July 2004

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Pakistan

Opportunities exist for foreign direct investment in Pakistan's energy sector, though some foreign investors have encountered problems in recent years.

Note: Information contained in this report is the best available as of July 2004 and can change.

GENERAL BACKGROUND

Economic growth has returned to Pakistan despite the military campaign in neighboring Afghanistan and continuing domestic security concerns. The United States permanently lifted sanctions against both India and Pakistan in September 2001 -- sanctions were imposed in 1998 in the wake of the nuclear tests -- but a substantial aid program and debt forgiveness have contributed to the recovery since then. International donor organizations such as the International Monetary Fund (IMF) and the World Bank warn that Pakistan must maintain the momentum of reforms but also acknowledge the progress made so far. While several reforms have already been carried out, it appears that difficult ones, such as privatizing large state-owned loss-making energy firms have not moved ahead. Meanwhile, the IMF and World Bank have agreed to provide substantial amounts of additional credit, totalling nearly $10 billion from 2001 through 2004.

Pakistan's critical textile industry -- responsible for over 64% of the country's exports -- regained its momentum in 2003, growing by 24%. Overall, Pakistani export earnings grew by about 18% that year. Agricultural production improved as well, with wheat and cotton accounting for most of the gains. In 2001, the United States agreed to reduce or suspend some tariffs on imports of Pakistani textile products, which helped the sector's initial recovery.

Pakistan's real gross domestic product (GDP) growth rate was 5.1% in 2003/2004. Real GDP growth for 2004/2005 is expected to be between 4.9% and 5.1%, although the government hopes to achieve 8% growth rates through 2010 as part of its development strategy. According to the government Pakistan's external debt service accounted for about 50% of government spending in

2002, making debt reduction a centerpiece of fiscal policy. The United States assisted with $1 billion in debt forgiveness in April 2003, and Islamabad repaid some higher rate debt during the year, causing debt service to decline to 27% of government expenditure in that year. In July 2004, the United States agreed to cancel another $495 million in government-to-government debt owed by Pakistan. Pakistan still suffers from a relatively ineffective tax collection system, with only 1% of the population paying income taxes. Following recent reform efforts, however, revenues were up in 2003, including a 36% increase in revenue from customs duties.

While formal legal protections for foreign investment in Pakistan generally are good, inadequate infrastructure, a poorly educated workforce, sectarian and ethnic violence, and a slow-moving judicial system have proven to be obstacles to attracting foreign investment. While some of the well-publicized disputes between Pakistani state entities and the country's Independent Power Producers (IPP's) have been resolved, foreign investor confidence in Pakistan has been seriously harmed. Foreign Direct Investment (FDI) in Pakistan in recent years has been only a small fraction of the comparable figures for the mid-1990s. Pakistan's often tense relationship with India also has been a limiting factor. In April 2003, India and Pakistan moved to resume full diplomatic relations, which had been severed in December 2001.

OIL

Pakistan produced 61,769 barrels per day (bbl/d) of oil in 2003 (of which 60,000 bbl/d was crude oil), and consumed 360,000 bbl/d of petroleum products. Net oil imports were 308,000 bbl/d in 2003. While there is no prospect for Pakistan to reach self sufficiency in oil, the government has encouraged private (including foreign) firms to develop domestic production capacity. Pakistani domestic oil production centers on the Potwar Plateau in Punjab and lower Sindh province.

State-owned Oil and Gas Development Corporation Limited (OGDCL) is a leading firm in the industry, producing around 22,334 bbl/d according to company information. A 5% stake was sold in a public offering in November 2003 for approximately $119 million. OGDCL is Pakistan's second-largest oil producer after UK-based BP. The government will also offer a stake of up to 15% of Pakistan Petroleum Limited (PPL), the largest exploration and production firm in Pakistan. Currently the government controls 93% of the company, which owns the Sui fields in Balochistan, as well as exploration interests in 22 blocks. The government also has a 35% stake in Pakistan Oilfields Limited (POL).

Oil sector reforms in Pakistan are generally on track, but the privatization of several firms, including Pakistan State Oil (PSO), continues to be postponed. The government's divestiture of its 51% stake in PSO to a strategic partner has been planned for several years. PSO holds a 60% domestic market share in diesel fuel and has more than 3,750 retail outlets. Deregulation of prices for petroleum products is being pursued in parallel with the privatization of PSO.

As part of the country's privatization process, Pakistan is setting up a Gas Regulatory Authority (GRA) and the Petroleum Regulatory Board (PRB), which will separate out government functions from state-owned companies to be privatized. Pakistan's government hopes to reap significant revenues from these privatizations over the next several years.

The two most significant foreign oil firms in Pakistan are BP and Eni. BP operates 43 fields in Pakistan and had reported average production of 25,877 bbl/d in 2003. Other firms include BHP Billiton (Australia) OMV(Austria), Petronas (Malaysia) and Premier Oil (UK).

Refining/Downstream

Pakistan's net oil imports are projected to rise substantially in coming years as demand growth outpaces increases in production. Demand for refined petroleum products also greatly exceeds domestic oil refining capacity, so nearly half of Pakistani imports are refined products. Pakistan's Pak-Arab Refinery (PARCO) became operational in late 2000, adding to the country's refining capacity, and alleviating refined product import dependence. The PARCO Mid Country Refinery at Mahmood Kot was formally commissioned in 2001 and has capacity of 100,000 bbl/d of throughput (mostly crude oil from Abu Dhabi and and Light Arabian Crude from Saudi Arabia), supplied to the plant by pipeline from Karachi.

A small, 30,000 bbl/d refinery operated by private Bosicor Pakistan Limited (BPL) near Karachi began commercial operation in November 2003. The plant is supplied with shipments of crude oil from Qatar. The Bosicor plant will allow Pakistan to become a new supplier of naptha to Far Eastern markets. Naptha makes up approximately 9% of the plant's output. The plant produces about 10,800 bbl/d of fuel oil, 6,980 bbl/d of diesel, and 4,350 bbl/d of kerosene, among other products. PSO has a supply contract to purchase the totality of the Bosicor refinery's products for the next 10 years

Another major planned project is the "Iran-Pak" refinery, which would have a capacity of 130,000 bbl/d. The refinery will be located near the border with Iran in Baluchistan province and would be a 50:50 partnership between Pakistan's Petroleum Refining and Petrochemical Corporation (PERAC) and the National Iranian Oil Company (NIOC). Oil processed at the Iran-Pak refinery would come almost exclusively by sea from Iran, and would be unloaded at a terminal to be built for the refinery. The project has failed to reach financial closure, however, as NIOC's demand for a guaranteed rate of return is at odds with Pakistan's policy against such guarantees.

NATURAL GAS

Pakistan has 26.8 trillion cubic feet (Tcf) of proven gas reserves, and currently produces around 0.8 Tcf of natural gas per year, all of which is consumed domestically. Natural gas producers include Pakistani state-owned companies Pakistan Petroleum Ltd. (PPL) and Oil and Gas Development Corporation (OGDCL), as well as BP, Eni, OMV, and BHP. As part of its energy sector reform program, the government is committed to privatizing a 15% stake of PPL (see above), the largest gas producer in the country, capable of producing 770 million cubic feet per day (Mmcfd). The largest currently productive fields are Sui, by far the largest at 650 Mmcfd, Adhi and Kandkhot (120 Mmcfd), Mari, and Kandanwari.

Pakistan's demand for natural gas is expected to rise substantially in the next few years, with an increase of roughly 50% by 2006, according to Pakistan's oil and gas ministry. Pakistan also plans to make gas the "fuel of choice" for future electric power generation projects, hoping to substitute domestic gas supplies for imported foreign oil. This will necessitate a sharp rise in production of natural gas, and also has generated interest in Pakistan in pipelines to facilitate imports from neighboring countries.

Development of new natural gas fields with the help of foreign investors is proceeding, with Pakistan's government expecting recently discovered fields to add about 1 billion cubic feet per day (Bcfd) to Pakistan's natural gas production. Currently, fields in production include Sawan at about 366 Mmcfd, Bhit at about 316 Mmcfd, and Zamzama in Sindh province producing about 248 Mmcfd, but possibly able to produce 380 Mmcfd following a new gas discovery in January 2004.

Pakistan's government restated its willingness to permit a natural gas pipeline linking Iran's massive reserves to Indian markets across Pakistani territory. Pakistan would earn transit fees for Iranian gas supplied to India and also would be able to purchase some gas from the pipeline when and if its

own demand was sufficient. While Iran and Pakistan have shown great interest in the project, India has been reluctant to move forward as long as political and military tensions with Pakistan over Kashmir persist. The issue was due to be discussed at bilateral talks between India and Pakistan in June 2004, although negotiations are still expected to be protracted and difficult. Iran is offering India that it will cover 60% of the construction costs of the pipeline, but India remains wary of Pakistani access to its energy supply. Indian officials said the plan could be considered if Pakistan can provide security guarantees for the $3 billion project. Pakistan could earn about $600 million annually in transit fees from the pipeline.

Another natural gas import possibility is an eventual link with the Dolphin Project, a scheme to supply gas from Qatar's North Dome gasfield to the United Arab Emirates and Oman, via a subsea pipeline from Oman. Even though Pakistan has signed a preliminary agreement to eventually purchase natural gas from Qatar, it remains to be seen how the initial stages of the pipeline project go before a route to Pakistan can be conclusively negotiated.

ELECTRIC POWER

Pakistan has 18 gigawatts (GW) of electric generating capacity. Thermal plants using oil, natural gas, and coal account for about 70% of this capacity, with hydroelectricity (hydro) making up 28% and nuclear plants 2.5%. Pakistan's total power generating capacity has increased rapidly in recent years, due largely to foreign investment, leading to a partial alleviation of the power shortages Pakistan often faces in peak seasons. Rotating blackouts ("load shedding") are, however, still necessary in some areas. Transmission losses are about 30%, due to poor quality infrastructure and a significant amount of power theft. Periodic droughts affect the availability of hydropower. With much of the Pakistan's rural areas yet to receive electric power, and less than half of the population connected to the national grid, significant power demand growth is expected in the long term, though in the short term, Pakistan has some excess generation capacity.

The electric power sector in Pakistan is still primarily state-owned, but a privatization program is reportedly underway. The main state-owned utilities are the Water and Power Development Authority (WAPDA), and the Karachi Electricity Supply Corporation (KESC), which serves only Karachi and surrounding areas. Together, WAPDA and KESC transmit and distribute all power in Pakistan -- over half to household consumers, about one third to industrial consumers and the rest to commercial and government consumers. Rates are determined by the National Electric Power Regulatory Authority (Nepra) and disputes over adjustments to rates are common within the industry.

For example, Nepra announced in July 2004 that electricity rates would be lowered for domestic, industrial and agricultural customers in the three distribution areas of Hyderabad, Peshawar, and Quetta. The distribution companies affected complained that due to the lower rates, they will be unable to cover their operating costs. Nepra has advised the federal government to subsidize the providers at a cost of around $24 million. WAPDA and KESC too blame low rates on weak earnings and enormous debts to fuel suppliers. WAPDA is at the center of a public sector "circular debt" problem, in which state firms and government ministries have failed to pay power bills, and WAPDA has failed to meet obligations to them and to private sector creditors, especially state-owned PSO.

Power theft is a pressing issue in Pakistan. While it is impossible to precisely measure theft (as opposed to line loss), it is obvious that it constitutes a sizable proportion of Pakistan's overall 30% loss rate. The situation was so severe by early 1999 that the Pakistani government assigned army units to look for illegal connections to transmission lines and rigged meters. Power theft is just one part of the financial problems for WAPDA, however.

Growth in power generation in recent years has come primarily from new independent power producers (IPP's), some of which have been funded by foreign investors, and a few WAPDA hydroelectric dam projects. The two largest private power plants in Pakistan are the Hub Power Company (HUBCO) and the Kot Addu power company (KAPCO). HUBCO is owned by a consortium of International Power (UK), Xenal (Saudi Arabia), and Mitsui Corporation, and has a 1,300-MW capacity. The Kot Addu plant, with a 1,600-MW capacity, was privatized in 1996 (from WAPDA), and International Power holds a 36% equity stake, while the government holds a soon-to-be divested 64% stake. Both of these plants, as well as a few other small private operators, sell power to the national grid currently run by WAPDA. By May 2004, International Power cut its holdings in HUBCO from 26% to 16%, after the plant saw a drop in profits. This is reportedly part of International Power's overall global strategy and not a comment on the Pakistani energy sector.

In April 2003, the Ministry of Industries and Production announced that it was planning to build coal-fired power-generation plants in export processing zones and in special industrial states to provide a less expensive source of energy. Officials hope to exploit the large, untapped coal reserves in Tharkparkar. At present, coal makes up less than a 5% share in overall energy production.

Plans are also underway to expand Pakistan's hydro capacity -- the government approved the construction of 4 new hydro plants to be built in the North West Frontier Province by 2005/2006 that would generate several hundred megawatts of additional power. If the $5.5 billion Kalabagh project is approved -- currently it is being held up because of environmental impact and downstream economic impact concerns -- the new hydro plant could supply 2,400-3,600 MW of generation capacity. The Ghazi Barotha hydro plant came online in 2003 at a cost of $2 billion and a generation capacity of 1,450 MW.

COAL

Coal currently plays a relatively minor role in Pakistan's energy mix, but the discovery of large volumes of low-ash, low-sulfur lignite in the Tharparkar (Thar) Desert in Sindh province could increase its importance. Thar reserves are being developed under the jurisdiction of the provincial Sindh Coal Authority and have enormous economic potential. The Authority's policy is to develop the reserves primarily to fuel large electric power plants to be built in tandem with the coal mines. A feasibility study recently was carried out for the construction of a coal-fired power plant near the Thar coal mines, and President Musharraf has stated that coal should make up more than the current 1% of electric power generation in Pakistan.

ENVIRONMENT

Pakistan's attempt to raise the living standards of its citizens has meant that economic development has largely taken precedence over environmental issues . Unchecked use of hazardous chemicals, vehicle emissions, and industrial activity has contributed to a number of environmental and health hazards, chief among them being water pollution. Much of the country suffers from a lack of potable water due to industrial waste and agricultural runoff that contaminates drinking water supplies. Poverty and high population growth have aggravated, and to a certain extent, caused, these environmental problems.

In February 2003, the Asian Development Bank (ADB) offered Pakistan $50 million to assist its Rawalpindi Environment Improvement Project. The project includes provisions for augmenting the water supply system; rehabilitating and extending the sewerage and drainage network; building a sewerage treatment plant; supporting a solid waste management system; administering environmental improvement work on the upstream of Rawal Lake and Nullah Leh (natural storm water drain) and strengthening the Tehsil Municipal Administration (TMA) and related civic

agencies. ADB officials will visit Pakistan later this year to further study the project.

Although Pakistan is renowned for its mountain ranges and areas of untouched wilderness, the country has passed legislation to protect its environment only in the past 10 years. Environmental groups have questioned the country's commitment to environmental protection, pointing to the decision in August 1999 to allow oil and gas exploration in Kirthar National Park , the country's oldest national wildlife park, by a multi-national company.

In the cities, widespread use of low-quality fuel, combined with a dramatic expansion in the number of vehicles on Pakistani roads, has led to significant air pollution problems. A hopeful trend is that Pakistan has become the third-leading country in the world to use compressed natural gas (CNG) to fuel vehicles. Currently, government vehicles are being converted and soon over 100,000 taxi that have been using LNG will change to CNG. Although Pakistan's energy consumption is still low by world standards, lead and carbon emissions are major air pollutants in urban centers such as Karachi, Lahore, and Islamabad.

Theft or diversion of electricity in transmission, as well as a lack of energy efficiency standards, have contributed to Pakistan's high energy and carbon dioxide intensities . To increase energy efficiency, the country is stepping up its use of renewable energy sources to bring electricity to rural areas. As urbanization continues and the population grows at a rapid rate, in the 21st century Pakistan will need to confront its environmental problems in order to safeguard the health of it citizens.

Sources for this report include: CIA World Factbook 2003 and 2004; Dow Jones News wire service; Economist Intelligence Unit ViewsWire; Global Insight World Overview; Oil and Gas Journal; Oil Daily; Petroleum Economist; International Market Insight Reports; U.S. Energy Information Administration; World Gas Intelligence; World Markets; The Pakistan Daily Times; The Pakistan Economist; The Pak Tribune Online.

COUNTRY OVERVIEW
President: General Pervaiz Musharraf (President since July 2001; Chief Executive from October 1999.)
Independence: August 14, 1947 (from UK)
Population (7/04E): 151.7 million
Location/Size: Southern Asia/310,500 square miles (about twice the size of California)
Major Cities: Islamabad (capital), Karachi, Lahore, Faisalabad
Languages: Urdu (national/official), English (official), Punjabi, Sindhi, Pashtu, Baloch
Ethnic Groups: Punjabi, Sindhi, Pashtun (Pathan), Baloch, Muhajir (immigrants from India and their descendants)
Religions: Muslim, 97% (Sunni 77%, Shia 20%); Christian, Hindu, and other, 3%

ECONOMIC OVERVIEW
Currency: Pakistani Rupee
Average Exchange Rate (5/11/04): U.S.$1 = 57.7 rupees
Gross Domestic Product (GDP, market exchange rates, 2003E): $66 billion
Real GDP Growth Rate (2003E): 5.1% **(2004F)**: 5.1%
Inflation Rate (2003E): 2.9% **(2004F):** 5.7%
Current Account Balance (2003E): $3.0 billion
Merchandise Imports (2003E): $13.6 billion
Merchandise Exports (2003E): $11.7 billion
Merchandise Trade Balance (2003E): -$1.9 billion

Total External Debt (2003E): $38 billion
Major Trading Partners: United States, Japan, Germany, United Kingdom, and Saudi Arabia
Major Export Products: Raw cotton and textiles; rice; leather manufactures
Major Import Products: Petroleum; machinery and transport equipment; food

ENERGY OVERVIEW
Proven Oil Reserves (1/1/04E): 288 million barrels
Oil Production (2003E): 61,769 barrels per day (bbl/d), of which 60,000 bbl/d was crude oil (Pakistan posted a refinery loss of 1,231 bbl/d in 2003)
Oil Consumption (2003E): 360,000 bbl/d
Net Oil Imports (2003E): 298,231 bbl/d
Crude Oil Refining Capacity (1/1/04E): 268,975 bbl/d
Natural Gas Reserves (1/1/04E): 26.8 trillion cubic feet (Tcf)
Natural Gas Production (2002E): 0.81 Tcf
Natural Gas Consumption (2002E): 0.81 Tcf
Coal Production (2002E): 3.7 million short tons (Mmst)
Coal Consumption (2002E): 4.8 Mmst
Net Coal Imports (2002E): 1.1 Mmst
Recoverable Coal Reserves (1/1/04E): 2.5 billion short tons
Electric Generation Capacity (1/1/02E): 18.0 gigawatts (70% thermal, 28% hydro, 2.5% nuclear)
Electricity Generation (2002E): 68 billion kilowatthours

ENVIRONMENTAL OVERVIEW
Total Energy Consumption (2002E): 1.8 quadrillion Btu* (0.44% of world total energy consumption)
Energy-Related Carbon Dioxide Emissions (2002E): 104.9 million metric tons (0.43% of world total carbon dioxide emissions)
Per Capita Energy Consumption (2002E): 12.2 million Btu (vs. U.S. value of 339.1 million Btu)
Per Capita Carbon Dioxide Emissions (2002E): 0.7 metric tons (vs. U.S. value of 20.0 metric tons of carbon dioxide)
Energy Intensity (2002E): 5,835 Btu/ $ nominal-PPP (vs. U.S. value of 9,344 Btu/$ nominal-PPP) **
Carbon Dioxide Intensity (2002E): 0.34 metric tons/ $ nominal-PPP (vs. U.S. value of 0.55 metric tons /$ nominal-PPP)**
Fuel Share of Energy Consumption (2002E): Oil (42.7%), Natural Gas (42.2%), Hydro (10.0%), Coal (5.0%)
Fuel Share of Carbon Dioxide Emissions (2002E): Oil (54.1%), Natural Gas (38.0%), Coal (7.8%)
Status in Climate Change Negotiations: Non-Annex I country under the United Nations Framework Convention on Climate Change (ratified June 1st, 1994). Not a signatory to the Kyoto Protocol.
Major Environmental Issues: Water pollution from raw sewage, industrial wastes, and agricultural runoff; limited natural fresh water resources; a majority of the population does not have access to potable water; deforestation; soil erosion and desertification.
Major International Environmental Agreements: A party to Conventions on Biodiversity, Climate Change, Desertification, Endangered Species, Environmental Modification, Hazardous Wastes, Law of the Sea, Nuclear Test Ban, Ozone Layer Protection, Ship Pollution and Wetlands . Has signed, but not ratified, Marine Life Conservation.

* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar, wind, wood and waste electric power. The renewable energy

consumption statistic is based on International Energy Agency (IEA) data and includes hydropower, solar, wind, tide, geothermal, solid biomass and animal products, biomass gas and liquids, industrial and municipal wastes. Sectoral shares of energy consumption and carbon emissions are also based on IEA data.
***GDP based on CIA World Factbook estimates based on purchasing power parity (PPP) exchange rates*

ENERGY INDUSTRY
Organization: Oil and Gas Development Corporation (OGDC), a state company, handles oil and gas exploration and development; Water and Power Development Authority (WAPDA) supplies electricity to most of the country; Karachi Electric Supply Corporation Limited (KESC) serves the greater Karachi metropolitan area; Pakistan Atomic Energy Commission (PAEC) operates one nuclear power plant
Major Foreign Energy Company Involvement: AES, Atlantic Richfield, British National Power, Coastal Power, Gaz de France, Total, General Electric, Lasmo Oil (U.K.), Marubeni (Japan), ExxonMobil, Monument Oil & Gas, Premier Oil, Royal Dutch Shell, Xenal (Saudi Arabia)
Major Ports: Gwadar, Karachi, Muhammed bin Qasim, Ormaro
Major Gas Fields: Bhit, Dhodak, Kadanwari, Mari, Prikoh, Qadipur, Sawan, Sui
Major Oil Fields: Dhurnal, Fimkasser, Liari, Mazari, Thora
Major Pipelines: Sui Northern Gas Pipeline; Sui Southern Gas Pipeline; Pak-Arab Refinery Company (PARCO) petroleum product pipeline
Major Refineries (Capacity): Pak-Arab Refinery near Multan (95,000 bbl/d); Attock Refinery in Rawalpindi (35,625 bbl/d), National Refinery in Korangi (62,050 bbl/d), Pakistan Refinery Ltd. in Karachi (46,300 bbl/d)

LINKS

For more information from EIA on Pakistan, please see:
EIA - Country Information on Pakistan

Links to other U.S. government sites:
CIA World Factbook - Pakistan
U.S. Department of Energy - Office of Fossil Energy - Pakistan
U.S. State Department Consular Information Sheet - Pakistan
U.S. State Department Country Commercial Guide - Pakistan
U.S. State Department Background Notes on Pakistan
U.S. Embassy, Islamabad, Pakistan
U.S. Embassy, Islamabad, Pakistan, Report on Investment Climate in Pakistan
U.S. Library of Congress Country Study on Pakistan

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