.20	11.20	13.00	13.00	11.20	11.20	11.20	11.20	11.20
Total Bulk Supply												
Agricultural												
Scarp		14.50	15.50	14.50	14.50	15.50	15.50	14.50	14.00	13.60	13.50	13.01
Time of Use (TOU) - Peak		17.50	19.00	17.50	17.50	19.00	19.00	17.50	17.50	17.50	17.50	10.35
Time of Use (TOU) - Off-Peak	200.00	11.20	13.20	11.20	11.20	13.00	13.00	11.20	11.20	11.20	11.20	10.35
Agricultural Tube-wells	200.00	14.00	15.00	14.00	14.00	15.00	15.00	14.00	13.61	13.00	12.97	11.51
Time of Use (TOU) - Peak		17.50	19.00	17.50	17.50	19.00	19.00	17.50	17.50	17.50	17.50	17.50
Time of Use (TOU) - Off-Peak	200.00	11.20	13.20	11.20	11.20	13.00	13.00	11.20	11.20	11.20	11.20	11.20
Total Agricultural												
Public Lighting		15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Resid. Colon.att. to ind		15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Railway Traction				15.00		15.00						15.00
Special Contracts - AJK	360.00	14.38	15.00				14.38					12.22
Time of Use (TOU) - Peak		17.50	19.00				19.00					17.50
Time of Use (TOU) - Off-Peak	360.00	11.20	13.20				13.00					11.20
Special Contracts - Rawat Lab.		15.00										15.00

Source : NEPRA

TABLE 14.4

SCHEDULE OF ELECTRICITY TARIFFS

DESCRIPTION	Fixed Charge Rs./kW/M.	Variable Charge w.e.f 10-06-2015										GOP Applicable Rate*
		IESCO	GEPSCO	LESOCO	FESCO	MEPCO	PESCO	HESCO	QESCO	SEPCO	TESCO	
Residential												
Up to 50 Units		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	2.00
Load up to 5 kW												
01-100 Units		9.00	11.82	9.25	9.00	9.52	12.50	9.79	12.50	11.00	14.30	5.79
101-200 Units		11.00	14.00	11.00	10.20	12.00	16.50	14.00	15.00	13.52	17.30	8.11
201-300 Units		11.00	14.00	11.00	10.20	12.00	16.50	14.00	15.00	13.52	17.30	10.20
301-700 Units		13.00	17.00	13.33	14.00	15.00	17.90	15.00	17.00	16.00	18.00	16.00
Above 700 Units		15.00	19.00	15.00	16.00	16.00	19.00	16.00	19.00	19.00	19.00	18.00
Load Exceeding 5 kW												
Time of Use (TOU) - Peak		15.00	19.00	15.00	16.00	16.00	19.00	16.00	19.00	19.00	19.00	18.00
Time of Use (TOU) - Off-Peak		9.25	13.00	9.50	10.00	10.50	13.30	10.20	13.00	13.00	14.50	12.50
Total Residential												
Commercial - A2												
Load up to 5 kW		15.00	19.00	16.00	15.00	16.00	19.00	15.00	19.00	19.00	19.00	18.00
Load Exceeding 5 kW												
Regular	400.00	12.00	15.00	12.00	14.50	14.00	15.00	13.00	15.00	15.00	17.00	16.00
Time of Use (TOU) - Peak		15.00	19.00	15.00	16.00	16.00	19.00	16.00	19.00	19.00	19.00	18.00
Time of Use (TOU) - Off-Peak	400.00	9.25	13.00	9.50	10.00	10.50	13.30	10.20	13.00	3.00	14.50	12.50
Total Commercial												
Industrial												
B1		12.00	14.50	12.00	13.00	13.50	14.50	12.50	14.50	14.50	15.00	14.50
B1 Peak		15.00	19.00	15.00	16.00	16.00	19.00	16.00	19.00	19.00	19.00	18.00
B1 Off Peak		9.25	13.00	9.50	10.00	10.50	13.30	10.20	13.00	13.00	14.50	12.50
B2	400.00	11.50	14.00	11.50	12.50	13.00	14.00	12.00	14.00	14.00	14.50	14.00
B2 - TOU (Peak)		15.00	19.00	15.00	16.00	16.00	19.00	16.00	19.00	19.00	19.00	18.00
B2 - TOU (Off-peak)	400.00	9.05	12.80	9.30	9.60	10.30	13.10	10.00	12.80	12.80	14.30	12.29
B3 - TOU (Peak)		15.00	19.00	15.00	16.00	16.00	19.00	16.00	19.00	19.00	19.00	18.00
B3 - TOU (Off-peak)	380.00	8.85	12.70	9.10	9.50	10.20	13.00	9.80	2.70	12.70	14.20	12.20
B4 - TOU (Peak)		15.00	19.00	15.00	16.00	16.00	19.00	16.00	19.00	19.00	19.00	18.00
B4 - TOU (Off-peak)	360.00	8.75	12.60	9.00	9.40	10.10	12.90	9.70	12.60	12.60	14.10	12.10
Total Industrial												
Bulk Supply												
C1(a) Supply at 400 Volts- up to 5 kW		12.50	15.00	12.50	13.50	14.00	15.00	13.00	15.00	15.00	15.50	15.00
C1(b) Supply at 400 Volts-exceeding 5 kW	400.00	12.00	14.50	12.00	13.00	13.50	14.50	12.50	14.50	14.50	15.00	14.50
Time of Use (TOU) - Peak		15.00	19.00	15.00	16.00	16.00	19.00	16.00	19.00	19.00	19.00	18.00
Time of Use (TOU) - Off-Peak	400.00	9.25	13.00	9.50	10.00	10.50	13.30	10.20	13.00	13.00	14.50	12.50
C2 Supply at 11 kV	380.00	11.80	14.30	11.80	12.80	13.30	14.30	12.30	14.30	14.30	14.80	14.30
Time of Use (TOU) - Peak		15.00	19.00	15.00	16.00	16.00	19.00	16.00	19.00	19.00	19.00	18.00
Time of Use (TOU) - Off-Peak	380.00	9.05	12.80	9.30	9.60	10.30	13.10	-	12.80	12.80	14.30	12.30
C3 Supply above 11 kV	360.00	11.70	14.20	11.70	12.70	13.20	14.20	12.20	14.20	14.20	14.70	14.20
Time of Use (TOU) - Peak		15.00	19.00	15.00	16.00	16.00	19.00	16.00	19.00	9.00	19.00	18.00
Time of Use (TOU) - Off-Peak	360.00	8.85	12.70	9.10	9.50	10.20	13.00	9.80	12.70	12.70	14.20	12.20
Total Bulk Supply												
Agricultural												
Scarp		12.00	14.50	12.00	13.00	13.50	14.50	12.50	15.20	15.50	15.00	12.00
Time of Use (TOU) - Peak		15.00	19.00	15.00	16.00	16.00	19.00	16.00	19.00	19.00	19.00	15.00
Time of Use (TOU) - Off-Peak	200.00	8.85	12.70	9.10	9.50	10.20	13.00	9.80	12.70	12.70	14.20	8.85
Agricultural Tube-wells	200.00	11.50	14.00	11.50	12.50	13.00	14.00	12.00	14.70	15.00	14.50	11.50
Time of Use (TOU) - Peak		15.00	19.00	15.00	16.00	16.00	19.00	16.00	19.00	19.00	19.00	10.35
Time of Use (TOU) - Off-Peak	200.00	8.85	12.70	9.10	9.50	10.20	13.00	9.80	12.70	12.70	14.20	8.85
Total Agricultural												
Public Lighting		14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	15.00	15.00
Resid. Colon.att. to ind		14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	15.00	15.00
Railway Traction				14.00		14.00						15.00
Special Contracts - A/JK	360.00	11.24	14.00				14.00					12.22
Time of Use (TOU) - Peak		15.00	19.00				19.00					18.00
Time of Use (TOU) - Off-Peak	360.00	8.85	12.70				13.30					12.20
Special Contracts - Rawat Lab.		14.00										15.00

* : GOP Tarrif w.e.f. 10-06-2015 also includes an amount of Tarrif Rationalization Surcharge

Source : NEPRA

TABLE 14.5
OIL SALE PRICES

Date	22-11-2012	22-12-2012	22-01-2013	01-03-2013	04-03-2013	01-07-2013	01-08-2013	Rs/Ltrs
EX-NRL/PRL KARACHI								
Motor Gasoline	102.65	101.42	103.07	106.60	103.07	69.40	71.74	
HOBC (Automotive 100 Octane)	-	-	-	-	-	87.68	92.52	
Super (90 Octane) Blend of Motor Gasoline @ 60% and HOBC 40%)								
Kerosene	99.03	98.81	99.90	103.69	99.90	72.28	76.54	
HSD	109.77	110.13	109.21	113.56	109.21	78.49	82.33	
LDO	93.89	94.34	94.33	98.26	94.78	71.47	74.84	
Aviation gasoline (100LL)								
JP-1:								76.8
i) For sale to PIA Domestic Flight	88.22	88.04	89.24	93.52	93.52	72.54		
ii) For sale to PIA foreign flights & foreign airline								
iii) For Cargo & Technical Landing Flights								
JP-4	-	-	-	-	-	-	-	
JP-8	87.90	87.72	88.80	93.21	93.21	72.28	76.54	
- : Not available								

Source: Hydrocarbon Development Institute of Pakistan (HDIP)

TABLE 14.5
OIL SALE PRICES

Date	01-09-2013	01-10-2013	01-11-2013	01-12-2013	01-01-2014	01-02-2014	02-03-2014	Rs/Ltrs
EX-NRL/PRL KARACHI								
Motor Gasoline	75.52	80.05	77.82	78.26	80.83	78.31	75.43	
HOBC (Automotive 100 Octane)	97.47	102.19	99.84	104.30	107.38	103.55	100.97	
Super (90 Octane) Blend of Motor Gasoline @ 60% and HOBC 40%)								
Kerosene	80.30	82.11	82.05	82.98	85.31	81.13	81.33	
HSD	85.27	87.54	81.40	82.36	84.43	80.79	80.86	
LDO	76.99	78.75	79.48	80.13	81.63	78.07	78.47	
Aviation gasoline (100LL)								
JP-1:	80.57	82.39	82.33	83.26	-	-	-	
i) For sale to PIA Domestic Flight								
ii) For sale to PIA foreign flights & foreign airline								
iii) For Cargo & Technical Landing Flights								
JP-4								
JP-8	80.30	82.11	82.05	82.98	-	-	-	
- : Not available								

Source: Hydrocarbon Development Institute of Pakistan (HDIP)

TABLE 14.5
OIL SALE PRICES

Date	01-04-2014	01-05-2014	01-06-2014	01-07-2014	01-08-2014	01-09-2014	01-10-2014	Rs/Ltrs
EX-NRL/PRL KARACHI								
Motor Gasoline	74.02	73.68	74.89	107.97	107.97	106.56	103.62	
HOBC (Automotive 100 Octane)	95.87	94.25	96.45					
Super (90 Octane) Blend of Motor Gasoline @ 60% and HOBC 40%)								
Kerosene	75.97	73.88	74.19	97.40	97.05	96.99	95.68	
HSD	77.53	73.93	75.30	109.34	109.34	108.34	107.39	
LDO	74.07	72.83	73.67	94.13	93.27	92.08	91.94	
Aviation gasoline (100LL)								
JP-1:	-	-	-	86.71	86.74	84.84	85.00	
i) For sale to PIA Domestic Flight								
ii) For sale to PIA foreign flights & foreign airline								
iii) For Cargo & Technical Landing Flights								
JP-4								
JP-8	-	-	-	87.06	86.42	85.52	84.66	
- : Not available								

Source: Hydrocarbon Development Institute of Pakistan (HDIP)

TABLE 14.5
OIL SALE PRICES

Date	01-11-2014	01-12-2014	01-01-2015	01-02-2015	01-03-2015	01-07-2015	01-08-2015	Rs/Ltrs
EX-NRL/PRL KARACHI								
Motor Gasoline	94.19	84.53	78.28	70.29	70.29	77.79	76.76	
HOBC (Automotive 100 Octane)						83.81	82.79	
Super (90 Octane) Blend of Motor Gasoline @ 60% and HOBC 40%)								
Kerosene	87.52	83.18	71.92	61.44	61.44	64.94	60.11	
HSD	101.21	94.09	86.23	80.61	80.61	87.11	85.05	
LDO	83.37	77.98	67.50	57.94	57.94	61.51	56.59	
Aviation gasoline (100LL)								
JP-1:	77.60	73.05	59.10	47.30	53.59	55.81	49.33	
i) For sale to PIA Domestic Flight								
ii) For sale to PIA foreign flights & foreign airline								
iii) For Cargo & Technical Landing Flights								
JP-4								
JP-8	77.01	72.72	58.76	46.96	53.25	55.47	48.99	
- : Not available								

Source: Hydrocarbon Development Institute of Pakistan (HDIP)

TABLE 14.5
OIL SALE PRICES

Date	01-09-2015	01-10-2015	01-11-2015	01-12-2015	01-01-2016	01-02-2016	01-03-2016
Rs/Ltrs							
EX-NRL/PRL KARACHI							
Motor Gasoline	73.76	73.76	76.26	76.26	76.25	71.25	62.77
HOBC (Automotive 100 Octane)	79.79	79.79	79.79	80.66	80.66	75.66	72.68
Super (90 Octane) Blend of Motor Gasoline @ 60% and HOBC 40%)							
Kerosene	57.11	57.11	57.11	56.32	48.25	43.25	43.25
HSD	82.04	82.04	83.79	83.79	80.79	75.79	71.12
LDO	53.59	53.59	53.59	53.23	44.94	39.94	37.97
Aviation gasoline (100LL)							
JP-1:	42.65	45.31	46.12	45.24	37.50	29.66	32.67
i) For sale to PIA Domestic Flight							
ii) For sale to PIA foreign flights & foreign airline							
iii) For Cargo & Technical Landing Flights							
JP-4							
JP-8	42.31	44.96	45.77	44.90	37.15	29.31	31.36

- : Not available

Source: Hydrocarbon Development Institute of Pakistan (HDIP)

TABLE 14.6

GAS SALE PRICES

Category	Unit: Rupees/MMbtu.										
	30-6-2011	1-1-2012	1-7-2012	1-1-2013	1-7-2013	23-8-2013	1-1-2014	16-1-2014	1-7-2014	1-9-2015	1-1-2016
DOMESTIC (Slab)											
i) Upto 1.77 M cu.ft./month			100.00								
ii) Upto 1.77 to 3.55 M cu.ft./month	107.87	122.95		106.14						110.00	
iii) Upto 3.55 to 7.10 M cu.ft./month	215.74	245.89									
iv) Upto 7.10 to 10.64 M cu.ft./month	215.74	245.89	200.00	212.28						220.00	
v) Upto 10.64 to 14.20 M cu.ft./month	908.39	1,035.34	500.00	530.00						600.00	
vi) Upto 14.20 to 17.75 M cu.ft./month	908.39	1,035.34									
vii) All over 17.75	1,142.80	1,302.46									
COMMERCIAL											
General Industry	526.59	600.19	600.00	636.83						700.00	
Cement	434.18	600.19	460.00	488.23							
CNG Station	609.10	694.22	700.00	742.97						750.00	
Pakistan Steel	571.88	651.80	618.55	656.32						700.00	
Captive Power	434.18	494.86	460.00	488.23		573.28				600.00	
Independent Power Projects	377.39	437.86	460.00	488.23							
FERTILIZER											
SNGPL'S SYSTEM											
(i) For Feed Stock											
Pak American Fertilizer Ltd.	102.01	116.27	116.27	123.41				68.47		200.00	
F.F.C Jordan	102.01	116.27	116.27	123.41						200.00	
Dawood Hercules/ Pak Arab	102.01	116.27	116.27	123.41						200.00	
Pak China /Hazara	102.01	116.27	116.27	123.41						200.00	
(ii) For Fuel Generation all Fertilizer Co.	434.34	494.86	460.00	488.23							
Dawood & Pak Arab											
FOR MARI GAS CO. SYSTEM											
(i) For Feed Stock											
(a) Engro Chemical	102.01	116.27	116.27	123.41							
(b) FFC (Goth Machi)	102.01	116.27	116.27	123.41				68.47		200.00	
(c) Fatima Fertilizer	59.59	60.67	60.67	67.55	69.10		73.10	68.47		70.61	72.73
(d) FFC (Mirpur M)	102.01	116.27	116.27	123.41	69.10		73.17			200.00	72.73
(e) Foundation Power Company	377.39		460.00	488.23						600.00	
(ii) For Power Generation	434.34	494.86	460.00	488.23						600.00	
POWER Stations											
SNGPL & SSGCL'S SYSTEM											
Liberty Power Limited	447.14	480.86	460.00	488.23						600.00	
GAS DIRECTLY SOLD TO	1,260.30	1,450.85	1,617.00	1,505.20	1,511.68		1,600.61	1,396.24	1,305.48	713.89	648.52
WAPDA'S GUDDU POWER STATION											
SUI FIELD (917 BTU)											
KANDKOT FIELD (866 BTU)		480.86	460.00	488.23						600.00	
MARI FIELD (754 BTU)		480.86	460.00	488.23						600.00	
SARA /SURI FIELDS											
Foundation Power Company				488.23							

* Flat rate on all offtakes applicable w.e.f 22.09.2012.

Source: Hydrocarbon Development Institute of Pakistan