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World Bank Lending for Natural Gas: Policy and Institutional Issues

To increase the supply and commercial use of natural gas, the Bank has lent $4.3 billion since 1954. Lending covered the spectrum of activities from exploration and appraisal through distribution and the development of gas-consuming industries.

A new study by OED finds that the Bank's gas lending has been profitable, has made substantial progress in its goals and has been more successful, in general, than lending to other sectors. Fears that the Bank would displace private investors were ill-founded. By improving pricing and the regulatory environment, and developing markets, the Bank's support has in fact acted as a catalyst for private sector participation in exploration and production, though not in transmission or distribution. The Bank's projects significantly improved the technical capacity of the institutions they assisted. The Bank's influence was more effective in countries at the early stages of developing the gas subsector. Efforts to reform or rationalize existing institutions and demand patterns were less successful.*

Background

For the first 20 years of lending for natural gas, the Bank concentrated on development of gas transmission and distribution utilities, independently of countries' energy sector policies and long-term energy development programs.

The Bank changed its petroleum lending policies after the price increases of 1973 greatly improved the economics of oil and gas from higher-cost sources—either for export or to replace costly imports. It strengthened its staff with oil and gas expertise and embarked on one of the most comprehensive reviews of policy undertaken for a single sector of lending. Studies by the Bank showed that 50 - 60 oil importing developing countries could potentially produce oil or gas, or both, and would benefit substantially, but that they lacked the necessary skills and finance and the experience to plan a strategy for the petroleum sector.

The lending policy that resulted, introduced in the late 1970s, treated natural gas projects as integral parts of national energy programs, within the context of country-specific energy lending strategies designed to help borrowers:

- establish a national energy policy framework, including investment strategy, pricing policy, and institutional setting;
- develop institutions;
- enhance the role of the private sector;
- mobilize financial resources.

Energy lending, including gas lending, was significantly increased and diversified starting in the late 1970s. An important thrust of the gas lending program has been to support a greater role for the private sector.

The study examines 32 completed natural gas operations supported by the Bank in 14 borrowing countries. Half the operations were in Egypt, Pakistan, and Thailand.

Outcomes

Natural gas production or commercial use rose substantially in all but one of the 14 countries. The Bank's influence helped expand private sector participation in gas exploration and production.

Considerable advances have been made in gas planning and coordination, rationalization of gas use, economic pricing, institutional development of gas utilities, and private sector participation. But many obstacles are still to be overcome.

"A Review of World Bank Lending for Natural Gas", Report No. 10828, June 1992. Copies are available, to World Bank Group Executive Directors and staff, from the Internal Documents Unit and from Regional Information Services Centers.

Petroleum Authority of Thailand

By the late 1970s, Thailand was spending nearly half its export earnings on imported energy. Two IOCs had found commercial quantities of gas in the Gulf of Thailand. But when the Bank became involved, the government had been negotiating with one of the companies for more than a year. Progress was slow because there were no models to follow for a developing country contracting with a foreign operator for the purchase of offshore gas.

The Bank's first gas loan to Thailand (1978) helped the Petroleum Authority (PTT), established in 1979, with the project management and engineering services and related studies to develop the Erawan gas field. PTT was made responsible for gas purchases, sales, and transmission, as well as for refining and petroleum product marketing. Strengthening PTT remained a major goal of the two gas projects that followed, and of the later Sirikit petroleum project.

In just over ten years, PTT has built up enough expertise to undertake joint venture operations. The first of these, for oil and associated gas development in the Sirikit field, was supported by the Bank; several joint ventures with IOCs followed. The company has been consistently profitable since 1981, and since 1986 has financed a substantial part of its investments from internal resources.

Dialogue between PTT and the Bank has been very important. The Bank-financed gas projects and SALs supported studies on energy pricing, gas utilization, LPG-CNG use, estimation of gas reserves, and finance, and management information. Strategic subsectoral planning ensured that gas supplies were allocated rationally. For example, following a 1985 Bank study, Thailand did not build up a fertilizer industry dependent on cheap gas—unlike many countries. In 1979, the government began raising energy consumer prices so that by end-1981, petroleum prices were above international levels. Current concession agreements with IOCs link the producer price of gas to the border price of fuel oil, though prices for the major source of gas—the Erawan field—are still based essentially on a cost-plus system.

Between the beginning of Bank lending and 1990, gas production increased by 110 percent in the 14 countries studied. The most dramatic production increases were in Egypt, Pakistan, and Thailand.

Bank-supported gas projects have been economically sound; most of those already completed have economic rates of return higher than 20 percent, even though the prices of substitute fuels fell sharply after 1985. Ninety percent of the projects were rated satisfactory. More than half the projects made substantial progress in institution building and the other half made partial progress.

Bank-assisted exploration projects have so far yielded only small commercial petroleum discoveries in Egypt and Tanzania. But the changes it has supported in national policies and regulations have encouraged successful exploration by private oil companies and stimulated national oil companies (NOCs) to redirect exploration toward gas.

In Bangladesh, Bolivia, Egypt, Pakistan, and Thailand, the Bank has had an important influence in establishing the infrastructure needed to make gas reserves commercial.

Issues

Sector planning, coordination

Gas planning and coordination has improved slowly, but in many countries is still weak; where discernible improvement was obtained, it was due largely to a slow process of maturation, helped by a push from policy-based lending.

In practice, the socioeconomic and political dimensions of energy policies meant that in many countries the Bank had to limit its assistance for gas planning and coordination to studies and technical assistance for preparing gas subsector plans and developing planning capacity in borrower organizations. The measures taken were not very effective: many studies lacked focus; data on energy/natural gas were poor and scarce; Bank follow-up actions tended to be poorly timed or inadequate; and policy makers were often apathetic. Loan covenants related to sector planning and coordination were generally complied with but rarely achieved their underlying goals.

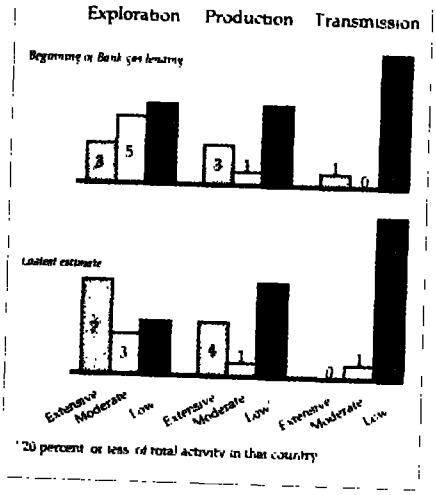
In future, with the further commercialization and privatization of gas, central energy planning agencies will need to shift away from investment allocation toward broad strategy formulation, demand estimation, and ensuring that enough private investment will be undertaken to meet demand.

Gas supply and use

Efforts to channel natural gas to high-value uses were more successful in countries without established consumption patterns. In countries with major gas-consuming industries, they were less successful and aroused much controversy.

Though most of the gas utilization studies helped to identify issues and shape the Bank's dialogue with governments, their direct impact was limited by data weaknesses, the political influence of vested interests, and lack of timeliness and Bank follow-up. At least half the countries studied still need to rationalize gas use. But with continued pressure from the Bank on gas pricing, and the worldwide trend toward a market economy, prospects are better for attaining more high-value use of gas.

Private Sector Participation in 14 Borrowing Countries
(number of countries)



Pricing, tariffs

Bank lending helped considerably to bring gas producer prices up to economic levels, and had moderate success (more than in electric power) in increasing consumer prices.

When the Bank began lending for gas, only one country had gas prices at or close to the economic level. By 1990, nearly half the countries had achieved economic pricing. Several had raised gas producer prices and attracted considerable private investment in exploration and development (Argentina, Egypt, Pakistan, Thailand, and Turkey). Others were making purposive efforts to attract more private investment (Bangladesh, Hungary, India).

Gas consumer prices generally were kept well below economic costs, both to protect low-income households and for fear of worsening inflation. Bank studies showed neither of the latter concerns to be justified. Progress on consumer prices was mostly achieved after the fiscal situation in borrowing countries no longer permitted large subsidies, and once the decline in world energy prices (after 1985) had narrowed the gap with controlled domestic prices.

Many countries still need to rationalize the structure of consumer prices, eliminate price distortions between gas and gas substitutes, and eliminate cross-subsidies between consumers (particularly, subsidies benefiting fertilizer producers) in a way that eradicates distortions in resource allocation.

Institutional development

The Bank's assistance considerably improved the technical capacity of gas institutions. In Egypt, Indonesia, Pakistan, Tunisia, good results were obtained where local staff worked side-by-side with staff from internationally known oil companies or gas utilities in industrial countries.

Components to strengthen gas institutions had a significant impact in newly established entities (see box) and in utilities operating in niche markets. Components that targeted established NOCs or natural gas monopolies had only modest success, owing to borrowers' reluctance to accept Bank assistance, organizational inertia, or the civil service's lack of resources and constraints on its actions. Several of the institution building components suffered from being designed without a clear strategy and action program. A pervasive problem was the Bank's misplaced optimism about the commitment of governments or gas companies to the proposed institutional changes.

Diffusion of responsibilities, lack of autonomy. Generally, enterprises urgently needed to establish a working environment and salary levels that would maintain the continuity of management and qualified staff. Utilities also needed help to improve their management structures, accounting systems, procedures for billing and collection, planning operations, and maintenance. Managing these enterprises was made more difficult not only by weak planning but also by diffusion of responsibilities and excessive political interference.

Mobilizing Financial Resources

Argentina: Continuing Bank dialogue with the government has led to a large number of concessions for oil and gas exploration by private companies, and joint ventures with private sector companies, representing at least 40 percent of the national petroleum company's production.

Egypt: The exploration activities financed under the Western Desert Exploration Project yielded only limited discoveries of oil and gas, but together with more attractive incentives for gas production, the findings were enough to attract investment by international oil companies (IOCs) in the area. About 16 percent of Egypt's gas consumption now comes from the Western Desert.

Nigeria: The Bank's participation has led to the development of the Oso Condensate field by a joint venture of the National Nigerian Petroleum Corporation and a major IOC.

Pakistan: The Bank was instrumental in persuading the government to increase producer prices and encourage the Oil & Gas Development Corporation to enter more joint ventures with IOCs.

Tanzania: Bank financing of exploration resulted in modest discoveries of gas. After a protracted period of trying to engage the private sector, a concession has now been awarded to a private entity.

Thailand: All exploration and production is done by the private sector, either alone or in joint ventures with the Petroleum Authority of Thailand.

Recommendations

Sector policies: Action is still needed to:

- eliminate distortions in consumer prices;
- raise the returns on investment for all gas operations so as to attract more private investment;
- separate government's role as regulator from its role as entrepreneur;
- corporatize or privatize natural gas utilities;
- separate transmission and distribution functions;
- improve planning and coordination of sector activities.

Institutional strengthening: Whether or not they are to be commercialized, many gas utilities need to improve performance, for example by:

- defining a clear institutional development strategy, accompanied by an action plan;
- using institutional development experts instead of generalist staff to design institution-building components;
- promoting twinning arrangements with more experienced gas utilities,
- increasing emphasis on maintenance and safety;
- designing and using management information systems.

Resource mobilization: Actions to help public sector agencies generate internal funds and shift more gas operations to the private sector include:

- shifting the emphasis from financial rate of return covenants to performance-enhancing ones such as contract plans;
- promoting non-recourse project financing, provided there is a satisfactory legal, regulatory, and fiscal framework for gas;
- directing some Bank assistance to peak load shaving and gas utilization facilities, so that gas is used more efficiently.

Private sector

The Bank's influence has helped to expand private sector participation in natural gas exploration and production by advocating suitable policy changes and through a large variety of lending instruments. In general, the Bank has kept its financing to a minimum, bearing in mind that it had to have a certain level of involvement to affect borrowers' energy policies and strategy.

The misgiving that Bank lending for upstream petroleum activities would displace private risk capital has proven unfounded.

Until the 1980s, most countries borrowing from the Bank had many obstacles to private sector involvement in gas development, mostly concerning inadequate financial incentives and legal and regulatory restrictions. Indeed, governments had resisted making gas development attractive to foreign oil companies, expecting that there would be enough finance and manpower for national petroleum agencies to develop the subsector. Several factors combined to change their outlook: limited capacity (financial, manpower, technical) to implement gas projects; the 1979 energy price increases; and the deteriorating economic situation of the mid-1980s.

By 1990, the environment for private sector participation in gas exploration and production had greatly improved in many of the countries studied—particularly in Egypt, Nigeria, Pakistan, and Tanzania (see box). Financial incentives were still considered inadequate in Bangladesh, Hungary, India, Indonesia, and Yugoslavia.

The Bank has been an effective catalyst for mobilizing resources for upstream gas development in several countries (see chart). It needs to continue efforts to attract more investment in most of the borrowing countries.

The Bank has not noticeably encouraged private participation in natural gas transmission and distribution. It did not advocate a private sector role in several gas utilities that it helped to establish (Egypt, Indonesia, Thailand), and in Pakistan, it did not object to government actions that reduced private participation in transmission companies.

OED Précis is designed to help inform Bank managers and staff of new evaluation findings and recommendations for the Bank's current and future work programs. It is produced by the Operations Evaluation Department of the World Bank for distribution to the Bank's executive directors and staff. The views here are those of the Operations Evaluation staff and should not be attributed to the World Bank or its affiliated organizations. Please address comments or enquiries to the managing editor, Rachel Weaving, T7015, World Bank, telephone 473-1719.