

# **The Kenyan IPP Experience**

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## About The Experience of Independent Power Projects in Developing Countries Study

Private investment in electricity generation (so called "independent power producers" or IPPs) in developing countries grew dramatically during the 1990s, only to decline equally dramatically in the wake of the Asian financial crisis and other troubles in the late 1990s. The Program on Energy and Sustainable Development at Stanford University is undertaking a detailed review of the IPP experience in developing countries. The study has sought to identify the principal factors that explain the wide variation in outcomes for IPP investors and hosts. It also aims to identify lessons for the next wave in private investment in electricity generation.

PESD's work has focused directly on the experiences with IPPs in 10 developing and reforming countries (Argentina, Brazil, China, India, Malaysia, Mexico, the Philippines, Poland, Thailand and Turkey). PESD has also helped to establish a complementary study at the Management Program in Infrastructure Reform & Regulation at the University of Cape Town ("IIRR"), which is employing the same methodology in a detailed study of IPPs in three African countries (Egypt, Kenya and Tanzania).

### About the Authors

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This paper was written by a researcher (or researchers) who participated in the PESD study *The Experience of Independent Power Investment in Developing Countries*. Where feasible, this paper has been reviewed prior to release. However, the research and the views expressed within are those of the individual researcher(s), and do not necessarily represent the views of Stanford University.



# The Kenyan IPP Experience

*Anton Eberhard<sup>1</sup> and Katharine Gratwick<sup>2</sup>*

## I. Introduction: IPP challenge

Prior to the introduction of independent power projects (IPP), Kenya relied primarily on concessionary funding from multilateral and bilateral agencies to finance new power investments. In the 1990s, however, the global donor trend shifted toward private participation in infrastructure with concessionary funding being targeted at health and social services. This move away from development finance for power projects was aggravated by a general aid embargo, imposed on Kenya throughout the early and mid-1990s, for reasons linked to corruption and lack of advancement in the creation of a multi-party state, which affected all sectors, including power. Thus, a platform of reform for opening up the country's generation sector to private participation gradually emerged in the mid-1990s, paving the way for contracting the first set of IPPs in 1996 (McEwan 2001).<sup>3</sup>

This paper<sup>4</sup> examines Kenya's experience with private participation in the electricity sector, focusing on four independent power projects (IPP) at the generation level.<sup>5</sup> The first part of the paper provides a brief overview of the IPPs, followed by a discussion of the electricity sector including reforms undertaken to date. Part two involves an analysis of the development and investment outcomes, namely the extent to which the country and the investors benefited from the projects and whether such projects will be replicated in the future.

While the early 1990s ushered in a new model for financing infrastructure projects, by the end of the decade developing countries saw foreign direct investment drop

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<sup>3</sup> Selected interviews and correspondences with personnel from KPLC, MoE, ERB and KenGen, January 2005.

<sup>4</sup> The paper is part of a global IPP study, led by Stanford University's Program on Energy and Sustainable Development (PESD), which includes detailed reports on twelve different countries. The overarching purpose of the study is to evaluate the IPP experiences across a number of countries and projects and thereby glean best and better practices for the future. See <http://pesd.stanford.edu/docs/ipps.php> for information on PESD IPP study.

<sup>5</sup> A country overview including population facts may be found in Appendix A.

precipitously. From a high of US\$ 14 billion in 1996, investment in power projects dropped to a mere US\$ 3 billion in 1999 and to zero in 2000 (Sader 1999). A similar pattern was seen in sub-Saharan Africa (SSA), which reached a peak of US\$0.8 billion in 1998, then fell to zero in 2000 (Private Participation in Infrastructure 2003). Meanwhile, with limited public funding currently available, countries are once again faced with the challenge of how to meet electricity demand going forward. The Kenyan country study aims to address this investment conundrum through a detailed analysis of past and present power sector developments.

## II. IPP Background

Kenya developed four IPPs, for a combined capacity of 190 MW or just under 12% of the total installed capacity in the country, as detailed in Table 1.

**Table 1: Kenya's IPPs**

Projects <sup>6</sup>	Size (MW)	Cost (US\$ million)	Fuel	Contract type	Contract Yrs	Project tender-Project operation
<b>Westmont</b>	46	20	Gas turbine, burns kerosene/gas condensate (barge-mounted)	Build Own Operate (BOO)	7	1996-1997
<b>Iberafrica</b>	56	65	Medium speed diesel, burns HFO	BOO	7, 15	1996-1997
<b>Tsavo<sup>7</sup></b>	75	85	Medium speed diesel, burns HFO	BOO	20	1995-2001
<b>OrPower4<sup>8</sup></b>	13	54	Geothermal	BOO	20	1996-2000
<b>Total</b>	190	224	-	-	-	-

### a. Sector reforms

Kenya's Electricity Supply Industry (ESI) reforms have focused primarily on the generation sector, for which public funding was lacking throughout the 1990s, i.e. there were no publicly-funded plants between 1991 and 1998, despite the fact that expansion plans for a

<sup>6</sup> In addition, three emergency power plants, owned and operated by private companies, Cummins, Deutz and Agrekko, totaling 105 MW, were rented for 1.5 years between 1999-2001 to plug the power shortage during the drought.

<sup>7</sup> The Tsavo plant, which is owned and operated by Tsavo Power Company (TPC) is also commonly referred to as Kipevu II. For the sake of clarity, the authors will use 'Tsavo' throughout this paper.

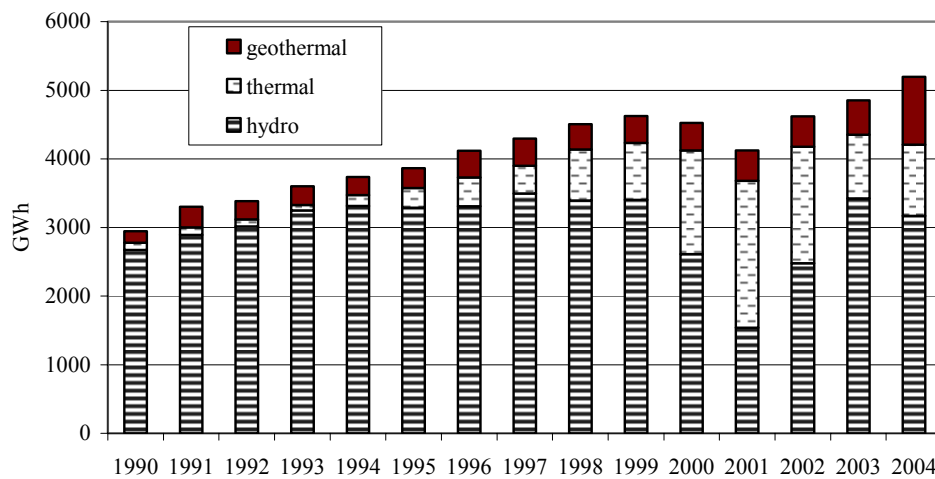
<sup>8</sup> The OrPower4 plant, which is owned and operated by Ormat, is also commonly referred to as Olkaria III. For the sake of clarity, the authors will use 'OrPower4' throughout this paper.

series of plants had been drawn up as early as 1991 by the national generator with implementation slated for 1994 and beyond.

In 1996, the Government of Kenya (GoK) officially liberalized power generation as part of a power sector reform effort (IFC 1999). From this time onward, it became government policy that all bids for generation facilities would be put out for competition, open to both public and private firms, i.e. the national generator would receive no preferential treatment.

At the time, the sector was dominated by hydropower. All economically viable hydro sites had, however, been exploited and therefore diversification became necessary both for drought mitigation and to meet growing demand.

**Figure 1: Electricity production by resource (1990-2004)**



Source: KPLC, selected correspondence August 2005.

Among the first reforms to take place after the official liberalization was the unbundling of the state utility in 1997. Kenya Generating Company Limited (KenGen), which remained entirely in state hands, became responsible for all generation assets. Kenya Power & Lighting Company Limited (KPLC) assumed responsibility for all distribution and transmission. The state owns 51% of KPLC, with the balance of shares traded on the Nairobi Stock Exchange.<sup>9</sup>

At this early stage of reform, the ESI lacked an independent regulator. It was not until the Power Purchase Agreements (PPAs) of both Westmont and Iberafrica had been signed with KPLC, and the plants had been commissioned in 1997 that the regulator was established, through the 1997 Electric Power Act. It took another year for the Electricity Regulatory Board

<sup>9</sup> Of the 51%, approximately 10% is owned by the National Social Security Fund. The government's direct stake is therefore only about 40%. Private KPLC shares had been traded on the Nairobi Stock Exchange (NSE) as early as 1954 when the NSE was started. Prior to that, the firm was listed on the London Stock Exchange (selected correspondence from Ministry of Energy, April 2005).

(ERB) to start operations. Although not involved with the first set of PPA negotiations, ERB maintains that it has monitored all IPPs since its inauguration in 1998, as per its mandate.

Private participation in generation picked up again in 1998, when the PPA with OrPower4 to develop between 28 and 100 MW of geothermal power, was finally signed—marking the third IPP (after Westmont and Iberafrica). Within another two years, the PPA for the fourth IPP, to be developed by Tsavo Power Company (TPC), sponsored by Cinergy-IPS, Wartsila, the International Finance Corporation (IFC) and Commonwealth Development Corporation (CDC), was signed.<sup>10</sup>

Two UK-based consultancies (legal and engineering) assisted KPLC during procurement of the first two IPPs while the World Bank financed some advisors to support the government with negotiations. The same two UK-based consultancies were again engaged to provide support during the procurement of Tsavo and OrPower4, but this time under funding assistance extended to the government by the World Bank.

Meanwhile, Kenya was experiencing, by the end of the 1990s, continuously mounting demand and finally a resumption of public funding. As a result, attention turned once again to KenGen and its long postponed expansion plans: Kipevu I, a 75MW diesel plant and an additional unit of 80 MW at the existing Gitaru hydro facility. In addition, the World Bank together with the European Investment Bank (EIB), Germany's Reconstruction Loan Corporation (KfW) and the government of Kenya, funded a 64MW geothermal plant, Olkaria II, which came into commercial operation in late 2003. These investments were not open to general competition with the private sector, contrary to previous policy statements.<sup>11</sup>

The next major change to impact generation reform was the drought starting in 1999, which prompted the Ministry of Energy to negotiate three emergency diesel-fired power plants.<sup>12</sup> These plants are largely considered outside the purview of the ESI reform, even though they were operated by the private sector, due to the fact that contracts lasted only a year and a half.

The most significant impact of the drought was that it required KPLC to seek out more costly power, which not only financially enfeebled the firm but also led to inflated prices for the consumer, as both foreign exchange and fuel costs are passed through in part.<sup>13</sup> With IPPs associated with higher cost power, the drought led to public outcry against private

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<sup>10</sup> Cinergy-IPS, the majority shareholder in TPC is a joint venture between Cinergy Global Power Inc and Industrial Promotion Services (Kenya) Ltd. As of May 2005, Duke Energy has bought Cinergy's stake.

<sup>11</sup> Selected interviews and correspondence with personnel from KenGen, January and February 2005.

<sup>12</sup> It was estimated by the World Bank that without the emergency power facilities, losses to the economy would amount to US\$400 million or about 4% of GDP over the period of a nine-month span, with costs for emergency power facilities estimated at US\$110 million (World Bank. Emergency Power Supply Project, September 14, 2000.).

<sup>13</sup> KPLC did not, however, bear the financial burden for the three emergency power plants, as discussed in the next section.

sector participation, which was seen to be taking advantage of a poor country in a dire situation.

Allegations of corruption in the power sector, together with a call to reduce tariffs, gained momentum. The new government, which came to power in December 2002, on the heels of the drought and a drought-induced recession, pledged specifically to address ESI reform and reduce tariffs. Among its first measures, the National Rainbow Coalition charged the Nyanja commission with investigating alleged corruption in the electricity and petroleum sectors. By December 2003, the Nyanja report was issued, indicting personnel in KPLC, Westmont and Iberafrica for corruption and flawed PPAs (*Kenya Risk* 2004). The Nyanja findings have not, however, led to significant changes in the sector, with the integrity of the commission itself being questioned along with the thoroughness of its investigation.<sup>14</sup> While the Nyanja findings have been marginalized, ERB's efforts to maintain tariffs "as low as reasonably possible" have been ongoing—before, during and after the commission's investigation, as per the Board's duties.

**Table 2: Comparison of all plants (total generation nominal cost per unit Kenya Shilling Ksh/kWh)**

Supplier	1999/2000	2000/01	20001/02	2002/03	2003/04	July-Dec 2004/
Iberafrica	8.7	10.2	10.2	10.9	10.4	6.4
Westmont	10.4	11.1	13.5	33.8*	59.7*	54.8*
OrPower4	-	6.1	6.6	6.4	7.1	6.1
Tsavo	-	4.2	5.6	6.8	11.1*	7.5
UETCL (imports)	5.3	5.5	4.8	4.4	4.4	4.4
KenGen Thermal	8.3	9.4	7.0	7.3	5.2	7.1
KenGen Non-Thermal	2.4	2.5	2.5	2.4	2.2	1.8
KenGen Overall	4.0	4.9	3.1	2.8	2.2	2.4
Mumias (bagasse)	-	6.6	6.7	-	-	-
EPPS (leased plant)	-	7.2	-	-	-	-
Annual weighted average cost per unit from all sources	4.6	6.1	4.4	4.0	3.3	3.6

NOTE: IPP tariffs are a function of the capacity charge as well as volume of energy generated and the prevailing fuel prices. \*These particularly steep costs reflect the following situation: in 2002-2004, there were more favorable hydrological conditions in Kenya hence the unit cost from thermal plants was high since the capacity charges are paid regardless of the amount of generation.

Source: KPLC, correspondence January, March and April 2005.

The future of the ESI reform is expected to involve an initial private offering (IPO) of KenGen, with 30% of the national generator privatized by 2007; some reports indicate that this may happen as early as end-2005 (*Kenya* 2005 and *KenGen prepares IPO* 2005). As for new generation capacity, the primary development is a 70 MW geothermal facility, Olkaria

<sup>14</sup> Repeated attempts to obtain a copy of the Nyanja report were made through a range of stakeholders including at the MoE, ERB, KPLC, KenGen and each of the IPPs, but report proved unavailable for public consumption.

IV, which stakeholders indicate will undoubtedly be built by KenGen. Work is also underway on the second phase of Sondu Miriu, a 60 MW publicly-financed hydropower plant slated to come on line by 2006, which was initially planned for the early 1990s but was abandoned in the aftermath of Turkwel,<sup>15</sup> the aid embargo and environmental concerns. Joint-ventures with the state utility are also under consideration.<sup>16</sup>

Also in the pipeline is the separation of transmission and distribution with a national Transco slated for end-2006. It has been hinted that future IPPs might have to compete more fiercely with interconnections, including that with Uganda, Tanzania and other SADC countries. Government oversight has been and is expected to continue increasing, and some stakeholders even speculate that government guarantees may be part of future IPP negotiations.

**Table 3: Kenya Electricity Sector Developments**

Date	Development
1922	East African Power and Lighting Company formed and held by private investors (present-day KPLC's predecessor)
1954	Kenya Power Company (KPC), 100% government owned, established to transmit power from Uganda through the Tororo-Juja line (KenGen's predecessor); KPC managed by KPLC under management contract, i.e. establishing fully-integrated utility
1970	Government of Kenya obtained majority shares in KPLC
1991-1994	Aid embargo impacting all sectors
1995	Tenders for two IPPs initiated by MoE: one diesel (Tsavo), the second geothermal, (OrPower4)
1996	Government of Kenya decided to formally introduce competition into the generation sector
1996	Tenders for two additional "stop-gap" IPPs issued by KPLC, PPAs with Westmont and Iberafrica signed; plants commissioned one year later
1997	Electricity Regulatory Board (ERB) established under the 1997 Electric Power Act and subsequently ERB inaugurated in 1998
1997	KPLC and KPC unbundled and KPC subsequently named KenGen
1998	OrPower4 PPA signed for between 28 and 100 MW
1998	Tsavo PPA signed for 75 MW
1999, 2000	ERB sets new retail tariffs
1999-2000	KenGen resumed its expansion plans adding Kipevu I (Diesel) and Olkaria II as well as an expansion at Gitaru hydro, which had been planned in early 1990s
1999-2001	3 emergency IPPs introduced during drought (Aggreko, Cummins and Deutz)
2000	OrPower4 began to operate an early generation facility of 9 MW in June 2000 and added additional 4 MW for a total of 13 MW six months later; firm indicated that it could provide up to 48 MW following a resource assessment, assuming government guarantees provided
2000	Tsavo PPA finalized and plant commissioned in 2001
2003	KenGen reduced tariffs (as set in 1999) from Ksh 2.36/unit to Ksh 1.76/unit
2003	Nyanja commission issued its report on the electricity and petroleum sectors, personnel

<sup>15</sup> The 106 MW Turkwel hydro plant, which was tendered in the late 1980s, came on stream in 1991 and funded principally by the French Development Agency, was considered to be more costly than warranted, causing a degree of donor wariness around further power development projects. Despite the controversy surrounding the Turkwel plant, according to selected personnel at the Ministry of Energy, the plant remains one of the country's most reliable power assets (correspondence, Ministry of Energy, April 2005).

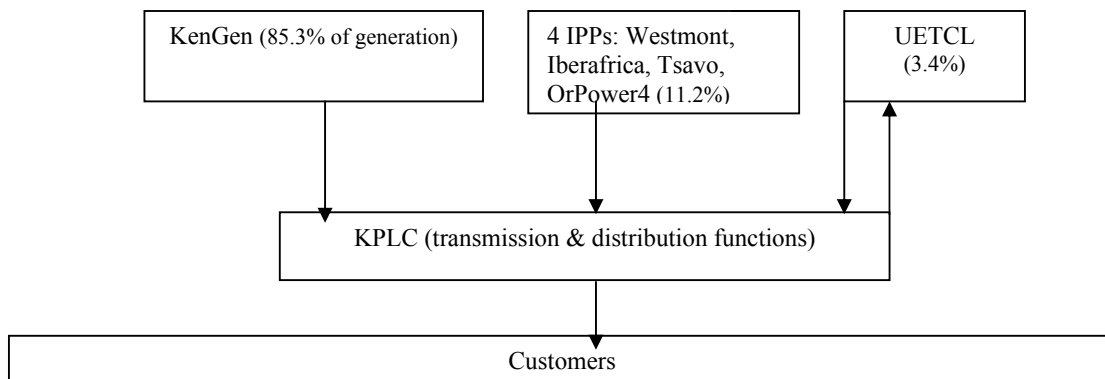
<sup>16</sup> As of September 2005, KPLC has invited bids for a new 80 MW thermal plant, BOOT arrangement, operational by June 2007 (Africa Electra, #33).

	from Westmont, Iberafrika and KPLC indicted (among others) for flawed PPAs
2004	Iberafrika signed 2 <sup>nd</sup> PPA for 15 years; Westmont stopped operating after the completion of its initial 7 year PPA
2004	New energy policy approved by Parliament and a new Energy bill, amending 1997 Energy Act expected to become law later in 2005, which would introduce a number of changes, including increasing ERB's mandate
2005	Plans currently underway for government to sell 30% of its stake in KenGen

Source: Selected interviews and correspondence with personnel from KPLC, KenGen, ERB, Ormat, Iberafrika and MoE, January-February 2005.

Immediately below is a schema of the current ESI. As of 2005, the Kenyan ESI consists of five different generation companies, and one integrated transmission and distribution company. Despite reforms and the introduction of IPPs, generation remains dominated by KenGen, which provides approximately 85.3% of all electric power in Kenya. The remaining four generation companies, which contribute about 11.2% of Kenya's power, are the independent power producers (IPP), with majority stakes owned respectively by Westmont<sup>17</sup>, Union Fenosa, Cinergy (Duke)-IPS<sup>18</sup>, and OrPower4. Imports from the Uganda Electricity Transmission Company (UETCL) meet about 3.4% of Kenya's demand.<sup>19</sup> Finally the Rural Electrification Programme (REP), administered by KPLC and initiated in 1973, provides the balance of 0.2%, mainly in remote, isolated grids.<sup>20</sup> Transmission and distribution is owned and operated by KPLC (Kenya Power & Lighting Company 2004 and SAD-ELEC 2004).

**Figure 2: Kenya Electricity Supply Industry**



<sup>17</sup> As of late 2004, Westmont is no longer in operation.

<sup>18</sup> Duke Energy has now purchased Cinergy (see footnote 8).

<sup>19</sup> Uganda supplies Kenya during low load periods, especially after midnight, as Uganda has no reservoir regulation. During peak hours, Kenya in turn supplies Uganda with 10 MW (selected correspondence from Ministry of Energy, April 2005).

<sup>20</sup> REP was bolstered by the Electric Power Act 1997, which established the Rural Electrification Programme Fund (REF). REF is supported by a 5% levy on all electricity consumed.

The Electricity Regulatory Board, which is directed on policy measures by the Ministry of Energy, regulates the generation, transmission and distribution of electric power in Kenya.

Specific ERB duties are to:

- Set, review and adjust tariffs for all persons who transmit or distribute electrical energy, based on a rate-of-return methodology with the majority of fuel costs and foreign exchange passed through to the consumer on a monthly basis. *The last two tariff reviews occurred in August 1999<sup>21</sup> and May 2000<sup>22</sup> during the power emergency caused by the drought situation; the current proposal in the 2004 Energy Bill, with expected passage by Parliament in mid-2005, is to review tariffs every five years;*<sup>23</sup>
- Investigate tariff structure even when no specific application for a tariff adjustment has been made;
- Enforce environmental, health and safety regulations in the power sub-sector;
- Investigate complaints made by parties with grievances over any matter required to be regulated under the Electric Power Act;
- Ensure that there is genuine competition where this is expected; and
- Approve electric power purchase contracts and transmission and distribution service contracts between and among electric power producers, public electricity suppliers and large retail customers. Approval of the PPA involves ensuring that tariffs are as low as reasonably possible, investor returns are reasonable, and safety is guaranteed for consumers. ERB's benchmark return is based on a World Bank benchmark of 12%.

To date government has never overturned an ERB decision. While the Board maintains a significant degree of autonomy, in the six years of its operation, it has had five different chairmen (all appointed by the President), which has undermined the institutional memory and capacity of the organization.<sup>24</sup> The ERB's role should widen to include regulation of the energy sector (including petroleum), assuming the proposed new energy bill passes Parliament.

As of 2004, KPLC served around 686,000 customers. According to the Kamfor Study, the latest assessment carried out by the Ministry of Energy in 2000, 15% of the Kenyan population has access to electricity, with access in urban areas measuring 47% and that in rural areas a mere 3.8%.<sup>25</sup> Although accounting for 85% of all customers, domestic and small commercial and industrial users represent just 36% of total revenue.

**Table 4: Kenya Electricity Customer Categories & Tariffs**

Category	GWh	Customers	Total Revenue	Avg tariff price	Avg tariff price
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<sup>21</sup> In the 1999 tariff change, ERB was assisted by a cost-of-supply study undertaken by consultants PB Power (Selected interviews with ERB, March 2005).

<sup>22</sup> The 2000 change was simply a removal of off-peak tariffs due to the power rationing (selected correspondence, Ministry of Energy, April 2005).

<sup>23</sup> Kenya also has a life-line tariff for the first 50 kWh of consumption that applies to all domestic consumers. Efforts are currently underway by ERB to target this subsidy to the vulnerable members of society. Furthermore, Kenya maintains a uniform national tariff, i.e. no geographic differentiation, which avails a large subsidy to rural consumers. Efforts are underway to reduce cross-subsidies by industry (Selected interviews and correspondence with ERB, January and February 2005).

<sup>24</sup> Selected interviews and correspondence with ERB personnel, January and February 2005.

<sup>25</sup> Selected interviews and correspondence with personnel from ERB, January and February 2005.

			<b>Ksh (mil)</b>	<b>Ksh/kWh</b>	<b>US\$/kWh</b>
Domestic, small commercial and small industrial	1376	680,277	8885	6.46	0.082
Medium commercial and industrial	819	3,144	5329	6.51	0.034
Large commercial and industrial	1638	424	8816	5.21	0.067
Off-peak	55	918	272	4.95	0.063
Street Lighting	7	1,156	51	7.29	0.093
REP	150	93,442	978	6.52	0.083
Total/average	4045	779,361	24331	6.16	0.070

Finally, it is worth noting in this context that KPLC incurred losses from the start of the drought of 1999 until 2003-2004 when the firm achieved modest profit, i.e. KSh 457,807 after tax (US\$1 = KSh 78.09, average exchange rate for January 2005). The losses were due to the fact that KPLC budgeted Ksh 6.29/kWh in 1999 for its retail tariff (without fuel cost and foreign exchange adjustments); meanwhile, the actual average selling price was Ksh 5.66 per unit in 1999-2000 and Ksh 5.86 per unit in 2000-2001. The situation was exacerbated by: reduced sales due to drought-induced economic recession; high line losses (with the drought, the majority of the power was sourced from more remote stations in the south); increased customer payment default; increased theft; and increased fuel prices in the international market, which could not be fully passed on to consumers due to a pricing formula which assumes losses of maximum 15%.<sup>26</sup> The more recent change in KPLC's balance sheet is accredited to the fact that normal hydrological conditions have returned. KenGen also converted Ksh 12.3 billion in debt owed by KPLC into equity in September 2003 (KenGen 2003). In addition, KenGen has reduced its selling price by 25% from Ksh 2.36 per unit (as set in August 1999) to Ksh 1.76 (as agreed in July 2003 with KPLC), but still registered profits of Ksh 2,519,879,000 in 2003.<sup>27</sup> Furthermore, KPLC is no longer paying Westmont capacity charges, which amounted to US\$818,000 per month, as the developer did not negotiate a second PPA.<sup>28</sup>

#### **b) IPP Frameworks & Projects Developed**

Kenya has witnessed three different IPP frameworks, yielding seven IPPs. A fourth framework is currently underway. As noted in Section II a, in 2004, IPPs contributed 11.2% or 186.5 MW of Kenya's installed capacity.<sup>29</sup>

#### **Figure 3: Kenyan IPP Frameworks**

<sup>26</sup> When losses are higher than 15%, there is always a portion of the fuel cost that KPLC cannot recover (selected correspondence with KPLC personnel, February 2005).

<sup>27</sup> In contrast, KenGen's profits for 2002 amounted to Ksh 2,280,397 (KenGen 2003, *Annual Report*, 30 June.)

<sup>28</sup> Selected interviews with KPLC personnel, January 2005; correspondence with KPLC personnel, February 2005; The World Bank. Emergency Power Supply Project, September 14, 2000.

<sup>29</sup> This figure (186.5 MW) does not include the emergency IPPs which totaled 105 MW of power but were only active between 2000-2001.

**1<sup>st</sup>-Stop gap IPPs (2)**

- no independent regulator
- projects built in 11 months
- no project finance
- 7 year contracts
- selective international tender

**2<sup>nd</sup> -Normal IPPs (2)**

- ERB involved in PPAs
- project finance for one of the two
- 20 year contracts
- general international tender

**3<sup>rd</sup>-Emergency IPPs (3)**

- majority World Bank funding
- MoE arranged
- capacity charge borne by government
- 1 year contracts for duration of drought

**4<sup>th</sup>-underdevelopment (none)**

-government to undertake geothermal resource assessments; change in tax structure; special provisions for off grid and renewables; bilateral agreements between producers and consumers; possible BOOT arrangements; lower tariffs.

*No projects undertaken to date*

The first IPP developments occurred on the heels of the 1996 legislation opening up the generation sector to private investment. With power demand increasing, hydrological conditions weakening and insufficient public funds to build power plants, KPLC ordered two stop-gap IPPs in 1996. The PPAs stipulated seven-year contracts for two plants: a 46 MW barge-mounted kerosene burning gas turbine and a 44 MW medium speed diesel generator, burning Low Sulphur Fuel Oil (LSFO). Fifteen firms bid for these plants in what has been characterized as a selective international tender, i.e. with specific firms invited to bid. Of the 15 firms, Westmont, a Malaysian consortium, and Iberafrica, with majority shares owned by Spain's Union Fenosa, submitted the lowest bids and subsequently secured the contracts. Plants were commissioned less than a year later helping to plug the power shortage. It was here that the first IPP framework began and ended, as all subsequent plants would be developed under different conditions.

The second IPP framework, which first emerged in 1995, when tenders were initially floated, was realized starting in 1998 when OrPower4, owned 100% by Ormat, a US-Israeli firm, signed a PPA to develop up to 100 MW of geothermal power. At the time of signing, OrPower4 assumed ownership of 9 MW of existing wells. To these the firm added an additional 4 MW during the emergency power crisis of 1999-2001. Since 1998, OrPower4 has completed resource assessments of the geothermal fields, which it is leasing from the government, and has determined that the known proven geothermal reserves are 58 MW, the amount which is contractually required for a 48 MW plant. As a pre-condition to developing

the additional 35 MW, however, the firm has required a supplemental PPA, as discussed in the next section.<sup>30</sup>

A further IPP was built during this second IPP framework: a 75 MW medium speed diesel generator, burning Low Residual Fuel Oil (LRFO). The PPA, awarded to the Tsavo Power Company, was finalized in 2000, and the plant came on stream one year later (Wartsila was the initial bidder, and subsequently brought on co-bidders, IPS, IFC and Cinergy). Delays in the Tsavo plant have been attributed primarily to the financing. As Tsavo was the region's first project-financed power plant, there was little knowledge among stakeholders, and, the political risk prevalent at the time kept many potential funders at bay. In contrast to the first IPP framework, which was a selective international tender, both the OrPower4 and Tsavo plants followed international competitive bid guidelines. While this was considered a more transparent process, the competition was limited: only three firms bid for Tsavo and two (of which one was non-compliant) for the OrPower4 plant.

A third IPP framework spanned 1999-2001. By 1999, hydrological conditions had worsened. With no clear end in sight, the MoE decided to arrange a competitive bid for three emergency diesel-fuel IPPs. These units, awarded to Aggreko, Cummins and Deutz, three privately-owned foreign providers, for a combined 105 MW (587 GWh) were rented between 2000 and 2001.<sup>31</sup> Considered quasi-IPPs by some, these projects were negotiated directly between project sponsors and the government. World Bank IDA credit of US\$72 million was also made available for these plants. Due to the fact that fuel is a pass-through to consumers, however, end-users bore the bulk of the cost, with government providing a subsidy only for the duty charge.<sup>32</sup>

A fourth framework is under development, and is largely a function of the pending energy bill. Among the changes that this new framework may introduce are:

- Government ownership of the geothermal resource-assessment process through the Geothermal Development Company, which would mean that IPP developers, such as OrPower4 would not be responsible for conducting their own assessments; the entity may also sell steam (as fuel) to either KenGen and/or IPPs;
- Provisions for large consumers to purchase power directly from generators with KPLC giving unfettered access to the transmission system (for a fee);
- New tax structure for IPPs, which would ultimately prove more favorable to investors;
- Build Own Operate Transfer (BOOT) contracts (rather than BOO);

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<sup>30</sup> Selected interviews and correspondence with personnel from Ormat, MoE and KPLC, January and February 2005.

<sup>31</sup> Actual capacity installed was 99 MW as Deutz delivered 24 MW instead of the 30 MW contracted (KPLC, selected correspondence, April 2005).

<sup>32</sup> The overall high retail cost of the emergency power plants was a function of the fuel costs and the capacity charge: the fuel cost was high due to inland transportation costs and the capacity charge was high due to the short duration of contracts as well as the negative investor perception of Kenya's power sector (The World Bank. Emergency Power Supply Project, September 14, 2000).

- Special tariff regimes for off-grid developers to ensure that investments are commercially viable;
- New provisions for pico, micro and mini-hydros as well as other renewables.

### III. Analysis of outcomes

The value of IPP projects for investors and host countries and the sustainability of these projects (i.e. if contracts hold and future investments are made) depend on whether investment and development outcomes remain broadly in balance. Returns to investors have to be adequate, investment opportunities should grow and the price and reliability of power should be satisfying for electricity consumers. These investment and development outcomes are influenced by a number of country-level and project-level factors.

#### a. Country-level factors

A review of the international experience of IPPs reveals a number of country-level factors, which are particularly important in evaluating development and investment outcomes.<sup>33</sup> These factors, namely exogenous shocks, the investment climate and the electricity market, have often determined the fate a project. For instance macroeconomic shock forced workouts in numerous projects throughout South America and East Asia.

**Table 5: Country level factors that affect outcomes**

Factors	Components
Exogenous shocks	<ul style="list-style-type: none"> <li>• macroeconomic shock (especially currency devaluation)</li> <li>• drought</li> <li>• war/civil unrest</li> </ul>
Investment climate <sup>34</sup>	<ul style="list-style-type: none"> <li>• recent local and foreign private investment , i.e. precedent of private sector participation</li> <li>• investor perception based partly on history as well as:               <ul style="list-style-type: none"> <li>-state of the economy</li> <li>-political stability and independent and established legal system</li> <li>-level of corruption</li> <li>-sovereign credit rating</li> <li>-multilateral and bilateral donor commitments</li> <li>-security guarantees (including availability of sovereign guarantees)</li> </ul> </li> </ul>
Electricity Market	<ul style="list-style-type: none"> <li>• market structure (e.g. single buyer model), including role of state utility</li> <li>• role and strength of regulator</li> <li>• wholesale and retail price cost/coverage</li> <li>• electricity supply/demand balance</li> <li>• incumbent fuel</li> <li>• sector procurement policy</li> <li>• prevalence of back-up generators and degree to which</li> </ul>

<sup>33</sup> As noted in footnote 2, this paper is part of a larger study led by Stanford's PESD program, surveying the global IPP experience.

<sup>34</sup> The 'electricity market' also figures prominently in investors' decision making, but for the purpose of this study, the 'electricity market' will be treated as a separate section rather than a component of the 'investment climate'.

	industrial/commercial base rely on grid • extent of interconnections with other countries
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Only some of these country-level factors are relevant to Kenya’s experience. With respect to exogenous shocks, Kenya has not been affected by a one-time macroeconomic shock and currency devaluation. Over the course of the 1990s, however, the country did see its currency depreciate more than 300% (from Ksh 22.9 = US\$1 in 1990 to Ksh 75.9 = US\$1 in 2003). Insofar as all PPAs are denominated in US dollars, this creeping devaluation does have an impact on the country and IPP outcomes. Investments are growing more costly as is fuel, which is imported in the case of Westmont, Iberafrica and Tsavo.

A second exogenous factor to be noted is drought. The first two IPPs, both diesel-fired, were rushed through to help plug the power shortage created by drought conditions of 1996-7. The third IPP (OrPower4) was requested to increase its capacity during another drought in 1999. In each of these instances, power was ultimately more expensive due to the emergency nature of the situation. Furthermore, after hydrological conditions returned to normal, the country was still locked into contracts with take or pay requirements.

As regards Kenya’s investment climate, it was lackluster throughout the 1990s with a GDP compound annual growth rate of 1.73% from 1990 to 2000 and just 1.37% between 1997 and 2000. Foreign Direct Investment fell by 3.40% a year over the decade (Appendix B presents a suite of investment climate indicators for Kenya). Kenya faced a donor embargo throughout much of the 1990s, which also impacted investments in the electricity sector. Although organized as international competitive tenders, the tenders ultimately awarded to Tsavo and OrPower4 only attracted three and two bids, respectively, as mentioned earlier. Therefore those investors who did approach Kenya were few and far between and ultimately charged higher risk premium to offset the perceived high risks, which were exacerbated by the absence of sovereign guarantees.

As with the investment climate, Kenya’s electricity market had a significant impact on outcomes. Firstly, although common among African countries, Kenya’s demand profile is miniscule (with just 1.2 GW installed capacity) compared to other developing countries in Latin America, East and South Asia, and Central Europe, which saw IPP investment. Little demand potential therefore inhibited investment. Another factor is that IPPs were perceived to be competing against ‘cheap hydro’, the incumbent fuel in Kenya (even though economically hydro sites had been exploited and the country faced drought conditions for much of the 1990s). This (mis)perception ultimately weighed against investors. Finally, the evolving regulatory regime had a large impact on outcomes. An independent regulator in Kenya was only established in 1998, after the first PPAs with Westmont and Iberafrica had been signed. These first PPAs therefore lacked the oversight of a third party which would have scrutinized tariffs and other terms of the contracts (especially contract duration) to a greater degree.

Although Kenya's options were limited given the donor embargo and investor wariness, an independent regulator would have undoubtedly helped in the negotiating process, which largely resulted in an outcome that favored investors at the expense of development outcomes. In the next set of IPPs with TPC and OrPower4, the Electricity Regulatory Board played a critical role, insisting on lower tariffs. ERB also influenced the renegotiation with Iberafrica for a second PPA with KPLC, which ultimately culminated in a capacity charge equal to 50% the original.<sup>35</sup> The scrutiny of the regulator, however, came at a certain cost as negotiating time (highlighted in the context of the Iberafrica negotiation below) lengthened.

### b. Project-level factors

The project level factors that emerged as significant in the global IPP context are: project partners, finance, the PPA, fuel type and agreements, public perception and project management. Each of the factors, with specific relevance to the Kenyan case study will be evaluated separately.

**Table 6: Project level factors that affect outcomes**

Factors	Components
Project partners	<ul style="list-style-type: none"> <li>• local/international investors</li> <li>• multilateral agencies</li> <li>• firms' commitment to sector/country</li> <li>• equity turnover</li> </ul>
Project finance	<ul style="list-style-type: none"> <li>• debt vs. equity</li> <li>• sources</li> <li>• seniority of debt</li> </ul>
PPA	<ul style="list-style-type: none"> <li>• off-take agreement (including ownership/transfer and risk allocation)</li> <li>• degree of sovereign or other guarantees for agreement</li> <li>• provisions for dispute settlement</li> <li>• impact on off-taker</li> </ul>
Fuel type and agreements	<ul style="list-style-type: none"> <li>• imported or locally available fuel</li> <li>• exposure to FX risk</li> <li>• government or other supplier</li> </ul>
Political & Public perception	<ul style="list-style-type: none"> <li>• what did the politicians and general public think (and why)?</li> <li>• to what extent did the general public and political process influence the project and future projects?</li> </ul>
Project management	<ul style="list-style-type: none"> <li>• O&amp;M</li> <li>• Budgeting</li> </ul>

### a. Project partners

There was substantial variety in the project partnering across the four IPPs. Two of the four IPPs had local partners (Iberafrica and Tsavo);<sup>36</sup> one had the involvement of a multilateral agency (Tsavo); two of the projects had stakeholders with a longer commitment

<sup>35</sup> Selected interviews and correspondence with personnel from Iberafrica and ERB, January and February 2005.

<sup>36</sup> The reason provided by OrPower4 for not engaging a local partner was because the project was too small.

to the country (Iberafrica and Tsavo), and only one of the four was a project-finance deal (Tsavo) with the other three relying on the balance sheets of their sponsors.

In the case of Iberafrica, the local partner consisted of the KPLC Pension Fund (who owns 20% of the project). According to personnel at Iberafrica, a local partner was considered a requirement for Union Fenosa given Kenya's country risk at the time of investment. While the alliance between Iberafrica and the KPLC Pension Fund may have helped assuage Union Fenosa, it has been subject to some criticism and controversy, namely that with involvement with KPLC, the off-taker, there could not be a fair and transparent evaluation of competing bids. These allegations have been denied by both Iberafrica and KPLC who argue that the Pension Fund is governed independently from KPLC with a separate board of trustees. Thus the direct impact on outcomes is difficult to determine. On the one hand, the local partner assisted in providing security to the multinational firm; on the other hand, the local partner ultimately raised doubts about the project sponsor's integrity. Suffice it to say, actions speak louder than words and Iberafrica (with the partnership intact between Union Fenosa and KPLC Pension Fund) has managed to negotiate a second PPA, under the supervision of ERB, for a duration of 15 years, which would indicate that the arrangement is both sustainable and favourable.

Tsavo Power Company's local partner consists of Industrial Promotion Services (IPS), Aga Khan's Fund for Economic Development (AKFED) operating arm in the industrial sector throughout Asia and Africa. Although IPS has a global reach, the firm has been established in Kenya since 1963 and therefore for all intents and purposes was considered a local partner. While IPS projects must make commercial sense they must also serve a clear developmental function for the country/community. The Tsavo plant met both criteria for IPS. The developmental function was met by the fact that the 75 MW would help Kenya plug a severe power shortage, i.e. the plant amounted to 28% and 34% of country's total thermal/geothermal generation in 2001-2002 and 2002-2003, respectively and up to 10% of the gross annual energy requirement in 2002-2003.<sup>37</sup> In addition the plant was expected to contribute to a reduction in tariffs, as it was significantly less expensive than emergency power generation procured at US\$0.30-0.40/kWh. The commercial aspect was met by the fact that: a reasonable return on investment was expected (i.e. mid-teens); a series of first rate investors were involved; and the security package, together with the 20-year PPA promised a sound and secure arrangement with the national utility. Ultimately the local partner played a substantial role as it formed the backbone of the strategic partnership with Cinergy (Duke);

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<sup>37</sup> Previous references to IPPs accounting for 11.2% of Kenya's power refer to installed capacity of all plants for 2004 and therefore do not contradict this statement which reflects actual production from Tsavo in 2002-2003 (as referenced in KPLC Annual Report 2003-2004).

together these two firms represent 49.9% of the equity. It may be concluded that the local partner had a positive impact on both the investment and development outcomes.

While multilateral institutions were absent in the first round of IPPs, the IFC took both an equity stake in and played an important role in providing and arranging debt for Tsavo. As the private sector arm of the World Bank, IFC saw the Tsavo investment as a critical development to help meet rising power shortages in Kenya, which were adversely affecting the economy. Funds were not forthcoming from either international donors or the private sector as the former was maintaining an aid embargo and the latter was hindered by the myriad risks, heightened by the political instability, of any such investments. IFC thus saw its role as key in assuring private sector participants of project integrity and stability. IFC also recognized the potential “demonstration effect” of the project as it aimed to be the first project-financed deal in the region. Both the investors and host country alike have benefited from IFC’s decision to participate in Tsavo. It should be noted in this context, that certain other investors in Kenya’s IPP sector (e.g. Ormat) had an expectation that the multilateral funding institutions would participate to a greater extent (than they ultimately did).

As regards firms’ commitment to the country, the difference in the commitment among project developers is stark. The Malaysian based firm Westmont had only one African project. The firm entered the market with the signing of its PPA in 1996-7 and left promptly in 2004 after failing to agree on a tariff with KPLC. It is suspected that this abrupt departure was in part a function of the financial condition of Westmont’s parent company in Malaysia as well. That said, there was little staying power and ultimately little long-term success. Iberafrica stands in contrast. Union Fenosa, the majority stakeholder in the project, entered Kenya in 1994-5, two years prior to the electricity offer, when its IT arm won a contract to provide services to GoK. Thereafter the company established itself in the country, creating favorable ties and a solid name for itself. Tsavo’s commitment is observed through its local partner’s presence, dating from the 1960s. Finally, Ormat’s commitment spans only the time of its contract. The firm entered both the country and the continent for the first time when it signed its PPA with KPLC. As noted earlier, Tsavo has been characterized as the most successful from both a development and an investment perspective by the range of stakeholders. It is also the firm with the longest commitment to Kenya.

#### **b. Project finance**

The financing arrangements for each of the IPPs are quite distinct. In the case of the stop-gap IPPs, firms were given 11 months to bring plants on line from the signing of the PPAs, which meant that firms had to rely primarily on their own balance sheets rather than setting up elaborate project finance arrangements. Project costs for Westmont, the first stop-gap IPP, amounted to US\$20 million. Little is known about how exactly the Malaysian consortium

funded this plant, but it is believed that it relied mostly on company funds.<sup>38</sup> In contrast, the cost of Iberafrika, the second stop-gap IPP, totaled US\$65.1 million and the firm shared costs with a local partner and through local and foreign commercial banks. The discrepancy in project costs, between the similar sized Westmont and Iberafrika plants, can be attributed to two primary factors: namely, technology and location. Westmont is a barge-mounted open cycle gas turbine (using kerosene), located off Mombasa while Iberafrika is a diesel generator, located near Nairobi.

In contrast to Westmont, Iberafrika’s financing structure is more widely known. The project, which was carried out in two phases with the first phase of 44 MW priced at US\$54.5 million and the second phase of 12 MW costing US\$10.5 million. Project equity amounts to US\$ 18 million. Ownership is shared, with 80% held by First Independent Power East Africa Limited—an entity owned by two Spanish firms, Union Fenosa (90%) and JHR Consultants (10%) --and 20% held by KPLC Staff Pension Fund. Project debt, amounting to US\$47.1 million, was provided directly and indirectly by Union Fenosa and the Staff Pension Fund as detailed below:

- Union Fenosa provided direct loans of US\$12.7 million;
- Union Fenosa also guaranteed a further US\$20 million;
- KPLC Staff Pension Fund provided direct loans of US\$9.4 (US\$5 million of which it borrowed itself);
- KPLC Staff Pension Fund also guaranteed an additional US\$5 million through a local bank.

TPC followed a different route than its predecessors, Westmont and Iberafrika, with regard to financing. Unlike with the first two plants, TPC was not required to commission its plant within an 11 month timeframe, which allowed the company to seek out more creative financing schemes. Tsavo became the first project in East Africa to be financed on a project finance basis without government guarantees. Project equity, amounting to US\$18.93 million or 22% of total project costs, was split among IPS-Cinergy (49.9%), which comprises a local partner and an American-based power company, CDC, a public-private UK development entity, now Globeleq (30%), Wartsila, a designer and operator of power plants, (15%) and IFC (5%).<sup>39</sup>

Project debt for Tsavo, amounting to US\$ 66.06 million, came in the following form:

Type of Loan	Definition	Amount
<b>Senior Loans:</b>		
IFC A loan	IFC’s own account	US\$15,100,000

<sup>38</sup> Repeated inquiries to Westmont’s office in Kenya and Malaysia, from November 2004-February 2005, went unanswered.

<sup>39</sup> Interviews with stakeholders revealed that Cinergy has been increasingly less involved in operations of the TPC. With Duke Energy buying Cinergy in May 2005, it remains to be seen what will be the future of this equity partnership.

IFC B loan	IFC syndicated loans	US\$22,100,000
CDC loan	CDC's own account	US\$13,000,000
German Investment & Development Corporation (DEG) loan	DEG's own account	EUR 11,000,000
<b>Subordinated loans</b>		
IFC C1 loan	IFC's own account	US\$1,433,333
IFC C2 loan	IFC syndicated loans	US\$1,433,333
<b>DEG sub-loan</b>	DEG syndicated loans	EUR 2,000,000

Given the absence of sovereign guarantees, which are generally a pre-requisite for a project-financed investment in a developing country, a series of alternate arrangements were made. Key documents for project completion were the Letter of Comfort provided by the government and the security package provided by KPLC. The Letter of Comfort addresses force majeure and political issues, but does not qualify as a sovereign guarantee due to its limited application and coverage. The security package involves: an escrow account to which KPLC must provide one months payment of approximately US\$4 million for the duration of 12 years, i.e. the period of primary debt repayment; and a stand-by Letter of Credit, which covers three months billing of approximately US\$12 million. Initially 100% cash cover was required for the Letter of Credit; however, this has since been eased to 20%.

It should be reiterated here that no plants received government guarantees—although the costs of the emergency power plants were supported in part by government. Kenya has maintained a policy of not extending government guarantees to private sector projects, unless there is an overriding public interest.

Finally, financial closure for OrPower4 has not yet been achieved. To date, US\$54 million has been invested solely by Ormat—for both appraisal and drilling of the new geothermal wells. Contrary to its initial expectation, the firm has been unable to enlist either multilateral financing institutions (MFIs) or any other international energy companies, although it did obtain a MIGA guarantee. After witnessing the financial position of KPLC disintegrate in 1999, Ormat requested a supplemental PPA, which specified a Letter of Comfort and security package, similar to those obtained by TPC. Neither KPLC nor MoE have acquiesced and therefore development of a further 35 MW identified by OrPower4 during a resource assessment remain undeveloped.<sup>40</sup>

**Table 7: IPP project financing**

Project (US\$ million)	Westmont	Iberafrika	Tsavo	OrPower4
<b>Total project costs</b>	20	65.1*	85	54**
<b>Total equity and %</b>	NA	18 (27.6%)	18.97 (22.4%)	NA

<sup>40</sup> Selected correspondence with personnel from Ormat, February 2005.

<b>Total debt</b>	NA	47.1 (72.4%)	66.03 (77.6%)	NA
<b>Local equity</b>	0	3.6	% of 9.46***	0
<b>Local debt</b>	0	14.4	0	0
<b>International (private) debt</b>	NA	32.7	>26	NA
<b>Multilateral and bilateral financing</b>	0	0	40	0****

\*Iberafrica, total project costs US\$65 million, with first phase (44 MW) priced at US\$51.5 million and second phase (12 MW) at US\$13.5. \*\*US\$54 million includes the amount invested in a 13 MW power plant and completed geothermal wells for 58 MW including 20% reserve to support a 48 MW power plant. \*\*\*IPS and Cinergy jointly own 49.9% of project equity, IPS is a local partner.\*\*\*\* MIGA guarantee provided.

Sources: figures based on World Bank PPI database as well as selected interviews and correspondence with personnel from Iberafrica, IPS, IFC and Ormat.

In conclusion, it is noteworthy that Tsavo, which is widely considered the most successful of the four IPPs by the range of stakeholders, had the most diverse project financing, however, the deal also took the longest to close. Success does not come cheap, at least not in terms of time.

### c. PPAs

Among the most apparent differences in the first three IPP frameworks is the duration of the PPAs—with the first stop-gap framework stipulating seven years, the second, specifying 20 years and the third, emergency framework, covering only the period of the drought. The emergency plants understandably were temporary.<sup>41</sup> In the first period, the Iberafrica and Westmont plants, providing about 100 MW of power, were seen as a “stop-gap” measure to quickly meet capacity shortages. Publicly-financed plants, which were considered less costly, were in the pipeline, but funding was not forthcoming. Government opted for a short-term solution with the expectation that by, if not before, 2004 when the PPAs were slated to end, the situation would be altered, i.e. potentially more favorable for the government/country. Furthermore, given the political risk at the time of stop-gap IPPs, investors were wary of committing to longer terms.<sup>42</sup> The second IPP framework was the first indication of the government seeking a longer-term solution to private investment in the sector.

There is also a marked difference in the generating costs of the IPPs with the first wave (Westmont and Iberafrica) amounting to approximately double the cost of the second wave, (Tsavo and OrPower4) as depicted in Table 2 . The higher cost of the first wave has been accredited to the short timeline allotted and severe drought condition. It is noteworthy

<sup>41</sup> The emergency IPP agreements were signed between the government and Deutz, Aggreko and Cummins, respectively, while all other PPAs were signed between KPLC and project developers. Furthermore, these agreements were not full-fledged PPAs.

<sup>42</sup> Selected interviews and correspondence with personnel from KenGen, KPLC and ERB, January and February 2005.

that the second wave was not only cheaper than the first, but it was also competitive with KenGen's plants.

The major commonality among the PPAs of all Kenyan IPPs was the Build Own Operate (BOO) structure. Reasons provided for why Kenya adopted the BOO structure are varied: it was a simpler arrangement than BOOT; it was a World Bank recommendation; BOO mitigated project risk, by ensuring that developers would properly maintain their plants. The vast majority of stakeholders, however, appear to be uncertain about why such a structure was adopted. Also it is worth reiterating in this context that is that going forward government stakeholders are keen to explore the BOOT structure.<sup>43</sup>

In addition to being BOOs, the PPAs signed between KPLC and project developers specified take-if-tendered conditions, i.e. the plant must be prepared to deliver electric energy if asked to do so, with the following capacity levels stipulated: Westmont, Iberafira and Tsavo at 85% and OrPower4 at 92%.<sup>44</sup>

Of the four PPAs negotiated with KPLC, none has been cancelled to date, although one has expired and one has been renewed on different terms. In August 2001, Iberafira expressed its interest to both ERB and KPLC to negotiate a second PPA (as per the Electric Power Act such a request must be initiated three years before license/PPA expires). Negotiations commenced at this time. KPLC and Iberafira reached agreement on tariffs, however, ERB rejected the rates. Thereafter Iberafira and ERB reached agreement on rates, but KPLC rejected the rates. In December 2002, the new government came to power, and all negotiations were stalled until June 2003 due to changes in ERB, MoE and KPLC staff. In April 2002, Iberafira reduced the capacity charge of its first PPA by 37%. This was not a renegotiation per se, but a voluntary act on behalf of the firm to demonstrate its commitment to a second PPA.<sup>45</sup> In September 2003, Iberafira reduced its capacity charge again—this time to 59% of the original PPA agreement. Finally, when re-negotiations re-commenced they culminated in agreement on a second PPA (for a duration of 15 years) in August 2004, in which the capacity charge agreed was 50% that of the original PPA.

Westmont also requested a second PPA, but the firm and KPLC could not agree on a tariff. As a result, Westmont did not pursue any formal procedure with ERB. In August 2004, with the completion of its seven-year PPA, Westmont ceased operating. Currently, the barge mounted gas turbine is resting idle off of Mombasa. There is some speculation that KenGen may purchase the unit, but no confirmation as of June 2005.

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<sup>43</sup> Selected interviews and correspondence with personnel from MoE, KPLC and ERB, January and February 2005.

<sup>44</sup> Selected interviews and correspondence with personnel from KPLC, January and February 2005. Selected correspondence with Robert Sheppard, May 2005.

<sup>45</sup> Selected interviews and correspondence with personnel from Iberafira and ERB, January and February 2005. *Contrary to popular press reports, Iberafira did not amortize its plant over the seven years of its first PPA due to this voluntary reduction in 2002.*

In the case of OrPower4, a supplemental PPA has been requested by the firm to mitigate financial risks posed by the offtaker, KPLC. Further development (i.e. above the existing 13 MW) is contingent on the supplemental PPA, discussed in the previous section, but to date, neither KPLC nor the MoE have agreed to the changes.<sup>46</sup>

Suffice it to say the project that has met with the greatest success (Tsavo) also had the most comprehensive PPA.

#### **d. Public perception<sup>47</sup>**

The IPPs have generally been perceived as expensive, i.e. more expensive than KenGen. Owners have also been portrayed as opportunistic, profiting from Kenya's drought situation and poor investment climate. Absent from these portrayals has been an accurate description of the state's inability to finance and build competitive plants within a short timeframe. Few IPP owners have countered the stereotypes, with the exception to Tsavo. Tsavo has also developed a US\$1 million community development fund, disbursing US\$50K annually (over the 20-year PPA) to benefit environmental and social activities in Kenya's Coast Region.

While it appears that the predominately negative public perception has not forced change in existing plants, it may be among the factors influencing future IPPs, i.e. no existing plans for additional plants.<sup>48 49</sup>

#### **IV. Conclusion**

The IPP experience in Kenya is interesting in a number of respects. Despite a difficult investment climate (e.g. an aid embargo and no sovereign guarantees available) foreign investment was made in IPPs. Initial stop-gap IPPs were understandably expensive, with wholesale tariffs more than three times KenGen's. High prices are attributed to the fact that plants were procured during a drought, under severe time pressures, with a truncated tender process. Furthermore, with PPAs of only seven years duration, investors had little time to extract returns. In the second wave of IPPs, projects were tendered under international competitive bid standards. The result was significantly cheaper power than the first wave, with wholesale tariffs competitive with KenGen's. During this second wave, Iberafrica (one of the initial stop-gap IPPs) also halved its capacity charge in its negotiations for a second PPA.

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<sup>46</sup> Selected interviews and correspondence with personnel from Ormat, ERB and KPLC.

<sup>47</sup> Although this study has not surveyed the public at large, it has followed general press accounts and parliamentary debates related to IPPs which are seen as a proxy for the general public.

<sup>48</sup> Selected interviews and correspondence with personnel from IFC, IPS and KPLC, January and February 2005.

<sup>49</sup> See footnote 14 about new plant planned as of September 2005.

In the end, Kenya experienced a fairly positive development outcome. The requisite power was supplied, albeit initially at a high rate to the country and consumer. Later, prices became more competitive. Throughout, however, Kenya has experienced significant devaluation of its currency. Between 1990 and 2003, the Kenyan Shilling depreciated more than 300%. Considering all PPAs are denominated in US dollars, this change weighs heavily on the country. As for investment outcomes, in the first wave, it is believed that investors fared well given the high tariffs charged. In the second wave, outcomes appear to have been positive, but more modest. All deals (in both the first and second waves) have held, which is a positive indicator for investment outcomes.

In addition, a number of interesting features of Kenya's IPP experience can be noted, namely the nature of the project partners, the role that multilateral agencies played as well as the role of the regulator. As regards project partners, Malaysian based Westmont had no prior experience in Africa. Equally un-experienced in Africa was Ormat, an US/Israeli based firm. These two companies opted not to engage local partners. Westmont has since left after it failed to reach agreement on a second PPA and Ormat (through project company OrPower4) has developed only 13 MW, or just 10% of the maximum size specified in its contract. In contrast, both Iberafrika and Tsavo Power Company had significant local partner stakeholders, each with a long-term experience in Kenya. Union Fenosa, the dominant shareholder in Iberafrika, also had additional projects in Kenya's IT sector. The Iberafrika and Tsavo plants have fared significantly better than Westmont and OrPower4. Iberafrika negotiated a second 15 year PPA, and Tsavo provided a third of the country's thermal/geothermal generation between 2001 and 2003, helping the country to avoid more costly emergency generators. Tsavo has also made a good name for itself through its US\$1 million community development fund. Finally noteworthy in the context of project partners is the role that IPS and Globeleq are playing across the continent and the emergence of a new breed of investor. As European and American based firms such as InterGen and AES have retreated to their home markets, IPS and Globeleq have stepped in to fill the development gap, picking up majority stakes in Egypt's Sidi Krir (682 MW), Tanzania's Songas (180 MW) and Uganda's Bujagali (250 MW). While motivated by commercial interests, both Globeleq and IPS also have a larger appetite for risk and a commitment to emerging markets. It is expected that future developments will be led by these types of firms.

Multilateral agencies were largely absent from the first wave of IPPs (other than to assist government in negotiating) but played an important role with regard to the second wave. IFC took both an equity stake in and arranged the syndication for Tsavo. OrPower4 obtained a MIGA guarantee. The involvement of multilaterals helped give credibility to projects and in the case of Tsavo provide reassurance to other investors, namely the American

powerhouse Cinergy, who together with local partner IPS, took the majority share of the project. IFC also resisted any changes to renegotiating Tsavo's tariff.

Finally, the role of the regulator is noteworthy in Kenya's IPP experience. Inaugurated in 1998, after PPAs with Westmont and Iberafrica had been signed, ERB was also noticeably absent from the first wave. The Board was, however, able to apply pressure on Iberafrica as it negotiated its second PPA and can be credited with helping to reduce capacity charges. ERB oversaw Tsavo's development from start to finish and has also been intricately involved in OrPower4. It maintains an important tariff setting function. Despite these achievements, ERB's institutional memory and capacity have been undermined by changes in personnel: in the six years of its operation, it has had five different chairmen (all appointed by the President) and numerous board changes.

While the existing IPPs appear to be here to stay (save Westmont), future development remains uncertain. Recent investments to the power sector have been supported by multilateral agencies in alliance with KenGen. KenGen's expected IPO of 30% of its shares may change the dynamics of the electricity market, but for now, it appears business as usual (pre-1990s). Multilateral and bilateral aid will, however, probably be insufficient to meet either the actual or latent power needs in Kenya, where only 15% of the population has access. Further private sector investment thus seems inevitable. Creating a sustainable balance between investment and development outcomes is Kenya's challenge.

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- Selected interviews with personnel from KenGen, January 2005.
- Selected interviews with personnel from ERB, January, March 2005.
- Selected interviews with personnel from Ibrafrica, January 2005.
- Selected interviews with personnel from MoE, January 2005.

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Selected interviews with personnel from IPS, January 2005.

**Correspondence**

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## **APPENDIX A: Country background**

As of 2002, Kenya's population stood at 31.3 million, up from 16.6 million in 1980. The population is expected to grow to 37.5 million by 2015 for an annual increase of 1.4% per year. Currently Kenya accounts for about 5% of sub-Saharan Africa's 688 million inhabitants. Kenya's urban population amounts to 35% of the total (as of 2002), up from 16% in 1980. Therefore, while a rural to urban migration is taking place, the majority continues to reside in the rural areas.

According to the last national poverty line assessment, recorded in 1997, 53% of Kenya's rural population is living below the poverty line; 49% of the urban population also fits into this category. It is worth noting that in 1994, the national average stood at 40%, indicating a growing impoverishment of the population. The World Bank's international poverty line assessment, for which the latest data available is also 1997, reveals that 23% of the population is living on less than US\$1 a day and 58.6% of the population lives on less than US\$2 a day, contributing to Kenya's Human Development Index (HDI) rank of 146<sup>th</sup> globally.<sup>50</sup> It is not the poverty alone, but the discrepancy between rich and poor that distinguishes the country: the richest 20% of the population controls over 50% of the wealth, and Kenya's Gini index, which measures inequality over the entire distribution of income/consumption (with 0 representing perfect equality and 100 perfect inequality) is recorded at 44.5.<sup>51</sup> These conditions have been exacerbated by the influx of refugees and armed militants from Sudan, Ethiopia and Somalia, which have also contributed to problems of safety and security throughout the country.

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<sup>50</sup> The national poverty line assessment is based on the World Bank's country poverty assessments, while the World Bank's international poverty line is based on the nationally representative primary household surveys conducted by national statistical offices or by private agencies under the supervision of government or international agencies and obtained from government statistical offices and World Bank country departments (WDI 2004, p. 57).

<sup>51</sup> World Development Indicators, 2004. Population Dynamics and Urbanization, pp. 39,153, Poverty p.55; United Nations Development Programme. Human Development Report 2003. Human and Income Poverty, p.246 and Inequality in Income or Consumption, p. 284.

In 2002, Kenya experienced a major turn-around in its political history when the Kenya African National Union (KANU), the party that had ruled since independence in 1963, was defeated by the National Rainbow Coalition. Among the major platforms of the new government was the detection and prevention of corruption across sectors, including the power sector.

## APPENDIX B: Investment Climate

Investors evaluated a host of indicators before investing in Kenya. Political instability was cited as a major deterrent, keeping potential investors at bay and raising the risk premium for those who ultimately did invest. The following section profiles some of a number of indicators that together help sketch the investment climate over the period in which IPP developments have taken place.

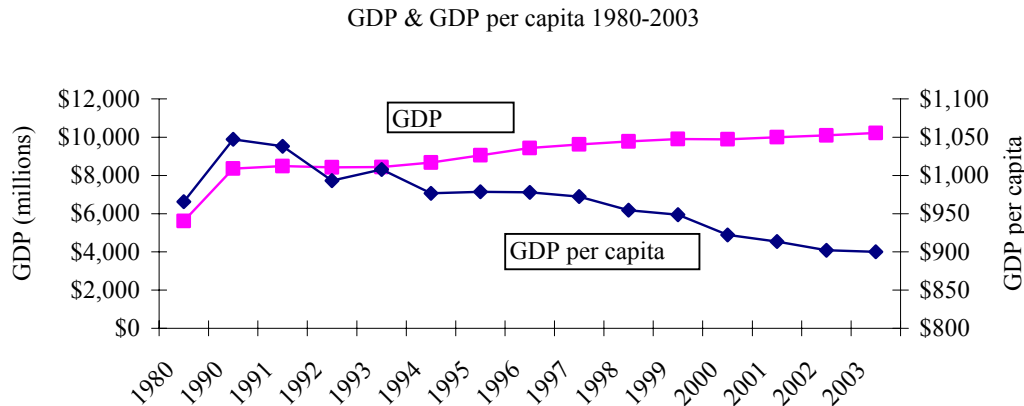
At the time of Kenya's initial IPP investments in 1996, the country achieved a rank of 68 on the International Country Risk Guide (ICRG) Composite Index, which comprises 22 variables in three subcategories of risk: political, financial, and economic (0 = highest risk, 100 = lowest risk). The rank fell to 62 in 1997 and then again to 58 in 1999. By 2003, however, Kenya's rank was above the average for both sub-Saharan African and low income countries, but below the world average, as indicated in the following table.

Time/comparison	ICGR Rating	Notes
Most recent rating (2003)	66	
Average (1984-2003)	58.7	Timeframe for which figures are available
Max (1984-2003)	68	Max occurred in both 1995 and 1996 during first negotiation of IPPs
Min (1984-2003)	50	Min occurred in 1991, with the onset of the aid embargo
Average 1990-1996	58.8	Corresponds with 1 <sup>st</sup> IPP framework
Average 1997-2000	60.5	Corresponds with 2 <sup>nd</sup> and 3 <sup>rd</sup> IPP frameworks
Average 2000-02	59.6	Period of drought (1999-2001) to stabilization
Sub-Saharan Africa avg (2003)	58.0	Although currently above SSA average, Kenya's overall average (58.7) is in line with the 2003 figure
Low-income avg (2003)	58.8	Kenya currently stands above the low-income average although not if the time period 84-03 is taken into consideration
World avg (2003)	68.9	Kenya's current rating is slightly less than the world average at present

Source: International Country Risk Guide: [www.ICRGonline.com](http://www.ICRGonline.com) and WDI 2004.

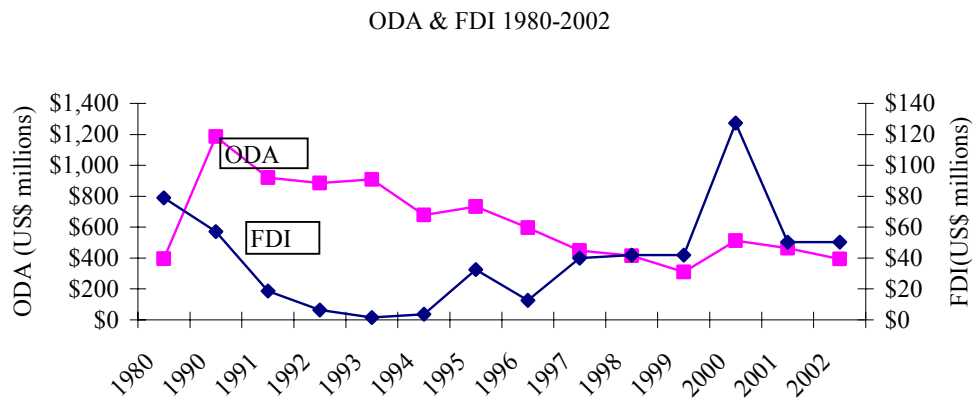
Kenya's gross domestic product (GDP) grew at a rate of 1.73% a year between 1990 and 2000, and amounted to US\$10.2 billion in 2003 (in constant 1995 US\$). Growth was

significantly stronger in the previous decade (1980-1990) when it averaged 4.53% per annum. Between 1997-2000, a period marked by severe drought, annual GDP growth fell off to 1.37%. More recently, the country has seen annual growth pick up again. These gains are countered by a decrease in GDP per capita as noted in the chart below. Gross national income per capita adjusted for purchasing power parity (PPP) was US\$899.9 (in 1995\$) and placed Kenya at a rank of 187<sup>th</sup> worldwide.<sup>52</sup>



Source: WBI database online, accessed on February 14, 2005.

Meanwhile, overseas development assistance (ODA)--which in 2002 measured US\$393 (in current US\$), declined in the decade 1990-2000, as depicted in the following chart. Foreign direct investment (FDI) peaked in 2000 and then declined to \$50.4 million in 2002. It should be noted in this context, that certain investors in Kenya's IPP sector had an expectation that the MFIs would participate to a greater extent (than they ultimately did).



Source: WBI database online, accessed on February 14, 2005.

<sup>52</sup> WDI 2004, "Size of the economy," p.15

The aberration was the period 1997-2000, which saw significant gains in both flows, and also coincided with a spate of IPP development.

Euromoney country credit-worthiness rating, which measures the risk of investing in an economy, awarded Kenya a rank of 36.1 in September 2003 (with 0 representing the highest risk and 100 representing the lowest). Slightly below the world average of 39.6, but above the average of 28.7 for SSA countries and 30.1 for low income countries, Kenya may be considered a relatively favorable emerging market country on the African continent, though certainly not without associated concerns.<sup>53</sup> A similar pattern may be seen with the institutional investor credit rating, which charts the probability a country will default and has particular relevance to this study given the nature of the off-taker (the national utility, with a 51% government share). Kenya received a rating of 24.6 in September 2003 (with 0 indicating the greatest probability and 100, the least); meanwhile the world average is slightly better at 30.4 and both SSA and low-income countries fare worse at 17.5 and 17.9, respectively. In addition to credit ratings, assessing the general business environment through the days required to start a business, enforce contracts and other related indicators goes a long way in describing the investment climate.

Country/ region	Entry regulations				Contract enforcement		
	Number of start of procedures	Days to start business	Cost to register business*	Minimum capital requirement*	Procedures to enforce contract	Days to enforce contract	Cost to enforce contract*
Kenya	11	61	54	0	25	255	50
SSA	11	72	255	278	30	334	52
World	10	57	93	297	25	307	36

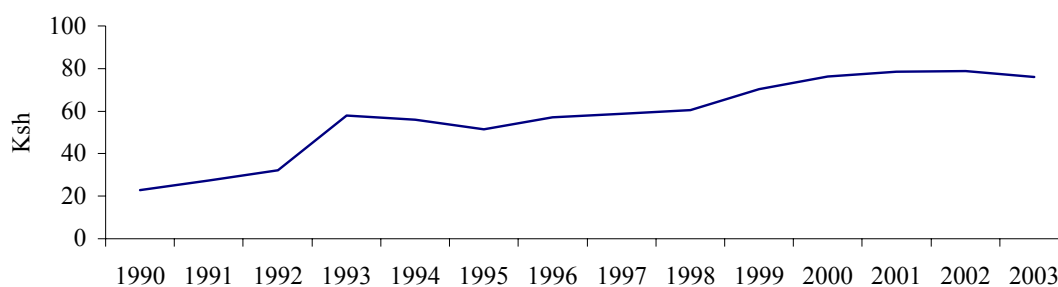
NOTES: \*% of GNI per capita

Source: WDI 2004.

Finally, important in grasping Kenya's investment climate is the performance of the country's currency over the period of IPP investment. As of 2003, one US dollar was equivalent to 75.9 Kenyan shillings (Ksh)—up from 7.4 Ksh in 1980 and 22.9 Ksh in 1990. This dramatic devaluation of the currency appears to be plateau-ing more recently, but remained a significant variable in the calculation of investors' PPAs, which were all dollar denominated.

<sup>53</sup> WDI 2004 Investment Climate, p.259

US\$ exchange rate 1990-2003



Source: WBI database online, accessed February 14, 2005.

Compound annual growth rates (CAGR): GDP

Indicators	CAGR 1980-1990	CAGR 1990-2000	CAGR 1990-96	CAGR 1997-2000	CAGR 2000-02
<b>GDP</b> (constant 1995 US\$)	<u>4.53%</u>	1.73%	2.42%	<u>1.37%</u>	2.17%
<b>GDP per capita</b> (constant 1995 US\$)	<u>0.56%</u>	-0.87%	-0.73%	<u>-1.93%</u>	-1.80%
<b>GDP per capita</b> (PPP)	<u>0.90%</u>	-1.35%	-1.36%	<u>-2.61%</u>	-2.17%

Source: Calculations based on WBI database online, accessed February 14, 2005

Compound annual growth rates (CAGR): FDI and ODA

Indicators	CAGR 1980-1990	CAGR 1990-2000	CAGR 1990-96	CAGR 1997-2000	CAGR 2000-02
<b>FDI net</b> (BoP, current US\$)	-3.40%	-9.01%	-25.35%	<u>151.60%</u>	<u>-81.78%</u>
<b>FDI net inflows</b> (% of GDP)	-5.27%	-4.36%	-27.13%	<u>81.06%</u>	<u>-66.50%</u>
<b>ODA</b> (current US\$)	<u>12.94%</u>	-9.55%	-12.84%	6.95%	<u>-23.25%</u>

Source: Calculations based on WBI database online, accessed February 14, 2005

**APPENDIX C: stakeholder comments**

With the exception of ERB, the consensus among selected personnel from public and quasi-public entities is that the development outcomes of the IPP experience have been negative. In contrast, selected personnel from the IPPs view the development experience as ultimately positive and the investment experience as mixed. In the section below, a synopsis of opinions from each of the stakeholders is provided, starting with the off-taker, then the national

generator, the Ministry of Energy, the regulatory board, and then each of the IPPs. As in the previous section, no special attention is given to the emergency IPPs.

**Offtaker-KPLC:** According to selected personnel at KPLC, the IPP developments have ultimately had a negative impact on the financial health of the country. During the drought and for the time immediately thereafter, KPLC and the consumers bore the bulk of the burden of high tariffs, which were indirectly a function of the IPPs. KPLC faults how the deals were carried out. The seven year contract terms of Westmont and Iberafrika, which led to higher rates, had a particularly adverse effect. In addition, due to the BOO structure, at the end of the contract term of seven years, the developers not KPLC ultimately owned the project, requiring KPLC to negotiate new deals. Furthermore, Tsavo's security package has diverted much needed funds for KPLC. Such a package could have been avoided with government guarantees, which would have significantly lowered the risk profile for the country. KPLC indicated that the government might be more willing to consider such guarantees in the aftermath of the four IPP experiments.

*Other (quasi-government) stakeholders counter, however, that the entire purpose of the IPPs is to reduce government involvement and encourage the commercialization of the sector. The use of government guarantees works against this development. Furthermore, structures such as MIGA's political risk coverage have been designed specifically to breach the guarantee gap and therefore should be used instead. As regards, the seven-year tenure of the PPAs, it was initially thought that seven years was sufficient to cover the delay of Kenya's own (public) Least Cost Development Plan, i.e. the country would pay higher rates but only for a short duration. It seems in retrospect, though, that a longer PPA would have ultimately yielded healthier returns for the country.*

**National generator-KenGen:** Selected personnel at KenGen judge the outcomes as mixed, with the development outcomes being poor and the investment outcome being positive. As regards investment outcomes, there has been no default on payments and investors have achieved expected returns. The same cannot be said about development outcomes. At the outset, government and KPLC had insufficient bargaining strength to negotiate favorable deals, as attested by the fact that the projects had terms of only seven years. The absence of government guarantees exacerbated their lack of bargaining power. The lack of local investment in the IPPs is a further count against the deals (which is attributed to poor packaging and capacity). As a result, the country has received power but at a substantial cost to KPLC and the consumer. KenGen has also "paid" insofar as it had to renegotiate tariffs with KPLC (while KPLC maintained its PPAs with the IPPs), due to KPLC's weak financial position in 2003. Furthermore, in 1999-2000, KPLC was Ksh 12.3 billion in debt to KenGen,

which KenGen converted into equity shares in KPLC in 2003. KenGen has therefore indirectly subsidized IPP investments.

*As noted in the context of KPLC, the seven year PPA was originally thought to be an appropriate solution to the situation. Regarding the lack of local partners, both Iberafrica and Tsavo took on local partners, i.e. it was only Westmont and OrPower4 that did not. Also as noted by Ormat, the projects were small and there may have been insufficient “room” for partners. Finally, Ormat also indicated that it has been impacted by KPLC’s weak financial position, i.e. it was not simply the national generator on which this had an impact.*

**Regulator-ERB:** The consensus among selected personnel at ERB is that the IPP experience has generally been positive for the country. Kenya gained an additional 187 MW in capacity, which would have otherwise required considerably more government funding, time and effort. Some of the plants (e.g. Tsavo) are also running more efficiently than KenGen plants (OrPower4 is, however, running less efficiently than KenGen, a statement that is refuted by Ormat).<sup>54</sup> Furthermore, while the process has been costly, consumers especially manufacturers have indicated that it is better to have expensive power than none at all. At the same time, the general perception of IPPs has been negative, as reflected in many press reports. Except for Tsavo Power Company, none of the IPPs have challenged this negative perception in the media; they have also refrained from corporate social responsibility projects, also with the exception of Tsavo (as described below), which portray them in a positive light.

*As noted earlier, ERB’s views stand in sharp contrast to the rest of the public and quasi-public stakeholders. With regard to industry, however, it should also be reiterated, as first mentioned in Section Va, that the high tariffs have been costly for Kenyan industry that competes in COMESA, a regional trade block. Finally, on the public relations front, Tsavo’s particularly adept public relations may be linked to the strong presence of their local partner, which has been investing in Kenya since 1963. It begs the question of why the KPLC Pension Fund has not waged a similar campaign.*

**Government-Ministry of Energy:** According to selected personnel at the MoE, the IPP experience for Kenya has been negative, in the case of all four IPPs. The negative development outcome is attributed to: persistently high tariffs, insufficient competition even for the “general international tenders”; and the small, under-developed nature of the sector, with less than 700,000 consumers. More specifically with regard to this last factor, Kenya’s electricity sector is perceived to be too small and undeveloped to be privatized. The system is

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<sup>54</sup> This claim has been challenged by selected personnel at Ormat who counter that OrPower4 uses more than ten times the non-condensable gases (NCGs) as KenGen’s facilities and therefore could be deemed more efficient (correspondence, April 2005).

less than 1.2 GW and only 15% of the population currently has access. Significant state-support is required before liberalizing starts. The state in turn requires concessionary funding to develop the sector, but it will not be able to access such funding if KPLC and/or KenGen are 100% private.

*This presumes that the public sector, i.e. international donors together with domestic governments, have sufficient funds to extend the grid. Even if the donor community is engaged, however, funds are limited, raising the issue of whether a set of public-private partnerships is not the best solution. This might also have the added benefit of helping to avoid such drastic changes in policy frameworks, i.e. all public to all private and then all public again. While the public sector seems generally willing to engage in public-private partnerships, it remains to be seen whether the private sector will embrace such arrangements given the potentially reduced return, regardless of whether it yields more sustainability to projects.*

**1<sup>st</sup> IPP-Westmont:** As noted in previous sections, Westmont has ceased operating its plant as of end-2004. According to KPLC, they could not agree on a tariff for a second PPA. In addition, there is a common understanding that Westmont's parent company in Malaysia has encountered financial difficulty, necessitating a retrenchment of activity. Given this information, it is impossible to determine the investment outcome achieved by the company and/or try to intuit its thoughts of the development outcome.

**2<sup>nd</sup> IPP-Iberafrica:** For selected personnel at Iberafrica, investment outcomes have been fair for the following reasons. Over the long-term, i.e. 22 year basis of its two PPAs, the firm will average approximately 15% return, which is considered relatively positive. Although press reports have not been favourable or fair, KPLC has consistently requested Iberafrica's power and engaged with the firm.

Development outcomes for the country have been relatively positive, contrary to press-reports, affirms selected personnel from the firm. Kenya received the requisite power in the requisite timeframe. Iberafrica also employs 100 people directly through its operations and 50 people indirectly through service contracts, the majority of whom are Kenyan nationals. Finally, the company has recently embarked on studies to change the fuel specification that would further reduce the cost of generation to the consumers without compromising on the environmental impact.

*Iberafrica's second PPA, for a duration of 15 years, also goes a long way in indicating the firm's overall positive experience in Kenya. However, it should be recalled that Iberafrica voluntarily reduced its capacity charge in 2002. It could probably afford to do so because it had either already amortized its investment, or could still earn sufficient returns to*

*service its debt and provide acceptable returns on equity. Finally, also important to remember is the strategic geographic placement of the plant which means that although it is not least cost it is run frequently, for system voltage support and stability.*

**3<sup>rd</sup> IPP-OrPower4:** Selected personnel at Ormat maintain that while technically OrPower4 has been an excellent project, the political and business environment have proven disappointing and ultimately led to a disappointing investment experience. Ormat expected more cooperation from MoE and KPLC, which is largely managed by government, in overcoming the financial situation of KPLC.

As regards development outcomes, Ormat contends that they have been positive as the country has been able to rely on the firm to produce power, particularly during critical periods of shortfall, such as the 1999-2001 drought when OrPower brought on 4 additional MW. Other positive outcomes are related to the fact that investment costs and construction time were less than other recent geothermal developments in Kenya. Furthermore, all investment was funded by foreign private participants, which contributed foreign currency to the economy; and all plant technical and managerial employees are Kenyan nationals.

*Although KPLC's financial situation proved negative from 1999-2003, the firm did report profits again, starting in 2003-2004. It remains to be seen whether this improved record will be adequate for Ormat or whether the firm will press ahead with its demands for a security package from KPLC and a Letter of Comfort from the MoE. As noted previously, neither KPLC nor MoE has yielded to Ormat's request, leaving 35 MW of reserves (and possibly more) untapped. In the meantime, bidding is expected to take place for Olkaria IV, a 70 MW geothermal facility, with KenGen the likely developer (due to lower financing cost). Other related developments are the expected Geothermal Development Company, which would preclude private developers like Ormat from engaging in resource assessments, i.e. shifting the risk and burden from the private sector to the public. While this may lower costs in the short-run, is the public sector more adept at this activity than the private? According to Ormat, "no", as it maintains that its firm ascertained resources and developed its plant less expensively than its public sector counterparts. Comparing fixed and variable costs of new plants (IPPs vs. KenGen) indicates generally that the IPPs have a cost advantage.*

**4<sup>th</sup> IPP-Tsavo:**

Selected personnel from the project company, Tsavo Power Company, currently operating the plant, maintain that the project has been a general success for the following reasons: construction, operation and maintenance have been carried out to highest of standards by Wartsila and Wartsila Eastern Africa Ltd, respectively as proven in part by the fact that the firm has attained both ISO 9001:2000 and ISO 14001:1996 within the first three years of

operation. In addition, TPC has set its own environmental standards, which it alleges have been used as a benchmark by Kenyan authorities. Furthermore, TPC complies with World Bank Guidelines on Emissions and Air Quality Monitoring.<sup>55</sup>

As for equity stakeholders, according to selected personnel at IPS, the plant has been an investment success due to the following reasons. After financial closure, the firm was able to bring the plant on stream within 11 months and within budget. Tsavo also helped diversify IPS's portfolio in the region, and met one of the firm's goals to participate in infrastructure privatization, which was a stated-goal of the country. Lastly, IPS has achieved an acceptable return, i.e. in the late-teens, which is considered low given the level of country risk, but ultimately justified by the project demonstrating tremendous development value to the country (typically IRRs of mid-twenties are deemed commensurate with the level of risks obtained in developing countries, according to selected personnel at IPS).

Development outcomes for Kenya are also considered positive. The country received the requisite power, in a timely manner, at the lowest price for technology. Supplying up to 10% of Kenya's gross production mix in 2002-3, TPC also saved Kenya from renting additional, more costly units of power during the drought and post-drought period. Finally, TPC maintains good social responsibility practices, as attested by its US\$1 million fund for local community environmental and social activities over the 20-year PPA period. Disbursements of US\$50K are made annually for development projects in the Coast Region of Kenya.

*Unlike other developers, however, IPS has a clear development-mandate (along with its commercial mandate); thus its view of the investment outcome should be seen in this light. Also the project has involved a multilateral partner, which generally translates into less challenge and/or attempted renegotiation on the part of host-countries. Finally, although Tsavo may have prevented the country from engaging more costly emergency power recently, financial closure required three years, i.e. more costly power was required during this period.*

**Multilateral-IFC:** For selected personnel at IFC, the development and investment outcomes have varied. The first framework yielded over-priced plants (i.e. Iberafrica and Westmont) and the third framework, which was tendered according to general international standards, and deemed more transparent than the first, yielded fairly priced plants (i.e. Tsavo and Ormat). As a result, in the first framework, investment outcomes are judged to be very favourable for investors, and in the third framework, they are seen to be commensurate with the risk assumed. Ultimately, development outcomes must be judged by comparing the cost of the IPPs with the cost associated of not having power to feed the economy, a proxy for which

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<sup>55</sup> Selected correspondence with personnel from Tsavo Power Company, April 2005.

is the cost of self-generation at between US\$0.30 and US\$0.40/Kwh, which selected personnel from IFC, maintain would have been significantly more expensive for the country.

*While the third framework may have been a general international tender as opposed to the selective international tender of the first (as discussed in Section Va), the third framework yielded only three bids for the diesel plant and two for the geothermal, i.e. there was ultimately little competition, and prices are still considered high by many stakeholders.*

*Finally, criticism against multilateral financing institutions (MFIs) in general and IFC in particular has been made by stakeholders due to MFIs limited involvement in projects, other than Tsavo; MFI involvement, it is argued, would have reduced the off-taker risk presented by KPLC and made for both more and more sustainable investments, improving investment and development outcomes. Critics argue that they were led to believe that once technical risks had been overcome, MFIs would be forthcoming with their support, but such did not prove the case.*

Lastly, Westmont, Iberafrica, and Ormat have all indicated that they are currently not engaged in any additional developments (IPS, however, is presently exploring developing a 50 MW wind farm on the outskirts of Nairobi). Assuming a favourable opportunity arises, with the requisite safeguards, firms would, however, consider additional power developments in Kenya. Bilateral contracts with industry would only be considered when/if this proves the norm for the industry.

Stakeholder	Development outcome	Reason	Investment outcome	Reason
KPLC	Mixed-both positive and negative	Without added IPP capacity, economic impact of electricity shortage would have been more severe especially re: Iberafrica and Nairobi, but poor negotiation and implementation led to higher tariffs	positive	high tariffs imply favourable returns to firms
KenGen	Negative	insufficient capacity to negotiate deals, lack of guarantees, KenGen subsidized IPPs	positive	high tariffs imply favourable returns to firms and no defaults
ERB	Positive	timely power	NA	
MoE	Negative	insufficient competition, high tariffs, market size	NA	
Westmont	NA	NA	NA	NA
Iberafrica	Positive	timely power, local employment	relatively positive	
Ormat	Positive	timely, less expensive power, local employment	negative	KPLC's financial position; lack of MFI participation contrary

				to understanding
Tsavo	Positive	timely, less expensive power, social responsibility practices	positive	diversified portfolio, acceptable, albeit minimum, return
Multilateral	negative (for Iberafrica & Westmont); positive for Tsavo & Ormat	first set of plants overpriced, but subsequent plants fair/ tendered along int'l standards	positive	investors have received favourable/fair returns