

GRID LINES

Sharing knowledge, experiences, and innovations in public-private partnerships in infrastructure

Private participation in electricity

The challenge of achieving commercial viability and improving services

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Private activity in electricity in developing countries has stabilized at modest levels since 2001. The main focus remains green-field power plants, particularly those with contractual arrangements that protect investors from sector risks. Long-term guarantees of regulatory performance and leases and management contracts have encouraged some private activity in distribution. Attracting significantly more investment will require greater commercial viability, including cost-reflective tariffs, better collection ratios, well-targeted and sustainable subsidies, and improved quality and reliability of service. In most countries, a move toward cost-reflective tariffs will not be politically feasible unless it goes hand in hand with visible improvements in quality of service.

Investment commitments for electricity projects with private participation in developing countries (hereafter, simply investment) have stabilized at modest levels.¹ After a sharp drop from relatively high levels in the mid-1990s, annual investment has remained within a band between US\$11 billion and US\$16 billion since 2001 (figure 1). The number of projects reflects a similar trend. The average annual number in 2001–05 was 55, less than half the average of 115 in 1995–2000. The average project size also declined, from US\$360 million in 1997 to US\$166 million in 2002, but then recovered to US\$258 million in 2005.

More balance among regions

Investment became somewhat more evenly distributed among regions in recent years. The two most active regions, East Asia and Latin America, saw their share decline from 76 percent in 1990–2000 to 65 percent in 2001–05 (see figure 1). Their share of projects dropped from 66 percent to 56 percent. Driving the shift toward greater balance was a decline in private activity in East Asia and

Latin America and an increase in Eastern Europe and South Asia in 2004–05.

Private activity also became more evenly distributed between IDA countries—eligible to borrow from the International Development Association—and non-IDA countries. IDA countries' share of projects rose from 22 percent in the 1990s to 28 percent in 2001–05, while their share of investment remained around 18–19 percent in both periods as a result of low levels in 2001–03 (US\$1.7–2.7 billion). But investment in IDA countries rose to US\$5 billion in 2004 and US\$4 billion in 2005, levels similar to those of the late 1990s.

Country distribution shifting

Around 100 countries had private participation in their electricity sector between 1990 and 2005. Of these, 20 opened the sector to private investment after 2000. And of these, 12 involved the private sector in distribution—almost all of them countries in Eastern Europe and Central Asia (Armenia, Azerbaijan, Bulgaria, the Slovak Republic, and Ukraine) or Sub-Saharan Africa (Lesotho, Madagascar, Rwanda, and Uganda).

Private activity in electricity remained concentrated in a few countries. The top 10 countries by

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investment accounted for 72 percent of the total in 2001–05, just 3 percentage points less than in 1990–2000. But the top 10 countries changed, with 4 new ones (Mexico, Bulgaria, Poland, and the Slovak Republic) joining the group.

New investors emerging

The concentration of activity among private sponsors has changed little: the top 10 sponsors accounted for 40 percent of investment in both 2001–05 and 1990–2001. But the composition of this group has changed markedly, with only 5 sponsors appearing among the top 10 in both periods. Emerging market firms have become more prominent: 3 were among the top 10 in 2001–05, up from only 1 in 1990–2001.

Indeed, while many global sponsors were withdrawing from developing countries, regional and local investors became more active in 2001–05. In East Asia, Malaysian Malakoff, Japanese J-Power, Singaporean Asia Power, and Thai Banpu were among the most active, whether measured by investment or number of projects. Similarly, in Latin America regional companies were among the most active—such players as Brazilian Alusa, CPFL Energia, and Votorantim. The Czech CEZ Group started to expand in Eastern Europe in 2005, while the Russian Unified Energy System has focused on Central Asia. Indian sponsors—Reliance ADA Group, Torrent Group, and Tata Enterprises were also active in South Asia.

Generation plants still predominant

After dropping from a peak of US\$28 billion in 1996 to US\$7 billion in 2002, annual investment in stand-alone power plants (referred to as independent power projects, or IPPs) has recovered somewhat. In 2003–05 it remained between US\$11 billion and US\$14 billion (figure 2).

IPPs accounted for the largest share of private activity in electricity, 77 percent of the total investment in 2001–05. IPP investments in greenfield (new) power projects accounted for 80 percent of the total in generation, and divestitures of existing plants for most of the rest. The dominance of greenfield power projects is not new. This form of private investment has been dominant in developing countries for more than 15 years, except for a few years in the late 1990s when Brazil privatized 26 distribution companies. Indeed, the dominance of IPP greenfield investment expanded

from just three regions (East Asia, South Asia, and Sub-Saharan Africa) in 1990–2000 to all but one (Eastern Europe and Central Asia) in 2001–05.

Investors generally prefer greenfield projects structured as “enclave” projects, protecting them from many sector risks. In IDA countries more than 90 percent of private investment in electricity in 1990–2005 was in greenfield projects. In countries where public sector enterprises are buyers of IPP power, investors are generally protected from underlying economic problems in the sector through tightly written, long-term power purchase agreements, often supported by government payment guarantees and credit enhancements (letters of credit, escrow accounts, liquidity facilities, tax holidays).

Electricity is not the only infrastructure sector where this type of private investment predominates. Similar arrangements have emerged in water and sanitation, where greenfield water and sewage treatment plants that sell to a single customer through government-supported “take or pay” agreements now dominate private investment (Marin and Izaguirre 2006).

Investment in distribution lagging

Annual investment in distribution fluctuated between US\$1.5 billion and US\$3 billion since 2001. The segment’s share of total investment in electricity dropped from 29 percent in the 1990s to 19 percent in 2001–05. There was a parallel decline in the average annual number of transactions, from 19 in 1995–2000 to 9 in 2001–05.

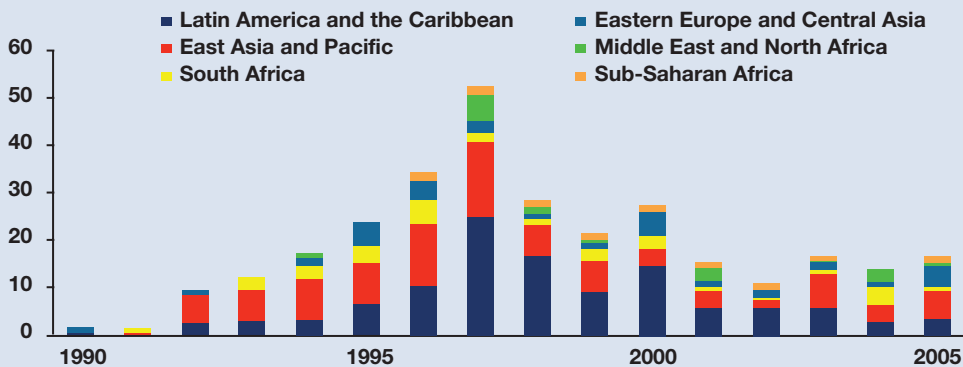
Distribution is inherently riskier for investors because it involves selling to thousands of customers who purchase at prices that are highly visible and politically contentious. Moreover, future prices are set under regulatory regimes that are often unclear or not credible. Indeed, distribution projects are more likely than other power sector projects to experience cancellations, major disputes resulting in international arbitration, or terminations at the end of the contract period. Worldwide, 13 percent of more than 250 contracts involving distribution businesses that were signed in 1990–2005 are no longer operational—almost twice the share for generation projects.

Distribution projects in Sub-Saharan Africa were especially likely to be troubled. By 2005, 47 percent of the 30 contracts involving distribution businesses in that region were no longer opera-

Investors tend to prefer greenfield investments, protected from sector risks

FIGURE 1

Investment has stabilized at modest levels
(2005 US\$ billions)

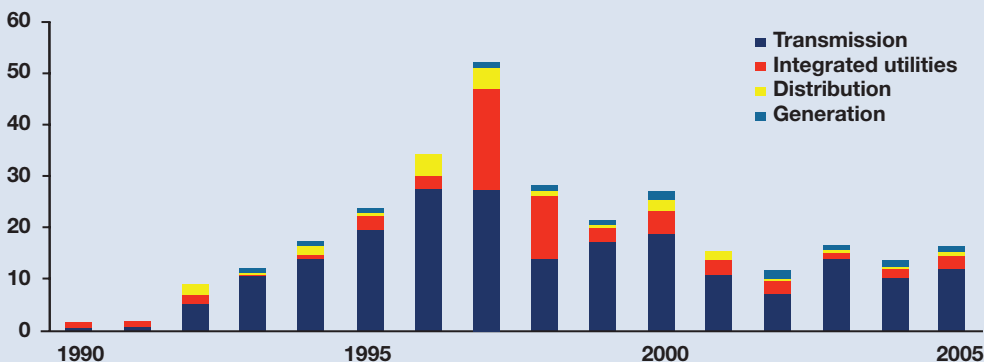


Source: World Bank and PPIAF, PPI Project Database.

The key to attracting more private activity to distribution: commercial viability

FIGURE 2

Generation claims the biggest share of private activity
(2005 US\$ billions)



Source: World Bank and PPIAF, PPI Project Database.

tional, compared with only 9 percent in other developing regions. The higher rate of projects in distress in Africa may reflect a mismatch in expectations: governments have expected rapid increases in electrification, while investors have focused on increasing revenue collection and covering costs.

To attract investment in distribution, a new guarantee mechanism has been adopted in two countries. The regulatory partial risk guarantee provides a guarantee against the failure of regulators and governments to comply with the provisions of regulatory commitments (such as formulaic tariff adjustments) made to encourage private investment. A guarantee provided by the World Bank supported the purchase by Italy's ENEL of two Romanian distribution companies

in April 2005. Another World Bank guarantee, mitigating government payment as well as regulatory risks, backed the acquisition by Globeleq and Eskom of a 20-year concession for Uganda's distribution network in 2005.

Management contracts: another option?

Leases and management contracts increased from 2 percent of projects in the 1990s to 4 percent in 2001–05. Most of the 10 leases or management contracts in 2001–05 were signed in five African countries.² Management contracts typically are undertaken in countries where average tariff levels do not recover costs and enterprise operations are grossly inefficient. The investor's commitment is

usually limited to providing managerial expertise to improving operations of a state-owned enterprise without any commitment to invest. The contracts are often quite complicated because of the need to specify in detail who does what.

The advantage for private companies is that their risk exposure is limited: they do not need to depend on the performance of a regulatory regime to recoup the cost of major rehabilitation or new investments. The disadvantage is that the private contractor's performance will often depend on promised investments and other obligations by the government (such as refraining from interfering in management decisions) that may fail to materialize. And when that happens, the private contractor will often get blamed for lack of improvements in performance.

Moving beyond mantras

Private investors act rationally in favoring green-field projects. These projects usually provide protection from major risks through long-term contracts and often come with government payment guarantees. If there is to be significant and sustained private investment beyond green-field generation projects, it will need to be built on a platform of commercially viable electricity distribution entities. If private participation can establish such entities, it creates the best foundation for future upstream private investment in generation.

But there is no "silver bullet." Successful private investment in distribution requires: cost-reflective tariffs (i.e., when revenues must cover costs), subsidized tariffs for the very poor, significant improvements in the quality and reliability of the service, enforceable legal rights to disconnect nonpaying customers, and some degree of protection for existing employees.

Undoubtedly retail tariffs are not cost reflective in most developing countries and subsidy schemes often do not cover the gap between tariffs and cost or reach the poorest (Foster and Yepes 2006). And when these failures exist, there is no "free lunch." If consumers are not charged cost-recover-

ing tariffs, they will end up paying in other ways, such as through higher taxes or unreliable and poor-quality service.

But moving toward cost-reflective tariffs and developing well-targeted and sustainable subsidy schemes are not simply technical exercises. They are also inherently political acts. Most politicians will be reluctant to support higher tariffs unless they can make credible promises that consumers will get something in return. Consumers are more likely to accept a move to higher tariffs if it goes hand in hand with visible improvements in service. Stated differently, there must be better matching of the costs and benefits of private sector investment if it is to be both politically and economically sustainable.

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Notes

- Investment data in this note are in real terms (2005 U.S. dollars using the U.S. consumer price index). The data are from the Private Participation in Infrastructure (PPI) Project Database and include projects that reached financial closure between 1990 and 2005. The investment data refer to commitments and include private and public contributions. While the data here are in real terms, those on the PPI Web site are in current U.S. dollars. The database lacks good coverage of small-scale providers because they are generally not reported in its sources. For more information, see the Web site ppi.worldbank.org.
- The Stanford University Program on Energy and Sustainable Development reviewed developing countries' experience with IPPs under its Political Economy of Electricity Markets initiative (pesd.stanford.edu).
- For an analysis of management contracts in three African countries, see Davis (2004).



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