



# The Political Economy of Market Distortions in Pakistan's Electricity and Gas Sector

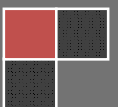
Commission 04 – UK DFID

February 2012

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## THE POLITICAL ECONOMY OF MARKET DISTORTIONS IN THE ELECTRICITY AND GAS SECTOR

### Section 1: Summary of power and gas sector

Pakistan is facing an acute energy crisis, which has intensified sharply over the past four years. Per-capita energy availability has declined in the past three years by around 7-10%. The shortfall in electricity supply against peak demand has risen to an average of over 5,500 MW in the past two years (see **Table 1** in Appendix), while the deficit in supply of gas against demand has increased to 2 billion cubic feet per day (bcfd).

Electricity consumption has increased around 5% per annum over the past ten years. The bulk of electricity consumption is undertaken by domestic households (approx. 45%), followed by industry (27%) and agriculture (13%) – see **Table 2**. Total gas consumption stands at approx. 1.3 trillion cubic feet, with gas usage having increased at approx. 6% per annum over the past ten years. The break-up of gas consumption by major sector is as follows: power sector (29%), industry (26%), fertiliser (17%), and households (17%). The transport sector is the fastest growing user via consumption of CNG, and now accounts for nearly 10% of total consumption. The rapid increase in number of gas consumers together with subsidized sale to domestic users has pushed demand for gas beyond available supplies. As a result, supply of gas to industry has been severely affected leading to a total or partial closure of many factories, especially in the Punjab. Gas supply to Punjab has also been affected by the 18<sup>th</sup> Amendment which gives first priority in the use of gas to the province where the gas is generated.

In terms of both availability as well as pricing, the domestic household sector is given priority by the government in the case of gas as well as electricity. Overall, tariffs for domestic consumers are kept well below cost-recovery, especially those at the lowest consumption slab (1-50 units), with commercial as well larger industrial consumers partially cross-subsidising the household sector. In case of electricity, the government follows a uniform tariff policy nation-wide, using the lowest-cost, most-efficient generation/distribution company as a tariff-setting benchmark. Less efficient regional distribution companies – with invariably higher theft and volume of non-payment of bills – get to “free ride” on this basis, with the difference borne by the government via a subsidy in the budget (see **Section 2** for more details on electricity subsidies).

In addition, regions deemed less developed are given preferential supply/pricing. These include the Federally Administered Tribal Areas (FATA), Azad Jammu and Kashmir (AJK), and tube wells in Baluchistan. The approx. 150,000 employees of the state run power utilities are given free electricity, while electrification of new villages is also deemed a priority area by governments, especially those with rural vote banks, such as the PPP.

The supply of electricity has remained virtually static for a number of years, at an installed system capacity of 20,823 MW. Generation capacity is nearly evenly split between state-owned entities and IPPs, with private producers accounting for 46% of the installed capacity. Over the past two decades, the generation mix has shifted sharply from hydro-electric to thermal (from 50:50, to 30:70), and within thermal, to expensive fuel-oil based generation, on account of

declining supply of gas. Under a moderate growth scenario (with real GDP growth of 4-5%), it is estimated that peak electricity demand will grow to around 24,000 MW by 2015, from the current 19,000 MW – a projected increase of nearly 26%. The shortfall in gas availability versus demand is expected to double to 4 bcf/d by 2015.

The government plans to augment energy availability from multiple sources, including building a number of large and medium-sized dams (such as Bhasha, Munda, Satpara and Gomalzam); the exploitation of low-Btu coal deposits in Thar desert in Sindh; importation of piped gas from Iran (the Iran-Pakistan-India pipeline) and Turkmenistan (TAPI); and importation of LNG and LPG. In addition to supply-side measures, an ambitious ADB-funded energy conservation plan for the installation of over 30 million energy-saver CFL bulbs is also underway. However, most of the supply-side plans are facing bottlenecks and are surrounded by uncertainties ranging from availability of financing, to direct US pressure in the case of the Iran-Pakistan gas pipeline. In terms of institutional arrangement, the energy sector suffers from the absence of an integrated planning and implementation framework, and weak capacity. A number of government ministries and agencies, often with conflicting interests, are tasked with planning, policy formulation and execution in the sector.

## Section 2: Macroeconomic Impact

Power shortages are estimated to have cost Pakistan the equivalent of at least 3-4% of GDP each year since 2008 in direct output losses alone (averaging approx. US\$ 16 bn per annum). In addition, the impact on jobs has been severe, especially in the industrial sector. Using the employment elasticity calculated by the Planning Commission, the “foregone” GDP (the value of goods and services the economy would have otherwise generated) of around 12 percentage points since 2008 translates into “lost” jobs and employment opportunity of approximately 3.6 million – equivalent to 6% of the labour force.

The impact on households has been via lost incomes, welfare losses due to a lower quality of life (on account of long hours of load-shedding), lower purchasing power due to higher overall inflation, and higher electricity bills. Expenditure on electricity consumption accounts for approx. 8-10% on average of household spending for the low income families. However, the lowest-income households are insulated by a highly-subsidised “life line” tariff. In addition, widespread theft of electricity, which is occurring with the collusion of staff of the distribution companies and has been boosted by the steep increase in tariffs since 2008, has provided a degree of insulation to households especially in theft-prone areas such as FATA, certain districts of Karachi, interior Sindh, and in parts of KPK.

Nonetheless, the combined effect of lost output and jobs on per capita income is substantial. The difference between the current actual and the counter-factual, i.e. what the Gross Domestic Product (GDP) outcome would have been in the absence of these shortages, indicates a “loss” of 14% (or Rs 14,282 per head) in per capita income. Since this income is computed as an average, the actual diminution of income of distressed individuals and households as a result of the energy situation would be far larger.

In addition to the direct and visible costs, the severe electricity shortage has introduced systemic risks for the budget and for the banking system, and has affected new private investment. On the fiscal side, the government has absorbed Rs 750 billion (approx. US\$ 9.8 bn) as subsidy in the budget since 2008, with an additional close to Rs 500 billion pumped in to take over power sector debt. Power sector subsidies accounted for 14.2% of government expenditure in fiscal year 2010-11. Since the resulting widening of the fiscal deficit has led to government borrowing from the banking system, including a significant portion from the central bank, it has contributed in no small measure to inflation as well as to lower availability of bank credit for the private sector.

### Section 3: Political economy issues

A mapping of key players and issues under 'Political economy' is given below:

#### Major player/Motivation

**Political parties:** Do not want supply disruptions or steep tariff increases in run up to elections. Will prefer diverting electricity and gas from commerce and industry to domestic users. However, this strategy has severe limitations, especially for the PPP in Punjab province, which has faced the brunt of the electricity and gas shortages, badly affecting industrial units located in the province. The consequent loss of income and jobs in the crucial province could dent PPP's re-election hopes from the urban centres.

**Political insiders:** Benefit from second best, self-serving policies such as recourse to Rental Power Plants (RPPs) by government even in the face of more cost-effective options available such as utilisation of significant unused installed capacity in system. Others, such as MQM, do not want to impose payment of power bills on key constituencies, such as North Nazimabad and FB Area in Karachi, where non-payment of bills is reportedly very high.

Other insiders are legislators and party influentials who own CNG (compressed natural gas) stations. Similarly, the agricultural lobby is pushing for a larger gas allocation for the fertiliser sector. Both want uninterrupted supply of gas, rendering the government's gas load management plans unworkable.

**Provinces:** Resistance from three provinces, other than Punjab, to the construction of Kalabagh dam, and possibly other large dams, over fears of diversion of water from lower riparian (Sindh) or to displacement of large urban centers (KPK), has compelled government into costly options for power generation such as diesel and furnace-oil based thermal plants.

**Power sector insiders:** Resist privatisation or even corporatisation of state-run entities in sector, as they fear losing privileges such as free electricity, or income from collusion in power theft (estimated at approx. Rs 90-100 billion each year). Also, insiders in government machinery such as the ministry of water and power and the Private Power infrastructure Board (PPIB), stand to gain from negotiations with potential private power producers or equipment suppliers, and have an ingrained supply-side bias.

The biggest policy and regulatory issues with regard to the sector are: (1) Reducing the level of subsidies by a judicious mix of cost-recovery pricing and better enforcement; (2) Making power tariffs more affordable by moving the fuel mix towards lower-cost generation sources, while (3) Incentivising private sector investment in the entire power sector, especially possibilities based on local hydel, coal or solar resources.

## APPENDIX

<b>Table 1: Electricity demand and supply</b>			
Fiscal Year	Computed Peak Demand*	Corresponding Suply	Surplus/Shortfall
2007-08	17398	12442	-4956
2008-09	17852	13637	-4215
2009-10	18583	13413	-5170
2010-11	19230	13163	-5581
<b>Source: PEPCP</b>			

<b>Table 2: Installed capacity</b>			
Type of Generation	Installed Capacity (MW)	De-rated/ Dependable Capacity (MW)	Avaiability (MW)
WAPDA Hydro*	6,516	6,516	4,500
GENCO <sub>s</sub>	4,764	3,580	2,000
IPPs (Incl. Nuclear)	9,085	8,295	7,600
Rental	393	393	200
<b>Total</b>	<b>20,823</b>	<b>18,784</b>	<b>14,300</b>
<b>Source: PEPCO</b>			