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PIDE Policy & Research is a guide to policy making and research. Each issue focuses on a particular theme, but also provides a general insight into the Pakistani economy, identifies key areas of concern for policymakers, and suggests policy action. The publication offers a quick orbit of the country's economy and is a hands-on and precise go-to document for the policymaker, businessperson, academic, researcher, or student who seeks to remain updated and informed. This issue is themed around PIDE's recent research efforts regarding the diagnostic of growth. We welcome contributions from within PIDE as well as from any external contributors.

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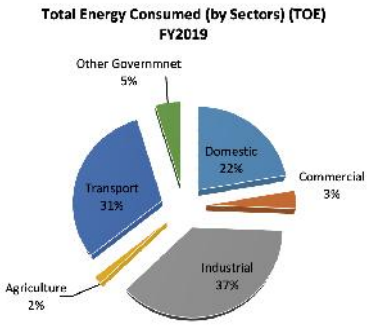
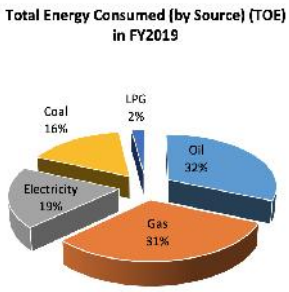
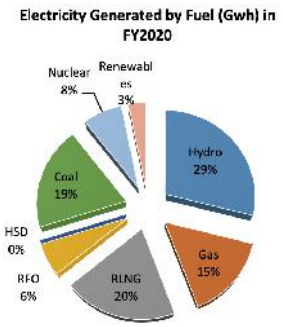
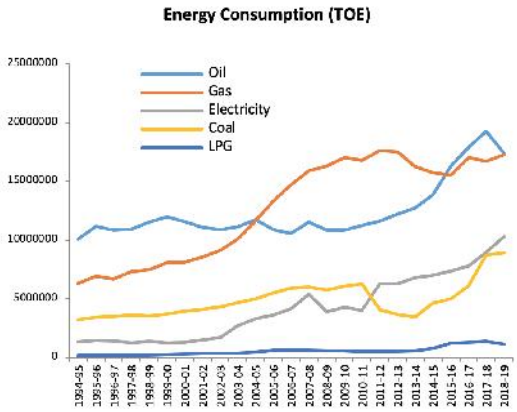
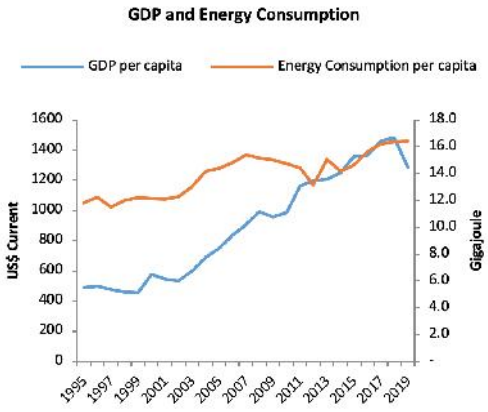
Pakistan Energy Sector at a glance

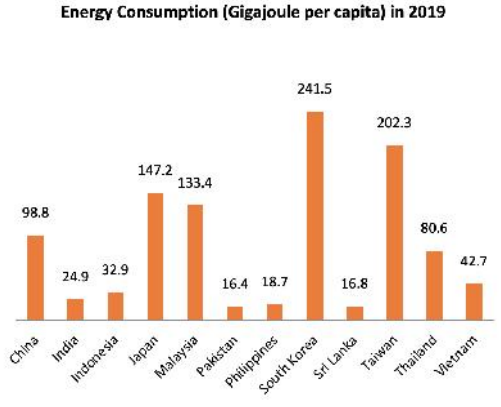


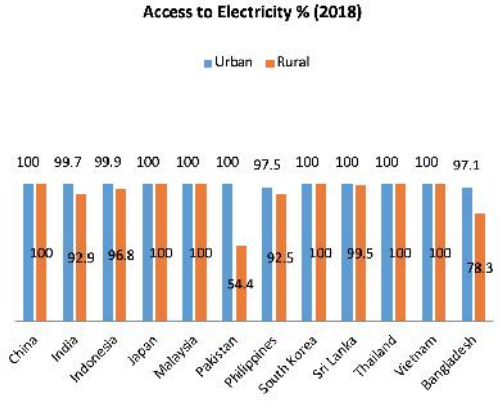


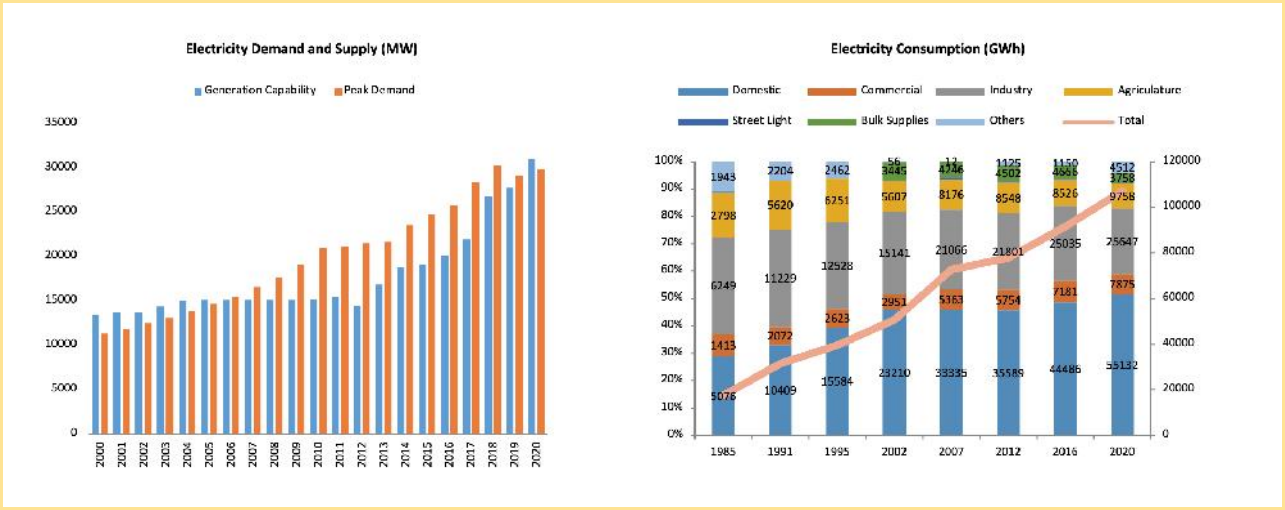


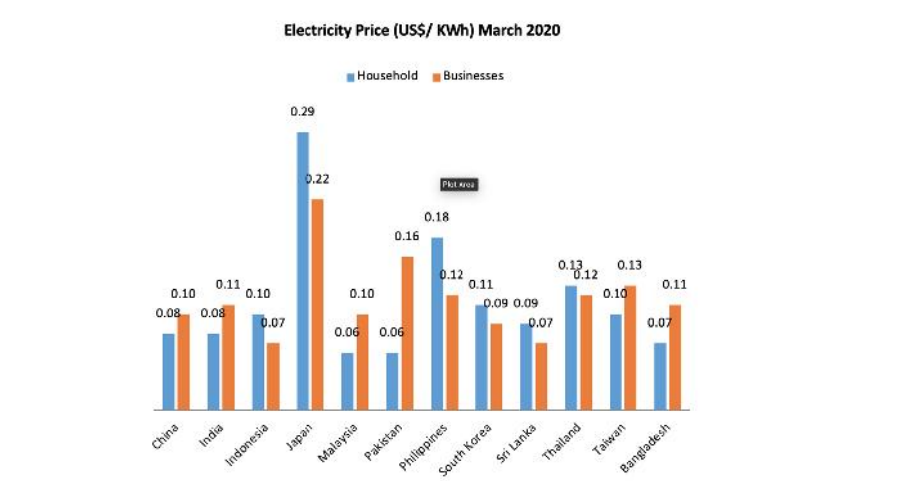









Electricity Demand and Supply (MW)
Generation Capability
Peak Demand
35000
30000
25000
20000
15000
10000
5000
0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
Electricity Consumption (GWh)
Domestic
Commercial
Industry
Agriculature
Street Light
Bulk Supplies
Others
Total
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
120000
100000
80000
60000
40000
20000
0
1985
1991
1995
2002
2007
2012
2016
2020


Electricity Price (US$/ KWh) March 2020
Household
Businesses
0.29
0.22
0.18
0.16
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
China
India
Indonesia
Japan
Malaysia
Pakistan
Philippines
South Korea
Sri Lanka
Thailand
Taiwan
Bangladesh

COVER STORY

In power projects: History, Policy and Politics

Afia Malik

Introduction

About three decades ago, a structural change took place in Pakistan's power sector as market-oriented reforms were introduced. The objective of these reforms was to introduce competition in generation and supply and achieve cheap pricing for consumers. As a part of these reforms, Pakistan invited independent power producers (IPPs). However, neither competition nor cheap prices for consumers have been achieved so far.

Besides, since the formal commissioning of first IPP in Pakistan in 1997 to date, these IPPs have remained involved in corruption accusations, disputes/ litigations over the set rates, payments and profits. This article argues that the political environment, institutional strengths and interests of stakeholders are as important as the technical and economic considerations in attracting private investment and ensuring its positive outcome.

History of Private Energy Investments in Pakistan

Historically, the power sector in Pakistan was owned and operated by the government. It was in 1997 that the first private sector generation project entered the system. It was the one-page policy paper signed by General Zia in 1987 that paved the way for private generation companies in the country (Cheema, 2016).

The feasibility for the first private power project, HUB Power Plant (HUBCO) with a capacity of 1292 MW was completed in 1988. In

1991, HUBCO became Limited Liability Company for executing the project in Pakistan. In 1992, the plant signed an agreement with WAPDA to develop a 1292 MW power plant. The World Bank (WB) supported the project and helped in arranging the finances. The original offer was 97 paisa/ KWh; but the power purchase agreement (PPA) was signed at 6.1 cents/ KWh, equivalent to 234 paisa.

As per the PPA, the WAPDA would pay a monthly tariff in US$ for both capacity and energy consumed. HUBCO also signed an agreement with Pakistan State Oil for providing refined furnace oil (RFO). The Government of Pakistan (GOP) provided guarantees for WAPDA obligations as power purchaser and PSO as fuel supplier.

In the beginning, National Power PLC of the United Kingdom and Xenel Industries Limited of Saudi Arabia funded the project. Later, Entergy Corp of the United States became its major shareholder (Kantor, 2000). The WB got involved in arranging finances from the governments of France, Italy, Japan, United Kingdom and the United States as co-financiers in the Private Sector Energy Development Fund of Pakistan. This fund along with the WB and the Import/Export Bank of Japan jointly developed an Expanded Co-Financing Operations Programme to assist the international commercial debt funding by the provision of a partial guarantee. A significant portion of the offshore debt was also guaranteed by certain export credit agencies. A group of local banks led by the National Development Finance Corporation of Pakistan provided rupee debt (HUBCO, 2021).

The HUBCO project financing closed in 1994 and the construction started smoothly. Finally, in March 1997, the plant started selling power to WAPDA. NEPRA granted the license to the power plant in August 2003, which will expire in August 2025.
The famous Power Policy 1994, with bulk of incentives for the private generation plants, was based on experience gained during the planning of HUBCO. As documented in Alahdad (2012), the project was named as “deal of the decade” by Euromoney Institutional Investor. The global financial market cited this project as the first major private sector venture executed in any perilous developing country environment.

Power Policies and IPPs in Pakistan

Policy	Salient Features	Impact
1994	Investors free to choose site, technology &fuel; long-term contract with GOP guarantee; fuel supply contract with GOP guarantee; bulk power tariff of US Cents 6.5KWh_for first ten years, levelised tariff of US Cents 5.9/KWh over life of the project (25-30 years) and a premium of US Cents 0.25/KWh in first ten years; two part tariff_ capacity charges and energy charges, capacity charges to be paid on an annual plant factor of 60% on take or pay basis; exemption from certain taxes and import duties; and repatriation of equity along with dividends was allowed.	16 furnace oil and gas based IPPs, with capacity of 4100MW were added to the system. These IPPs invested Rs 51.8 billion and have earned (so far) Rs. 415 billion.
1995	Concession & power purchase agreement; project on BOOT basis, GOP will be the owner after 25 years; bulk tariff of US Cents 6.1/ KWh; exemption from certain taxes and import duties; and guaranteed foreign exchange conversion facility.	Insignificant response from the private sector only one project with capacity 84MW was installed with long-term contract and GOP guarantee for 25 years.
1998	Competitive bidding & tariffs, two part tariffs_ energy purchase price (EPP) and capacity purchase price (CPP); guaranteed foreign exchange conversion facility; restriction on imported fuels; and limited exemptions on taxes and duties.	Policy failed to attract new investments.
2002	Power purchase agreement & fuel supply agreement with GOP guarantees; hydro projects on BOOT & thermal projects on BOO or BOOT basis; two part tariff_ CPP & EPP; tax exemptions & financial incentives; and no restriction on imported fuels.	13 IPPs with capacity 2934MW; IRR 15%; and project life 25-30 years; furnace oil and gas based plants. These IPPs invested Rs. 57.81 billion and earned (so far) Rs. 152billion.
2006	Exemptions on taxes and import duties; permission to deport equity along with dividends; allows both cost-plus and upfront tariff regime. (In 2013, GoP expanded the 2006 policy to include bagasse, biomass etc; and issued the Framework for Power Co-generation 2013)	24 Wind IPPs with capacity 1234 MW and 7 solar IPPs with capacity 430 MW were set up. 8 IPPs with capacity of 253.7 MW have attained COD under 2013 Framework. These IPPs have earned excess profits on account of incorrect IRR calculation (18.39% instead of 17%).
2013	Reliance on less expensive fuels; upfront tariff mechanism; strengthening of NEPRA; one window operation to facilitate investors; whereas, incentives given in 2002 remained intact.	------
2015	Two part tariff; power purchase agreement with GOP guarantee; hydro projects on BOOT (30 years) and water use charge @0.425/ KWh to be paid to the province where the project is located; thermal plants on BOO basis_ both indigenous and imported fuels; three types of thermal projects_ through competitive bidding, through provincial recommendation, or based on international commitments.	7 IPPs with capacity 8253MW; IRR 15% to 17%; and project life 20-25 years; Imported coal and RLNG based plants. One imported coal power plant has already recovered 71% of its investment in two years of its operation, and second one has recovered 32 % of its investment in the same period. These plants have been offered 17%IRR in US$, which in Pakistani Rs after recent devaluation is equal to 43%.

The 1994 Power Policy resulted in projects which did not meet the „least cost" generation test because of small size, unsuitable location, excessive reliance on oil and steam turbines technology instead of more efficient combined-cycle plants.

The same mistake was repeated in the Power Policy 2002. The policy encouraged the exploitation of indigenous resources but attracted plants with the same expensive fuel mix. Similarly, in 2013 and later in 2015, despite severe criticism on the earlier policies, the new policies came up with more or less the same set of incentives for the generators.

All these policies supporting guaranteed capacity payments have pierced the cost structure of electricity generation in Pakistan. As of June 2020, the generation capacity of about 42573 MW has made contracts with CPPA against the maximum billed demand of 28317 MW, as reported in CPPA Annual Report, 2020. Installed capacity is far greater than demand, yet we are paying huge capacity payments.

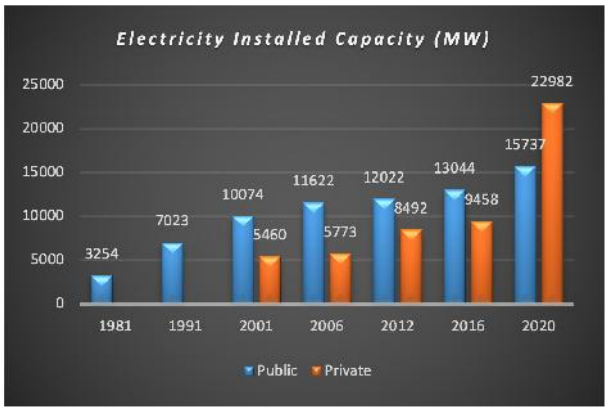
At present, all generation plants (except for renewables) are designed with capacity payments, but there is hardly any monitoring of actual capacity (as per capacity payments) and availability. Also, there is no verification of IPPs claims of power supply and what they actually supplied. Because of the lack of transparency and an independent regulatory audit, IPPs are getting paid for the electricity they have not generated. This is increasing the cost of generation.

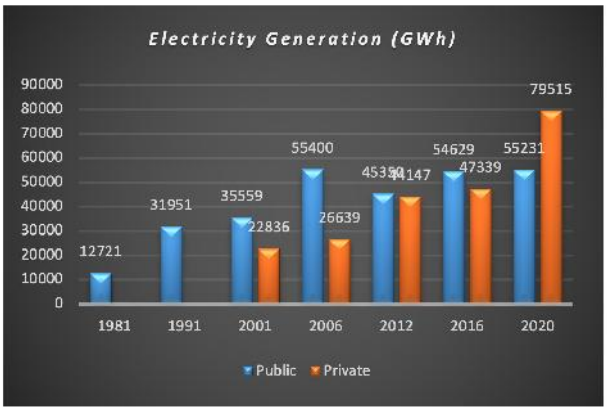
Box 1: IPPs Agreement with the Government

46 IPPs have formally signed new agreements with the GOP paving way for a discounted tariff of Rs 836 billion in the next 12 years. Federal cabinet committees as on February 08, 2021, approved the payment of dues, worth Rs. 403 billion in two instalments to these IPPs_ 40 per cent in a month (one-third in cash, one-third as Pakistan Investment Bonds (PIB) and one-third in five year Islamic Sukuk) and remaining 60 per cent in six months in similar three forms. Power companies are not happy with the development as their future earnings would decline after the removal of dollar indexation from their return on equity. It is feared and evidence also suggests that this development might hurt future energy investments.

From the power sector perspective, the agreement would not have any substantial impact on tariffs and circular debt, as it covers less than 23% of the installed capacity; power projects established under the 2015 Power Generation Policy under CPEC are not part of this agreement. Besides, the impact of dollar indexation would be on future earnings; while the projects commissioned under 1994, are about to retire in a few years.

State of Generation Sector in Pakistan





Though, historically, the generation sector was owned solely by state-owned companies, since 1997, IPPs are playing a leading role in electricity generation. In FY2020, about 59 per cent of the total electricity generation was by the private sector companies and the rest is in the public sector. In the private sector, about 11 per cent is renewables including 2 per cent of run-of-river hydro plants. The rest of the 89 per cent is thermal.

The power sector restructuring process which began in 1992 is still in transition from a vertically integrated state-owned sector to a competitive multi-buyer structure. Currently, the power system is operating as a single-buyer model where the CPPA buys power from GENCOs, IPPs and WAPDA and other producers, pools it and sells it to all the DISCOs. The single-buyer model instead of motivating efficiency transmits inefficiency to consumers through increasing tariffs.

In November 2020, NEPRA approved a detailed design and implementation roadmap of Competitive Trading and Bilateral Contract Market (CTBCM) prepared by CPPA-G through an international consultant (MRC Consultants and Transactions Advisor), with the support of Asian Development Bank. NEPRA has given 18 months to CPPA-G for its preparation and implementation. CTBCM is also vague as it ignores ground realities. The generation sector is locked in long-term contracts. In the absence of free electricity suppliers in the market, this whole exercise is immaterial.

Lack of informed long-term vision in our policymakers has cost Pakistan dearly (Alahdad, 2012). Induction of private capital via IPPs has proved to be an efficient means of increasing installed capacity around the world. Likewise in Pakistan, induction of IPPs has relieved some burden of the public sector but has increased the cost of generation considerably because of ballooned capacity payments.

Political Economy

In Pakistan, policy-making, in particular, energy policy-making, has always remained under the influence of pressure groups within the system or outside the system; thus jeopardizing the whole economic process. In the early 1990s, Pakistan (as in many other developing countries) opened its generation sector for the private investors under internal and external pressures, vested interests of those in power including powerful bureaucracy.

In 2002, Pakistan established a regulatory authority, NEPRA, but effectively with no authority. The power sector got unbundled both horizontally and vertically; whereas, privatisation (except for K-Electric and Kot Addu power plant) and the creation of competitive power markets has seen little to no progress. Government or bureaucracy is still a dominant player not only in policy-making but also in regulation, ownership of power utilities and assets.

The strategic role of the state in the process of economic development is significant (Statist Political Economy Approach). In Pakistan, the capacity of the state to adopt any structural change has remained weak. The policy-making institutions are often susceptible to political pressures from powerful actors, which could be in the government or outside the government (donor agencies or other countries).

Pakistan's political history has seen a roller coaster ride throughout the 1990s and 2000s. Evidence suggests political instability may increase macroeconomic instability, the uncertainty of demand and prices, and investment decisions. Firms can delay or cancel their investment decisions when there is macroeconomic stability. Investors' lack of trust in the ability and willingness of governments to implement good public policies also creates uncertainty; they sometimes take advantage of this uncertainty and the government's weaknesses.

Besides, the political background behind each energy policy in Pakistan is significant. In the backdrop of each policy, was some sort of political pressure to deliver at the earliest. As a result, the policymaking in Pakistan seems to be premised on short-term crisis response rather than on an informed longer-term vision and a determination to implement it. Policymakers, in particular, elected political representatives operating in a crisis mode, are forced to go for quick fixes, while ignoring the underlying structural issues like the high and unaffordable costs of electricity services that would be generated because of these short-term fixes.

In Pakistan, the induction of IPPs was under political pressures; at the back of high technical and commercial losses, weak regulatory infrastructure, tariffs below costs which resulted in high risk-adjusted costs of capital and prices.

The critical role of societal forces and non-state actors in the process of economic development is

also critical from the Pakistani perspective. Large business groups, interest groups, professional associations, labor unions, law firms, consultants and lobbyists also played a part in economic activities as happened in the case of IPPs in Pakistan (Post-statist Political Economy Approach).

Every policy initiative in Pakistan has had been under the influence of one or the other donor agency / international financial institution or any strategic partner country; with interests of their own and little knowledge of ground realities. It is critical to mention here the interests and/ or roles of multinational institutions. In the late 1980s and early 1990s, these institutions were more eager to give loans for building new power plants. It is also obvious from the support the World Bank offered in the development of HUBCO. Later they encouraged governments to privatize state-owned corporations. It was the support offered by the multinational institutes that developed interests among private investors in investing in developing countries. In Pakistan, the shortage of funds in the public sector to meet the rising electricity demand offered a golden opportunity to private investors.

Institutions and legal frameworks are also very important; as neither the government nor the market alone can manage the economy. The government needs to put in place a set of rules, property rights and regulatory bodies in the country so that the market can function properly (Neo-institutional Approach).

Overall weak institutional setup, poor governance and regulatory infrastructure, weak protection of property rights, uncertainties, corruption and rent-seeking behaviour did not allow the electricity market to develop in Pakistan. Incompetence at the government level, dis-fragmentation across various institutions involved, did not allow the competitive bidding plan to develop. Each time, they contracted IPPs with huge capacity payments and under their terms and conditions; as there was no competition involved.

The political crisis in Pakistan has affected its economic institutions. The power struggle between various actors (political parties/ military) weakened overall government strength and its ability to implement economic reforms wholeheartedly.

Weak institutions have affected the governments' capacity to plan and bid, which determines the quality and outcome of IPP projects. The price and guarantees offered by the government when accompanied by vested interests and political considerations limit the market correcting mechanism (Albouy and Bousba, 1998). In Pakistan, the lack of cost-effective planning and vested interests resulted in direct deals with IPPs (Hasan, 2010).

The absence of competitive bidding for private generation projects and non-transparent procurement processes has always raised serious concerns about the potential for corruption. Many a time, these IPPs also get involved in corruption accusations, disputes/ litigations over the set rates and payments. The guarantee clauses in power purchase agreements (PPA) with these IPPs have not only restrained the dispatching efficiency but overburdened the power sector and the government with hefty liabilities (Malik, 2020).

Pakistan's Energy Sector: From Crisis to Crisis: Breaking the Chain by Alahdad (2012) highlights the absence of coordinated planning and policy formulation as a fundamental drawback to Pakistan's energy sector. It resulted in high-cost projects, relying on relatively obsolete technology and imported fuels and domestic fossil fuels which were depleting. He lamented the neglect of the poor at the behest of vested interests in the bureaucracy and rulers throughout Pakistan's history.

"It is a continuation of the colonial legacy when even vast development initiatives, such as the Indus basin irrigation system, were put in place by the British as a means of securing colonial rule rather than promoting people's wellbeing. The prevailing regulatory and legal systems ensured that the economic benefits would be channelled largely to the rulers and their proxies. Essentially, the only difference is a change of beneficiary from colonial rulers to the country's rich and powerful." He also quoted the 1,292 MW Hub Power Project, which was welcomed globally as "a milestone in private infrastructure finance." "Pakistan achieved international recognition as a model country for private power development… in September 1994, the U.S. energy secretary referred to Pakistan's energy policy as the best in the world" (Alahdad, 2012, pp. 30-31).

However, in less than five years a notice was issued to terminate 11 IPPs, a complete U-turn in Pakistan's image. Termination notice was based on both technical considerations and allegations of corruption. It began an extremely laborious and highly controversial process of renegotiating the contracts. In hindsight, the collapse is because of flaws in the 1994 policy, which in turn can be attributed to the weak institutions, lack of political thought process, consultations, transparency; and absence of integrated energy planning.

It is unfortunate, more or less similar stories are repeated in the history of private energy projects in Pakistan, whether they are under the 1994 Power policy, 2002 power policy or 2015 generation policy. Always, there are issues of transparency in the selection of projects which led to the strong perception of bribes, role of pressure groups (local and international), and political patronage. All the time, policy makers have chosen the path of tariff ceiling to attract investors rather than competitive bidding.

The tariff ceiling approach did not provide an incentive for investors to reduce costs. All this led to the high cost of privately generated power. The tariff issue has remained in focus in the renegotiation process (as in the recent IPP agreement). This process of re-negotiation also led to mistrust among investors, and the general belief that the government no longer honoured agreed contracts.

Conclusion

Political instability, poor governance and lack of administrative capacity of the government have remained detrimental to the efficient private sector investments in Pakistan. The first best solution to the current IPP model is to go for competitive bidding for all future private investments; and in the Power Purchase Agreement (PPA), pricing should be based on marginal costs and for a shorter period. It could partially allocate demand risks to generators by allowing a long-term contract for only a part of the capacity, while balance to be traded in the spot market.

Pakistan is heading towards establishing a Competitive Trading Bilateral Contract Model (CTBCM). But the market could only be developed when there is free capacity to be traded in the market.

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Expert Opinions

IPP MOU's Analysis

Shahid Sattar

immediately and government should shift 25 percent capacity on direct multilateral contracts increasing to 100 percent in 4 years. It will save 100 percent capacity payment in 4 years.

There was hope that this trillion rupees IPP fraud will be properly investigated and the culprits will be taken to task and nation will be given relief but the new IPP agreement has permanently taken away the competitiveness of the business and export industry of the country. These MOU's clear the IPPs of any wrongdoing and sanctifies all amounts billed and commits to payment schedule of Rs 600 billion current outstanding amount prior to any agreement being signed.

1994 Policy MOU	Comments	Impact on CD	Impact on Tariff Going Forward	Recommendations
Project costs have been overstated by at least 25% leading to no equity investment by investors.	Not part of MOU.	None	None	Investment costs should be re-determined and excess payments recovered. It will reduce CD and tariffs.
Existing capacity payments and variable O&M shall be reduced by 11%.	Reduction of 1.2 cents on tariff of 14	----	0.2 cents/kwh on these plants only	A very small reduction, should have been more.
USD exchange rate and US CPI indexations shall be discontinued on 50% of the reduced capacity payment, which shall be fixed at NBP TT/OD selling PKR/USD exchange rate prevailing as on August 12, 2020 without any local or international currency indexation or inflation adjustment for the future.	In future only	None	Rs 3.4 billion per annum (Rough estimate)	Share prices of these companies are increasing rapidly showing IPP's have won. Most of these plants are FO based and hence are not going to be dispatched in future.
In lieu of the tariff reductions herein above, any heat rate sharing by any IPP as per its existing arrangement shall cease to exist.	Negative Impact	None	NA	
USD exchange rate and US CPI indexations on reduced variable O&M and 50% of the reduced capacity payment shall continue as per existing arrangements.		None	Less than 0.0001 cents/kwh for these plants.	
To review the possibility of termination of plants considering their commercial and technical viability.				Inconsequential but would be good if the matter can be put to bed.
GOP intends to create competitive power markets. Without prejudice to the terms of its generation license, the IPP shall actively support and participate in the Competitive Trading Arrangement when it is implemented and fully operational.				Inconsequential as plants are to be transferred to GOP at Rs 1 each within a few years.
Power Purchaser and GOP shall devise a mechanism for payment of the outstanding receivables of the IPPs within agreed time.				All past payments due including LPS have been sanctified and IPP's exonerated.

2002 Policy MOU	Comments	Impact on CD	Impact on Tariff going Forward	Recommendations
Project costs have been overstated by at least 25% leading to no equity investment by investors.	Not part of MOU.	None	None	Investment costs should be re-determined and excess payments recovered; to reduce CD and tariffs.
Fuel Oil: To ensure that the actual efficiency is same as reported in the financial statements, the power purchaser (PP) shall appoint an international independent consultant to perform a one-time detailed heat rate test for all IPPs, based on TORs, standards and corrections required agreed between GOP and IPPs.	Going Forward: Only Heat rate audit and then sharing in difference non-operative as fuel oil will not be dispatched in future due to high cost.	None	Very minimal as fuel oil plants are not going to be dispatched due to high costs and economic dispatch.	Heat Rate Audit first: Recover the over billed amount for 8 companies for 10 years which is Rs 45 billion. It will reduce CD and future tariffs.
For O&M Charges-Oil: Any future savings in O&M shall be shared 50:50 after accounting for any reserves created, or to be created, for major overhauling, to be reviewed by PP or NEPRA as mutually agreed. If the reserve for major overhaul remains unutilized, it shall be shared in the ratio of 50:50 between the PP and the IPP. In case the major overhaul expense exceeds the reserves available at the time of major overhaul, the difference shall be carried over to the future years. PP shall not share in O&M and major overhaul losses.	Going Forward: Only share in savings past over charging sanctified although full record available.	None	Very minimal as fuel oil plants are unlikely to be dispatched.	Recover all excess payments to date which are appearing on balance sheet and allow only actual costs going forward. O & M savings from what again highly subjective but if applied properly will save Rs 1.5 billion per project annually, Rs 120 billion over the time period of 10 years from all companies. Will reduce CD and future tariffs substantially.
For O&M Charges-Gas: Fuel and O&M shall be taken as one consolidated line item and any future net savings shall be shared 60:40 in favour of the PP and IPP respectively, after accounting for any reserves created, or to be created for major overhaul; if the reserve for major overhaul remains unutilized, it shall be shared in the ratio of 60:40 between the PP and the IPP. In case the major overhaul expense exceeds the reserves available at the time of overhaul, the difference shall be carried over to future. PP shall not share fuel, O&M & overhaul losses.	Going Forward: Only share in savings past over charging Sanctified although full record available.	None	Minimal savings as gas projects will continue to supply 800 MW's.	Recover all excess payments to date which are appearing on balance sheet and allow only actual costs going forward. O & M savings from what again highly subjective but if applied properly will save Rs 1.5 billion per project annually, Rs 60 billion over the time period of 10 years from all companies. Will reduce CD and future tariffs.
For all future invoices, Delayed Payment Rate (DPR) under the PPA shall be reduced to KIBOR + 2% for the first 60 days after the due date, and thereafter at KIBOR + 4.5% as per the PPA. For IPPs where Gas Supply Agreement is signed with an entity with significant ownership of GOP, same DPR rates shall be payable by the IPP to Gas supplier. Further, for all invoices, the PP shall ensure that payments follow the PPA mandated FIFO payment principle.	Going Forward: Only KIBOR +4% will always remain the case as in the last 10 years no invoice has been paid in 60 days. In effect no change.	None	Very minimal as invoices will already be at full rate.	Offer L/C based payments in future after correction of issues which will mean no LPS. Will reduce CD and future tariffs.

GOP shall actively support the creation of competitive power markets. All projects shall convert their contracts to take-and-pay basis, without exclusivity, when Competitive Trading Arrangement is implemented and operational. In the interim period, CPPA (G) shall work towards providing access to the bilateral market at the earliest.	License does not permit take-and-pay clause, it is therefore redundant. Negotiations are aimed to exempt producers from competition, allow them cost plus, negotiated, or fixed up-front tariffs. In 2006 policy, upfront or fixed tariffs were imposed_ now there is no competition.	None	None	Immediately, shift 25% capacity on direct multilateral contracts increasing to 100% in 4 years. Will save 100% capacity payment in 4 years. Will reduce future CD as no capacity payments.
In future, for foreign equity investment presently registered with SBP, the Return on Equity (RoE) including Return on Equity During Construction (RoEDC) shall be 12% per annum, and for local investors, the RoE including RoEDC shall be changed to 17% per annum in PKR on NEPRA approved equity at CoD calculated at USD/PKR exchange rate of PKR 148/USD, with no future USD indexation. The miscalculation of IRR, on account of periodicity of payments, has been addressed through reduction in return component.	Going Forward: Only Investment in future shall be subject to these rates and returns of future will only be adjusted.	None	Minimal as no new investment by these plants is planned on future returns and tariff. The impact is about 5% of the tariff i.e. 0.5 cents in case of 10 cents tariff of fuel oil or which will translate to .05 cents in overall generation tariff.	Should be applicable from day one and rate of exchange should be actual at Rs 80/$. Will reduce CD and future tariffs.
Rs 600 billion current O/S to be agreed to be paid with iron clad schedule.	Seals the fate of the existing CD and guarantees payment. Agrees to all misdeeds done in the past.	None	None	IPP's have been given a clean chit so that they cannot be questioned on any of these issues in future even if malfeance surfaces.
Payment of the receivables of the IPPs is an integral part of this MoU. The PP and GOP shall devise a mechanism for payment of the outstanding receivables within an agreed time period, reflected in the final agreement.	IPP's are getting the GoP to commit to pay the past dues. Should only be done after redetermination.	None	None; as LPS is not part of tariff.	MOU's can only be interpreted in the light of existing contracts /licenses and hence no change.

Wind Policy MOU	Comments	Impact on CD	Impact on Tariff Going Forward	Recommendations
Project costs overstated by over 50 to 100% leading to no equity investment by investors.	Important but not addressed.	None	None	Investment costs should be re-determined, and excess payments recovered: will reduce CD & tariffs.
WPPs shall coordinate with their leaders and make all efforts to extend the debt-tenor by five years, reduce the spread over LIBOR by 50-75 basis points and reduce the spread over KIBOR by 100-125 basis points.		None		Any reduction in lending rates would reduce tariffs significantly.
GoP shall support the WPPs in replacing their current KIBOR based long-term domestic debt with SBP refinancing facility for renewable projects.		None		But this is completely left to the will of WPPs.
WPPs shall coordinate with their O&M operators and make all efforts to reduce their operations & maintenance cost by 20-25%		None	Less than 0.00001 cents/ kwh	Inconsequential
WPPs shall reduce their insurance during operations from existing arrangement to actual, subject to a cap of 0.7% of EPC cost approved under the respective tariff.		None		Inconsequential
WPPs developed under the upfront tariff regime of 2015, tariff sharing will remain same for net annual plant capacity factor (NAPF) till the NAPF approved in the respective lender's technical advisor report (P90 level). For NAPF above the P90 level, the tariff shall be reduced to 50% for the WPP.			Less than 0.01 cents / Kwh	Inconsequential
In future, the RoE including RoEDC shall be reduced to 13% per annum. The miscalculation of IRR, on account of periodicity of payments, has been addressed through this reduction in return component.		None	None; as no new investment in projects.	To have any impact, it should be from start of construction of existing plants and not on new plants only.
For WPPs where DPR is set at KIBOR + 4.5% in their existing contractual arrangements, the DPR in all future invoices shall be reduced to KIBOR + 2% for the first 60 days after the due date, and thereafter at KIBOR + 4.5%. Furthermore, for all invoices, the purchaser shall ensure that payments (including the DPR invoices) follow the EPA mandated FIFO payment principle.		None	None	Inconsequential as LPS is not part of tariff.
The mechanism for cessation/compensation of curtailment shall be devised by the WPPs, PP and GoP collectively, whereas the mechanism for outstanding receivables shall be devised by the PP and GOP, each of which shall be reflected in the final agreement(s). PP and the GOP shall ensure adherence to its contractual obligations.		None	None	All past payments due in full including LPS have been sanctified and IPP's exonerated.

Dissecting the IPP Agreement

Syed Akhtar Ali

Recently an agreement has been signed between a section of IPPs and the government towards resolving the undue and high cost of generation charged by the IPPs. Two separate agreements have been made, one with Wind IPPs and the other with Furnace Oil IPPs (FOIPP). There has been a mixed reaction from experts/analysts.

The most extensive agreement that has been made is with Wind IPPs and the most egregious and violating tariff has been in this sector as we will see later in this space. First, the major clauses of the agreement with Wind IPPs: debt-tenor to be extended by five years and LIBOR spread reduced by 50-75 points, while KIBOR spread by 100-125 points. Then, O&M expenses reduced by 20-25 percent; and insurance premium reduced in the operational years. Delayed payment interest rate to be reduced. Return on Equity (RoE) during construction to be reduced to 13 percent. There is some confusion about reduced RoE on total investment to 12 percent on foreign equity and 17 percent local equity. For oil and gas plants, verification of thermal efficiency/heat rate is to be there, and any saving would be shared according to a formula.

The main corrections that are required are in the area of financing, RoE and interest rates. All costs are translated into these two financial parameters. There is confusion on RoE reduction; some newspapers have reported that RoE would be reduced prospectively by three percent. However, the signed agreement with WPPs does not mention any such reduction. If this is indeed the case, then it may be considered as a significant achievement.

RoE of 12 percent for foreign investments and 17 percent for local currency component/projects has been negotiated. It is not clear if this will apply prospectively to existing WPPs or if it will be a general policy. The existing RoE policy rate is 17 percent for renewables and 15 percent for all others. There is no distinction of local or foreign currency. All get indexation in USD.

Local currency projects/components lost indexation with USD which was really unreasonable but got a higher RoE, which compensates for the rupee depreciation. The government has offered two main concessions – measures to settle IPP receivables; and lifting of more energy from WPPs which is otherwise wasted by NTDC transmission congestion issues.

A breakdown of a typical wind power tariff on existing plants: April-June 2020, total tariff is Rs 26.39/kWh – out of which O&M is Rs3.0875, RoE is Rs8.5049, debt repayment and interest is Rs14.00. One would be surprised to learn that the wind power tariff is around Rs25-26 per unit for the already installed WPPs under the 2013 tariff as against Rs6 for new power plants under the new tariff.

Admittedly, wind power cost and tariff were high internationally and have come down only recently and the new and old tariff is not comparable. On the other hand, wind tariff under the 2013 prices was unreasonably high – 60-100 percent higher than the international prices then. Knowledgeable circles, including this writer, kept protesting against such excessive tariff but NEPRA and other relevant authorities did not pay heed. NEPRA-awarded wind power levelised tariff in 2013 was 13.52 US cents as against 7.3 cents in Turkey, 7.78 cents in the US, 8 cents in India, and 6.235 cents in South American countries. Similarly, NEPRA CAPEX based on which the tariff was calculated was unreasonably high, that is, USD 2.4 million per MW as against USD 1 million per MW elsewhere – including India and the US. In Europe it was slightly higher at one million Euro per MW. In China, it was even under USD 1 million per MW (for further details, the reader is referred to my book 'Issues in Energy Policy', 2014).

Excessive tariff - whose fault? Obviously, NEPRA, the regulator; who did this, despite contrary advice. NEPRA did not bother to engage third-party consultants or simply browse the internet and get the data from regional countries, Europe and the US.

There is a provision of an Appellate Tribunal in our legislation. It has not been implemented yet; but should be implemented without further ado. Now, there is a combined Ministry of Energy, the appellate tribunal may be extended to the oil and gas sector too. We have seen how K-Electric has been playing with the legal system and obtaining stay orders against NEPRA decisions. Courts take almost infinite time to hear and adjudicate the cases.

A lot of regulatory reforms need to be implemented. Public hearings have to be made more representative and meaningful. Normally, investors are well represented, and consumer interest is not adequately represented. Fortunately, virtual meetings have been held by NEPRA which managed to gather views from a larger and diverse group of populaces. This should continue beyond Covid-19.

Fortunately, the volume of wind power purchases is a small 1000 MW or so. Had it been a large

volume, the level of destruction could have been much higher. Imagine Rs26.34 per unit plus losses plus transmission and distribution cost, while average tariff is Rs16.00. Thus the scope of damage with unrestricted authority of the regulator is very high – and thus the overriding rationale for reasonable oversight. The new leadership at NEPRA had no role in past policies and actions and should think about these needed reforms with an open and positive mind.

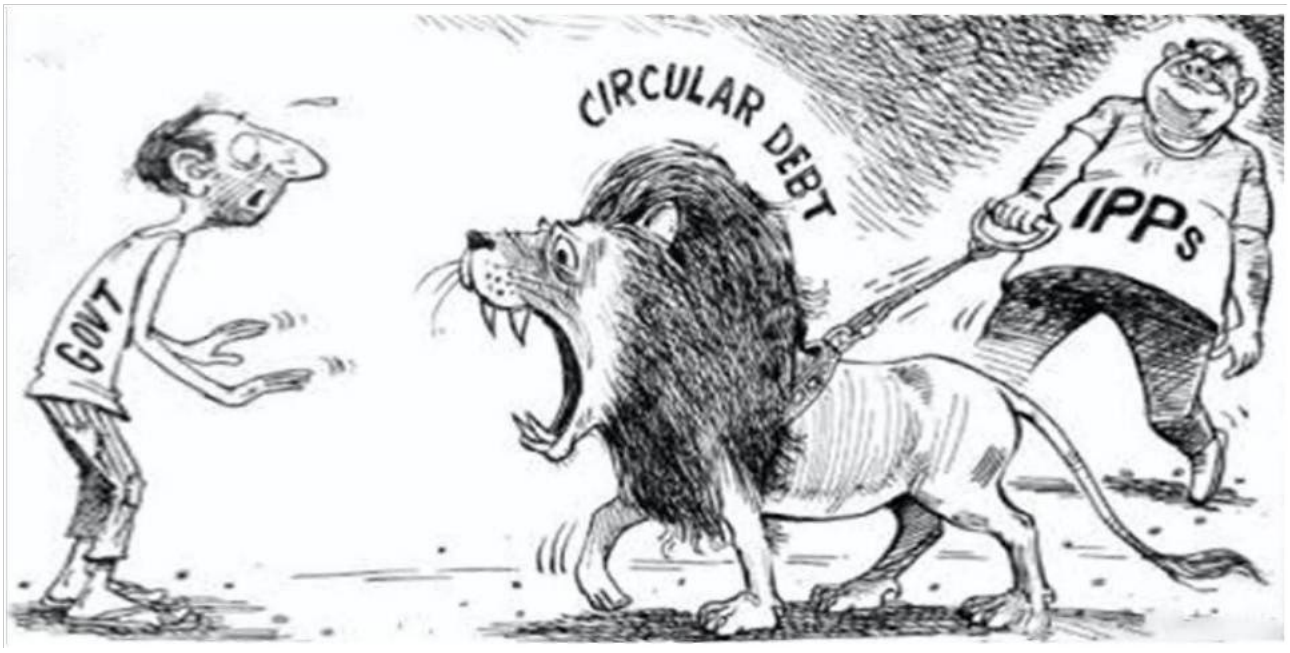
While NEPRA has been at the forefront; at the back is PPIB guiding (or even misguiding) NEPRA. Major reforms are also due in this organization. This organisation is often headed by a minister; and literally no debate or discussion has been taking place in its board. Decisions made behind closed doors have often been rubber-stamped by the PPIB board. Instead of a minister, an independent professional should be made chairman of the PPIB board. This should be part of the present government's reform agenda.

A competitive market is the solution for all future energy investments, which is easier said than done. A voluntary electricity exchange (as in India) could bring competition in the electricity sector gradually. The proposed CTBCM does not offer a good competitive footprint.

The issue should be deliberated upon by policymakers carefully. Competition can be introduced in many forms for new projects. Rules are already in the books for solicited projects which means price competition in awarding generation projects. Reverse Auction is in talks at NEPRA and AEDB since many years. But, NEPRA is still continuing with the old practice/process. Somehow, there has been a dislike or fear for competition. In addition, it is the avoidance of preliminary hard work to define project parameters.

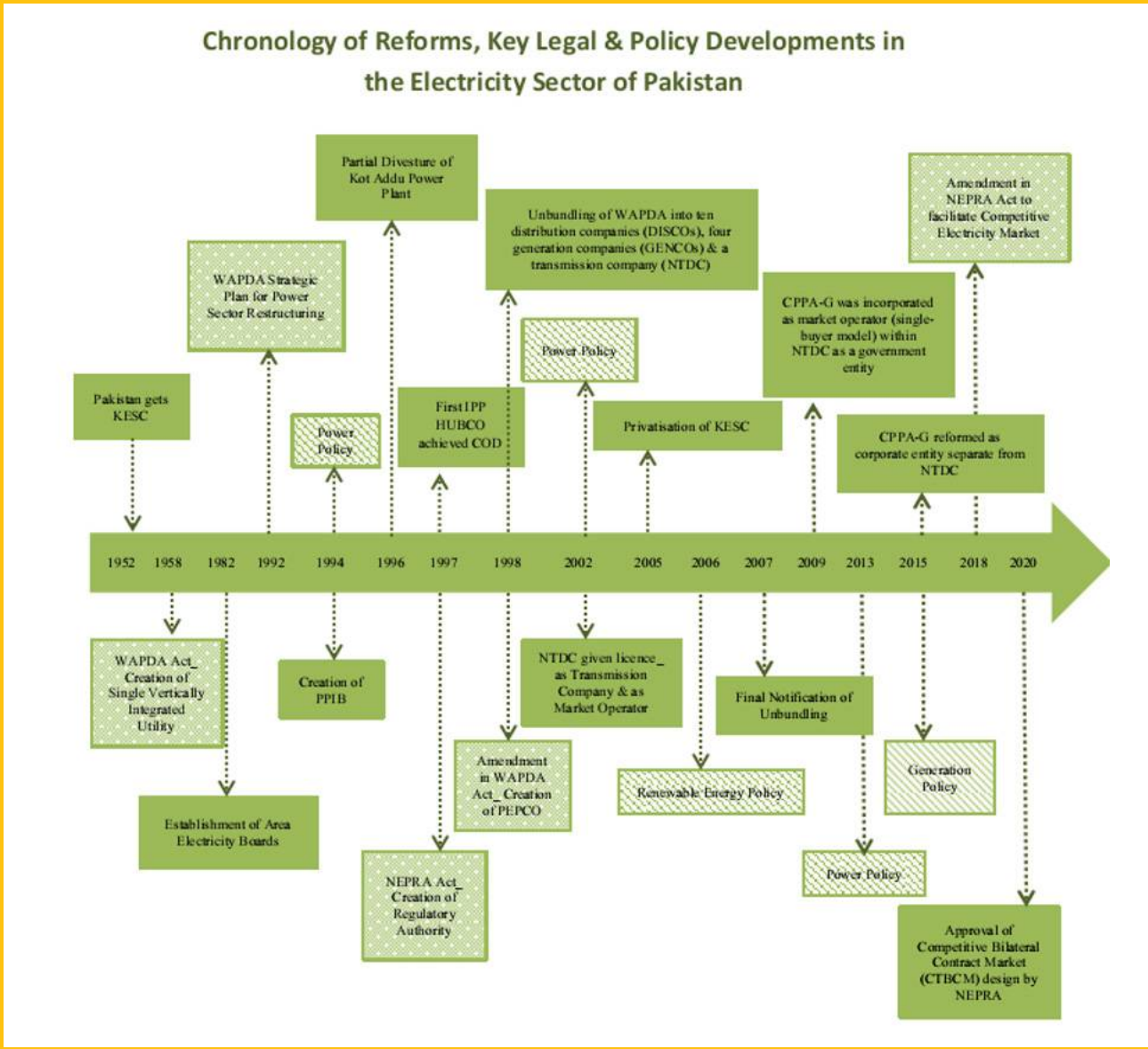
It will not be easy to divert existing projects to a competitive market. For projects which have paid off their debt, their prevailing tariff would be lower than the expected market prices and the power purchaser would stand to lose, as the latter will have paid a big share of project cost already. The committee should think through this issue before agreeing to any concrete terms on this issue.

Although the IPP agreement will cover only about five percent of power capacity, this template can be used for negotiations with other projects, especially those under CPEC. No doubt the present government is committed to reduce energy tariff, wherever it is feasible. It would be in the interest of IPPs to accept the agreed terms. Otherwise, there are a lot of illegalities that have been committed by IPPs and a frustrated government would be predisposed to take a harsher approach that may not be in their interest. The terms are mild and reasonable. Let all the parties get it through.



Courtesy: The Nation, September 06, 2018

Power Sector Reforms



Energy is essential for development and sustainable energy is essential for sustainable development.

Pakistan's Power Sector Woes: A Beginning with no end

Shahid Sattar and Saad Umar

The woes of Pakistan's power sector and associated negatives such as impact on GDP, high tariffs, long and frequent load shedding and poor governance are not unknown. To address these requires careful unfolding of the layers of mismanagement that continue to plague the sector's supply chain.

To begin with, it is important to enquire how it fares in terms of pricing, market development, generation and transmission compared to other economies.

Electricity Market Development

As is, electricity should be treated as a commodity where its production and trading are conceptually separated from the operation of the power system. On the other hand, Pakistan has a single buyer model that purchases electricity from GENCOs and supplies to DISCOs. This means that the monopoly status of electric utilities does not incentivize efficiency and instead encourages them to pass on the cost of their resultant inefficiencies to consumers in the form of heightened tariffs. If Pakistan's supply of electricity becomes the object of market discipline rather than monopoly regulation of government policy, the economy and end consumer will have much to benefit from competitive markets. This, however, will not be a straightforward process requiring interplay of several factors.

Competitive markets in the power sector can include i) wholesale that creates more competition for the generating companies where prices are determined by the interplay of supply and demand, and (ii) retail, to cater for small consumers that cannot choose to buy from the wholesale market.

Such competitive electricity markets are not alien to economies like Turkey and Bangladesh, and Pakistan may have important lessons to learn from these experiences. In the country's defense, however, some well-intentioned decisions have been made to this end such as ECC's decision to transform its single-buyer market model to competitive trading bilateral contracts market (CTBCM) where NEPRA and CPPA-G are working closely to establish CTBCM in their own

capacities. However, CTBCM has severe limitations as the generation side is already completely tied up in long-term generation contracts and therefore distribution competition can only be termed as an irrelevant exercise as there are no free suppliers in the foreseeable future. One way of freeing some generation for competition is urgent re-negotiation of all PPAs of existing IPPs to guarantee 50% of capacity, and balance to be traded or sold directly on B2B basis either through wheeling or from a power exchange.

Wheeling, a process whereby efficiencies are maximized by moving least-cost power to where it is needed, is the first step in achieving competitive markets. If wheeling is an option, a utility can determine if it is cheaper to build a new electric generation facility or buy power from another service area. Wheeling can achieve many benefits like open access to all market participants on a non-discriminatory B2B basis, attracting investment, and evolving the wholesale market and eliminating sovereign guarantees. To be financially viable, however, wheeling charges must be determined by the economic principle of marginal cost rather than incorporating all the inefficiencies of theft, stranded cost, non-collection and improper cross- subsidies which endanger the development of competitive markets. Currently, the existing charges for wheeling in Pakistan are Rs.1.35 to Rs.1.50 per kwh which the CPPA wants to increase to Rs.8.3/kwh by incorporating the aforesaid inefficiencies. The proposal by CPPA of adding irrational and unjustified costs in wheeling charges (including BPCs) will obstruct the formation of free and competitive markets - increasing employment, GDP and exports for Pakistan - especially when the power sector is close to achieving breakthrough of signing MoUs with IPPs to start operating on Take and Pay basis (i.e. without capacity payments) and various other concessions to lower generation costs and the establishment of a competitive market is one of the preconditions of the MoUs.

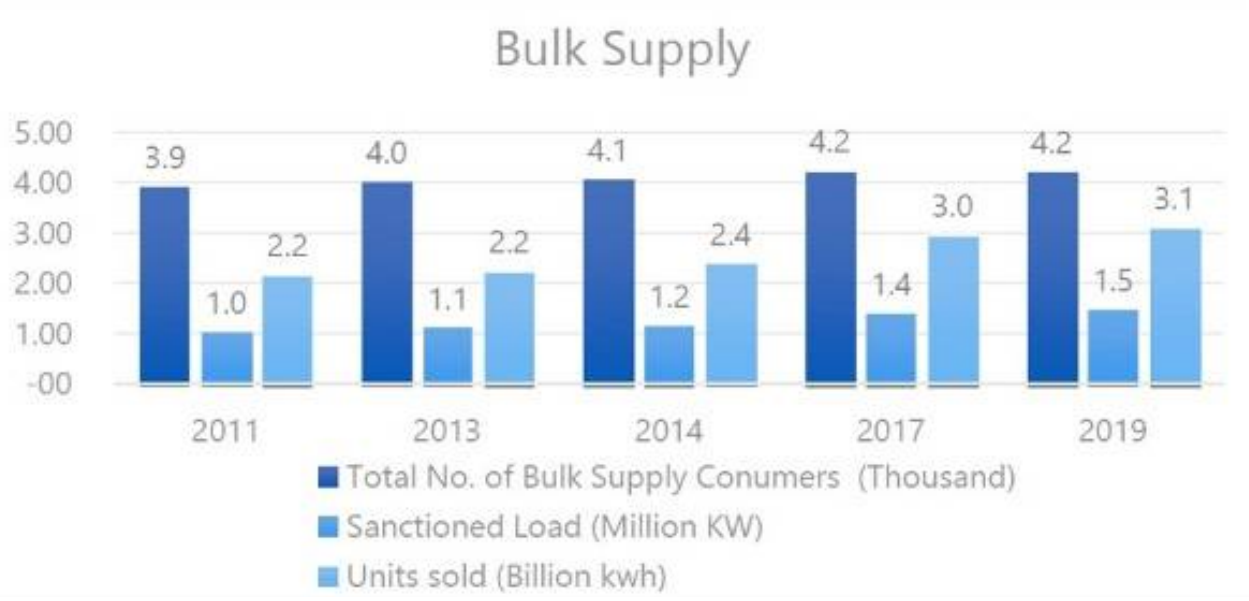


Figure shows that Bulk Supply Consumers have grown by 8% in Pakistan; while consumption has increased from 2.16 billion kWh to 3.09 billion kWh (43% increase). If bilateral contracts become financially unviable owing to excess (above legitimate) wheeling charges to BPCs, the development of competition will be threatened in the long term and export-oriented industries will become non-competitive. Moreover, it will have significant financial impact if costs are recovered from BPCs by DISCOs on Cost of Service which includes irrelevant business costs which are not part of the wire business.

Electricity Tariff Issues

Pakistan's electricity prices are significantly higher in the region, and in some cases, highest in the world. For instance, the electricity tariff in Pakistan is around 30 – 40 percent higher than countries like India, Malaysia, Turkey, and China. In our neighbouring country, India, power tariffs vary widely across the country - where every state/province has an independent power system, from regulator to financial ownership and liability.

In Pakistan, the issuance of distribution licensees under the existing regulatory regime means that each distribution company has its defined service territory and accordingly has a specific

cost of service for supply of electricity to its service territory. In other words, the entire country is divided into regional markets and each distribution company is responsible to meet the supply requirement of its own market / service territory. The cost of service means differential tariffs for each market or service territory.

It is worth noting that NEPRA is determining tariff on the base of cost of service, and allocating cross-subsidies despite having no expertise in this area. The regulator lacks the resources of seasoned economists and technical experts to determine the efficacy of economic impact of subsidy/cross-subsidy – it is fundamentally wrong to ask a regulator to set these cross- subsidies for end-consumers as it is without doubt the government's responsibility. The whole supply chain works to provide electricity to customers of the regional market(s) so all the prudent costs incurred are recovered from customers through tariffs. There are a total of nine distribution companies in Pakistan, excluding K-Electric. They are allowed to incur an average of 16% line losses (which is recoverable from consumers through monthly bills). In addition to this, they book another 12% line losses, including due to theft. Moreover, their recoveries remain low by up to 20% against the monthly bills. A large number of the consumers in far-flung areas are in the habit of not paying their bills despite many of them being more than capable.

Such a tariff and accountability mechanism is a matter of grave concern as there is no incentive for a DISCO to perform better, and underperformance is not penalized. A uniform tariff across the country means that the entire system is bearing the brunt of a few inefficient DISCOs. The equality between high- and under-performers is wrong at every level; rather incentivisation of underperformance is counterproductive. The natural outcome of such a self-imposed calamity can only be that the power sector system will be a severe drag on Pakistan's economic potential.

In FY2019, approximately Rs. 352 billion worth of electricity was lost in T&D. Of that, Rs. 300 billion is already part of the tariff. To allow such a significant portion of T&D losses to become part of consumer tariff is inexcusable, and if that isn't enough, more distress is caused by the breach of recovery targets by DISCOs (10%). In FY2019, a loss of Rs. 172 billion to this end was recorded (200% more than the previous year), creating bigger problems than T&D losses.

Pakistan's cost of power production is 26% higher for the industrial sector compared to other regional countries like Vietnam, Sri Lanka, Malaysia, Bangladesh, South Korea, Thailand and India, and it is 28% costlier for residential areas than the regional countries.

To add to their woes, inconsistent regulation between NEPRA (responsible for regulation of the power sector) and OGRA (responsible for the regulation of oil and gas sectors) sends confused signals to consumers and investors, and creates disharmony in pricing strategies between gas and electricity. Additionally, since both are sources of energy, the tariff on gas and electricity is $6.5/MMBTU (Rs.10) and ¢9.0/kwh (Rs.15), creating opportunities for arbitrage in the system. Hence, the prices must be set in equilibrium at $6.5/MMBTU for gas and ¢7.5/kwh for electricity as one of the measures in establishing an efficient system design.

Charging a higher tariff rate for electricity than gas generated electricity is in fact taxing the SME's as they don't have self-generation and as a result, cannot compete. The importance of a level-playing field can be estimated from the fact that 70-80 percent employment is in the SME sector and their growth results in the largest employment generation.

For residential customers, Pakistan's electricity tariff adopts an incremental block tariff (IBT) structure to protect lifeline (or extremely small) users. While over time tariffs have increased across all slabs in nominal terms, they have changed in real terms only at the highest levels of consumption. This means that the tariff structure has generally become more progressive, as higher levels of consumption have become more expensive.

Although Pakistan's tariff structure provides a low price to small users, poor households (HHs) are not the biggest beneficiaries of the electricity subsidy, a privilege instead enjoyed by the richest 20 percent of the population. The poorest HHs on the other hand, have become one of the main targets of the IBT structure and only receive approximately 10 percent of the subsidies paid by the government. This means that the electricity IBT remains a relatively inefficient method to protect poor HHs owing to ineffective lifeline tariffs, mismatch between tariff and poor HH consumption and such related factors.

However, given the fact that the structure was introduced at a time of power shortage and continues to linger on even when there is oversupply of power makes it all the more redundant. The IBT now must be replaced with regressive structure rather than progressive – lower tariffs

must be charged as per unit consumption increases. The two-pronged solution to this lower tariff for lifeline and lower category users is that i) tariff must be set on a cost-of-service basis for an efficient and reliable power sector, and ii) direct subsidy like BISP – an effective instrument – must be embedded to protect the poor HH consumers.

The government's idea of supporting consumers below the poverty line through cross-subsidization is also a non-starter. This is because industry and businesses are asked to pay tariffs above costs to finance the cross-subsidy. This higher cost of electricity increases the cost of manufacturing, adversely impacting business competitiveness. Compelled to seek cheaper alternatives, industries switch to renewable energy sources (solar generation) resulting in a decline in state revenue. And where that doesn't happen, poor implementation mechanisms result in the subsidy being enjoyed by the non-deserving still, while the poorest of the poor remain empty-handed.

Circular Debt

Power sector has been a significant constraint on growth in Pakistan in recent years – two capital burdens: circular debt at Rs. 2.4 trillion and capacity payment of more than Rs. 1.0 trillion in 2020 – crippled the power sector in the country. While on one hand, transmission and distribution (T&D) losses of up to 30% create inefficiencies and bottlenecks in the system, arrears mounting in circular debt to the magnitude of Rs. 2.4 trillion imply a perennially burdened national exchequer. The vicious cycle of circular debt - whereby distribution utilities struggling to collect revenues and meet regulatory targets for transmission and distribution losses default on their payments to generators, and the government periodically bails out the sector once losses accumulate to intolerable levels – has severe implications for the Pakistani economy.

Such a high amount cannot be recovered from tariff adjustment and more importantly trying to recover it from the current or future consumers is completely irrational. The government instead needs to come up with out-of-box solutions to pay-off the circular debt rather than recovering it through tariffs which will only amplify the problem. If left unaddressed, high inefficiencies of distribution companies like QESCO and PESCO, will continue to contribute to the ever-growing circular debt, estimated to reach Rs.4.0 trillion by 2025.

Revenue-based Load Shedding

When it comes to billing and revenue collection, DISCOs resort to ineffective solutions such as revenue-based load shedding i.e. they take the easy way out of suspending power supply to areas with high loss and collection – a situation not understandable in a country with excess power capacity. This hits compliant customers and industries the hardest with heightened tariffs. More importantly, not only is revenue-based load shedding constitutionally improper, it also ignores international conventions such as the Sustainable Development Goal (SDG) of universal access to power and our honorable supreme courts adjudication on the subject of collective punishment which results in revenue-based load shedding.

Given the country's chronic energy shortages – and the public's increasing scepticism of state-owned utility companies to deliver consistent and affordable electricity – it makes sense that more and more Pakistanis are adopting the use of solar technology to meet their energy needs. Pakistan's imports of solar panels were approximately Rs. 56 billion in fiscal year 2019. Imports of solar panels have risen from as little as $1 million in 2004 to a peak of $772 million in the fiscal year ending June 30, 2017. And while they have since dropped down to $409 million in FY 2019, the country's imports of solar panels show a strong upward trajectory, growing at an average rate of 16% per year in US dollar terms (23% per year in Pakistani rupee terms) in the five years between 2014 and 2019. The stats should be alarming for the government since more and more compliant, high-end users – the very source of revenue generation – are moving away from the grid electricity by installing their own solar generation. The impact of government's (irrational) strategies to meet the power sector revenue requirements will misfire and the power sector is currently set to implode.

A small portion of these imports are for grid-scale projects but the proportion for domestic, commercial, and industrial users who are not necessarily connected to the grid is also quite significant. Whether this trend will continue and adopt a path of its own, only time will tell but one thing is for certain: if Pakistan does not address the inefficiencies in its power sector with the urgency with which it demands and assure sustained and affordable electricity, its consumers, investors and businesses/industries will be left with no option but to look for alternatives elsewhere.

Sustainability of the power sector

Shakil Durrani

The Water and Power Development Authority (WAPDA) was created in 1958 as an autonomous statutory body to develop, operate and regulate electric power and water resources in the country. During the next fifty years the organization successfully developed the massive post-Indus Basin Treaty 1960 replacement works and with the private sector raised the power generating capacity from a hundred plus megawatts to 20,000 MWs. Today there are nearly twenty two million electric consumers and the generating capacity has soared to 35000 MWs.

A couple of decades back the government and the international donors realised that structurally and operationally, WAPDA as a public sector entity, was no longer administratively or financially viable. The power sector was deemed unsustainable economically because of its inefficiencies and the corruption generated by the sheer size of WAPDA. There was widespread customer discontent, budgetary shortfalls and financiers/donors' dissatisfaction.

In November 2007, GOP finally notified the unbundling, separation and corporatization of the power wing of WAPDA into Pakistan Electric Power Company (PEPCO). Earlier it was established in 1998 but remained non-functional.

The original plan and purpose of creating PEPCO was to create an entity for a period of three years responsible for managing and privatising the ten Distribution companies to reduce the financial burden of the state and to ensure greater efficiency in electricity distribution. For inexplicable reasons PEPCO not only inherited the ten Distribution companies but also assumed control of all public sector thermal power generation and the transmission and distribution companies as well. Additionally it assumed a dominant (and calamitous) role in determining future power sector development without regard to the massive costs by involving IPPs/RPPs from the private sector.

Since PEPCO was placed directly under the Ministry of Water and Power which also controlled the Private Power and Infrastructure Board, the latter also lost its independence. In other words a new WAPDA-like organisation was created with immense powers and more so, patronage, but without WAPDA's inbuilt system of tried and tested checks and balances which had previously served the country well for half a century. There were no checks or accountability in PEPCO similar to WAPDA's main decision-making 'Authority' or its 'Central Contract Cell' to objectively evaluate projects and decides all issues on merit. Henceforth an intrusive Federal Government started

blatant micro-management of PEPCO resulting in excruciating economic pains for the country. By establishing PEPCO with vague and indeterminate parameters the underlying objective of privatising/leasing the distribution sector was therefore lost.

The absence of the desired level of institutional restraints on PEPCO and the Ministry of Water & Power (now the Ministry of Energy) was clearly visible to the caring eyes. Placing PEPCO directly under the Ministry of Energy, the policy arm of the government and not an executive implementation entity, was a serious anomaly and was the main reason for the failure of PEPCO.

In a subsequent development, the GOP approved the dissolution of PEPCO in 2012 and the functions were first transferred to National Transmission and Dispatch Company (NTDC) and later to Central Power Purchase Agency (CPPA) making the DISCOs fully independent in theory. These were paper transactions only.

It is hardly surprising that today inefficiencies abound and the circular debt has crossed Rs 2.2 trillion increasing by nearly Rs 500 billion annually once previous interest payments are added. Today well over a third of all electric power supplied is lost because the T&D aggregate losses are nearly 25% while Pepco losses another 15% due to low bill recoveries. It was abundantly clear to independent professionals, and now the government as well, that the power sector regulator, the National Electric Power Regulatory Authority (NEPRA), has largely failed to objectively and independently regulate both the public and the private power sectors. The losers are millions of ordinary consumers and business and industry which pay back-breaking tariffs. It was therefore heartening to note that the recent report of the government's enquiry commission on the functioning of IPPs/RPPs has laid bare the real machinations of the private sector. This should have been NEPRA's responsibility had it functioned according to the book.

The stated objective of separating and privatising the distribution system was to ensure greater financial and administratively sustainable operations. On paper the unbundling of the power sector appeared beneficial but the structurally unsound tier of an unaccountable and irresponsible BOD at the DISCO level with no checks led to its failure. The DISCOs have been accused of rampant corruption, unnecessary procurement, nepotism and poor operation and maintenance. The problems associated with technical losses, theft, non-metered use and uncollected bills can be rectified if the government has the will to take bold decisions.

Way Forward

Three major strategic changes and a number of other tactical reforms are recommended to offset the debilitating losses and mismanagement in the ten DISCOS.

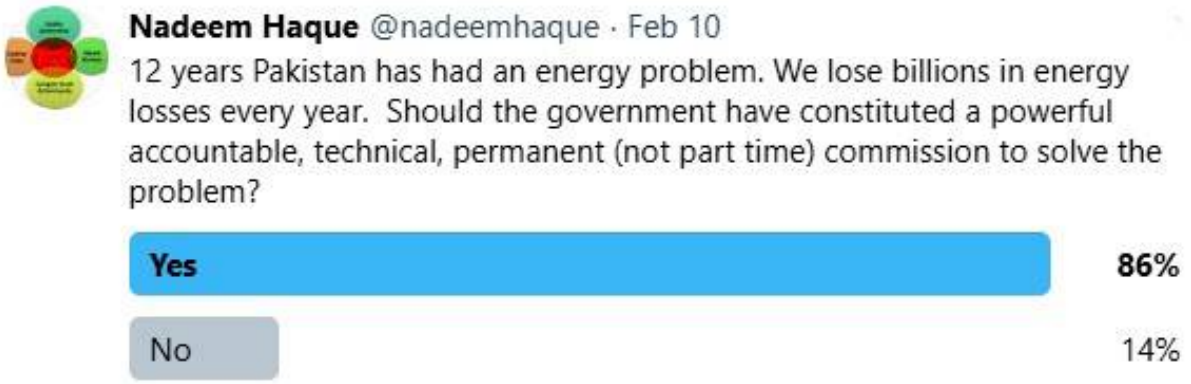
- **Creation of a central supervising Holding and Management Company in Islamabad and placing all DISCOs directly under it.** The company would be responsible for major management decisions and control of DISCOs to ensure efficient performance leading to reduction of technical losses and pilferage and ensuring optimum collection of revenues. The Chairman and the CEO of the company would need to be high-profile professionals while other members of the BOD would consist of technically qualified and experienced personnel with two members representing the government. The present BODs of Discos would cease to exist and would be replaced by functional specialists from the public and private sectors as is the case with Wapda's Authority and also the erstwhile Area Electricity Boards for instance. The day to day control and dictation of the Ministry of Power would end as ex-officio placement of the non-specialist Minister/Secretary, officially or informally, is severely detrimental to robust operation of the system. The State's responsibility for project approval and auditing obligations would remain in place however.
- **Leasing or privatizing gradually the poorly performing Discos or leasing out all loss-incurring Feeders separately in Discos for a period of 10-15 years on the condition that the current revenues would be increased annually by a certain percentage.** There is little justification in leasing/privatizing the better operating Discos however. The lessee would be responsible for upgrading the system with the costs shared with the Discos. This would also prevent the sale or mortgage of expensive real estate by the privatised Discos as happens when an entity is sold. The deficiencies and follies noticed in the privatisation of KESC/K Electric should be avoided. Yearly benchmarks would be determined with the lessees by Discos. Effective accountability in the distribution system and enforcement of a strong legal framework to curb theft of electricity would need to be placed. Digital technology for remote

metering and ensuring optimum collection of revenue would be ensured. The provincial governments must provide the police and the magistrates for the above purpose with the costs and incentives shared by the lessee and Pepco with the provinces.

- **Altering the power generation mix by ensuring that renewable sources (hydro, solar, wind, biogas) generation reaches 75% from the present ratio of 30% in ten to fifteen years.** Some European countries have already reached full renewable generation levels. The import based thermal fuel projects currently generating 60% electricity have to be drastically reduced which currently cost almost US $5.6 billion in imports. Also a dozen low-efficient thermal plants need to be phased out.

Other Related Issues

- Change of subsidy regime for poor using less than 100 units per month by providing cash grants/ food basket through EHSAAS programme rather than subsidizing electricity directly. Many countries including Indonesia have similar policies which reduces pilferage.
- Developing competitive market/wheeling to avoid monopolies backed with an effective regulator.
- The DISCOs need to pay the cash itself for the power it purchases from the public and private sector generating companies so that they realize that inability to recover their dues from the consumers would dry up their resources. This happens at most places in India and elsewhere. Initially they should be made responsible for paying a percentage of their purchases which would be raised gradually.
- The development surcharge of 10 Paisas per unit like the Neelum Jhelum project should be doubled under an appropriate nomenclature to finance additional renewable power generation. Recovery of TV license fee is a nominal charge which may be retained as it is cost effective for the government.
- There is urgent need to reform NEPRA, both institutionally and administratively by adding to its professional personnel to safeguard the interests of both the State and the consumers.



CTBCM: Will it promote competition?

Syed Akhtar Ali

Competitive wholesale and retail markets are aimed at encouraging power supplies and investments and bring prices down. National Electric Power Authority (Nepra) has approved CTBCM-Competitive Trading Bilateral Contract Market. In the present and foreseeable future, it is a framework that has everything but competition. Is this just a lip service and no practical strategy to bring in competition? As it has happened to earlier pronouncements that competitive bidding would take place for renewable projects, while Nepra continues to issue cost-plus Take or Pay determinations to this date. Similarly, Wheeling has been discussed for almost a decade now and nothing seems to be near implementation for one reason or the other.

In five years, there will be 50,000 MW of generation capacity contracted for thirty years under Take or Pay contracts. So where will the supplier of electricity come from? We are under capacity-surplus, giving rise to increase in capacity charges and circular debt. Will new capacity be created under CTBCM contracts? In that case, one may be thinking of 2035 or later.

Obviously, current installed capacity would have to be somehow converted wholly or partly to the proposed market mechanism which may not be easy. We would like to explore some possible strategies to achieve this. In the advanced countries, there used to be Take or Pay contracts as well which were converted into a market mechanism. Power generator Independent Power Producers (IPPs) had to be paid off for their investments or projected income. We are already suffering under Reko Diq-type issues and cannot afford to create more issues. An acceptable policy framework has to be brought about by consultation with the existing contract holders.

There are five types of contract holders or venues to enlist power sellers: 1. Contracts which are under implementation varying from Private Power and Infrastructure Board (PPIB) approvals to under-construction ones. There are about 10,000 MW of such contracts; 2. Contract capacity contract, which is under its debt payment stage; 3.Contract capacity which has retired its debt and has Return on Equity (RoE) obligations only which may have a value of 20% of the capacity charge; 4. Contract capacity which is near completion of 25-30 years many of which are trying to get some extension; a few have already managed to do so through KE framework. 5. There is WAPDA and GENCO capacity as well. GoP has done well to adjust WAPDA RoE to 12 % matching its agreement with IPPs, creating an example by action. 6. In a power deficit environment, buyers may organize a hybrid market and may be inclined to buy excess power from existing Power

Purchase Agreements (PPAs) to meet the excess demand. In current circumstances of power surplus, this avenue does not apply at all.

Are public sector projects (Category-5) the best candidates for bringing into market? There should be no impediments, as the bureaucracy and employees would be able to continue with their jobs. Net advantage? Market process can be initiated. Category 4 would be and should be very happy to get a contract under the Take and Pay market mechanism. Category 3 would be more than happy; having retired debt and RoE income being due, they will earn more money under market mechanism which would reflect full capacity cost, including debt cost. In this case, Central Power Purchasing Agency - Guaranteed (CPPA-G) would be a loser having paid the debt cost already. Some formula has to be worked out in this case.

Category 1 and 2 are the most difficult. Banks and financing agencies would be involved. These are the most lucrative expensive contracts with a guaranteed tenure of 25-30 years. Who would like to let such contracts go? It is not yet certain if the recent IPP agreement terms would also be applicable on these. Quite a few are Chinese CPEC and non-CPEC contracts. It may be the last one to be brought in the competitive market regime. There may be a complicated formula; buying off the revenue liability as it is and adjusting it against the proceeds of competitive market. This is not to suggest nationalization but a mere financial mechanism. The risk, profit or loss, goes to CPPA-G. Captive power may be added as a sixth category which is actually free and immediately available. Captive power owners are the ones who are trying to sell their surplus output bilaterally or in a future market set-up.

Another issue is of cost-based or bid-based model. CTBCM is based on cost-based. There are many examples of both in the market economies and even in Russia. Under Take and Pay contracts as opposed to Take or Pay contracts that we have, Cost-based models may be workable. Under Take or Pay, we already have the same system except that instead of monthly merit-order, they will be generating an hourly merit order - cynically speaking - issuing monthly merit order in hourly instalments? Nepra has taken a serious note of the misuse of the merit order as being practiced. What would happen in an hourly exercise? In the current form, CTBCM is meaningless; just new wine in old bottles. No competition but complication would be created.

Apart from the market economies, there are a few countries like Turkey, the Philippines and Malaysia which have established competitive electricity markets. India has established two voluntary electricity exchanges but market share has varied around 6-11% only. In 2019, electricity prices at these exchanges have been around IRs 3.1-3.4 while in India it came down to IRs 2.3-2.90. Untied surplus electricity is traded in these exchanges. There is provision of inter-state trade whereby states trade their surplus electricity quota to those who have deficits at various points in time. Why hasn't India been able to switch to a full competitive electricity market is a difficult question that may include some of the difficulties as we have mentioned in the foregoing.

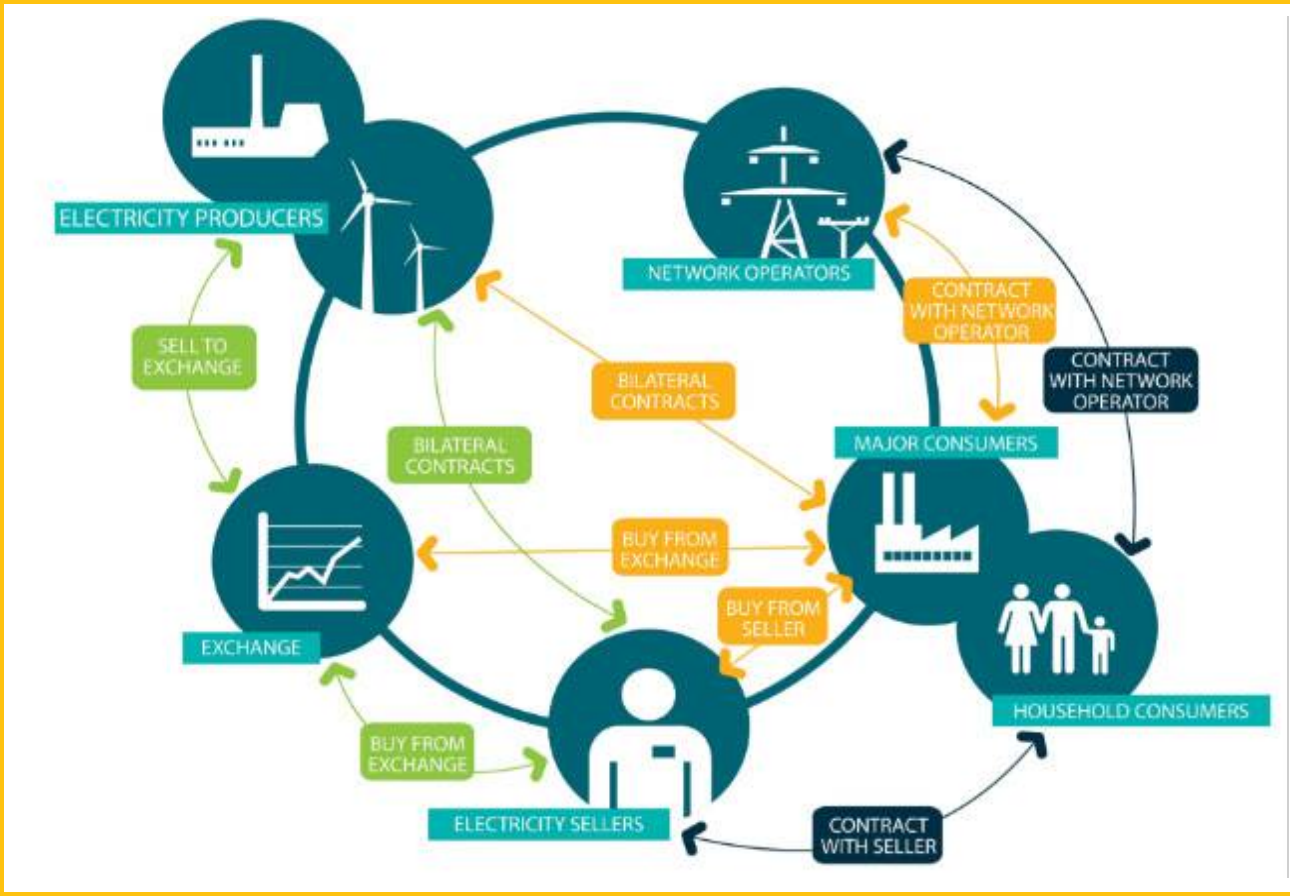
India has, however, succeeded in establishing a viable competitive bidding regime in the renewable sector. Earlier, India did go for competitive bidding in case of high capacity coal power projects (5000 MW each). If nothing happens, voluntary market exchange may be an option that may be practiced by Pakistan. CTBCM does provide for competitive bidding under the name of capacity auction and has entrusted it to NEPRA, although even in the current dispensation, there is a provision of solicited projects. Perhaps, this is the part of CTBCM that can be put into practice without much ado. PPIB may have to prepare projects identifying locations, if not sites, and fuels. A beginning should be made with Solar and Wind which are much easier than fossil ones. It was not done earlier but may be enforced now.

The degree of complications can be measured by lack of progress on a viable wheeling charge formula which is concerned with distribution cost element only. DISCOs have presented a big bill as high as Rs.8.50; reportedly, half of which may be fixed component. Add a typical generation cost of Rs 8-10 per unit, the total comes out to be Rs 16.50-18.50; goodbye to wheeling. There are serious arguments on both the sides.

There are complicated issues. NEPRA would have been well advised to have the CTBM evaluated by a third party. Third party evaluation of consultant's report is a norm. Too much is at stake. NEPRA may still do that. It has earlier made mistakes of accepting high tariff projects under pressure and not involving third party advice. There should be no hesitation for such skills are not available in the country and very complicated issues are involved. We hope that it will be done this time. The alternative is that nothing competitive would happen practically in the present form of the CTBCM framework and we will continue to be haunted under a Take or Pay regime.

Developing Electricity Market

Afia Malik



On November 12, 2020, NEPRA has approved the detailed design and implementation plan of Competitive Trading Bilateral Contract Market (CTBCM) of electricity. NEPRA has given the timeline of 18 months for preparation and implementation. The model envisages that all the future contracts for the sale/purchase of electricity will be bilateral between the parties, that is, sellers - generation companies and buyers - distribution companies or bulk power consumers.

Pakistan's power sector does need a market, no doubt. The basic aim of the reform model introduced in the early 1990s was to develop a competitive electricity market. Other reform measures including unbundling, deregulation and privatisation were merely transitory stages to move towards a free market. The idea was to achieve cheap pricing for consumers through competition in generation and supply and shift decision making from government to the market.

As part of these reforms, Pakistan unbundled its electricity sector into generation, transmission and distribution. Private investors were also allowed in the generation sector. But in the absence of competitive bidding, we ended up in long term contracts with sovereign guarantees.

The anecdotal evidence suggests that the performance of our electricity system is worse today than what it was in 1990s, when the reforms were initiated. One of the reasons quite possibly is that we left the reforms half way through. Secondly, we were not fully prepared to implement reforms when these were initiated; the restructuring was undertaken only in haste under influence of the donors. The result is in front of us - the end consumer tariffs are high, the government is still a decision-maker, and though we have a separate regulator but with insufficient authority.

In early reforming developing countries, the most successful were the ones with strong governments and political will for reforming the power sector. These countries established a competent and independent regulatory framework; eventually moving towards a free-market. In Pakistan, political and bureaucratic capture is strong; it resists any change.

The detailed design of CTBCM has been prepared by an international consultant for the Central Power Purchase Company (CPPA-G). Once again, the entire exercise is under the advice of the donors and consultants. The government has decided to develop a wholesale market in the next two years and the retail market in the next five years. Are we prepared for this structural change? Or will we repeat the mistake we committed over two decades ago?

The electricity market is complex; it needs a design, developed keeping in view the ground realities and after consultations with all the stakeholders. The stakeholders include not only the industry but also the politicians, judiciary and academia etc. A national consensus, which has not been developed so far, is essential before the envisaged reforms can be successfully undertaken.

The electricity wholesale market, to function efficiently, must meet the following pre-requisites:

A financially viable sector and a reliable payment chain are crucial for a market to function. The creditworthiness of all, in particular, distribution utilities is critical. Presently, the power sector is not fully solvent, its deficit, that is, circular debt, is rising continuously and has reached an all-time high of Rs. 2.4 trillion. The inefficiencies in the distribution sector are responsible for more than 50 pc of this deficit. High transmission and distribution losses and less than optimal recovery rates are adding to this deficit; besides increasing the tariff for compliant consumers.

A large power system with several buyers and sellers is required. Unfortunately, we do not have enough buyers and sellers to compete. On the generation side, all the independent power plants and even the three state-owned generation companies despite being inefficient are all under take-or-pay contracts – which guarantees 60 pc of payments (capacity charges) to generation companies even if the government fails to buy the electricity.

In the CTBCM, because of take-or-pay contracts, the distribution companies (DISCOs) would be required to provide a credit cover for future procurement of power. This will not be possible, given the current poor balance sheets of the DISCOs. If buyers, that is, DISCOs, are financially unsound how the envisaged wholesale and retail power market will function? Moreover, the benefits of competition are unlikely to pass to end-users if market power is concentrated either in the generation or in the distribution sector.

A transmission infrastructure with sufficient capacity to carry all the electricity generated is required. This unfortunately is not fully available.

A non-discriminatory governance structure for the market operator and system operator is essential. Though government owned, Central Power Purchase Company (CPPA-G) is an independent market operator but it has a clear bias favouring DISCOs.

Finally, a stable macroeconomic, political and social environment is necessary for the market to develop and function. Institutions play a crucial role in the success of any market, not just electricity. The dismal state of our institutions and governance failures need no mention.

The bottom line is that the current conditions are not feasible for the development of a full-fledged market in electricity. Our best bet then is to start with the 'wheeling of power' – electricity transmission from a producer to a user in the same balancing area or from one area to another. This would be a precursor to market development. NEPRA should facilitate 'wheeling' by discouraging the hurdle creating entities.

DISCOs being averse to competition are creating hurdles; CPPA-G is supporting them. An example is an increase (as suggested in CTBCM) in wheeling charges to incorporate the inefficiencies of DISCOs. Inefficiencies in DISCOs are due to mismanagement. Even if some IPPs were to agree, to revise their contracts from take-or-pay to take-and-pay; a massive increase in wheeling charges would discourage them. The market will collapse before formally taking off.

The electricity market is complex; it requires legal, financial and human capacity at every level. Build this capacity first.

It is time for a sustainable energy policy which puts consumers, the environment, human health and peace first.

Dennis Kucinich

Unlocking Energy Innovations

Amena Urooj and Afia Malik

Modern problems require modern solutions! This could be a reason for the developed world to opt for energy innovation years ago. Is Pakistan doing enough to catch up? In future, human ingenuity, innovation and technology will be the key to unlock an energy-proficient world. To overcome the energy crisis, Pakistan must take up style and substance of the front runners in the field.

Energy Innovation is the application of various forms of innovative responses along the entire supply chain and demand. A recent webinar at PIDE on Energy Innovations points out that the world's commitments to SDG 7 has led to an increased share of renewables in the global energy mix and the new techniques have doubled energy efficiency.

Globally, micro-grids, micro-turbines, wind-turbines and solar photovoltaic are redefining energy generation and distribution. To reduce greenhouse gas emissions, to minimise costs and to improve resilience and dependability, the electricity systems through technological innovations are being decentralised, decarbonised and digitalised, referred to as "3 Ds". Tailor-made renewable energy solutions provide an alternative to centralised grids, while battery storage provides 24/7 power supply despite intermittency of solar and wind. The emission-free system regulates and optimises power supply with a minimum human intervention using Artificial Intelligence (AI).

Since 2010, the Global investments in renewable energy exceed $2.6 trillion. Global Trends in Renewable Energy Investment 2020 reports that the world renewable energy capacity in 2019,

excluding hydro, grew by more than 184GW with an investment of $282.2 billion. In monetary terms this investment was only 1% higher than in 2018 due to fall in the cost of wind and solar energy. The fall in turn is owed to technological improvements, scale economies and greater competition. The developing countries, predominantly China and India, are vigorously advancing on the innovation trek with $152 billion investment in 2019. In comparison, renewable capacity investment in Pakistan was only $0.6 billion.

A transition to clean energy is about making an investment in our future

Gloria Reuben

With the circular debt of PKR 2.4 trillion, high system losses, huge capacity charges and dependence on imported fossil fuel, the energy cost is 26-28 pc higher than regional counterparts. Inadequate transmission and distribution infrastructure are adding fuel to the fire. Over 40 million people in Pakistan are not connected to the national grid, while 75 million grid-connected consumers face daily 12-hour rotational blackouts.

Energy innovations can help rein in rising electricity costs, decreases dependency on imports, reduces environmental degradation and supply clean energy to those who are under or un-served. Realising the potential of sustainable energy innovation in the supply chain requires tilling across generation, transmission, and energy distribution.

The wind power was launched in Pakistan nearly 15 years ago with a high dependency on imported services. Progress remained slow due to high prices. Potential for solar and wind power is quite high in the country. According to the World Bank, the exploitation of merely 0.071% of solar power potential would meet country's current electricity demand. Solar and wind power which are now the cheapest sources of power generation are gaining a foothold in the country; but still with 95 pc reliance on foreign markets, mainly China, for the equipment required. The local industry suffers from pricing issues because of high taxes - availability of cheap imported solar appliances makes it harder to compete.

On the transmission side, globally deployed innovations of smart wires, metering infrastructure and digitalised appliances face availability restrictions in Pakistan. At the distribution end, electricity theft – one of the major reasons for circular debt – can be controlled by using smart technology however cost factor impedes its deployment.

In FY2020, the installed capacity of solar and wind in Pakistan was 1678 MW, making it 4% of total capacity and hardly 1% of the electricity generated. The Renewable Energy Policy 2020 has targeted to increase renewable energy to 30 pc by 2030. This would save up to $5 billion over the next 20 years.

Limited resources, over-regulated energy sector and lack of institutional infrastructure and capacity are hindering innovations in Pakistan. These are limiting the integration of renewables with conventional technologies. Elimination of taxes on manufacturing solar and wind energy equipment locally is planned. Phasing-out exemptions on imported renewable energy products is also planned to provide a level playing field to local and foreign suppliers. Several collaborations with international institutions are in the pipeline to pace up transition to renewable energy. Still, a lot more has to be done.

Apt policy interventions are critical for a resilient energy system. To have access to cheap energy, indigenous resources must be replaced with imported alternates. Meeting this challenge requires a radical change in the energy system, regulatory support and adopting alternative energy solutions through innovations. There is a need to empower people as effective participants in the decentralised energy system for the future.

The state of science and technology has been less satisfactory in Pakistan. There is a weak link between industry and academia/ research institutions and lack of funds for scientific research to develop alternative energy solutions. No research is of any use unless it is demand-driven and people-centric. The need is to bridge the gap between academia and industry through encouraging demand-driven research with state funding. It is time to make collective efforts and carefully tread the global trends of energy innovations.

What’s next for distributed generation?

Ermeena Malik

Planning for growth beyond net metering

Distributed generation (DG) - also called on-site generation, dispersed generation, embedded generation, decentralized generation and distributed energy - generates electricity from small energy systems, at or near the point of consumption. Placed on roof-tops or ground-mounted, grid-connected distributed generators are typically used to offset an electricity customer’s own energy consumption, provide grid support through peak shaving, load shifting and ancillary services or sell power to a third party.

Motivated by the environmental benefits and other advantages of distributed generation (DG) technologies (including the potential to mobilize private finance, reduce network losses and decrease transmission investments), many countries have adopted compensation mechanisms, such as Feed-in-Tariffs (FITs) or net metering, and other types of incentives to promote DG. Coupled with rapidly falling technology costs, these incentives have catalysed rapid growth in global DG investments. In 2019, nearly $52 billion were invested worldwide in distributed solar PV systems of less than 1 MW, adding more than 30 GW to global DG installed capacity.

The net-metering experience in Pakistan

Pakistan adopted comprehensive net metering regulations in 2015 (Alternate and Renewable Energy, Distributed Generation and Net metering Regulations, 2015) to establish DG as a viable technology in the country. Although growth in net metered installations was initially slow, the market for net metered DG has picked up pace recently. According to NEPRA, approximately 47 MW of net metered DG was installed in 2019 compared to 10 MW added in 2018 and 15 MW installed since the start of the program in 2015.

The net metering program has clearly supported the local market for DG. With the compensation available through net metering, the un-discounted payback period for a 5 kW residential solar system is approximately 3 years and could decrease further if panel prices fall or electricity tariffs rise. The payback period for typical commercial and industrial systems varies between approximately 3 and 6 years.

However, the economics of DG in Pakistan gain more from excellent solar irradiation in most of the country, falling costs of solar PV technology and the fact that electricity from distributed solar PV costs significantly less than un-subsidized grid-supplied power in the country. According to the Renewable Energy Policy (2019), more than 2500 MW of solar panels were imported to

Pakistan between 2015 and 2019, far more than the approximately 700 MW of net metered and grid-scale installed solar capacity reported by NEPRA in the same period. The Solar PV import figures provide evidence of considerably more off-grid DG installed in Pakistan compared to grid-connected DG systems and substantiate the economic viability of the local DG market under the present power market dynamics.

The government expects renewable energy to be a key part of Pakistan's decarbonisation strategy and has recently announced national renewable energy targets mandating a 20% share for renewables in the country's installed power generation capacity by 2025 and 30% by 2030. Given the strong economics of DG in Pakistan and the rapid growth in net metering since 2019, DG could make a significant contribution to the national RE targets, provided policy makers act now to plan for sustained growth in the DG market.

Key elements of a distributed generation roadmap for Pakistan

As the DG market in Pakistan evolves, policy focus must shift to developing a comprehensive roadmap to sustain the economic viability of DG beyond net metering. A pre-defined roadmap will not only identify a clear path to connecting high levels of DG on the network, it will also support power system stakeholders in taking timely actions to maximize the upside potential and limit the downside risk of DG technology.

Building on the experience of the country's net metering program, an effective DG roadmap would address these key considerations related to increasing the share of DG in power generation:

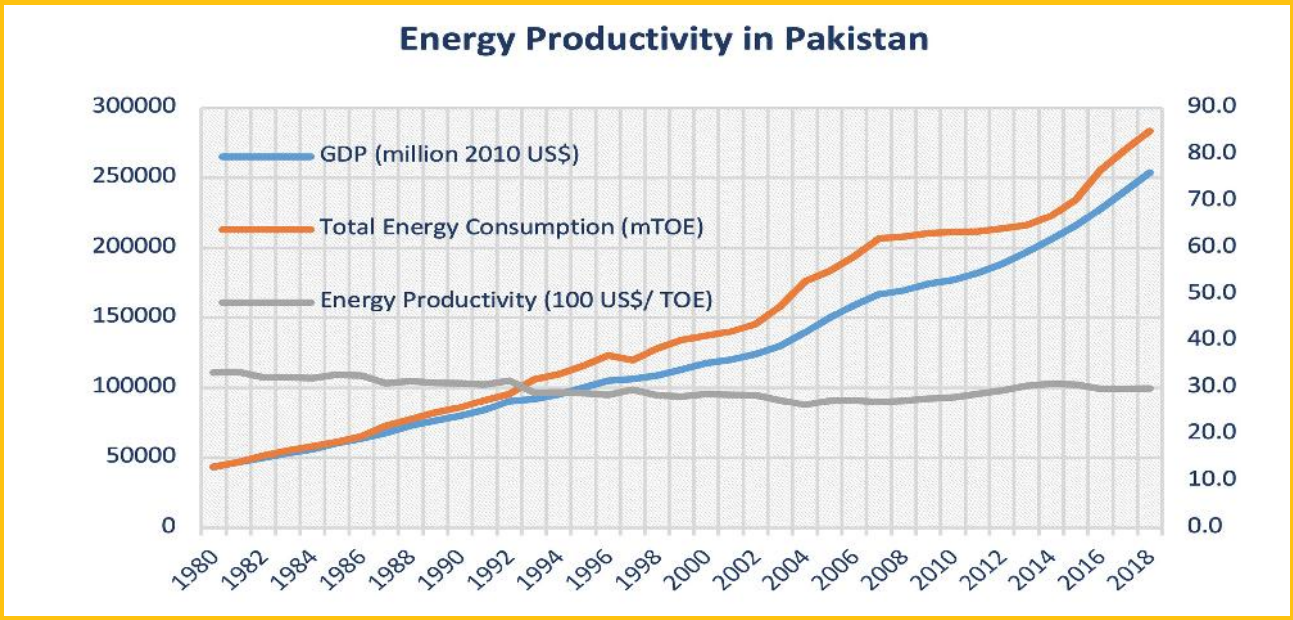
- **Establish a reliable evidence base to inform future DG policy and aid context specific and market-relevant planning.** A DG roadmap will only be effective if is tailored to the local market context including supply and demand volume, nature and level of risks and institutional and administrative capacities. In addition to documenting this information, the roadmap should also provide a clear indication of market size (estimated industrial, commercial and residential

DG capacity that can potentially be installed by 2025 and 2030) and report on the costs and benefits of leveraging DG for power sector reform (for instance, using government funded DG systems to reduce electricity subsidies or promoting wheeling of renewable energy from DG installations). As the DG market evolves, the roadmap should be periodically updated to reflect changes in market dynamics.

- **Identify and address current or future constraints that can hinder growth in DG.** Technical, financial and institutional barriers that can derail the DG market must be identified and clearly addressed in the roadmap.
- **Review effects of increasing levels of DG on energy network performance.** An upfront review of the technical impacts of DG on low-voltage distribution networks allows systematic development of policy frameworks, reducing risks to distribution companies and investors, and providing stability over the investment time frame. Technical impacts that need to be analysed and quantified include the impact of DG on network harmonics, the potential for reverse power flow from the low-voltage to the medium-voltage network, impact on load curves and the increase in demand for spinning reserves or balancing services and grid storage.
- **Quantify financial impacts on DISCOs and electricity consumers without DG installations.** Although net metering can benefit all power system stakeholders, increasing levels of DG on grid-networks can also induce costs that have an adverse impact on DISCO customers without DG. DISCOs stand to lose revenue as consumption from the grid is replaced by self-generated power, without the DISCO receiving any compensation for the storage and balancing service it must continue to provide to net metered customers. In most cases, this revenue loss translates into tariff increases with a disproportionate impact on DISCO customers without DG.
- **Propose reforms to the power sector monitoring and planning system to ensure integration of higher levels of DG.** The Integrated Generation Capacity Expansion Plan (IGCEP) 2018-2040 does not account for DG systems in the power demand projections and supply planning. Although grid-connected and off-grid DG currently adds little capacity to the grid, DG has the potential to contribute significant generation capacity by 2040. Excluding DG from the long-term generation capacity expansion plan will undermine the effectiveness of the generation planning process and hinder the DG market expansion.
- **Extending DG polices beyond roof-top solar.** Solar PV is currently the only viable DG technology in Pakistan, however electric vehicles (EVs), combined heat and power generators and micro wind turbines all have the potential to make bigger contributions to DG in the future. The DG roadmap should reflect this capacity and provide a plan incorporating multiple DG technology options.
- **Clearly define a strategy and next steps for achieving sustained, long-term growth in the DG market.** The roadmap must provide long term certainty for investors through a managed transition from net metering and a comprehensive strategy for continuing market growth. The choice and complexity of individual interventions should be coordinated with conditions in both the energy market and the wider economy.

Energy Productivity for sustainable development

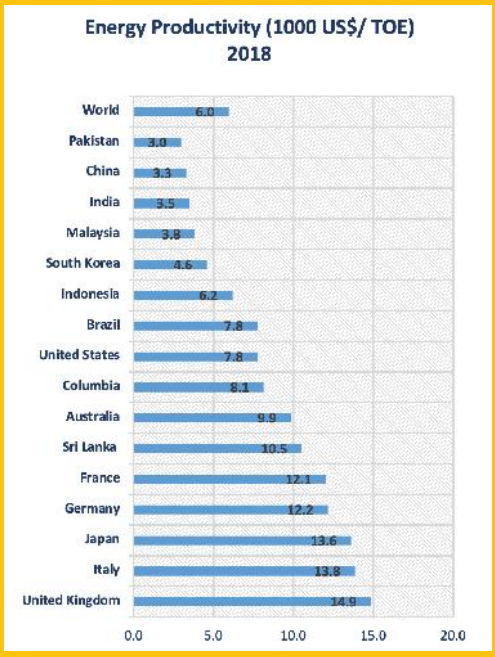
Afia Malik



Energy productivity has become an important policy instrument across the globe, as it provide details of energy consumed while focusing on growth, economic diversification, innovative technologies and also efficiency in the use of energy. Its effects are positive on country's economic growth. This new paradigm allows all economic activities to seize maximum economic benefits and minimize environmental concerns through the optimal use of energy. Its focus goes beyond efficiency and demand management, and includes generation through renewables.

Limited Decoupling of Energy and Economy

In Pakistan, unlike most of the countries, we can hardly see any decoupling of energy and economy taking place. Since 2000, percentage increase in energy productivity in Pakistan is less than 5 percent. In comparison, since 2000 world's average energy productivity has increased by about 11 percent; energy productivity in China, India, Malaysia, Japan, United Kingdom, Germany and United States have increased by almost 46 percent, 23 percent, 24 percent, 31 percent, 59 percent, 32 percent and 34 percent respectively. On the other hand, China and even India were much below Pakistan in 2000 and before, but they have improved significantly.



Energy demand in Pakistan has grown at about 5 percent over the years. 29 percent of the population is still without access to electricity. With rising urbanisation, growing population and burgeoning middle class, energy demand is expected to rise even more in future. Thus, more environmental threats associated with increasing energy demand. Without countering these threats we will be endangering our future generations.

There is enormous potential to reduce demand for energy by increasing energy productivity.

According to one estimate, we can reduce 20 percent to 25 percent of energy demand only through its productive use in various sectors, as fourth industrial revolution has empowered us to consume energy more intelligently. 20 percent savings from efficiency and demand management in Pakistan corresponds to more than 50 percent reduction in oil imports.

Our industry is the largest consumer of energy, that is, 36 percent of total energy is consumed in industry, whereas, it contributes only 18 percent to our GDP. Most of our industrial units are highly energy intensive and susceptible to high energy losses across various assembly lines. This leads to high energy bills and loss in productivity. Energy costs in total production costs ranges from 20 percent to 50 percent in various industrial units. This affects not only the financial health of our industry but its competitiveness in export markets. Giving them energy price concessions is not going to help, there is a need to improve energy productivity of our industrial units, especially SMEs, to boost their competitiveness. According to SMEDA, there is a little awareness and even less expertise in SMEs in terms of energy saving practices and skill development to achieve best energy management practices.

SECTOR	CONSERVATION POTENTIAL
INDUSTRY	25 percent
TRANSPORT	20 percent to 23 percent
AGRICULTURE	25 percent
BUILDINGS	20 percent to 25 percent

Source: ENERCON

International evidence suggests, enterprises that implement plans to increase their energy productivity can enjoy reduction in overall costs, increase in profits and overall competitiveness. Besides, it mitigates greenhouse gas emissions, creates new jobs, and improves energy security.

Pakistan has the potential for industrial expansion. Our industry can increase its competitiveness by applying energy-efficient best practices in new industries. In existing ones, only by replacing obsolete technology can save enormous energy costs. For example, by 35 percent in boilers and 20 to 30 percent in electric motors.

Similarly, transport is the second largest consumer of energy, i.e., 34 percent of total final energy consumption and almost 59 percent of liquid fuel consumption in Pakistan. We are dependent on imports for more than 80 percent of our liquid fuel consumption. In 2017-18, we spent more than 50 percent of our export earnings on oil imports. Saving energy in transport by only 10 percent in 2017-18 could have saved us about US$ 1.2 billion. This can be transformed into a saving of about US$ 10 billion (at the current exchange rate) by 2030. It is easily achievable, only through strict compliance with fuel efficiency standards; discouraging low occupancy private cars; cost-reflective road pricing and through the increased use of renewables in various transport modes.

INDUSTRY	ENERGY SAVING POTENTIAL
MARBLE	5 percent to 8 percent
POWER LOOMS	Up to 10 percent
FURNITURE	15 percent to 20 percent
AUTO PARTS	10 percent to 15 percent
JUTE	10 percent to 15 percent
TEXTILE	10 percent to 30 percent

Source: SMEDA

In buildings, whether they are domestic or in the commercial sector, energy efficient building codes are not enforced properly as building control authorities are short of resources as well as expertise. There is enormous energy saving potential in buildings (in monetary terms for the users also) which can be achieved through proper building design and through the replacement of inefficient lighting, air-conditioning and water pumping systems. Similarly, in agriculture instead of giving them subsidy, we can encourage them to use efficient water pumping and avoid wastage of water resources.

Renewable Energy

Other important aspect of energy productivity is use of renewable energy. The use of these resources is increasingly at an accelerated pace around the world but Pakistan has just begun to encourage its consumption. At present, more than 60 percent of the electricity generated in Pakistan comes from fossil fuel based generation, including gas, coal and oil. In comparison,

installed capacity of renewables (wind, solar and bagasse) is only 6 percent. Moreover, the upcoming generation capacity under CPEC is largely from coal-fired power plants, seven times larger than the expected renewable installed capacity. In Pakistan, the idea of energy conservation and demand management has not remained popular because of government neglect and because of lack of public awareness of its overall benefits. Likewise, we are going at a snail's pace in adding renewables in our energy mix.

Energy Legislation

We do have National Productivity Organisation (NPO); National Energy Efficiency and Conservation Agency (NEECA) in place of National Energy Conservation Centre (ENERCON); Ministry of Environment; Ministry of Energy, Alternative Energy Development Board (AEDB) to name a few; and number of policies formulated by them. What they have achieved over the years is clear from the above discussion.

In Pakistan, environment and energy legislations do exist that have the capacity to force a shift to a more resource efficient and low carbon economic activities. Implementation of existing laws has been hindered by weak coordination among the relevant institutions and ministries. Institutional framework for energy efficiency is weak in Pakistan. In energy efficiency regulations we are at 70 out of 141, in comparison to China and India who are at 21 and 33 respectively, in Global Competitiveness Ranking of 2018-19. ENERCON suffered greatly from a lack of funds, professional facilities and capabilities. Its functionality has remained dependent on donor assisted projects. This has meant that it has not been able to commercialise energy efficiency activities successfully. NECCA achievements are yet to be seen.

State of Science and Technology

The state of science and technology in Pakistan has been far below many emerging economies. In comparison, China despite being the largest consumer of energy in the world, has reduced its resource intensity and improved its energy productivity by 304 percent between 1980 and 2018. It happened through the adoption of energy efficient technologies and shifts in its industrial structures. Over the years, China has increased its R&D activities tremendously. Firms in-house technology development activities played a critical role in creating domestic absorptive capacity required for the successful diffusion of imported technology as well as for the local development of energy efficient technologies in China.

China is also leading in renewable energy developments. In 2017, almost half of global renewable energy investment (that is US$ 125.9 billion) came from China. China will be the prime world market for renewable energy by 2040.

Japan is the fifth largest consumer of world energy and among the leaders in terms of high energy productivity. Japan managed to improve its energy productivity enormously by swapping half of its nuclear capacity through efficiency and conservation; and now is increasingly moving towards renewables. The country dramatically increased awareness of energy use and efficiency not in years but only in weeks in 2011. Their large companies are now managing high-profile efficiency programs. In fact, energy efficiency practices are deeply rooted in Japan's overall economy.

Similarly, in Germany, substantial improvement in energy productivity is through technical efficiency improvements on the energy demand side and the substitution of nuclear and fossil fuels with renewable forms of energy.

Improvement in energy productivity is indispensable for Pakistan. We need a clearer and targeted approach to increase energy productivity in all the sectors by about 3 percent annually. It is crucially important to have voluntary commitment towards energy efficiency/ conservation as happened in Japan. We need a committed business leadership to accelerate their investments in energy efficient technologies. Similarly, adopting strategies to accelerate the induction of renewable forms of energy in our systems is unavoidable.

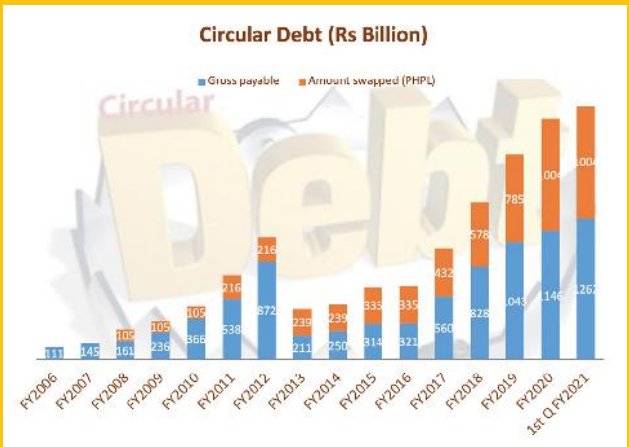
In Pakistan, if we manage to transform our energy system, with increased use of renewable energy in combination with energy efficiency and conservation, it would reduce our net costs of energy production. There would also be substantial socio-economic benefits in the form of economic growth, job creation and overall welfare gains. It would certainly guide us to achieve the goal of clean climate and access for all by 2030.

PIDE Webinars on energy

Afia Malik

Circular debt - an unfortunate misnomer

Circular debt has been with us for 16 years. Pakistan has suffered huge losses (cumulated loss of more than Rs. 5 trillion). We tend to hide behind the term circular debt without any clarity. Experts at the webinar were of the view:

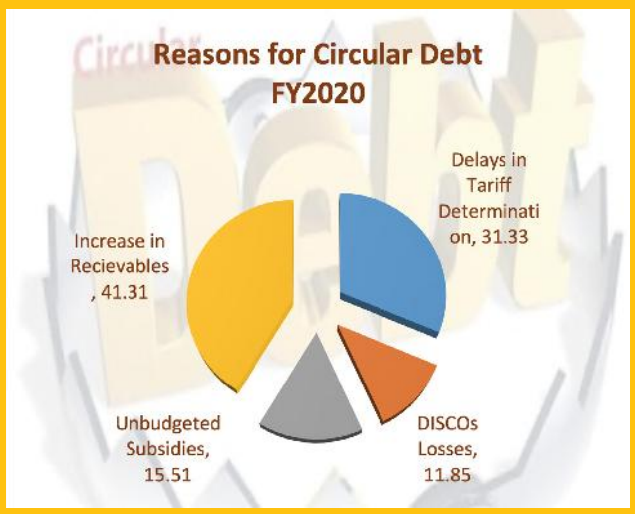


Circular debt is a power sector deficit; shortfall in inflows and outflows at the CPPA-G. It is because of inefficiencies, delays in tariff determination/ decision-making, taxation issues, administrative and governance issues. It is huge and increasing as there is no serious effort to curtail it. The only effort government made over the years is to increase consumer tariff; which in itself is distortionary. Uniform tariff and subsidies act as a disincentive for DISCOs to improve efficiency.

Instead of increasing sales to minimise the impact of huge capacity payments, DISCOs have started revenue-based load shedding. There are no performance contracts with energy companies.

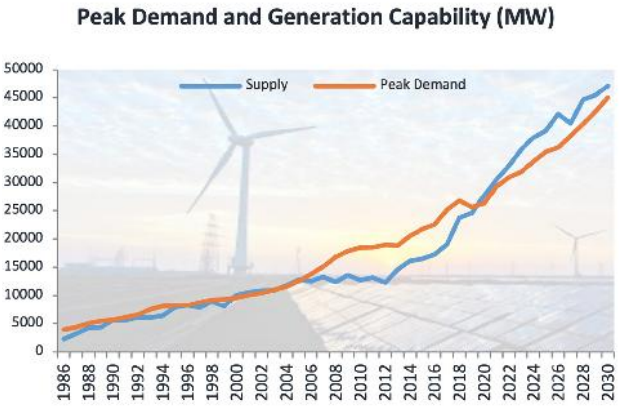
Steps suggested for the future include:

- Empower NEPRA to notify differential tariffs. The government must cover all costs not covered in tariff through subsidy.
- Power sector polices should be linked with the monetary policy and exchange rate policy.
- De-politicise the DISCOs and allow an independent board with professionals as its members.
- Experts are required in the sector to understand the underlying issues and take appropriate steps in time.
- Coordination between Federal, Provincial and Local governments is required to resolve the outstanding recovery issues.
- Finally, smart technologies can be used to control non-technical losses.



Energy investment and planning

Pakistan has lurched from an excess demand to excess supply of energy and has whimsically played around with the energy mix. While the world is moving to renewables we are investing heavily in coal. We allow energy to be produced on sovereign guarantees.



The experts at the table were of the opinion that_ absence of competitive bidding and non-transparent power procurement process has brought structural rigidity and hindrances to the creation of a competitive market. Generation sector did attract private investment but get stuck in the cost-plus model. Guaranteed capacity payments have increased the cost of generation.
Decision-makers have always chosen short term fixes to avert crisis instead of a long--term well thought out strategy. Political expediency and short term goals resulted in long-term contracts; the end result is high prices for the consumers.

The focus in planning strategies is on expanding generation capacity, with little focus on improving the energy mix and energy efficiency. Planning for generation expansion is based on only peak demand forecast, which is sometimes misleading. There is lack of spatial forecasting. That's why investments to increase generation capacity are not complemented by equivalent investment in downstream transmission & distribution infrastructure.

There is disconnect between various govt. departments _ leading to inconsistencies and less than optimal planning and decision making. Our energy planning strategies ignore the holistic view and focus only on the power sector. There are institutional disconnections and fragmentation in the priority of issues.

If planning objectives are clearly stated, then there is a problem of implementation. Planning is done for the existing consumers and not for those who are un-served or under-served.
Webinar suggested:

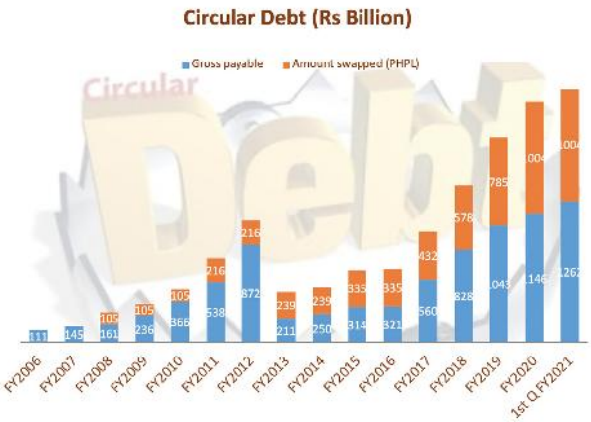
- Distributed generation is the solution for those who are un-served or underserved.
- An integrated power sector planning is required. This approach must include accurately forecasting demand, adding generation capacity, improving transmission and distribution systems, increasing efficiency and bringing costs down and ensuring sustainability.
- We need good urban planners along with energy experts for energy planning.
- Coordination should not be limited to the energy sector, but serious consultation with other sectors as well.
- There is need for capacity building at the individual as well as at the institutional level.
- Policy-makers/ planners should have an understanding of the complex economic, political and environmental interrelations and uncertainties surrounding energy systems.
- Market liberalisation with private participation is an optimum solution provided accompanied by effective regulatory apparatus.
- Two parallel energy infrastructures are not financially viable. Move towards a single source of energy for every sector, in particular for the domestic sector.

Developing electricity market for future

We need to design a system where cost of losses can be minimised to produce energy competitively. That is, the system where, prices are not made volatile by arbitrary taxation and regulation works for the poor. We need a competitive electricity market with minimum government interference. But there are certain challenges to develop a market for electricity, which needs to be taken care of.

The electricity market is complex; it requires legal, financial and human capacity at every level. It requires healthy participants. We have moved from vertically integrated to the single-buyer model but so far failed in developing a wholesale market. There are private participants in the generation, but no competition due to guaranteed long-term contracts.

Political and bureaucratic capture is so strong that it resists change. This capture discourages healthy participants to take part in the market and compete.
To move forward there is need for existing generation to be broken down into smaller entities to minimise the generation complexinwhichwearecurrentlylocked.NEPRA allows generation plants with new equipment; if this condition is removed, generation costs will come down automatically, and these plants will also be available for competition. Distributed generation offers avenues to create competition in the retail market.

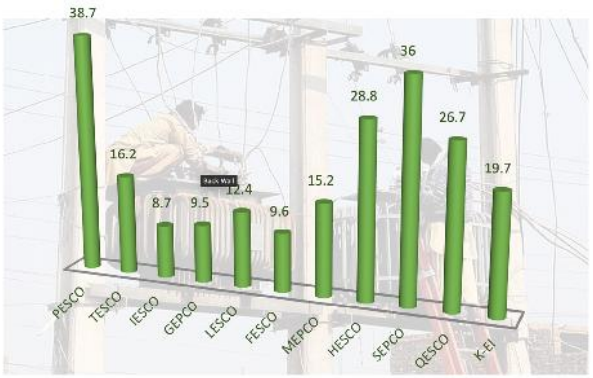


The sector needs to be financially viable first. Power sector with losses does not allow the market to move forward smoothly. Wheeling is the first step to move towards a wholesale market. Simplify wheeling of power that will be the prelude to efficiency and market development. NEPRA needs to ensure bilateral contracting and does not allow any entity to create hurdles in it.
We need professional management throughout the supply chain. Besides, we need compliant consumers_ universities, media and other community institutions can play a role in creating awareness among consumers. Finally, for competitive bidding (in future) we need a bidding plan. Without a bidding plan, market cannot be developed.

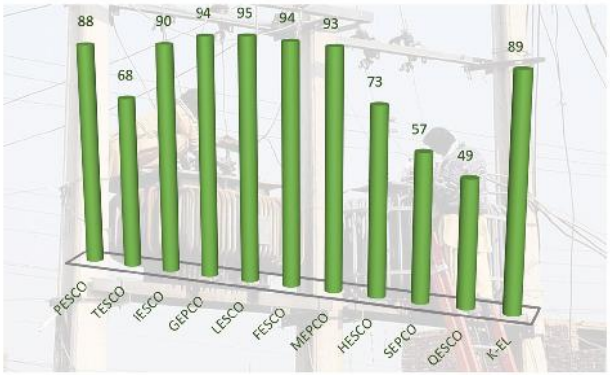
Reforming electricity distribution

The power sector in Pakistan experience shortages not due to lack of supply, but mostly because of the financial issues of the distribution companies (DISCOs). Weak governance and mismanagement are prevalent in the distribution sector. About 10 per cent on average of the electricity sold is not recovered. There are issues of overbilling. More than 18 per cent of electricity is lost due to system inefficiencies and network deficiencies.

Distribution Losses (%) in FY2020



Bill Recovery (%) in FY2020



DISCO employees (management) after corporatisation are company employees but they are still treated as government employees and get transferred quite frequently. In the DISCO boards, there is hardly any expert to guide DISCO management. DISCOs are not independent to take decisions; even for minor purchases, they need approval from the power division.

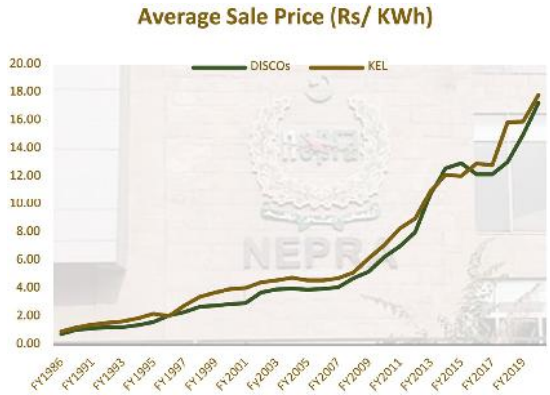
For determining the sector's performance the focus is only on two key performance indicators (KPIs), i.e., transmission and distribution losses and recovery rates; no consideration is given to reliability or sustainability of supplies to end-consumers. Though there is a difference among DISCOs based on two main KPIs used; when viewed in terms of sales volume, there is not much difference in performance. The socio-political environment, in which the company operates, plays an important role.

Disharmony between federal and provincial governments is also affecting the efficiencies in the DISCOs. The roundtable besides highlighting challenges in the distribution sector, suggests steps to correct distribution inefficiencies. These include:

- Appoint experts on the boards of DISCOs and empower them to take tough decisions; make them accountable for their decisions. Make DISCOs a corporate entity with no government interference; the government should limit itself to policy-making.
- Invest in energy loss reduction programmes, distribution infrastructure and grid augmentation. Invest in human resources to build the capacity of DISCOs. Not only capacity building of management; DISCOs also need trained technical staff.
- The distribution sector requires smart and effective regulatory structure; there should be a strong linkage between the regulator and the DISCO management.
- After the amendment in NEPRA Act in 2018, DISCOs are asked to come for separate tariff determinations for 'wire' business and 'retail' business. Keep the assets (wire business) in the public sector (DISCO ownership); maintain them_ to earn a reasonable profit out of it. Privatise or lease the 'retail' business. Divide large utilities into small units for better administration.
- Before taking any decision, there should be a consensus among all, that is, not only power sector stakeholders but also academicians, politicians, judiciary etc.

Electricity pricing and regulation

There is no clarity on how the energy sector is being regulated; whether we have state of the art pricing frameworks. NEPRA is the regulator, yet the final decision-making is done at the energy ministry.



Our pricing system is based on load suppression model. This model was introduced when there was a shortage of energy and social welfare system was in place. After reforms, it should have changed, but we are continuing with it. In the generation cost-plus tariff, there is a lot of scope for improvement. But over the years, NEPRA has not come up with some good cost-plus formula.

Both NEPRA and the government are responsible for the recent long term contracts with capacity payments. In 2005, NEPRA came up with power procurement regulation, which has no provision for long-term contracts. NEPRA has a strong advisory role under the law, but unfortunately, it is not exercising.

NEPRA neither has the capacity nor the authority to take decisions which are assigned to it under the law. Similarly, NEPRA does not have the authority to check the inefficiencies of the DISCOs, as they are not independent corporate entities. They are under government control. The regulator does send an advisory to the government on various issues but is incapable of asserting its authority.

After the amendment in NEPRA Act, 2018, a new law is in place. But how it is going to be implemented is not clear.

Our energy law making or policy making is flawed. It should be transparent and done after thorough consultations with all the stakeholders and local experts who understand the ground realities; and not at the behest of donors.

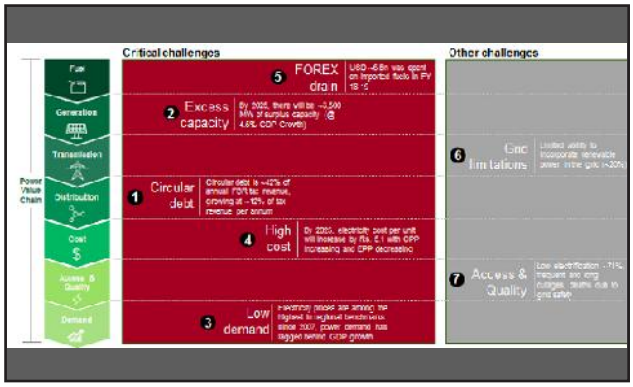
For consumer tariff, the regulator must determine the actual cost of supply, which thus far has not been done effectively. Now there is excess capacity and the issue of capacity payments, there is a need for a new pricing regime, like for instance, the more you use the less you pay. This will encourage demand and also solve the issue of huge capacity payments.

If nothing is done to lower consumer tariffs, people will eventually move towards other solutions, that is, renewables. This will have a devastating impact because of huge capacity payments.

There is no simple solution to a complex power sector issues in Pakistan. It is the job of the regulator to come up with a new innovative formula that worked well for the sector as well as for the overall economy. NEPRA needs reform to build its capacity to play a role more effectively in the power sector, just like SBP is doing in the banking sector. NEPRA should act as people's body and not as a government entity.

Fixing power sector issues

The webinar highlights challenges in the power sector and identifies solutions to these challenges.



High circular debt equivalent to 42% of Pakistan's tax revenue per annum; it is rising by Rs. 500 billion annually. Poor governance of the DISCO's is one of the primary reasons for the circular debt. The government is not going to the sources of the problem, instead chooses for temporary fixes and bail out the inefficient DISCOs; while consumers are bearing the financial burden. Besides, there is excess generation capacity in the country not because of low demand but because of revenue based load shedding of about 5000 MW in several areas.

Experts suggested bringing DISCOs in the retail business along with other competitors from the private sector. However, competition should not be allowed without looking at the dynamics of the city. For introducing competition, rules have to be fair. If any competitor comes, for instance, in Karachi, it should provide services to the high loss areas as well. Otherwise, the government should provide electricity services in high loss areas and allow competition in better performing areas.

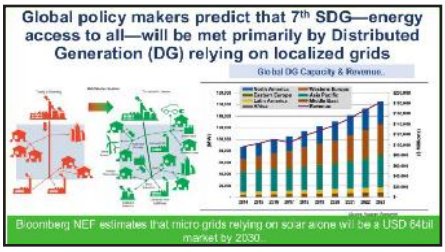
Furthermore, leasing the major loss-making DISCOs or a set of feeders for 15 to 20 years is a more viable option than privatisation. This way, the assets would remain under government control; as opposed to K-Electric, where assets are under the control of the private management. The leasing should be under the condition that whoever gets the contract, would commit to upgrade system. Make PEPCO a holding company with representation from all DISCO's, managed by experienced professionals and not the government officials. The holding company would act as a centralised decision-maker and manager for the DISCO's.

Electricity tariffs in Pakistan are 26% to 28% higher than in other countries in the region. Although energy purchase price has reduced over the years because of switching towards cheaper fuels, but the capacity purchase price has increased mainly because of rupee devaluation. Our fuel mix is unsustainable, that is, 60% or more of thermal resources and that too imported, hydro is only 30%. It should have been the other way, more hydro and other renewables.

There are challenges in investing in transmission and distribution networks. Current regulatory framework incentivises generation companies while no incentives are there for transmission and distribution companies. There should be a balance in regulatory incentives given to generation companies and transmission and distribution companies. Regulatory certainty and policy consistency is critical for investor's confidence. There is need to revise current regulatory framework.
Each government comes in unprepared and makes ad hoc decisions. An integrated energy planning is required. Reforms introduced in the late 1990s were unplanned and remained incomplete. Strategically wrong decisions were made.

Finally, develop an electricity market. To start the process, bring in state-owned plants and soon-to-be-retired power plants under free-market trade. For competitive market development, all future generation contracts should be through competitive bidding, the preparation for these contracts should start from now.

Energy innovations

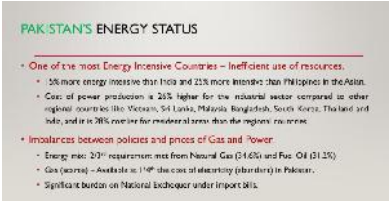


Globally energy policies are designed to address the energy trilemma (supply inadequacies, demand inefficiencies and reduction in greenhouse gas emissions). The objective globally pursued is to achieve SDG Goal 7_ access to clean and affordable energy for all. This is pushing for innovative solutions.

Global trends suggest increased focus towards renewables, moving from the centralised energy management to the hybrid and off-grid management, electrical vehicles, storage technologies, micro and smart grids.

The world's commitments towards SDG 7 for the reliable, affordable, sustainable, and modern energy access for all till 2030 has led to the increase in the share of renewables in the global energy mix; and an exemplary improvement in energy efficiency. Global trends suggest, almost 50 per cent of electricity in future would be generated from renewable resources. Globally government is a major player in energy investments.

In Pakistan, there is no innovation. We are only following world trends. There is no commitment to achieving SDG 7. In Pakistan, there is an "unmet energy demand", a market of about 80 to 100 million people. These people are largely in rural areas or in semi-urban areas with little urban footprint. Pakistan is one of the most energy-intensive countries with a highly inefficient use of resources.



The cost of energy production is also very high as compared to other countries in the region.

In Pakistan, the reason for not doing innovations and not integrating renewables with other conventional technologies is lack of resources, missing state ownership for energy innovations, governance issues, lack of institutional capacity and accountability, lack of collective thinking, issues relating to other sectors and above all "power beyond politics".

General perspective about innovation is that it is the application of new techniques along the entire energy supply chain. But in fact, innovation is an enabler not just limited to technology. It includes new ideas, policies, regulatory frameworks, and new financial /business models. Innovation is also about providing access to clean, affordable and reliable energy in areas where there is unmet demand; and laying down the national grid infrastructure is not viable for the government.

In a resource-constrained Pakistan, there is an urgent need to reduce our dependence on imports and focus more on indigenous resources. We need to develop our own mechanism to use these resources. We need to develop our own technologies to reduce costs in generation, transmission and distribution.

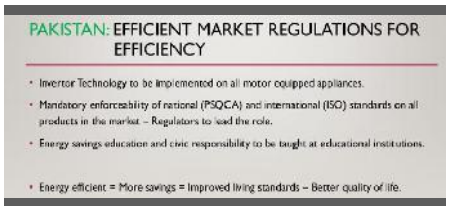
Our energy research institutes should develop those mechanisms, techniques etc. In Pakistan, we do have energy research centres, but they are working on their own. There is no collaboration between academia, the energy industry and the government.

On the supply side, renewables do provide energy security but along with the development of storage capacity, micro and smart grid system for creating reliability in supplies. Digitalised systems optimise the power supply with minimum human intervention and maintenance.

On the demand side, the solution lies in energy-efficient projects, to curb the wastage and misuse of energy at the consumer level.

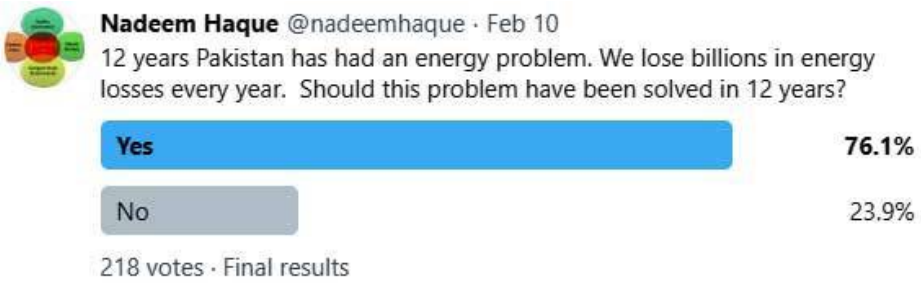
There is need to create awareness among those relying on non-conventional energy sources about growth and clean energy solutions. Distributed generation with the involvement of local communities, as pursued worldwide can help those with unmet energy demand. The national grid is only feasible for dense urban localities.

Micro-grids for our rural areas or wherever it is required is more cost-effective, as compared to connecting those communities with the national grid. The localised energy grid solutions offer energy independence and efficiency. There is also a possibility to shut down some grids and make way for renewables.



Globally, distributed energy projects are supported by the government. In Pakistan, the government should also support such initiatives. Our national thinking should broadly focus on all sectors and not just energy. That is, collective thinking on power generation fuel mix, pricing of energy sources, and in energy allocations_ national priorities should lead.

Electricity is heavily regulated because it is treated as a commodity that should be available to everyone at a reasonable cost. Now with new technologies, renewables, costs are also going down making electricity affordable. This demands a new regulatory framework.



Energy efficiency and conservation in Pakistan

Energy efficiency and conservation have not remained popular in our energy strategies. There is a lack of awareness of its overall benefits. PIDE arranged the webinar in collaboration with the National Energy Efficiency and Conservation Authority (NECCA) to highlight the significance of energy efficiency and conservation in Pakistan for sustainable and secure energy supplies for the future.

NECCA has the mandate to initiate, catalyse and coordinate in all energy conservation activities in the economy. The authority primarily focuses on the inefficient use of energy in the industry, agriculture, transport, energy and buildings, which is putting huge pressure on the overall country's resources. NECCA is interlinking research and development and climate change obligations with energy efficiency and conservation strategy.

Pakistan has the potential to save up to 10 to 12 million TOE of primary energy supplies. The authority is targeting to achieve 3 million TOE of energy saving by 2025 through various interventions in all the sectors. Besides, improvement in energy productivity can contribute up to 5% of GDP in the next five to seven years.

Required Interventions

- Replace the old public transport vehicles with a new one. The government can intervene by ensuring easy bank loans for those who do not afford to replace.
- Inspection and certification of old cars should be mandatory. In particular, cars which are ten or more years of age.
- Create awareness about how often CNG installed vehicles require inspection.
- Traffic congestion on roads is another source of inefficient use of fuel. Remove road barriers to minimise traffic congestions in areas where safe city cameras are present.
- Buildings are the major source of inefficient use of energy. Apply smart and innovative

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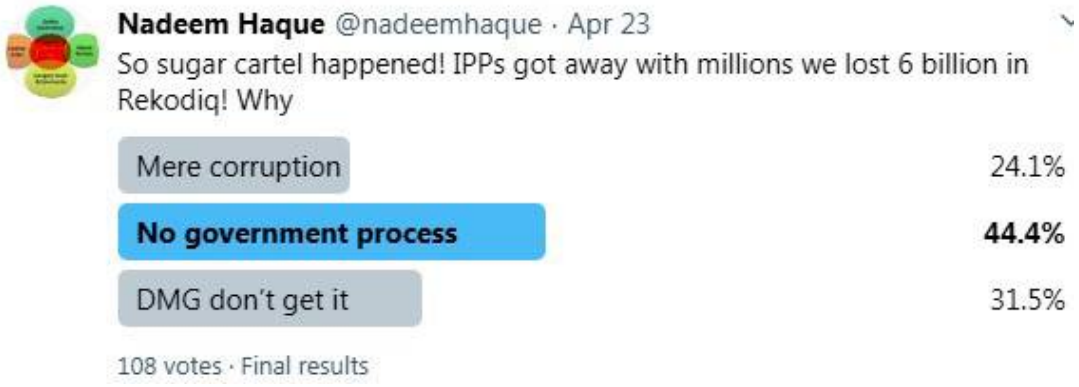
"An investment in knowledge always pays the best interest."

Anonymous



PIDE's growth reform agenda

Shahid Sattar and Eman Ahmed

Sustained economic growth has remained, for the most part, elusive for Pakistan. When we seek growth, we tend to focus on policy formation and the role of the government, but perhaps we need to adjust our lens and question the large footprint of the public sector in our policymaking landscape, along with the reliance on brick-and-mortar reforms and foreign aid. As a far more viable alternative, uplifting local businesses and fostering competitive markets with openness can bring forward champions and lead to much-needed investments. This is one of the key takeaways from the PIDE Reform Agenda, which we will draw upon heavily in this article.

For the last 60 years, Pakistan has been following a project-based growth model that relies heavily on foreign borrowing. Known as the HAQ/HAG Model, while this may have held some weight back in the day, it is largely obsolete now, yet it has continued to shape our policy, basing it around three things:

1. Building physical ('brick and mortar') projects
2. 5 year plans to justify the projects
3. Seeking foreign aid given the urgent need to build beyond domestic resources.

This hardware-based approach has led to the neglect of software i.e. capacity building, management, and optimizing yield on assets. Even today, 80% share of development spending is 'brick and mortar' (Pasha, 2012, Haque, 2020).

As shown by our index of economic freedom scores, the Pakistani economy has been mostly unfree since the inception of the Index in 1995. Any GDP growth we have managed has been primarily a result of exports of cotton textiles. This gives us sufficient evidence of what the economy needs in order to remain stable. Rather than allowing foreign donors to be our crutches, we need to support our local exporters, investors and thought leaders. It comes as no surprise that private investment has been declining in Pakistan for several years, given how rapidly private investors have been losing confidence in the economy.

We have published a detailed critique on foreign aid in the past, but to reiterate, foreign aid in Pakistan erodes the quality of governance by increasing corruption, weakening accountability, and limiting policy learning. Bureaucracy uses the aid agencies to line up jobs post-retirement and are generally compromised in negotiating a fair deal for Pakistan. Foreign aid programmes should have been considered only as a temporary and short-term development tool, yet they were allowed to balloon into much larger bodies and dominate the policy landscape in Pakistan. The approach to development has been imperial rather than people-oriented, and this must change.

Our policies must be geared towards uplifting the local business community, exporting sectors and SMEs. As the world moves forward in technological up-gradation and value addition, our businesses remain unprofitable, as all the time and energy gets used up in meeting high tariffs, as well as complicated regulations. It is no surprise that Pakistan ranks low in the ease of doing business and competitiveness indices, as many potential startups are burdened by overregulation that hinders them from taking off. Furthermore, archaic technology, lack of policy continuity and redundant business practices are likely to persist as long as we keep donor agencies on a pedestal and neglect our business community.

Enhanced trade competitiveness leading to an increase in exports is undoubtedly a sustainable path to economic growth, as unlike aid, it is not tied up in any form of liability. The earnings through exports serve as a valuable inflow to the economy, and paired with remittances, these amounts will be the forces that can eventually pull Pakistan out of its current account deficit. Some ways to enhance our trade competitiveness are diversification, improved quality, and integration into global value chains.

The unprofitable nature of the economy is exacerbated by an unreasonable anti-export biases including tariffs and duties, leaving firms in a quandary as exorbitant amounts have to be set aside to meet these requirements. The textile sector remains under immense pressure to maintain a heavy chunk of Pakistan's exports, and therefore must be considered critical for Pakistan's economic prosperity. In this regard, its challenges should be tackled head-on. These include a number of barriers: the lack of access to the latest seed technology for cotton farmers, high tariffs banning entry into value-added sectors and product diversification, and the fragmented nature of the textile chain which must be streamlined through new infrastructure.

The Haq/HAG model was framed in the time when funding and physical capital development were considered to be the defining features of the growth process. The PIDE Reform Agenda outlines key factors that will hold weight in today's fast-paced environment, with key takeaways from countries that have maintained an exemplary path to development.

1. Fostering competitive markets with openness.

2. The state's role being limited to defining rules of the market and regulating fair play, allowing winners and losers to emerge without keeping alive obsolete industry through subsidy and protection (North, 1991).

3. Ideas and innovation from thought and research. This necessitates an open and tolerant society which the state must maintain. (Romer, Aghion).

4. A culture of competition, discipline, and risk-taking leading to entrepreneurship and opportunity (Mccloskey, 2013).

The government and the private sector must operate hand-in-hand, and engage with universities for specific research outcomes. The PIDE agenda proposes that at least 5% of the PSDP must be used on research for the government university collaborations. Tax and documentation should be redesigned to facilitate transactions and entrepreneurship. Archaic regulations and taxes have only served to hinder entrepreneurship, so alternative technologies must be adopted as they offer an opportunity to mainstream an intelligent research-based approach.

PIDE has looked at cities as agents for growth, along with asset classes, commodities, products, firms, and people. The formula for growth has long been established: give the vibrant young people quality education, new ideas, and high ideals, strive for institutions that support free and fair markets, create a professional, well trained civil service, achieve economies of scale through a large domestic market and open up for trade and investment; and, keep public spending on infrastructure and social sectors limited and focused only to critical and essential projects (Buiter and Rahbari, 2011).

Technological advancement worldwide provides another challenge as we struggle to keep pace with the world, but opportunities also abound as we can achieve milestones once high-speed internet becomes accessible to all. The internet access would prove useful in raising the literacy rate through online education to the deprived ones, providing health advice remotely in far-flung areas, enabling farmers and handicraft manufacturers to connect wholesalers and retailers directly in cities without the intervention of middlemen, and providing freelancing opportunities to many more, accelerating e-commerce.

Implementing these core ideas in Pakistan's context requires us to rethink our goals. These must be realistic and sustainable, designed to support a long-term strategy that creates opportunities for all citizens. According to PIDE, to achieve the target of 7-9% percent annual GDP growth over a sustained period of 30 years the economy must generate jobs for around 2.0 million entering the labor force annually.

Redefining the government's role is essential, but this is not to deny that the government is at the center of the economy and must change first and foremost, in order to make the rest of the country change. PIDE recommends that a digital research-oriented government be initiated from the PM and the cabinet to the lowest level. Furthermore, the effort to mainstream R&D everywhere in Pakistan is a central aspect of this policy.

Living off Daddy's wealth

Nadeem ul Haque

Lack of social mobility is very visible in Pakistan. Political power also seems to be coagulated as the chances of getting elected are tied into traditional wealth, land and family status. Power, privilege and wealth seem to remain in the family in Pakistan.

A few years ago a principal of an elite school told me that the students there were disinterested in serious studies as daddy's wealth was certain, and their elite status was guaranteed in society through inheritances. Discussing this with various members of our privileged class, it becomes immediately apparent that hard work is not an aspiration. Power and privilege is a right in our society, not something to be earned through hard work. An entitlement culture prevails not just in agriculture but also in business and politics.

Examine the elite and you find large cohorts who even if educated have never really used that education. Their lives largely have been of leisure made possible through inheritances and sources of rentier income. Such lack of social mobility and the preservation of privilege was the hallmark of feudal societies. For long periods this privilege preservation kept a large part of the population locked into the poverty trap. It took revolutions – some bloody – to break this system. Many of these revolutions involved land redistribution. It is not surprising then that most analysts think of rentier income as coming only from land and so ask for land reform.

However, we all know of industrial families that have done little to develop grandfather's industry but enough state subsidies and a liberal tax regime have kept their lifestyles of privilege alive. Similarly for large real-estate holdings! In its heyday, capitalism broke feudal privilege and replaced it with market-based merit.

Through innovation, entrepreneurs established a new meritocracy and amassed large wealth. In the process jobs and a new middle class was created. The need for skills in the process of innovation development and management allowed the educated and the talented to participate in the wealth that was being created. Such capitalism escaped Pakistan because of license raj, SROs and the government-industry-land nexus. Here privilege reigns supreme!

Childish economics thinks that some form of taxation can do this. Of course it is difficult to design a tax system focused on privilege and power without it impacting the rising middle class more adversely. The rich can find loopholes through exemptions. As capitalism matures, the nexus of money and politics has raised the same issue in advanced economies. Money is able to buy laws and escape taxation. Along with the global crisis this money-politics nexus has raised a new debate on social mobility and welfare policy among serious economists.

Inheritance tax has recently been revived in Thomas Piketty's new bestseller:

'Capital in the Twenty-first Century'. He has shaken up the economics profession by raising the issue that it may be inherent in the structure of capitalism that the rich will get richer at the expense of the rest. There are no natural mechanisms for correction of inequality. Hence policy intervention is required. He recommends taxing capital or wealth in a progressive fashion. Accompanying this is a progressive inheritance tax.

An inheritance tax is a generational reset. As Warren Buffet said:

Research has shown that people work hard to satisfy their needs. In the process they create wealth for others as well as for society. Winners of lotteries, whether of birth or otherwise, rarely use their talent. Inheritance tax could be beneficial for many reasons.

- First, it would set the generational incentives right. Children will be mindful of the generation reset and work hard to use their talents for developing a worthwhile life. Parents will make investments in their education and skills to make them competitive instead of handing them rental incomes.
- Second, people wishing to escape such taxation can in their lifetimes put some of their wealth to work through gifts and endowments in much-needed social-sector activities like universities, hospitals arts etc. This will alleviate the pressure on government to provide for such activities alone.

- Third, it will allow much-needed capital to come into the marketplace and flow to higher return activities instead of being locked away for generations into rentier incomes alone.

Counterarguments claim that the bequest motive is an important incentive for the entrepreneur to accumulate and must not be taxed. This must be balanced off by recognizing the adverse generational incentive effects that Bill Gates and Buffett have noted in saying that they don't want their children to inherit so much as to become "do-nothings". Moreover, society and government's contribution to the amassment of large wealth must also be taken into account and does entitle it to some part of the inheritance.

What then should be the rate of the inheritance tax? Piketty has argued for as much as 50-60 percent tax rate for the upper end of the wealth distribution. A substantial rate especially for the upper end of the wealth distribution is required for a meaningful generational reset.

Many complain of the spoilt nature of our elite children in this land of free bequests. The phenomenon has been celebrated in songs like 'Waderay Ka Beta'. Perhaps it is time to consider reintroducing this most important tax. It will also improve social mobility and establish greater competition in the marketplace as well as in politics. It is probably more efficient and doable than land reforms which some people still demand.

"A rich man should give his children enough money to do anything but not so much that they do nothing." Taxing wealth in someone's life is taxing savings and could be difficult. But when wealth passes from one generation to the next taxation can play a useful role. "It is a tax paid by the recipient of this income, the inheritor, the lucky winner in the sperm lottery."

Warren Buffet

Blurred lines: Business and partying among Pakistani elite

Rosita Armytage

As we walk from the cul-de-sac clogged by Land Cruisers, Mercedes and BMWs towards a residence in one the city's most exclusive suburbs, trickles of laughter and music drift down to greet us. Drivers emerge to open back doors, while the shalwar kameez clad workers of the construction site opposite survey the procession of suits and gowns from where they rest on tomorrow's stacked bricks. A white-suited staff member leads us through the fairy-lit and manicured gardens, and a waiter descends with a tray of glasses of red and white wine, immediately offering to make my companion something stronger. Across the lawn, men in black suits stand about smoking, drinking whiskey and water, talking politics and business, while brightly decorated, bejeweled and kohl-lined women gather uneasily on couches, eyeing one another critically whilst loudly proclaiming how pleased they are to see each other.

This is Islamabad, and being invited to this party means you've made it: to a club where the grass is green, the liquor imported, and the wealth is unimaginable.

At parties like this one the lines between social and business networks blur, as one mingles with the highest tier of Pakistan's commercial and political elite. Favor-giving and exclusive social networking are critical features of how big business gets done at the uppermost tier in Pakistan – or anywhere, really. But while these are universal characteristics of elite-level business, in the context of Pakistan's weak regulatory structure the exclusionary element of this world is both compounded and solidified – serious profit-making depends on access to decision-makers and the influential people around them, and it is an access that is extremely difficult to obtain. As a result, at its uppermost levels, the country's economic system is closed, and the elite, not legal statutes, create, control, and guard their domain, serving as gatekeepers to those outsiders who might seek to gain entry.

Most of Punjab and Khyber Paktunkhwa's big business owners and business families (those in the very uppermost tier of wealth) are part of closed communities consisting of family empires spanning three generations. While the social, cultural and economic capital these families inherit take various forms and flow from varied family histories, it remains rare to find first generation wealth amongst Punjabi or Pathan businessmen who are under sixty years of age. The story is different in Karachi, where social structures are less rigid and business acumen is at least as highly regarded as family background. In Karachi, the 'old money' won't just do deals with the 'new

money', they'll socialize with them too.

Broadly speaking, Pakistan's business community today can be broken down into three distinct types: the landed elite of the British era (pre-1947), colloquially known as the 'feudals'; those families who successfully capitalized on the opportunities created in the upheaval of the partition with India (whose wealth emerged in the twenty-five years following Partition); and the 'new money', who achieved major business wealth from the mid-1970s onwards. In reality however, despite their moniker, the family heads of most of this last group are already more than sixty years old. Though Pakistan's class structure was relatively fluid in the decades following Partition, it is now extremely rare, if not impossible, for an individual of lower or middle class origin to gain entry into the theaters and forums where elite business takes place, regardless of their talent, entrepreneurship or level of education.

I came to Pakistan to understand how people achieve wealth and influence in a country with huge potential, ongoing political instability, and severely deteriorating security. Over the last 15 months, I met and socialized with hundreds of Pakistan's most successful business people, as well as individuals from major political families, staff from government regulatory bodies and government ministries; prosecutorial and defense lawyers; journalists and editors; and the wives, daughters, sons and girlfriends of major business families. I ate in their homes, met with their families, talked with their friends and associates at dinners, and danced at their weddings.

Socialization begins at home

For a child of the elite, the process of accessing these forums, building networks amongst the country's influential and powerful, and navigating cumbersome legal regulatory structures begins at home. Socialization within a family that understands business and has survived the rise and falls of the market provides an unparalleled training ground to develop one's networking mettle. The children of these families grow up observing, discussing, and conducting business. They grow up at ease with powerful family friends and acquaintances, mimicking their mannerisms and interactions, and subtly acquiring and integrating their access and privilege into their own social network. One Lahori textile mill owner described the pervasive influence of business in his family in the following way:

> *"Business is the only topic we have – at weddings, are funerals, anywhere we all get together. In our family business we share information with each other – new legislations, regulations that might affect our operations, acquisitions etc – by boasting about it to one another at family gatherings. It is this way with other business families too [...] It was always assumed I would join the family business. No one ever asked me what I wanted to do. It was obvious."*

In business families like this one, wives and families are often a critical part of social networking. Wives and mothers often take up central roles in building relationships with other business families, in gathering and distributing information, and in broader social networking.

The wife of a military and security equipment supplier explained the strategy used by her husband's family in cultivating relationships, and of her (reluctant) role within this system:

> *"I married a very socially connected family. At my husband's family's dinner table the only permissible subject was social connections. Almost nothing else was OK. Every family member would bring their own social knowledge to share at the table. His mother through her women's network, his nieces through their school network – for instance, whose father had become a General in GHQ, whose son had been made Assistant Commissioner. The father would bring information from his business network and news from the golf club. His mother's network was very important as the wives she associated with were part of a broad network of all the major high-ranking families.*
>
> *People who had risen in social position would be invited into my husband's family home many times before the connection would be utilized. It was seen as a future investment. They would cultivate their*

assets and use that asset whenever a need arose. Most of the people invited to dinners or Eid-related events or to weddings were used for favors later on. The family would send them meat at Eid, or say "Do remind me to send mithai [sweets] to their house."

In many families, wives and mothers perform an essential role in selecting and introducing advantageous matches for marriage, carefully reviewing and vetting candidate's family backgrounds, reputations and assets to ensure a level of parity exists between prospective spouse's families, and that the match is mutually advantageous to not only the individuals, but also to their broader family network. These family-to-family relationships provide a useful way to distribute information amongst families of equivalent background, and importantly, provide a vetting process for new individuals who might be invited to engage in business, a function which is particularly critical when the transactions are high risk and involve potentially huge profits.

Trading social capital

Outside of the family, the arena that blurs the boundaries between the social and business spheres most strongly are social events – dinners, gatherings and parties. The possession of money, or more accurately a history of money (even if it has since been lost) grants entry to these events. However, to be part of one of Lahore's, Karachi's or Islamabad's political, social or business scenes, one must also be vetted and invited by an insider. Indeed access to events likely to facilitate business requires that a person have not only economic capital, but also a sufficient degree of what the sociologist Pierre Bourdieu terms "social and cultural capital". This encompasses the people one knows and is publicly recognized by; their family history and current standing; and the social assets that promote social mobility – such as their education, intellect, dress, and mannerisms. In this sense, the perceived quality of the individual and of the individuals he or she knows and has access to, becomes, like money, a resource they utilize to access those with influence or those in a position to offer them opportunities.

In gatherings like the fairy-lit soiree I walked into at the beginning of this article, individuals from Pakistan's political, business, and military elite mingle and share insider information. They speak in the casual parlance of the privileged, using the first names of the country's most powerful individuals without the suffix 'Sahib,' or even, amongst the most-connected, with the suffix 'Bhai.' Gossip is exchanged about the personal lives of politicians and businessmen, their mishaps, illicit romances, and penchant for alcohol or cocaine. Vexes and vices are circulated and dissected through the prism of "And how will this affect us?"; "Do you think his judgment is impaired?"; and "Would it be more prudent to invest in [insert commodity here] at this time given the tumult?" For those who have fallen irreparably from grace, jokes are made and traded, and individuals' long accumulated cultural and social capital are ruthlessly depleted over a few hours and several bottles of Scotch.

The performative elements of these parties enable the business elite, and the political, bureaucratic and military elite with whom they are connected to display their wealth, and their connections. But the display also has an important functional purpose in the generation and production of wealth and influence – these forums provide an opportunity for the business elite, and their broader network, to identify one another, to reinforce social hierarchy, to share information, and to facilitate the introductions that broaden political and business opportunities.
The owner of one of Pakistan's major media houses described to me his own process of cultivating powerful connections as a critical factor in his ability to retain his leading position in the national media and in securing his multiple other businesses. He lifted up his phone to show me his phone directory and proclaimed:

"To be successful in business in Pakistan you need affluence, connections, parties, socializing [...] I keep a budget for entertaining and parties. I know everyone. I have all the powerful big boys on my speed dial: the Prime Minister, the Chief Minister, the Head of Army Operations for the whole of Punjab [...] Anyone who is big enough has access to these devils. My family is responsible for 15 percent of the parties in Lahore – for those who matter, that is. It is only a handful of

people who host these type of parties. All the 'who's who' mingle at these few people's homes."

One businessman from Islamabad described a peer who he recognized as being particularly adroit at this process of cultivating social connections for economic advantage. A major component of his business was networking through the hosting of small exclusive parties in his home, where the guest list was built around a carefully selected 'target' guest with whom he intended to enter into a business arrangement, or to seek a favor, in the medium to long-term. The invitation list is crafted with great care. My interviewee explained:

"I have a friend who owns the best [home] bar in Islamabad. He calls himself a business consultant, and he works for a number of international companies. His house is a huge American-style mansion. He regularly hosts these garden parties, perfectly catered, with only around 20 people attending each party. These parties are attended by Generals, members of the ISI [Inter Services Intelligence agency], any kind of person who may be helpful to know at some point in the future [...] One or two of his employees will also be present at every party in case they need to follow up, or provide information. He also has an old Islamabad socialite on his payroll, just there to help bring in the right people and facilitate introductions. Usually there will be only one or two people attending each party as his target, the rest are just there to add to the atmosphere. The one target person will be someone from whom he needs a favor. This way he has government officials dining at his home before they even need to consider whether to issue him a contract. The entertaining is not the bribe, the entertainment is just to lure them in."

Connections are vital not only in securing business opportunities, but in protecting business interests. Indeed, as elsewhere, business faces the prospect of encroachments by government regulators keen to supervise business transactions and, to tax and redistribute part of the proceeds. In Pakistan, however, it is expected that at least some of the regulators involved in business will seek to extort businessmen and make themselves a quick profit. Businesses, therefore, face the dual threat of formal state regulation and informal coercion.

Under such circumstances, even accessing government departments designed to foster the effective running of business can be highly problematic without a personal introduction to facilitate the transaction and protect the interests of the businessmen involved. During my research, a former bureaucrat at the National Accountability Bureau (NAB), the government body that monitors, investigates and prosecutes corruption cases, described the challenges business people face from within departments that are meant to be on their side:

"Accessing people in power is one of the biggest problems in Pakistan. For instance, if someone wanted to contact one of us at NAB, they would not be able to do it. We just cannot be contacted. Many business people pay a huge amount of money to get this access [...] I have a businessman friend, who is the sole importer of a particular item, and he had an import license cancelled. We were meant to be having lunch and he kept calling me and apologizing for being late because he was sitting in a car outside while one of his staff people went inside to bribe a government official to have his import license reinstated. I asked him who he was paying, and once I knew which agency it was I realized that the head of the agency was my walking partner [the person I exercise with each evening]. I told him to call his staff person back right away and to come and see me. That evening when I was walking I explained the situation to my government friend and asked him to just meet with my friend whose license had been cancelled, to review the merits of

the case, and then to decide as he saw fit. So there was a meeting between them and it became apparent that a low level staff in the department had cancelled my friend's license on a pure technicality just to extract money from him. Cancelled licenses of course cause huge losses to businessmen as their items spoil at the harbor or in storage while their shipments are delayed, so they are generally willing to pay a two million rupee bribe and take that from the profits. It is part of their cost of doing business. He asked me what he could do to repay the favour, and I told him that my government friend wouldn't take money. My businessman friend was shocked that my government friend had been willing to do a favor for him without him needing to pay him any money. I told him he could take us both out for a nice dinner instead. So that is what we did."

Finding friends, and favors, in government

Favors and gifts are a fundamental part of maintaining the relationships and networks needed for elite business in Pakistan. In opposition to bribes, which are financial payments for clearly defined benefits, the ambiguity of the purpose of a gift is the very reason gifts are so useful. Research conducted by the anthropologist Alan Smart on business in China showed that gifts and bribes in business are different only because of the way the gift is given, not because of the type or value of the gift. He explained that for the giving of an item to be received as a gift,

"the relationship must be presented as primary and the exchanges, useful though they may be, treated as only secondary. If, instead, it becomes apparent that the relationship involves only material interest and is characterized by direct and immediate payment, the exchange is classified as one of bribery"

Consequently, in contexts where mutual trust is a requisite pre-condition for large-scale business transactions, business relationships are often conducted between individuals in relationships akin to friendship. In this sense, a veneer of friendship, when accompanied by gifts and favors, is used to legitimize what may otherwise be seen as an illegitimate, even unethical, transaction.

Farook*, a successful industrialist from KP, narrated to me the story of his relationship with a local Superintendent of Police, illustrating this ambiguity between gifts and bribes, and the way that transactions are often presented as 'friendships'.

"I have a friend who is an SP [Superintendent of Police] and he is very clean and known for not taking bribes. But the other night he calls me up and says 'Yaar, your village has the best kebab in KP, could you please send some to me for my party?' And of course I do it. I give him little favors, little gifts like this that are so small that they do not even seem like bribes. But over a year of giving small gifts, I could easily have given one person 20,000 dollars worth of gifts. Is that a bribe? It is a favor and of course he will have to return it to me. If I have a problem with the police, I call him and he solves it for me. He would not take any money from me, but items and gifts, as long as they are not too big at one time, he will take."

These small gifts and favors are often used to help build a long-term relationship between individuals in a position to use their power and influence to each other's advantage. Favors are given, and then repaid, and then given again, binding the giver and receiver together, creating trust and over time a relationship that is neither fully transactional, nor one based only on affection. Most large-scale business transactions take place within these long-term relationships of mutual trust and reciprocity. The favor is most often of benefit to both the giver (patron) and the receiver (client), and a significant degree of trust is required to ensure the deal is executed as agreed.

Favor giving, of course, is a part of most friendships. What differentiates favor giving in these instances is the scale and the source of that favor – a private citizen giving their friend a favor shares their own resources (information, contacts or goods), but a government servant, (e.g. a policeman) receiving gifts from a private businessman is now indebted to provide the businessman with something of use to them. As a public servant on a government wage he is not in a position to provide goods of substantial value to his much wealthier friend, but what he does have is power and the ability to command other government employees to do his bidding, or to provide information not otherwise available to private citizens. The favor he provides comes from the government – the Pakistani people's government – and is not legitimately his to give. This is, of course, exactly what the businessman is counting on.

Favors in business take the form of an opportunity that is not available to others – this may be the sharing of insider information, the awarding of a government contract, an offer to buy military-owned land, or a special price on a vital item required for manufacturing. Many of these opportunities are presented as private deals between individuals, even when they involve government or military interests. In circumstances where regulations are being thwarted, preferential contracts awarded, or cartelistic practices implemented, trust between business parties becomes even more critical to ensure government bodies such as a the Federal Bureau of Revenue (FBR), the NAB and the Competition Commission of Pakistan (CCP) are kept at bay.

Returning to the fairy-lit party of Islamabad's elite, as dinner was served I found myself seated with a senior official of the Capital Development Authority and his wife on one side, and a retired naval officer, formerly one of the senior military advisors to both the Musharraf and Zardari regimes, and now a government contractor, to the other. We each introduced ourselves and the official began engaging us in small talk regarding an upcoming gala event being organized by his wife. As the plates for the first course were cleared the official leaned towards the retired naval officer and enquired after former President 'Zardari Sahib's' health. He then asked the naval officer to share the former President's mobile phone number and arrange a meeting between them over the coming week. It was a commonplace exchange. The number to contact was entered into his mobile phone, the waiters served tea and coffee, and the conversation moved on to other issues.

There is a universality in the ways that people seek favor from those in a position to provide something they desire and do not have. The fairy-lit garden party described above is just one of the many forums in which major business is conducted between social and business-networks, small favors are given and taken, and introductions amongst the powerful are easily shared. In every country, and throughout history (at least as early as historical records and personal correspondence is available), individuals have sought to use their relationships strategically. In many parts of the world the division between personal lives and careers is blurred beyond recognition, and family members, friends, husbands, wives, and lovers, are expected to do what they can to improve the status and material assets of the people closest to them. In post-industrial Western societies, it has come to be seen as undesirable – even unseemly – to use pre-existing personal relationships, particularly family relationships, to professional or economic advantage. But there is no such compunction amongst the world's business elite, the individuals and their families who own major business conglomerates, media houses, and major brands across much of the world. For this class of people using their social and family relationships to inform and facilitate their economic activities is not just desirable – it is necessary.

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