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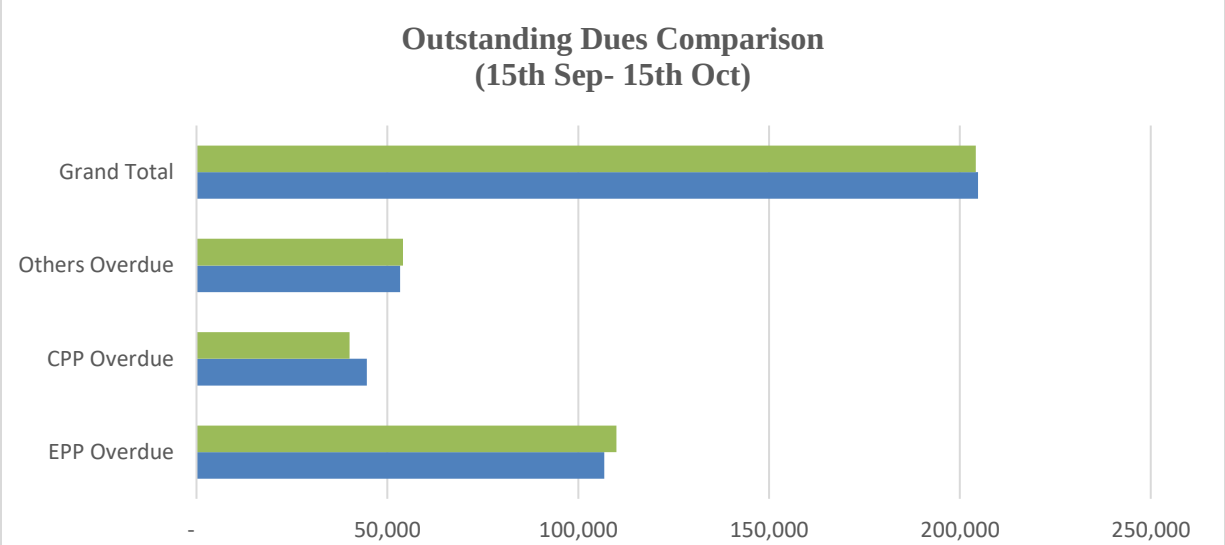
INDEPENDENT POWER PRODUCERS ASSOCIATION

MONTHLY NEWSLETTER

Welcome to the eighth 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, 2017 in PKR Millions

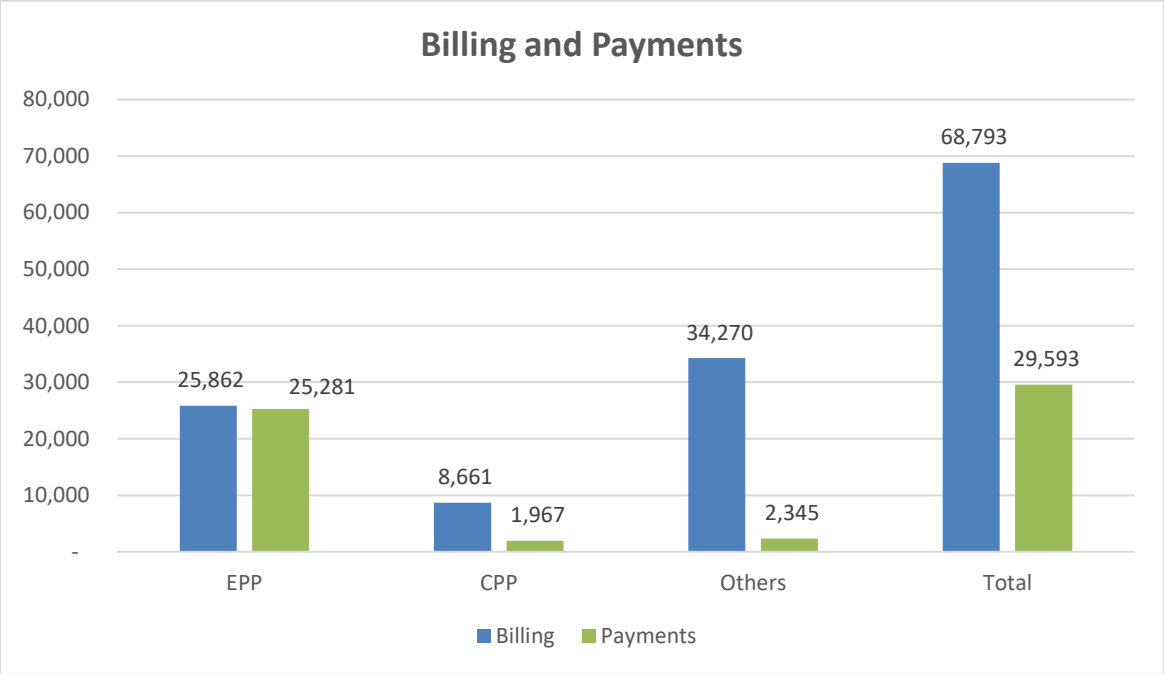


	EPP Overdue	CPP Overdue	Others Overdue	Grand Total
Oct	110,036	40,103	54,062	204,201
Sep	106,835	44,604	53,311	204,750

Source: Member and Subsidiary IPPs

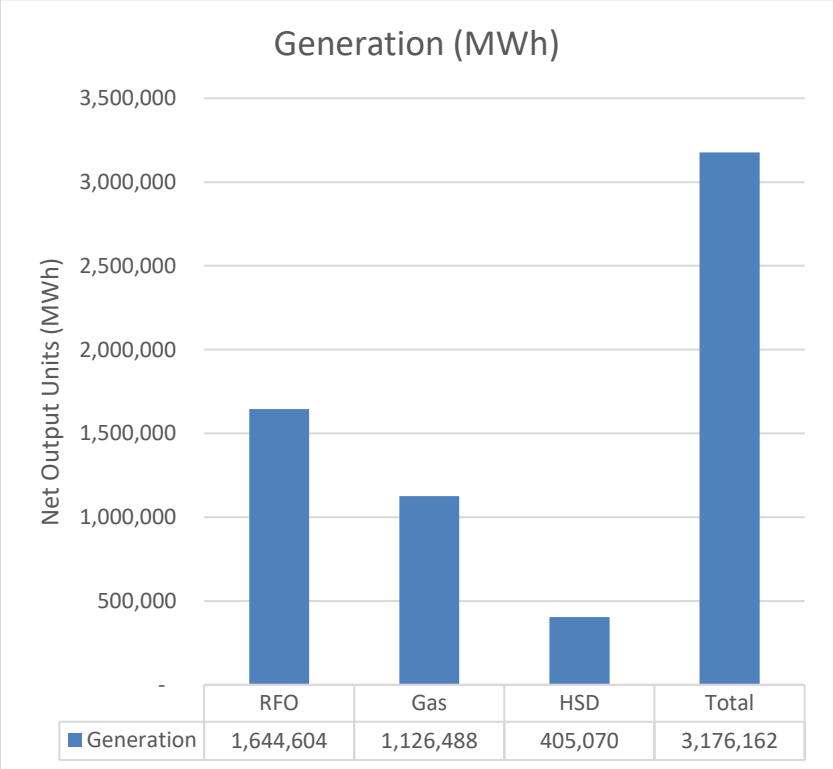
Monthly Infographics

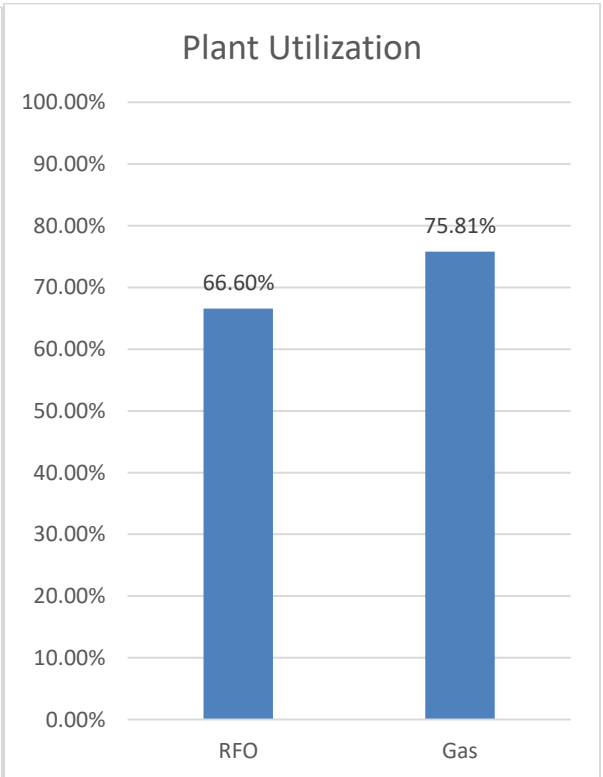
Billing and Payments in October 2017 in PKR Millions



Source: Member and Subsidiary IPPs

Net Generation and Plant Utilization in October 2017





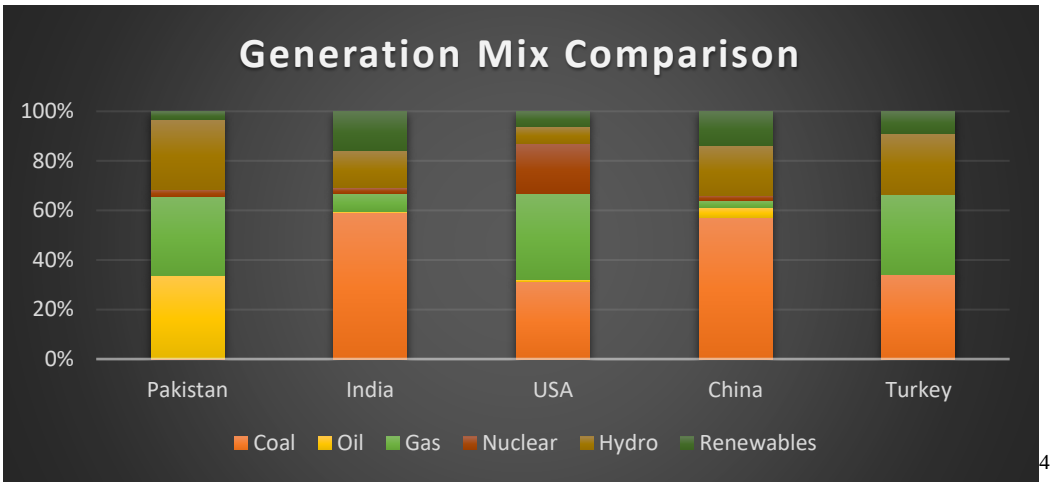
Source: Member and Subsidiary IPPs

Discussion: Coal Fired Plants - Pakistan and South Asia

Pakistan continues to face energy shortfall, which makes it harder for the country to realize its true economic potential. One of the key factors that led to this energy crisis is reliance on expensive generation options to produce electricity. It is pertinent to mention that every form of energy has its strengths and weaknesses and future electricity generation will need a range of options to meet the base load capacity in Pakistan.

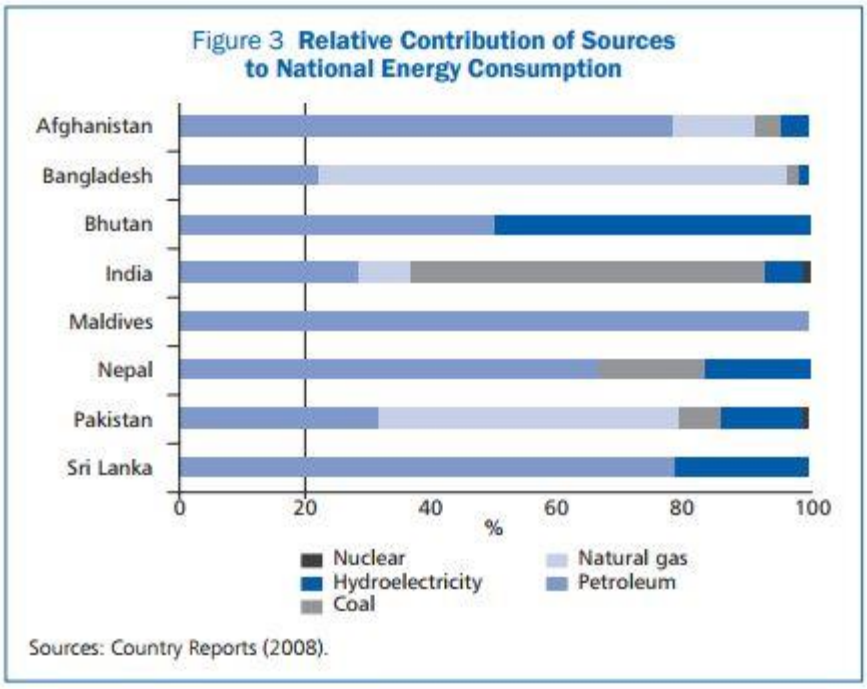
Pakistan's current total population has soared to 208 million with an average annual growth rate of 2.4 percent from the calendar year 1998[1]. Growing populations consume more energy. The International Energy Agency (IEA) forecasts that total electricity demand in Pakistan will rise to more than 49,000 MW by 2025[2]. Similarly, according to World Bank, only 67 per cent of Pakistan's total population has access to electricity[3]. As access to electricity increases, one of the biggest challenges for the country's policymakers will be to find an affordable energy mix that meets the rising demand, without instigating negative effects to the environment and ecology.

Until recent times almost all the electricity consumed in the world was generated from three different forms of power plant - fossil, hydro and nuclear. Renewables, a relatively new form, currently generate a relatively small share of the world's electricity. Pakistan's energy mix heavily relies on fossil fuels. As the following two graphs show, Pakistan heavily relies on natural gas and petroleum-based fuels for its electricity generation, as compared to other major economies around the world and in South Asia.



[4]

[1] https://in.reuters.com/article/pakistan-census/pakistans-population-surges-to-208-million-bureau-idINKCN1B51F6?feedType=RSS&feedName=topNews
[2] https://www.dawn.com/news/1330812
[3] Ibid
[4] Pakistan: State of the Industry Report, NEPRA
India : World Energy Outlook
USA: EIA Electricity data
China: Enerdata yearbook
Turkey: Ministry of Energy and Natural Resources



[5]

At the same time, after India, Pakistan currently has the second largest coal reserves in the South Asian region. While India produces a bulk of its energy through coal, Pakistan currently produces only a negligible amount. Instead, our past policies have been to rely on natural gas which not only produces expensive units of electricity but has also affected our domestic and industrial consumption of gas, further negatively affecting the economic growth of the country. The Asian Development Bank report states that 'such excessive dependence on one energy resource raises concerns related to energy security'[6].

Although hydropower is the cheapest source of electricity for Pakistan, however, the capital-intensive investments required for hydropower plants makes it less attractive. Similarly, renewable energy resources such as wind or solar, which no doubt are the future of energy in the world but Pakistan might not be ready as yet to shift to renewables. Reason being, Pakistan is still struggling to achieve base load capacity and due to intermittent nature of renewables, it is not possible to use these renewables to meet the base demand of the country.

Many analysts argue that 'Coal is an obvious missing link in Pakistan's energy mix'[7]. When we compare our electricity generation to those major economies around the world, we see that on average India, China and the USA meet approximately 60%, 57% and 30% of their energy needs through coal power. In fact, one estimate suggests that the world on average generates 41% of its energy needs via coal-fired plants[8]. Meanwhile, before 2015, coal contributed less than 1% of Pakistan's installed capacity[9], even though coal is greatly suitable for power generation to meet base capacity.

[5] https://www.adb.org/sites/default/files/publication/29703/energy-trade-south-asia.pdf
[6] https://www.adb.org/sites/default/files/publication/29703/energy-trade-south-asia.pdf
[7] https://www.dawn.com/news/1210831
[8] Ibid
[9] https://www.dawn.com/news/1172656

The total estimated coal reserves in Pakistan are estimated at over 186 billion tons[10]. Granted that many of these are not suitable to produce low cost, high-efficiency energy plants but, still, the true potential of coal power has not been exploited adequately. This also includes Thar coalfields in Sindh which were declared to have the potential to generate close to 100,000MW of electricity generation capacity[11].

At the same time, it can be argued that much of the world is heavily investing into renewable and clean energy resources, therefore it would be detrimental for Pakistan's environment and ecology if it moves towards coal energy now. What this argument fails to take into account are the latest technological advancements in coal energy generation, such as the different coal plant technologies, i.e. Conventional or Subcritical, Critical and Super-Critical combustion efficiency. While subcritical technologies have an efficiency of about 32%, many of the CPEC plants are of critical technology with efficiency close to 45%[12], drastically reducing pollution and harmful carbon emissions and improving the base generation capacity of the country.

Currently, the combined CPEC energy projects have the capacity to generate around 16,000 MW of electricity[13]. About three-quarters of this newly generated power will come from coal-powered plants, established across the country. Furthermore, there are also steps being taken to start the process of conversion of existing oil-fired power plants first to imported coal, and then to the indigenous variant of coal. If this happens, not only cleaner energy will be produced to meet base demand but this will also ensure industrial progress and development.

It is also evident that other South Asian countries, which historically did not rely on coal, are moving towards coal-fired plants as well. The government of Bangladesh plans to invest heavily in coal power generation, with a goal of producing 20,000 MW of coal-fired power by 2021[14]. The cornerstone of its coal policy is the new Rampal facility, a 1,320 MW thermal power plant that intends to import nearly 5 million tons of coal annually[15].

Former PEPCO director Tahir Cheema has stated that that coal power could actually solve the issue of cheap energy in the medium term, but the viable way would be to establish coal-based power generation plants at the coal producing areas and on the coastline[16]. Similarly, another analyst calculated that coal generation for Pakistan will cost around PKR 8 to 10.7 per unit as compared to gas which is estimated at around PKR 10 to 12.3 per unit[17], wind which is PKR 15.5 per unit and solar which is over PKR 21 per unit[18], thereby providing cheap base generation capacity to the country, which then can move towards expanding its renewable plants.

The International Energy Agency stated that coal power shall maintain a stronghold in power generation and consumption for not only South Asia but also comparable regions, because "it is

[10] Ibid
[11] https://www.dawn.com/news/1324565
[12] https://www.greenfacts.org/glossary/pqrs/supercritical-ultra-supercritical-technology.htm
[13] https://www.dawn.com/news/1330812
[14] https://www.thethirdpole.net/2015/08/06/the-limits-of-king-coals-reign-in-south-asia/
[15] https://www.thethirdpole.net/2015/08/06/the-limits-of-king-coals-reign-in-south-asia/
[16] http://www.technologyreview.pk/demystifying-pakistans-energy-crisis/
[17] https://www.iaea.org/INPRO/8th_Dialogue_Forum/Breakout_Economics_09_Saleemullah.pdf
[18] Ibid

(not only) markedly cheaper than natural gas, but also because coal projects are in many cases easier to pursue as they do not require the capital-intensive infrastructure associated with gas.[19]" To conclude, the National Power Policy 2013 of Pakistan aims to eliminate load shedding as well as decrease generation costs. In order to do that, the most viable option to start in the medium term is coal-fired plants and conversion of other fuel-based plants to coal power, using not just imported coal resources but also Thar coal, as stated in the Goal 3 of the 2013 policy. This will ensure availability of affordable energy to the end consumers, as well as secure the long-term economic development of the country, through a financially feasible base generation capacity.

[19] https://www.reuters.com/article/us-asia-coal/southeast-asia-india-turn-to-coal-for-power-imports-expected-to-jump-idUSKBN1CV1GP

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

Upcoming Topics

December

Power and Litigation

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