6 The political economy of power sector reform in South Africa

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Introduction

The dominant trend in the evolution of the power sector in South Africa over much of the last century was the growth and consolidation of a large and powerful state-owned, vertically integrated monopoly, ESKOM. Most of the early private power producers were gradually taken over by Eskom, which became responsible for new supply. The main drivers for the increased concentration and public ownership of the industry were potential economies of scale in power plants, the requirement for large amounts of capital that could be facilitated by government guarantees, and the fact that electricity was seen as an essential ingredient of the government’s industrialization strategy. At the same time, the state was also assuming a dominant role in other key infrastructure industries, including rail, air, and sea transport, telecommunications, water, coal-based synthetic fuels, nuclear energy, and also the iron and steel industry. Competition and private ownership in these sectors were thought to be nonoptimal; the state viewed these industries as key instruments for industrialization, employment creation, and economic development.

However, by the 1980s poor economic performance of state-owned enterprises (SOEs), combined with broader economic and political pressures on the apartheid state, caused government to look at reforming these institutions. The management of Eskom was not fully accountable and could plan and finance excessive generation capacity. Poor investment decisions were made. The result was massive costs to the economy and, initially, to the consumer as well. At the same time, the vast majority of disenfranchised South Africans remained without electricity.

Following the democratic revolution of 1994, emphasis was given to electrification, improvements in the electricity distribution industry (EDI), the creation of an independent regulator, and the corporatization of Eskom (in parallel with reforms in other SOEs). Eskom’s governance
was overhauled and new commercial principles were embedded in the operation of the utility. Productivity was improved and the financial guarantees of government were removed.

The reform process has been slow and modest. Eskom remains in state ownership and there appears to be no political urgency to fully unbundle the utility. Yet Eskom has played an important role in bringing electricity to more people.

Prices are currently low (amongst the lowest in the world) because there has been no need for investments in new capacity for many years, and the cost of the older plant has mostly been amortized. But South Africa is living on borrowed time. Prices will have to rise to fund the next wave of new capacity, expected to begin in 2007. Some analysts predict that new peak supply will be needed even earlier, without which rolling blackouts will visit South Africa.

Analysts have pointed out opportunities for creating a more competitive and efficient environment for new investment decisions. However, these arguments are still not widely accepted or understood by most stakeholders. An Energy Policy White Paper and subsequent Cabinet decisions laid out a path of managed liberalization. Yet the urgency of securing new generation capacity has delayed the restructuring of Eskom. Government continues to rely on Eskom as the supplier of last resort, while at the same time opening up space for new independent power producers (IPPs).

In the first section of this chapter, we trace the historical development of the power sector and describe its key features. Next, we outline political-economic issues and the main drivers of reform. The bulk of the chapter is a section that focuses on the reforms in the Electric Supply Industry (ESI) itself. The discussion is broken down into key, broadly chronological, episodes where the rationale for reform, the interests of the different stakeholders, the reform models, and the outcomes of reform are analyzed. Finally, a concluding section summarizes the key linkages between the reforms and the broader political economy.

**History of the electricity supply industry in South Africa**

The new electrical lights and machines that were developed in the late nineteenth century spread rapidly around the world and South Africa was amongst the first countries to adopt these revolutionary technologies. The first electric lights in South Africa were installed at the railway station in Cape Town in the Cape Colony, barely two years after Thomas Edison invented the incandescent lamp in 1879. In 1882, the same year that the world’s first central power station began operating in
New York, the mining city of Kimberly in the Cape installed the first electrical streetlights in South Africa, well ahead of London which was still using gaslights. The electricity industry expanded quickly, spurred by the capital being invested in gold mining in the Transvaal Republic in the interior (Christie, 1984 and NER, 2001 p. 20).

The first commercial central power station was built in 1897 by the Rand Central Electric Works and supplied electricity mainly to the gold mining industry around Johannesburg. Over the next two decades many of the mines built their own power stations and some also supplied electricity to neighboring towns. In 1906 the Victoria Falls Power Company was established, but its plans to harness hydroelectric power were soon abandoned in favor of cheaper coal-fired generation.\(^1\) After the Union of South Africa in 1910 (combining the British colonies of the Cape and Natal, with the conquered Boer Republics of the Transvaal and the Orange Free State), the pattern of power development continued to be a mixture of municipal and private utilities, utilizing different technical standards and governed by a diversity of provincial and municipal bylaws. An example was the Transvaal Power Act of 1910 that provided for the establishment of a Power Undertakings Board with powers to license generators and distributors of electricity in a specific area (NER, 2001 p. 91).

By 1920 the concept of connecting individual power stations into a single network began to be considered, as well as the electrification of the railways and adjacent towns. Government was also promoting the development of coal and iron industries and the availability of cheap and abundant electricity was seen as essential for industrialization. The Electricity Act, No 42 of 1922, created the Electricity Supply Commission (ESCOM). Commissioners appointed by the Minister controlled ESCOM. It was given statutory powers to establish generation and distribution undertakings to supply electricity at the lowest possible cost. It had to raise capital through the issuing of bonds (although it did receive interest-bearing loans from government in the early years\(^2\)). ESCOM was not allowed to make a profit or a loss and was exempt from corporate income tax.

The Electricity Act of 1922 also provided for the establishment of the Electricity Control Board (ECB) to regulate electricity supply undertakings. The ECB licensed the operations of private generators and ESCOM and approved their tariffs. Municipal undertakings did not

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\(^1\) Typical power station sizes at this time were 40–60 MW.

\(^2\) ESCOM received government loans only in the years 1923–1928, but by 1934 these had been fully repaid (Electricity Supply Commission Annual Reports 1923–1935).
require a license from the ECB. However, they required approval from the Provincial Administrator who, in turn, had to seek the opinion of ESCOM on whether it could not supply electricity more cheaply and efficiently. Through this mechanism, ESCOM became involved in power supply in Durban, Cape Town, and many other cities and towns. ESCOM also objected to the granting of further licenses to private producers such as the Victoria Falls Power (VFP) Company, and a compromise was reached whereby ESCOM would finance and own new power stations and the VFP Company would build and operate them (Steyn, 2001). The ECB did not resist this concentration of ownership.

The general pattern of power sector development in South Africa was not very different from that in many other countries in the early decades of the twentieth century. Large power companies integrated the full value chain from generation plants to transmission lines to retail distribution. They extinguished competition by taking over smaller companies. As the scale of investments and the opportunities for interconnection grew the state became increasingly involved, progressively advancing to a monopoly position in the sector.

ESCOM set about exploiting South Africa’s huge deposits of inexpensive, low-grade coal. By 1930, electricity produced at its 100 MW Witbank station was amongst the cheapest electricity in the world (NER, 2001). The Prime Minister of the time, General Smuts, stated that electricity in South Africa was as cheap as anywhere in the world, because wasteful competition had been eliminated ... There will always be a very large field for private capital to operate in, but there are certain industries which experience has taught us can be driven better by Government without loss through wasteful competition.(Steyn, 2001, p. 67)

In 1948 ESCOM purchased the largest private producer, the VFP Company. Apart from a few industrial and mining sector self-generators, and a few small municipal generators, ESCOM now controlled most of the power stations, as well as the high voltage transmission lines. By 1973 the transmission grid was interconnected and nationally controlled. Growth in demand was rapid. New power stations were built immediately adjacent to coal mines, mostly concentrated in the north-east of the country. The coal mines were privately owned and entered into long-term supply contracts with ESCOM. Increasingly, economies of scale were sought with typical power station capacities increasing from 440 MW in the 1950s to 3,600 MW in the 1980s. While efficiencies did improve, there were also unexpected costs: longer lead-times for the construction of new generation plant ensued as well as
greater interest burdens and less flexibility in the face of uncertain demand growth.

With the oil shocks of the 1970s, the economy increasingly turned to electricity. Unprecedented growth resulted in reserve margins as low as 11 percent in 1975. Annual growth in peak demand between 1972 and 1982 ranged between 6 and 16 percent. There were also initial technical problems in the scale-up of boiler designs and the use of low-grade coal. ESCOM engineers and planners were concerned that there would be power shortages and they ordered even more power stations. By the end of 1983, ESCOM had 22,260 MW of generating capacity on order, double the capacity then being operated (Steyn, 2001 p. 75; see figure 6.1).

These capacity expansions were funded through commercial debt and the issuing of bonds on the local and international capital markets. Government guaranteed these bonds and also provided foreign exchange cover through the Reserve Bank. However, South Africa was experiencing a capital shortage and the cost of finance was increasing. The Electricity Act was amended in 1971 to allow ESCOM to retain substantially more earnings to build up a Capital Development Fund,

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3 Government guarantees for Eskom’s International Bonds were only withdrawn in 1995. Personal communication: interview with Eskom Treasury Department, January 27, 2003.
subject to the approval of the State President. The consequence was large price increases, disquiet amongst stakeholders, who thought ESCOM’s management was arrogant and unaccountable, leading, eventually, to a government inquiry in 1983. The De Villiers Commission criticized ESCOM’s governance, management, electricity forecasting methods, investment decisions, and accounting. The Commission’s recommendations led to changes in the Electricity Act in 1985 and to new Eskom and Electricity Acts in 1987. ESCOM was renamed Eskom and was reconfigured with a new two-tier governance structure, modeled broadly on the German corporate governance system. A full-time executive management board now reported to an Electricity Council comprising representatives of major electricity consumers, municipal distributors, and government representatives, all appointed by the Minister. The Capital Development Fund was abolished and Eskom’s old fund accounting system replaced with standard business accounting conventions. The principle of operating at “neither a profit nor a loss” was replaced by the need to “provide the system by which the electricity needs of the consumer may be satisfied in the most cost-effective manner, subject to resource constraints and the national interest” (Eskom Act, 1987).

The principle effect of the actions that followed the De Villiers Commission was to improve the financial and commercial performance of Eskom. The changes did not, however, make Eskom any less powerful.

Table 6.1. Dates of commissioning of major Eskom power stations

<table>
<thead>
<tr>
<th>Name of power station</th>
<th>Date of commercial service</th>
<th>Net maximum capacity MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Komati</td>
<td>1961–1966</td>
<td>906</td>
</tr>
<tr>
<td>Camden</td>
<td>1966–1969</td>
<td>1520</td>
</tr>
<tr>
<td>Grootvlei</td>
<td>1969–1977</td>
<td>1130</td>
</tr>
<tr>
<td>Hendrina</td>
<td>1970–1977</td>
<td>1900</td>
</tr>
<tr>
<td>Kriel</td>
<td>1976–1979</td>
<td>2850</td>
</tr>
<tr>
<td>Koeberg</td>
<td>1976–1985</td>
<td>1840</td>
</tr>
<tr>
<td>Matla</td>
<td>1979–1983</td>
<td>3450</td>
</tr>
<tr>
<td>Duvha</td>
<td>1980–1984</td>
<td>3450</td>
</tr>
<tr>
<td>Tutuka</td>
<td>1985–1990</td>
<td>3510</td>
</tr>
<tr>
<td>Lethabo</td>
<td>1985–1990</td>
<td>3558</td>
</tr>
<tr>
<td>Matimba</td>
<td>1987–1991</td>
<td>3690</td>
</tr>
<tr>
<td>Kendal</td>
<td>1988–1993</td>
<td>3840</td>
</tr>
<tr>
<td>Majuba</td>
<td>1992–2001</td>
<td>3843</td>
</tr>
</tbody>
</table>

The drafters of the new Act, who included members of ESCOM’s legal department, managed to insert a clause that exempted Eskom from the requirement to have a license issued by the ECB and thus from having its prices regulated. The ECB now regulated neither Eskom nor the municipalities and was concerned simply with a few private producers on the periphery of the industry.

In principle, the new Act shifted responsibility for regulating tariffs from the ECB to Eskom’s consumer-dominated Electricity Council, subject to government review and approval. In practice, consumer interests were never strongly represented on Eskom’s Electricity Council. Under the influence of the strong personality of its new chairman (an influential industrialist) the Council acted more like a Board of Directors concerned chiefly with the financial health of a commercially run company. Nevertheless, Eskom’s new leadership was careful to develop and retain a strategic relationship with government. A pricing compact was concluded that set out a broad price path for future years. The compact helped sustain a more arms-length relationship between government and the utility.

In an attempt to limit the extent of surplus capacity that was looming as a result of overplanning, construction of generation sets were delayed and plans for new stations were canceled. Older plants were decommissioned or mothballed. Previous demand growth projections of 7 percent were scaled back. Nevertheless, maximum generating capacity still exceeded peak demand by nearly 40 percent in 1992. Eskom began to promote load growth through low-cost electricity contracts to energy-intensive users, including new export-oriented minerals-beneficiation investments in aluminum and ferro-chrome. No new power stations have been ordered since the early 1980s, although the go-ahead for constructing the last three units of the last power station, Majuba, was delayed until 1995 and the last unit was only completed in 2001. The dates of commissioning of the major coal-fired and nuclear powered stations are shown below. Komati, Camden, and Grootvlei were mothballed temporarily during the period of surplus capacity but are now in the process of being re-commissioned.

This pattern of overinvestment and subsequent contraction is not dissimilar to that experienced by many vertically integrated power company monopolies during the 1970s and 1980s. When economic growth was forecast to be rapid, shortages in power supply seemed imminent and vast, new expansion projects would be undertaken, mostly within a context of investors or SOE managers assuming little risk, as the costs would be passed through to electricity consumers and debt was guaranteed by the state. But the investments were lumpy
and had long lead-times. Expected growth rates were often not realized and the inevitable consequence was wasteful overcapacity. Planning of new plants and further investment would then stop until a new potential crisis in meeting future demand would arise. The impact on prices was profound, as shown in figure 6.2. Prices rose sharply in the late 1970s and 1980s, and although they declined steadily during the 1990s, the current price is no lower than it was in 1950 or 1970, despite the apparent economies of scale that were envisaged with the larger coal-fired generation investments.

South Africa, along with many other developing countries, now faces renewed calls for capacity investment. Electricity customers have become used to cheap power from the previous generation of plant expansion whose underlying capital is largely depreciated. New capacity will inevitably require higher prices and possibly more stringent environmental standards. It was inevitable that new investment frameworks would begin to be explored.

In 1988, the first Eskom privatization study was undertaken. It was commissioned by government but managed and led by Eskom, assisted by a committee of government and industry stakeholders. The study was initiated at a time when the state was reviewing the performance of its SOEs. There was a need to attract foreign direct investment. The study review suggested that Eskom be privatized in its entirety – there were no recommendations for the introduction of competition. However, the

Figure 6.2. Eskom capacity expansion in MW (bar) and electricity price in SA cents/kWh (line), 1950–2000
proposals coincided with the beginnings of the secret dialogues with the African National Congress (ANC) on South Africa’s political future, and were quietly dropped (Morgan, 2003).

Eskom faced a very different environment in the 1990s. The democratic revolution of 1994 unexpectedly resulted in further liberalization of the economy. The state-centered orientation of the National Party government, and also of the ANC during the years of the liberation struggle, gave way to a more market-oriented policy, which included conservative fiscal management. The state would still play a responsible role, but this would be more transparent and predictable through improved governance and regulatory frameworks and institutions. State-owned enterprises were corporatized and subject to shareholder performance contracts. Some were even privatized. Eventually the focus would turn once again to Eskom. At the same time, some stakeholders were becoming aware that a revolution was sweeping though the electricity industry worldwide. The old traditional model of a publicly owned, vertically integrated ESI was being superseded by unbundled, competitive, and mostly privately owned industries. Similar proposals were made for the reform of the South African power sector but, as we shall show later, these did not materialize.

Overview of the electricity industry in South Africa

The South African ESI remains dominated by the state-owned and vertically integrated utility, Eskom, which ranks seventh in the world in terms of size and electricity sales (Eskom, 2000). It generates about 96 percent of South Africa’s electricity and more than half of the electricity generated on the African continent. Eskom owns and controls the high voltage transmission grid and it supplies about 60 percent of electricity directly to customers. The remainder of electricity distribution is undertaken by 177 local authorities that buy bulk-supplies of electricity from Eskom, while some also generate small amounts for sale in their areas of jurisdiction. A few industries have private generation facilities for their own use (see figures 6.2 and 6.3).

Of the electricity generated 91 percent is from coal, nuclear energy accounts for 6.5 percent, and bagasse, hydro, and emergency gas turbines make up the remaining 2.5 percent. Total licensed operational generating capacity in 2003 was 43GW, of which Eskom owned 39.8 GW. Some capacity is mothballed and total net Eskom operating capacity amounted to 36.2 GW. Peak demand on the system reached nearly 32 GW in 2003.
Eskom has twenty-four power stations: ten large coal fired stations dominate – most of them situated on coal mines in the northeast of the country. Nine of these stations have long-term coal contracts. Six of these long-term coal contracts are “cost-plus” and three are “fixed price.” In the cost-plus contracts, Eskom and the coal supplier jointly provide capital for the establishment of the colliery. Eskom pays all the costs of operation of the colliery and the supplier is paid a net income by Eskom on the basis of a return on the capital invested (ROI) by the coal supplier in the colliery. The ROI is divided into two components, a fixed and a variable portion. The fixed portion is a set ROI, payable irrespective of tonnages of coal supplied and the variable portion is based upon tonnages supplied to Eskom. The ROI is generally escalated for half of the duration of the contract and is typically between 15 and 25 percent. In the fixed price contract, coal is supplied at a predetermined price (i.e. a base price which is escalated by means of an agreed escalation formula). There are no early termination provisions in the contracts. Coal costs in South Africa are regarded amongst the cheapest in the world. Although it is Eskom’s stated intention to reduce its reliance upon long-term coal supply contracts, more than 90 percent of Eskom’s coal is still procured in this way.

Africa’s only nuclear station is at Koeberg, 30 kilometres north of Cape Town, and is also owned and operated by Eskom. There is modest hydro capacity on the Orange River (located on two dams) and there are two pumped storage schemes, which play a critical role in meeting peak

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4 The tenth largest coal-fired power station, Majuba, operates at variable output on a small medium-term coal contract.
demand, as well as in system balancing and control. Municipalities own twenty-two small power stations and back-up gas turbines, but these total only 5 percent of national generation capacity and generally run at low load factors. Private generators comprise the remaining 2 percent of capacity (Eskom, 2001 and NER, 2001a).

South Africa sells electricity to neighboring countries (Botswana, Lesotho, Mozambique, Namibia, Swaziland, and Zimbabwe) representing about 3 percent of total net energy produced. Contractually it is bound to take electricity from Mozambique’s Cahora Bassa hydro-electric station on the Zambesi. Eskom also imports some power from the Democratic Republic of Congo and from Zambia – mainly for peak load management.

Eskom operates an internal pool, which generates an optimal dispatch schedule. The system operator and the procurement of auxiliary services is part of Eskom. Eskom owns the national, integrated transmission grid (with the exception of the Motraco line which is jointly owned with the utilities in Swaziland and Mozambique). The national grid comprises 27,000 km of high voltage lines, the bulk of it at 400 and 275 kV. Transmission energy losses are less than 4 percent. There are an additional 330,000 km of low-voltage lines owned by Eskom and local authorities.

Figure 6.4. Energy flows in the electricity supply industry in South Africa 2000
Source: National Electricity Regulator.
Eskom sells most of its electricity as bulk power to its large mining and industrial customers and municipalities. These three customer categories account for 82 percent of its revenue and 89 percent of its electricity sales. In addition to the 3.4 million customers serviced by 177 municipal distributors, Eskom itself operates retail distribution services for 3.1 million customers. The average selling price in 2003 to industrial customers was about 2 US cents/kWh and for residential customers was 5.5 US cents/kWh. Eskom average tariffs cover average costs (Eskom, 2003). Tariffs for rural and low-income residential customers are cross-subsidized from industrial tariffs and surpluses earned on sales to municipalities. The large municipalities, in turn, make an additional profit from reselling Eskom electricity, which enables them to subsidize property rates and to finance other municipal services. However, many of the smaller municipalities face debt, non-payment by a substantial proportion of their low-income consumers, inefficient operations and lack of technical and managerial capacity.

Nationally, there has been an impressive electrification drive and the proportion of households with access to electricity has risen from one-third in 1993 to nearly 70 percent in 2004. In the years 1994–2001, 3.5 million households were electrified. About two-thirds of these connections were accomplished by Eskom and the remainder by local authorities. Until the late 1990s – when restructuring of the industry forced a reassessment by Eskom (discussed in more detail later) – the capital costs for these connections had been provided by Eskom and amounted to a direct subsidy to new low-income households in the order of US$1.5 billion (R 9.88 billion in nominal values), with an average cost of connection of about US$450 (NER, 2001). The electrification program has resulted in significant increases in peak demand in the morning and early evenings with profound implications for future generation plant mix. The next requirement for capacity addition will be for peaking plants, such as gas turbines or pumped storage schemes. The need for demand-side management programs is also becoming more apparent.

Eskom has grown a significant R&D capacity over the years. Research emerged from its engineering division and still focuses mainly on “sweating assets,” that is, incremental improvements that lower costs and increase efficiencies in its main generation, transmission, and distribution businesses. However, Eskom has also devoted R&D resources to environmental issues, end-use technologies, and alternative and future energy technologies, including the development of a new generation

5 Assuming an exchange rate of 1 US$ = R6.5.
“pebble-bed” nuclear reactor. R&D expenditure increased rapidly in the 1990s and amounted to about 0.8 percent of total revenue (Hofmaenner, 2002).

**Political and economic context in the 1990s**

The reforms in the electricity industry in South Africa over the past decade – to which we turn in the next section – have taken place within a context of radical transformation of the political, economic, and social institutions in the country. After decades of institutionalized racial segregation and discrimination, the minority white government in the late 1980s faced overwhelming opposition from the majority of South Africans and sustained international pressure, including selective economic sanctions. International lenders refused to roll over outstanding loans. Internal resistance was intensifying. The choices were becoming narrower. Either the leaders of the apartheid state would take South Africa down a path of increasing political violence and diminished wealth, cut-off from the international community, or they could begin to negotiate a new democratic future. Responding to these pressures, in 1990 the government removed the ban on the ANC and freed Nelson Mandela freed from prison.

The ANC won the first democratic elections in 1994 with 63 percent of the vote, and for the first few years there was a Government of National Unity with representatives of the other major parties in the Cabinet. The new government in 1994 represented an overwhelming majority of South Africans, and its style of governance was to make policy debates and decisions much more visible – in sharp contrast to the closed, elitist system of apartheid governments that had concentrated economic and social opportunities in the hands the white minority.

The ANC’s economic philosophy in exile had been broadly socialist. Indeed, the first ANC-led government adopted the Reconstruction and Development Program (RDP) – an integrated policy platform that set out a Marshall Plan-like program for social and economic advancement, centered on the development of infrastructure in poor communities. The RDP promised to redistribute land, promote affirmative action, create employment, provide houses, electricity and water, and attack poverty and deprivation (Marquard and Eberhard, 2000).

While the RDP did deliver some important benefits, for example in areas such as electricity and water provision, the new government soon faced macroeconomic constraints. Under the previous National Party government, the budget deficit before borrowing had soared to an
unsustainable 7 percent of GDP. The RDP was superseded by the Growth, Employment and Redistribution (GEAR) policy, essentially a conservative, macroeconomic plan that aimed to reduce the budget deficit, increase growth rates, lower inflation, reduce trade tariffs, stabilize the currency, and create jobs. Some of GEAR’s critics have labeled it as a self-imposed structural adjustment program.

The shift to GEAR was symptomatic of a re-alignment of priorities from social to macroeconomic challenges. The budget deficit has since declined to around 2 percent of GDP. Industry and agriculture have become much more competitive. Economic growth, although steady at about 3 to 4 percent per year, is far below the 6 or 7 percent that would be needed to cause a significant decline in unemployment (currently in excess of 30 percent).

The trade union alliance partners of the ANC have been particularly critical of the fiscal conservatism of the government and its policy of economic liberalization. They have argued that privatization of state enterprises will harm the provision of services to the poor. They also fear further job losses. Government has had to factor these concerns to its reform agenda, but it has not radically changed its policies, nor is that likely. Government argues that its policies have avoided the economic shocks and recessions being experienced by many other emerging economies. Public debt is relatively low and the interest burden is declining, thus allowing more scope for social expenditure.

The main challenges for the economy are now increasing the level of private investment, lifting growth rates, creating employment, and building the capacity to increase the rate and quality of delivery of services for the poor. The state is also pushing hard to increase the ownership and participation of blacks in the economy. Currently, the value of majority-owned black companies comprises less than 5 percent on the Johannesburg Securities Exchange. Targets have been set in the minerals and petroleum industry of at least 25 percent ownership by 2010, and attention is being given to opportunities in the electricity industry.

There has been a plethora of legislation since 1994 that has sought to restructure and reform the economy and society to address the inequities and injustices of the past, and to advance the principles of justice and development enshrined in the constitution. The political negotiations leading to democracy led to a new progressive Constitution and Bill of Rights, internationally admired for its protection of first generation rights (such as protection of individual liberty, property and freedom of expression), combined with second and third generation development-oriented rights which place obligations on the state to
advance individuals’ and communities’ access to health, shelter, a clean
environment, etc. One of the important revisions has been the rewriting
of Labour Law to provide the kinds of protection afforded employees in
mature social democracies.

The above shifts in the political economy of South Africa in the 1990s
help to explain the context for reform of the electricity sector. The ANC
inherited an economy with large SOEs, not only in the electricity sector,
but also in telecommunications and transportation. It is committed to
utilizing these SOEs to fulfill national and social goals. For example,
Eskom and Telkom have been tasked with the accelerated rollout of
services for the poor. But at the same time, the thrust of its GEAR
policies is to improve economic efficiency. This has translated into a
process of gradual reform and restructuring of the SOEs. The trend has
been towards further liberalization of markets, increased competition
and even privatization, although the latter policy has been tempered by
the fact that government is not desperate for privatization revenues as
public debt is within manageable bounds.

**Drivers of electricity sector reform**

Most analysts identify three or four broad drivers for power sector
reform internationally. First, there is the desire to improve investment
and operational efficiencies that blight the performance of monopoly
utilities – especially SOEs that are not accountable to shareholders.
Second, the need for massive new capacity expansion places increased
demands for finance that is not readily available from the public sources,
which calls for greater reliance on private sector involvement. Third,
 restructuring and privatization create the opportunity for redistributing
the rents and assets of the electric power system and for unlocking
economic value or reducing government debt. Some have identified
other country-specific drivers, such as the felt need to follow the wave of
reform that is now so powerfully sweeping through nearly all power
sectors around the world.

It is probably true to say that none of these drivers are experienced
strongly in South Africa. Most stakeholders believe that Eskom operates
reasonably efficiently. South Africa has a well-functioning bond market
and Eskom has had no serious problem financing expansion through
raising private capital. Public finances are well managed and the
National Treasury does not have a desperate need for privatization
receipts. And the impacts of international trends in power sector reform
are not widely appreciated locally. Eskom would prefer to stay as it is
and will delay reforms as long as it is able.
Yet, the electricity sector in South Africa has undergone a number of changes during the 1990s and it is possible to identify specific factors that have influenced these reforms. In the period leading to the democratic revolution in 1994, attention was given to the fact that apartheid policies had resulted in a highly fragmented local government system with poorly performing service delivery departments. At the same time, there was a massive backlog in electricity connections to black households. The need was for consolidation of electricity distributors in order to improve financial viability and technical performance, and to position them for more effective service delivery.

A second reform driver emerged in the mid-1990s within the context of government economic policy that sought to improve efficiencies in the SOEs. Although Eskom was generally regarded as being better managed than other SOEs, there was a new focus on the corporatization of these entities through re-defining the relationship of the state as shareholder, clarifying tax obligations and putting in place performance contracts.

A third reason for reforming the electricity industry was expressed in a new comprehensive energy policy in the mid- to late 1990s. Policy analysts pointed out the need to avoid the mistakes of the past when Eskom heavily overinvested in capacity expansion, and to create an industry structure that allocates risk in a manner that encourages investment efficiency (Business Map, 2001). The need for new generation capacity has raised the question of whether Eskom should build the next power station and what the appropriate industry and market structure is to encourage private investment.

A fourth driver for reform has become more apparent in recent years. There are discernable pressures for an accelerated process of black economic empowerment, including calls for the state to divest generation assets into private ownership. The effect of this reform driver is to reinforce the need to restructure the industry so that privatization does not simply create a private monopoly, but is accompanied by moves to achieve a more competitive electricity industry structure.

**Inefficiencies in the distribution industry and responding to electrification backlogs**

At the beginning of the 1990s the issue of overriding concern was the financial problems of the electricity distributors and the low levels of access to electricity. There were simply too many small, poorly run municipal distributors that were not viable financially and that were not in a position to provide expanded services to existing customers, as well as to those still not connected.
Many of these problems are the legacy of the apartheid era and the creation of separate local black municipalities. The electricity departments in these areas struggle with lack of technical capacity, a paucity of income-generating industrial customers, and a huge backlog in new connections for low-income consumers. Some of these smaller municipal distributors have already been amalgamated into larger entities, but most of them still lack viability. Non-payment from customers has compounded the problem of accumulating debts to Eskom (the supplier of bulk power). Many distributors have also curtailed spending on essential maintenance needed to assure security and reliability of supply.

The fragmentation of the industry means that tariffs for the same customer categories vary widely between distributors. It has proved impossible to regulate the large number of distribution entities effectively. Reporting has been inadequate and it has been difficult to obtain accurate information on costs. Given all these problems and uncertainties, it has also been difficult to attract and retain skilled, motivated and adequately paid employees and managers in the industry (Mlambo-Ngcuka, 2001 and DME, 2001).

Rationalization and consolidation of the (EDI) is essential to create a sustainable platform for the delivery of reliable and affordable electricity services to existing customers as well as for supporting electrification for those who still remain without access to electricity.

Restructing of state-owned enterprises

A second driver of reform in the electricity supply industry originated in the “self-imposed” structural adjustment program initiated in the mid-1990s. Having re-established macroeconomic stability, the emphasis moved to microeconomic reforms, including a new focus on improved efficiencies in government-owned entities. In August of 2000, DPE published “A Policy Framework: An Accelerated Agenda towards the Restructuring of State Owned Enterprises.” Because of union pressure and also concerns within its own political constituency, the government has been careful to avoid the “P word” (privatization) and described its restructuring agenda thus:

Government’s policy with regard to State Owned Enterprises is more properly referred to as a restructuring program, and not in the more simplistic terms of privatization. The program was and remains designed around a multiple array of strategies, or mixes of options, that are designed to ensure the maximization of shareholder interests defined in economic, social and development terms. Thus restructuring refers to the matrix of options that include the redesign of business management principles within enterprises, the attraction of strategic equity
partnerships, the divestment of equity either in whole or in part where appropriate, and the employment of various immediate, turnaround initiatives.

At the enterprise and sector level, restructuring involves improving the efficiency and effectiveness of the entity, accessing globally competitive technologies where appropriate, mobilizing private sector capital and expertise, and assisting the creation of effective market structures in sectors currently dominated by the SOEs. At a broader, macroeconomic level, restructuring initiatives aim to attract private direct investment, to contribute to the reduction in the public borrowing requirement, and to assist the development of an economic context that promotes industrial competitiveness and finances growth. Social imperatives include the need to ensure growth in employment, particularly in new areas of endeavor, and to rationalize or develop new skills within the labor force and their deployment throughout the country.

Government decided to focus its restructuring efforts on the four largest SOEs, one of which was Eskom. Although created through statute, Eskom’s ownership status had never been formally defined. It paid no taxes and there was no formally expressed set of performance expectations or obligations. Government wished to clarify its relationship with the utility and to formalize a performance contract.

**Investment in the electricity supply industry**

At first glance, Eskom appears to have performed well. It supplies electricity at amongst the lowest prices in the world; the average cost of electricity generated is below 1.5 US cents/kWh. In recent years, it has consistently made a positive return on assets. Reliability and quality of supply are good. Average energy availability from its power stations has increased from 76 percent in 1991 to 92 percent in 2000. Labor productivity has increased and employee numbers have dropped from over 66,000 in 1985 to 46,600 in 1991 and to 31,900 in 2003. Eskom is now commercially run with no recourse to the national fiscus. It raises finance through commercial debt, mostly through issuing bonds, which are well supported by local and international capital markets.

Eskom’s recent low prices and exemplary electrification performance have left the impression that it is highly efficient and that there is no need for reform. Many would simply equate low prices with high efficiency. However, this is not necessarily the case. There may be specific factors that account for Eskom’s low prices compared to other international utilities and there may be little hard evidence of superior efficiency (Steyn, 2001; Davis and Steyn, 1998).

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6 Availability is defined as capacity hours available × 100/total capacity hours in year.
A close examination of the South African ESI shows that low prices and the ability to fund electrification have emanated, in part, from very low coal prices (by international standards) and, until recently, exemption from taxation and dividends (Steyn, 2000). Nevertheless, if long-term price trends are examined (see figure 6.2, above) it will be noted that, in real terms, prices today are no lower than in 1950 and 1970. This would seem to indicate that Eskom has not improved its performance as much as would have been hoped.

Low Eskom prices today stem primarily from the fact that consumers have largely amortized the debt, which funded the large investment program of the 1980s that has provided the generation capacity currently being used. Eskom has not had to invest significantly in new generation capacity for some years and the largest contribution to lower overall costs (and prices) has been lower debt and financing costs. Eskom’s debt to equity ratio fell from 2.93 in 1986 to 0.09 in 2003 (Eskom, 2003).

While operational efficiencies are important, investment efficiencies often have a much more profound and long-lasting impact. Choices of fuel-type, technology, financing, investment-timing, and construction lead-times determine the primary cost structure of the generation plant.
The difference that can be made by good investment decisions is often larger than the incremental productivity improvements that can be made in plant operations. Figure 6.5 shows the extent to which changes in financing charges affect overall costs and hence prices.

This analysis of Eskom’s investment record is not widely shared in South Africa. Most equate low prices with efficient performance. Few recall the debacle of Eskom in the late 1970s and early 1980s, the high price hikes, and the criticisms of Eskom’s governance and management. Few understand the consequences of the massive overinvestment. Tariff reductions in the 1990s have erased memories; the overall standing and image of Eskom in the 1990s is much improved. However, Eskom is now keen to see prices rise to levels that can support the new investment that is now necessary (see figure 6.6). Gradually, more stakeholders are coming to understand that current prices are economically unsustainable (Econ, 2002).

The National Electricity Regulator’s Integrated Resource Plan suggests that by 2025 total maximum demand could rise to 60 GW. New peaking capacity might be needed on line as soon as 2007 – perhaps earlier – and additional base load capacity is probably necessary by

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7 Through a series of pricing compacts with the government, Eskom committed itself to a price decrease of 20% between 1992 and 1996, and a 15% reduction between 1994 and 2000. Actual price reductions were a little less than this.
2012. Options being considered are demand-side management, re-commissioning the mothballed coal-fired stations, gas turbines, pumped storage and new coal-fired power stations. Important investment decisions will have to be made soon. The primary policy challenge is to design an industry structure that provides the incentives to optimise investment efficiencies in the future (NER, 2002). Government is beginning to open up spaces for private sector investors in new generation capacity.

Black economic empowerment

One driver for reform being articulated in the political domain is the need to accelerate black economic empowerment. Eskom’s assets are seen as attractive and a portion could be offered on a preferential basis to black South Africans, thereby widening economic ownership. However, it does not make economic sense to privatize a monopoly industry. If new private players are introduced, then the industry should be restructured to encourage competition (DME/DPE, 2000). This implies unbundling of Eskom, through separating out the potentially competitive components of the industry (generation and retail) from the natural monopoly components (transmission and distribution). Thus the imperative of Black Economic Empowerment might become a key driver for the reform and restructuring of the electricity sector in the future. For now, however, these aspirations are frustrated by government’s renewed commitment to keep Eskom in state ownership.

Key achievements in the reform the electricity sector since 1990

Despite these motivations for reform, the process has often been slow and uncertain. One reason is that there has never been a single, powerful champion for reform, either in government or amongst the stakeholders. There has also been a lack of continuity in key personnel in government departments. Institutional memory and capacity has often been lost and has then had to be rebuilt.

Nevertheless, some key milestones have been reached. The 1990s saw the launch of a major electrification program with structured subsidies. A new National Electricity Regulator (NER) was established to protect the interests of consumers and to promote efficiency within the ESI. And a decision was reached on rationalising the distribution industry. These three milestones were greatly facilitated by the formation of a National Electrification Forum, a body that had wide representation of
all interested stakeholders in the industry, and that mirrored a multitude of parallel negotiating processes in South Africa’s move to democracy. A new national energy policy was finalized, including broad policy objectives and restructuring principles for the electricity sector. Eskom was corporatized and an industry restructuring plan was developed. However, plans to unbundle Eskom and to introduce a competitive electricity market have been put on hold. Eskom will remain for the time being under state ownership while private independent power producers (IPPs) are being introduced on the margin of the electricity market.

The section below highlights the key achievements in the reform of the electricity industry, the motivations and rationalization behind each reform episode, and the competing stakeholder interests that shaped the reforms.

Serving the poor: an accelerated national electrification program

The first significant change in the 1990s in the electricity industry was the recognition that urgent attention had to be given to providing electricity to the majority of South Africans. With the exception of some studies in the 1980s that highlighted the inequity of electricity provision, little data existed documenting the demand from un-served households. Nearly all white South Africans, including remote farms, had electricity connections; few black households had access. Some researchers began to map out what a national electrification program might look like and argued that it would be important to restructure the inefficient distribution industry (e.g., Dingly, 1990; Theron et al., 1992). The changes in the political landscape in South Africa after 1990 lent some urgency to these calls for action.

ESkom, in anticipation of the shift to political democracy, and sitting with excess electricity generating capacity, announced in 1991 the target of electrifying 700,000 new households by 1997 (ESkom, 2001). The program was backed by a new call from its CEO, Dr. Ian McCrae, for “electricity for all.” There were some high-profile initiatives in Elandskraal, Orange Farm and Soweto, which in hindsight can be seen as an attempt to position Eskom favorably in relation to a possible new black majority government – and the ANC in particular. But overall progress

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8 One such study is Eberhard (1984). Energy and poverty in urban and peri-urban areas around Cape Town. Second Carnegie inquiry into poverty and development in Southern Africa. Conference Paper No 155, University of Cape Town. When Eberhard asked municipal electrical engineers for maps and plans of areas that had access to electricity and those that did not, they were unable to produce any coherent or integrated picture. Planning for those who were unserved was simply nonexistent.
was slow. The Energy and Development Research Centre (EDRC) at the University of Cape Town argued for an accelerated program of electrification that would peak at 500,000 connections per annum and would electrify 85–90 percent of South Africans by 2010. The proposals were supported by detailed modeling and included recommendations for financing and institutional change (Eberhard and van Horen, 1995).

In February 1992, EDRC convened a national meeting on electrification on behalf of the un-banned African National Congress (Theron, 1992). The seminar brought together members of the industry with political parties, trade unions and civic organizations. From that meeting emerged the idea for a national conference on electrification and the creation of a negotiating forum involving all stakeholders. After two national conferences, involving more than seventy organizations, the National Electrification Forum (NELF) was launched in May 1993 (NER, 2001, p. 70). It established working groups and initiated a number of studies, including the National Electrification Economic Study (NEES, 1993), which further developed a range of scenarios and assessed their economic impact. All stakeholders supported an accelerated electrification program.

The ANC’s Reconstruction and Development Program, influenced by the above work, formalized the goal of electrifying 2.5 million new homes between 1994 and 1999, a goal that was exceeded by the new democratically elected government (ANC, 1994; see table 6.2 and figure 6.7).

Until the year 2000 the entire electrification program was funded by Eskom, either through internal subsidies (garnered mainly from higher-than-cost electricity charges to large industrial and mining customers), or through transfers to an electrification fund that the NER allocated to municipalities. The average annual capital expenditure on this program has been around US$ 175 million.

Since the mid-1990s it has been national policy that a portion of the capital cost of connections should be subsidized (DME, 1998, p. 37). In practice, the subsidy has extended to the entire cost of connection plus a portion of the operating costs. Actual consumption of electricity in low-income homes has been much lower than forecast – thus revenues from

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9 The Management Committee of NELF consisted of representatives of the Association of Municipal Undertakings, the African National Congress, the Chamber of Mines, the Department of Mineral and Energy Affairs, the Development Bank of Southern Africa, Eskom, the National Union of Metal Workers, the National Union of Mine Workers, the South African Agricultural Union, the South African National Civic Organization, and the United Municipal Executive.
Table 6.2. Number of new connections to low-income households since 1991

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<td>453995</td>
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<td>397019</td>
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The political economy of power sector reform in South Africa

Electrification have also fallen short of plan. At the beginning of the program it was estimated that the average monthly consumption of newly connected, low-income households would be 350 kWh per month (compared with an average of 750 kWh per month for a middle-income family in South Africa). However, actual average monthly consumption has been less than a third of these estimates. Government has now decided to grant 50 kWh per month free to poor consumers.

Nearly all of these new connections have used pre-payment technology – customers buy tokens or add electricity credits to electronic cards to activate their electricity dispenser. The costs of the electricity supply and use were to be recovered through a flat energy unit charge. Many connections involve informal houses (shacks) and use pre-wired “ready boards” – typically with a few lights and plug points.

As government begins to reform the power sector, it has moved to secure the national electrification program through establishing a separate National Electrification Fund in the Department of Minerals and Energy, funded by National Treasury. Eskom now pays taxes and has stated that it will no longer subsidize the electrification program from internal income.

This experience is important as it demonstrates that the meeting of social goals and public benefits can be independent of industry structure. Electrification was carried out by the old vertically integrated, publicly owned utility, Eskom, and by local government distributors. The electrification program will continue, despite restructuring of the electricity market in South Africa. Explicit policy and regulatory
Instruments have been put in place to ensure the continued commitment to move to universal access to electricity in South Africa.\footnote{The claim that the success of public benefit programs, such as widened access to affordable electricity by the poor, is largely independent of the structure and ownership form of the electricity industry is often contested. However, it is possible to provide examples of vertically integrated, publicly owned utilities doing either an impressive job of electrification (e.g., Eskom in South Africa) or, in contrast, a disastrous job (e.g., the majority of utilities in Africa). Equally it is possible to provide examples of electrification being advanced by privately owned, competitive utilities (e.g., in Chile) or where privatization has slowed electrification. The point is that the most important variable for the success of public benefit programs is not industry structure or ownership form, but rather the existence or not of explicit public policies, regulatory instruments, dedicated implementing institutions, and funding to achieve desired social goals.}

In addition to the grid electrification program, there has been an active off-grid program using photovoltaic technology. Between 1994 and 2000, 1350 schools were electrified with off-grid systems. Many rural health clinics have been equipped with solar systems. In addition, government has awarded subsidy concessions to private industry service providers in five geographic areas to supply solar home systems – consisting usually of a 50W photovoltaic panel and a battery, wired for low voltage DC service – as well as supplementary fuels such as liquid petroleum gas for high energy tasks (notably cooking). These are not geographically exclusive concessions; other companies may also operate in the areas. However, the concessionaire in each geographic area receives an exclusive subsidy of around US$ 500 per installation. The rationale is to assist service providers in building up adequate service infrastructure and to move towards financial sustainability. Supply targets and service standards have been set and performance will be monitored. The basic consumption subsidy for low-income users is also being made available.

The concession system has suffered teething problems and its future is uncertain. The tender process was far from perfect – for example, firms have bid on factors such as service quality (which is hard to measure) but not on the level of subsidy. Entrants have been few. Opportunities to encourage efficiency and cost competition have not been tapped fully. Nevertheless, there has been considerable innovation in the business models and vending technologies. Most suppliers have adopted a fee-for-service approach rather than the outright sale of solar home systems, although the best approach is still a subject of vigorous debate.

The electrification program in South Africa is remarkable in a number of respects. Doubling access to electricity from one-third to two-thirds of the population in a matter of years is probably without international
The program was clearly driven by the unique challenges that South Africa faced in overcoming the legacy of apartheid inequity. Yet there are lessons from this program that have more universal relevance. The South African experience demonstrates that it is possible to make substantial progress in widening access to electricity services for the poor, even as electricity industries are restructured. Although Eskom has not yet been unbundled or privatized, it has faced pressures to operate on a sound commercial basis, and has discontinued internal subsidies for new electricity connections. The electrification program was driven by the advent of democracy and a political commitment to provide services for the poor. It was made possible by an electricity industry that was technically competent and financially strong. And it has been put on a sustainable basis through explicit policy and regulatory instruments that will give expression to government’s social goals, even when the electricity industry is unbundled and possibly privatized.

A new electricity regulator

A second major element of reform was improved protection of electricity customers through the establishment of an independent regulator with control over the entire electricity industry. Eskom and municipalities would need to be brought under the jurisdiction of a regulator that would operate within a clear and transparent legal mandate to license all electricity suppliers, approve their tariffs, monitor the quality of supply and settle disputes. The Electricity Control Board (ECB), established in 1922, was hobbled by its lack of direct control over municipal electricity undertakings. The Electricity Act of 1987 also exempted Eskom from having to obtain a license.

One of the key recommendations to emerge from the NELF in 1993/4 was that the ECB should be replaced by an NER with wider powers to regulate the electricity supply industry. In October 1994, the Cabinet approved the NELF recommendations for the establishment of the NER. By 1995 NER was constituted legally as an independent institution. The only significant exemption to its authority over the industry was for persons selling less than 5 GWh of electricity per annum and self-generators with capacities of 500 kW or less. All others – Eskom, state departments, and local distributors – fell under NER’s authority.

In hindsight it is curious that the one concrete accomplishment of NELF was the establishment of an independent regulator with jurisdiction over the entire electricity supply industry. Its original focus was on reforming the debt-laden distributors and on accelerating the electrification of all households. Yet there were some constituencies within
NELF and its working groups, mainly researchers/analysts and some senior Eskom staff, who recognized that it was an anomaly for Eskom, with its virtual monopoly in generation and transmission, and for local authorities, with their distribution area monopolies, to be exempt from regulation. Some had traveled to look at electricity sector reform in other countries and one had attended the first National Association of Regulatory Utility Regulators (NARUC) training course in the United States. Perhaps there was the desire to create a more predictable and transparent operating environment for the electricity industry during a period of political and institutional uncertainty.

Many of the initial staff in the NER were ex-Eskom employees. Over time, the NER has built its own staff and emerged as one of the more respected independent regulatory institutions in the African continent and its mandate has been extended to include also gas and petroleum pipelines. Nevertheless the NER still faces huge challenges in terms of building sufficient capacity to regulate Eskom and the many municipal distributors, as well as preparing for a new, competitive market in the future. Indeed, the creation of new, stable, and competent institutions in developing countries and emerging economies is a formidable task, particularly when there is little tradition and experience of independent regulation.

Restructuring the electricity distributors

One of the key concerns of most of the stakeholders represented in NELF was the restructuring and rationalization of the EDI to improve efficiencies, make distribution financially viable, and to ensure that the EDI would be able to meet the ambitious tasks of the national electrification program. These concerns were not always shared by the large metropolitan governments who had gained surplus income from the sale of electricity and feared loss of that revenue. Local government, as represented by the South African Local Government Association (SALGA) and through the Association of Municipal Electrical Undertakings (AMEU) has been ambivalent in their support for the need for rationalization. Eskom was an early supporter of EDI restructuring in principle, although in practice it has often resisted reforms that would strip it of its distribution services (Eskom, 1990). The unions, on the other hand, have strongly advocated distribution reforms that would create one single, publicly owned national distributor.

After the elections of 1994, many of the negotiating forums that had been set up during the transition period to democracy were dissolved. In February 1995 NELF was disbanded. In the meantime, the NER had been established and was a potential vehicle for furthering reform. Its
Board considered whether the rationalization of the distribution industry could be forced through the licensing process (which it controlled) or whether further legislation from government would be required. It decided on the latter option and requested permission to convene an Electricity Working Group (EWG) to further develop proposals to restructure the (EDI). The EWG comprised representatives from the NER, government, Eskom, and the municipalities, but excluded unions and civic organizations. They evaluated the work of NELF and submitted a report to government with specific options for restructuring the industry. Government then set up an internal Electricity Restructuring Interdepartmental Committee (ERIC), which made recommendations to the Cabinet. After a long and convoluted process the Cabinet approved in principle, in May 1997, the consolidation of the EDI into the maximum number of financially viable and independent Regional Electricity Distributors (REDs). In June 1999, the Cabinet agreed that there should be six REDs. A new national, publicly owned EDI Holdings Company would be established to manage the rationalization and consolidation process.

The central problem for creating the REDs was drawing the boundaries. To be viable, each RED would require the right balance of below-cost (low-income residential) and above-cost (commercial and industrial) users. In early 2000 Government appointed a consortium, led by consultants PriceWaterhouseCoopers (PwC), to undertake detailed modeling and also the detailed planning to rationalize the REDs. They produced working papers on subjects such as the REDs boundaries, ownership, asset valuation, regulation and human resources. Those papers became the basis for workshops and, in turn, led PwC to produce a synthesis paper in June 2000. The Government’s Electricity Distribution Industry Restructuring Committee (EDIRC) – comprising relevant government departments, Eskom, local government, and the NER – oversaw the process and produced its own “Blueprint for EDI Reform” (DME, 2001).

As the EDI restructuring proposals were presented to the Cabinet Committee for the Economic and Social Sectors – starting in November 2000 – it was clear that all relevant Ministers had not been properly briefed, and some had not engaged in the process at all. The Cabinet’s review led to a decision – in January 2001 and reconfirmed in May of the same year – to adopt EDRIC’s blueprint and rationalize distribution into six REDs, with an EDI Holdings Company to manage the transition. However, the Cabinet also recommended further consultation.

Elements of local government have remained ambivalent or hostile to the proposal and have threatened to challenge the plan in the
Constitutional Court. The ruling African National Congress has split on the matter – ANC’s leadership asserts the importance of a national solution to the problems of electricity distribution, but those involved at local government fear losing their influence. With so many divided loyalties, no political champion for EDI reform has emerged, and thus implementation of EDI reform has slowed.

Discussion on rationalizing the distribution industry has meandered for a decade and there have been many lost political opportunities. Often new leadership has joined the debates without the benefit of previously reached understandings and agreements. Even after a definitive Cabinet decision, more than a year passed before establishment of the EDI Holding Company – the key first step to starting the restructuring process. The first RED has now been registered in the Western Cape, although the difficult process of managing a voluntary merger of all distribution entities is ongoing.

While conflicting interests have slowed the reform process, it is also probably true that one of the original reasons for reform (namely, the need to strengthen the capability of distributors to extend access to electricity to the majority of the population) was obviated by Eskom simply getting on with the job. However, the other reasons for distribution reform are beginning to receive more public attention: local government finances are in a parlous state and industry is now greatly concerned with the lack of investment and the deterioration of system reliability. Concerns around the quality and reliability of supply are likely to re-ignite moves to restructure the industry.

Eskom corporatization

An important milestone in power sector reform has been the formal corporatization of Eskom, which involved the conversion of the enterprise into a company with defined shareholding (wholly government) and subject to the payment of taxes and dividends. The move has strengthened the commercial focus of Eskom. In the standard model of power sector reform, corporatization is often the first step in electricity market reform. However, in the case of South Africa, the impetus for corporatization did not come from policy developments in energy and electricity but from the Department of Public Enterprises (DPE). Restructuring of Eskom was part of a broader process of restructuring of SOEs (Radebe, 2000).

The DPE policy document published in 2000, “A Policy Framework: An Accelerated Agenda towards the Restructuring of State Owned Enterprises,” was explicit about the restructuring of the four largest
SOEs. It stated that:

- Eskom will be corporatized, with transmission, distribution and generation each forming a separate corporate entity.
- Different generating companies will be formed to promote internal competition prior to the introduction of private sector participation in generation, in conjunction with new power requirements.

The report thus understood the importance of not simply privatizing a monopoly, but creating a competitive industry structure before privatization. The report also suggests that transmission would probably remain in the hands of the state and likely to take the form of a separate independent company.

The Eskom Conversion Act of 2001 replaced the old Eskom Act of 1987 and subsequent amendments. There was strong opposition to this bill from organized labor. It argued that government had not followed the procedures agreed in the National Framework Agreement (NFA) whereby representatives of government and unions would negotiate the restructuring of individual SOEs. In May and June 2001, Cosatu (Congress of South African Trade Unions) made a submission on the Eskom Conversion Bill to the Public Enterprise Parliamentary Portfolio Committee. Its opposition centered on three main concerns: the Bill would pave the way for the privatization of Eskom; taxation of Eskom would impinge on its developmental role; and taxation would result in upward pressure on electricity prices. Agreement was reached in principle that new clauses would be included in the Bill regarding the developmental role of Eskom and the protection of employees. However, they did not win the argument about Eskom paying taxes and dividends (Tinto, 2002).

A paradigm shift in energy and electricity policy

In the mid- and late 1990s two further strands of activity came together, providing both a framework for reform and the main political impetus for change. One was the articulation of a new energy policy – including electricity policy. The other was the “black empowerment” movement

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11 Labor has become increasingly alienated from government. Gwede Mantashe, the general-secretary of the National Union of Mineworkers, warned at a rally in Johannesburg that the ANC should not take the support of workers for granted. “It must listen to the working class and get their support, or it should listen to big capital and lose their support.” Cosatu embarked on a political strike on August 30 and 31, 2001 and marched to Parliament in protest against the government’s plans to privatize state assets. There have been a number of protests and threatened strikes since.
that aimed to privatize into the hands of black business leaders a portion of SOEs.

A new energy policy emerged from the process culminating in a Cabinet approved White Paper on Energy Policy released in December 1998. This new policy framework was consistent with the government’s macroeconomic policy in that it emphasized the need to attract private investment into the energy sector and the promotion of efficiency through competition. It was a sharp break from the earlier apartheid-era energy policy, which had emphasized state provision of energy services and security of supply at any cost – epitomized in the state-controlled programs for nuclear power, the synthetic fuels program, and Eskom's costly overbuilding of the power system (Marquard and Eberhard, 2000 and Eberhard and van Horen, 1995).

While not all aspects of the White Paper have been implemented, it has become the reference point for policy in the sector. The overall policy objectives were seen to be improvements in social equity, economic competitiveness and environmental sustainability, as well as in energy sector governance and energy security. Remarkably, it emphasizes the importance of:

- “Giving customers the right to choose their electricity supplier;
- Introducing competition into the industry especially the generation sector;
- Permitting open non-discriminatory access to the transmission system; and
- Encouraging private sector participation in the industry” (DME, 1998)

These bold statements originated not from any commissioned studies, nor did they emerge from a formal consultative process with industry members. They were the result of the convictions of a small group of analysts and government officials who were observing international trends in power sector reform and were beginning to be concerned with the potential problems of monopoly power.

The White Paper states that Government believes that Eskom will have to be restructured into separate generation and transmission companies and that Government intends separating power stations into a number of companies. The White Paper also affirms the importance of independent regulation.

Thus the model of power sector reform laid out in the White Paper mirrors the standard or ideal model being followed internationally: vertical and horizontal unbundling in order to separate out the potentially competitive components of the industry (generation and retail...
supply) from the natural monopoly components (transmission and distribution wires), the introduction of competition through new private players, non-discriminatory, open access to transmission, and independent regulation.

The main supporters of the White Paper were industrial electricity users who wished to contain future rises in electricity prices. Initially, Eskom also supported the White Paper process despite its traditional uneasiness in engaging with policy processes in the public eye. Eskom has supported competition in principle, but in practice it resists any proposals that it should divest more than 30 percent of its generation stations. At times it has also suggested the introduction of a private strategic equity partner in the Eskom Holding company, which would have the effect of slowing down or making more difficult a subsequent unbundling of Eskom. It has also attempted to delay the separation of transmission services from Eskom’s other lines of business. At times, it has argued that placing transmission into a subsidiary company within the Eskom group would yield sufficient unbundling. It has also presented alternative models for distribution that would preserve a more prominent role for the firm as a vertically integrated monopoly.

Major opposition to the proposals in the White Paper were presented to Parliament by Cosatu, the union federation. In essence, they opposed privatization and argued that Eskom should remain a vertically integrated, publicly owned utility and should be used as an agent of government to provide low-cost electricity services to all, especially the poor. They supported rationalization of the distribution industry, but wanted it as a single national distributor (Tinto, 2002).

The evolving reform agenda

Since the publication of the Energy Policy White paper in 1998, momentum has increased for industry unbundling and the introduction of competition. However, as we explain below, the reform process has since stalled and a different industry model is emerging.

In one of the rare occasions of its involvement in South Africa, the World Bank sponsored a Ministerial Workshop on Electricity Supply Industry Reform held from April 3–5, 2000 in Midrand. The Minister of Minerals and Energy stated at the workshop that government’s main objectives of reform are to:

- increase economic efficiency in investment decisions and operation so that costs and prices are as low as possible;
- maximise financial and economic returns to government from the ESI;
increase the opportunity for black economic empowerment; and
protect public benefits such as widened access to the poor, energy
efficiency ongoing R&D and environmental sustainability (Mlambo-
Ngcuka, 2000).

The World Bank-sponsored seminar brought to South Africa a
number of experts with detailed knowledge of the reform experience in
their own countries. There was no single ideologically inspired message
or proposed model. Yet all advocated the merits of competition, but
warned of the importance of careful design of the electricity market. At
the end of the workshop senior government officials, including repre-
sentatives from Eskom and the NER agreed to a draft policy paper on
restructuring the ESI (DME, 2000).

Eskom’s top leadership was alarmed at the extent of the reform
proposals, particularly the recommendation to reduce Eskom’s market
share of generation to 35%. It lobbied at the very highest levels in
government, drawing on its reputation for delivering low prices and for
supporting government’s RDP goals and its growing vision of an African
renaissance, embodied in early versions of the New Partnership for
African Development (NEPAD).

In May 2001, the Cabinet approved proposals for the reform of the
ESI through a “managed liberalization” process. The elements of this
are summarized here (Mlambo-Ngcuka, 2001):

Structure of the generation industry. Eskom is expected to retain no less
than 70 percent of the existing electricity generation market, with pri-
vatisation of the remainder, with the initial aim of transferring 10 per-
cent to black economic ownership not later than 2003;

Vertical unbundling. To ensure nondiscriminatory and open access to
the transmission lines, a separate state-owned Transmission Company
will be established, independent of generation and retail businesses, with
ring-fenced transmission system operation and market operation func-
tions. Initially this transmission company would be a subsidiary of Eskom
holdings and would be established as a separate state-owned transmission
company before any new investments are made in generation capacity;

Market structure. Over time a multi-market model electricity market
framework will ensure that transactions between electricity generators,
traders, and power purchasers may take place on a variety of platforms,
including bilateral contracts, a power exchange and a balancing
mechanism. The market design should facilitate both physical and
financial hedging. A transparent and independent governance
mechanism would be developed for the power exchange; and
Regulation: A regulatory framework will be put in place that ensures the participation of IPPs and the diversification of primary energy sources.

In an agreement, which originated at the Farm Inn Summit in October 2001, and was signed on March 15, 2002, the Department of Minerals and Energy (DME), the Department of Public Enterprises (DPE), the SALGA, the NER and Eskom reached broad consensus on the next steps in reform.\(^{12}\) An ESI restructuring committee, chaired by DPE, would be established. Eskom would ring-fence its generation stations into clusters or portfolios for internal competition. Eskom Transmission would ring-fence its operations into wires and system operations. The agreement further envisaged that Eskom Holdings would establish subsidiary companies for Eskom Generation and Eskom Transmission (although this was later contested by Eskom). The internal Eskom generation pool would be converted into an independent market operation company (power exchange).

The DPE subsequently established an ESI restructuring office and detailed studies were undertaken by government-led, interdepartmental and stakeholder committees, with the support of consultants, on the clustering of Eskom generation plant and the creation of an electricity market, including a voluntary power exchange with a day-ahead-market, a balancing mechanism, and a market for ancillary services and a range of other electricity trading platforms, including bilateral contracts and financial hedging instruments. However, it appeared that the middle-level bureaucrats and consultants were far ahead of their principals, and when the cabinet memos were prepared to take the market design through to implementation, senior government officials and ministers were unenthusiastic.

A follow-up Farm-Inn summit in March 2004, comprising DME, DPE, SALGA, the NER and Eskom, plus additional government departments (National Treasury, the Department of Trade and Industry, the Department of Provincial and Local Government, the Competition Commission and EDI Holdings), confirmed the reform steps, but agreed to significantly delayed target dates. For example, a portion of Eskom’s generation assets should have been divested in 2003. The target date was shifted to 2006–2007.

Although there have been general briefings to the Parliamentary Portfolio Committees and workshops have been held with industry stakeholders on the proposed market design, few details of the Farm-Inn agreement and the reform timetable have been made public. Organized

\(^{12}\) A strategy for the implementation of restructuring of the South African electricity industry. An agreement between DME, DPE, Eskom and the NER, March 2002.
labor (Cosatu) remains opposed to any proposals to restructure the electricity industry. In 2002 they embarked on a national political strike and protested against the possible privatization of Eskom and other utilities and the effects that this could have on the poor. The strike caused a prominent and acrimonious interchange between Cosatu and the government, with the latter insisting that it would not be deflected from its restructuring agenda.

Figure 6.8 shows the structure of the ESI in South Africa as envisaged in the May 2001 Cabinet decision.

Government’s stated reason for reserving a dominant share (70 percent) of the generation market is not well understood. DME and DPE suggested to Cabinet that, “In order to meet Government’s developmental objectives, Eskom will retain no less that 70 percent of the existing electricity generating market” (Mlambo-Ngcuka, 2001). If the reference to “development” means electrification, then it does not make sense as Eskom will no longer be involved directly after the creation of the REDs. If it refers to affirmative procurement practices, these conditions could be included in any future privatization deal. If it refers to supporting the NEPAD then there is no reason why any future South African power companies could now become involved. Investors argue that there is no logic to this policy and that Eskom’s share of the generation market could and should be reduced to below 35 percent.

The slow progress in electricity market reform has created a great deal of uncertainty. In early 2004, the NER conducted a survey of electricity stakeholder perceptions of the risks facing the industry. Most stakeholders asserted that the quality and reliability of supply were deteriorating and rated the risk of electricity service failure as likely and serious. They expressed concern about the capacity of government to lead the reforms and argued that policy uncertainty was having the effect of inhibiting investment in distribution systems as well as new generation capacity.

Government responded to the latter concern by appointing a technical advisor to assist in designing a tender for new generation capacity. Given the time necessary to complete environmental impact assessments and the likely construction times, it became apparent that this tender would not solve the looming supply crisis in time. The inevitable consequence is that Eskom is once again regarded as the supplier of last resort. Government has now agreed that it should resurrect old, inefficient coal-fired plants, and also make new investments. Eskom, by delaying the reform proposals embedded in the Energy Policy White Paper has managed to maintain market dominance. The impact of these developments on the future competitiveness of the electricity sector in South Africa will be profound.
By default, an alternative industry market model is evolving. Instead of a wholesale generation market, new generation investments will be undertaken either by Eskom or by IPPs with long-term contracts with Eskom. The renewed reliance on Eskom mirrors a broader shift in government policy. After a decade of market-friendly reforms, government is concerned about inadequate economic growth and job creation, and persistent poverty amongst a significant proportion of the population. It sees the state playing a more significant role in infrastructure investment and development. State utilities in energy and transport are a key element of this strategy. Within this context, reform and regulation of SOEs will continue, in order to improve efficiencies and performance – but probably without introducing full competition or privatization.

The South African government has yet to repudiate the Energy Policy White Paper of 1998 or to formally articulate a new electricity policy. However, it is clear that one is emerging. Security of electricity supply is paramount. Private, IPPs are being invited to bid for new capacity. There may be some limited competition for the market, but a competitive wholesale electricity market with electricity trading now looks unlikely in the short-term. The Minister of Minerals and Energy stated in parliament on June 22, 2004 that “the state has to put security of supply above all and above competition especially.”

The one issue that might sustain the momentum for reform in the future is black economic empowerment. There is continued pressure to divest attractive state assets as one mechanism to broaden economic ownership. The partial sale of Eskom generation plants is one area that might again receive attention. There is a strong argument that divestiture should take place within a competitive market structure if
efficiency gains are to be realized. Black economic empowerment may thus be the trigger for further reform of the electricity industry in South Africa.

Conclusion

There are elements of power sector reform in South Africa which are peculiar to its recent history, namely its transformation into a democratic state after many years of apartheid repression. Within this context, it was inevitable that energy policy would be transformed from the constrictions of a siege economy to a new focus on promoting social equity and improving economic competitiveness as South Africa re-integrated with the global economy. The Energy Policy White paper gave expression to this policy shift, but it was already evident in the launch of an impressive electrification program that sought to tackle the huge backlog of the previously disenfranchised’s demand for affordable access to electricity. There was also the intent to consolidate and reform the highly fragmented and inefficient electricity distribution sector that originated in the separate development policies of the previous apartheid government. The urgency of promoting social equity and extending improved infrastructural services to the majority forced Eskom and the large municipalities to respond to the challenge of electrification, while the reform of the overall ESI lagged behind. Surplus and cheap electricity was available as a result of overinvestment in the previous decades, and a strong, large industrial consumer base enabled the ESI to cross-subsidize the electrification program without the necessity of imposing unaffordable price hikes.

The process of reform of the distribution sector has been slow and frustrated by the complex web of political interests at the local level and the fear of loss of control of an important infrastructure service and large income streams. Nevertheless, the process of restructuring continues and government is intent on creating a more efficient industry in the form of new, commercially run, public corporations.

The emphasis on corporatization reflects a general commitment to reassess government’s role in the economy, particularly the SOEs in the infrastructure sector. Government began to examine the governance and performance of these enterprises. As a consequence, government also reformed Eskom’s governance, withdrew currency guarantees and other implicit subsidies, and placed Eskom’s operations on a more commercial footing. Eskom, along with other state owned enterprises, was corporatized, had to pay taxes and dividends, and was subject to a shareholder performance contract. At the same time, the relationship of
the state to the sector was clarified through the creation of an independent electricity regulator, which approves prices without political interference.

Although the liberalization and restructuring of the ESI in South Africa is not very advanced, the reform process continues, informed, in general, by government’s commitment to increase the competitiveness of the economy and also to broaden economic participation and ownership for black South Africans. The momentum for reform has been set by the broad direction of economic policy. It has also been influenced by the work of analysts who brought international experience of power sector reform to bear on the Energy Policy White Paper, and who argue that South Africa is living on borrowed time in terms of low electricity prices. Arguments are now being made that a vertically integrated, state-owned, monopoly industry, even if it is corporatized, is unlikely to make efficient investment decisions. The current low electricity prices are primarily a result of investment curtailment after a previous period of wasteful overinvestment. The key challenge for the ESI is to create a competitive structure where investors bear a more equitable share of the risk, thus creating an environment for more efficient allocation of a resource, which is more attractive to private investors. Government has made a broad commitment to manage the liberalization of the ESI. Independent Power Producers are beginning to be introduced.

However, government still experiences ambivalence and doubts about embarking on a path of full unbundling, competition, and privatization. Eskom is still seen as an important instrument of government policy, an apparently well-performing infrastructure industry that supports government’s economic and social program. Current low prices create a false complacency. And government faces serious resistance from organized labor, which has picked issues around Eskom reform as the battleground against privatization. In the next years, it could be the interests of the new black economic elite, interested in a share of privatization rents that maintains the momentum for reform. Other industry participants are also becoming concerned with the absence of investment that accompanies policy uncertainty. As power quality and reliability deteriorate and a supply crisis looms, power sector reform will gain greater political urgency. Ultimately, the overall context of economic liberalization (managed and regulated where appropriate) will sharpen the imperative of being competitive and efficient, and could sustain the path of reform of the electricity industry in South Africa.