



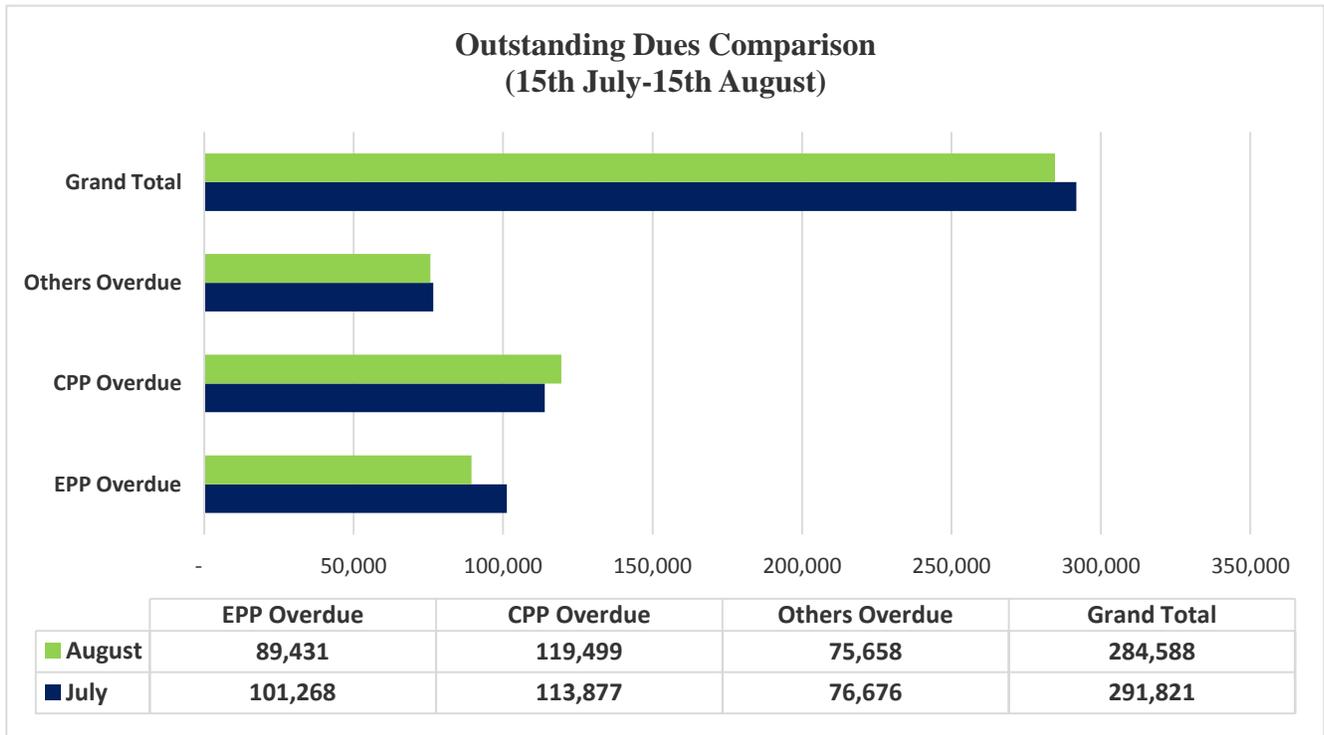
INDEPENDENT POWER PRODUCERS ASSOCIATION

MONTHLY NEWSLETTER

Welcome to the thirtieth 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

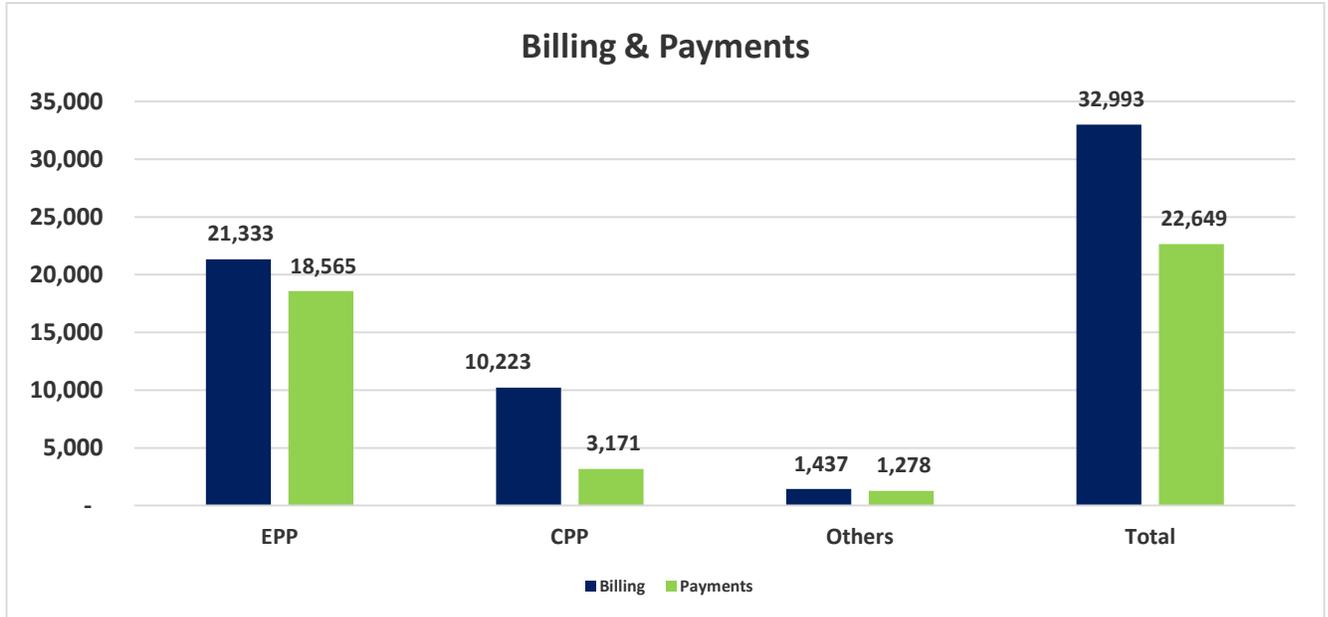
Outstanding Dues as of 15th August, 2019 in PKR Millions



Source: Member and Subsidiary IPPs

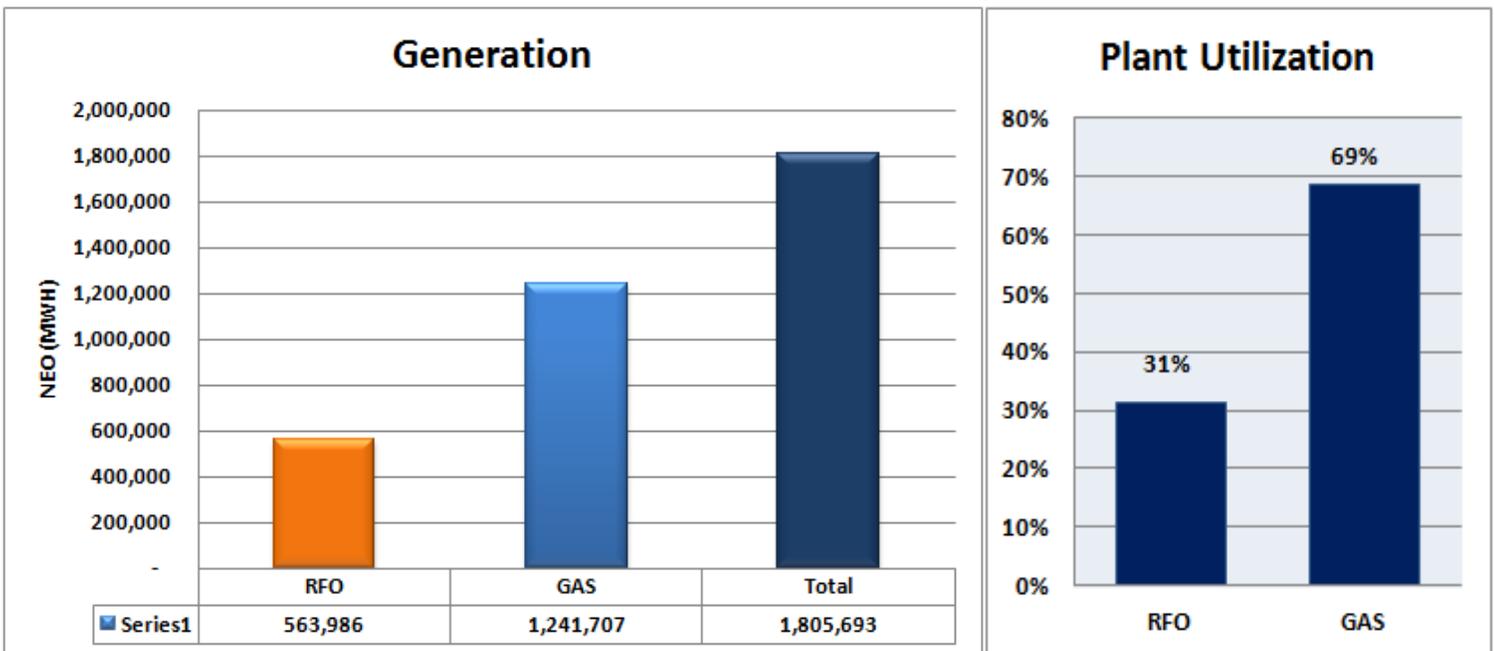
Monthly Infographics

Billing and Payments in August 2019 in PKR Millions



Source: Member and Subsidiary IPPs

Net Generation and Plant Utilization in August, 2019



Source: Member and Subsidiary IPPs

First Private LNG importer of Pakistan Inks Deal with Exxon Mobile

Universal Gas Distribution Company Pvt Ltd (UGDC), represented by its CEO Mr. Ghiyas Abdullah Paracha, has inked an agreement with Exxon mobile to import LNG into the country. The ceremony was attended by Special Assistant to Prime Minister on Petroleum Nadeem Babar, ExxonMobil LNG Market Development Chairman Alex Volkov, Market Development President Irtiza Sayyed, ExxonMobil Country Manager Pakistan Shahrukh Mirza and senior officials of petroleum ministry. The agreement would pave the way for Pakistan's first private LNG import shipment. UGDC has been the first company to receive a private gas marketing license in Pakistan.

Mr. Nadeem Babar praised the deal as the event marked Exxon's first investment into Pakistan in more than two decades. He further elaborated how this deal would enable private importers to buy surplus gas from current terminals as well as import gas from the upcoming five terminals. The deal would also help replace more the \$1 billion worth of vehicle imports.

NEPRA advises government to re-consider CASA-1000 Agreement

NEPRA (National Electric Power Regulator Authority), in its State of Industry Report 2018, has expressed reservations about affordability of electricity. NEPRA pointed out the requirement to build 100 KM of transmission line from Afghan Border to Peshawar. In addition, a 1300 MW converter station will have to be constructed at Peshawar. This would be expensive as compared to local power production.

Instead, the government should consider installing cheaper power production or renegotiating the terms of CASA-1000.

Furthermore, the report also recommended shifting focus towards retiring old power plants and removing shortages within the transmission network. NEPRA also stressed the importance of not overloading transformers. The NEPRA report also criticized GENCOs for their inefficient power production. Furthermore, the regulator also censured DISCOS (Distribution Companies) for not curtailing Transmission and Distribution losses which in-turn led to the ballooning of the circular debt. NEPRA state of Industry Report 2018 can be accessed here

DISCOs increase rates for the Industrial Consumers

DISCOS (Distribution Companies) in Punjab have started charging increased rates from exporting industries. Earlier, the tariff was set at Rs 10.62 per KWh. Now it has gone north of 20 Rs per KWh. This increase in rates happened because of roll-back of the zero-rating program promised by the government. As a result, DISCOS have added new taxes to the tariffs which include income tax, general sales tax, GST deferred amount excise duty, quarterly tariff adjustment and extra tax. This runs counter to government policy and NEPRA directives to increase the tariff to only 12.33 Rs per KWh.

Port Qasim Authority Issues LoI to Energas for LNG Terminal

Port Qasim Authority has issued a conditional Letter of Intent (LoI) to Energas Terminal (Private) Limited for the construction of a Liquefied Natural Gas (LNG). The Build-Operate-Transfer (BoT) program has been given an initial LoI on the basis of satisfied fulfillment of Quantitative Risk Assessment (QRA). The final LoI would be issued upon the completion of technical and financial proposals. These proposal (technical and financial) will be assessed on the basis of project guidelines by Port-Qasim-Authority appointed consultants. Port-Qasim-Authority has issued an order for Energas to submit a performance bond of \$10 million before signing the Implementation Agreement. This bond will be revoked incase the company fails to implement the project within two years from the date of Implementation Agreement.

Energas Terminal (Pvt) Limited is a consortium that consists of Younus Brothers, Sapphire & Halmore and US energy giant ExxonMobil. This terminal will have a tolling capacity of 750mmcf/d to 1,000mmcf/d (million cubic feet per day). Port-Qasim-Authority has demanded a royalty of \$1.9 per ton of gas. This royalty will automatically increase every five years. Pakistan is expected to massively increase its imports of LNG as the country shifts its power fuel mix away from RFO and towards LNG.

Key Capture Energy installs 20 MW of Battery storage

NYSERDA (The New York State Energy Research and Development Authority) has completed construction on a new 20 MW energy storage project. This is the largest battery project to date in New York's history. Such an ambitious project has been completed under the guidance of New York Governor Andrew Cuomo's New Green Deal. Under this deal, the state of New York wants to have storage capacity of 3 GW by 2030.

The 20 MW storage facility was supplied by Key Capture Energy under the project titled KCE NY1. The facility will be located in the Capitol Region of New York State. This is Key Capture Energy's first project since it moved headquarters from Houston, Texas to downtown Albany in 2018 in partnership with the University at Albany. The move of headquarters was prompted by the state's START-UP NY program, which in turn was administered by Empire State Development. Apart from increasing its energy storage, the company has also been expanding its team which is now composed of 14 team members.

SSE of UK agrees to sell retail business to OVO

SSE Energy Services (of UK) has decided to sell its retail business to OVO in a bid to focus on its renewable energy generation business. The retail business, valued at £500 million, will see OVO overtaking the retail business of SSE. The deal is expected to be completed by the late 2019's or early 2020's. Of course, the deal still needs regulatory approval. According to SSE the £500 million enterprise value, of SSE, consists of £400 million in cash and £100 million in loan notes. If the deal is completed, all 8000 of SSC's staff will be transferred to OVO.

The increased focus on renewable generation has come about as Theresa May's government enacted the target of net zero emission into the law. The company has paid for the SSE has also paid the

Renewable Obligation Certificates in August 2019 in satisfaction of SSE Energy Services' Renewables

Obligation for the period ended 31 March 2019, which was the last complete financial year of SSC's ownership.

Notus Energy to build three Wind Plants in Ukraine

The German company Notus has been contracted to build three wind plants with a collective capacity of 270 MW. The Plants will be located in the areas of Roksolany, Ovid and Libental. These areas are around 30 kilometers away from the coastal town of Odessa (see red Circle in the above image). According to NOTUS, all the three power plants should be completed by 2021.

For these projects, the country chose 54 wind turbines, each having a capacity of 5 MW. The Turbines will be as high as 250 meters. Notus has already acquired the rights to build the projects in April. Notus's chief executive Heiner Roger informed reporters about efforts to establish a deal with a local partner and finalize details about the investment decision.

EnBW is expected to complete the installation of turbines at its 112MW Wind Turbine power plant in German North Sea by the end of September. The company chose 16 Siemens Gamesa 7 MW wind turbines. However, the company representative warned that the actual date of completion depends on Weather and other conditions. Both the company's vessels, Brave Tern and Blue Tern installing turbines at the same time.

A crew of 500 members and 50 ships has been at work in the Ibatros/Hohe complex. This complex has a total wind generation capacity of 609 MW in the form of 87 Gamesa 7 MW power plants. 77 of these turbines are situation in Hohe complex with 66 of them already supplying electricity to the grid.

MONTHLY ACTIVITIES OF IPPA

SDPI and IPPA held their third meeting regarding collaborations on various fronts

Islamabad: Representatives from IPPA and SDPI met to discuss progress on various collaboration for research and advocacy. The counterparts discussed the progress on their joint research paper on Transmission within Power sector of Pakistan. This research paper will form the main research paper for SDPI's annual conference. IPPA and SDPI also agreed on another research endeavors. IPPA also apprised SDPI members of initiatives by World Wind Energy Association and the potential venues for collaboration in that regard. The two sides also discussed formalization of relationships via an MOU.

IPPA's CEO participated in Interprovincial Exchange Forum organized by I-SAPS

Murree: IPPA's CEO participated in Interprovincial Exchange Forum (IPE) organized by Institute of Social and Policy Sciences (I-SAPS) in collaboration with FSD, LoGo-GIZ (German Federal Ministry for Economic Cooperation and Development). The forum aimed to peer review the provincial sustainable development policy and strategy documents developed by the private sector which included businesses, financial intermediaries and associations. The peer review provided an opportunity to deliberate on private sector's needs and limitations in providing financial and non-financial to provinces in their efforts to achieve SDG's.

IPPA's CEO participated in World Bank's Round-Table conference on role of private sector in Energy

Karachi: IPPA's CEO participated in World Bank's Round-Table on Energy. The conference focused on the role of private sector in Energy. Participants in the round-table included Peggy J. Walker who is serving as the Economic Councilor at the US Embassy. Participants from the private side included Jahanzeb M. Khan, CEO of LMKR Pakistan Pvt Ltd and Mansoor Ghayur (Manager, Regulatory Affairs and Business Development, United Energy Pakistan). Dr Fatima Khushnud elaborated on the role that private institutions are playing in the evolution of the energy sector.

IPPA's representatives participated on the meeting on Integrated Energy Planning

Islamabad: IPPA's representatives participated in a meeting of the data working group of Integrated Energy Planning. Currently the Planning Commission, via its steering committee headed by Deputy Chairman, Planning Commission, is coordinating the effort to establish Integrated Energy Planning (IEP). This effort is being executed in collaboration with USAID-Pakistan and United States Department of Energy (US-DOE). Hosted by LMKR, the Participants in the event included representatives from US-DOE, PPIB, NEPRA, OGRA, K-Electric, Engro and other relevant parties.

Sector Skills Council – Renewable Energy inches forward with collaborations and registration

SSC – Renewable Energy continues to maintain an exceptional pace in the month of September, 2019. The council pursued the inclusion of Labour Market Information (LMI) form in the SSC – RE website with the help of technical support from GIZ; it also made progress in registering the council with SECP – after obtaining the Name Reservation confirmation. It pursued compilation of requisite documents to be presented before SECP for issuing the relevant license under Association Not for Profit, Section-42 of the Companies Act, 2017. Furthermore, the council met with Mr. Shaban Baig (Operational Advisor) to discuss minor adjustments in the templates of the Memorandum, Articles of Association, Operational Manual and Business Strategy. The council also hosted a panel discussion titled “Fostering Programs for passion-based Careers and Trainings in Youth” under the banner of Pakistan Renewable Energy Summit (PRES) on 27th September 2019 at Serena Hotel, Islamabad. The session was chaired by Osman Benchikh (Former Head of Energy UNESCO) and moderated by Dr. Fatima Khushnud (CEO, Independent Power Producers Association). Various Stake holders from the industry and government presented their vision on the future of Sector Skill Council Renewable Energy (SSC RE). Furthermore, Dr. Fatima Khushnud (Chairperson-SSC) met with Helmut von Struve (MD and Country CEO Siemens) to discuss future of SSC. A similar meeting was also held with representatives from ADB. With governmental oversight from NAVTTC, Technical support from GIZ, and international endorsement from Norwegian, EU and German Embassy; SSC - RE is constantly endeavoring to represent private sector's demand as per ground realities and dynamic challenges that present themselves.

The sitting government just completed first year of its tenure. Two million jobs and 200,000 houses per year were committed to honor the commitment/promise of 10 million jobs and one million homes in five years. However, a closer look reveals, that on one hand, economic policies led to shrinking the affordability net and pushed thousands of people below the poverty line, while on the other hand, handful of ‘Panah Gahs’, E-visa extension and visa on arrival, no financial scandal involving government high ups was reported as the landmark achievements. Moreover, right in the middle of talks with the IMF Team, the Government sacked its own financial experts, bringing in new FBR Chairman, Governor State Bank and Finance Advisor. A common mind wonders which are the elements of the Government's narrative that have found traction with the people of this country?

Before the 1990's, the country was in the midst of a power crises. At such a juncture, IPPs came to the rescue of the Pakistani economy. However, from that solution, a seemingly innocuous clause of capacity payments has evolved into a major national issue. In the aftermath of such contention, the power exchange market is being touted as a panacea to the problems of capacity payments. However, before boarding the power-exchange train, designers of the industry need to analyze the phenomenon of Capacity Markets (CM)¹ and analyze its feasibility for the power sector.

Why capacity Markets are proposed

Capacity markets are proposed as a remedy for a number of problems in the market. The most often cited reason for introducing capacity markets is the theory of “Missing Money Problem”. Other reasons include economic theory of oligopoly and deadweight loss to consumers.

Missing Money Problem

Power exchanges all over the world are experiencing the “missing-money” problem. The “missing-money” problem originates because, like all markets, power exchanges were entrusted with the responsibility of deciding prices in the short term and investment in the long-run². Everyone agrees on the ability of power exchanges to provide the best prices in the short-run. However, there are doubts about the market's ability to provide enough incentive to invest in incoming plants.

Many market players believe that the tariffs may be too low for investors to replace retiring capacity and add new capacity required for increased consumer demand³ and providing reliability services for Renewable Energy⁴. These pessimists believe that the power sector will see a sudden rise in demand, which will not be satisfied by the under-invested power sector. Therefore, the money required to promote investments is “missing”.

This money is then indirectly provided by the government via various methods. The two most common methods are putting Capital Adequacy Ratio⁵ requirement on grid operators and instituting Forward Capital Markets for future capacity. Capital Adequacy Ratio creates contractual obligations on retailers to pay for Forward Capital markets. Both the solutions involve paying power producers merely for possessing capacity. This payment for capacity is justified on the basis of basic economic theory where the production cost (power exchange price) is lower than the societal cost (lack of reliability of power

¹ An annexure explaining the working for capacity markets is attached at the end.

² Here, like all industries, price will become a signal for future investment.

³ This increase in demand will come from the electrification of the transport and heating sector.

⁴ This support is needed for increased balancing requirement of the grid because of unreliable renewable energy supply.

⁵ Capital Adequacy Ratio conditions dictate that retailers have contracted capacity to supply the market in times of distress.

supply). In the absence of CM, the market is expected to go into a boom-bust cycle⁶. CM are expected bring production cost at par with the societal cost. However, critics of CM fundamentally use the argument that paying firms for capacity stops market from determining investment in the sector.

The supporters of the missing money problem make some implicit assumptions in their justification of CM. The first assumption is that consumers cannot adjust their consumption in response to the changing supply portfolio of power. The second assumption is that base-load power generation is cheap while peak load power generation is more expensive. The third assumption is the market will fail in the absence of CM by entering a boom bust cycle. Finally, missing money argument assumes that power plants can only earn money by providing energy to the grid.

Economic theory of oligopoly

The oligopolistic economic theory assumes a weak anti-trust environment. Under a weak, anti-trust environment oligopolistic nature of power production investors might delay making investments to deter effects on price OR aggressively invest in a market in order to exercise predatory pricing.

Deadweight loss to consumers

If the market does not meet supply for the grid, the grid operator will be forced to cut supply to a given area. Unfortunately, the cost of lost electricity to a consumer within the same grid may be different. Some consumers, for whom the cost of losing electricity is high, may be willing to pay for low interruption schedule. This lack of realization of potential transaction will lead to a deadweight loss to the economy.

Importance of this issue

The need for CM questions the very ability of Power Exchange to guide the power sector. If CM is needed to run the power market, then it could lead unravelling of the power exchange as we know it. The market will either shift towards bilateral contracts or government intervention like old times. A combination of both the situations is also doable.

Criticism of the Capacity Markets

Capacity Markets can be criticized on the basis of actual experience, legal challenges, faulty assumptions and Technical deficiencies. Starting with the actual experience, CM have been implemented in the US and UK. In both the countries, a majority of the CM auctions have gone to old, inefficient firms rather than new plants. Furthermore, Separate legal challenges in UK and US have put a question mark on the legal longevity of the capacity markets.

Then the assumptions for basing CM markets are doubtful. CM markets assume that consumer cannot adapt to the changing power supply. However, many customers in the US and UK can adjust their consumption in various ways. Many retailers provide different plans with different interruption ratios. Moreover, customers now have the ability to monitor their usage easily and adapt habits accordingly. Similarly, the cost difference of Peaker and Base-load power plants is narrowing ever more due to technologies such as Variable Pressure Generators in Non-Renewable Energy⁷ and batteries in renewable energy. Similarly, power plants have other potential income streams such as providing services of regulation reserve, responsive reserves and as non-spinning reserves. Lastly, CM implicitly assumes that most outages occur due to lack of power supply when in reality, weather is the leading cause.

⁶ Here investors would under invest at first and see the price rise really high. Then they would over invest which would lead to overcapacity

⁷ This allows power output variation without changing the cost of generation.

CM can also be criticized on the basis of its final impact. First, Capacity Market is expected to level out the energy auction pricing. This reduction in fluctuation will kill incentive to maintain reserve ratio at peak loads. Second CM may become a hinderance towards retiring of old inefficient equipment in favor of new equipment. Third, CM always depends on prediction of system operators which have traditionally erred on the side of over-capacity. This over-capacity can become expensive when doled out via market mechanisms such as CM. Of course, one must also keep in mind that Capacity Markets are a global solution to a local problem.

What to do to avoid the traps of Capacity Markets?

Pakistani Power Market can take institutional, regulatory and market-based measures to address the trap of capacity markets. These actions can be classified into measures that are taken before and after establishment of exchange. Fortunately, most of these steps can be taken before the establishment of an exchange.

Before implementing the power exchange, the power sector can implement Demand Management, Connections to regional markets, Price floors, Effective Energy Storage and induction of Variable Load Generation. Pakistan has taken a bold step in this direction with the NEECA Act 2016. NEECA Act 2016 has provisions for mandatory energy audits that will lead to an increase in the value generated from a KWh of power.

Furthermore, DISCOS should be allowed to offer customers different plans with different interruption routines. Such plans would reduce demand for energy without the required deadweight loss. Second, NEPRA should demand generators to provide adaptability profile of Non-renewable power plants as part of requirement to acquire Generation License. Such variability would ensure lesser distinction between peak load and base load power generation. Third, it is very important that the new renewable energy policy includes provisions for storage. The better developed the storage industry the lesser the need for power generation. Furthermore, NTDC should also seek to connect to regional grids. This would allow them to import electricity in time of grid shortage without paying for the capacity payments.

After the Exchange is established, the exchange operator should institute price floors and avoid establishing price ceilings. Not establishing price ceilings would allow market individuals to adapt to high prices.

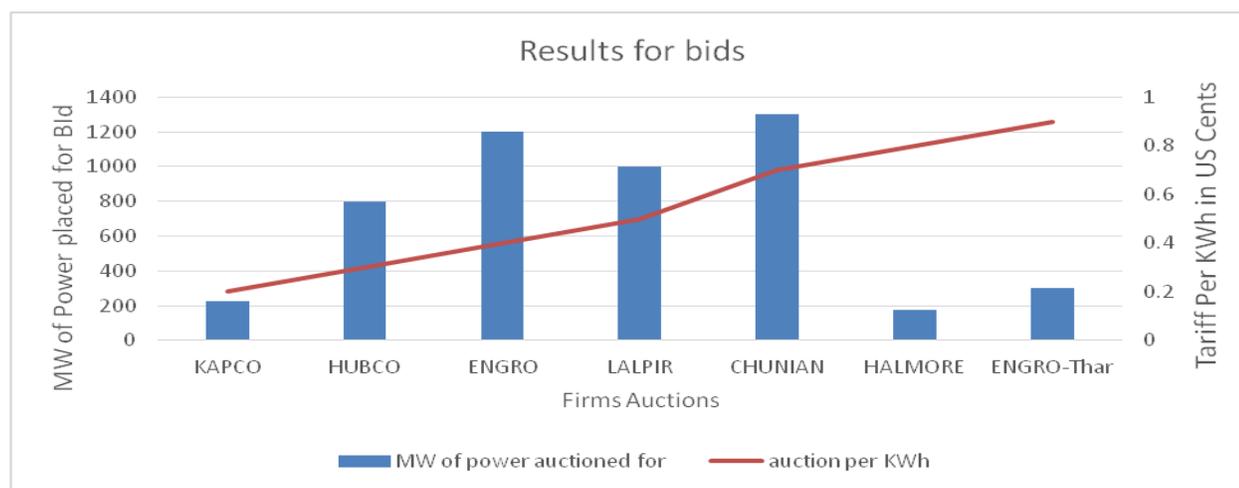
Annexure

What is a capacity market?

Capacity Market is simply an auction that sells contracts for providing power on a future date⁸. There are two types of auctions in capacity markets, Base Residual Auctions and Incremental Auctions. Base Residual Auctions are auctions for providing capacity three years from now. While incremental auctions are auctions to trade Base Residual Auctions Tenders before the date of delivery.

Example of a Base Residual Auctions: Let's say an auction is happening on 1st September 2019. The auction will happen to provide power on 1st September 2022. A capacity market auctions starts with the auctioneer (usually grid operator such as NTDC) starting with a projection for market demand. Let's say NTDC decides to auction 5,000 MW of energy for 3rd September 2022. Now assume the following combination of bids was placed.

Company Name	MW of power auctioned for	Auction per KWh
KAPCO	223	0.2
HUBCO	800	0.3
ENGRO	1200	0.4
LALPIR	1000	0.5
CHUNIAN	1300	0.7
HALMORE	177	0.8
ENGRO-Thar	300	0.9



Here, ENGRO Thar is the most expensive company bidding at 0.9 per KWh. By the rules of the capacity market, the market will clear at 0.9 Rs per KWh. Since 0.9 (Rs per KWh) is the clearing price, all the firms in the auction will receive a clearing price of 0.9. So KAPCO will get a capacity contract at 0.9 Rs per KWh even though they were willing to deliver it at 0.2 Rs per KWh.

⁸ Such as three years from the date of the auction.

Example of Incremental Auctions: now let's say KAPCO's plant is damaged due to flooding. It may sell its contract for providing 223 MW of Power at 0.9 Rs per KWh to other businesses during these incremental auctions.

This proceed from this contract is then expected to be used to ensure the necessary rate of return for power plants to make investments in the power sector worthwhile.

Why don't capacity payments exist for other goods?

Capacity payments don't exist for other consumer goods. Yet, they exist for electricity because of certain physical properties of electricity. The first reason is that electricity cannot be stored⁹ and this means that production and consumption of electricity must happen at the same time. A millisecond disruption between demand and supply would lead to blackouts. This balancing act implies that a grid operator has to account for a number of scenarios such as sudden increase in demand or power station failures. Second, the flow of electricity cannot be controlled. Instead, electricity in a patten known as loop flows. This forces grid operator to have a centralized control. Otherwise, a loop flow will overload some lines while under loading other lines.

⁹ Not at reasonable cost

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