



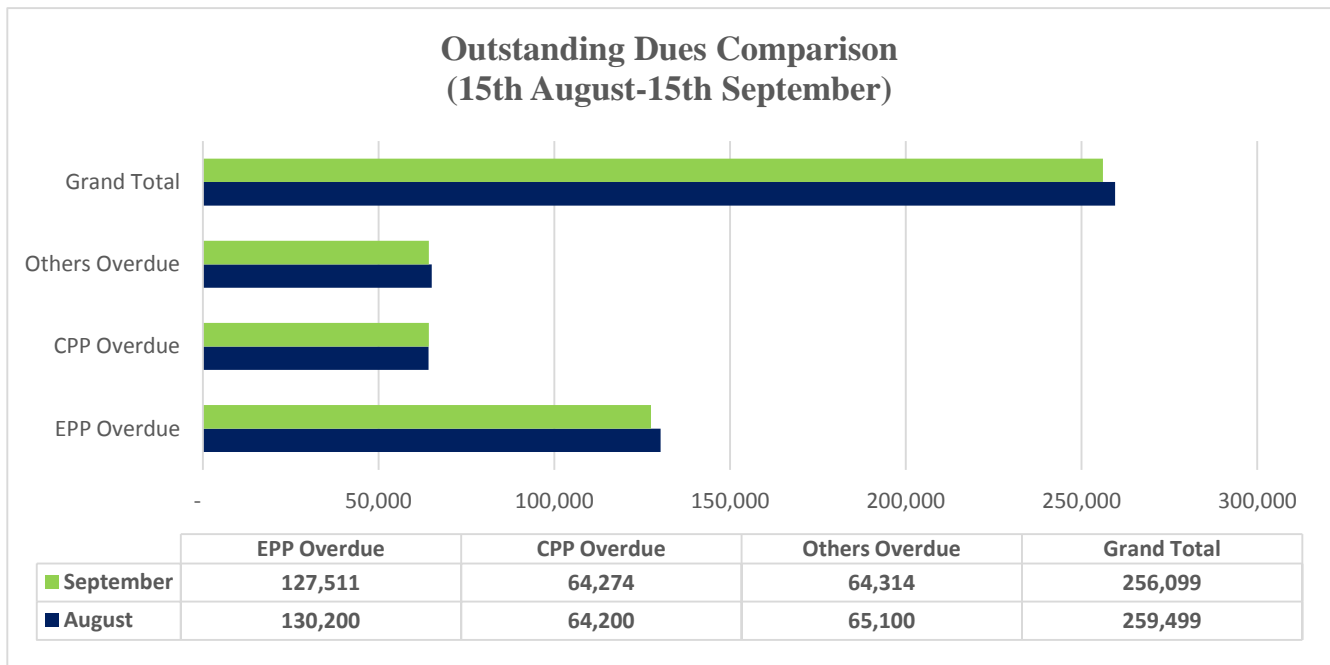
INDEPENDENT POWER PRODUCERS ASSOCIATION

MONTHLY NEWSLETTER

Welcome to the twentieth edition of Independent Power Producers Association (IPPA) Newsletter. The newsletter is published on a monthly basis to ensure regular dissemination of information to Member IPPs and other stakeholders, and also to provide a platform to discuss issues pertinent to the energy sector of Pakistan. We would like you to send us your feedback and comments on how to improve the monthly newsletter.

Monthly Infographics

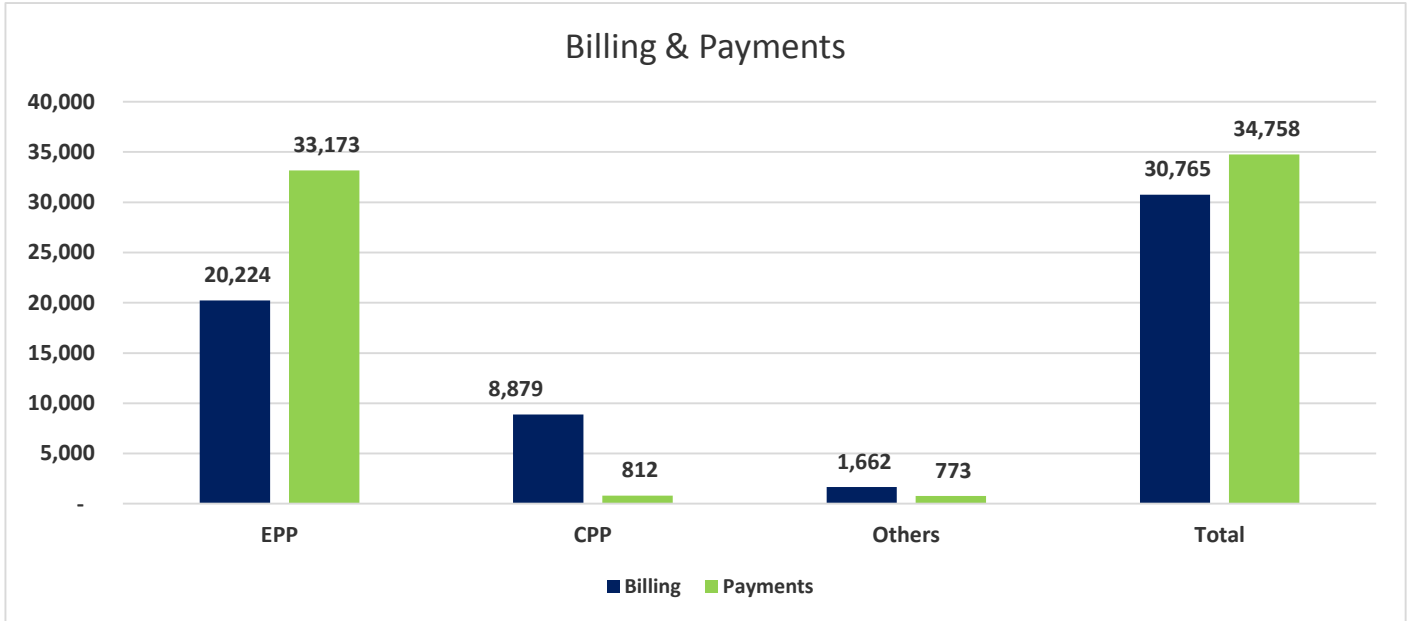
Outstanding Dues as of 15th October, 2018 in PKR Millions



Source: Member and Subsidiary IPPs

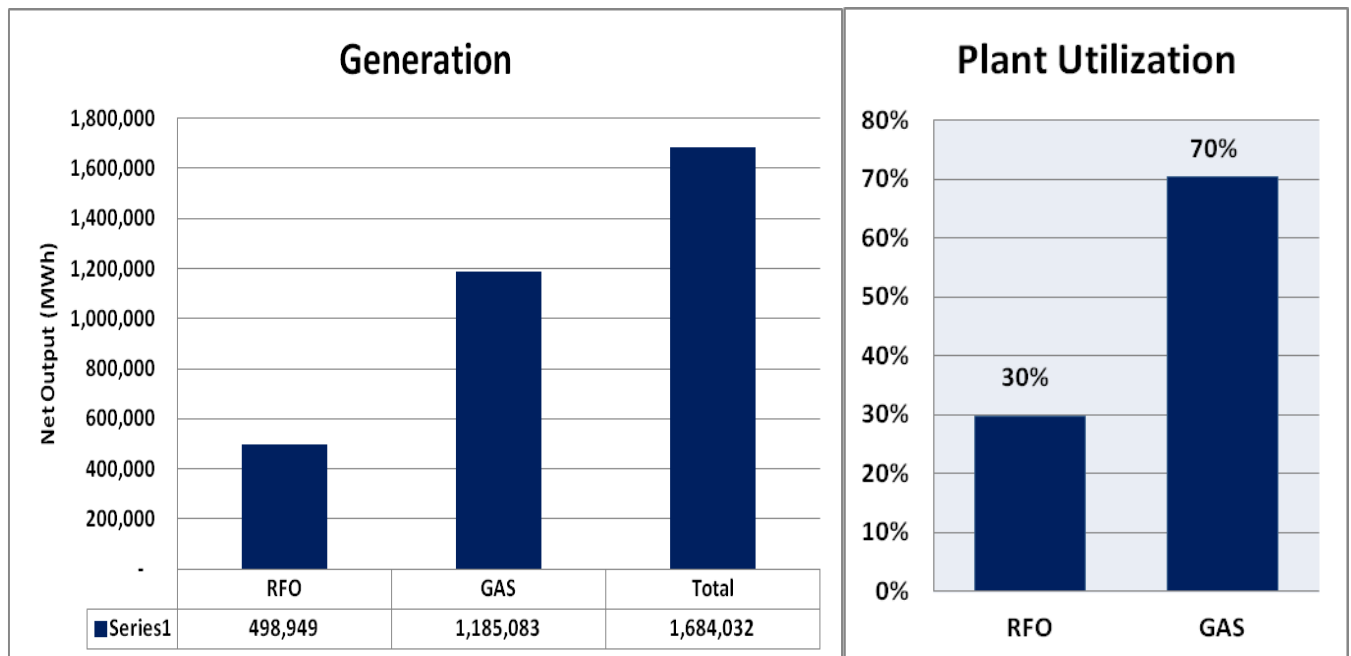
Monthly Infographics

Billing and Payments in October 2018 in PKR Millions



Source: Member and Subsidiary IPPs

Net Generation and Plant Utilization in October 2018



Source: Member and Subsidiary IPPs

Generation

Tarbela Dam Passes Load Rejection and Efficiency Test

Islamabad: WAPDA has carried out the load rejection and efficiency tests for Tarbela 4th extension program. Both the load rejection and efficiency tests were successful. WAPDA carried out the load rejection test at the full load of 1100MW. The load rejection test measures the resilience of a power generating facility against a sudden loss of load. The load rejection tested this flexibility by looking at the stability of the underwater parts and the adjustment of the speed by the turbines. Watch the video for the test on the following link: <https://www.youtube.com/watch?v=9bsvdUP8zf0>

Before facing the load rejection test, Tarbela (4th Extension) also passed the efficiency test with flying colors. The efficiency test, carried mid-September, showed the actual efficiency exceeding the modeled efficiency. Consultants supervised the load rejection test. A consortium of M/s Voith Hydro of Germany & China carried out the Engineering and Procurement work for the project. On the other hand, Sinohydro Group of China was responsible for Civil Works. World Bank primarily sponsored the Tarbela 4th extension program.

This extension is expected to generate Rs. 30 Billion of annual savings with an annual production of 3.84 billion units of electricity. The extension program would increase the capacity of Tarbela from

3478MW to 4888MW. As of now, the project has already supplied 1.26 billion units of power to the national grid.

Source: Pakistan Today, World Bank, WAPDA

Thar Coal Power Expected to Start Generating Electricity In 2019

Karachi: Shamsuddin Shaikh, CEO of Sindh Engro Coal Mining Company (SECMC), said Thar coal power could come online by January 2019. Both the projects are five months ahead of schedule. Thar power project¹ was claimed to be at 94% completions while Thar coal mining² was reported to be at 92% completion. Engro Power Thar Limited (EPTL) runs the Thar Power Project while Sindh Engro Coal Mining Company (SECMC) operates the coal mining project. Both EPTL and SECMC come under the umbrella of CPEC. These are the only two projects that are 95% owned by Pakistani companies. EPTL has already secured a connection to the national grid. Therefore, once the project is completed, the contribution to the national transmission system will be immediate.

Operationalization of Phase II and III of Thar power will reduce the cost of creating electricity. These cost reductions would occur because of the use of super-critical technology in the later phases. Super Critical technology is 3% more efficient than sub-critical. Apart from saving foreign exchange and cost of power generation, Thar coal is 54% owned by the Sindh government. Hence this mining project would give the

¹ Engro Power Thar Limited (EPTL)

² Sindh Engro Coal Mining Company (SECMC)

province much needed revenue. Thar block II has enough coal to support 5000MW of energy for the next 50 years.

Source: Pakistan Today

Feasibility Study for Spat Gah Hydropower Project Completed

Islamabad: KPK government completed the feasibility study for 496MW Spat Gah power project. The government envisioned a project near Dasu in Kohistan. The rules of a Public-Private partnership will govern the construction of the project. In this regard, the KPK government has signed an MOU with Korean Hydro Nuclear Power (KHNP).

Distribution

Circular Debt reduction via Multiple Ways

Islamabad: Over the past month, the government has been mulling many strategies to reduce circular debt. They include a reorientation of the production, smart metering, hike in tariff, directing DISCOS to collect more.

The government would like to pay for the circular debt without increasing a substantial increase in electricity tariffs. The government was said to have encouraged the increased transmission of units by NTDC. After NTDC increases the transmission, the payment for the circular debt can be divided over a large number of units. Therefore the government would be able to pay for the circular debt with a minimal increase in the electricity tariff. There is a suggestion for K-electric to reduce production at the old power plant. The replacement of inefficient and expensive electricity with cheap

NTDC supplied electricity would increase the NTDC transmission.

Installing smart meters and ABC cables to reduce power theft is another method to minimize T&D losses. Minimizing the T&D losses would reduce the circular debt. IESCO and LESCO areas would start the smart metering very soon. It is pertinent to mention that most of the power theft occurs in LESCO, PESCO, Hyderabad, Quetta, Sukkur and tribal areas. Currently ADB is financing the five-year-long project worth five billion dollars.

Apart from physical measures, distribution tariff increase is also required to bridge the gap between the generation and distribution tariffs³. NEPRA recently raised the electricity tariff by 0.41 Rupees which would rake in 3.8 billion rupees.

Directing DISCOS to meet targets is a good short-term measure to avoid debt because of mismanagement. Minister of Energy (Power Division) directed six DISCOS to recover Rupees 83.2 billion. This amount was over and above the current receivables and after meeting the line loss targets.

Regulation

NEPRA determines tariff for a 50 MW wind power project

Islamabad: NEPRA approved a Levellised power tariff of US Cents 4.7212 /kWh for a 50 MW Windfarm. The application for the tariff determination was submitted by Act 2 Wind (Pvt) Limited.

At the initial exchange rate of Rupees 120/USD, the Levellised tariff comes at 5.66544 Rs/Kwh. The project is expected to cost \$59.539 Million.

³ T&D loss adjusted tariffs

ARAMCO – Boost in Refining Capacity

Saudi Aramco, with primary growth objective of refining petrochemicals, has expressed plans of boosting integrated refining and marketing capacity from the current 5.4 million bpd to 8-10 million barrels per day (bpd). With target of being a frontrunner in petrochemicals (estimated to be a driver for global oil consumption) by 2050, KSA will invest \$10bn at home and in Asia; particularly in China and India. Conversion of about 2-3 mb/d of crude oil into petrochemicals is expected as a result of such measures. According to its CEO, Aramco plans to invest \$100 billion over the next 10 years in chemicals globally, in addition to potential acquisitions. Considerations on acquiring a strategic stake in Saudi Arabia's SABIC, the world's fourth-largest petrochemicals maker, are also being made.

Source: ENERDATA

Aramco- Gas Export Ambitions

Amin Nasser (CEO) has expressed plans to boost Aramco's gas production, using unconventional gas resources, to 23 billion standard cubic feet (scf) a day from 14 billion scf currently. This strategy, however, needs investments of about \$150 billion over the next decade. The idea is, as he puts it, to shift from only satisfying domestic utility industry in the kingdom, which will happen especially with the increase in renewable and nuclear, to be an exporter of gas and gas products. KSA efforts in renewable sector is depicted by country developing 30 solar and wind projects targeting 9.5 gigawatts (GW) of renewable energy by 2023. The kingdom also plans to build 17.6 gigawatts (GW) of nuclear capacity by 2032.

Source: Reuters

Crude Inventory Buildup in U.S

Tenth consecutive week of crude inventory buildup has been reported by U.S. Energy Information

Administration (EIA) latest results. EIA data is usually utilized as a proxy for global inventory status. Brent has slumped 31% over the past two months and is currently fluctuating below \$60; in comparison to \$86 at the start of October. Minute decrease in demand due to trend towards renewables coupled with relentless supply by KSA, Russia and U.S has made matters grimmer. In context of U.S sanctions on Iran, its perceived consequences on oil market haven't realized meanwhile unexpected waivers to importers of Iranian oil have taken forecasters by surprise. Consequently, market is being rushed by excess supply. Outcomes from G20 meeting and upcoming OPEC gathering will dictate the future course.

Source: World Energy News

LNG Trade Jump

According to Höegh LNG (import terminals and FSRUs), the global floating liquefied natural gas (LNG) trade touched 236 million tonnes in the first 9 months of 2018. That is 7.1% increment as compared to last year's respective timeline. Factors alluded to this rise are increasing Asian demand particularly that of China and Japan, Australian and U.S supplies of LNG etc. Chinese demand however, takes the spot light with its status of world's second largest importer of LNG. China imported 37.7 million tonnes of LNG in the past 9 months of 2018 with estimated imports of 55 million tonnes at year's end.

Source: World Energy News

Cheapest Power Source – Solar and Wind

According to Bloomberg New Energy Finance, owing to falling technology costs, unsubsidized solar and onshore wind are now the cheapest source of new bulk power in all major economies except Japan. Levelized cost of electricity (LCOE) is examined in the report. Contraction in China's utility-scale solar PV market by more than a third

has made the equipment cheaper across the globe. As far as “Onshore wind” is concerned, it’s now as cheap as \$27/MWh in India and Texas, without subsidy due to cheaper turbines and strong U.S dollar. The report out on 19th of November says that even in India, best-in-class solar and wind plants are now half the cost of new coal plants”.

Source: Renewable Energy World

Gravity-Based Energy Storage

Energy Vault, an Idealab company, has announced the commercial availability of its energy storage solution. It’s based on same fundamentals as those that govern traditional gravity-based pumped hydro plants, whereby in this case replacing the water with concrete bricks. The material used is “low cost waste debris concrete”, with a 30-40 year life, that provides the basis for the storage and discharge of electricity. Energy Vault has already made agreements with several customers across the globe due to its cost efficiency and durability.

Source: Renewable Energy World

In order to understand the rationale behind the present working of the power sector, it is inevitable to understand its evolution. Tracing the historical development gives a context in explaining the current and future direction of the power sector in Pakistan. The sector's transformation can be best tracked by looking at the development of power policies. Each power policy influenced the sector by persuading different dimensions of the power sector such as change in institutional arrangements, technology coverage, financing of new projects and changes in tariff format.

The first energy and power planning study was conducted in late 1960s to supplement five yearly medium-term development plans of government. However, the first formal energy and power policy was only announced in 1994. It is pertinent to mention that these policies in terms of focus are not only varied but also conceived without undertaking integrated energy planning. Till date, apart from alternative energy policies, we have witnessed a total of five power generation policies¹.

In 1994, due to the failure of the BOO² model, Pakistan was suffering from severe power crisis. As a natural outcome, government recognized power generation as a separate industry in 1994 policy. This policy aimed at involving the private sector into power production. A year later, 1995 policy was issued focusing at cost reduction and promoting Hydel power generation projects. However, it failed to attract any meaningful investment. 1998 generation policy introduced institutional reforms. Although market reaction to 1998 policy was not much different from 1995 policy, however, institutional reforms lead to the formation of NEPRA. The 2002 power policy managed to attract private investors and witnessed setting up of new power plants. Finally, the latest policy in place was issued in 2015 with an aim to address the power crises via quick harvest projects also managed to attract private sector investment in clean energy.

A critical analysis of power policies reveals that 1994 power policy is one of the most critical power generation policies as it served the baseline for subsequent policies and lead to private sector investment in power plants. Fundamental changes to the management of power projects i.e. long-term contracts were introduced in this policy. The government still uses them to appease the qualms of the investor. Moreover, one of the highlights of 1994 policy was the formation of Private Power Infrastructure Board (PPIB). PPIB was created as one window facilitator to not only facilitate infrastructure projects in PPP mode but also to promote private investments in the sector. It is pertinent to mention that in 1994 policy, WAPDA was still the primary point of interaction between the IPP and the government. The situation did not change significantly in 1995 either. However, the 1998 policy set the baseline for the current institutional framework that still exists in the power sector. The 1998 policy recognized that there was a need for privatization in the power sector. This policy identified the need for corporatization of WAPDA. Additionally, this policy is also responsible for creation of NEPRA. Besides this, the government also unbundled electricity generating units of WAPDA which were later called GENCOs. By recognizing the need for the corporatization of WAPDA, the government displaced WAPDA as the primary organization in the setup of an IPP. The 2002 policy played a dominant part in forming the current role of PPIB in sanctioning of new Power projects. With new powers³, PPIB became the sole non-regulatory representative of the government to an IPP. PPIB was also made responsible for execution and administration of different agreements⁴ between the IPP and government. In the long run, the PPIB also took responsibility for ensuring

¹ This analysis does not cover other small policies and schemes like the "short-term capacity addition initiative of 2010" because of their non-existent effect on the power industry in the long run.

² Build Own Operate

³ The list of power includes: issue the LOI and LOS, prepare pre-qualification and bid documents, prequalify the Sponsors, evaluate the bids of pre-qualified sponsors, assist the Sponsors/project companies in seeking necessary consents/permissions from various governmental agencies, carry out negotiations on the IA

⁴ The list of agreements includes: PPA, FSA/, GSA/, CSA and, WUL respectively

the GOP guarantees. Therefore, the role of PPIB in today's market was primarily cemented by the final form of the 2002 policy. In essence, 2002⁵ policy formalized the use of international competitive bidding and the same has been retained in latest 2015 power policy. Moreover, 2015 policy also lead to amendments for provinces in the standardized power purchase agreements. Moreover, projects under BOOT⁶ arrangements transferred the power generation facilities to provinces instead of federal government. 2015 power policy also added new types of projects to list of possibilities such as government to government projects, E&P projects⁷, TIED⁸ financing project and Power Parks. This policy also incorporated CSR clauses in the agreements. Additionally, the government adapted to climate change by making allotments for carbon trading scheme. The 2015 policy is still being used to register new projects.

In nutshell, every policy changed the relative power and responsibilities of different institutions. These institutional changes had different effects on the working of the power sector. Each policy, except 1995, either created new institutions or changed the portfolio of responsibilities for every institution. Moreover, there has also been an attempt to simplify the workings of the power sector by creating one-stop organizations for multiple steps of the same process. Transparency is also promoted in the new policies. For instance, the generation license was made available on NEPRA's website⁹.

It is critical to understand that although power policies are one of the most consistent and comprehensive sources of transformation in the working of the power sector, they are not the sole source of change in the management of new power projects. There are other sources as well including, but not limited to, changes in bureaucratic process and laws affecting businesses. Moreover, these policies enjoy higher legitimacy because of their legislative power. Some policies can even protect IPPs against future change in legislation¹⁰. In general, the policy trends have been towards greater flexibility and standardization.

Overall, each of the five generation policies analyzed above have their pros and cons, however, the energy division has remained short of one well thought out, long-term and workable energy policy.

An energy policy that can reflect the resource index, environment and affordability factor collectively is the need of the hour.

Not only the energy resources are not yielded fully, but also there have been massive gaps on managerial front. On the political front, hydro-politics on both domestic and regional level is not tackled with vision and sagacity.

In essence, if the suggestions of experts would have been taken under consideration while formulating these policies, right policies would have been implemented on the right time, and we would have been witnessing a changed, much pleasant energy scenario.

Disclaimer:

IPPA's research team performs due diligence in generating factually correct and analytically sound research. However, they would take every opportunity to correct and improve their analysis and dissemination of information. Readers can contact the team via phone and mail.

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⁵ The standardized contracts included Implementation Agreement (IA), Power Purchase Agreement (PPA), Fuel Supply Agreement (FSA)/Gas Supply Agreement (GSA), Coal Supply Agreement (CSA) and Water Use License (WUL)

⁶ Build Own Operate Transfer

⁷ Companies which discover a resource, such as gas, have the first right to setup a power production unit on the gas field.


⁸ Use specific loan

⁹ <https://www.nepa.org.pk/>

¹⁰ Conditions in 2015 policy that protect against changes in tax law is a good example of such

Our Members

	Member IPPs	Primary Fuel	Alternate Fuel	Gross Capacity (MW)	Net Capacity (MW)
1	The Hub Power Company (Tehsil Hub)	RFO	HSD	1292	1200
2	Pakgen Private Limited	RFO	-	365	350
3	Lalpir Private Limited	RFO	-	362	350
4	Kohinoor Energy Limited	RFO	-	131	126
5	TNB Liberty Power Limited	GAS	HSD	235	211
6	Uch Power (Private) Limited	GAS	-	586	551
7	Rousch (Pakistan) Power Limited	GAS	HSD	412	395
8	Habibullah Coastal Power (Pvt.) Co.	GAS	HSD	140	126
9	Attock Gen Limited	RFO	HSD	165	156
10	Atlas Power Limited	RFO	HSD	225	214
11	Nishat Power Limited	RFO	HSD	200	195
12	Nishat Chunain Limited	RFO	HSD	200	195.6
13	Liberty Power Tech. Limited	RFO	HSD	200	195
14	Orient Power Company Limited	GAS	HSD	229	213
15	Saif Power Limited	GAS	HSD	229	209
16	Sapphire Electric Company Limited	GAS	HSD	225	209
17	Halmore Power Generation Co. Ltd.	GAS	HSD	225	209
18	Engro Powergen Qadirpur Limited	GAS	HSD	227	217
Subsidiary IPPs					
19	Hub Power Company Ltd (Narowal)	RFO	-	220	214
20	Uch-II Power (Pvt) Ltd	GAS	-	404	375.2
21	Saba Power Company (Private) Limited	RFO	-	134	125.5



Established in 2010, IPPA serves as an advisory body for Independent Power Producers (IPPs) in Pakistan. IPPA liaises with the government and related departments such as NEPRA, SECP, WAPDA, CPPA-G, NTDC and PPIB and also serves as a facilitator between various IPPs and stakeholders within the power sector.

If you have any suggestions or feedback, kindly write to us at feedback@ippa.com.pk