Investment Power in Africa

Where from and where to?

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Economic and social development depends critically on infrastructure, for which electricity may be among the most important inputs. Sub-Saharan Africa (SSA) has among the lowest rates of electricity access in the world – less than 30 percent. Furthermore, excluding South Africa, SSA is the only region for which per capita consumption of electricity is falling. The total installed capacity in the region amounts to less than South Korea's, and this limited supply is costly and unpredictable, imposing heavy tolls on social and economic development.[1]

It has been estimated that about 7,000 megawatts (MW) need to be added each year (2005-2015) to meet suppressed demand and provide additional capacity for electrification expansion. Such an investment would cost approximately $27 billion per year.[2] Presently, funding to the electricity sector (for capital expenditure) is estimated at just $4.6 billion a year; hence, an annual funding gap of more than $20 billion exists.[3] Public sources – utility income and fiscal transfers – contribute only about one-half of current capital investments, highlighting the urgent need for increased private investment, including public-private partnerships. Across Sub-Saharan Africa, the push towards private invest-

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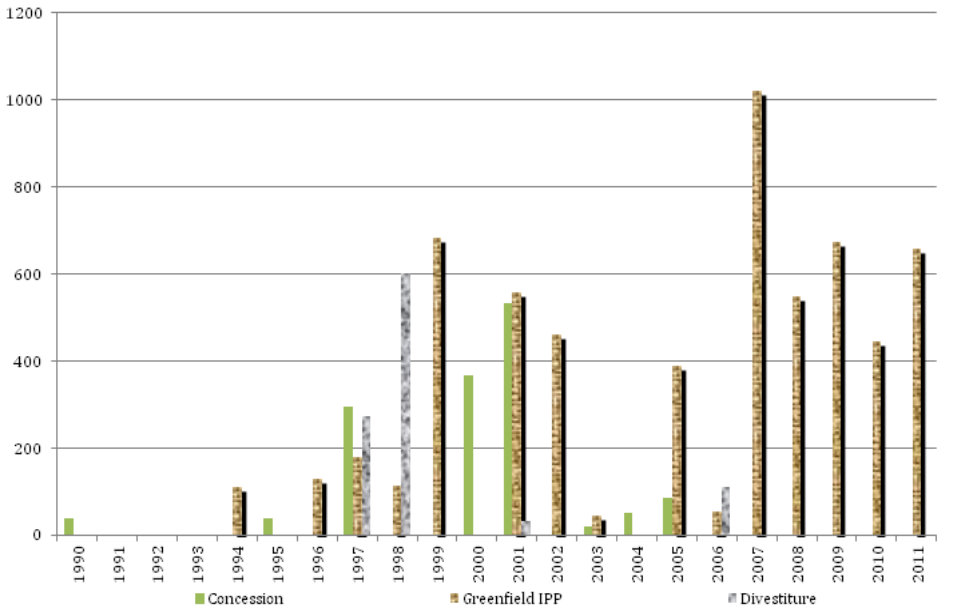
ment in electrical generation dates to the early 1990s, but the journey has not been smooth. Significant lessons may be identified, including: understanding the limited pool of investments, together with the importance of public stakeholders in equity and debt alike; the increasing application of partial risk guarantees (PRGs) to mobilize finance; and the emergence of more non-OECD partners. We note a number of success stories, including Kenya, South Africa and (potentially) Nigeria, whose policy innovations have replication potential in other Sub-Saharan African countries and beyond.

The project pool: where investment is happening. Approximately $9 billion in private investments have been recorded between 1990 and 2011 in the Sub-Saharan electricity sector, via management and lease contracts, concessions, divestitures and greenfield investments or independent power projects (IPPs).[4] Although far less than the targets identified above, and less than for any other developing region, the numbers still tell an important story, with IPPs representing about 70 percent of investments. Thus, an analysis of IPPs is especially instructive in understanding the sector. It should be noted at the outset that the definition of IPPs adopted here includes mid- to large-scale projects (i.e. in excess of forty MW), holding long-term power purchase agreements with the primarily state-run utilities. There are approximately twenty-five such projects across a dozen countries, and several more in the pipeline.

Table 1: PPI in SSA Electricity Sector 1990-2011 (US$ million)



Note: Management contracts, while numerous, account for nominal investment (approximately $5 million) and therefore have been excluded from this graph.

There are several notable trends in the IPP data. First, after pioneering experiments in Côte d'Ivoire, Senegal, Kenya, Ghana and Nigeria, investment has clustered somewhat. Kenya in particular has become recognized as an IPP destination, with four established IPPs and six more in the pipeline, including an addition to an existing geothermal producer. Kenya accomplished this by building institutional frameworks to plan, procure and contract IPPs and, most recently, by proffering partial risk guarantees within an evolving framework to safeguard investments against regulatory uncertainty — innovations not seen across the rest of the region. The second important trend is that some of the original IPP developers, many from North America, have left, including the now-defunct Enron. By contrast, sponsors that evolved from international development institutions are demonstrating a more enduring commitment to the continent, together with development finance institutions (DFI). Third, IPPs have arisen in countries where they may be linked to other infrastructure developments; they have helped to monetize local gas reserves in several countries, including Cameroon, Nigeria, and Tanzania. There are plans underway to do so in Ghana as well. Similarly, hydro IPPs are emerging as new and significant forces, led by Uganda's $860 million project at Bujagali, the largest such private investment across the entire Sub-Saharan Africa electricity sector over the past two decades. Likewise, the South African renewable-energy IPP program and Nigerian power sector reforms (discussed below) will raise tens of billions of USD (the first round in South Africa has already resulted in the financial closure of U.S. $5.5 billion. Finally, non-OECD sources of finance, especially Chinese, are playing an increasingly important role. The contribution of privately financed power projects is growing, and IPPs are diversifying patterns of energy, finance and ownership in the African power sector.

Public vs. private funding.

Originally, IPPs were intended to introduce private investment into otherwise under-funded state-run electricity sectors. By adopting a project finance structure, sponsors limited their exposure, due to the non-recourse and/or limited recourse nature of the special purpose vehicles (SPV) used. In practice, however, while private funds have been engaged, there have also been considerable public funds, both from domestic and foreign sources, and exposure has not always been limited.

On the equity side, more than 30 percent of the project pool over the last two decades has seen involvement from state agencies. This includes both of Cameroon's IPPs, Takoradi II in Ghana, Iberafrica in Kenya (via the Kenya Power and Light Company's pension fund), two Nigerian IPPs through the Nigerian National Petroleum Corporation, and Tanzania's Songas project, which involves both the state-owned utility and petroleum company. The government of Uganda holds a 10 percent stake in Bujagali, and Zesco, the state-owned utility of Zambia, is an equity stakeholder in Itezhi.[5] Some of this involvement is nominal, such as Uganda's, but the two Nigerian plants cited above are 60 and 55 percent, respectively.[6] In terms of evolution, the

presence of public stakeholders does not appear to be dwindling, and there is also a considerable focus on state ownership of assets, including Orapa in Botswana, a ninety MW project originally intended as an IPP, and the next large-scale hydro in Uganda (Karuma, 600 MW). While more prominent on the debt side, foreign public funds are noted as equity partners in about 25 percent of IPP projects, often as private-sector investment arms of multilateral and bilateral lenders.

Project debt typically makes up at least 70 percent of funding for IPP SPVs, and nearly every IPP in Sub-Saharan Africa over the past twenty years has seen some form of public foreign involvement in its debt, generally through multilateral or bilateral concessionary loans.[7] Nonetheless, Sunon Asogli, Ghana's second IPP, saw 40 percent of its debt financed by the China Africa Development (CAD) Fund, part of the Chinese Development Bank (CDB). Furthermore, CDB is helping to finance Zambia's 750 MW Kafue Gorge Lower Hydro Project. The proposed Western Corridor gas infrastructure project in Ghana, which has implications for the country's IPPs, is anticipated to be funded via a $3 billion loan from CDB.

The prominence of public involvement, especially from non-OECD lenders, is important because there has been such limited appetite for IPPs across Sub-Saharan Africa, given their considerable risk.[8] Although security arrangements are available, they are often insufficient to overcome investment woes, necessitating the continued assistance of public funds.

Paving the way for more power: PRGs and new funding partners and strategies. Despite gross underfunding, there are success stories on the African power horizon, as witnessed by recent IPP developments in Kenya, South Africa, and Nigeria. Partial risk guarantees are helping, as are new and resilient project sponsors.

PRGs and the public broker. In an environment where power markets are underdeveloped and distribution companies have a history of insolvency, investors have been somewhat assuaged by a host of credit enhancements and security arrangements. These have evolved considerably since the first IPPs took root.

Take Kenya, presently among the most popular IPP spots in the region. In 1996, at the dawn of its first private power investment, sovereign guarantees were not extended because IPPs were supposed to free the government's balance sheet from such contingent liabilities. Approximately fifteen years later, as Kenya gears up for its fourth wave of IPPs, partial risk guarantees are finally part of the deal for four power plants, totalling approximately

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300 MW. Provided by the World Bank Group's International Development Association, and potentially the African Development Bank, and supported by political risk cover from the Multilateral Investment Guarantee Agency, the PRG guards against the risk of the government (or a government-owned entity) failing to perform its contractual obligations. Kenya's government is in turn required to counter guarantee, but the liability is small - an estimated $166 million rather than $4.3 billion for the entire payment.[9] Other projects to benefit from the PRG include Côte d'Ivoire's Azito (288 MW), Uganda's Bujagali (250 MW), and Cameroon's Kribi (216 MW).[10] The PRG has also just been introduced to Nigeria's power-sector reform to back the newly created 'bulk electricity trader' and reassure new investors.

In projects without PRGs but with DFI involvement, the security arrangements and credit enhancements are similar, with DFIs generally accepting the political risks. It is important to reiterate the public sector's role in African IPPs, which were initially thought to be exclusively privately run. Again, while DFIs cannot outlay $20 billion annually, they can help to create an enabling environment.

Powering SSA: a different breed of project sponsors. Sub-Saharan African IPPs have not been entirely devoid of private investors. Major players in the global electricity market, including American firms AES and Duke Energy, and French giant Electricité de France, have made important investments in Cameroon, Côte d'Ivoire, Kenya, and Nigeria. Smaller Malaysian firms Westmont and Mechmar were among the first to make inroads into Kenya and Tanzania, during a period in which Malaysia faced a power surplus. However, there are two important developments among equity sponsors, which help characterize African IPPs.

Until recently, the two firms that were increasing their stakes were Globeleq and Industrial Promotion Services (IPS), the former UK-based and the latter headquartered in Kenya. Together, the firms hold major shares in projects in Côte d'Ivoire, Kenya, Tanzania, and Uganda. Although a smaller player than either Globeleq or IPS, Aldwych International, also based in the UK, has made significant inroads via Rabai in Kenya and is considering further expansion. These firms are all driven by commercial interests, but they emerged from agencies with strong commitments to social and economic development. Globeleq remains wholly owned by Actis, which originated from the private-sector promotion arm of the UK Department for International Development. IPS is the operating arm of the Aga Khan Fund for Economic Development, investing only in projects with a high developmental impact.[11] Aldwych International is an initiative of the Dutch FMO. While projects for these firms have to make commercial sense, they must also serve a developmental function, helpful in the face of African risk.

Indian and Chinese firms have also identified investment opportunities in Sub-Saharan Africa. Tata, India's largest private integrated electricity firm, holds a 50 percent equity stake in Zambia's Itezhi, alongside Zesco. Like

many of its American and European counterparts, Tata has mobilized funding from the Export and Import Bank of India, which has agreed to a $50 million loan for Itezhi and is presently in negotiations for additional funding. In May 2012, Tata, via a South African joint venture, was selected as the preferred bidder for both the 139MW Amakhala wind farm project and the 95MW Tsitsikamma wind farm project; it was also in the running for Nigeria's brownfield generation assets.

Chinese firm Shenzhen partnered with a local strategic investor, Togbe Afede XIV, to get the Sunon Asogli project off the ground in Ghana, with help from CAD Fund loans. A joint venture between the Chinese firm Sinohydro and Zesco is leading development of Kafue Gorge Lower Hydro Project, also supported by CDB. In addition, China-Africa Sunlight Energy has been licensed by the Zimbabwe Energy Regulatory Authority to develop a 120 MW plant for harnessing coal bed methane. It was among the first IPPs in the country to announce unbundling of the state-owned transmission and distribution company. Furthermore Chinese equity involvement exists in Nigeria, albeit in brownfield investments, through Shanghai Municipal Electric Power of China (for the soon-to-be divested Ugheli power plant) and China International Water Electric and China Three Gorges Corporation (anticipated for the Shiroro electric power plant).[12] It is important to acknowledge that while some Indian and Chinese investors are making inroads into IPPs, the efforts are largely led by one private Indian firm (Tata) across a handful of projects, or by a number of different Chinese firms. These are not nationally-led takeovers of the continent's assets by BRIC countries, but represent smaller investment developments in which OECD investors have expressed little interest.[13] Furthermore, with the investment gap at $20 billion annually, there is no shortage of opportunity for development.[14]

Success stories.

Green Power in South Africa:

At long last, IPPs are emerging in South Africa and could, as an alternative to the state-owned generator, Eskom, and as part of an 18,800 MW renewable energy program, radically change the electricity landscape. It represents Africa's largest renewable energy program, largest IPP development, and potentially, most complex public-private procurement.

The South African IPP program is further distinguished by the fact that it advanced competitive bids for renewable energy (REBIDs) rather than the more commonly adopted feed in tariffs (REFITs), demonstrating that the former could attract investors and bring real competition to a small renewable market. REBID attracted 58 bids in round one, of which 28 qualified, incorporating a total of 1,416 MW; 79 bids were submitted in round two, with 51 qualifying. Credit for this success belongs to a number of factors, including a well-designed procurement process that engaged 75 local and international transaction advisors to help plug a knowledge and experience gap. The flexibility in the design of subsequent bid rounds has also been cited as a major boon. Specifically, capacity in the first round exceeded the market's

capacity; it was reduced in round two to improve competition, resulting in large bid-price decreases.[15] Not only is there potential for these lessons to apply to neighboring African countries, but investors who have met with success in South Africa could make inroads into other African nations, similar to the Nigerian experience.

Ripple effect, from brownfields to green in Nigeria:

While not 'new' power, Nigeria's formerly state-owned assets are in the process of being divested. As of October, five preferred bidders had been announced for generation assets and ten for distribution assets. These investments are significant for a number of reasons. Nigeria's power landscape is vast and complex and its track record of reform has been uneven, due to political interference and years of neglect. Available capacity is less than 5,000 MW for the largest population in Africa, and off-grid generators prevail. Attracting investors into such an environment, where distribution insolvency is the rule, is daunting, but it seems to be happening. The World Bank's PRG is helping to facilitate via the bulk electricity trader, and this brokerage role has been pivotal in raising investor confidence. Nigerian and Chinese investors are both playing a central role, along with other, lesser-known sponsors, including from Israel and Russia. Although the planning process has been interrupted by different political administrations and the involvement of different government agencies, the current approach with strong executive oversight may bring about more coherency. Also in the works is an overhaul of the gas sector, which should move the country toward a more dependable fuel supply for its power projects, a severe hindrance over the past decade. This first $700 million is therefore critical for a process of reform and investment that aims to reach 40,000 MW in Nigeria by 2020.[17]

Many stakeholders hope that Nigeria's recent investment experience will be replicated elsewhere in the region, like that of South Africa and Kenya, and that emboldened investors will work in collaboration with government and nimble financiers toward a balanced and sustainable risk-reward scheme.

Conclusion. Despite the financial crisis, investment in the power sector in Sub-Saharan Africa has held up remarkably well. Private investment in greenfield IPPs post-2008 has been roughly the same as average annual investment levels in the late 1990s and early 2000s, the previous IPP peak investment period. South Africa and Nigeria will soon account for a step-change in these levels. But new developments are not restricted to these two large economies. Medium-sized countries such as Kenya, Ghana and Zambia are also seeing renewed activity. Greater use of PRGs is helping to take these projects forward, as is the persistence of a handful of development-minded project sponsors and DFIs that continue to pursue projects in difficult investment climates. Africa's huge hydroelectricic potential is being unlocked, as are new gas finds. And non-OECD sources of funding, especially from China, are making this possible. The investment story in Africa's power sector is entering an exciting new chapter.

NOTES

1 Anton Eberhard and Maria Shkaratan, "Powering Africa: Meeting the financing and reform challenges," *Energy Policy* 42 (2012): 9.

2 Anton Eberhard, Orvika Rosnes, Maria Shkaratan, and Haakon Vennemo. *Africa's Power Infrastructure: Investment, Integration, Efficiency* (Washington: The World Bank, 2011), 54-58.

3 *Ibid*, 154.

4 'Greenfield' investments refer to investments in new projects, in contrast to 'brownfield' investments, which refer to investments in existing infrastructure. The World Bank, "Private Participation in Infrastructure Database," Internet, http://ppi.worldbank.org/ (date accessed 3 September 2012).

5 For the latter two projects (Bujagali and Itezhi), both large-scale hydro, state involvement may be understood in a different light, due to the relative size of the projects vis-à-vis the electricity sector, and the fact that hydro power has traditionally been seen as a strategic asset.

6 Anton Eberhard and Katharine N. Gratwick, *When the Power Comes: An analysis of IPPs in Africa* (Tunis: The Infrastructure Consortium for Africa, 2011), 35-6.

7 This includes dedicated private-sector investment arms of multilateral and bilateral lenders, such as the International Finance Corporation (IFC), the Netherlands Development Company (FMO), and the French Development Company (PROPARCO).

8 Katharine N. Gratwick and Anton Eberhard, "Demise of the standard model for power sector reform and the emergence of hybrid power markets," *Energy Policy 36* (2008): 3955; Anton Eberhard and Katharine N. Gratwick, 2011, 41.

9 David Mwangi, personal communication, 12 September 2012.

10 It should, however, be noted that PRGs are not necessarily appropriate for all SSA IPPs since they are typically used in situations where the project is large (or in the case of Kenya, when projects have been grouped), the country is in an early stage of reform and/or has made clear reform intentions and when there are commercial lenders. Furthermore, the government of the country has to request the PRG; thus, it must be a significant project in the eyes of both the government and the World Bank, which explains why this instrument was used for Azito and Bujagali, and most recently for Kribi and Kenya's next four IPPs (Diane Rudo, personal communication, 14 May 2010.)

11 IPS, personal communication, 24 May 2010.

12 Although it has garnered considerably more attention, Chinese involvement in the continent's state-owned hydro dams–that is, not IPPs–is largely beyond the scope of this article, including Merowe Dam in Sudan, Bui Hydro in Ghana, and Ethiopia's Tekeze hydro dam.

13 Brautigam seeks to de-sensationalize China's involvement in Africa and highlight important investment in services, as well as infrastructure and resource development across the continent. (Deborah Brautigam, *The Dragon's Gift: The Real Story of China in Africa* (New York: Oxford University Press, 2009)). Moody and Nan recount the staying power of Chinese firms and their ability to contend with the risks that most SSA markets present and from which some OECD investors shy away (Andrew Moody and Zhong Nan, "Track Record," Internet, http://usa.chinadaily.com.cn/weekly/2012-06/29/content_15534113.htm (date accessed: 20 September 2012)).

14 The World Bank's Private Participation in Infrastructure (PPI) database identified thirteen energy projects in 2011 which reached financial closure, nine of which were new projects. "By total project investment the top five sponsor countries were: United States (Contour Global and Symbion Power LLC), China (Shenzhen Electric), India (Tata Enterprises) co-investing with Zambia (ZESCO), Israel (Ormat Turbines) and Turkey (TUTEN) co-investing with Botswana (Kalahari Energy)," (Robbert van Eerd and Andreea Militaru, "Private activity in infrastructure in Sub-Saharan Africa falls to 6-year low," *PPI data update note* 79 (September 2012)).

15 Anton Eberhard, "The Renewable Energy Procurement Process in South Africa: Potential Lessons for other Countries," *Viewpoint* (2012).

16 Anton Eberhard and Katharine N. Gratwick, *Light Inside: the Experience of Independent Power Producers in Nigeria* (Tunis: The Infrastructure Consortium for Africa, 2012).

17 Presidential Task Force on Power, *Nigeria's Power Crisis: Light at the End of the Tunnel* (Abuja: Government of Nigeria, 2011).