The Political Economy of Power Sector Reform in South Africa

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About the Political Economy of Power Market Reform Study

Early in 2002, the Program initiated a study to compare the experiences with power market restructuring in five critical developing countries—Brazil, China, India, Mexico and South Africa. Each individual country study examines the interaction of the political, legal, and economic forces that affect how countries restructure their electricity systems away from state domination and towards greater use of markets.

This paper presents results from one of the countries studied. For other individual country studies, synthesis of results, and in-country events on electricity markets, please see the Program website at http://pesd.stanford.edu.

The Political Economy of Power Sector Reform in South Africa

Anton Eberhard[1]

I. 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. 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, the requirement for large amounts of capital that could be facilitated by government guarantees, and the fact that electricity was seen to be an essential ingredient of 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 non-optimal; instead 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. At the same time the vast majority of disenfranchised South Africans remained without electricity.

Consequently, 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. Following the democratic revolution of 1994, emphasis was given to electrification, improvements in the electricity distribution industry, the creation of an independent regulator and the corporatization of Eskom (in parallel with reforms in other SOEs).

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The reform process has been slow and modest. Eskom remains in state ownership. There appears to be no political urgency to fully un-bundle Eskom. Eskom has played an important developmental role in bringing electricity to more people. Electricity prices are amongst the lowest in the world.

Prices are currently low, 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 in 2006 and beyond. Some analysts predict that new peak supply will be needed even earlier, without which rolling blackouts will visit South Africa.

Analysts have pointed out that there is now a reform window where the Electricity Supply Industry (ESI) can be restructured to create a more competitive and efficient environment for new investment decisions. These arguments are still not widely accepted or understood by most stakeholders. Nevertheless, the momentum for reform rolls on, sustained now by pressures to divest parts of Eskom to black-owned businesses. An Energy Policy White Paper and subsequent Cabinet decisions have laid out a path of managed liberalization. Competition is being encouraged in other sectors and is coming to electricity.

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-economy issues and the main drivers of reform. The bulk of the chapter is a section that focuses on the reforms in the 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.

II. History of the electricity supply industry in South Africa

The new electrical lights and machines that were developed in the late 19th century spread rapidly around the world and South Africa was among the early adopters of these revolutionary technologies. The first electricity 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 street-lights 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.[2] [3]

[2] Christie, R (1984). Electricity, industry and class in South Africa. London: Macmillan.

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 hydro-electric power were soon abandoned in favor of cheaper coal-fired generation.[4] 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.[5]

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 was controlled by Commissioners appointed by the Minister. ESCOM was given statutory powers to establish generation and distribution undertakings to supply electricity at the lowest possible cost. It had to raise capital though the issuing of bonds (although it did receive interest-bearing loans from government in the early years[6]). 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 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 towns. ESCOM also objected to the granting of further licenses to private producers such as the Victoria Falls Power Company and a compromise was reached whereby

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[3] National Electricity Regulator (2001). Lighting up South Africa: a century of electricity serving humankind. Open Hand Press, South Africa, p 20.

[4] Typical power station sizes at this time were 40 to 60 MW

[5] National Electricity Regulator (2001). Lighting up South Africa: a century of electricity serving humankind. Open Hand Press, South Africa, p 91.

[6] ESCOM received government loans only in the years1923-1928, but by 1934 these had been fully repaid (Electricity Supply Commission Annual Reports 1923-1935).

ESCOM would finance and own new power stations and the VFP Company would build and operate them.[7] 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 past 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. And, as the scale of investments and the opportunities for interconnection grew, the state became increasingly involved, progressively advancing to a dominant monopoly position in the sector.

ESCOM set about exploiting South Africa's huge deposits of inexpensive, low-grade coal. By 1930, its 100 MW Witbank station produced amongst the cheapest electricity in the world.[8] 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".[9]

In 1948 ESCOM purchased the largest private producer, the Victoria Falls Power 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 3600 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% in 1975. Annual growth in peak demand between 1972 and 1982 ranged between 6 and 16%. 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

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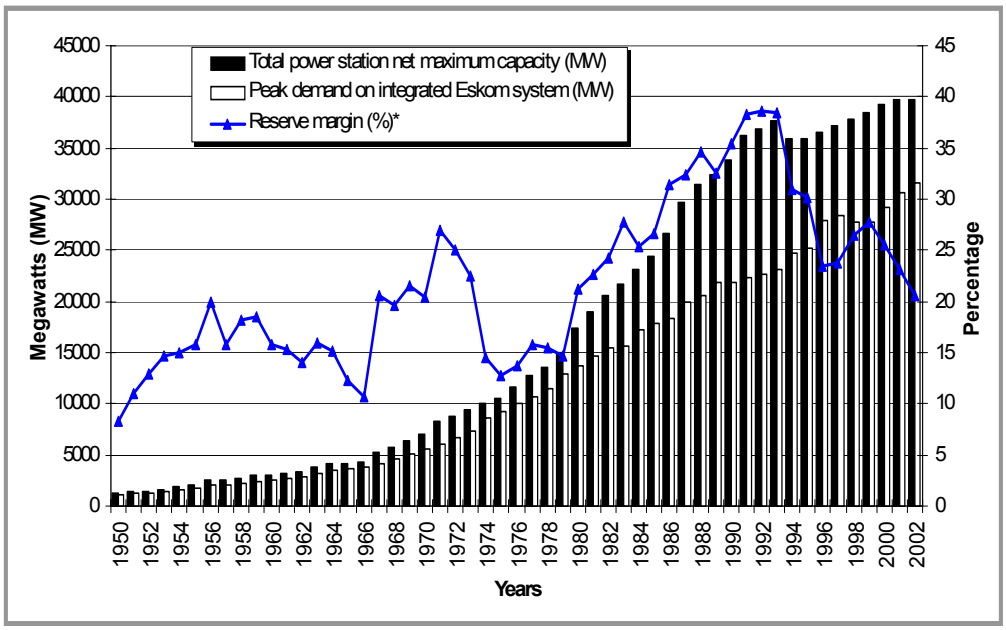
[7] Steyn, G (2001). Governance, Finance and Investment: Decision making and risk in the electric power sector. DPhil, University of Sussex, p 70.s

[8] National Electricity Regulator (2001). Lighting up South Africa: a century of electricity serving humankind. Open Hand Press, South

[9] Steyn, G (2001), Ibid, p 67.

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.[10]

Figure 1: Historical growth in maximum demand and capacity at Eskom



Source: Eskom Annual Reports: 1980-2002) and Eskom Statistical Yearbooks (1985-1996)

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[11]. 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, 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 enquiry in 1983. The De Villiers Commission criticized ESCOM's governance, its management, its electricity forecasting methods, its investment decisions and its 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

[10] Ibid, p 75.
[11] Government guarantees for Eskom's International Bonds were only withdrawn in 1995. Personal communication: interview with Eskom Treasury Department, 27 January 2003.

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."[12]

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. 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 Electricity Control Board 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 over-planning, construction of generation sets were delayed and plans for new stations were cancelled. Older plant was decommissioned or mothballed. Previous demand growth projections of 7% were scaled back. Nevertheless, maximum generating capacity still exceeded peak demand by nearly 40% 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

[12] Eskom Act, 1987. Government Printer. Pretoria.

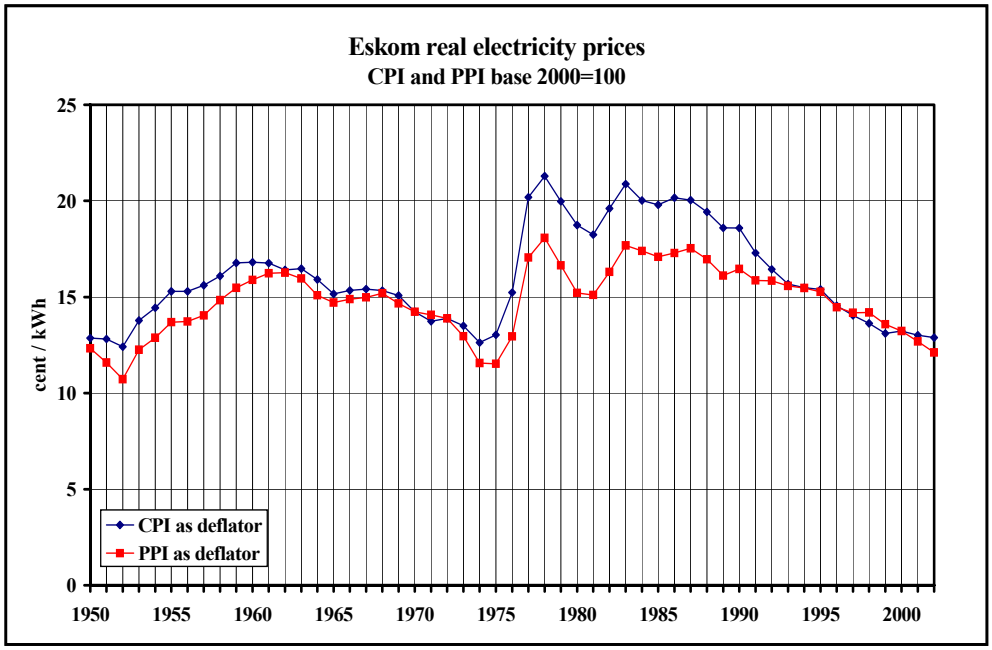
coal-fired and nuclear powered stations are shown below. Komati, Camden and Grootvlei have been mothballed, the rest are all still operating.

Table 1: Dates of commissioning of major Eskom power stations

Name of power station	***Date of commercial service First – Last unit***	***Net maximum capacity MW***
Komati	*1961-1966*	*906*
Camden	*1966-1969*	*1520*
Grootvlei	*1969-1977*	*1130*
Hendrina	*1970-1977*	*1900*
Arnot	*1971-1975*	*1980*
Kriel	*1976-1979*	*2850*
Koeberg	*1976-1985*	*1840*
Matla	*1979-1983*	*3450*
Duvha	*1980-1984*	*3450*
Tutuka	*1985-1990*	*3510*
Lethabo	*1985-1990*	*3558*
Matimba	*1987-1991*	*3690*
Kendal	*1988-1993*	*3840*
Majuba	*1992-2001*	*3843*

Source: Eskom Statistical Yearbook 1995

This pattern of overinvestment and subsequent contraction was 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 the figure below. Prices rose sharply in the late 1970s and 1980s and although they have 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 plants 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 also a need to attract foreign direct investment. The study reviewed a number options and indicated that privatization of Eskom was possible. It suggested that Eskom be privatized in its entirety – i.e. there were no recommendations for the introduction of competition. However, the 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.[13]

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 African National Congress 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

[13] Personal communication: interview with the then secretary of the privatization study, 28 January 2003.

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. Change was becoming inevitable.

III. Overview of the electricity supply industry in South Africa

The South African Electricity Supply Industry (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.[14] It generates about 96% of South Africa's electricity requirements which equals 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% of electricity directly to customers. The remainder of electricity distribution is undertaken by about 177 local authorities. They buy bulk-supplies of electricity from Eskom, with some also generating small amounts for sale in their areas of jurisdiction. A few industries have private generation facilities for their own use.

Figure 2: Structure of the electricity supply industry in South Africa

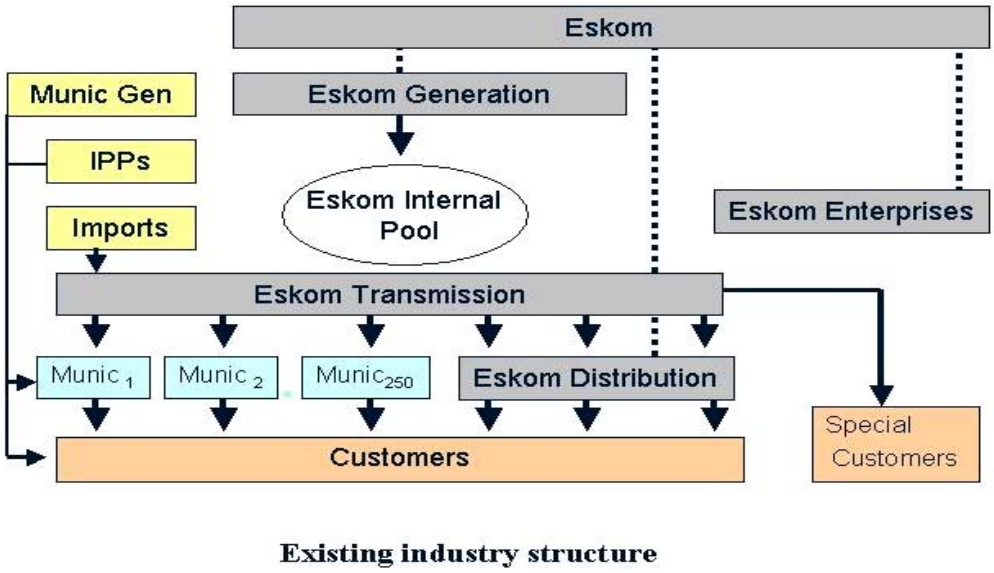
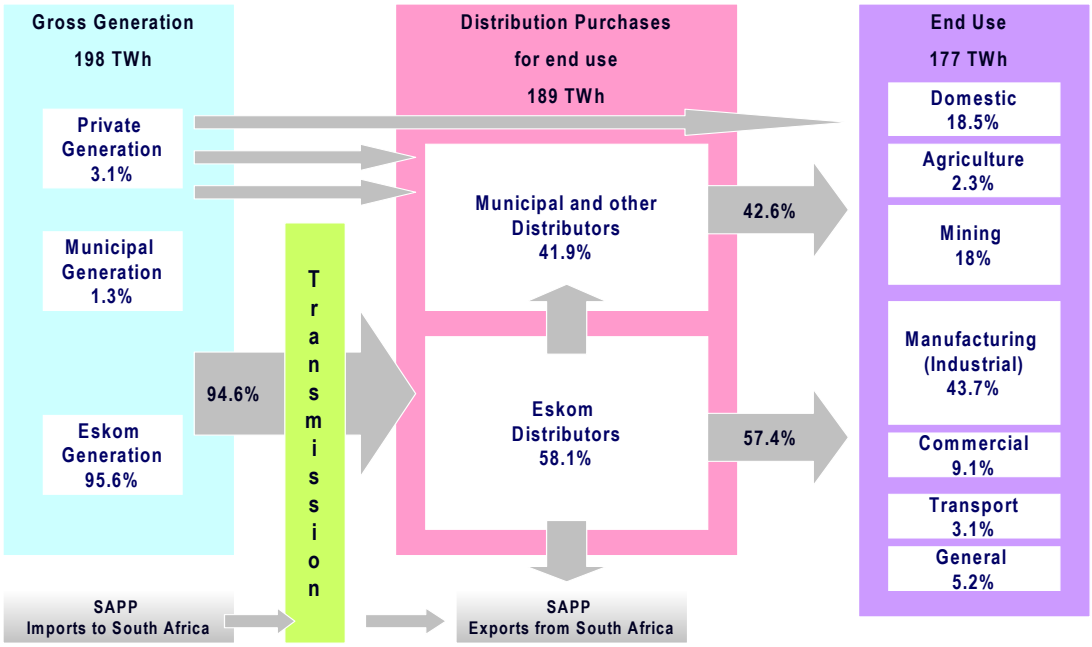


Figure3: Energy flows in the Electricity Supply Industry in South Africa 2000

[14] Eskom Annual Report 2000.

Source: NER (2000).



91% of electricity is generated from coal; nuclear energy accounts for 6.5%, bagasse, hydro and emergency gas turbines make up the remaining 2.5%. Total licensed operational generating capacity in 2000 was 43.1GW of which Eskom owns 39.8 GW. Some capacity is mothballed and total net operating capacity amounted to 35.3 GW in year 2000. Peak demand on the system reached nearly 32 GW in 2003.

Eskom has 24 power stations: 10 large coal fired stations dominate – most of them situated on coal mines in the north-east of the country. Nine of these stations have long-term coal contracts.[15] 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 provided 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%. 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

[15] The 10th large coal-fired power station, Majuba, operates at variable output on a small medium-term coal contract.

formula. There are no early termination provisions in the contracts. Generally, 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% 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 demand, as well as in system balancing and control. Municipalities own 22 small power stations and back-up gas turbines, but these total only 5% of national generation capacity and generally run at low load factors. Private generators comprise the remaining 2% of capacity.[16]

South Africa sells electricity to neighbouring countries (Botswana, Lesotho, Mozambique, Namibia, Swaziland and Zimbabwe) representing about 3% 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%. There are an additional 330 000 km of low-voltage lines owned by Eskom and local authorities.

Eskom sells most of its electricity as bulk power to its large mining, industrial customers and municipalities. These three customer categories account for 82% of its revenue and 89% 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 2000 to industrial customers was 1.6 US cents/kWh and for residential customers was 3.7 US cents/kWh. Eskom average tariffs cover average costs which were 1.5 US cents/kWh. [17] Tariffs for rural and low-income residential customers are cross-subsidised 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 subsidise property rates and to finance other municipal services. However, many of the smaller municipalities face debt, non-

[16] Eskom (2001). Annual Report.
National Electricity Regulator (2001). Electricity Supply Statistics for South Africa. Pretoria.
[17] Eskom Annual Report 2000, assuming an exchange rate of 1 US$ = R7.5 .

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% in 2000. In the years 1994-2001, 3.5 million new households received electricity. 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 of around US$ 1.3 billion (R 9.88 billion in nominal values) over the period, with an average cost of connection of about US$400. [18] The electrification programme 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 programmes 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", i.e. incremental improvements that solve problems, 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 "pebble-bed" nuclear reactor. R&D expenditure increased rapidly in the 1990s and amounted to about 0.8% of total revenue.[19]

IV. 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 the context of radical transformation of the country's political, economic and social institutions. After decades of institutionalised 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.

[18] National Electricity Regulator (2001). Lighting up South Africa. Pretoria .
[19] Hofmaenner, A (2002). A history of energy research in South Africa. PhD thesis. ETH, Zurich.

Responding to these pressures, in 1990 the government un-banned the African National Congress (ANC) and freed Nelson Mandela from prison.

The ANC won the first democratic elections in 1994 with 63% 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 Programme (RDP)—an integrated policy platform which set out a Marshall Plan-like programme 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.[20]

While the RDP did deliver some important gains in areas such as electricity and water provision, for example, the new government soon faced macro-economic constraints. Under the previous National Party government, the budget deficit before borrowing had soared to an unsustainable 7% of GDP. The RDP was superseded by the Growth, Employment and Redistribution (GEAR) policy, essentially a conservative, macro-economic 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 programme.

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

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 into its reform agenda, but it has not radically changed its policies nor is it likely to do so. Government argues that its policies have avoided the economic shocks and recessions

[20] Marquard, A & Eberhard, A (2000). Towards energy equity, efficiency and environmental sustainability in South Africa: policy challenges. Energy for Sustainable Development, Vol IV, No 4, pp 3-7.

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 levels 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% on the Johannesburg Stock Exchange. Targets have been set in the minerals and petroleum industry of at least 25% ownership by 2010, and attention is being given to opportunities in the electricity industry.

There has been a plethora of legislation since 1994 which has sought to restructure and reform the economy and society to address the inequities and injustices of the past, and to advance 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 and property and freedom of expression), combined with 2nd and 3rd 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 explain the context for reform of the electricity sector. The ANC inherited an economy with large state-owned enterprises (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 roll-out 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.

V. Electricity sector reform drivers

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 state-owned enterprises 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

and which forces greater reliance on private sector involvement. Third, restructuring and privatization creates 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 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 proceeds very much like Electricite de France. It would prefer to stay as it is and will delay reforms as long as it is able to.

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 households in black areas. The need was for consolidation of electricity distributors in order to improve financial viability and technical performance, and to position them to mount an accelerated electrification drive.

A second reform driver emerged in the mid-1990s within the context of government economic policy that sought to improve efficiencies in the state-owned enterprises (SOEs). Although Eskom was generally regarded as being better managed than other SOEs, there was a new focus on the corporatisation 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 over-invested in capacity expansion, and to create an industry structure that allocates risk in a manner that encourages investment efficiency.[21] The need for new generation capacity has raised the question of whether Eskom should build the next power station, or not, and what the appropriate industry and market structure would be to encourage private investment.

[21] Business Map (2001): The electricity supply industry: economic and social effects of restructuring. Johannesburg.

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. These reform drivers are discussed in more detail below.

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 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 back-log in new connections for low-income consumers. Already some of these smaller municipal distributors have 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. Political attention to these interlocking problems—lack of investment by distributors and the accumulated debts to Eskom—has grown because distributors in the poorest areas have been unable to finance new connections and subsidized services to poor customers that are pillars of the electrification programme.

The fragmentation of the industry means that tariffs, for the same customer categories, vary widely between distributors. It has proved impossible to regulate more than 175 distribution entities effectively. Reporting has been inadequate and it has been difficult to obtain accurate costs information. 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.[22] [23]

Rationalization and consolidation of the electricity distribution industry is essential to create a sustainable platform for the delivery of reliable and affordable electricity

[22] Media briefing by Minister of Minerals and Energy, Phumzile Mlambo-Ngcuka, 31 July 2001, Pretoria.
[23] Department of Minerals and Energy (2001). Electricity Distribution Industry Restructuring Blueprint Report. Pretoria.

services to existing customers as well as for supporting electrification for those who still remain without access to electricity.

Restructuring of State-owned Enterprises

A second driver of reform in the electricity supply industry originated in the "self-imposed" structural adjustment programme that was initiated in the mid-1990s. Having re-established macro-economic stability, the emphasis moved to micro-economic 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 in its own political constituency, government was 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* programme, and not in the more simplistic terms of privatization. The programme 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 cent/kWh. In recent years, it has consistently made a positive return on assets. Reliability and quality of supply are good. Average energy availability[24] from its power stations has increased from 76% in 1991 to 92% in 2000. Labour productivity has increased and employee numbers have dropped from over 66 000 in 1985, to 46 600 in 1991, to 32 800 in 2000. The national electricity utility 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. Government no longer provides guarantees for Eskom's debt.[25]

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 low Eskom prices compared to other international utilities and there may be little hard evidence of superior efficiency.[26] [27]

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[28] Nevertheless, if long-term price trends are examined (see Figure 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.

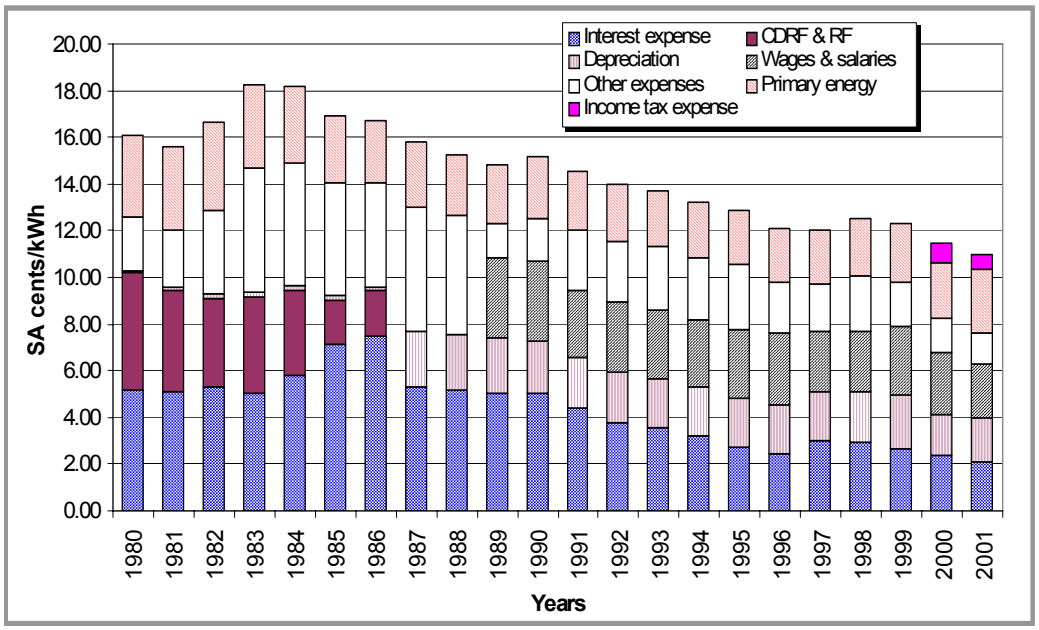
Low Eskom prices today stem primarily from the fact that consumers have largely amortised the debt which funded the large investment programme of the 1980s that has provided the generation capacity currently still being used. Eskom has not had to invest significantly in new generation capacity for some years and the largest contribution to

[24] Defined as capacity hours available x 100/total capacity hours in year
[25] Eskom Annual Reports
[26] Steyn, G (2001). Governance, Finance and Investment: Decision making and risk in the electric power sector. DPhil, University of Sussex.
[27] Davis, M & Steyn, G 1998). Electricity in South Africa. Financial Times Business Limited. London
[28] Steyn, G (2000). A competitive electricity market for South Africa: the need for change and a strategy for restructuring South Africa's electricity supply industry. Paper prepared for the Department of Minerals and Energy. February. Pretoria
Mtepa, M & Eberhard, A (2003). Rationale for restructuring and regulation of a 'low price' public utility: the case of Eskom in South Africa. International Journal of Regulation and Governance, December.

lower overall costs (and prices) has been lower debt and financing costs. Eskom's debt to equity ratio has fallen from 2.93 in 1986 to 0.5 in 2001.[29]

While operational efficiencies are important, investment efficiencies often have a much more profound and long-lasting impact. Choices around 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 operational plant. The figure below shows the extent to which changes in financing charges affect overall costs and hence prices.

Figure 4: Cost trends at Eskom (SA cents/kWh in real 2000 values)



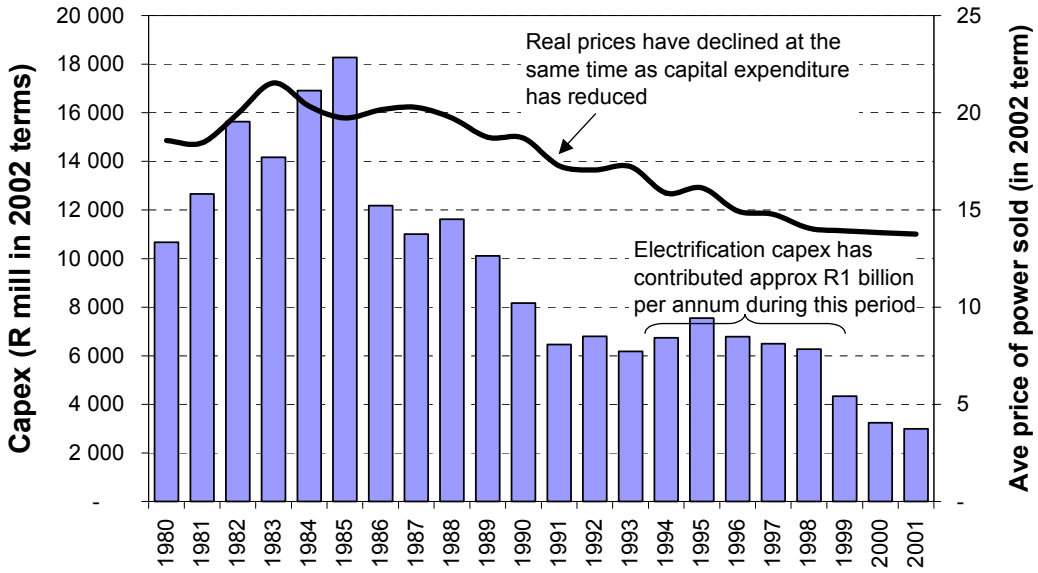
Source: Eskom Annual Reports
(The Capital Development Fund was abolished after 1986; wages and salaries were not reported separately before 1989)

This analysis on 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 over-investment.

[29] Eskom Annual Reports

Tariff reductions in the 1990s have erased memories;[30] 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. Gradually more stakeholders are beginning to understand that current prices are economically unsustainable.[31]

Figure 5: Eskom capital expenditure and price trends (SA rands/cents) [32]



Eskom's Integrated Strategic Electricity Plan suggests that by 2025 total maximum demand could rise to between 40 and 70 GW depending on electricity growth scenarios. A moderate growth scenario would imply a total system maximum demand of around 50GW, more than double the current maximum. New peaking capacity might be needed on line as soon as 2006—perhaps earlier—and additional base load capacity is probably necessary by 2011. 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.[33]

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[30] 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.

[31] Econ (2002). Electricity Price Scenarios for South Africa. A report to the Department of Minerals and Energy, South Africa. Oslo.

[32] Ibid

[33] National Energy Regulator (2002). National Integrated Resource Plan. Pretoria.)

Black economic empowerment

Perhaps the one driver for reform that is clearly articulated in the political domain is the need to accelerate black economic empowerment. Eskom 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 privatise a monopoly industry. If new private players are introduced, then the industry should be restructured to encourage competition.[34] 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 becomes a key driver for the reform and restructuring of the electricity sector.

VI. Key achievements in the reform the electricity sector since 1990

Despite these motivations for reform, the process has often been slow and uncertain. One of the reasons is the fact that there has never been a single, powerful champion for reform, neither in government, nor 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 programme with structured subsidies. A new National Electricity Regulator was established to protect the interests of consumers and to promote efficiencies in the ESI. 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 at that time. A new national energy policy was finalised, including broad policy objectives and restructuring principles for the electricity sector. Eskom has been corporatised and an industry restructuring plan is being developed. And finally, detailed work has begun on the design and implementation of a competitive electricity market.

The section below highlights the key achievements in the reform of the electricity industry, the motivations and rationalisation behind each reform episode, and the competing stakeholder interests which shaped the reforms. The narrative is elaborated in

[34] Department of Minerals and Energy / Department of Public Enterprises (2000). Options for reform of the electricity supply industry in South Africa. Internal Government Paper. Version 3.0, July, Pretoria.

some detail, so as to reveal the complexity of the reform processes and the different interests involved.

Serving the poor: an accelerated national electrification programme

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, and that a plan and programme to achieve this had to be put in place. With the exception of some studies[35] 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 programme might look like and argued that it would be important to restructure the inefficient distribution industry. [36] 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.[37] The programme 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 was slow. The Energy and Development Research Centre (EDRC) at the University of Cape Town argued for an accelerated programme of electrification that would peak at 500,000 connections per annum and would electrify 85-90% of South Africans by 2010. The proposals were supported by detailed modeling and included recommendations for financing and institutional change.[38]

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[35] E.g. 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 non-existent.

[36] E.g Dingley, C (1990). Electricity for All.: the Needs and the Means. Monograph. Department of Electrical Engineering, University of Cape Town.
Theron, P, Eberhard, A & Dingley, C (1992). Electricity provision in the urban areas of South Africa: towards a new framework. *Urban Forum* Vol 2, No 2.

[37] Eskom (2001). Annual Report. Johannesburg.

[38] Eberhard, A & van Horen (1995). Poverty and Power: Energy and the South African State. London: Pluto Press

In February 1992, EDRC convened a national meeting on electrification on behalf of the un-banned African National Congress.[39] The seminar brought together members of the industry with political parties, trade unions and civic organizations. From that meeting came 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 70 organizations, the National Electrification Forum (NELF) was launched in May 1993.[40] [41] NELF established working groups and initiated a number of studies, including the National Electrification Economic Study[42], which further developed a range of scenarios and assessed their economic impact. All stakeholders supported an accelerated electrification programme.

The ANC's Reconstruction and Development Programme, 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.[43]

Table 2: Number of new connections to low-income households since 1991[44]

Year	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**TOTAL**
Eskom	31035	145522	208801	254383	313179	307047	274345	280977	293006	250801	206103	2565199
LA's	51435	74335	107034	164535	150454	137534	213768	136074	144043	139780	127255	1446247
Farmworkers		12698	16074	16838	15134	9414	11198	10375	6241	6438	3560	107970
Total	82470	232555	331909	435756	478767	453995	499311	427426	443290	397019	336918	4119416

[39] Theron, P (ed) (1992). Proceedings of the ANC National Conference on Electrification. Elan Press, Cape Town. (check)

[40] 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 Organisation, and the United Municipal Executive.

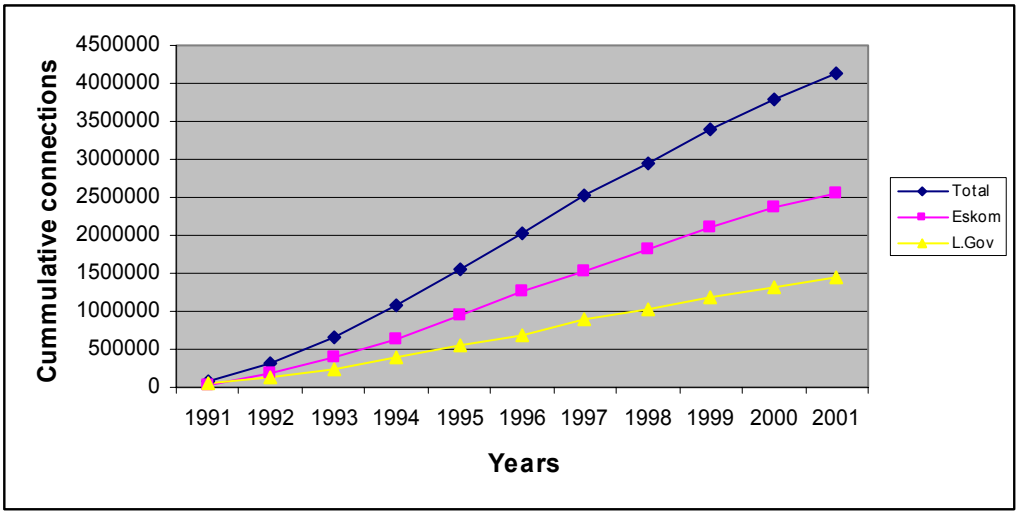
[41] National Electricity Regulator (2001). Lighting up South Africa: a century of electricity serving humankind. Open Hand Press, South Africa, p 70.

[42] National Electrification Economic Study (1993). Financing requirements of national electrification scenarios. Finance and Tariffs Working Group. National Electrification Forum. Johannesburg.

[43] African National Congress (1994). Reconstruction and development programme. Johannesburg: Umanyano Publications.

[44] National Electricity Regulator (2001). Lighting up South Africa: a century of electricity serving humankind. Open Hand Press, South Africa.
National Electricity Regulator (2001). Lighting up South Africa. Electrification Statistics. Johannesburg.

Figure 6: Cumulative electricity connections 1991-2001



Up until year 2000, the entire electrification programme 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 National Electricity Regulator allocated to municipalities. The average annual capital expenditure on this programme has been around US$ 150 million.

Since the mid 1990s it has been national policy that a portion of the capital cost of connections should be subsidized.[45] In practice, the subsidy has extended to the entire cost of connection as well as a portion of the operating costs. Actual consumption of electricity in low-income homes has been much lower than forecast—thus revenues from electrification have also fallen short of plan. At the beginning of the programme it was estimated that the average monthly consumption of newly connected, low-income households would be 350 kilowatt hours per month (compared with an average of 750 kilowatt hours 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 top-up 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.

[45] Department of Minerals and Energy (1998). White Paper of Energy Policy for the Republic of South Africa. Pretoria, p 37.

As government begins to reform the power sector, it has moved to secure the national electrification programme 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 programme 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 programme will continue, despite the pending liberalization 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.[46]

In addition to the grid-electrification programme, there has been an active off-grid programme using photovoltaic technology. Between 1994 and 2000, 1,350 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

[46] The claim that the success of public benefit programmes, 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, in contrast cases where privatization has slowed electrification. The point is that the most important variable for the success of public benefit programmes 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.

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 out right sale of solar home systems, although the best approach is still a subject of vigorous debate.

The electrification programme 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 precedent. The programme was clearly driven by the unique challenges that South Africa faced in overcoming the legacy of apartheid inequity. Yet there are lessons from this programme 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 programme 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 the clarification of government's role in relation to the ESI 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, to 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 National Electrification Forum (NELF) in 1993/4 was that the ECB should be replaced by a National Electricity Regulator (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 gigawatt hours 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 rather curious that the one concrete accomplishment of NELF was the establishment of an independent regulator with jurisdiction over the entire electricity supply industry. NELF's original focus was on reforming the debt-laden distributors and on accelerating 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 and looked at electricity sector reform in other countries and one had attended the first National Association of Regulatory Utility Regulators (NARUC) training course in the USA. Perhaps there was the desire to create a more predictable and transparent operating environment for the electricity industry in a period of political and institutional uncertainty.

Many of the initial staff in the NER were ex-Eskom employees. Over time—and three boards of directors—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 electricity distribution industry (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 programme. 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.[47] The unions, on the other hand, have strongly advocated distribution reforms that would create one single, publicly-owned national distributor.

[47] Eskom (1990). Proposals for the restructuring of the electricity supply industry in South Africa and implications for Eskom. Confidential internal document. 16/7/90

After the elections of 1994, many of the negotiating forums that had been set up in the transition period to democracy were dissolved. NELF was disbanded in February 1995. In the meantime, the National Electricity Regulator (NER) had been established and was a potential vehicle for furthering reform. NER's 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 electricity distribution industry. 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, 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. Government's Electricity Distribution Industry Restructuring Committee (EDRIC)—comprising relevant government departments, Eskom, local government and the NER—oversaw the process and produced its own "Blueprint for EDI Reform".[48]

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. Cabinet's review led to a decision—in January 2001 and reconfirmed in May—to adopt EDRIC's blueprint and rationalize distribution into six Regional Electricity Distributors (REDs), with an EDI Holdings Company to manage the transition. However, 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

[48] Department of Minerals and Energy (2001). Electricity Distribution Industry Blueprint Report. Pretoria.

National Congress has been 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.

As of this writing (2004) the REDs still have not been created. Indeed the draft Electricity Distribution Bill does not force distributors to join the REDs. In all, discussion on rationalizing the distribution industry has meandered for a long decade and there have been numerous 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.

While conflicting interests have slowed the reform process, it is also probably true to say that one of the original reasons for reform (viz. 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. These 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 State Owned Enterprises (SOEs).[49]

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.

[49] Media release by the Minister of Public Enterprises, Jeff Radebe (dated 10 August 2000).

- 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 privatisation. The report also suggests that Transmission would probably remain in the hands of the state and that it is 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 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, and Eskom's (partial) privatization might well proceed, as we shall see in the next section.[50] [51]

A paradigm shift in energy and electricity policy

In the mid and late 1990s two further strands of activity came together and, ever since, have provided both a framework for reform and the main political impetus for change. One was the articulation of a new energy policy—including electricity policy—and the other was the "black empowerment" movement that aimed to privatize into the hands of black business leaders a portion of state-owned enterprises, of which Eskom is the crown jewel.

[50] Tinto, E (2002). Restructuring South Africa's Electricity Supply Industry. MPhil. University of Cape Town.

[51] Labour 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".[51] Cosatu embarked on a political strike on 30 and 31 August 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

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 to promote 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.[52] [53]

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" [54]

These bold statements originated not from any commissioned studies, neither 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 that 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

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[52] Marquard, A & Eberhard, A. Towards energy equity, efficiency and environmental sustainability in South Africa: policy challenges. Energy for Sustainable Development, Vol IV, No 4, 3-7, 2000; and Eberhard, A & van Horen, C (1995) Poverty and Power: Energy and the South African State, London: Pluto Press.

[53] Two main threads informed energy policy in the period before 1990: the provision of low-cost energy supplies to power mining and primary industry; and energy security for the apartheid state. The policy processes during this period were characterized by excessive secrecy which made rational and public debate on energy policy impossible. The needs of those who most lacked adequate energy supplies were ignored. The shift to a new energy policy was supported by three developments: first, the intellectual development (mainly through an ANC sympathetic research group) of a new paradigm with emphasis on the "three E's" (economic efficiency, social equity and environmental sustainability); second, the political process of legitimizing the new paradigm (though public consultation and publication of a White Paper); and, third, its structural realization in the economy and society – such as the shift in funding to the national electrification programme.

[54] Department of Minerals and Energy (1998). White Paper on the Energy Policy of the Republic of South Africa. Government Printer, Pretoria.

intends to seperate 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% of its generation stations. At times is 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 the Congress of South African Trade Unions (Cosatu). In essence, they opposed privatisation 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 rationalisation of the distribution industry, but into a single national distributor.[55]

The evolving reform agenda

Since the publication of the Energy Policy White paper in 1998, momentum has been building around defining in more detail how the industry will be restructured to provide competition.

In one of the rare occasions of World Bank involvement in South Africa, it sponsored a Ministerial Workshop on Electricity Supply Industry Reform held from 3-5

[55] Tinto, E (2002). Restructuring South Africa's Electricity Supply Industry. MPhil. University of Cape Town.

April 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 to
- protect public benefits such as widened access to the poor, energy efficiency ongoing R&D and environmental sustainability.[56]

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 representatives from Eskom and the NER agreed to a draft policy paper on restructuring the ESI. [57]

Eskom's top leadership, in the meantime, 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 below: [58]

- *Structure of the generation industry*: Eskom is expected to retain no less than 70% of the existing electricity generation market, with privatisation of the remainder, with the initial aim of transferring 10% to black economic ownership no later than 2003;
- *Vertical unbundling*: to ensure non-discriminatory 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 functions. Initially this transmission company would be a subsidiary of Eskom

[56] Mlambo-Ncguka, P, (2000). Electricity supply industry (ESI) vision and objective. Electricity Supply Industry Reform Workshop, Midrand, 3-5 April.

[57] Department of Minerals and Energy,(2000). Draft policy and strategy for electricity supply industry reform for the Republic of South Africa. Internal government paper. Version 5, April, Pretoria.

[58] Media briefing by Minisiter Phumzile Mlambo-Ngcuka, 3 July 2001, Pretoria.

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 Independent Power Producers (IPPs) and the diversification of primary energy sources.

In an agreement which originated at the Farm Inn Summit in October 2001, and which was signed on the 15 March 2002, the Department of Minerals and Energy (DME), the Department of Public Enterprises (DPE), the South African Local Government Association (SALGA), the NER and Eskom reached broad consensus on the next steps in reform.[59] 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 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, inter-departmental and stakeholder committees, with the support of consultants, on the clustering of Eskom generation plant and the creation of an electricity market. The market would include a voluntary power exchange with a day-ahead-market, a balancing mechanism, a market for ancillary services and 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 seemed unenthusiastic.

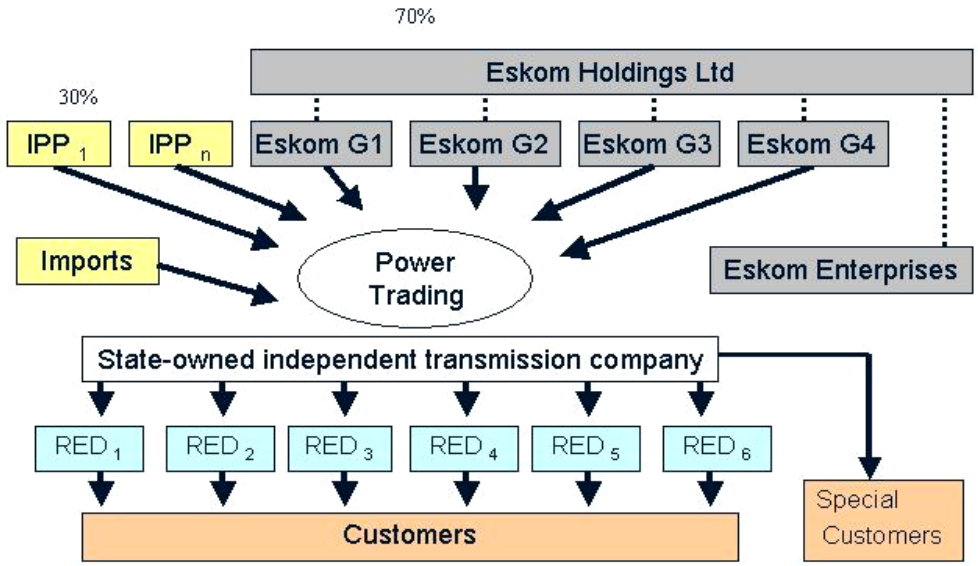
A follow-up Farm-Inn summit in March 2004, comprising DME, DPE, SALGA, the NER and Eskom, plus additional government departments (National Treasury, the Department of Trade and Industry, the Department of Provincial and Local Government, the Competition Commission and EDI Holdings), confirmed the reform 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 2006/7.

[59] A strategy for the implementation of restructuring of the South African electricity industry. An agreement between DME, DPE, Eskom and the NER, March 2002.

Although there have been general briefings to the Parliamentary Portfolio Committees and workshops were held with industry stakeholders on the proposed market design, few details of the Farm-Inn agreement and the reform time-table have been made public. Organized labor (Cosatu) remains implacably opposed to any proposals to restructure the electricity industry. In 2002 they embarked on a political national strike and protested against the possible privatization of Eskom and other utilities and the affects 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.

The figure below represents the structure of the ESI in South Africa as it is expected to evolve in the next few years.

Figure 7: Possible future ESI model in South Africa



Eskom generation subsidiaries with open access and trading

An independent transmission company and power exchange with transparent market rules plus parallel trading mechanisms will give potential new entrants greater confidence. However, investors argue that there are still a number of potential problems with this model. The positioning of generation clusters or subsidiaries under the Eskom Holdings Company could send the wrong message to the market. Eskom subsidiary companies are likely to collude. One way to ameliorate this situation would be to convert the generating clusters into separate subsidiary companies and to ensure that shareholder

agreements, performance and management contracts make it clear that each generation subsidiary should compete to maximize its own position. .

Government's stated reason for reserving a dominant share (70%) 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% of the existing electricity generating market"[60]. If the reference to "development" means electrification, then it does not make sense as Eskom will no longer be involved 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 New Partnership for African Development (NEPAD) - Eskom Enterprises is Eskom's vehicle for going into Africa, not Eskom Generation in South Africa. 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%.

The slow progress in electricity market reform has fuelled increasing concerns. In early 2004, the National Electricity Regulator conducted a survey of electricity stakeholders on their perceptions of 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. The intent is to award a contract to an independent power producer before the end of 2005. Given the time necessary to complete environmental impact assessments and the likely construction times, it is unlikely that this new investment will solve the looming supply crisis. The inevitable consequence is that Eskom will be regarded as the supplier of last resort. It will be required to de-mothball old, in-efficient coal-fired plants, and possibly also make new investments. The impact of these developments on the future competitiveness of the electricity sector in South Africa will be profound.

The one issue that might sustain the momentum for reform 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 plant is one area that continues to be targeted. 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 the next significant step in the reform of the electricity industry in South Africa.

[60] Media briefing by Minisiter Phumzile Mlambo-Ngcuka, 3 July 2001, Pretoria

VII. 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 the long, dark years of apartheid repression. Within this context, it was inevitable that energy policy would be transformed from a defensive obsession with security 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 programme 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 over-investment in the previous decades, and a strong, large industrial consumer base enabled the ESI to cross-subsidize the electrification programme without the necessity of imposing unaffordable price hikes.

The process of reform of the distribution sector has been slow and has been frustrated by the complex web of political interests at local government 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 re-assess government's role in the economy, particularly the state-owned enterprises 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 was also been influenced by the work of analysts that brought international experience of power sector reform to bear in 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 contraction after a previous period of wasteful over-investment. 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 resources—and attractive to investors. Government has made a broad commitment to manage the liberalization of the ESI and the introduction of competition.

However, government still experiences ambivalence and doubts around 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 programme. Current low prices create a false complacency. And government faces serious resistance from organized labor, who have picked issues around Eskom reform as the battle-ground against government's commitment to privatization. In the next years, it could be the interests of the new black economic elite, interested in a share of privatization rent, that sustains 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.