

Case Studies from the Sub-Saharan Africa Region

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PETROLEUM PRODUCT SUBSIDIES

Ghana

Context

Ghana is a country of over 24 million people, rich in natural resources, including arable land and minerals. The country recently discovered offshore oil reserves, and 2011 was the first full year of production. Although Ghana's oil reserves are relatively small on a global scale—with production from the current Jubilee field expected to peak at 120,000 barrels a day—there is considerable upside potential from new discoveries. Moreover, Ghana is in the process of building up infrastructure for the commercial use of its gas reserves with potentially significant benefits in reducing energy costs and developing downstream industries.

Since 2004, deregulation has allowed oil marketing companies to enter the market for importing and distributing crude oil and petroleum products. Until that time, the Tema Oil Refinery (TOR) had a monopoly on the production and importing of refined products. Since then, deregulation has allowed oil marketing companies to enter the market for importing and distribution of crude oil and petroleum products. Under the current system, a pricing formula exists for all petroleum products. The current price-adjustment mechanism is the result of 2005 reforms, although it has not always worked as originally envisaged. The National Petroleum Agency (NPA), also established in 2005, reviews fuel prices twice a month. It provides recommendations to the Minister of Energy on adjustments to cost-recovery levels, based on a backward-looking formula incorporating changes in world fuel prices in the preceding two weeks.

The decision to adjust pump prices is at the discretion of the executive. If price increases are warranted but not implemented, the cost of subsidies is in principle borne by the budget. However, in the past, TOR carried the cost of the subsidy, and underpricing of petroleum products saddled TOR with large losses that spilled over into the financial sector in the form of nonperforming loans. The government was forced ultimately to clear TOR's arrears to the banking sector at a large budgetary cost. Since October 2010, a hedging scheme using call options has also

TABLE 5.1

Ghana: Key Macroeconomic Indicators, 2000–2011					
	2000	2003	2008	2010	2011
GDP per capita (US\$)	400	563	1,266	1,358	1,580
Real GDP growth (percent)	4.2	5.1	8.4	8.0	14.4
Inflation (percent)	25.2	26.7	16.5	10.7	8.7
Overall fiscal balance, cash (percent of GDP)	–6.7	–3.3	–8.5	–7.2	–4.1
Public debt (in percent of GDP)	123.3	82.8	33.6	46.3	43.4
Current account balance (percent of GDP)	–6.6	0.1	–11.9	–8.4	–9.2
Oil imports (percent of GDP)	–7.1	–5.0	–8.3	–6.9	–8.3
Oil exports (percent of GDP)	0.0	0.0	0.0	0.0	7.2
Oil consumption per capita (liters)	n.a.	91.1	91.4	98.7	110.7
Poverty headcount ratio at US\$1.25 per day (PPP) (percent of population)	39	n.a.	30	n.a.	n.a.

Sources: International Energy Agency (IEA); IMF, *World Economic Outlook* (WEO); World Bank, *World Development Indicators*.
Note: n.a. = not applicable; PPP = purchasing power parity.

provided some temporary protection against upward movements in oil prices. The government purchases monthly call options that generate revenues in the event of upside shocks to global oil prices; these revenues are used to cover temporary delays in adjusting domestic petroleum product prices to cost-recovery levels (IMF, 2011a).

Reforms Since 2001

The past decade has been marked by several attempts to deregulate fuel prices in Ghana (Figure 5.1). In 2001, a 91 percent adjustment of petroleum pump prices was driven in part by the desire to restore TOR's financial health. Delays in adjusting petroleum prices during 2000 led to large accumulated losses for the state-owned public energy company, which reached 7 percent of GDP (IMF, 2001). The reform was soon abandoned, however, in the face of rising world prices and a depreciating currency. TOR's losses were largely absorbed by the state-owned Ghana Commercial Bank, whose solvency was threatened.

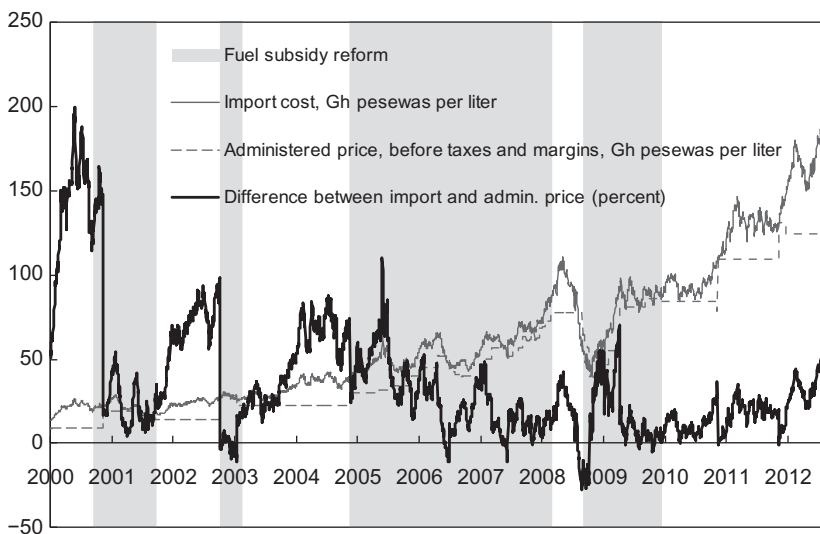
In early 2003, recognizing the unsustainable financial position of both TOR and Ghana Commercial Bank, the government renewed its commitment to cost-recovery pricing with a 90 percent increase in pump prices. Facing widespread opposition to the price increase, the government partially reversed the price increase in the run-up to the 2004 elections, and it abandoned cost-recovery adjustments until 2005. In 2004, the subsidies to TOR reached 2.2 percent of GDP, and the company continued to borrow from Ghana Commercial Bank to finance its operations (IMF, 2005a).

Strategic and Mitigating Measures

The deregulation of petroleum product pricing in 2005 was accompanied by strategic measures meant to ensure broad popular support for the reform. The strategy was supported by research, communication, and programs to mitigate the impact on the most vulnerable groups, all of which contributed to its successful implementation.

- *Research.* A poverty and social impact assessment studying the impact of fuel subsidy removal revealed that the program was poorly targeted, with the rich receiving the lion's share of the benefits (Coady and Newhouse, 2006).
- *Communication.* The government engaged in a widespread communications campaign, including public addresses by the president and the Minister of Finance, explaining the reform's benefits. The results of the poverty and social impact assessment were made public and discussed in a dialogue with various stakeholders, including trade unions. The government also explained how resources freed from subsidizing energy products would partly be reallocated to social priorities (Global Subsidies Initiative, 2010).
- *Assistance to the poor.* The government introduced a number of programs aimed at mitigating the effect on the most vulnerable, including the elimination of fees for state-run primary and secondary schools; an increase in public-transport buses; a price ceiling on public-transport fares; more funding for health care in poor areas; an increase in the minimum wage; and investment in electrification in rural areas.

The administration of the publicly released price-adjustment formula was transferred to the newly established NPA. The delegation of regulatory powers to the NPA was meant to isolate the decision to adjust prices from political intervention. Prices were adjusted by an average of 50 percent, and the government remained committed to regular adjustment for several years. In the wake of the



Sources: IMF staff estimates; National Petroleum Agency (Ghana).

Note: admin. = administered.

Figure 5.1 Ghana: Fuel Price Developments, 2000–2012

The 2005 reforms ushered in a period of market-based fuel pricing. However, political considerations have at times interfered with this process.

2007–8 global fuel and food crisis and in the run-up to the 2008 elections, however, automatic adjustment was temporarily suspended.

The NPA remains the main regulatory agency and publishes the price adjustments required for cost recovery on a biweekly basis. When an upward price adjustment has been required in recent years, the shortfall has often been covered by the budget or, more recently, by hedging profits. This has resulted in infrequent and large price adjustments when hedging profits were exhausted and the fiscal burden became too onerous. Prices were adjusted twice in 2011, by 30 percent in January and by 15 percent in December. Prices were not adjusted in 2012, with the exception of a small downward adjustment early in the year, and the gap between domestic and global oil prices, exacerbated by a depreciating currency, has increased substantially (IMF, 2012b and 2012c).

Lessons

A number of lessons can be drawn from Ghana's experience in the past decade.

The durability of reform depends crucially on political will and the independence of regulatory agencies from political interference. Without these conditions, it is difficult to maintain an independent regulatory agency. The NPA is not free to adjust prices without the consent of the executive: it has adjusted prices only three times (once downward) since January 2011. Although democratically elected governments have stronger mandates to implement difficult reforms, commitment to automatic adjustment often falters in the run-up to elections.

A constant dialogue with stakeholders and civil society at large about the cost of subsidies is necessary to maintain commitment to the reform. Recent attempts at adjusting prices have not been accompanied by an extensive public information campaign similar to the 2005 efforts. Price increases have been irregular, difficult to anticipate, and usually announced shortly before being implemented. This can result in strong opposition by various stakeholders, including powerful trade unions, and can undermine the government's efforts. The 2005 campaign was also successful because it engaged civil society and powerfully demonstrated the cost of fuel subsidies by sharing the results of the poverty and social impact assessment.

Supportive research and analysis are important for convincing the public of the benefits of reforms. During the 2005 reform, the poverty and social impact assessment was crucial in demonstrating the costs of subsidies. The assessment also outlined that fuel subsidies were a poor policy measure in the fight against poverty: in Ghana, less than 2.3 percent of outlays on fuel subsidies benefited the poor.

Visible mitigating measures increase the likelihood of success. Although fuel subsidies are ill targeted, they are a direct transfer to most if not all citizens, their benefits are immediate and easy to understand compared with other social programs, and the individual cost of their removal is swift and substantial—particularly for the poor who have no income cushion, unless they receive alternative compensation. A key element of successful reform, therefore, is the efficient and visible reallocation of the resources saved through the removal of fuel subsidies to programs with immediate benefits to the most vulnerable. In Ghana, an

expansion of cash transfers through the Livelihood Empowerment against Poverty (LEAP) program and additional spending on health and education subsidies would be good candidates.¹

Namibia

Context

Namibia is one of sub-Saharan Africa's richest countries and has a relatively stable macroeconomic environment. Income inequality and unemployment are very high, however. Mineral exports, transfers from the Southern African Customs Union, and prudent fiscal policy in the past have helped the Namibian government to sustain economic growth while maintaining fiscal and current account surpluses. Inflation in Namibia is closely linked to South Africa's inflation (its currency is pegged to the South African rand) and has remained within single digits since reaching a peak of 11.9 percent in August 2008, driven by a surge in international oil prices. The Namibian economy is sensitive to changes in international fuel prices because of the relative importance of energy-intensive industries, such as fishing and mining.

Namibia is characterized by political stability and a relatively well-functioning democracy. The ruling political party is dominant and has won elections with large majorities since independence in 1990. Labor unionization is fairly high and the largest trade union federation, the National Union of Namibian Workers, is a strong political ally of the ruling party.

Namibia has a wide range of formal publicly funded social welfare programs. Social security, welfare, and housing spending averaged 5 percent of GDP during

TABLE 5.2

Namibia: Key Macroeconomic Indicators, 2000–2011

	2000	2003	2008	2010	2011
GDP per capita (US\$)	2139.7	2607.9	4276.0	5244.1	5828.2
GDP growth (percent)	4.1	4.3	3.4	6.6	4.9
Inflation (percent)	9.3	7.2	10.4	4.5	5.8
Overall fiscal balance (percent of GDP)*	−0.9	−6.1	2.4	−4.2	−11.3
Public debt (percent of GDP)*	20.4	26.4	18.2	16.2	27.4
Current account balance (percent of GDP)	7.9	6.1	2.8	0.3	−1.7
Oil Imports (percent of GDP)	3.5	4.5	2.4	5.3	5.9
Oil exports (percent of GDP)	0.0	0.0	0.0	0.0	0.0
Oil consumption per capita (liters)	n.a.	491.5	596.2	731.0	812.9
Poverty headcount ratio at US\$1.25 per day (PPP) (percent of population)	n.a.	31.9	n.a.	n.a.	n.a.

Sources: IEA; IMF, WEO; World Bank, *World Development Indicators*.

*Figures are for the fiscal year, which begins April 1.

¹According to the World Bank (2012a), LEAP is among the most well targeted of programs for the poor. Fuel subsidies, in contrast, which disproportionately benefit those in higher income brackets, reached weekly levels in May and August 2012 that matched the annual budget contribution for LEAP.

2005–11. The government's income support grants include a universal social pension system for the elderly and the disabled, a variety of grants for children, labor-based work programs, and shelter and housing programs. Despite some weaknesses, such as errors of inclusion and exclusion, anecdotal evidence suggests that Namibia has a well-targeted social safety system.

The downstream market for liquid fuels in Namibia is administered through acts of parliament that set out clear parameters to calculate fuel prices. According to the acts, the prices of petrol and diesel are regulated, whereas the prices of all other petroleum products are determined by market forces. The country has no refining capacity and imports its refined fuels mainly from South Africa through the port of Walvis Bay. The Ministry of Mines and Energy regulates the industry while the Namibian Petroleum Corporation (Namcor), a state-owned enterprise, acts as an operational arm of the government in the market. There are five private companies involved in the marketing of petroleum products: BP, Caltex Oil, Engen, Shell, and Total. Each private company supplies its own network of distribution outlets, but all share import and storage facilities at Walvis Bay. In 1999, Namcor was mandated by the government to import 50 percent of Namibia's petroleum, leaving the other 50 percent for private companies. That share was recently reduced as a result of Namcor's operational difficulties.

Price setting of fuel pump prices for diesel and petrol is based on a formula with three components: basic fuel price, based on the international spot price; domestic fuel levies and taxes; and the so-called slate account, which is essentially used to smooth volatility in local pump prices. The slate account, monitored by the Ministry of Mines and Energy, is a notional record used to keep track of the degree of under- or overrecovery by fuel-importing private companies. However, the price formula is not completely automatic, as the ministry has some discretion on how much pass-through to allow with underrecoveries absorbed by the slate account.

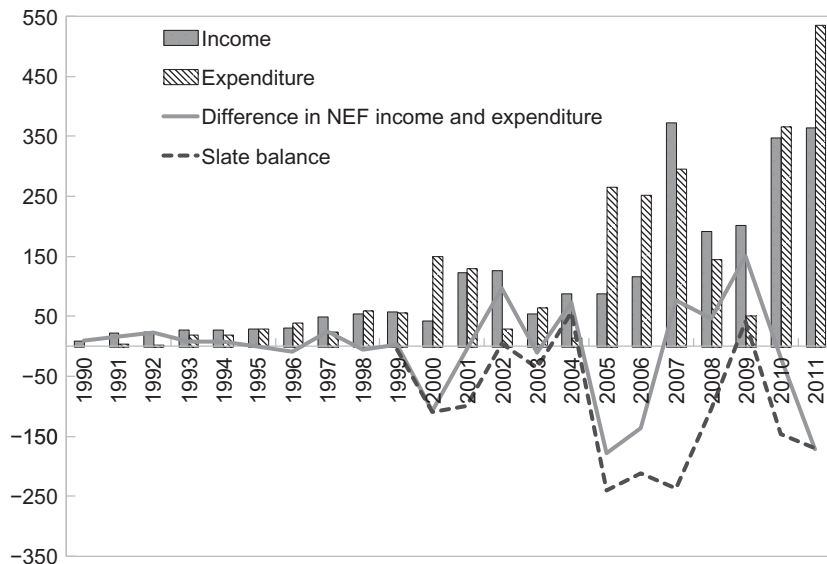
Fuel Price Reforms in the 1990s and 2000s

According to the Ministry of Mines and Energy, the original motivations for deregulating fuel prices in Namibia were to eliminate fuel subsidies, paid out of the National Energy Fund (NEF), and to respond more efficiently to changes in international oil prices. Several problems associated with the managed petroleum and petrol-product scheme may have motivated the reforms (Amavilah, 1999). First, the NEF compensation scheme came with fiscal costs amounting to about N\$170 million between 1990 and 1996, about 0.2 percent of GDP (Figure 5.2). Although the fiscal costs paid out of the NEF seem small in percent of GDP, they do not include transfers that may have been paid directly to Namcor or quasi-fiscal costs arising from losses incurred by the company. Namcor sometimes receives direct transfers from the government because it does not participate in the slate program and is therefore not compensated for underrecovery through the slate account. The subsidies may also have reduced incentives for petroleum firms to improve their efficiency to help offset their losses.

After the adoption of the new price mechanism, the slate account is supposed to be balanced through price adjustments, in theory. In particular, the price adjustment formula should adjust prices so that the value of the cumulative slate balances is kept within a predetermined level of N\$3 million. In practice, however, balancing the slate account has sometimes involved transfers from the budget to the NEF and then to the slate account (see Figure 5.2). The wholesale prices of all petrol grades and diesel are published in a government gazette at each price adjustment. Tax revenue data is published in budget documents.

The Ministry of Mines and Energy used a structured, balanced, and consultative approach to price deregulation and subsidy removal. The National Energy Council, chaired by the Minister of Mines and Energy, established the National Deregulation Task Force in 1996 to examine fuel price deregulation through a consultative process. This culminated in the publication of a white paper on energy policy in 1998, which articulated, among other issues, the importance of keeping targeted subsidies to remote areas, gradual deregulation, and enhancing transparency in government fuel tax revenues. The fuel price mechanism with quarterly price reviews was adopted in 1997.

NEF expenditures to cover subsidies started to decline only after 2001. That represented a full three years after the release of the white paper, an indication that the implementation of fuel subsidy removal takes time. In addition, as shown



Source: Bank of Namibia, *Quarterly Bulletin*, March 2005.

Note: NEF = National Energy Fund.

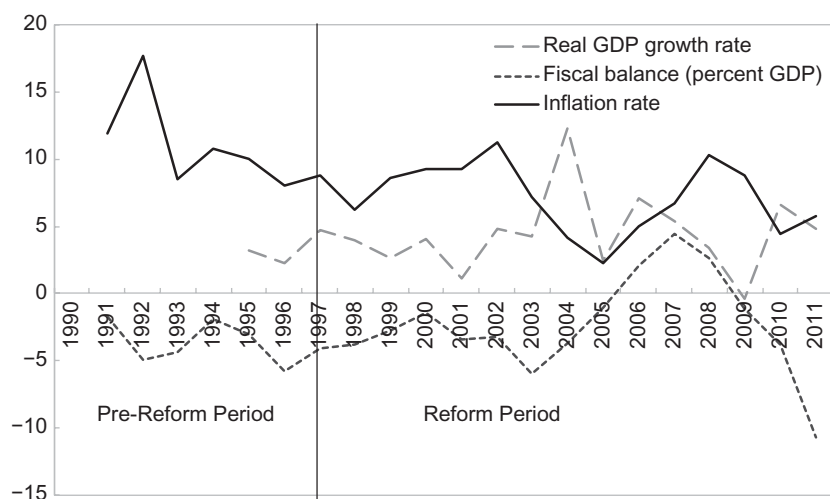
Figure 5.2 Namibia: National Energy Fund and Slate Account, 1990–2011 (Millions of Namibian dollars)

Resources devoted to smoothing out fuel prices experienced sharp swings over time.

by the slate balance in Figure 5.2, close to full cost recovery by private firms came only after 2001.

Domestic fuel prices in Namibia increased steadily from 2003 onward and more than doubled from early 2007 to a peak in July 2008. In response to the 2007–8 fuel price shocks, the authorities replaced the quarterly fuel price adjustments with monthly fuel price reviews so as to increase pass-through. However, the Ministry of Mines and Energy did not allow retail prices to rise as fast as world prices, transferring funds from the NEF to the private petroleum firms to compensate them for keeping prices below cost-recovery and thus subsidizing users, including the powerful interest group of taxi drivers. However, in July 2008, the ministry announced that the NEF had come under financial pressure as a result of underrecoveries and was no longer in a position to cushion increasing fuel prices.

Overall, although fuel prices have generally moved in line with international oil prices, the government has from time to time accommodated pressures to limit the full pass-through of changes in international prices. In the 2006–7 budget, the government made a one-off budgetary provision of N\$206 million (0.4 percent of GDP) to offset the NEF's accumulated losses. The government also faces contingent liabilities arising from Namcor's operational losses. In 2009, Namcor had operational losses of N\$257 million, prompting the government to award it a N\$100 million grant and a bailout package to the tune of N\$260 million (0.5 percent of GDP) as well as a portion (N\$0.08 per liter) of the existing fuel levy to help boost the state-owned oil corporation's finances. More recently, Namcor lost its mandate to supply 50 percent of Namibia's total fuel requirements in February 2011 because of operational difficulties.



Source: Namibian authorities.

Figure 5.3 Namibia: Macroeconomic Developments and Fuel Subsidy Reform, 1990–2011
The fuel subsidy reform helped to consolidate Namibia's macroeconomic stability.

Mitigating Measures

The fuel price smoothing mechanism has been complemented by several mitigating measures to address the increases in fuel prices. Unlike its Southern African Customs Union (SACU) counterparts, Namibia did not experience violent protests in response to rising fuel and food prices, although taxi drivers complained when fuel prices increased. This might be partly explained by the Ministry of Mines and Energy's fuel price smoothing mechanism and other mitigating measures that were put in place in 2008 to address poverty and alleviate the temporary impact of high fuel and food prices. Mitigating measures included a zero-rate value-added tax on selected food items, rebate facilities for food importers, and a food distribution program to feed the most vulnerable. In addition, rural pump prices are subsidized as part of the socioeconomic policy of government. This is achieved by subsidizing transportation costs to remote areas to ensure that the pump price in remote areas is not inflated by retailers' transport costs. Claims on actual road deliveries are submitted by the oil companies to the Ministry of Mines and Energy for reimbursement from the NEF.

Lessons

Comprehensive planning and gradual implementation were key to success. The Namibian authorities undertook comprehensive planning, which included broad consultation with civil society, culminating in a comprehensive reform plan that retained a targeted subsidy for remote areas.

Reforms were implemented gradually, allowing enough time for consensus building between the government and various stakeholders.

Price adjustments that employed smoothing mechanisms helped prevent social unrest. The reform established a quarterly (later monthly) price adjustment mechanism in line with changes in international prices but incorporating a price smoothing mechanism to avoid sharp price adjustments. This, along with the introduction of other mitigating measures, allowed Namibia to manage the large price shocks of 2008 and 2011 with no social unrest.

Depoliticization of the price adjustment mechanism has been made difficult by legal obligations to the state-owned energy company. The legally stipulated participation of the state petroleum company in the importation and supply of petroleum products seems to have prevented a full depoliticization of the price adjustment mechanism (i.e., allowing prolonged underrecoveries). This in turn has resulted in large losses for the company that have had to be covered by fiscal transfers. This suggests the need to carefully design price smoothing mechanisms.

Niger

Context

Niger is a large and landlocked country that is extremely vulnerable to external shocks, mostly to climatic conditions and commodity prices. In the past decade, growth has been slowly gathering momentum, though it has also suffered important setbacks. Niger's medium-term growth potential is linked to the expansion

TABLE 5.3

Niger: Key Macroeconomic Indicators, 2000–2011					
	2000	2003	2008	2010	2011
GDP per capita (US\$)	155.0	223.8	361.0	363.6	420.7
GDP growth (percent)	–2.6	7.1	9.6	10.7	2.2
Inflation (percent)	2.9	–1.8	10.5	0.9	2.9
Overall fiscal balance (percent of GDP)	–3.8	–2.8	1.5	–2.4	–3.0
Public debt (percent of GDP)	118.8	90.1	21.0	23.7	29.2
Current account balance (percent of GDP)	–6.7	–7.5	–13.0	–19.9	24.7
Oil imports (percent of GDP)	4.0	2.4	3.8	4.7	4.7
Oil exports (percent of GDP)	0.0	0.0	0.0	0.0	0.0
Oil consumption per capita (liters)	n.a.	n.a.	36.4	33.1	34.3
Poverty headcount ratio at US\$1.25 per day (PPP) (percent of population)	n.a.	n.a.	43.6	n.a.	n.a.

Sources: IEA; IMF; WEO; World Bank, *World Development Indicators*.

occurring in the oil and mining (uranium) sectors. The country recently became a fuel exporter, and uranium production is expected to double in the near future with the coming onstream of an important mine currently under development. In addition, the country has the potential to become a crude oil exporter, with five new oil production sharing agreements just signed. A new pipeline to link Niger with the Chad–Cameroon pipeline is envisaged.

Niger ranks at the bottom of the United Nations Development Program’s Human Development Index, with per capita GDP in purchasing power parity (PPP) terms of US\$720 in 2010, one of the lowest in the world. Niger’s government is highly centralized. The current authorities have been in power since April 2011, following a one-year transition to democracy after a February 2010 coup d’état. Since then, the political situation has been stable, although according to the World Bank (2012b, page 2), there is a risk of political fragility “where failure of the government to deliver tangible results could result quickly in the loss of popular support and a political stalemate.”

With the start of operations of its new oil refinery, SORAZ, fuel imports have come nearly to a halt since early 2012. Niger was an oil importer until the end of 2011. Its market size is small, with annual domestic consumption of about 7,000 barrels a day. The state-owned company SONIDEP has a monopoly on imports and distribution. The new refinery is expected to reach a maximum capacity of 20,000 barrels per day of fuel, including gasoline, diesel, and liquefied petroleum gas (LPG). About one-third of the petroleum products produced by SORAZ feeds the domestic market, with the remainder being exported. SONIDEP is in charge of marketing the petroleum products.

This case study focuses on the period in which Niger was an oil importer, until the end of 2011. It builds on IMF technical assistance support provided to Niger in 2001 to elaborate a pricing formula akin to a full pass-through rule for the automatic adjustment of the price of imported petroleum products. In 2010, a note was prepared by the IMF Fiscal Affairs Department to support the authorities in their intention to eliminate the posttax fuel subsidies, in the context of discussions with the IMF to prepare an assessment letter.

Fuel Price Reforms Since 2001

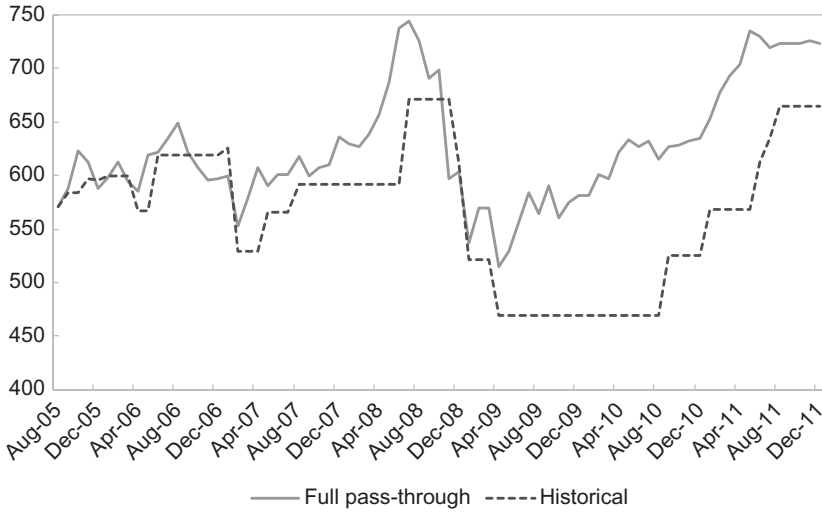
According to the formula established with the help of technical assistance from the IMF in 2001, automatic pass-through of international prices would be achieved through a flexible, transparent, and automatic mechanism. The retail price would be adjusted monthly whenever the change in international prices was above CFAF 5. Otherwise, the price at the pump would not change, and taxes would counteract the increase or decrease in prices. The pricing formula included fuel import costs (c.i.f. import price at the port); estimated costs and margins of importing and distributing fuel to domestic consumers (storage and distribution margins); and net fuel taxes (ad valorem customs and value-added taxes and specific excise taxes). A multisectoral body was envisaged to be statutorily in charge of applying the formula; however, such a body was never created.

As international prices started to increase in 2005, an explicit subsidy component was introduced in the formula. The subsidy was initially used to smooth domestic prices. Then, as international import prices increased rapidly and steadily up to mid-2008, the subsidy component rose in order to keep domestic retail prices fixed for extended periods. The increase in international prices and the depreciation of the euro resulted in a significant increase in the subsidies in 2010. Because fuel prices were substantially lower in Niger than in some neighboring countries, increased smuggling contributed to a strong rise in fuel imports.

Changes in import prices without corresponding pass-through to retail prices resulted in a reduction of government tax revenue from fuels. The net fiscal contribution of fuel taxes decreased from 1 percent of GDP in 2005 to 0.6 percent in 2009 and to 0.3 in 2010. The cost of the subsidy on petroleum products amounted to more than 1 percent of GDP. Although this pattern has applied to all products, the tax decline in the case of gasoline was more pronounced, going from a peak of 0.8 percent of GDP in 2005 to 0.3 percent of GDP in 2009. Net taxes on diesel also declined from 0.3 percent of GDP in 2005 to 0.2 percent of GDP in 2009. The net tax on kerosene has been continuously negative over this period, although the fiscal cost of this measure has been limited, because the share of kerosene consumption is fairly low.

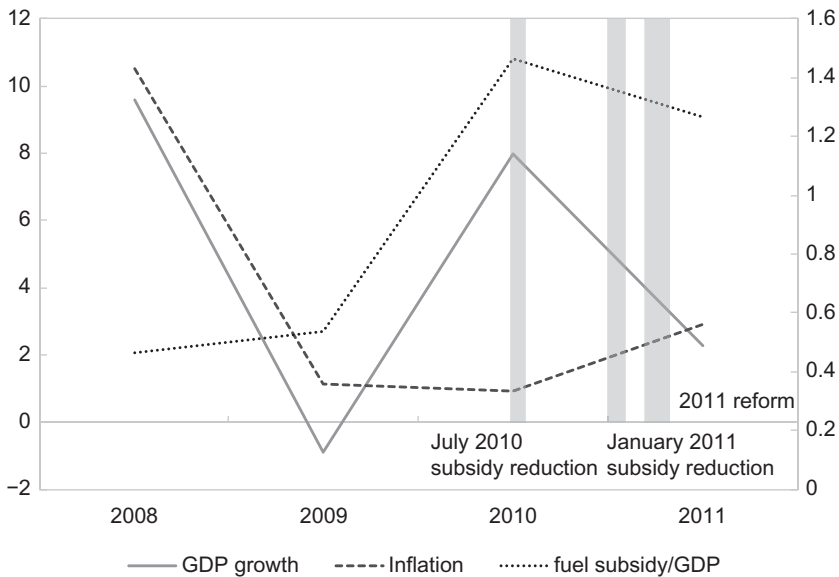
When the subsidy reached unsustainable levels, the authorities decided to start implementing a strategy to gradually phase out subsidies. The size of the subsidy, together with its very regressive distributional impact, was a critical factor in the authorities' decision to eliminate it. Indeed, the population groups that benefited more from the subsidy were the higher-income groups, who consumed more gasoline. Although this is particularly the case in gasoline consumption, it is less so in kerosene and lamp oil, which are more widely consumed by lower-income groups. Fuel prices were increased by 12 percent in mid-2010 (Figures 5.4 and 5.5).²

²Weighted average of the prices of gasoline, kerosene, and diesel. Full pass-through includes import prices, taxes, and margins in the formula. In both cases, price increases were considered preconditions for the IMF to issue an assessment letter and to proceed with the Extended Credit Facility-supported program review.



Sources: IMF Fiscal Affairs Department data; and authorities.

Figure 5.4 Niger: Fuel Price Developments, 2005–11 (Central African francs per liter)
Domestic fuel prices have tended to follow international prices with a lag.



Source: IMF staff estimates.

Figure 5.5 Niger: Macroeconomic Developments and Energy Subsidy Reforms, 2008–11 (Percent of GDP or rate)
Niger has tried to rein in fuel subsidies in the context of volatile macroeconomic performance.

The agreed reform contained two steps. First, international oil price variations would be passed through to domestic prices starting in June 2011. Second, the existing subsidy would be gradually unwound over the following 12–18 months. Fuel prices were increased by about 8 percent in mid-2011. As a result, the subsidy was significantly reduced, though not completely eliminated, and the total amount devoted to fuel subsidies in 2011 was kept below the 2010 level (1.1 percent of GDP).

Country-specific circumstances and the political situation played key roles in the design and pace of the reform. First, the imminent start of domestic fuel production introduced urgency in the phasing out of the subsidies. The authorities thought that it would have been politically unacceptable to increase prices exactly when domestic production was starting. In fact, the society was expecting rather the opposite: a decrease in fuel prices with the start of domestic production. Second, the initial reforms (in late 2010 and early 2011) were implemented by a transitional government that believed it had less legitimacy to embark on such a sensitive reform process.

To increase public awareness about the dimension of the problem, for the first time the budget explicitly reflected the costs of the subsidy. This helped create an appropriate environment for the subsidy's elimination. In addition, and to help overcome vested interests and gain support from the civil society, the government introduced public information campaigns pointing out the regressive nature of the subsidies and linking the savings from petroleum price increases to priority social spending.

The authorities opted for a consensual approach to the reform, incorporating all relevant shareholders. They established a committee (the Comité du Différé) to discuss the best way to approach the reforms and their subsequent implementation. In this context, dialogue and consensus building were key to the positive outcome of the process.

As a result of the reform, retail prices started increasing in June 2011 and continued increasing through August 2011, but they remained fixed again from September until the end of the year. Indeed, the monthly cost of the subsidy reached nearly CFAF 4 billion in May 2011, to be reduced to half from August onward. The authorities decided to stop the price increases in September because they believed the prices were then aligned with prices within the region.

However, prices were set below international prices once Niger started producing fuel domestically. As a result of an agreement between the authorities and the foreign investor in the petroleum sector, SORAZ started selling its fuel products at CFAF 336 per liter for gasoline and CFAF 340 for diesel, which were below the international prices. The prices were fixed for the first six months of operation of the refinery, with refined products' prices supposed to be set by a formula linked to world market prices after that period. Nonetheless, the prices did not change. More recently, an agreement has been reached between the government and the transportation trade unions aimed at developing proposals to further lower retail fuel prices. As a result, the fuel tax (*taxe intérieure sur les produits pétroliers*, or TIPP) will be reduced from 15 to 12 percent starting in 2013.

The overlap of the subsidy reform with the start of fuel and oil production makes Niger a very special case. As a result, it is difficult to assess at this stage how durable the fuel subsidy reform would have been if domestic production had not started at the same time.

Mitigating Measures

The more recent fuel price reform was accompanied by mitigating measures to protect the poorest segments of the population from increases in transportation costs:

- *Subsidy to the transport sector.* Following negotiations with the civil society and private sector operators, a direct subsidy to the transport sector was introduced (*tickets modérateurs*), because this sector was the most affected by the increase and the poorer sectors of the population were the ones that used more public transport. The costs of the subsidy policy were still reduced significantly because the costs of the mitigating measures (less than 0.1 percent of GDP) were significantly lower than the subsidy itself.
- *Increased social spending, emphasizing education.* The discontinuation of the subsidy on fuel products created room for a 19 percent increase in social spending in the 2012 budget compared with 2011, with particular emphasis on investment in education. The public wage bill was increased to accommodate the recruitment of 4,000 teachers in early 2012.

Lessons

There is a need to appropriately understand the extent of the fuel subsidy problem. Determining the distributional incidence of the subsidies can also help to ensure commitment to the reform.

Promoting an understanding of the issues by society as a whole is important. Being transparent about the costs of the subsidy by using an explicit budget line proved very useful in Niger. An adequate public information campaign also played a crucial role in ensuring the support of the society for reform. In Niger, there were debates on television and radio about this issue.

A participative approach is valuable. Adopting a participative approach to decision making was also useful, particularly through the establishment of an ad hoc and inclusive committee.

Sufficient time needs to be allowed to build support. There is a need for sufficient time to explain, negotiate, and implement the reform. Building reform momentum, stakeholders' consensus, and social support requires time. In the case of Niger, ensuring that all stakeholders were on board and agreed with the main elements of the reform took about six months.

Engaging financial partners can be helpful. Engaging partners can help to ensure that there is sufficient information about the problem and create pressure to launch the reform process. A delicate equilibrium needs to be reached between encouragement and ownership of the reform process.

Ensuring that mitigating measures reach the most affected groups is crucial. These measures can take the form of targeted subsidies based on a detailed analysis of who would be the most affected vulnerable groups.

Fuel subsidy reform becomes more complicated when a country becomes an oil exporter. At such times, it might be more difficult to resist the expectations and pressures from civil society to significantly lower pump prices.

Nigeria

Context

Nigeria is the world's fifth leading oil-exporting country. The oil and gas sector accounts for around 25 percent of GDP, 75 percent of general government fiscal revenues, and over 95 percent of total exports. Nigeria's federalist fiscal relations are quite complex and driven by substantial (and constitutionally mandated) oil revenue sharing among the federal government, 36 (oil-producing and non-oil-producing) states, and various local governments.

Nigeria has administratively set maximum prices for kerosene and gasoline and an indicative price for diesel.³ At the core of this system, which was established in 2003, is the Petroleum Products Pricing Regulatory Agency, which sets these prices every month. This agency applies import parity but is also expected to stabilize prices, which it does with the help of the Petroleum Support Fund (PSF). When total costs are below the maximum price, the marketer benefits from what is called an "overrecovery"; if they are above, there is an "underrecovery." Any overrecoveries are to be paid into the PSF, supplementing the funds appropriated from the budget, whereas underrecoveries would be compensated from the PSF. The Petroleum Products Pricing Regulatory Agency posts Product Pricing Templates for kerosene and gasoline on its Web site. They show the

TABLE 5.4

Nigeria: Key Macroeconomic Indicators, 2003–11

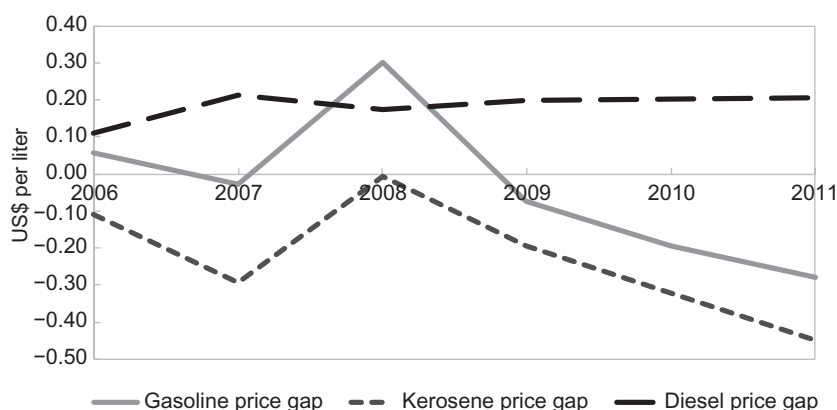
	2000	2003	2008	2010	2011
GDP per capita (US\$)	390.0	524.3	1401.2	1465.1	1521.7
GDP growth (percent)	5.3	10.3	6.0	8.0	7.4
Inflation (percent)	6.9	14.0	11.6	13.7	10.8
Overall fiscal balance (percent of GDP)	12.4	−4.3	1.7	−4.2	0.1
Public debt (percent of GDP)	84.2	63.9	11.6	15.5	17.2
Current account balance (percent of GDP)	12.5	−5.9	14.1	5.9	3.6
Oil imports (percent of GDP)	5.1	2.5	5.2	4.9	7.9
Oil exports (percent of GDP)	49.8	39.2	40.6	32.7	36.9
Fuel consumption per capita (liters)	n.a.	98.6	88.0	79.2	93.5
Poverty headcount ratio at US\$1.25 per day (PPP) (percent of population)	n.a.	n.a.	n.a.	33.7	n.a.

Sources: IEA; IMF; WEO; Nigerian authorities; World Bank, *World Development Indicators*.

³Diesel was deregulated in 2007 and is not subsidized.

maximum prices but also the estimated costs of importing fuel—the so-called landing costs—as well as the costs of domestic distribution, decomposed into trading margins and fees, all of which are regulated.

Nigeria has subsidized kerosene and gasoline at a substantial cost to the government. Domestic fuel price setting has never been responsive enough to changing international prices. Importers have typically been unable to recover costs, and so from the beginning the PSF never received payments, only made them. As the gap between the administered price and the import parity price increased, subsidy costs rose from 1.3 percent of GDP in 2006 to 4.7 percent of GDP in 2011. In 2011, the budget appropriation for the PSF was just 0.6 percent of GDP, and funding for the subsidies came from Nigeria's oil stabilization fund (the Excess Crude Account). The price gap has encouraged widespread smuggling to neigh-



Sources: IMF staff calculations.

Figure 5.6 Nigeria: International and Domestic Fuel Prices, 2006–11 (Difference between world price and domestic price)

Domestic fuel prices in Nigeria have recorded substantial gaps relative to international prices.

TABLE 5.5

Nigeria: Developments in Fuel Prices and Fuel Subsidies, 2006–12							
	2006	2007	2008	2009	2010	2011 Est.	2012 Proj.
Fuel subsidy (billion naira)*	251	290	637	399	797	1,761	1,570
Fuel subsidy (percent of GDP)*	1.3	1.4	2.6	1.3	2.3	4.7	3.6
Fuel prices (naira per liter)							
Diesel (deregulated)	81	90	118	94	112	152	144
Kerosene (subsidized)	50	50	50	50	50	50	50
Gasoline (subsidized)	65	70	70	65	65	65	97

Sources: IMF staff calculations and projections; Nigerian authorities.

* For 2012, includes one-off payment of about 1 percent of GDP to settle arrears accrued in 2011. Est. = estimate; Proj. = projection.

boring countries and other abuses (e.g., overinvoicing of gasoline imports), which have contributed to the escalating costs.

The subsidy regime has also been a disincentive to investment in domestic refining capacity. None of the 20 refinery licenses issued since 2000 have been used. Although Nigeria produces some 2.5 million barrels of oil per day, it is heavily dependent on the import of fuel products. Its four state-owned refineries, operating sometimes at only about 20 percent of capacity and rarely above 40 percent, meet only about 20 percent of the domestic demand.

Reform Since 2011

In mid-2011, the government decided to radically curtail gasoline subsidies and waged a public campaign the rest of the year to convince the population. The debate on removal of fuel subsidies was initially supported by several state governors, who wanted to free up resources to be able to pay their civil servants the new minimum wage. This proposal was hotly debated in the press, by business and civil society groups, and it was debated in the National Assembly during the rest of the year, with the government strongly trying to make a convincing case. On January 1, 2012, the price of gasoline was raised to a cost-recovery level—a 117 percent increase. The price of kerosene, a cooking fuel used mainly by poorer households, was not changed. However, in response to intense social unrest, the government scaled back the price increase to 49 percent by mid-January. Evidently, despite six months of debate, the measure did not enjoy sufficient public support.

The main plank in the government's campaign for the subsidy removal was the Subsidy Reinvestment and Empowerment (SURE) Program. The SURE program was announced only in November. It was preceded by public statements by the president and by budget documents (e.g., the 2012–15 Medium-Term Expenditure Framework and the Fiscal Strategy Paper) highlighting the costs of the subsidies and the need to spend both on safety nets for poor segments of society to mitigate the effects of the subsidy removal and on the construction of new refineries and the rehabilitation of existing ones. The SURE brochure summarized the government's case for subsidy removal (Box 5.1), spelled out how much the federal government and states and local governments stood to gain from the subsidy's removal, and announced how the federal government would spend the money saved.

According to the SURE brochure, savings from the removal of the fuel subsidy would be channeled into “a combination of programs to stimulate the economy and alleviate poverty through critical infrastructure and safety net projects.” Capital projects would be selected in line with the government's Vision 20:2020 development strategy in the power, roads, transportation, water, and downstream petroleum sectors. The potential impact on the poor of the subsidy's removal would be mitigated “through properly targeted safety net programs.” The SURE brochure provided details on the various projects and programs to be undertaken, from the specific road segments to be built to the maternal and child health services to be upgraded.

Box 5.1 Nigeria: Rationale for Subsidy Removal

The government summarized its case for subsidy removal in the SURE brochure as follows:

1. Fixed prices have led to a huge unsustainable subsidy burden.
2. Fuel subsidies do not reach intended beneficiaries, and they mostly benefit the rich.
3. Subsidy administration has been beset with inefficiencies, leakages, and corruption.
4. Subsidy costs have diverted resources away from investment in critical infrastructure.
5. Subsidies have discouraged competition and stifled private investment in downstream petroleum.
6. Huge price disparity has encouraged smuggling to neighboring countries.

The SURE program envisaged the creation of a specific subsidy savings fund to finance its spending initiatives. The fund itself and the specific spending programs would be overseen by an 18-person board, comprising a chair appointed by the president, only four government representatives, and other members who are respected individuals from a wide cross-section of civil society. The board would seek technical assistance from internationally reputed consulting firms, while an independent body would report to the board directly on implementation.⁴

The government's attempts to win support for its subsidy reform met with strong opposition from powerful sectors of society. In early December 2011, the National Assembly came out against the removal of the gasoline subsidy, claiming that the measure was premature and not supported by firm data underpinning the size and incidence of the subsidies. In response, the Ministry of Finance presented a "Brief on Fuel Subsidies," laying out once again the case for removal, supporting it with data on the explosive growth of the subsidies, and comparing their costs with the government's capital expenditure and borrowing requirements (Okonjo-Iweala, 2011). In addition, several senior officials gave interviews and speeches during the last two weeks of December. However, trade unions were also voicing their strong opposition to the measure, echoing a widely held view that the proceeds from the subsidy removal would most likely go to fund wasteful government spending (including for corrupt politicians) rather than projects to benefit ordinary Nigerians (Okigbo and Enekebe, 2011). State governors who had generally supported the reform earlier on were now silent. Throughout the entire period, the government had deliberately refrained from setting any date for the planned removal of subsidies.

The January 1 announcement came as a surprise and set off widespread protests across the country. On January 9, the two large union federations launched a national strike. Certain parts of the country experienced a near breakdown of

⁴President Goodluck officially inaugurated the program on February 13, 2012, and appointed Dr. Christopher Kolade as chair of the SURE Board.

law and order, and there were a number of deaths related to violence and acts of intimidation associated with the strike. On January 15, the president announced that the January 1 price increase would be partly reversed and the new maximum retail price for gasoline would be N97 (US\$0.6) per liter, a 40 percent increase over its end-2011 level. However, he emphasized that the government would continue to pursue full deregulation of the downstream gasoline sector. The SURE program would go ahead but would be scaled back in line with the reduced subsidy savings. The president also announced that the legal and regulatory regime for the petroleum industry would be “reviewed to address accountability issues and current lapses.” Unions called off their strike that same day.

Mitigating Measures

The SURE program outlined a variety of social safety net programs to mitigate the impact of removing the subsidy on the poor segment of the population. These included

- *Urban mass transit*—Increasing mass transit availability by facilitating the procurement of diesel-run vehicles (subsidized loans, reduced import tariffs, etc.) to established operators. In the first step of this program, the government intended to import 1,600 buses within months.
- *Maternal and child health services*—Expanding the conditional cash transfer program for pregnant women in rural areas and upgrading facilities at clinics.
- *Public works*—Providing temporary employment to youth and women from the poorest populations in environmental projects and maintaining education and health facilities.
- *Vocational training*—Establishing vocational training centers across the country to help tackle the problem of youth unemployment.

Lessons

A well-thought-out public information and consultation campaign is crucial to the success of a reform. Although the government campaigned vigorously for removal of the subsidies, the measure was still highly controversial when it went into effect. The backlash had been predicted. The public communication campaign lasted only six months, and there was no broad popular consultation. The Ministry of Finance produced several short briefs to support its proposal, but these were issued several months into the campaign, and there was no comprehensive report.

The government must establish credibility for its promise that the proceeds from the removal of the subsidy will actually be used for the benefit of the broad population. Notwithstanding the laudable objectives of the SURE program and the plans for oversight by a highly reputable board of directors, the new administration had yet to establish credibility that it would live up to commitments. On the contrary, it suffered from a very negative image of government held by the general public. As such, the subsidy reform was viewed very suspiciously, and the general public simply did not believe that the government would live up to its commitments.

Thorough research on the costs and beneficiaries of subsidies is important to be able to bolster the case for subsidy reform. The absence of good quantitative information on the state of Nigeria's refining industry and of the fuel subsidy mechanism itself allowed spurious arguments, often made by parties with vested interests, that government investment in the state-owned refineries and/or measures to stop abuse by marketers were preferable to removing the subsidies. In addition, the claim that subsidies benefited mostly the poor had been based on anecdotal evidence rather than on research drawing on household survey data.

South Africa

Context

The private sector plays a significant role in South Africa's fuel sector, but prices remain controlled. Six of the seven oil companies⁵—both state-owned and private, including foreign-owned—operate both upstream and downstream in a competitive environment. Some 30 percent of the country's fuel needs are met from synthetic coal-based fuel that is produced domestically, with the remainder derived from imported crude, which is then refined domestically. Although the government has been working toward liberalizing prices, pump prices are currently determined under an automatic pricing mechanism.

Reforms Since the 1950s

The primary reason for introducing the automatic pricing mechanism, which has been in place since the 1950s, was to encourage private sector participation in the energy sector and secure an adequate supply of petroleum products. Concerned about the impact of sanctions on fuel supply during the apartheid era, the government realized that providing prices at least equal to import parity was critical to incentivize international firms to invest and maintain their activities in South

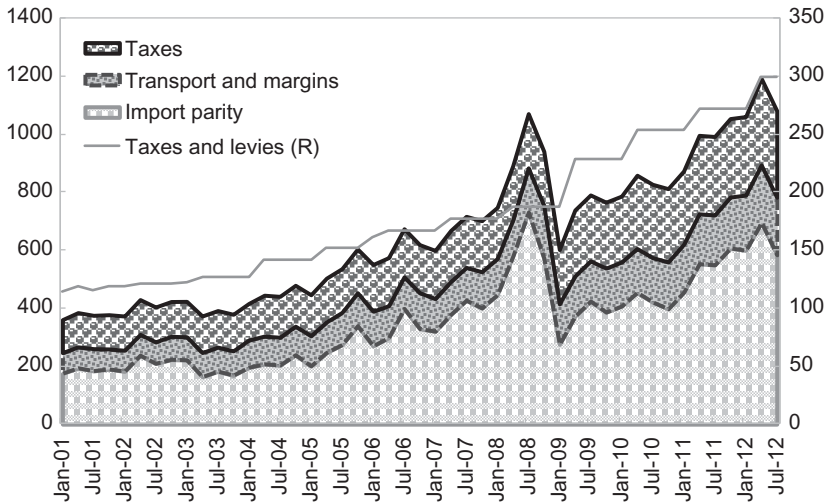
TABLE 5.6

South Africa: Key Macroeconomic Indicators, 1993–2011

	1993	1998	2003	2008	2011
GDP per capita (US\$)	3315.6	3100.1	3656.2	5605.8	8078.5
Real GDP growth (percent)	1.2	0.5	2.9	3.6	3.1
Inflation (percent)	9.9	6.9	5.8	11.5	5.0
Public debt (percent GDP)	n.a.	n.a.	36.9	27.4	38.8
Current account balance (percent GDP)	2.1	–1.8	–1.0	–7.2	–3.3
Oil imports (percent GDP)	0.0	0.1	0.1	0.3	0.2
Oil exports (percent GDP)	n.a.	n.a.	0.0	0.0	0.0
Oil consumption per capita (liters)	n.a.	n.a.	441.7	518.2	534.5
Poverty headcount ratio at US\$1.25 per day (PPP) (percent of population)	24.3	n.a.	n.a.	n.a.	n.a.

Sources: IEA; IMF, WEO; World Bank, *World Development Indicators*.

⁵The six are BP, Caltex, Engen, Sasol, Shell, and Total. PetroSA is the seventh company.



Source: South African Petroleum Industry Association.

Figure 5.7 South Africa: Composition of Gasoline Pump Prices and Taxes, 2001–12 (Cents per liter)

Africa (Competition Tribunal of South Africa, 2006). Most of those international companies remained in South Africa, even during the anti-apartheid embargo.

Attempts to integrate some pump price smoothing through the Equalization Fund over 1977–2004 were not very successful, and they have since been abandoned. The Equalization Fund was established in 1979 and was principally used to smooth out fluctuations in the price of fuel products. It allowed for retail price smoothing by fixing domestic retail fuel prices, with transfers from the fund when international prices were high and transfers to the fund when they were low.⁶ When the Equalization Fund went dry, the government needed to finance the deficit. Eventually the government abandoned this policy, and this necessitated substantial increases in prices to bring them to import parity levels. The steep increase in 1993 led to social unrest, which led to the establishment of the Liquid Fuels Industry Task Force to develop a mechanism to address high fuel prices. The current price structure still has the Equalization Fund Levy component, but this has been set at zero since 2002, except when it was used occasionally in early 2003.

The Central Energy Fund, a state-owned entity, was set up in 1977 and given responsibility for determining pump prices on behalf of the Department of Energy.

⁶Because domestic prices are adjusted monthly whereas import parity prices change within each month, suppliers can incur deficits or accumulate losses. To address this, the government also introduced “slate” charges into the pricing formula, which could be negative or positive as required. However, these payments have in practice been negligible.

Prices are determined on a monthly basis (the first Wednesday of each month) and include margins, taxes, and levies. The fuel tax—the main tax—is a specific levy announced every February in the budget speech (for implementation in April); it has increased steadily over time, including in periods of rising international prices (Figure 5.7). The decisions of the Central Energy Fund are transparently communicated to the public. There is an online publication⁷ of the monthly decisions and price structure, which contributes to a good understanding among the general public of the factors driving pump prices.

Mitigating Measures

No mitigating measures have been introduced in connection with the automatic pricing mechanism. Given the long-standing application of the formula to determine fuel prices, there has been little debate regarding the adverse effects of international fuel price increases.

Lessons

South Africa's success in implementing the automatic price mechanism shows that when the mechanism is well designed, private (including foreign) companies can operate under it without much problem.

The long-standing automatic pricing mechanism has worked well and is likely to remain in place for the foreseeable future. Although South Africa initially implemented the mechanism for strategic reasons under a peculiar political situation, it has been applied consistently over the years. There has been little discussion of an alternative, even when pump prices have had to be increased sharply.

The transparency and credibility of the automatic pricing process has contributed to its durability. South Africa's experience with automatic pricing has been attributed to the credibility that the Central Energy Fund has gained over the years and the transparency with which the mechanism is implemented. The public dissemination of the fund's decisions has contributed to its success.

Stabilization funds can backfire when they are not provided with sufficient resources to absorb volatility in international prices. In South Africa, the Equalization Fund was underfunded, and when resources were exhausted, prices needed to rise sharply—thus defeating the fund's very purpose.

ELECTRICITY SUBSIDIES

Kenya

Context

In line with an expanding economy, Kenya has experienced a substantial increase in energy demand, estimated at 7 percent per year on average over the last six years (Ajodhia, Mulder, and Slot, 2012). Despite improvements in access rates

⁷See http://www.energy.gov.za/files/petroleum_frame.html.

TABLE 5.7

Kenya: Key Macroeconomic Indicators, 1995–2009

	1995	2000	2005	2009
Real GDP growth	4.0	2.5	6.1	4.1
CPI Inflation	8.9	8.0	11.1	6.7
Overall balance excluding grants (percent of GDP)	−0.8	−4.1	−4.7	−7.2
Total public debt (percent of GDP)	n.a.	53.1	45.1	44.8
Poverty headcount ratio at US\$1.25 per day (PPP) (percent of population)	n.a.	n.a.	43.4	n.a.

Sources: IEA; IMF; WEO; World Bank, *World Development Indicators*.

Note: CPI = Consumer Price Index.

and increases in capacity, electricity generation has not been able to keep up with the increase in demand, and power continues to be a constraint on growth. Kenya depends heavily on hydropower for electricity generation, which accounts for over 56 percent of installed capacity, whereas thermal and geothermal energy sources account for 31 and 13 percent, respectively.

The Kenya Electricity Generating Company (KenGen) is the main player in the wholesale electricity market, accounting for 75 percent of installed capacity as of 2009. It sells power to the retail distributor under several power purchase agreements. In addition, Kenya has five private independent power producers that account for about 25 percent of installed capacity (World Bank, 2010a). The Kenya Power and Lighting Company (KPLC) is responsible for transmission and distribution of electricity. Both KenGen and KPLC operate on a commercial basis and are listed in the Nairobi stock exchange. On the regulatory side, the independent Energy Regulatory Commission (ERC) regulates tariffs, issues licenses, and sets performance targets for KPLC (e.g., revenue collection, average waiting period for new connections, and system losses).

Reforms Since the Mid-1990s

Reform efforts 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 in the industry. The main objectives of the reform were to improve performance in the power sector, ensure the financial sustainability of the companies operating in the sector, and foster investment. Reform efforts culminated in the 2004 Energy Policy and the 2006 Energy Act. Substantial changes in the tariff structure first occurred in 2005, when revisions were introduced to reflect long-term marginal costs and automatically pass through changes in fuel costs and exchange rate movements. Tariff reform has proved to be durable, but it is important to note that tariff increases occurred concomitantly with improvements in the quality of service. Furthermore, the reform process did not involve any retrenchment of staff in the utilities. The setting up of an Energy Tribunal to arbitrate on disputes between the Energy Regulatory Commission and stakeholders has been instrumental in creating a level playing field in the sector.

Tariffs are based on a formula that, in addition to the basic rate of charge, reflects long-term marginal costs and features a monthly automatic pass-through

of generation-related fuel costs and adjustments for exchange rate movements. Furthermore, every six months the formula also takes into account adjustments for domestic inflation. Information on the calculation of tariff adjustments is readily available on the Energy Regulatory Commission's Web site. On the generation side, KenGen has long-term power purchase agreements with KPLC that determine prices and generally reflect underlying costs.

Moreover, residential electricity tariffs in Kenya are based on an increasing block tariff scheme (IBT), such that the unit price per kWh increases according to three defined blocks. The first block ranges from 0 up to 50 kWh per month at a rate of K Sh 2 per kWh. The second block ranges from 51 to 1,500 kWh per month at a rate of K Sh 8.10. Finally, the third block applies to households that consume more than 1,500 kWh per month with a rate of 18.57 per kWh. Thus, the tariff rate charged to the highest block is over 828 percent higher than the rate applicable to the lowest one. Residential consumers also pay a fixed charge of K Sh 120. Nonresidential consumers are charged different linear rates, which do not vary according to consumption levels, depending on their category (i.e., commercial, industrial, or government).

Earlier in the reform process, 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 that would ultimately reduce the cost of power and strengthen competitiveness. Moreover, there was agreement among stakeholders that ensuring the financial soundness of KenGen and KPLC and setting up a tariff structure reflecting true costs were essential to attract foreign investors into the sector. Subsequently, owing to the negative impact of droughts in 2008 and 2009, a decision was taken to lower the value-added tax (VAT) rate on electricity from 16 to 12 percent.

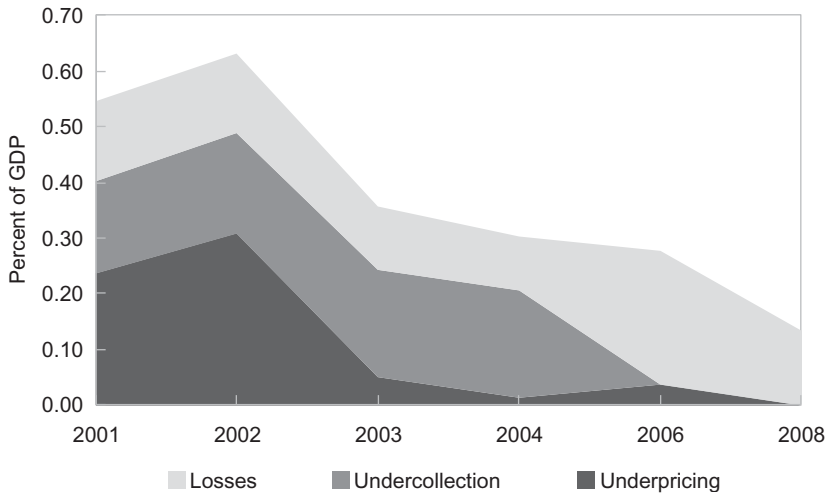
Power pricing reforms in Kenya allowed tariffs to increase in line with costs from an estimated average of US\$0.07 per kWh in 2000 to US\$0.15 in 2006 and US\$0.19 in 2009 (Table 5.8). The current electricity tariff structure for KPLC tariffs has been in place since July 2008. According to the World Bank (2010a), currently the negotiations for tariff setting and power purchase agreements

TABLE 5.8
Kenya: Key Power Sector Indicators, 1995–2009

	1995	2000	2005	2009
Access to electricity (percent of population)	11.791	13.102	n.a.	16.10
Electric power consumption (kWh per capita)	130.83	109.72	137.13	147.43
Electric power transmission and distribution losses (percent of output)	17.90	21.16	18.38	15.53
Electricity production (GWh)	3759	4098	5995	6875
Average Tariff (US\$/kWh)	n.a.	0.07	0.153	0.19

Sources: Africa Infrastructure Country Diagnostic electricity database; Briceño-Garmendia and Shkaratan (2011a); IMF staff estimates; World Bank (2010a); World Bank, *World Development Indicators*.

Note: GWh = gigawatt-hour.



Source: Briceño-Garmendia and Shkaratan (2011a).

Figure 5.8 Kenya: Hidden Costs in the Power Sector, 2001–8

Hidden costs in the power sector have fallen continuously in the last decade.

are transparent; the regulatory framework in the sector is robust and resistant to political interference. However, planned increases in the basic tariff rate in June 2011 did not occur on account of political economy constraints 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 of the power sector have decreased significantly over the 2000s, dropping from a level of around 0.6 percent of GDP in 2002 to virtually zero by 2008 (Figure 5.8). In fact, the bulk of the reduction in costs is attributable to large decreases in underpricing, as tariffs were brought to cost-recovery levels, and to reductions in undercollection through improvements in billing. Furthermore, by mid-2008, there were no explicit subsidies or fiscal transfers to power utilities.

The reforms are considered to have been largely successful, with achievements that include rendering both the generation, distribution, and transmission companies financially viable and increasing investment in generation capacity, including some private sector involvement. According to the World Bank (2010a), reforms have resulted in significant operational improvements, including increases in revenue collection. The annual rate of new electricity connections increased from 43,000 in 2003/04 to 200,000 in 2008/09. Distribution losses in the power system also declined gradually from 21 percent in 2000 to 15.5 percent in 2009 (Table 5.8). 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. Labor

productivity at KPLC, measured by the ratio of sales per employee or customers per employee, also improved substantially over the period 2004–5 (World Bank, 2010a).

Despite significant progress, there still is a need to expand the power infrastructure to alleviate constraints on growth. The 2007 World Bank Enterprise Survey shows that over 67 percent of firms in Kenya owned a generator and that power outages typically led to losses that amounted to 5 percent of annual sales for the firms surveyed.⁸ Briceño-Garmendia and Shkaratan (2011a) present estimates suggesting that unreliable electricity supply reduces Kenya's GDP growth by 1.5 percent per year. Representatives from the Kenya Association of Manufacturers point out that power disruptions continue to affect their operations, despite a provision that prices charged by KPLC to its customers incorporate a requirement that system losses cannot exceed 15 percent.⁹

Mitigating Measures

To address social objectives and affordability concerns, a number of measures have been adopted (World Bank, 2010a; and Briceño-Garmendia and Shkaratan, 2011b). These include

- A rural electrification program that has helped increase the number of connections from 650,000 in 2003 to two million at present;
- A revolving fund, financed by donor funds, for deferred connection fee payments;
- Commercial bank loans for connection fees;
- A lifeline tariff (below costs) for households that consume less than 50 kWh per month, which is cross-subsidized by rates imposed on larger consumers; and
- Cross-subsidies from urban to rural consumers, because tariffs are uniform across these areas.

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, 2011b).

Access continues to be a challenge, particularly in rural areas, where access rates are estimated at 4 percent in 2009 compared with 51 percent for urban locations. Briceño-Garmendia and Shkaratan (2011a) argue that Kenya will need to double its current installed capacity over the next decade and will need to reinforce cross-border transmission links with neighboring countries to increase access to cheaper hydroelectric power and improve overall system security. Despite the fact that there is scope to reduce energy costs through regional interconnections, exchanges across countries in the East Africa power pool are still small.

⁸See <http://www.enterprisesurveys.org/>.

⁹Members of the Kenya Association of Manufacturers account for approximately 60 percent of total industrial energy consumption.

Lessons

Successful electricity reform involves more than tariff changes and it takes time. The reform of the power sector in Kenya started in the mid-1990s and took over 10 years to mature. Apart from a prudent tariff policy, improving the technical and administrative efficiency of state-owned companies was key to eliminating hidden costs. The establishment of a relatively sound regulatory framework, including a regulator that is considered to be largely effective and independent, has also been vital to the durability of the reform process and to encouraging greater private sector participation in generation capacity.

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 automatic adjustments to changes in fuel costs (with information regularly published on the Energy Regulatory Commission's Web site), 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.

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. In addition to the so-called lifeline tariffs (cross-subsidized by large electricity consumers), authorities implemented alternative mechanisms to alleviate the burden of connection fees, such as a revolving fund for deferred payments, financed by donors, as well as commercial bank loans.

Uganda

Context

Despite large potential for hydropower, Uganda has suffered for decades from power shortages. Uganda sustained high economic growth rates during the 1990s and 2000s, which contributed to rapid growth in energy demand (Table 5.9). The public utility, Uganda Electricity Board (UEB), was not able to meet the growing demand partly because of weak financial conditions. Access to electricity was one of the lowest in sub-Saharan Africa, particularly in rural areas. Near exclusive dependence on hydropower prior to 2006 made Uganda vulnerable to weather shocks. As a result of financing constraints, the government was not able to provide adequate support to help UEB meet power demand and tap into the hydropower potential.

In this context, Uganda initiated a comprehensive power sector reform program in 1999. After adopting a power sector restructuring and privatization strategy, a new Electricity Act was passed that aimed at creating an enabling environment for development of the power sector and for private sector participation.

TABLE 5.9

Uganda: Key Macroeconomic and Power Sector Indicators, 2005–10							
	2005	2006	2007	2008	2009	2010	2011
<i>Macroeconomic Indicators</i>							
Real GDP growth (in percent)	6.3	10.8	8.4	8.7	7.2	5.2	6.4
Inflation rate (in percent)	10.7	7.2	4.4	12.5	12.3	4.2	15.7
Fiscal balance excl. grants (percent of GDP)	–7.6	–6.1	–6.0	–5.1	–4.8	–7.3	–9.5
<i>Power Sector Indicators</i>							
Input energy (million kWh)	1846	1588	1861	2044	2269	2456	2645
Electricity consumed (million kWh)	1139	1043	1204	1345	1483	1731	1905
Distribution losses (in percent)	38	34	35	34	35	30	28
Collection ratio (percent of all bills)	80	85	93	90	94	96	96
Effective tariff (US cents/kWh)	9	12	18	16	17	16	12
Average cost (US cents/kWh)	13	20	23	26	24	26	26

Sources: IMF, WEO database; Ranganathan and Foster (2012); Uganda, Ministry of Energy and Mineral Development (2012a).

An independent regulatory agency, the Electricity Regulatory Authority, became operational in 2000. In 2001, UEB was unbundled into three separate entities: a generation company (the Uganda Electricity Generation Company Ltd., or UEGCL), a transmission company (the Uganda Electricity Transmission Company, Ltd., or UETCL), and a distribution company (the Uganda Electricity Distribution Company, Ltd., or UEDCL). Given lack of access to electricity in rural areas, a Rural Electrification Agency was established in 2003.

Subsequently, separate private concessions were approved for the generation and distribution companies. In 2003, Eskom Uganda (a subsidiary of Eskom of South Africa) was awarded a 20-year concession for the management of UEGCL's assets. In 2005, UMEME Ltd., the largest electricity distribution company in Uganda, was awarded a 20-year concession for the distribution company UEDCL, the first electricity distribution network concession in sub-Saharan Africa. The state-owned UETCL operates the high-voltage transmission network and serves also as a bulk supplier to the distribution company. As UETCL's bulk supply tariffs have been below cost-recovery levels, the government provided direct and indirect financial supports to UETCL.

The 2005–6 droughts led to an increased dependency on costly thermal power. Prior to the droughts, power generation in Uganda was largely hydro-based. To offset the power shortfall caused by the drought and to meet growing demand, the authorities contracted rental thermal plants, increasing the share of thermal power from about 23 percent in 2006 to about 39 percent in 2011 (Table 5.10). Despite increased thermal power, power cuts were common. According to a 2006 World Bank survey, around 45 percent of firms cited power as a major constraint to doing business (World Bank, 2011a). Despite relying on generators to self-supply for as much as 30 percent of their power needs, these firms lost 10 percent of their sales because of power cuts.

TABLE 5.10**Uganda: Explicit Fiscal Subsidies for the Power Sector and the Cost of Thermal Generation, 2006–11**

	2006	2007	2008	2009	2010	2011
Explicit power subsidy						
in US\$ million	60.11	51.28	87.56	112.87	151.05	174.80
in percent of GDP	0.6	0.4	0.7	0.8	1.0	1.1
Thermal power (GWh)	370	539	590	896	1022	1029
in percent of total energy	23.3	29.0	28.9	39.5	41.6	38.9
Average oil price per barrel (000 Ush)	131	132	210	132	173	253
percent change (year-on-year)		1	60	–37	32	46
Thermal power costs (in percent of GDP)	0.9	1.1	1.3	1.3	1.5	1.7

Sources: IMF, WEO database; Uganda, Ministry of Energy and Mineral Development (2012b).

Note: Subsidy figures are for fiscal years, which start in July. Data for 2011 are preliminary.

Explicit budgetary support for the power utility has risen steadily since 2005. The explicit subsidy comprised two mechanisms: direct budgetary support to UETCL (bulk supplier) and capacity payments to thermal power units. In FY 2010/11, direct subsidy costs represented 1.1 percent of GDP (Table 5.10). The 2012 tariff increase is expected to eliminate explicit subsidy costs once the Bujagali hydro generation unit becomes fully operational in late 2012. With increased hydro generation capacity, the government will avoid purchase of expensive thermal power, though it will still need to make capacity payments to the independent power producers.

Private concession of the distribution company has produced slow but steady improvements. First, distribution line losses have steadily fallen, from 38 percent in 2005 to 28 percent in 2011 (Table 5.9). Similarly, the collection rate increased from 80 percent of total power bills in 2005 to 96 percent in 2011. To attain these improvements in the distribution system, UMEME invested US\$105 million by end-2010—more than envisaged in the contract (Uganda, Ministry of Energy and Mineral Development, 2012a). After little progress in 2005–8, UMEME increased the number of customers by over 30 percent by 2009–10. The increased power supply is expected to further boost the access rate. Notwithstanding this progress, about one-third of the electricity supplied is still not paid for on account of distribution and transmission losses and noncollection of bills.

Once the latter losses are accounted for, we find that the quasi-fiscal deficit (QFD) of the power system has also increased over time.¹⁰ The QFD of the power sector would have amounted to 2.6 percent of Uganda's GDP in 2011—of which about 1.1 percent of GDP were explicit fiscal costs. The QFD continued to grow even after some progress in reducing inefficiencies, largely because of the rising gap between the average effective tariff and the average cost of electricity (Table 5.11).

¹⁰Quasi-fiscal deficit of a power utility 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.

TABLE 5.11

Uganda: Quasi-Fiscal Deficit of the Power Sector, 2005–8 and 2009–11

	2005–8		2009–11	
	In percent of costs*	In percent of GDP	In percent of costs*	In percent of GDP
QFD due to underpricing	32.8	1.0	40.1	1.4
QFD due to distribution losses (up to 10%)	6.7	0.2	6.0	0.2
QFD due to distribution losses (over 10%)	17.0	0.5	12.5	0.4
QFD due to undercollection	4.6	0.1	1.9	0.1
Total quasi-fiscal costs	61.1	1.9	60.5	2.1

Source: Staff calculations based on data from the World Bank; IMF, WEO; and country authorities.

*In percent of total cost of electricity production. QFD = quasi-fiscal deficit.

Growing demand also contributed to the QFD—consumption almost doubled between 2006 and 2011. In any case, QFDs in Uganda have been driven primarily by underpricing: in 2011, underpricing accounted for about 80 percent of the QFD.

Uganda's long-term marginal costs can be substantially lower than the current average costs, but this requires substantial investment. By developing its hydro-power potential, the country can reduce costs from US\$0.16 to around US\$0.12 per kWh (Ranganathan and Foster, 2012). The Bujagali power project was the first step; other major hydro projects are currently being finalized that could double the capacity in a few years.

Reforms Since 2006

Past attempts to bring power tariffs to cost-recovery levels were not enough to catch up with increasing costs. In June and November 2006, power tariffs were increased by about 35 and 41 percent, respectively (World Bank, 2011a). These tariff hikes raised the average effective tariff to US\$0.18 per kWh. During 2007–9, no retail tariff adjustments took place, while generation costs kept rising, mainly on account of rising fuel prices, delays in the commissioning of the Bujagali hydropower project, and the depreciating Ugandan shilling (Table 5.11). In January 2010, retail power tariffs were modified to give some relief to household consumers. Given the high cost of thermal power, retail effective tariffs covered only about two-thirds of the costs of power supply in 2010 (World Bank, 2011a).

To offset rising power costs and associated subsidies, the Electricity Regulatory Authority approved a substantial increase in retail tariffs in January 2012. The average effective tariff was increased by about 41 percent (or US\$0.05 per kWh). Although at the time of the hike new tariffs were still below the cost-recovery levels, they became broadly in line with the cost recovery when the Bujagali hydropower project became fully operational in October 2012. In addition, the cross-subsidization from households to industrial consumers was also 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 lifeline tariff—for monthly consumption up to 15 kWh—remained unchanged. Following the latest tariff increase, Uganda's power tariffs are in line with those of other members of the East African Community.

Although the recent tariff hike was not without controversies and protests, the government's determination and effective communication have helped to sustain it. The government has run a strong communication campaign to explain the factors that led to the current tariff hike. It was noted that the price of diesel had almost doubled since the last tariff increase in 2006 and that the government was subsidizing consumption as average tariffs remained below unit costs. Although the chair of the Uganda Manufacturers Association pointed out that the new tariff would automatically increase production costs, he also acknowledged that the new tariffs would be bearable if power supply was reliable.

The extent of protests was limited. There were some protests in Kampala and a big political debate in parliament about the tariff hike. The government argued that there were simply no resources to continue subsidizing electricity for the small and relatively rich elite. Low access to power also helped given that the 88 percent of the people without access to electricity were not interested in the protests. Some newspapers highlighted the fact that the subsidy accrues disproportionately to the rich and stressed that the tariff hike would be actually a pro-poor policy decision. What is important is that the lifeline tariff was maintained.

Overall, a variety of factors help create an environment that allowed the authorities to raise power tariffs in early 2012:

- The increasing and unsustainable fiscal costs of thermal power in the context of rising fuel prices: In recent years, the government repeatedly ran arrears in payments for thermal power. In 2011, the explicit fiscal subsidy reached over 1.1 percent of GDP.
- Poorly targeted electricity subsidies: Before the recent tariff hike, large industrial consumers paid less than a quarter of the cost of producing a kilowatt-hour. These consumers accounted for 44 percent of total power consumption in 2010. Thus, almost two-thirds of the power subsidy accrued to a small group of industrial consumers. Among households, only 12 percent of Ugandans have access to the national power grid, whereas the rest rely on unsubsidized kerosene and firewood. The poor generally do not have access to the electricity grid, and the initial power connection costs (about US\$80) are too prohibitive.
- Evidence that both industrial and household consumers are willing to pay substantially more than the prevailing tariffs in 2010: A World Bank report noted that average coping costs for intermittent power supply was US\$0.3 per kWh (or US\$0.4 including fixed costs). For residential customers, the willingness to pay would be US\$0.5 per kWh (World Bank, 2011b).
- Investments in hydropower infrastructure leading to a reduction in electricity provision costs over the medium and long term.

- Limited access to power in Uganda: As of 2010, only 12 percent of the population (under 4 percent of the rural population) had access to power, which was less than half of the rate observed on average in other low-income African countries.

Mitigating Measures

The key explicit mitigating measure to power tariff reform is the lifeline tariff for low-income consumers. Uganda has lifeline tariff for poor domestic consumers for power consumption of up to 15 kWh a month. This lifeline tariff has remained unchanged at US\$ 100 per kWh.

Lessons

The Ugandan case clearly shows that a key impediment to addressing inefficiencies in a power utility is lack of investment. As UMEME made substantial investments, it was able to reduce distribution losses and improve collection while increasing access rates by about 50 percent in the last three years.

Poor financial performance of power utilities is not only caused by the government's desire to maintain low tariffs. Their performance is equally affected by high levels of distribution network losses and undercollection of bills. Therefore, increasing power tariffs alone will not be enough. Power tariffs should be set at economical levels but need to allow for a reasonable level of line losses. In addition, the utility's financial sustainability needs to be pursued through measures to improve efficiency. For this purpose, regulatory policies can help provide utilities with appropriate incentives.

Institutional reform of the power sector takes some time (e.g., 5–10 years). Uganda started its reforms in 1999 and took more than 10 years to make progress in terms of access rates, efficiency measures, and fiscal burden. The reforms led to the establishment of a largely independent regulator with a relatively sound regulatory framework, greater private sector participation in electricity generation and distribution through concessions, and tariff policies that were expected to eliminate hidden costs by the end of 2012.

Tariff increases require a careful strategy for communication and implementation. The Ugandan government communicated well the cost of the power subsidy and its incidence to the public. A large portion of the media considered raising tariffs to be pro-poor measure.

Raising access to power is challenging. Targets for rural electrification had to be revised from 2010 to 2012. It should be noted that the high cost of getting a new power connection is a major impediment to accessing power.