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SUBJECT: Pakistan: Facing Electricity Shortages [Redacted]

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Central Intelligence Agency



Washington, D.C. 20505

DIRECTORATE OF INTELLIGENCE

7 August 1986

Pakistan: Facing Electricity Shortages [Redacted]

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Summary

Pakistan suffers from chronic electricity shortages. Current generating capacity is only 85 percent of peak demand. Frequent power outages during recent years, particularly during the summer, have become commonplace. Heavily subsidized electricity rates and extension of service to new areas have contributed to rapid growth in demand for electricity. [Redacted]

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Pakistan is attempting to alleviate the power shortages by reducing subsidies, improving transmission efficiency, instituting conservation measures, and adding additional capacity. It has also announced a plan to allow private investment for electricity generation in an attempt to increase available investment funds. Even if all of these efforts come to fruition, however, power shortages will probably continue well into the next decade. [Redacted]

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Current generating capacity in Pakistan is 5,875 megawatts (mw), roughly 1,000 mw below peak demand. Hydropower provides roughly 67 percent of Pakistan's generating capacity, with thermal plants providing most of the remainder. Pakistan has one nuclear power plant--built by Canada 15 years ago--which supplies less than 1 percent of capacity. [Redacted]

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Demand for electricity--growing at approximately 11 percent annually--has been outstripping capacity. As a result, loadshedding has become common. In 1985 when a severe drought curtailed operations at hydroelectric plants, the US Embassy in Islamabad reported power outages of as much as 12 hours on many days. The situation has improved in 1986 because rainfall returned to normal and the recent drop in world oil prices has allowed Pakistan to import more petroleum without adding to foreign

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This memorandum was prepared at the request of Deputy Assistant Secretary James Phillips, Department of Commerce, by [Redacted] Pakistan/Bangladesh Branch, South Asia Division, Office of Near Eastern and South Asian Analysis. Information as of 7 August 1986 was used in its preparation. Questions and comments should be directed to Chief, South Asia Division [Redacted]

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exchange outlays, enabling increased power generation from oil-fired thermal plants. But Pakistani experts publicly predict that the shortfall during peak demand periods will rise from the current 1,000 mw to 3,000 mw by 1992, even if all currently planned power projects are implemented as scheduled. [redacted]

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### Reductions in Subsidies

Prior to electricity rate increases in 1985, the Asian Development Bank reported that only 65 percent of Pakistan's Water and Power Development Authority's (WAPDA) fuel costs were recovered in sales and that only 40 percent of its investment was self financed. To reduce government subsidies to WAPDA, Islamabad raised electricity rates by 10 percent for residential customers and 55 percent for commercial and industrial customers. A further across-the-board increase scheduled for 1986 has not yet been implemented. [redacted]

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Given the drop in oil prices and substantial domestic opposition to rate increases, we judge the government is unlikely to move on these increases this year. During conversations with one Pakistani official, US Embassy officials learned that there is even some sentiment within the government for reducing electricity rates in response to the recent decline in world oil prices. But we do not believe this is a widely held view. Rate reductions are particularly unlikely because some aid donors are pressuring Pakistan to further increase rates in an effort to encourage conservation and to provide funds for energy projects. Some are threatening to reduce funding for energy projects if Pakistan does not comply. [redacted]

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### Improving Distribution

[redacted] one-third of generated electricity is unaccounted for due to inadequacies of the distribution system, malfunctioning meters, and theft of services. Much of the loss results from a lack of trained personnel to repair broken equipment. [redacted]

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In response to these losses, WAPDA is upgrading its distribution system. Approximately \$125 million--nearly 25 percent of the energy development budget--is being devoted to improving the transmission and distribution system in the current fiscal year, according to official statistics. Plans call for the installation of a 680-mile, 500-kilovolt (kv) transmission line between Lahore and Jamshoro. A second 500 kv line is currently being constructed between Tarbela and Faisalabad. WAPDA is also trying to improve metering and billing practices. [redacted]

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### Conservation Efforts

Besides increasing electricity rates, the World Bank reports that Islamabad has instituted a number of programs designed to reduce peak demand on the electrical system, including:

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--Staggering weekly holidays for businesses. Islamabad has required some business to have their "weekends" during the week to smooth demand for electricity.

--Asking for voluntary reductions in lighting loads in industry.

--A 50-percent reduction in street lighting.

--Requiring the closing of shops by sundown. [Redacted]

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Planned Power Projects

Islamabad has three major power projects on the drawing board--one hydro, one thermal, and one nuclear. In addition to funding uncertainties caused by Islamabad's hesitation to implement donor recommended electricity rate increases, each of the projects faces unique obstacles. [Redacted]

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We believe the Lakhra thermal station is the most likely to begin operation first--in 1991. WAPDA intends to construct the Lakhra plant of approximately 500 mw. It would be fired by lignite mined from the Lakhra coal field near Hyderabad in Sind Province. Plans call for the first 250 mw unit to be commissioned in September 1991 and the second a year later. The power station will be designed and built under the direction of WAPDA; the coal fields will be privately developed. Current plans call for joint funding from the World Bank, the United States, and the Pakistani Government. US Embassy reporting suggests some concern that the project will not be cost efficient because of the low quality-- high ash and sulpher content--of the coal. [Redacted]

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The Kalabagh Dam will be a combined irrigation and power project in Punjab Province about 120 miles downstream from the Tarbela Dam, the site of a present hydroelectric facility in the North West Frontier Province (NWFP). Plans call for Kalabagh to have an initial capacity of 1,200 mw when it comes onstream in 1993 and another 1,200 mw would be added by 1995, but we believe delays have already made the 1993 target date unrealistic. The project has met with stiff political resistance in the NWFP, with residents claiming that they will have their farm land flooded while most of the electricity will be consumed by homes and businesses in Punjab Province. According to press reports, members of the NWFP Provincial Assembly are nearly unanimous in their opposition to the project. [Redacted]

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The Chashma nuclear power plant was originally scheduled to be operational by 1980 with a capacity of 900 mw, but Pakistan has been unable to find any potential suppliers. France canceled an agreement to supply the plant under pressure from the United States because of concerns that the technology would be diverted to Pakistan's nuclear weapons program. In the absence of international nuclear safeguards, Pakistan is unlikely to find a supplier for this or any other nuclear reactor. [Redacted]

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[Redacted] other energy projects  
Pakistan has planned include:

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--The Multan thermal power station, with three 210 mw units. An agreement has been signed with the Soviet Union for this project.

--The Jamshoro thermal power station, with four 200-250 mw oil-fired burners. An agreement has been signed with the Japanese for the first of these units. WAPDA will likely offer tenders for the other units soon. [redacted]

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Private-Sector Participation

Last year, Islamabad established conditions under which the private sector would be invited to participate in power generation, according to press reports. Under the plan, the Ministry of Water and Power would decide on the location and capacity of a thermal station and then invite bids from private-sector firms to install and operate it. Firms would be required to submit bids detailing the minimum price they would be willing to receive for the electricity generated. WAPDA would guarantee to purchase a specific amount of electricity at a specific price rather than the usual fixed rate of return. The firm would be required to meet at least 25 percent of the project's costs from its own resources, excluding loans and credits. [redacted]

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We believe this plan is unlikely to attract many firms. The large investment required for the construction of a power station combined with the absence of a guaranteed rate of return will likely discourage most potential investors. [redacted]

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Outlook

The continuing rapid growth in electricity demand, combined with only modest plans for additional capacity, ensures that power shortages will worsen into the early 1990s. [redacted] the Pakistani Government estimates current losses in production due to electricity shortages at \$3 million per day and estimates that losses could reach \$5 million per day by next year. Some business leaders have called this a conservative estimate, according to press reports. [redacted]

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Although experiencing a temporary improvement this year, we expect Pakistan's foreign payments position to worsen over the next few years, a deterioration that may prompt Islamabad to delay imports of equipment necessary to increase generating capacity in favor of food and raw materials. This is a Catch-22 situation for Pakistan. Loadshedding--estimated to have caused exports to be 9 to 13 percent lower in 1985 than they otherwise would have been, [redacted] will become increasingly costly in terms of lost production and foreign exchange earnings. [redacted]

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Islamabad's expressed willingness to allow private investment in generating stations is unlikely to attract enough financing to substantially add to capacity. Domestic firms are unlikely to have the

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**expertise or the access to capital required for such investments. Foreign firms, which would be unable to adjust electricity rates in response to changes in costs or operating conditions without permission from a bureaucracy notorious for foot dragging, are also unlikely to invest large amounts in power stations.** [REDACTED]

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