



ENERGY REFORM LESSONS AND IMPLICATIONS

LEARNING FROM INTERNATIONAL EXPERIENCE OF ELECTRICITY TARIFF REFORM

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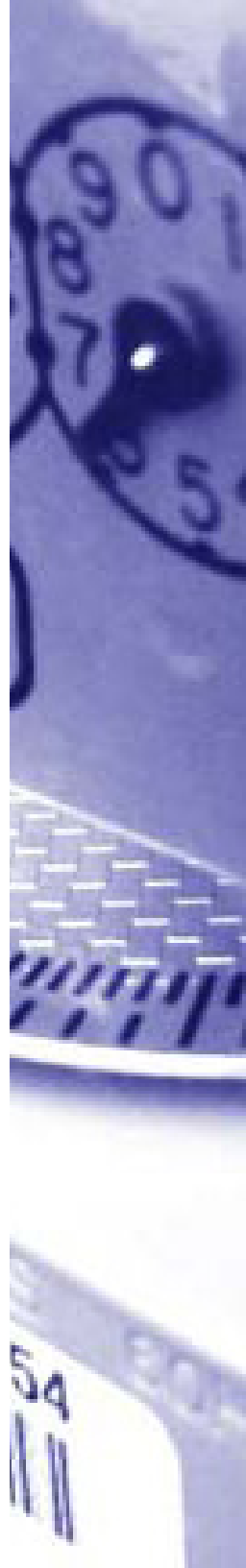
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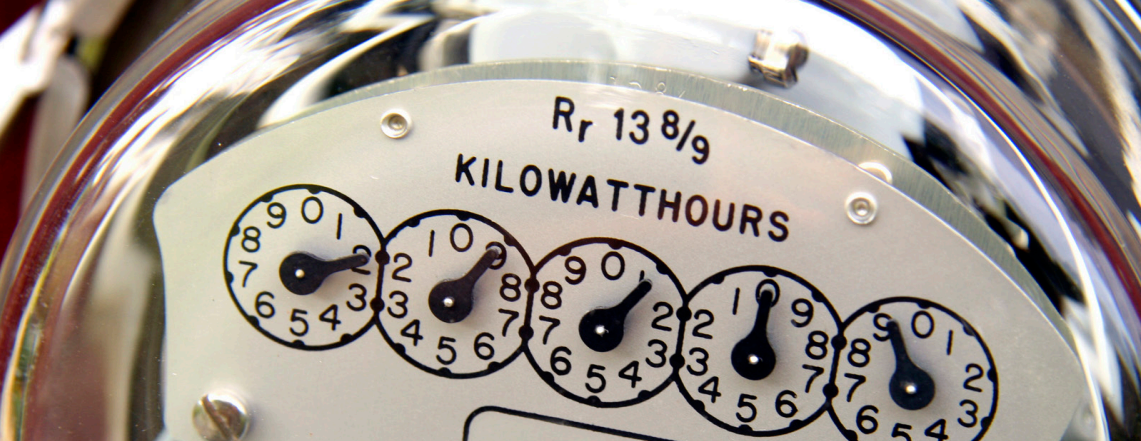
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ENERGY REFORM LESSONS AND IMPLICATIONS

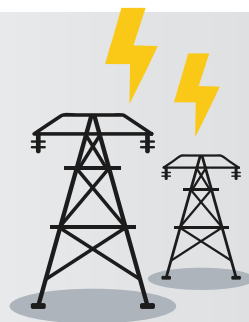
**Learning from International Experience of Electricity Tariff
Reform**





EXECUTIVE SUMMARY

In the 2017 budget the government of Zambia announced that they plan to introduce ‘cost-reflective tariffs’ for electricity by the end of 2017. This means removing the subsidies which currently allow ZESCO to charge consumers less than the cost of producing and distributing the energy. In the current context, with a large government budget deficit, this is a welcome ambition.



It also raises questions, however. How can cost reflective tariffs be introduced while adequately protecting the poorest Zambians and Small and Medium Sized Enterprises (SMEs)? How can the policy change be sustainable and not just end up being reversed in the future?

This paper is an interim report from a PMRC project which is exploring these questions. It assesses the international experiences, predominantly from other African countries, with seeking to introduce cost-reflective tariffs. While no two countries are the same, lessons for Zambia can be learnt from the successes and failures of other countries.

In particular, the report highlights the relatively successful case studies of Kenya and Uganda. While reform has not been complete, there has been some success. But it also looks at examples of where reforms have not been successful. Mexico, where there was a clear policy failure, is explored in detail.

1 Energy Regulation Board (ERB) - Energy Sector Report - 2011

2 O. Mfune and K. Boon - Promoting Renewable Energy Technologies for Rural Development in Africa: Experiences of Zambia, 2008

The key lessons drawn from these international experiences are:

1



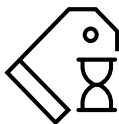
Tariff reform should be part of a comprehensive reform plan: for example, in Uganda tariff increases were accompanied by increases in generation capacity, with the opening of a large new hydroelectric plant.

2



A communications strategy, with transparent access to information, is vital: the Ugandan government and local newspapers made clear the regressive nature of electricity subsidies, with the rich benefiting the most.

3



Energy price increases need to be phased in: in Kenya reform was only possible over 5-10 years. On average countries that successfully implement changes appear to need at least 5 years.

4

Tariff reform needs to be accompanied by improvements in the efficiency of State Owned Enterprises (SOEs): Country experiences suggest the importance of strengthening SOE governance, improving demand management and revenue collection, and better exploiting scale economies to offset costs associated with inefficiencies. The Zambian government plans to conduct a situational analysis of all SOEs under its portfolio with a view to recapitalise those that have a good business case and hiving of those that are not viable.

5



Targeted mitigating measures to protect the poor are necessary: it is essential to provide support for the poorest consumers. This can take the form of life-line tariffs (the Zambian government plans to maintain life-line tariffs, but no details are yet available on this given that the tariff measures covers all households) or, for example, more generous Social Cash Transfers.

6



Energy pricing should be depoliticised: responsibility for deciding on electricity prices can be given to an independent body to increase the chances of success and avoid political interference (as happened in Kenya, the Philippines, and Turkey).

Zambia can learn from these experiences. For example, thinking carefully about how best to target life-line tariffs will be important. And how to combine increases in tariffs with improved reliability of supply will also be vital. With a good rainy season this year, Zambia might have a good opportunity of success with these planned reforms.

INTRODUCTION

In the 2017 National Budget the Zambian government announced plans to remove electricity subsidies and move to full cost reflective tariffs by the end of 2017. The statement read:

“Government will by the end of 2017 move to cost reflective tariffs to attract private sector investment while maintaining the life line tariff to protect poorer households. This, however, does not mean that consumers should end up paying for inefficiency”¹.

The government should be commended for deciding to reform tariffs in this way. It can achieve significant benefits. It can reduce inefficient government spending, which is important given the need to reduce the budget deficit in Zambia. It can also increase Foreign Direct Investment (FDI) in the energy sector due to the increase in the cost of electricity (OECD, 2008). This may have an impact of job creation, as more capital projects will emanate from the changes. In addition, an increase in FDI resulting in upgrades and improvements in infrastructure may have an impact on the quality of the product (DTE Energy, 2017). Electricity supply may be more reliable and adequate.

However, the announcement also raises questions. How can these reforms be successfully introduced? What are the implications for the poorest citizens and for Small and Medium Sized Enterprises (SMEs)? To help address these questions the Policy Monitoring and Research Centre (PMRC) conducted a study to

- i. Assess the progressivity of current electricity tariff rates;
- ii. Assess the distributive and real household welfare impacts of electricity tariff reforms; and
- iii. Propose policies and strategies to help mitigate any adverse impacts that the reforms may have on vulnerable households and Small and Medium Sized Enterprises (SMEs).

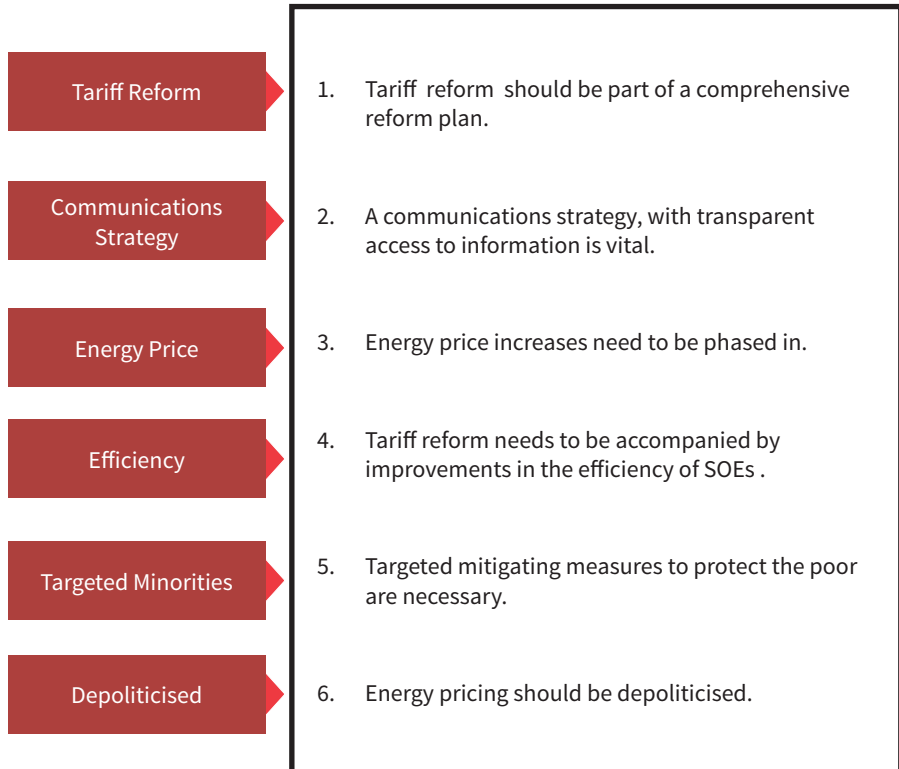
This paper focuses on a comparative analysis (including a detailed analysis of three case study countries - Kenya, Uganda and Mexico) which have attempted similar such reforms in the past. This serves to provide lessons from experience in other countries and best practice guidelines that are useful to consider before embarking on subsidy reform.

The paper is set out as follows: first it presents 6 key lessons from international experience; second it presents the more detailed case studies for Kenya, Mexico and Uganda and finally it concludes by setting out how PMRC will be taking this work forward.

1. [2017 Budget Address by Minister of Finance, Hon. Felix Mutati, MP.]

Six Key Lessons from International Experience

Following a decade of energy sector reforms, including moving towards cost-reflective tariffs, in many developing countries there is a wealth of experience, both good and bad, to draw lessons from. Other countries' experiences can shed particular light on how reforms affect the poor. Based on the international literature, this section presents 6 key lessons. These are²:

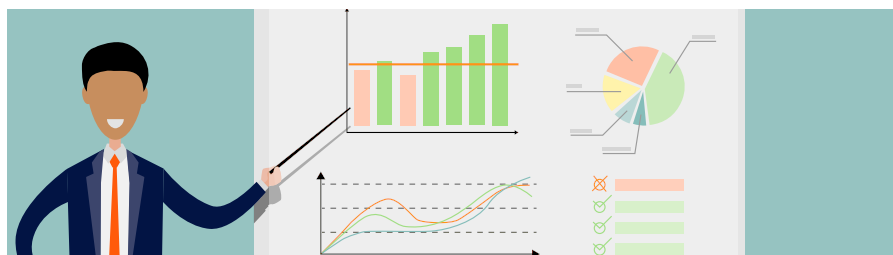


2. These lessons are drawn from an IMF publication (IMF, 2013) and PMRC's own analysis.

LESSON 1:

Tariff reform should be part of a comprehensive reform plan

Most of the successful reforms have been well planned and based on a clear reform strategy. They have been comprehensive, rather than focused on just one part of the energy system.



Subsidy reforms that are incorporated within a broader long-term reform agenda have a higher success rate. Reforms should include both a sustainable approach to energy pricing (reducing tariffs) and a strategy for improving the efficiency of energy usage and its distribution network. The size of electricity subsidies and the quality of service shows a strong inverse relationship: in other words, public willingness to pay higher prices in the absence of improvements in service provision is often negative. Therefore, reforms in the electricity sector should not only seek to improve access and service quality but also tackle operational inefficiencies (*such as line distribution losses, inadequate bill collection for unmetered connections and metering deficiencies for pre-paid and post-paid connections*). Achieving these forms of service improvement tends to impede the speed of reform, because improving services often requires up-front investment in the electricity sector. Hence the need for a long-term strategy.

Armenia, Brazil, and Kenya were successful in implementing electricity reforms because they were part of a broader package intended to address supply.³ Lessons in Armenia indicate that electricity tariff reforms were accompanied by institutional reforms, that led to private-sector participation with gains in efficiency in the sector. Power supply system losses reduced from 10 percent to 30 percent in 11 years.⁴ Another example is Iran where the 2010 fuel subsidy reform incorporated clear objectives, compensating measures, and a timetable for reform, preceded by an extensive public relations campaign.⁵ The main objective of the reform was to replace price subsidies with cash transfers to reduce incentives for excessive energy consumption and smuggling. Bank accounts were opened for most citizens prior to the reform, and compensating cash transfers were deposited into these accounts preceding the implementation of price increases.



ARMENIA



BRAZIL



KENYA

3. [Alleyne et al, 2013]

4. [Nixson & Waters, 2005]

LESSON 2:

A communications strategy, with transparent access to information, is vital.

To generate broad political and public support, there is need for an effective communications strategy that should be undertaken throughout the subsidy reform process. A review of subsidy reform experiences found that the likelihood of success almost tripled with strong public support and proactive public communications (IMF, 2011). Transparent access to information should include publishing and communicating:

- **The magnitude of subsidies and how they are funded.** Data on subsidies should also cover producer subsidies, which may necessitate better reporting of the accounts of State Owned Enterprises (SOEs) in the energy sector and reporting on SOEs in budget documents.
- **Winners and losers:** The distribution of subsidy benefits across income groups and verifiable indicators for tracking progress.
- **The benefits of removing subsidies,** including the subsequent re-allocation of resources to high-priority spending on health, infrastructure, education and social protection.
- **Changes in subsidy spending over time.** showing any increase in spending can be helpful.
- **Environmental and health benefits from subsidy reform.** Subsidies tend to exacerbate inefficient use of energy that results pollution and negative environmental and health outcomes.

Information campaigns have been attributed to the success of electricity subsidy reforms in **Armenia and Uganda**.⁶ In Uganda, the cost of the electricity subsidy and its incidence to the public was effectively communicated. Protests in Kampala over rate increases gained little success because the majority of citizens (approximately 88%) lacked access to electricity. A large section of the media was persuaded to communicate the benefits of reform as a pro-poor measure (see **Case Study 3**).



UGANDA



ARMENIA

5. [Guillaume et al, 2011]

6. [IMF Case Studies, 2011b]

Transparency also means open engagement with stakeholders in the formulation of the subsidy reform strategy. This strategy has been successful in a number of countries (Graham, 1998; Gupta and others, 2000). An IMF report indicates that Kenya electricity tariff increases faced challenges in the initial reform stage. After comprehensive engagement with stakeholders, particularly with large consumers and communication of the objectives and benefits of electricity sector reform, these were overcome (*see Case Study 1*)

LESSON 3:

Energy price increases need to be phased in

Phasing in price increases and sequencing them differently may be desirable. The appropriate phasing in and sequencing of price increases will depend on factors such as the political and social context in which reforms are being undertaken, the required increases to eliminate subsidies and the time needed to develop an effective communications strategy and social safety nets. International experience suggests that successful and partially successful subsidy reforms required, on average, about five years. Conversely, very sharp increases in energy prices can generate intense opposition to reforms.

A gradual, and overall successful, approach was adopted by Kenya, where the authorities phased in reforms and progressively gained support for broader reform by delivering improved services (*see Case Study 1*). Similarly, in Uganda, coordinating increases in electricity tariffs with the expansion of capacity, helped win broad acceptance (*See Case Study 3*). Tariff increases that coincide with price increases for other socially essential goods, such as food and fuels, may meet strong resistance.

Of course, phasing reforms can create challenges. A slower pace of reform reduces budgetary savings in the short term. There is thus a trade-off between the objectives of achieving budgetary savings and softening the impact of reforms on households. To address these concerns, gradual reforms must be accompanied by the government's long-term commitment to follow through on planned price increases, possibly over several successive administrations by building up a broad support base for reforms designing legislative frameworks that will stand the test of time.

LESSON 4:

The efficiency of SOEs needs to be improved

Improving the efficiency of SOEs can reduce the burden on national budgets. Improvements in efficiency can strengthen the financial position of these enterprises and reduce the need for government support. Country experiences highlight the importance of strengthening SOE governance and improving demand management and revenue collection.

Governance

Governance of SOEs can be strengthened by improving the reporting of information on operations and costs to help identify system inefficiencies (e.g., major distributional line losses). Countries that have adopted information systems include **Kenya, Uganda, and Zambia**. Consistent with the Code of Good Practices on Fiscal Transparency, all extra

7. [Ibid]

budgetary activity of the central government, including that undertaken by SOEs, should be reported in budget documents (IMF, 2012).

A second step is to set up key performance indicators, targets and incentives on the basis of this information. In Cape Verde, the electricity company can keep resources from over performance on its targets, which can then be used for investment. Introducing competition, particularly from the private sector, can strengthen performance especially in countries with larger markets, where there is scope to “unbundle” activities in electricity sector.



KENYA



UGANDA



ZAMBIA

Demand Management

Utilities in sub-Saharan Africa have had programs to provide free compact fluorescent bulbs, which have helped reduce demand and costs in Cape Verde, Ethiopia, Malawi, Uganda, and Zambia. Revenue-enhancing measures include improved collection and metering. Zambia has been rolling out pre-paid meters for households as well as commercial customers in a bid to reduce losses and costs of collection.



CAPE VERDE



ETHIOPIA



MALAWI



UGANDA



ZAMBIA

LESSON 5:

Targeted mitigating measures to protect the poor are necessary

A comprehensive subsidy reform strategy requires information on the likely impact of reforms on various stakeholders and the identification of measures to mitigate negative impacts. Identifying the winners and losers from reform is critical to design compensatory measures. In particular, well-targeted measures to mitigate the impact of electricity tariff increases on the poor are critical for building public support for electricity sector reforms. Implementing or expanding targeted programs to support the poorest immediately prior to price reforms can help demonstrate the government’s commitment to protecting the poor. Three options should be considered:

Targeted Cash Transfers

Targeted cash transfers are the preferred approach to compensation and remove the need for governments to be directly involved in the distribution of subsidized energy to households, which is often extremely costly and prone to abuse (Grosh and others, 2008). Targeted cash transfers were used to protect poor households in nine out of the 28 reform episodes.

Life-Line Tariffs

Lower electricity lifeline tariffs were kept fixed while increases were concentrated on higher-consuming households in **Armenia, Brazil, Kenya, and Uganda**. In Kenya, a lifeline tariff was established for households that consume less than 50kWh per month, a threshold commonly used in Africa as a subsistence-level benchmark. The lifeline tariff is estimated to be affordable to 99 percent of Kenyan households. To increase coverage to poor households Kenya subsidized connection costs in place of electricity price subsidies thereby tripling the number of rural connections. Enhancing the progressivity of tariff structures by imposing higher tariff rates for larger consumers can also reduce subsidy expenditures while protecting the poor. For instance, there is scope to make tariff structures more progressive in many African countries.



ARMENIA



BRAZIL



KENYA



UGANDA

Greater emphasis could also be given to subsidizing connections rather than the consumption of electricity (IMF, 2013). (**See all Case Studies 1, 2 and 3 for further insights.**)

Affordable alternative energy

Affordable alternative energy source can mitigate the impact of subsidy reform on low-income groups. In Indonesia and Yemen, subsidy reform was facilitated by the government's efforts to help households convert from the use of kerosene for cooking to the use of low-cost Liquefied Petroleum Gas (LPG). In addition to being lower in cost, LPG produces lower levels pollution and CO2 emissions. In Indonesia, LPG stoves and small LPG cylinders have been distributed free of charge (IMF, 2013).

LESSON 6:

Energy Pricing should be depoliticized

Importance of Independent Bodies

Responsibility for deciding on electricity prices can be given to an independent body to increase the chances of success and avoid political interference. Several countries that successfully reformed electricity subsidies (**including Armenia, Kenya, the Philippines, and Turkey**) gave the responsibility for reforming and regulating energy prices to an independent agency.



ARMENIA



KENYA



PHILIPPINES



TURKEY

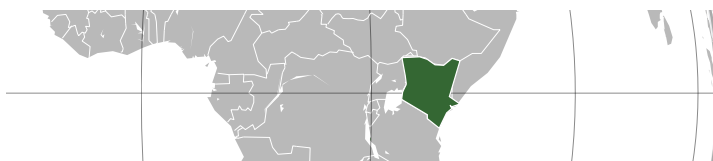
This however does not guarantee success in the absence of a strong legal framework to protect and implement decisions made by independent agencies.

Continuing Role for Price Regulation in the Power Sector in Small Countries

The small size of the market in some countries limits the range for competition and free market pricing particularly in emerging and low-income economies. Under these circumstances, the market may not support many reforms of a size sufficient to reap economies of scale and to allow production at the lowest possible cost. In such cases, price regulation will be needed, and competition alone will not be the best approach to reforming the sector (Besant-Jones, 2006). It is widely recommended that prices are determined by an autonomous agency and set at a level that is sufficient to avoid subsidies and ensure an adequate return to investment under efficient operations.

CASE STUDY 1:

KENYA – A SUCCESS



HIGHLIGHTS AND KEY LESSONS:

- Starting from 2005, introduced cost-reflective tariffs.
- Considered to be a success with the ‘hidden costs’ of the power sector decreasing from a level of around 0.6 percent of GDP in 2002 to virtually zero by 2008.
- Support of the private sector was secured by guaranteeing improved sources of alternative energy and accompanying tariff reform with improvements in service.
- A package of measures supported poorer consumers, including a life-line tariff for 50 kWh per month.
- Reform took time: it was a 10-year process.

The Kenyan Energy Sector

Kenya has experienced a substantial increase in energy demand⁸, but supply has failed to keep up. It depends heavily on hydropower (56 percent of installed capacity) and the Kenya Electricity Generating Company (KenGen) is the main player in the wholesale market (75 percent of installed capacity as of 2009). The Kenya Power and Lighting Company (KPLC) is responsible for transmission and distribution of electricity. Both KenGen and KPLC operate commercially and are listed on the Nairobi stock exchange.

8. Estimated to be 7 percent per year (Ajodhia, Mulder, and Slot, 2012)

The independent Energy Regulatory Commission regulates tariffs, issues licenses and sets KPLCs performance targets.

Experience with Reform

Reforms started in the mid-1990s with attempts to rationalize the sector by unbundling electricity generation from transmission and distribution and allowing for private-sector participation. The objectives were to improve performance, ensure financial sustainability, and foster increased investment in the sector. Substantial changes to tariffs first occurred in 2005, when cost-reflective tariffs were introduced. Tariff reform has, in the end, proved to be durable.

Initially tariff increases faced significant difficulties and required intense negotiations, particularly with large consumers (Bacon, Ley, and Kojima, 2010). Key in securing the cooperation of the private sector was the commitment by the government that the additional cost of energy would help finance the development and expansion of domestic sources of renewable energy – which would ultimately reduce energy costs and strengthen competitiveness. Moreover, there was widespread agreement that introducing cost reflective tariffs were essential to attract foreign investors.

Power pricing reforms in Kenya allowed tariffs to increase in line with costs from an estimated average of **\$0.07 per kWh in 2000 to \$0.15 in 2006, and \$0.19 in 2009 (Table 1)**. The current electricity tariff structure for KPLC tariffs has been in place since July 2008. According to the World Bank (2010), currently the negotiations for tariff-setting and power purchase agreements are transparent; the regulatory framework in the sector is robust and resistant to political interference.⁹

\$0.07 **\$0.15** **\$0.19**
per kWh in 2000 Per kWh in 2006 Per kWh in 2009

Table 1:Kenya: Key Power Sector and Macroeconomic Indicators

	1995	2000	2005	2009
Access to electricity (% of population)	11.79	13.10	—	16.10
Electric Power Consumption (KWh per capita)	130.83	109.72	137.13	147.43
Power transmission & distribution losses (% of output)	17.90	21.16	18.38	15.53
Electricity production (GWh)	3759	4098	5995	6875
Average Tariff	—	0.07	0.15	0.19

9. One caveat here is that planned increases in the basic tariff rate in June 2011 did not occur because the authorities believed the prevailing food and energy prices were already excessively high and some delays had been encountered in the implementation of new power generation projects

As a result of tariff reform measures the hidden costs in the power sector dropped from around 0.6 percent of GDP in 2002 to virtually zero by 2008. Reforms are considered to have been largely successful: the generation and distribution/transmission companies are financially viable and investment in generation capacity has increased. According to the World Bank (2010), reforms have resulted in significant operational improvements, including increases in revenue collection.¹⁰ As table one shows new electricity connections have and distribution losses also declined. Labor productivity at KPLC also improved substantially (World Bank, 2010). Despite this progress, challenges remain. Briceño-Garmendia and Shkaratan (2011a) estimate that that unreliable electricity supply still reduces Kenya's GDP growth by 1.5% per year.

Mitigating Measures

In order to address social objectives and affordability concerns a number of measures have been adopted (World Bank, 2010, ERC website, Briceño-Garmendia and Shkaratan, 2011). These include a rural electrification program that has helped increase connections from 650,000 in 2003 to 2 million at present, a revolving fund for deferred connection fee payments, commercial bank loans for connection fees, and a life-line tariff for households that consume less than 50 kWh per month, which is cross-subsidized by rates imposed on larger consumers. The 50 kWh per month threshold is commonly used in Africa as a benchmark for the subsistence level of energy consumption. It is estimated to be affordable for 99 percent of Kenyan households (Briceño-Garmendia and Shkaratan, 2011). In addition, there are cross-subsidies from urban to rural consumers, as tariffs are uniform across these areas.

Lessons

One key lesson is that successful electricity reform involves more than tariff changes. Improving the technical and administrative efficiency of state-owned companies was also, for example, key to eliminating hidden costs. Linked to this tariff increases were arguably made more acceptable because they were accompanied by improvements in quality service delivery and access. At the earlier stages of the reform process, authorities actively negotiated changes in tariffs with stakeholders demonstrating strong political commitment to addressing the challenges of the sector. At the moment, the transparent (with information regularly published on the ERC's website) automatic adjustments to changes in fuel costs, exchange rate movements, and inflation appear to be largely accepted by consumers. Nevertheless, political economy constraints have led to the postponement of a revision in the tariff structure scheduled for mid-2011. Another key lesson is that reform of the power sector in Kenya started in the mid-1990s and took over 10 years to mature.

The Kenyan experience also shows that with appropriate instruments, it is possible to reconcile tariff rates at cost-recovery levels with affordability of services for poorer segments of the population. Estimates suggest that the vast majority of Kenyan households are able to afford basic electricity consumption at the effective tariff rate.

10. Revenue collection for KPLC improved from 81 percent in 2004 to 100 percent by 2006 (Foster and Briceño-Garmendia, 2010) before dropping back to about 98 percent, according to the latest information provided by ERC.

CASE STUDY 2:

MEXICO – UNSUCCESSFUL



HIGHLIGHTS AND KEY LESSONS:

- Reforms failed to gain support from key interest groups for example unions.
- There was a lack of public understanding of the nature of the problems in the electricity sector – and no public information campaign to change this.
- Political opposition to changes, particularly privatisation, was not mitigated.
- Poor policy design, with a complicated set of tariff structures including higher subsidies for those living in warmer areas, contributed to the failure.

The Mexican Energy Sector

Mexico, a country plagued by high income inequality and poverty despite having a strong macroeconomic environment, is an example of where reform has not been successful.

The government-owned Comisión Federal de Electricidad (CFE) is the dominant player in the electricity market accounting for about 75 percent of total generation. It also monopolizes transmission and distribution functions. With a deregulated market in 1992 independent power producers accounted for about 75 percent of generation assets (Nozaki, 2011).

A study conducted in 2005–06 indicated that tariffs were set below cost-recovery levels for residential and agricultural sector users by about 40 percent and 30 percent respectively. This indicated a highly regressive system, with most benefits going to the better off (Komives and others, 2009). The tariff-setting authority had been adjusting tariffs monthly in proportion to changes in input prices, as opposed to actual service costs. In addition, the system is very complicated: there were over a hundred different billing possibilities for residential users built upon block tariffs, which provide larger subsidies for users who consume less. Electricity subsidies in 2011 were estimated to account for about 0.5 percent of GDP.¹¹

11. The government does not record the subsidies explicitly. Under the “aprovechamiento” system, CFE must pay the government a return on the fixed assets (9 percent), but this is transferred back from the government to CFE to cover tariff subsidies and infrastructure investment (OECD, 2004). Since 2002, the amount of *aprovechamiento* fell short of what was needed to cover tariff subsidies, thus eroding CFE’s capital base (Komives and others, 2009).

Experience with Reform

Subsidy reforms in Mexico have been largely unsuccessful. Proposed changes in 1999, which included a comprehensive reform package to unbundle generation, transmission, and distribution, privatize and strengthen the regulator's power, were not successful. These measures failed due to legal setbacks (constitutional amendments were required to allow broad private-sector participation), opposition from dominant stakeholders (including labor movements for CFE employees), poor public awareness about problems in the electricity sector and a political impasse in pre-2000 presidential election period (Carreón-Rodríguez, San Vicente and Rosellón, 2003). Further reform proposals launched in April 2001 also failed despite a shift in emphasis from privatization. Consensus in the Congress to pass the bill on reform into law failed.

Tariff reform, implemented in 2002, also failed because “summer subsidies” allowed consumers to be reclassified into highly subsidized categories. (Tariffs are subsidized for customers who consume less and reside in warm areas: essentially consumers living in warmer areas got higher subsidies and this led to most of them being reclassified from lower temperature to higher temperature categories during the 2000s (Komives and others, 2009).

Mitigating Measures

Mexico has a well-developed safety net program called Oportunidades. Oportunidades is a cash transfer targeted for families of extreme poverty and is conditional on school attendance and medical check-ups of family members. Oportunidades offers more effective and better-targeting mechanisms than electricity subsidies, while it cost only one-fifth of total fuel subsidies (including petroleum and electricity subsidies) in 2008 (IMF, 2011).

Lessons

Electricity sector reform in Mexico failed due to several impediments including a long history of tariff subsidies and the vertical and horizontal dominance of a State Owned companies that had strong interest groups opposed to reform. In addition, public opinion against privatization was high. The existence of targeted safety nets such as social cash transfers potentially helps make tariff reform more viable – it more effectively targets the poorest – but this has not been the case in Mexico. Finally, successful reform requires a public information campaign, as well as transparent accounting of electricity subsidies, both of which were lacking.

CASE STUDY 3:

UGANDA



HIGHLIGHTS AND KEY LESSONS:

- A mixed history, but in 2012, successful tariff reform.
- The importance of linking tariff reform to increases in supply, in Uganda's case through the opening of a large new hydro plant.
- Willingness of consumers, residential and industrial, to pay more for a better service.
- Reform takes time: 5-10 years.
- Public communications are vital, including making arguments which the media report.

The Ugandan Energy Sector

Uganda despite having huge potential for hydroelectricity has for decades been plagued with power shortages. Uganda recorded tremendous economic growth rates in the 1990s and 2000s which led to increase in domestic demand for electricity. Due to weak funding to the sector the Uganda Electricity Board (UEB), was not able to meet the rising electricity demands. Access levels of electricity especially in the rural areas were one of the lowest in sub-Saharan Africa. Over dependence on hydro power before 2006 made Uganda vulnerable to climate change.

In this context, Uganda embarked on comprehensive electricity sector reform in 1999. The government adopted an electricity sector privatization and reform strategy. The Electricity Regulatory Authority (ERA), was set up in 2000. By 2001, UEB was unbundled.¹² The Rural Electrification Agency was established in 2003 to help increase electricity access in rural areas.¹³

However, in 2005-06 Uganda experienced adverse weather conditions and a drought. This led to increased usage of costly thermal power (with hydro proving less effective). Firms were forced to rely on generators to self-supply approximately 30 percent of their electricity needs:

12. This occurred as follows: generation (the Uganda Electricity Generation Company Ltd., UEGCL), transmission (the Uganda Electricity Transmission Company, Ltd, UETCL), and distribution (the Uganda Electricity Distribution Company, Ltd., UEDCL)

13. Following successful institutional reform separate private concessions were approved for the generation and distribution companies. In 2003, Eskom Uganda was awarded a 20-year concession for the management of UEGCL's assets. In 2005, UMEME Ltd was awarded a 20-year concession for the distribution company UEDCL (IMF, 2011). The state-owned UETCL operates the high-voltage transmission network and serves also as a bulk supplier to the distribution company. UETCL's bulk supply tariffs having been below cost-recovery levels, the government provided direct and indirect financial support to UETCL.

this led to losses of around 10 percent for businesses. From 2005, Uganda experienced a rise in budgetary support for electricity supply. By 2010/11, direct subsidy costs – budgetary support for the Uganda Electricity Transmission Company Ltd (UETCL) – represented 1.1 percent of GDP.

Responding to this, in 2012 two things happened: a tariff increase was effected to eliminate subsidies and the Bujagali Hydro Generation Project became fully operational (which meant the government was able to avoid purchase of expensive thermal power).

Experience with Reforms

In June and November 2006, power tariffs were increased by about 35 and 41 percent, respectively (World Bank, 2011). This raised the average effective tariff to US\$0.18 per kWh. During 2007–09, no retail tariff adjustments took place, while generation costs kept rising, mainly because rising fuel prices. Other factors included the delayed commissioning of Bujagali Hydro - Power Project, and the depreciating Ugandan shillings. In January 2010, retail power tariffs were modified to give some relief to household consumers (World Bank, 2011).

To offset rising power costs and associated subsidies the ERA approved a further increase in retail tariffs in January 2012. The average effective tariff was increased about 41 percent (or US\$0.05 per kWh). Further measures included the cross-subsidization from households to industrial consumers which reduced significantly. The new tariff for industrial users, who were previously paying a relatively low price, was set at US\$0.13 per kWh—an increase of about 73 percent. The life-line tariff for monthly consumption up to 15 kWh remained unchanged.

These tariff adjustments were marred with controversies and protests, but were successfully implemented. Factors which led to this success included:

- Good communication: these included government communications, some newspapers highlighted the fact that subsidies disproportionately benefited the rich.
- The maintenance of a life-line tariff to protect the poorest.
- The increasing and unsustainable fiscal costs of thermal power in the context of rising fuel prices.
- Very poorly targeted subsidies: almost two-thirds of the power subsidy accrued to a small group of industrial consumers.
- Only 12 percent of Ugandans have access to the national power grid, while the rest rely on unsubsidized kerosene and firewood.
- Both industrial and household consumers were willing to pay more for better service. A World Bank report found average coping costs for intermittent power supply were US\$0.30 per kWh and willingness to pay was US\$0.50 for residential consumers.
- Low investments in hydro power infrastructure leading to a reduction in electricity provision costs over the medium- and long-term.

14. What is called the “Quasi-fiscal deficit” is even higher. This is defined as the difference between the actual revenue collected at regulated electricity prices and the revenue required to fully cover the operating costs of production and capital depreciation. This would have amounted to 2.6 percent of Uganda’s GDP in 2011.

Mitigating Measures

Uganda uses lifeline tariff for poor domestic consumers for power consumption of up to 15 kWhs a month as the best mitigating measure for low income consumers.

Reform Lessons

Institutional reform of the power sector takes about 5–10 years. ***Uganda started its reforms in 1999 and took more than 10 years to reform access rates***, institute efficiency measures and thereby reduce the fiscal burden. The reforms gave rise to a largely independent regulator with a strong regulatory framework, opened wider private sector participation in electricity generation and distribution through concessions, and tariff policies that rooted out hidden costs.

A careful strategy for communication and implementation is critical for tariff reform. The Ugandan government communicated the cost of the electricity subsidies and its incidence to the public very clearly. Raising tariffs was communicated as a pro-poor measure by the media.

Increasing access to power is challenging and the high cost of getting a new power connection is the biggest obstacle to accessing power.

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