

Policy Brief Series

OVERCOMING PAKISTAN'S ENERGY CRISIS



September 2014

A CASE FOR MORE INTEGRATED AND COORDINATED PLANNING AND POLICYMAKING

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Policy Recommendations

- Introduce a robust and integrative mechanism that brings more coordination, coherence, and cohesion to the energy sector.
- Establish a new Ministry of Energy with overarching responsibility for the energy sector and access to all levels of policy.
- Focus more sectoral attention on noncommercial and traditional forms of energy.
- Pursue a more sustainable energy mix by balancing the promotion of new energy sources with judicious management of existing resources.
- Address sectoral debt by focusing less on stopgap measures such as unconditional bailouts, and more on endemic causes such as system losses and operational inefficiencies.

This policy brief series seeks to share with a wider audience the proceedings of a July conference at the Woodrow Wilson Center that explored Pakistan's energy crisis. The Wilson Center's Asia Program takes great pleasure in acknowledging support provided by the Fellowship Fund for Pakistan for the conference, this policy brief series, and the longer volume of essays to be published in the coming months.

The troubled state of Pakistan's energy sector is a primary constraint on the country's economic development, and the economic fallout of the energy crisis is well-documented.

Many say that Pakistan's energy sector, and by extension its economy, are beyond redemption.

In fact, this is completely unsubstantiated.

If every crisis presents an opportunity, Pakistan, with so many crises, should also have many opportunities.

What is lacking above all is the ability to bring together the various subsectors of the broader energy sector through a robust, integrative mechanism (this state of affairs within the energy sector is in fact symptomatic of all sectors of the economy). The objective should be a program of policy and investment options that can operate even within the financial, credit, and capacity constraints faced by Pakistan. The mechanism, if successful, would prevent short-term decisions that deviate from a longer-term vision or, even worse, are launched without a clear vision. In the energy sector, where projects are typically highly capital-intensive with long

lead times, the cost penalties of suboptimal decisions are prohibitive. Paradoxically, defining that long-term vision is an immediate requirement, and adhering to it through the short term is an imperative.

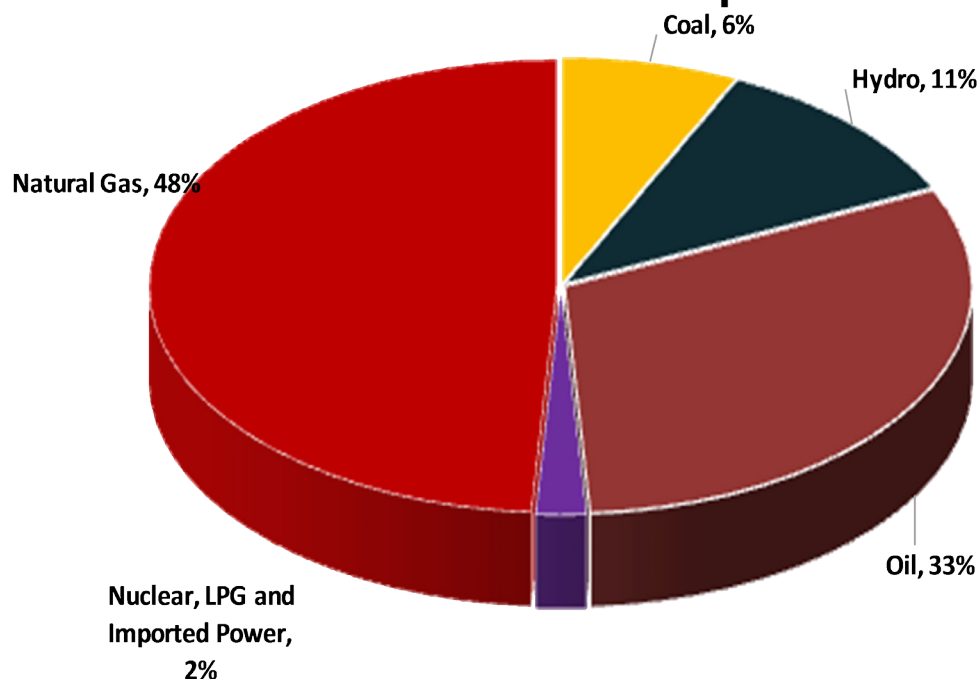
CONTEXT: SIZE AND CHARACTERISTICS OF PAKISTAN'S ENERGY SECTOR

Primary energy supply in Pakistan is 66 million tons of oil equivalent (MTOE). This supply comprises 48 percent natural gas, 33 percent oil, 11 percent hydro, and 6 percent coal. Pakistan imports 30 percent of its energy, mostly as crude oil and products, costing \$14.5 billion annually. Given rising oil prices, this figure will likely reach a prohibitive \$38 billion by 2015.

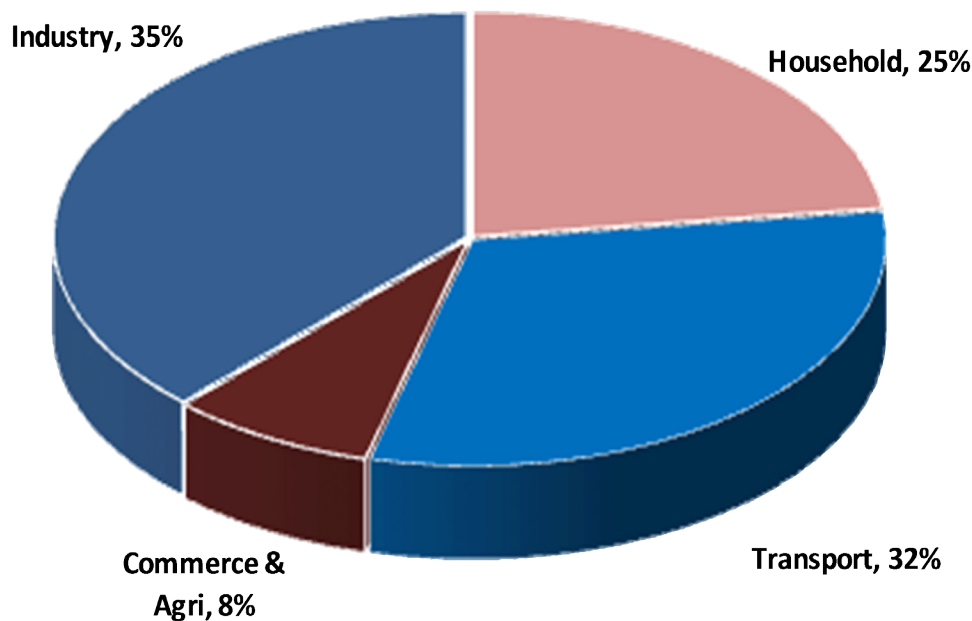
Commercial energy consumption is 40 MTOE. Industry is the biggest consumer (accounting for 35 percent of the market), followed by transport (32 percent) and households (25 percent).

There is a strong correlation between Pakistan's growth rates for energy consumption and gross domestic product (GDP)—confirming that energy fuels Pakistan's economy and,

Primary Commercial Energy Supply Total 66 Million Tons of Oil Equivalent



Commercial Energy Consumption Total 40 Million Tons of Oil Equivalent



conversely, that its shortages impede economic growth. Energy shortages have resulted in prohibitive losses to the economy. In the industrial sector alone, power outages in 2009 cost \$3.8 billion (about 2.5 percent of GDP). Half a million jobs and exports worth \$1.3 billion were lost. Energy consumption per capita in Pakistan, which equates to less than a third of the world average, reflects the state of development and the incidence of poverty. Energy consumption per dollar of GDP growth is three times higher than the world average, which indicates low energy-use efficiency. In a constrained supply situation, efficiency gains mean increased supply.

INTRODUCING IEP

Through several five-year planning cycles, Pakistan's policymakers have ably articulated policy objectives for the energy sector to support the economy. The problem is not lack of clarity on what needs to be done, but rather on how it is to be done. Overwhelming evidence points to the absence of coordinated policy as a fundamental issue. The key missing element is Integrated Energy Planning and Policy

Formulation (IEP). Without this, decision making remains inherently flawed, with policy initiatives reduced to shooting in the dark. Rather than merely offer prescriptive solutions, as has so often been done in the past with policy analysis, this policy brief advocates building Pakistan's capacity at the individual, institutional, and policy levels to enable Pakistanis to make informed decisions more effectively.

IEP has two essential components: analysis that feeds the decision-making process and a policy-level institutional structure to facilitate sound decision making. IEP addresses short, medium, and long-term issues. The short-term is vital. Pakistan has good long-term prospects, but to get there it needs to navigate the troublesome short term.

IEP integrates energy subsector plans and policies to support national objectives. It provides a range of policy scenarios tested for their impact on the economy. Above all, however, effective implementation of IEP requires a separate energy ministry with overarching responsibility for the sector and access to top policy levels.

Introduced in the 1970s, IEP was successfully implemented in developed and developing countries alike. In the 1990s, in the wake of a major push by international development agencies to promote market economies, IEP began to falter on the assumption that the free market determines appropriate policy choices. This assumption does not hold for most developing countries. It might have been motivated ideologically to counter the “Gosplan” heritage of the newly independent states of the former Soviet Union (Gosplan was the Soviet Union’s central economic planning agency). Today, developing countries identify the absence of integrated energy planning as a key issue. Hence, Pakistan is not alone. Common sense is finally prevailing over ideology.

IEP IN PAKISTAN: HISTORY AND PROSPECTS

IEP is not unknown in Pakistan; it was introduced in the early 1980s. The government, firmly committed to introducing IEP, established a planning unit within the Directorate General of Energy Resources. The intention was to later move this unit to a central neutral location in the Planning Division. Administrative orders were issued; budgets approved; and an Energy Policy Board, with top-level representation from energy-related ministries, was instituted to facilitate integration with national plans and to make policy decisions. The National Economic Council or the Cabinet was to deal with decisions having nationwide impact.

It was a noteworthy start—but unraveling was inevitable. There was no follow-through on the necessary organizational changes. Instead of moving to a simple integrated structure, there was a gradual fragmentation of policy institutions, which compounded the complexity, confusion, and overlap of responsibilities. Today, instead of one integrated ministry at the policy level, there are over 15 agencies and ministries—making coordination impossible. There are two main reasons for the unraveling.

The first is the power of vested interests, which are always wary of sound analysis that exposes their efforts to promote suboptimal projects and policies. The second is the expected inertia of the bureaucracy, which invariably resists institutional change—and particularly change involving authority shifts or downsizing.

Going forward, bureaucratic wrangling, turf battles, and job protection certainly cannot be ruled out. However, the situation can be remedied rapidly. The steps to start IEP have been taken before. Necessary records are retrievable. The sophisticated analytical component is, paradoxically, easy to handle. It is simply a question of adding noncommercial/alternative energy skills to the planning unit of the Hydrocarbon Development Institute of Pakistan (HDIP)—the country’s well-respected national petroleum research and development organization—and transferring the unit to the Planning Division or to a new energy ministry. It should be noted here that the work of the HDIP—which has produced comprehensive energy balances for Pakistan—illustrates how the most sophisticated energy analysis in Pakistan has already been done, despite the country’s brain drain. The HDIP, in this regard, exemplifies the excellence that exists within Pakistan, and is a source of hope for the future.

To signal political will, the intent to form a new energy ministry must be officially announced. Not doing so increases the risk of unraveling. The ministry can be phased in gradually to minimize organizational disruption, and the functions of regulatory agencies can be revised to ensure independence and to eliminate overlap.

Encouraging steps toward forming an energy ministry have already been taken. In 2013, the Pakistani government considered the idea of merging the Ministry of Petroleum & Natural Resources with the Ministry of Water & Power. However, the formation of a separate ministry for irrigation, agriculture, and hydropower has

also been considered—a retrograde step which would increase fragmentation. This legacy of “one step forward, two steps back” must be curtailed.

HOW IEP CAN STRENGTHEN PAKISTAN'S ENERGY SECTOR

Here are five ways in which IEP can benefit Pakistan's energy sector.

1. A key advantage of IEP is its ability to quantify the cost penalty of pursuing suboptimal plans. This is vital for a cash-strapped economy confronted with poverty and inequitable income distribution, where access to and affordability of energy are critical concerns among the urban and rural poor.

No country actually adheres to the optimum. Departures will be necessary. However, the degree of departure from the optimum marks the difference between the success and failure of energy policy. Knowing the cost of deviation is vital for informed decision making. Without IEP, the optimum remains undetermined in Pakistan, as does the cost of deviations.

Pakistan purports to have a pro-poor energy policy. Poverty reduction relies on economic growth coupled with social protection. Poverty cannot be eradicated overnight and requires a long-term vision. In Pakistan, the vision is drowned out by immediate concerns—resulting in flawed, prohibitively expensive short-term measures with little relevance for the poor. Recent examples include rental power plants, the choice of diesel back-up generators for individual households, development of compressed national gas for transport without assessing long-term availability, skewed subsidy arrangements, and bailouts to resolve circular debt.

Social protection involves subsidies in the short term. Subsidies are fine if they are targeted, affordable, transparent, and consistent with a long-term strategy, and if the moral hazard of

encouraging waste is minimized. By measuring the impact of energy subsidies on the economy, IEP enables informed choices.

2. IEP can help promote a more sustainable energy mix.

Substantial resource potential and a large, expanding deficit are two contradictory characteristics of Pakistan's energy sector. The deficit is 20 MTOE today, with an expected increase to a prohibitive 120 MTOE by 2025.

Given a very low petroleum drilling density yet impressive success rates, it is evident that enhanced drilling in Pakistan's large prospective basin would expand confirmed reserves and production potential, thereby reducing (and eventually eliminating) imports. Potentially huge shale gas deposits remain untouched. The world's fifth-largest coal deposits at Thar require substantial work to confirm quality and investigate cleaning options. With only 1 percent proven, at present production rates, reserves will last 400 years. Pakistan's large-hydro potential is 41,700 megawatts (MW), with only 16 percent harnessed. A mere 4 percent of the 1,500 MW small-hydro potential has been tapped. Solar and wind resources remain virtually untouched. Wind regime studies estimate a potential of 41,000 MW. These are large figures, bearing in mind that the total installed power capacity in Pakistan is 20,000 MW.

The combination of prohibitive deficits and abundant resources tempts policymakers to promote all forms of energy. This is in fact a common trap that is wasteful and unaffordable. IEP can prevent this by striking an affordable balance. It is the management of resources, and not their abundance, that marks the difference between the success and failure of economies.

3. IEP can help address soaring energy sector debt. The convoluted problem of circular debt is the result of payment arrears of power

utilities, their suppliers, and their clients. Revenues are insufficient and production costs too high. Endemic challenges include system management and structure, maintenance, operational efficiency, system losses (25 percent of net generation) including theft, and tariff collection (30 percent outstanding). Consequently, less than half of installed capacity is utilized and only 70 percent of peak demand is met. Instead of focusing on these endemic issues, the solution has been a series of unconditional bailouts that present a major moral hazard. IEP would address endemic issues and rely less on stopgap bailouts. No amount of bailout will improve the situation without time-bound conditions for tackling endemic issues.

4. IEP can help bring much-needed attention to noncommercial energy.

As reflected in HDIP statistics, Pakistan's policymakers have neglected noncommercial/traditional energy. Commercial energy is a key ingredient of national growth and *prima facie* warrants the lion's share of attention from policymakers under pressure to jumpstart the economy. However, there is an inherent fallacy in this approach. While commercial energy stimulates

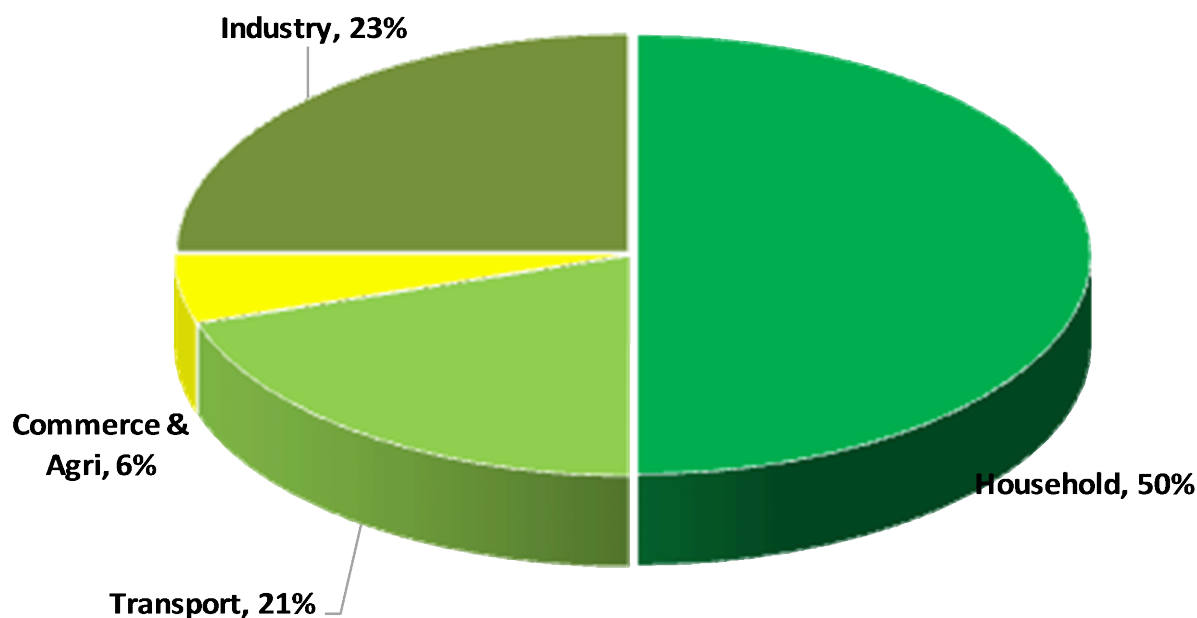
GDP growth, neglect of noncommercial consumers retards growth over the longer term. Consequent unregulated and unchecked practices and technologies have disastrous effects on the ecosystem and on poverty.

Integrating noncommercial energy through IEP changes the picture dramatically. Traditional biofuels would lead energy supply; households would become the primary consumer, using 50 percent of the mix. The most egregious aspect of the noncommercial energy omission is that this form of energy accounts for half of overall demand. An integrated picture will drive major shifts in emphasis. More efficient household cooking stoves will have greater impact than industrial energy conservation. And environmental and poverty impacts will be brought front and center.

5. IEP can enable policymakers to capitalize on new opportunities.

Missed opportunities have contributed significantly to the decline of Pakistan's energy sector. One of many examples relates to Central Asia in the early-to-mid 1990s. The new republics, under immense internal economic pressures, actively pursued routes through Pakistan to export surplus

Commercial and Noncommercial Energy Consumption



energy to South Asia and to gain access to the Arabian Sea. This was well before the security situation had begun to deteriorate. Unfortunately, Pakistan failed to take advantage of these opportunities for new investments and economic betterment.

The rest is history. One can only surmise how these trade corridors would have transformed the region. Benefits from trade, energy transport tariffs, and increased energy supplies would have brought prosperity to Afghanistan, Pakistan, and India. Interdependence and the economic uplift of neglected areas would have helped mitigate—and even prevent—the conflict which engulfs the region today.

IEP, had it existed, would have signaled the need for Pakistan to aggressively pursue southern corridor projects as a policy imperative for the country and the region.

CONCLUSION

Immediate revitalization of IEP must be part of Pakistan's short-term reform agenda. The consequences would be immense: Combined with a new energy ministry, a strengthened policy environment could emerge that would be capable of successfully addressing Pakistan's energy issues—and that could pave the way to recovery for the energy sector and the economy overall.

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