Tariffs and Subsidies in Zimbabwe’s Reforming Electricity Industry: Steering a Utility through Turbulent Times

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Abstract

In 1991, the Government of Zimbabwe adopted a public enterprise reform strategy as part of a World Bank driven Economic Structural Adjustment Programme (ESAP). For the electricity sector, the Government adopted a two-pronged programme of reform – a performance improvement programme (PIP) for the national utility, the Zimbabwe Electricity Supply Authority (ZESA), and a legal and regulatory reform programme for the electricity sector in general. Ten years later, significant success has been achieved in improving the utility’s performance in technical operations and customer service. However, there has been very little progress on the legal and regulatory front. This has adversely affected the utility’s financial performance, as well as frustrating the Government’s efforts in attracting private sector investment. The centrality of the tariff question reflects the importance of the customer or end-user to the power sector reform process. This article outlines the power sector reform experiences in Zimbabwe with special focus on the tariff question. The paper suggests, from the perspective of a utility executive, reasons for the mixed results at ZESA, and lessons for other countries in the region undertaking similar reforms.

Keywords electricity tariffs, PSR, Zimbabwe

1. Brief Background on Zimbabwe’s Electricity Sector

The Zimbabwe Electricity Supply Authority (ZESA) provides the bulk of electricity generated, transmitted, distributed and supplied in Zimbabwe (see brief country profile). It is a statutory corporation established by an Act of Parliament – (the Electricity Act of 1985). A Board of Directors, appointed by the Minister in charge of energy, is responsible for the management of ZESA.

Zimbabwe’s electricity sector comprises of five power stations with a total installed capacity of 1,961 MW (Table 1) (Bhagavan ed, 1999)

Table 1 Power Stations in Zimbabwe

The five power stations are only capable of meeting a maximum demand of 1,600 MW. Given Zimbabwe’s current maximum demand of around 2,034 MW (ZESA, 1999), compared to the limited internal generation capacity, the country has to rely on imports to satisfy its power requirements (Table 2).

Table 2 Zimbabwe’s Power Imports
The 220kV interconnection with Botswana is used more as an emergency support line for that country, since Botswana is also dependent on power imports to satisfy demand. Between 150 and 500 MW can be supplied from South Africa, depending on the loading on the Cahora Bassa line (ZESA, 1996). Zambia, which is interconnected at 330 kV at Kariba, also serves as the interconnection for the Democratic Republic of Zambia (DRC), which has a 220kV, 250MW interconnection into the Zambian grid (ZESA, 1992). While the interconnection with Zambia can carry up to 700 MW, supply is currently limited to an average of 100 to 200 MW due to generation constraints in Zambia (Table 2).

In summary, the energy sent out from Zimbabwe’s five power stations is about 7,090 GWh, which represents just over 65.61% of annual demand of over 12,500 GWh. The balance of 33.39% is supplied from imports (ZESA, 1999).

ZESA’s total annual energy sales are just under 11,000 GWh (10,779 GWh in 1999 and 10,685 GWh in 2000). This level of sales reflects total system losses of about 12.8% of energy sent out (ZESA, 1999). The number of customers supplied is nearly 500,000, and the level of electrification is 40%. Eighty per cent of the urban dwellers and below 20% of the rural population have access to electricity (Kayo, 2001; AFREPREN, 2001). The major users of power are industrial and commercial operations (55%), mining and agriculture (25%) and households (20%) (Zesa, 2000).

1.1 Financial Performance

The total annual revenues and net surplus for the year ending December 2000 were Z$28 billion (US$510 million) and Z$4.9 billion (US$89 million), respectively. The debt collection performance since the mid-1990’s has been fairly good, with receivables being 30 to 40 days revenue (ZESA, 1999). The level of profitability has, however, not been sufficient for the organisation to embark on major generation expansion projects.

1.2 Current Challenges

The current challenges facing ZESA are the need to sustain and improve financial profitability, to resolve chronic cash flow problems and to expand electrification, especially in rural areas. The macro-economic and regulatory regime is at present unfavourable, with the former characterised by recurring fiscal deficits - resulting in high inflation, unstable exchange rates, scarcity of foreign currency and negative economic growth.

The present legal and regulatory framework does not support sustainable financial performance, because pricing and operational decisions are susceptible to political influence. During the electricity price controls of 1998 and 1999, the organisation had net losses of Z$6.6 billion and Z$1.7 billion, respectively (ZESA, 1998).

The Zimbabwean Cabinet recently approved a White paper, which recommended that a new Electricity Act be designed to establish an independent regulatory authority and facilitate the unbundling and privatisation of ZESA. The challenge is to translate this approval into actual legislation, followed by the implementation of the necessary institutional changes.

2. Initial Reforms after Independence
At independence in 1980, Zimbabwe inherited a power sector comprising six publicly owned utilities:

- **Central African Power Corporation (CAPC)**, jointly owned by the Governments of Zimbabwe and Zambia, and responsible for generation and transmission of power to the two countries from the Kariba Hydroelectric Scheme.
- **Electricity Supply Commission (ESC)**, which was responsible for coal-fired generation at Hwange and Munyati, (table 1) as well as the distribution of power throughout Zimbabwe, outside the four main cities.
- Four municipal electricity undertakings owned by the cities of Harare, Bulawayo, Gweru and Mutare - responsible for providing power to the cities and their environs.

### 2.1 Formation of ZESA

An Electricity Act passed in 1985 led to the amalgamation of the five Zimbabwean-owned utilities and the Zimbabwean-based generation and transmission facilities of the CAPC into the present-day Zimbabwe Electricity Supply Authority (ZESA) (Government of Zimbabwe, 1986). The amalgamation was to streamline the administration of the electricity sector through the Ministry responsible for energy, to achieve efficiencies through economies of scale and to remove duplication of functions among the utilities.

### 2.2 Shortcomings of ZESA

Within three years of its establishment, ZESA was running at a financial loss (ZESA, 1997). A brain drain of skilled staff ensued, resulting in the rural electrification programme virtually grinding to a halt, power shortages and frequent system breakdowns. However, the slow down in the economy, from the late 80s to the beginning of the 90s, reduced the adverse impact of the power shortages as electricity demand eased.

By 1991, it became evident to the Government, the consumers and the general public that ZESA had not lived up to the initial expectations. While ZESA had succeeded in rationalising the tariff structure and establishing a streamlined management and planning process for the power sector, the earlier envisaged economies of scale and growth were not forthcoming. As economic growth started to pick up in 1992/1993, power rationing had to be introduced - triggering the present reform process.

A two-pronged strategy of reform was adopted – a performance improvement programme for ZESA and a legal and regulatory framework for the electricity sector in general. This article confines itself to the PIP.

### 2.3 ZESA’s Performance Improvement Programme (PIP)

The Government and the Board of ZESA initiated the performance improvement programme (PIP) with the appointment of a new Chief Executive in December 1992, placing the latter and all senior managers on a performance contract. Concurrently, Electricité de France (EDF) was engaged to work with the new management team to develop a programme to improve the performance of the organisation in the key areas of technical operations, customer service, financial performance and human resources management.

A two-year programme, covering the fiscal years July 1993 to June 1994 and July 1994 to June 1995, was developed and approved by the Board and Government, with a ministerial directive to the Board to implement and make regular reports to the Minister on the PIP. The favourable results of the programme...
were later used as the basis for formulating a five-year corporate business plan for the period July 1995 to June 2000.

The following eight strategic issues and objectives were initially used to define performance targets:

(a) Quality Standards - focus on achieving world-class performance.
(b) Product Quality - focus on elimination of supply problems
(c) Service Quality - focus on honouring promises to customers
(d) Profitability - to consistently achieve profit targets
(e) Growth - to achieve total electrification
(f) Corporate Image - to achieve world class utility image
(g) Employee Satisfaction - to attract and retain skills
(h) Autonomy - to empower the individual and the utility

Later, the following six strategic issues and objectives became the basis of performance measurement at both corporate and individual level:

(a) Customer Satisfaction - customer-driven product and service quality
(b) Liquidity and Profitability - focus on both cash and profit
(c) Growth - focus on total electrification
(d) Employee Satisfaction - attraction and retention of skills
(e) Corporate Image - responsible corporate citizenship
(f) Innovation - striving to be better, faster, cheaper always

Appendix A provides a summary of the key technical and financial results and performance indicators for ZESA, over the period 1990/91 to 2000/01.

2.4 Customer Satisfaction

The elimination of electricity rationing and frequent load-shedding were undertaken to achieve customer satisfaction. This was achieved by signing new import contracts with ZESCO of Zambia and SNEL of the Democratic Republic of the Congo, building the 400 kV interconnections to South Africa (1994/95) and to Cahora Bassa (1996/97) and developing a customer charter to help frontline employees in customer service (ZESA, 1996; AFREPREN, 2001). Refurbishment and reinforcement of the transmission and distribution networks helped to reduce the frequency and duration of power outages.

2.5 Liquidity and Profitability

Improving cash collection and seeking government approvals for cost-reflective tariffs were the key strategies employed to maximise revenue. Receivables were reduced from an average of 99 days in 1993 to about 30 days at present.

Cash flow and profitability, however, remained below target. Tariffs were only adjusted in response to an actual financial crisis notwithstanding prior warnings. The legacy of belated tariff increases is reflected in the perennial liquidity problems, which ZESA has faced over the years. Financial deficits were financed through short-term borrowings. When tariff increases were granted, profitability recovered almost overnight but took several months for the cash flows to recover because of the heavy short-term debt service requirements.

With this ad hoc tariff setting approach, getting approvals for tariffs that reflect prospective investment costs proved impossible. ZESA, therefore, failed to finance the major generation expansion programme that had been envisaged.

The payment of dividends was a premature and ill-advised action that made it impossible for ZESA to sustain profitability and growth.
Additionally, the power sector reform agenda was removed from Government priorities.

2.6 Growth

The high rate of urban electrification was underpinned by a marked increase in the number of new customers - from 6,496 in 1993 to more than 25,000 a year by the late 1990's (ZESA, 1999). The revived rural electrification programme was subsequently based on more sustainable financing mechanisms - 1% levy on customer bills and schemes for mobilising community contributions (Kayo, 2001). Whereas the previous rural electrification programme serviced 80 rural centres, the levy and the community contribution schemes assisted in servicing over 400 rural centres between 1997 and June 2001 (Dube, 2001).

2.7 Employee Satisfaction

The review of the remuneration of the staff, including performance bonuses for meritorious achievements motivated them. The staff strength was reduced from 10,500 to 7,955, with the actual number of staff in service being 6,983 as at December 2000 (ZESA, 1999). However, the failure to make progress on the legal and regulatory front has begun to erode gains in employee satisfaction, due to increasing political interference on issues affecting employees.

2.8 Corporate Image

An open door policy for the media and the creation of customer advisory committees helped to engender and maintain a positive image of ZESA among the key stakeholders. Most of the positive media stories on ZESA were derived from a fortnightly newsletter that was established.

The major benefit of maintaining a positive corporate image was in getting customer and Government support for tariff approvals.

2.9 Innovation

Research and Development programmes, business process re-engineering and the application of information technologies were the initiatives used to find better, faster and cheaper ways of achieving all the above strategic objectives. Computerisation facilitated improvements in billing and revenue collection including financial reporting management.

ZESA proactively assisted Government with the drafting of the Electricity White Paper and the new Electricity and Rural Electrification Bills.

3. Analysis of the Successes and Failures of the PIP

The successes of the PIP and Corporate Business Plan relate to those issues, which were achievable within the legal and regulatory framework established by the Electricity Act of 1985. That Act had not anticipated the radical reforms of the Economic Structural Adjustment Programme (ESAP) era involving the unbundling and privatisation of the electricity industry.

The ESAP reforms entailed a significant change in the oversight role of Government. From owning, managing and regulating the day-to-day operations of the electricity sector, the Government was expected to focus only on overall energy policy issues. ESAP represented a significant departure from socialism - the fundamental political ideology of the ruling party.

In contrast, the existing electricity legislation was designed along the strong state control socialist ideology. The Electricity Act of 1985 established a board of directors with very little power - implementing
ministerial directives. On corporate governance, the Board in the Electricity Act of 1985 was another layer of management, with the Minister being the *de facto* Board.

In practice, the performance of ZESA reflects the performance of the Minister in charge. The financial results and performance indicators in Tables A3 and A4 of Appendix A correlate very well with the actions of the Ministers who were in charge of energy. This is elaborated in the next section:

**Period up to mid-1992:** The Minister did not approve proposals to review tariffs, because, for political reasons, he wanted both the Board and the then Chief Executive to resign. The Minister, though a prominent businessman, was politically outspoken as a staunch proponent of socialism and did not support the ESAP price deregulation policies. After a cumulative increase in inflation of 98%, without tariff reviews, he only allowed a 21.7% increase in 1991 (ZESA, 1992). The result of the Minister’s term of office was a succession of years of financial losses for ZESA. He succeeded only in getting rid of the Board and Chief Executive and in appointing his own Board. He was subsequently removed from the Cabinet.

**Period from mid-1995 to mid-1997:** The next Minister of Energy decided to maintain the management approach of his predecessor. However, he was reluctant to increase prices in his first year, but granted a 26% increase in 1996. ZESA continued to prosper (Kayo, 2001).

**Period from mid 1997 to early 2000:** Soon after a new Minister was appointed, there was a series of devaluations of the Zimbabwe dollar starting in November, 1997. The effect of the devaluations was to reduce the tariff in US$ terms from 0.041 in October 1997 to 0.017 by October 1998 (Kayo, 2001). There were food riots as devaluation-induced price escalations took effect on essential commodities. The political climate was tense.

Predictably, requests by ZESA for tariff reviews were not immediately granted, until an inadequate 20% tariff adjustment was allowed in October 1998. Consequently, ZESA had its largest ever-financial deficit of Z$6.6 billion for the year ending December 1998 (ZESA, 1998).

A series of quarterly price adjustments of 15% were allowed during the first three quarters of 1999. From October 1999, the quarterly adjustments were increased to 20%. In August 1999, the Minister allowed the introduction of an automatic tariff adjustment formula for non-domestic customers. Adjustments were to be made for movements in inflation, exchange rates and fuel prices. These measures resulted in a significant improvement in financial performance for the year 1999 when a reduced deficit of Z$1.7 billion was achieved. A timely tariff review at the end of 1997 or early in 1998 would have avoided all the losses.

The financial crisis had a positive effect in that the Minister was persuaded to make progress in drafting a White Paper for the reform.
of the electricity sector. To the Minister, the attractive aspect of the reform proposals was the delegation of the politically sensitive task of tariff-setting to the proposed regulatory authority.

Period early 2000 to present: There have been three Ministers of Energy in the short period between February 2000 and the beginning of 2002. The rapid turnover of Ministers has disrupted progress of the implementation of the Electricity White Paper. ZESA is once again facing an uncertain financial future as tariff reviews are being deferred for political reasons.

While the first Minister allowed the tariff formula principle to be extended to domestic customers in the first quarter in 2000, the next Minister cancelled the scheduled 20% quarterly increases for October and deferred the December 2000 adjustment to January 2001. During 2001, the only tariff adjustments allowed were those due to movements in the tariff formula variables. The result was that revenue for 2001, estimated at Z$28 billion, is 12.5% less than the budgetary target of Z$32 billion (ZESA, 1999).

There is an unhealthy increase in staff turnover at the skilled and managerial levels. During the first quarter of 2001, political influence resulted in the loss of the entire executive management team, which had been responsible for the successful performance improvement programme. Soon afterwards, the Minister was replaced in a Cabinet reshuffle.

A positive development is that the current Minister has now taken firm steps towards implementing the White Paper. Cabinet approval in September 2001 for the White Paper has set in motion the legislative process, which should be completed early in 2002. Hopefully, the new Act would lead to the rapid establishment of a regulatory authority and, perhaps, a final solution to the tariff question in Zimbabwe.

4. The Tariff Question: The Rhetoric and the Reality

In 1986, the Government commissioned consultants to undertake a tariff policy-study. The consultants recommended that the long-run marginal cost (LRMC) principle be adopted. The long run marginal cost required to support this development programme has been estimated at between 6 to 7 US c/kWh, depending on the trade off between import dependency and self-sufficiency (AFREPREN, 2001).

When the original LRMC recommendation was made, the average tariff in Zimbabwe was 2.47 US c/kWh. Adjusting tariffs to LRMC level would have implied an increase of over 200%. The Government was not prepared to implement the recommendation without a second opinion. Another study was done in 1988 by different consultants who reached essentially the same conclusions as their predecessors. While the Government did not implement the recommendations, it did adopt the principle of LRMC as its official tariff policy.

When ESAP was introduced in 1991, the Ministry of Finance agreed with the World Bank on a phased programme of tariff adjustments with the objective of attaining LRMC levels by 1995/96. The target was later moved to 2000 after several revisions and updates to the System Development Plans. However, the successive Ministers of Energy did not implement the LRMC tariff programme.

5. Consequences of Failure to Implement LRMC Tariffs
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The major casualty of the failure to raise tariffs to LRMC levels was the System Development Plan. Options for generation expansion for Zimbabwe which were identified then, and which are still being considered today, were the following:

- **Extension of existing power stations:** The options identified were an extra 300 MW at Kariba costing an estimated US$200 million and an extra 600 MW at Hwange costing an estimated US$660 million (Daniel, 2001; Dube, 1998).

- **New power stations:** The options which have been studied extensively were an 800 MW hydroelectric scheme at Batoka on the Zambezi estimated to cost US$1 100 million and a 1,400 MW coal-fired plant at Gokwe North estimated to cost US$1,600 million (Clark and Mark, 2000; Botbol, 2001).

**Imports from the Southern African Power Pool:** Existing surplus power, expected to last up to 2007, is estimated at 1,100 MW, with 600 MW coming from South Africa, 300 MW from the DRC and 200 MW from Zambia. After 2007, the amount available for import would depend on new power station developments in these and other neighbouring countries. Hitherto, none of the planned projects have taken off, with the exception of interconnection projects for imports. Consequent to the high turnover of Ministers of Energy, the link between LRMC tariff levels and the financial feasibility of new generation projects became more and more blurred. This was vividly demonstrated by the failed attempts at privatising Hwange Power station and getting private sector investment for Gokwe North project.

5.1 **Failed Hwange Privatisation and Expansion Project**

On September 15th 1996, the Government of Zimbabwe issued a Letter of Intent to YTL Corporation of Malaysia for the privatisation and expansion of the Hwange Power Station. The letter provided for the sale of the existing power plant to a joint venture between YTL (51%) and ZESA (49%). The joint venture was then expected to finance the extension of the plant by two 300 MW units on a non-recourse project finance basis. The existing power plant was valued at US$627 million, while the expansion required US$550 million (Clark and Mark, 2000; Botbol, 2001).

In order for the joint venture to undertake this level of investment and obtain a 20% return on investment, it was estimated that the average retail tariff would have to be immediately raised to 5 US c/kWh and then to 6.2 US c/kWh by 2000. Compared to the average retail tariff of 2.97 US c/kWh in 1996, the proposed tariff increases were considered to be too high by the Government (Kayo, 2001).

YTL then came up with another proposal to pay US$184 million for the existing plant, which was consistent with the existing tariffs. The expansion project was to be deferred until the Government was prepared to grant the necessary tariff increases to LRMC levels. Having gone public on the US$627 million as being the fair value for the existing plant, the Government could not accept the massive price discount to US$184 million. The negotiations were, therefore, called off in March 2000 without finalising an agreement (Botbol, 2001).

5.2 **Failed Gokwe North Project**

In April 1997, Government signed a Letter of Intent with National Power and Rio Tinto of UK for the phased development of a 1,400 MW coal-fired power plant at Gokwe North. The expected cost of the development was US$1,600 million including finance charges. The viability of the project was
conditional on a commitment to achieve LRMC tariff levels by the year of commissioning of the first unit. Again the Government was unable to fulfil this commitment, with the project failing to procure financial support. Negotiations were also abandoned in early 2000 (Clark and Mark, 2000; Botbol, 2001).

6. Tariff Reform is an Essential Pre-Requisite for Privatisation

The unmistakable conclusion from these failed privatisation attempts was the need for tariff reforms to precede any attempts at privatisation. It was, however, important to isolate the two key issues in tariff reform – the tariff setting process and the tariff level needed to support investment.

Setting the tariff level on the basis of reversing financial losses has not been a difficult exercise as both the customers and the Ministers have been able to appreciate the need for tariff adjustments under such circumstances. The problem is attributed to requests to adjust tariffs to meet future expenditure. This is the rationale for the LRMC, theoretically the official tariff policy of the Government.

Asking for tariff levels to be adjusted to LRMC levels, in the absence of an investment programme, failed to solicit a sympathetic response from Ministers. With hindsight, this was good because the experience with the directive for dividend payments would have meant that the additional revenue from LRMC tariff levels was not likely to have been put aside for development. By failing to adjust tariffs when required to support the Hwange and Gokwe North investment projects, Zimbabwe lost two golden opportunities of finally resolving the tariff question. The next section deals with Zimbabwe’s experience and proposed plan to establish a politically neutral, transparent and predictable tariff-setting process.

6.1 Automatic Tariff-Adjustment Formula

It is evident from the historical analysis of the Ministerial decisions on tariffs that the tariff-setting process was fundamentally flawed. Notwithstanding the existence of a formal policy on tariff-setting, tariffs tended to be increased only in response to actual financial crises. In January 1999, ZESA decided to develop an automatic tariff-adjustment formula, as a way of divorcing the tariff-setting process from politics. The Electricity Act empowered ZESA to have negotiated tariffs for special customers whose operations were incompatible with the standard tariffs.

One of the special tariff customers, a ferrochrome mining and smelting company, had a commodity-linked tariff formula, which had been developed to assist the customer in weathering periods of reduced metal prices. In return, ZESA would receive the benefit of increases in ferrochrome prices by charging more when the market recovered. The tariff was denominated in US dollars, the currency of the ferrochrome markets. The devaluation of the Zimbabwe dollar at the end of 1997 and during 1998 led to a substantial increase in revenue from this customer.

An analysis of the customer base was undertaken in order to investigate the possibility of applying a similar tariff to other customers. The customer base of ZESA during the 1990s revealed the revenue and consumption statistics shown in Table 3.

Table 3 ZESA Customer Base

The statistics indicated that 88% of the total number of customers was domestic and yet consumed 20% of total energy demanded, and
contributed 15% of total revenue. Their ability to influence ministerial decisions on tariffs was therefore out of proportion to their commercial significance to ZESA (Kayo, 2001; ZESA, 1992-99).

ZESA took the decision to classify all the non-domestic consumers as special customers who would be charged on a tariff formula basis. Following the precedent with the dozen or so customers who were already on specially negotiated tariffs, the tariff formula was going to be subject to agreement between the customers and ZESA without the need for formal approval by the Minister.

Meetings were held between ZESA and customer representatives using the consumer advisory committees set up as part of the PIP strategy of enhancing the corporate image. The committees were educated on the cost structure of ZESA as well as the concept of the LRMC and its link to new investment. The customer representatives, being business people, were able to appreciate the fact that ZESA was able to control only 10% of the cost variables, while a massive 71% of the costs were influenced by movements in the exchange rate. Fuel costs and domestic inflation accounted for 8% and 11% respectively.

Once the customer representatives were convinced on the soundness of the tariff formula approach they, in turn, went to educate their members with assistance from the staff of ZESA’s regional offices. By mid-1999 almost all the non-domestic customers had been communicated with and queries and suggestions from the customers had been dealt with. It was decided to implement the tariff formula with effect from August 1st, 1999 after giving formal written notice to each customer.

The result of the formula was a dramatic improvement in the financial performance of ZESA. Monthly revenue jumped from Z$600 million to over Z$1 billion within the first two months of introducing the formula. By December 1999, ZESA reported a net deficit of Z$1.7 billion, a huge improvement from the Z$6.6 billion deficit recorded a year earlier (ZESA, 1999).

The incident-free and successful application of the formula to non-domestic customers, as well as the Minister’s support, inspired the development of another formula for domestic customers. It was decided to use the Consumer Price Index as the main variable because it would lead to a more gradual adjustment in prices than was the case with the formula for the non-domestic customers. The formula for the domestic customers was implemented from the first quarter of 2000. The financial performance for the year ending December 2000 became one of the best for ZESA – revenues exceeded Z$20 billion with net surplus being Z$3 billion (Kayo, 2001; AFREPREN, 2001).

6.2 Subsidies

While the tariff adjustment formulas helped to raise the average tariff levels, it did not address the problem of untargeted subsidies, implicit in the tariff structure. The LRMC study recommendations advocated for the removal of any cross subsidies in order to achieve economic efficiency. In adopting the LRMC principle as the official tariff policy, the Government did not, however, adopt any explicit subsidy policy. The policy emerged implicitly in Ministerial decisions on tariff adjustments.

Over the years, ZESA had been submitting requests for tariff adjustments, which attempted to match the tariff class to the cost of supplying that class. On this basis, the highest energy cost would have been charged to the domestic category. The Ministers generally
rejected such proposals, preferring to have the non-domestic customers to carry the higher unit charges in order to keep electricity affordable to domestic customers. The large, generally agri-related or other industries deemed strategic, were also able to make direct appeals to Government for concessionary tariffs. The implicit subsidy policy, which therefore developed resulted in the domestic and some large customers paying less than the cost of providing supply. The bulk of the subsidies were provided by the small- to medium-scale commercial, mining and industrial customers. These categories included supermarkets, which were always seen as being able to absorb large tariff increases by reason of their ability to immediately pass on the costs to their customers. Table 4 on results from revenue and cost studies illustrates the extent of the cross subsidies.

Table 4 Revenue to Cost Analysis

Clearly, there is a mismatch between the cost and revenues for the domestic and large agricultural and special customers. The adjustment of tariff levels only served to exacerbate the mismatch as can be seen from the revenue to cost figures for the year 2000, when compared to 1999.

7. Tariff Rationalisation

There is a limit on the level of subsidy that can be carried by the small- and medium-scale non-domestic categories. As the automatic tariff adjustment formula began to create frequent upward tariff increases, the customer groups carrying the subsidy burden started to make representations for tariff rationalisation. ZESA initiated the process of tariff rationalisation by restructuring the domestic tariff in order to protect the low-income groups but reducing the subsidy from the high-income groups.

7.1 Lifeline Tariffs

A study by ZESA on the use of electricity by the domestic category showed that there are four different sub-groups. The first is the very low-income group that uses an average of 50 kWh per month principally for lighting and power for radios. Heating and cooking needs are met by using other fuels. The second, and the largest of the domestic groups, uses an average of 300 kWh for lighting and power, as well as for cooking using a one- or two-plate stove without an oven. The next group uses an average of 1,000 kWh per month and has heavier heating needs for three- to four-plate cookers with ovens. This group also has refrigerators and geysers. The fourth group with an average consumption above 1,000 kWh is a mixed one comprising very high-income families (ZESA, 2000).

To take account of these different groups, the domestic-metered tariff was made into a four-block tariff (see table 5). The tariff level for the first two blocks is based on an assessment of ability to pay and comparison with the cost of alternative fuels. Ability to pay is taken as a monthly bill, which is about 5%, and not more than 10% of the take home pay.

The next two blocks have a tariff, which is more than double the lower blocks in order to remove the subsidy benefit from the high-income groups. The last block has unit charges, which are higher than commercial rates.

Table 5 Domestic Tariff Categories in Zimbabwe

7.2 Special Agricultural Tariff

The process of consultation on the tariff formula revealed that agricultural customers on a two-part energy and demand tariff who use electricity for irrigation were
disadvantaged during the rainy season. The two-part tariff is designed to penalise customers with high capacity installations, which are poorly used. During the rainy season, farmers sometimes have no need to irrigate, except for a few days in a month. The tariff would punish them for such use, which is outside their control. To mitigate this, an upper limit on charges was introduced for this group of customers. This requires the subsidised groups to provide the difference in revenue.

7.3 Tariff Rationalisation

Benefits

The customers have welcomed the modest tariff rationalisation that has been implemented. This has allowed significant jumps in tariff levels to be made without adverse impact on revenue collection. Since the introduction of the tariff formula in Zimbabwe, average electricity prices have risen from 87 Zc/kWh (2.26 US c/kWh) to 267 Zc/kWh (4.9 US c/kWh). Simultaneously, the average amount of outstanding revenue has remained within 30 to 40 days for all tariff categories. Total system losses have risen by less than 1%, mostly due to technical losses, as a result of the rapid growth in the rural electrification network.

8. Implications of the Tariff Question for Power Sector Reform

The Power Sector reform agenda in Zimbabwe has been profoundly influenced by experiences with the tariff-setting and review process described above.

The Government’s main objectives for the power sector reforms are to improve efficiency of service-delivery, to expand electrification, especially in the rural areas, and to relieve the Treasury of the burden of financing electricity infrastructure. To emphasise the importance of the tariff question, the process of developing the Electricity White Paper involved the setting up of a working group dedicated to tariff rationalisation and reform to work together with two other groups - one on legislation and the other on ZESA’s unbundling and privatisation. Consequently, the new draft legislation, which emerged from the working groups, revolved around financial and tariff issues.

The main focus of the new Electricity Act is on the regulation of standards of service and the prices charged for those services. This is in sharp contrast to the Act of 1985 whose focus was on the establishment and management of ZESA. The adverse impact of politics on the tariff-setting process has influenced the elaborate measures provided in the legislation to ensure the independence of the Regulatory Commission. To further minimise political influence in tariff-setting, the commission itself will comprise of professionals with stakeholder involvement.

8.1 Implementation Hurdles

If implemented in accordance with the spirit of the new law, there is no doubt that the tariff question will be finally resolved and the much needed new investment and growth in the electricity sector will be achieved.

One hurdle to overcome is the bad precedent, which has been set in Zimbabwe’s Telecommunications sector. The new Telecommunications Regulatory Authority in Zimbabwe is a statutory body appointed and controlled by the responsible Minister. Experience in the electricity sector has shown that performance becomes unpredictable when power is concentrated in the hands of a single individual.

Another hurdle to overcome is the macro-economic policy, which is not aligned with the fundamental free market ideology implicit in the proposed power sector reform programme.
At present the Government’s macro-economic policy is based on socialist principles of state ownership and state control. These are principles, which are no longer in favour with the international financial and donor community. The domestic financial markets have no capacity to support the major investments required by the electricity sector. The Government will, therefore, sooner or later, need to realign its economic policies with those of the international capital markets.

9. Conclusions and Lessons from the Zimbabwe Experience

Many countries in sub-Saharan Africa, as is the case worldwide, have embarked on power sector reforms without adequate attention being paid to the tariff question. Even developed countries have made elementary mistakes in this respect. Recently the State of California experienced power blackouts and utility bankruptcies because of defective tariff policies. Retail tariffs were controlled, while freeing up wholesale market prices. Not surprisingly, it did not take long before utilities experienced massive financial losses because the controlled retail tariffs could not cover the costs of purchasing power on the wholesale market - where prices were changing freely. The utilities failed to purchase power and the State Government was forced to intervene to avoid a total shutdown of the system.

In Zimbabwe, the power sector reform process is still ongoing. Progress has been constrained by the failure to establish a predictable and sustainable tariff-setting process. However, the slow progress and some failures have not been completely without positive results. Because the tariff is the only source of revenue for non-recourse project finance, it would have been disastrous for the Hwange and Gokwe North to go ahead before the regulatory and tariff questions had been answered.

Important lessons which have been learnt in Zimbabwe that are useful for other countries in the region embarking on Power Sector Reform (PSR) can be summarised as follows:

(a) Begin with the electricity customer in mind: By linking tariff increases with significant performance improvements, ZESA was able to generate a lot of customer goodwill. Power sector reforms must, therefore, focus on providing quality service to the customer and the end-user. The positive performance by ZESA in debt collection and in restricting non-technical losses to a minimum is an indicator of customer satisfaction.

(b) Better use of local management skills can achieve significant performance improvements at low cost: Immediate improvements in customer service can be achieved with modest changes in management. Most of the performance improvements in ZESA were achieved by making better use of existing management in both the utility and the Ministry.

(c) Regulatory and Tariff Reform must precede privatisation: Whenever there is a significant gap between electricity prices and investment cost, it is imprudent to seek private sector investment on a non-recourse project finance basis. Existing assets will not be able to fetch prices that reflect their worth. Financial markets will not consider new project finance unless there is a predictable and sustainable revenue stream sufficient to cover the financing costs. Levy on customers’ bills and schemes for mobilising community contributions are
important for improving electrification services to the poor communities.

(d) **It is far easier to set tariff levels in response to sunk costs than in preparation for future costs:** Marginal cost pricing may be economically efficient, but it is a difficult concept to implement. As soon as ZESA started to record positive net surpluses, and before the tariff levels were sufficient to meet future investment requirements, the Government decided to take 50% of the surpluses as a cash dividend. In addition, opportunities to achieve long-run marginal cost levels were missed with the failed privatisation projects at Hwange and Gokwe North. These were specific investment programmes, which would have absorbed the additional revenues from long-run marginal cost prices, thereby avoiding any misallocation.

(e) **Power sector reform must be compatible with macroeconomic policy:** Contemporary power sector reforms are founded in the free market ideology. Most of the developing countries are emerging from decades of socialist experiments. Focussing on tariff reform as a priority helps to confront and deal with the ideological issues before going far with the power sector reforms. In Zimbabwe, socialist thinking influences the Government’s macroeconomic policies. Before much progress can be achieved in power sector reforms, it is essential that the Government resolve the tariff question, which is in fact linked to macroeconomic policy.

(f) **End with the customer in mind:** Subsidies are necessary, because cost and ability to pay are not always matched. It is important to analyse the consumption patterns and incomes of consumers in order to design a tariff structure, which satisfies different customer groups. A properly structured tariff will allow cost-reflective tariffs to be charged without compromising the utility’s ability to collect cash and to control losses.

10. References


Zimbabwe Electricity Supply Authority [ZESA], (1993.) Annual Report. ZESA, Harare


11. **Selected Bibliography**


Zimbabwe Electricity Supply Authority (ZESA), 1999. Load Forecast, ZESA, Harare


Zimbabwe Electricity Supply Authority [ZESA] (2000)
<table>
<thead>
<tr>
<th>Reference</th>
</tr>
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<tbody>
<tr>
<td>Rural Electrification Report, ZESA, Harare</td>
</tr>
<tr>
<td>Zimbabwe Electricity Supply Authority [ZESA] (1992)</td>
</tr>
<tr>
<td>Statistical Metering Data, ZESA, Harare</td>
</tr>
<tr>
<td>Survey on Domestic Energy Use, ZESA, Harare</td>
</tr>
</tbody>
</table>
Table 1  Power Stations in Zimbabwe

<table>
<thead>
<tr>
<th>Station Name</th>
<th>Plant Type</th>
<th>Nameplate Capacity (MW)</th>
<th>Available Capacity (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kariba</td>
<td>Hydro-electric</td>
<td>666</td>
<td>470</td>
</tr>
<tr>
<td>Hwange</td>
<td>Coal-fired</td>
<td>920</td>
<td>800</td>
</tr>
<tr>
<td>Harare</td>
<td>Coal-fired</td>
<td>135</td>
<td>60</td>
</tr>
<tr>
<td>Bulawayo</td>
<td>Coal-fired</td>
<td>120</td>
<td>90</td>
</tr>
<tr>
<td>Munyati</td>
<td>Coal-fired</td>
<td>120</td>
<td>60</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>1 961</strong></td>
<td><strong>1 620</strong></td>
</tr>
</tbody>
</table>

Source: ZESA, 1999
Table 2  Zimbabwe’s Power Imports

<table>
<thead>
<tr>
<th>Country</th>
<th>Interconnection Voltage (kV)</th>
<th>Maximum Capacity (MW)</th>
<th>Available Capacity (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mozambique</td>
<td>400</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>South Africa</td>
<td>400</td>
<td>500</td>
<td>150 - 500</td>
</tr>
<tr>
<td>Zambia</td>
<td>330</td>
<td>700</td>
<td>100-200</td>
</tr>
<tr>
<td>D.R. Congo</td>
<td>220 (to Zambia)</td>
<td>250</td>
<td>150</td>
</tr>
<tr>
<td>Botswana</td>
<td>220</td>
<td>100</td>
<td>Nil</td>
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</tbody>
</table>

Table 3  ZESA Customer Base

<table>
<thead>
<tr>
<th>Customer category</th>
<th>Consumption (% of total GWh)</th>
<th>Revenue (% of Total $)</th>
<th>Numbers (% of Tot)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>10</td>
<td>15</td>
<td>2.3</td>
</tr>
<tr>
<td>Mining</td>
<td>15</td>
<td>15</td>
<td>0.2</td>
</tr>
<tr>
<td>Domestic</td>
<td>20</td>
<td>15</td>
<td>88.0</td>
</tr>
<tr>
<td>Industry</td>
<td>40</td>
<td>35</td>
<td>0.5</td>
</tr>
<tr>
<td>Commerce</td>
<td>15</td>
<td>20</td>
<td>9.0</td>
</tr>
<tr>
<td>Total</td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: ZESA 1999
### Table 4  Revenue to Cost Analysis

<table>
<thead>
<tr>
<th>Tariff Category</th>
<th>Cost (% of Total)</th>
<th>Revenue to Cost Ratio (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1999</td>
<td>2000</td>
</tr>
<tr>
<td>Domestic, Load Limited</td>
<td>27.9</td>
<td>51.0</td>
</tr>
<tr>
<td>Domestic, metered</td>
<td>6.2</td>
<td>34.9</td>
</tr>
<tr>
<td>Public Lighting</td>
<td>0.8</td>
<td>89.5</td>
</tr>
<tr>
<td>Low capacity, industrial and mining</td>
<td>1.4</td>
<td>145.9</td>
</tr>
<tr>
<td>Low capacity, commercial</td>
<td>8.8</td>
<td>144.4</td>
</tr>
<tr>
<td>Low capacity agricultural</td>
<td>9.5</td>
<td>107.1</td>
</tr>
<tr>
<td>High capacity, industrial and Mining</td>
<td>17.1</td>
<td>151.3</td>
</tr>
<tr>
<td>High capacity, commercial</td>
<td>3.6</td>
<td>194.1</td>
</tr>
<tr>
<td>High capacity, agricultural</td>
<td>3.9</td>
<td>92.5</td>
</tr>
<tr>
<td>Sub-transmission</td>
<td>12.6</td>
<td>90.9</td>
</tr>
<tr>
<td>Sub-transmission, special</td>
<td>8.1</td>
<td>42.3</td>
</tr>
</tbody>
</table>

Source: Kayo, 2000
Table 5  Domestic Tariff Categories in Zimbabwe

<table>
<thead>
<tr>
<th>Tariff Category</th>
<th>Zimbabwe Dollars</th>
<th>US Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Charge</td>
<td>133.7</td>
<td>2.43</td>
</tr>
<tr>
<td>First 50 kWh</td>
<td>1.42</td>
<td>0.025</td>
</tr>
<tr>
<td>51-300 kWh</td>
<td>1.57</td>
<td>0.028</td>
</tr>
<tr>
<td>301 – 1,000 kWh</td>
<td>3.68</td>
<td>0.066</td>
</tr>
<tr>
<td>Above 1,000kWh</td>
<td>3.82</td>
<td>0.069</td>
</tr>
</tbody>
</table>

Source: ZESA, 2002
Appendix A  Zimbabwe Electricity Supply Authority

Performance statistics and indicators -1990/91 to 2000/01

### A1. TECHNICAL PERFORMANCE

<table>
<thead>
<tr>
<th>Year</th>
<th>Maximum Demand (MW)</th>
<th>Energy Sent Out (GWh)</th>
<th>Energy Sold (GWh)</th>
<th>Electrification Access (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>1 572</td>
<td>9 694</td>
<td>8 852</td>
<td>&lt;20</td>
</tr>
<tr>
<td>1991</td>
<td>1 608</td>
<td>10 068</td>
<td>8 992</td>
<td>20</td>
</tr>
<tr>
<td>1992</td>
<td>1 458</td>
<td>10 264</td>
<td>9 248</td>
<td>28</td>
</tr>
<tr>
<td>1993</td>
<td>1 546</td>
<td>8 682</td>
<td>7 731</td>
<td>29</td>
</tr>
<tr>
<td>1994</td>
<td>1 590</td>
<td>9 544</td>
<td>8 412</td>
<td>31</td>
</tr>
<tr>
<td>1995</td>
<td>1 617</td>
<td>10 123</td>
<td>9 022</td>
<td>32</td>
</tr>
<tr>
<td>1996</td>
<td>1 792</td>
<td>10 495</td>
<td>9 341</td>
<td>34</td>
</tr>
<tr>
<td>1997</td>
<td>1 885</td>
<td>11 311</td>
<td>10 088</td>
<td>35</td>
</tr>
<tr>
<td>1998*</td>
<td>1 950</td>
<td>17 516</td>
<td>15 534</td>
<td>36</td>
</tr>
<tr>
<td>1999</td>
<td>2 034</td>
<td>12 363</td>
<td>10 779</td>
<td>39</td>
</tr>
<tr>
<td>2000</td>
<td>1 986</td>
<td>12 105</td>
<td>10 658</td>
<td>40</td>
</tr>
</tbody>
</table>

* Figures relate to 18 months ending December 31, the new financial year-end. Prior figures are for 12 months periods ending June 30th.

Source: Kayo, 2001; ZESA, 1999
A2. TECHNICAL PERFORMANCE (continued)

<table>
<thead>
<tr>
<th>Year</th>
<th>Transmission Losses (%)</th>
<th>Distribution Losses (%)</th>
<th>Total System Losses (%)</th>
<th>Average Time for New Connections (Days) *</th>
<th>Generation Plant Availability (%) **</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>4.0</td>
<td>7.0</td>
<td>10.7</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>1992</td>
<td>3.6</td>
<td>6.5</td>
<td>9.9</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>1993</td>
<td>4.4</td>
<td>6.9</td>
<td>11.0</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>1994</td>
<td>3.6</td>
<td>8.5</td>
<td>11.9</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>1995</td>
<td>3.5</td>
<td>7.5</td>
<td>10.7</td>
<td>150</td>
<td>n/a</td>
</tr>
<tr>
<td>1996</td>
<td>2.8</td>
<td>8.2</td>
<td>10.7</td>
<td>53</td>
<td>75.3</td>
</tr>
<tr>
<td>1997</td>
<td>2.8</td>
<td>8.4</td>
<td>10.7</td>
<td>34</td>
<td>75.0</td>
</tr>
<tr>
<td>1998</td>
<td>2.7</td>
<td>8.0</td>
<td>11.3</td>
<td>30</td>
<td>70.2</td>
</tr>
<tr>
<td>1999</td>
<td>3.4</td>
<td>8.9</td>
<td>12.8</td>
<td>35</td>
<td>65.8</td>
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<td>2000</td>
<td>4.2</td>
<td>9.8</td>
<td>13.3</td>
<td>23</td>
<td>72.5</td>
</tr>
</tbody>
</table>

Source: Kayo, 2001; ZESA, 1999

* Assumes infrastructure in place. The figures not available (n/a) are for periods when this performance measure was not used.

** The declining availability figures are for periods of power station refurbishment projects, made possible by interconnection projects, which provided replacement power through imports.
### A3. FINANCIAL PERFORMANCE

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Revenue (Z$)</th>
<th>Average Price (Zimbabwe cents/kWh)</th>
<th>Exchange Rate (Z$: US$)</th>
<th>Total Revenue (US$)</th>
<th>Average Price (US cents/kWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>525.2</td>
<td>5.68</td>
<td>2.268</td>
<td>231.0</td>
<td>2.64</td>
</tr>
<tr>
<td>1991</td>
<td>657.1</td>
<td>6.55</td>
<td>2.639</td>
<td>249.0</td>
<td>2.51</td>
</tr>
<tr>
<td>1992</td>
<td>989.1</td>
<td>11.60</td>
<td>5.051</td>
<td>195.8</td>
<td>1.81</td>
</tr>
<tr>
<td>1993</td>
<td>1 464.5</td>
<td>20.50</td>
<td>5.482</td>
<td>267.2</td>
<td>3.26</td>
</tr>
<tr>
<td>1994</td>
<td>2 139.6</td>
<td>24.61</td>
<td>8.540</td>
<td>250.5</td>
<td>2.88</td>
</tr>
<tr>
<td>1995</td>
<td>2 436.1</td>
<td>24.61</td>
<td>8.380</td>
<td>290.7</td>
<td>3.25</td>
</tr>
<tr>
<td>1996</td>
<td>3 050.4</td>
<td>31.01</td>
<td>9.400</td>
<td>324.5</td>
<td>2.97</td>
</tr>
<tr>
<td>1997</td>
<td>3 858.1</td>
<td>38.21</td>
<td>10.963</td>
<td>351.9</td>
<td>3.13</td>
</tr>
<tr>
<td>1998</td>
<td>8 253.3</td>
<td>53.1</td>
<td>37.851</td>
<td>218.0</td>
<td>1.33</td>
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<tr>
<td>1999</td>
<td>9 756.8</td>
<td>90.5</td>
<td>38.519</td>
<td>253.3</td>
<td>2.26</td>
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<tr>
<td>2000</td>
<td>20 437.1</td>
<td>191.7</td>
<td>47.230</td>
<td>432.7</td>
<td>3.85</td>
</tr>
<tr>
<td>2001 (estimates)</td>
<td>28 075.7</td>
<td>267.3</td>
<td>55.000</td>
<td>510.0</td>
<td>4.90</td>
</tr>
</tbody>
</table>

Source: Kayo, 2001; ZESA, 1999

- Figures for 1998 are for 18 months period ending December 31\(^{st}\), the new financial year end. Prior figures are for financial years ending June 30\(^{th}\).
- Long run marginal cost (LRMC) target is 6 – 7 US c/kWh has never been achieved despite official policy.
## FINANCIAL PERFORMANCE (continued)

<table>
<thead>
<tr>
<th>Year</th>
<th>Net Surplus (Z$)</th>
<th>Net Surplus (US$)</th>
<th>Self Financing Ratio (% Capex.)</th>
<th>Debt Service Coverage Ratio</th>
<th>Debtors (Days)</th>
<th>Current ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Target 40%</td>
<td>Target 1.5</td>
<td>Target 45</td>
<td>Target 1.5 -2.0</td>
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</tr>
<tr>
<td>1991</td>
<td>(63.5)</td>
<td>(24.1)</td>
<td>(102)</td>
<td>0.76</td>
<td>74</td>
<td>0.98</td>
</tr>
<tr>
<td>1992</td>
<td>(73.1)</td>
<td>(14.5)</td>
<td>(28)</td>
<td>1.29</td>
<td>85</td>
<td>1.09</td>
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<tr>
<td>1993</td>
<td>36.8</td>
<td>6.7</td>
<td>27</td>
<td>1.30</td>
<td>99</td>
<td>1.38</td>
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<td>84.9</td>
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<td>31</td>
<td>0.88</td>
<td>61</td>
<td>1.80</td>
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<td>1995</td>
<td>83.6</td>
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<td>47</td>
<td>1.00</td>
<td>50</td>
<td>1.30</td>
</tr>
<tr>
<td>1996</td>
<td>94.4</td>
<td>10.0</td>
<td>38</td>
<td>1.30</td>
<td>56</td>
<td>1.10</td>
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<td>1997</td>
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<td>9.6</td>
<td>38</td>
<td>1.36</td>
<td>37</td>
<td>0.89</td>
</tr>
<tr>
<td>1998</td>
<td>(6,587.8)</td>
<td>(174.1)</td>
<td>n/a</td>
<td>1.55</td>
<td>32</td>
<td>0.99</td>
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<tr>
<td>1999</td>
<td>(1,697.8)</td>
<td>(44.1)</td>
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<td>1.06</td>
<td>32</td>
<td>0.58</td>
</tr>
<tr>
<td>2000</td>
<td>3,080.1</td>
<td>65.2</td>
<td>n/a</td>
<td>1.89</td>
<td>33</td>
<td>0.58</td>
</tr>
<tr>
<td>2001</td>
<td>4,916.3</td>
<td>89.4</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

- Note the missed current ratio target, which indicates the perennial liquidity problem as a result of the reactive approach to tariff reviews. Profitability responds much faster to tariff increases than cash flow.
- Figures for 2001 are estimates.

Source: Kayo, 2001; ZESA, 1999
Brief Country Profile: Zimbabwe

Zimbabwe: Selected Indicators

- Area (km²): 391,000
- Capital City: Harare
- GDP Growth Rate (%): -6.1 (2000)
- Official Exchange Rate: Z$ 55.5 = 1 US$ (Feb, 2002)
- Parallel Market Exchange Rate: Z$ 300 = 1 US$ (Feb, 2002)
- Economic Activities: Agriculture, mining, manufacturing, commerce, forestry
- Energy Sources: Coal, imported petroleum, solar, biomass, hydro
- Electricity Consumption per Capita (kWh): 874 (2000)
- Electricity Generation (GWh): 12,105 (2000)

Sources: Business in Africa (2001); AFREPREN (2001); World Bank (2000); World Bank (2001); OECD/IEA (2001); Time Inc. (2002); ZESA (2001); EIU (2001)
Endnotes

1 The views expressed herein are those of the author and are not necessarily the same as the official position of the Government of Zimbabwe or of the Zimbabwe Electricity Supply Authority.