



**TRADE AND INDUSTRY CHAMBER**

**FUND FOR RESEARCH INTO INDUSTRIAL DEVELOPMENT,  
GROWTH AND EQUITY (FRIDGE)**

**STUDY TO COLLATE ALL RESEARCH WORK DONE ON  
ADMINISTERED PRICES**

**Final Report**

**November 2011**

# **EXECUTIVE SUMMARY**

## **Introduction**

There is strong theoretical justification in favour of economic regulation in backbone infrastructure sectors such as energy, telecommunications, transport and water. Economic regulation in these sectors is widely regarded as necessary in order to prevent market failures in the absence of effective market forces; ensure that essential infrastructure services are provided; and, ultimately, achieve optimal social welfare.

This study is focused on administered pricing in the energy, telecommunications, transport and water sectors in South Africa, wherein prices are set via a regulated framework in settings where the market alone would not have ensured an efficient outcome. The study was commissioned to form the basis for the work of the Trade and Industry Chamber (TIC) task team of the National Economic Development and Labour Council, which has been convened to identify the factors driving administered prices in South Africa and understand the economic implications of administered pricing decisions in the country.

## **Methodology**

The methodological approach adopted in this study focused exclusively on a desktop review of existing studies related to the drivers of administered prices in the South African economy. It is important to note that in some cases the existing studies that formed the basis of this research study are dated and do not necessarily reflect the current regulatory process for determining administered prices in the relevant sectors.

## **Defining Administered Prices in the South African context**

The following definition was used as the reference point to guide the review of existing studies related to the drivers of administered prices in the energy, telecommunications, transport and water sectors:

*“Administered prices are prices set via a regulated framework where the market alone would not have ensured an efficient outcome.”*

# **Administered Prices in the Energy Sector**

## **Electricity**

The following electricity prices are considered to be administered for the purposes of this study:

- Municipal tariffs.
- Wholesale electricity prices.
- Retail prices for end-users.

The regulatory framework for electricity prices in South Africa is well established, with an independent regulator, the National Energy Regulator of South Africa (NERSA) mandated to determine tariff guidelines, structures and methodologies, and evaluate and approve electricity tariffs.

The methodological framework underpinning the determination of electricity prices has evolved in the last decade from a Rate of Return (ROR) methodology to a Multi-Year Price Determination Process (MYPD). The move to the MYPD methodology in 2006 was due to the presence of a lack of incentives to improve efficiency and the potential for excess returns.

The MYPD is applied over a three-year control period whereby a certain price takes effect over that period and previously approved tariff increases can be implemented. Opportunity is provided within the process to renegotiate tariffs. The process underpinning the MYPD framework requires that Eskom determine its tariffs with a view to meeting the levels of allowed revenue and percentage price increases with or without electricity distribution industry restructuring costs over the three-year period.

The MYPD process was first used to determine Eskom's electricity prices for the period between 1 April 2006 and 31 March 2009 (and known as MYPD 1). The second MYPD (MYPD 2) covers the period 2010/2011-2012/2013.

Cross-subsidisation represents an important guiding principle for electricity pricing in South Africa and a critical element of the effective functioning of the electricity pricing system. The cross-subsidisation principle promotes equality in the electricity pricing structure and contributes to ensuring access to electrification for the South African population.

The literature on administered prices in the electricity industry has highlighted shortcomings in the past and present processes used to determine electricity prices, including:

- A lack of capacity of the National Electricity Regulator (the predecessor to NERSA) to investigate the basis for price increases proposed by Eskom.
- Scope for political interference in price determination.
- The absence of a robust regulatory system for administered prices.
- The absence of strong efficiency incentives in the ROR methodology.
- High electricity prices.
- A lack of participation by Independent Power Producers (IPPs) and a lack of clarity on their role in the MYPD 2 process.

Furthermore, in the recent past, concerns have been raised about the impact of rising administered electricity prices on inflation and economic growth in the South African economy. With respect to MYPD 2, it has been suggested that the magnitude of the price increases would affect the sustainability of the electricity supply industry and the affordability of electricity.

## **Petroleum**

The following prices are considered to be administered in the petroleum industry:

- The fuel price.
- Tariffs for petroleum pipelines, storage and loading facilities.

The current framework for determining the administered price of fuel is grounded in the cost of importing petroleum products from specific markets, together with all the costs associated with delivering the fuel product to a particular location in South Africa. Within this framework, a number of costs are taken into consideration when calculating a basic fuel price (BFP). The BFP reflects the sum of international market prices for petroleum products and is intended to be a realistic estimate of the cost of importing the fuel product to South Africa. This represents the international component of the fuel price structure. In turn, the domestic fuel price is calculated by factoring in, amongst others, the following:

- Transportation.
- Delivery costs.

- Wholesale (marketing margin).
- Retail margin.
- Equalisation Fund levy.
- Fuel tax.
- Customs and excise levy.
- Road Accident Fund levy.
- Slate levy.

The national government maintains overall responsibility for administering the petrol price. In turn, NERSA is mandated to license construction, operation and conversion of petroleum pipelines, storage and loading facilities. For its part, the Petroleum Controller, which falls within the Department of Energy, is tasked with licensing manufacturing, wholesaling and retailing activities.

It has been argued in the past that price regulation in the petroleum industry in South Africa has contributed to:

- Security of supply.
- Reduced dependence on imported oil.
- Stability in domestic fuel production.
- A minimisation of the impact of fuel imports on the balance of payments.
- Wider availability of fuel to consumers and industry.

Despite this, it has been argued that the process of determining administered prices in the petroleum industry has benefited synthetic fuel producers and their shareholders at the expense of consumers and taxpayers. Historically, the administered pricing regime has placed a significant burden on consumers in supporting local production; while it has also been argued that taxpayers have historically borne the brunt of over-investment in the petroleum pipelines industry.

## **Administered Prices in the Telecommunications Sector**

The Independent Communications Authority of South Africa (ICASA) is mandated to regulate the telecommunications sector. ICASA is currently mandated with “full powers” to regulate a variety of

wholesale and retail prices imposed by operators in the telecommunications sector. This includes the regulation of prices related to access, interconnection, facilities leasing and network services.

The following prices can be regarded as administered prices within the context of the telecommunications sector:

- Fixed-line retail prices.
- Mobile cellular retail prices.
- Wholesale service prices, including interconnection prices and prices for facilities leasing.

Fixed-line retail prices in the telecommunications sector are administered by ICASA through the use of price cap regulation. The price cap formula involves a complex calculation that includes the following elements:

- Reported revenue for the relevant service in the preceding year.
- The average percentage change in the unit tariff of the service from the preceding year.
- The average percentage change in the consumer price index over the past year.
- A productivity factor.
- The percentage of the unused part (if any) of the allowed revenue increase in the preceding year carried over to the year in question.

In the case of mobile cellular retail prices, the initial rate regime for mobile cellular operators was stipulated in the operator licenses. The initial rate regime involved a price cap formulation and was first set at CPI-0 percent. As is the case with the price regulation process for fixed-line operators, ICASA is responsible for undertaking all rate reviews, with final approval provided by the Minister of Communications in the case of any recommended changes.

In terms of the rate regime for wholesale prices in the telecommunications sector, interconnection guidelines were initially established for Telkom by the Minister of Communications, with these coming into force in May 2000. Subsequently, this was taken over by ICASA, who was mandated to determine interconnection fees and charges. A number of interconnection guidelines were drafted by ICASA in 1999, and subsequently approved by the Minister of Communications in March 2000. Thereafter, supplementary interconnection guidelines were issued in December 2002.

A number of cross-cutting shortcomings and concerns related to the processes applied in administering prices for fixed-line services, as well as mobile cellular retail prices and wholesale prices have been identified in the past, including:

- Question marks over the independence of ICASA.
- Staff capacity shortages within ICASA.
- A lack of recognition of South Africa's inexperience in public interest regulation.
- Information asymmetries.
- A cost-driven approach to price determination that provides only very limited efficiency or outcomes monitoring.

A number of recommendations aimed at improving the way prices are administered in the sector have been proposed in previous studies, including:

- Accelerate the delivery of reliable regulatory accounting data from Telkom to reduce its strong information advantage over ICASA.
- Increase the resources available to ICASA, strengthen its influence and build its capacity by implementing technical assistance programmes.
- Review the price cap mechanism used in the determination of fixed-line retail prices.
- Analyse incumbents' financial status as well as productivity improvements made by incumbents.
- Undertake an investigation into collusive behaviour within the mobile cellular sector.
- Implement legislative changes that would allow ICASA to review existing interconnection agreements.

## **Administered Prices in the Transport Sector**

South Africa's transport sector comprises several distinct modes, including aviation, ports, rail and road. These various modes differ considerably with respect to the extent of economic regulation and regulatory frameworks that are in place.

## **Aviation**

The following broad categories of prices can be regarded as administered within South Africa's aviation sub-sector:

- Infrastructure tariffs.
- Airport and air traffic service charges, including landing fees and passenger fees.

The responsibility for the determination of infrastructure tariffs and the regulation of the sector falls on a part-time regulator in the form of a Regulating Committee within the national Department of Transport. The Regulating Committee is empowered to approve the tariffs of both ACSA and the ATNS. The Committee is also responsible for setting the limits on airport and air traffic services charges. In turn, ACSA and the ATNS are required to apply to the Committee for permission to implement a tariff increase. Once recommendations have been made by the Regulating Committee regarding the tariff increase, they are reviewed by the Minister of Transport before being granted as permissions to ACSA and ATNS.

For its part, the Committee is free to choose the methodology to underpin price regulation in the industry. Prior to 2003 the financial model adopted by ACSA and ATNS was used in the price setting process. However, it was found that this model was not appropriate for rigorous price cap applications. The methodology used thereafter in the price administration process centred on the use of a price-cap, and involved extensive financial modelling.

The regulation of ACSA and ATNS's prices has prevented the abuse of market power arising from their dominance in the market and, thereby, prevented monopolistic rents. Despite this, the existing work on administered prices has highlighted several shortcomings and concerns previously identified in the process used to determine administered prices in the aviation industry, including:

- Concerns related to the basis for assumptions used in the regulatory methodology.
- Unhappiness with the price caps determined by the Regulating Committee.
- Concerns with regulatory independence.
- Weaknesses in implementation, stemming from a lack of skills and resources within the Regulating Committee.



## **Ports**

A variety of prices related to port calls and services can be regarded as administered within the ports sub-sector. These include prices for:

- Container handling.
- Berthing.
- Cargo dues.
- Running of ships lines.
- Wharfage charges.

Prior to 2005, no formal regulatory body existed within the ports sector. Transnet would set its own prices, which were then approved by the Transnet Board and shareholder, the Minister of Public Enterprises, both of whom evaluated the tariffs in the context of the overall profitability of Transnet. Thereafter, the Ports Regulator of South Africa was established under the provisions of the National Ports Act, 2005. The Ports Regulator has the authority to approve tariffs set by the NPA but has no power to set prices for services provided by the NPA. In turn, the authority of the NPA does not extend to the regulation or approval of tariffs charged by concessionaires or licensees.

Several shortcomings in the price determination process in the ports sub-sector in the past have been noted in previous studies, including:

- The absence of an appropriate regulatory framework.
- Low levels of efficiency and high pricing resulting from a lack of appropriate institutional arrangements.
- The basis on which tariff adjustments have been made has not been substantiated to users.
- It has been possible for the prices of certain services in the ports sector to be raised aggressively by suppliers in cases when they have held a monopoly in the sector.
- Cross-subsidies increase prices for port services above optimal levels and, ultimately, result in the supply of fewer ports services.
- A lack of clarity in the National Ports Act with respect to the conditions upon which the regulator can approve or disapprove of the NPA's tariffs.

Furthermore, it has been argued that high port costs, which stem from both charges and delays, have undermined South Africa's trade competitiveness. Moreover, it has also been argued that exporters, as well as importers, have been affected by the principle of cross-subsidisation within the ports sector. More broadly, it has been noted that the absence of appropriate, formal regulatory controls in the port sub-sector has had a negative effect on the South African economy by promulgating inefficient pricing.

In the past, several reforms to the price determination process in the ports sector have been recommended, including:

- More transparency in the price determination process, particularly regarding cross-subsidies and government-sanctioned targets.
- The elimination of cross-subsidisation between the NPA and other Transnet units.

## **Rail**

The following broad categories of prices are administered within the rail sub-sector:

- Prices for commuter rail services.
- Rail freight tariffs.

The framework and processes underpinning price setting in the rail sub-sector have evolved considerably in the past two decades. Between 1999 and 2003 a period of "exclusive concessioning" saw Metrorail sign an agreement with the South African Rail Commuter Corporation (SARCC) to use a price cap type formula for setting fares. Following the concession period, Metrorail and the SARCC operated under an interim arrangement consisting of a concise memorandum of understanding while a new agreement was being negotiated. During this post-2003 transition period prices were largely set by Metrorail, subject to approval by the SARCC.

Currently, in the absence of an independent regulator in the rail sub-sector, the determination of rail charges is largely entrusted to Transnet. Transnet has moved away from a consideration of customer demand characteristics in favour of centralised price-setting procedures, based more rigorously on cost estimates. This has taken the form of fully distributed cost (FDC) pricing. The FDC methodology entails assigning fixed costs to given services and sets prices as a mark-up on these costs, regardless of the price sensitivity of consumers.

A number of shortcomings have been noted in the past related to the processes in place to determine administered prices in the rail sub-sector, including:

- Inefficiencies within Metrorail were simply perpetuated in the exclusive concession agreement.
- The price setting process during the concessioning period was more input driven than output oriented.
- The absence of an independent economic regulator in the sector or effective competition.
- The limited and constrained role of the Department of Public Enterprises (DPE) in the process of determining prices in the rail freight industry, stemming from information asymmetries between the DPE and Spoornet.
- A lack of consideration for differences in consumer demand characteristics in the FDC methodology.
- The impact of cross-subsidies from the ports to rail sub-sector in removing the profit motive as discipline on Spoornet management and decreasing technical efficiency incentives.

## **Administered Prices in the Water Sector**

A key feature of the water sector in South Africa is the absence of an independent regulator. Nevertheless, several prices are administered within the water sector, including the following:

- Water resource management charges.
- Raw water tariffs (water resource development charges).
- Bulk water and wastewater tariffs.
- Retail water tariffs and sanitation charges.
- Waste discharge charges.

Tariffs and charges are regulated at many different levels across the water supply chain in South Africa, with this regulation undertaken by a variety of authorities. Tariff setting and regulation is the institutional responsibility of different water “producers”.

Despite the absence of an independent regulator in the water sector, it has been argued that there remains a clear understanding in the sector regarding the tariff setting process. Furthermore, South Africa's water prices "compare reasonably well" with those in both developed and developing countries.

Despite this, several shortcomings have been identified with respect to the process used to determine administered prices in the water sector, including:

- In numerous instances, the same institution both sets the water tariff level and regulates it.
- The regulatory incentives for efficient prices are weak at all levels of the activity chain.
- Similarly, there are no incentives to cut costs or improve efficiency.
- Bulk tariffs are set inconsistently and with a lack of transparency.
- There are no guidelines to follow for issues such as allowed costs and the rate of return.
- Water services tariffs have not been at the level necessary to facilitate full infrastructure maintenance.
- There is evidence that water charges vary widely in the country and do not reflect underlying costs.
- Systematic regulation provides different actors with the freedom to promote their own interests.
- There is no formal regulation or monitoring of municipal tariffs.

## **Conclusion**

A number of the studies that have formed the basis for this report are dated and, as a result, do not necessarily reflect the current reality in the respective sectors. While clearly a limitation, the fact that much of the existing research work on administered prices in the energy, telecommunications, transport and water sectors is now dated provides a clear picture as to what should form the basis of the TIC's work programme going forward. In this respect, it is clear that there is an urgent need to develop a new and comprehensive research agenda on administered prices in South Africa. In particular, there is a need to focus attention on new research into the current regulatory frameworks and processes underpinning the determination of administered prices.

The research study shows that approaches to the administration of prices vary considerably across the four sectors, particularly with respect to the presence of independent regulation. At the same time, the study highlights concerns related to limitations in the mandates, power and capacity of regulators to exert

effective control over prices and promote efficiency. This has related primarily to a lack of in-house technical skills and capacity, insufficient resources and insufficient powers to extract essential cost and performance data. Furthermore, in certain cases gaps in the availability of cost data have influenced the pricing methodologies that are applied in the process of administering prices.

Taken together, the presence of these issues has prompted some studies to conclude that administered pricing in South Africa is “not working well”. In particular, it has been argued that it is unlikely that these prices will be reflective of efficient costs.

## **Recommendations**

Based on the findings presented in this study, the following recommendations should be considered to guide the future work of the TIC task team:

- Commission new, up-to-date studies on the regulatory frameworks and processes underpinning the determination of administered prices.
- Focus greater attention on the economic impacts of administered pricing decisions.
- Assess the effectiveness of administered pricing in terms of its contribution to national objectives.
- Improve the capacity and resources of independent regulators.
- Undertake benchmarking analyses.
- Give greater attention to alternative approaches for administering prices.

# Table of Contents

List of Acronyms .....	2
CHAPTER 1: Introduction.....	4
CHAPTER 2: Methodology .....	8
2.1 Scope and limitations .....	10
CHAPTER 3: Defining Administered Prices in the South African Context .....	11
CHAPTER 4: Administered Prices in the Energy Sector .....	14
4.1 Electricity .....	16
4.2 Petroleum .....	32
4.3 Conclusion .....	40
CHAPTER 5: Administered Prices in the Telecommunications Sector .....	43
CHAPTER 6: Administered Prices in the Transport Sector .....	64
6.1 Aviation .....	67
6.2 Ports.....	75
6.3 Rail.....	86
6.4 Conclusion .....	93
CHAPTER 7: Administered Prices in the Water Sector .....	95
CHAPTER 8: Conclusion.....	105
CHAPTER 9: Recommendations.....	108
References .....	112

# List of Acronyms

AASA	Airlines Association of South Africa
ACSA	Airports Company of South Africa
AMEU	Association of Municipal Electricity Undertakings
ASGI-SA	Accelerated and Shared Growth Initiative for South Africa
ATNS	Air Traffic and Navigation Service Company
BARSA	Board of Airline Representative of South Africa
BFP	Basic Fuel Price
CECA	Capital Carry Over
CMAs	Catchment Management Agencies
CMP	Constrained Market Pricing
COA/CAM	Charter of Accountants and Cost Allocation Manual
CPI	Consumer Price Index
DOC	Department Of Communications
DPE	Department of Public Enterprises
DWAF	Department of Water Affairs and Forestry
EEDSM	Energy Efficiency Demand Side Management
EPP	Electricity Pricing Policy
ESI	Electricity Supply Industry
FBE	Free Base Electricity
FDC	Fully Distributed Cost
FOB	Free On Board
FRIDGE	Fund for Research into Industrial Development and Equity
GFB	General Freight Business
HSRC	Human Sciences Research Council
IATA	International Airline Trade Association
IBLC	In Bond Landed Cost
ICASA	Independent Communications Authority of South Africa
IPP	Independent Power Producer
IRP	Integrated Resource Plan

LRIC	Long-Run Incremental Costs
MOU	Memorandum of Understanding
MYPD	Multi-Year Price Determination Process
NEDLAC	National Economic Development and Labour Council
NER	National Electricity Regulator
NERSA	National Energy Regulator of South Africa
NPCC	National Port Consultative Committee
OECD	Organization for Economic Cooperation and Development
PMFA	Public Finance Management Act
PPI	Producer Price Index
PPP	Private Public Partnerships
RATPLAN	Retail Rationalisation Plan
RCA	Regulatory Clearing Account
RED	Regional Electricity Distributors
ROCE	Return on Capital Employed
ROR	Rate of Return
SALGA	South African Local Government Association
SAPIA	South African Petroleum Industry Association
SAPO	South African Port Operations
SARCC	South African Rail Commuter Corporation
SATS	South African Transport Services
SOE	State Owned Enterprise
TIC	Trade and Industry Chamber
UK	United Kingdom
WACC	Weighted Average Cost of Capital
WASP	Wireless Application Service Providers
WEPS	Wholesale Electricity Pricing System
WSA	Water Service Authority
WB	Water Board
WSP	Waster Service Providers



# **CHAPTER 1: Introduction**

Backbone infrastructure services in the energy, telecommunications, transport and water sectors serve as intermediate inputs in a wide variety of economic activities in South Africa and, as a result, exert a significant influence on the country's economic competitiveness. Given this importance, it is unsurprising that the government and its constituent agencies play an influential role in these sectors, "both as owner of the entities that provide these services and as regulator."<sup>1</sup>

There is strong theoretical justification in favour of economic regulation in these network industries. This is underpinned by the fact that backbone infrastructure sectors such as energy, telecommunications and transport rely on a grid network that "cannot be duplicated in an economically viable manner".<sup>2</sup> As a result, these sectors tend to exhibit the tendencies of natural monopolies and are susceptible to the inevitable market failures associated with the negative impact of monopoly pricing. Consequently, economic regulation in these sectors is widely regarded as necessary in order to prevent market failures in the absence of effective market forces; and, ultimately, to achieve optimal social welfare.

More broadly, economic regulation in sectors such as electricity, telecommunications, transport and water is seen as important in order to ensure that essential infrastructure services are provided effectively to South Africans. This involves ensuring that the necessary investment is made in these sectors, that these infrastructure services are widely available and accessible, and that these services do "not undermine the international competitiveness of the broader economy that makes use of these services."<sup>3</sup> In this way, economic regulation is designed to play an important role in balancing the interests of both firms and consumers.<sup>4</sup>

This research study is focused on one aspect of economic regulation: price regulation. In economic theory, price regulation is used in network industries in the absence of effective competition in order to "constrain the market power of the limited entrants by imposing the cost-based discipline that would usually be provided by competing firms."<sup>5</sup> More specifically, the study is focused on administered pricing, wherein prices are set via a regulated framework in settings where the market alone would not have ensured an efficient outcome. The study has been commissioned with a view to forming the basis for the work of the Trade and Industry Chamber (TIC) task team of the National Economic Development and Labour Council (NEDLAC), which has been convened to identify the factors driving administered prices in South Africa and understand the economic implications of administered pricing decisions in the country.

The research study presents a review of all existing studies related to the drivers of administered prices on the sectors in which prices are set within a regulatory framework in South Africa. To this end, the study reviews all available studies on administered prices in the energy, telecommunications, transport and water sectors. In each case, the focus is on the guiding principles, frameworks and processes involved in determining administered prices in the four sectors.

Administered prices play a major role in the South African economy. Close to one-fifth of prices in the country's consumer price index (CPI) basket are administered;<sup>6</sup> meaning that the evolution of administered prices has significant implications for the rate of inflation in the economy. Recent trends have seen an overall rise in administered prices in South Africa.<sup>7</sup> Much of this has occurred on the back of substantial increases in electricity tariffs, which have represented an important cost-push driver of rising administered prices.<sup>8</sup> In addition, water tariffs have also risen at above-inflation rates. This, in turn, has placed upward pressure on the country's CPI, with the result that administered prices are coming under growing scrutiny.<sup>9</sup>

In broad terms, the energy, telecommunications, transport and water sectors, in which prices are administered, share two common characteristics. First, they exert significant influence on the achievement of the national government's policy priorities with respect to economic and social development.<sup>10</sup> Moreover, the nature of these sectors is such that in the absence of economic regulation "market failure is likely to lead to price and service outcomes that will not fully support the promotion of these key policy objectives unless there is government intervention."<sup>11</sup>

Despite these commonalities, the sectors are individually distinct and boast unique operating characteristics. Moreover, the overall institutional framework and processes involved in the determination or regulation of prices in these sectors are more or less unique.<sup>12</sup> Consequently, each of the four sectors is dealt with individually in the research study.

The remainder of the report is structured as follows. The next chapter outlines the methodological approach adopted in undertaking the review of existing studies on administered prices in the energy, telecommunications, transport and water sectors. Chapter 3 introduces a definition of administered prices that is appropriate within the South African context. Thereafter, Chapters 4, 5, 6 and 7 present the

outcomes of detailed reviews of the relevant studies in each of the energy, telecommunications, transport and water sectors, respectively. Chapter 8 concludes, drawing together the information from each of the sectors to discuss the key drivers of administered prices and the economic implications of the existing approaches and regulatory frameworks used to determine these prices in the country. Finally, Chapter 9 presents a series of recommendations designed to shape the agenda of the future work of the TIC task team on administered prices in South Africa.

## **CHAPTER 2: Methodology**

The methodological approach adopted in this study to review existing studies related to the drivers of administered prices in the South African economy focused exclusively on desktop research. The comprehensive desktop research process comprised a number of distinct stages. First, a thorough process was undertaken to identify and locate of all existing studies on the drivers of administered prices in the sectors in which prices are set within a regulatory framework in South Africa (encompassing the energy, telecommunications, transport and water sectors). A list of these studies was then compiled and sent to the Fund for Research into Industrial Development and Equity (FRIDGE) CPG members for input. Thereafter, the list of studies to be reviewed during the course of the research process was finalised.

Second, the definitions of administered prices provided in each of the studies were reviewed in order to develop an appropriate definition of an administered price based on what is accepted in the majority of the studies under review. The developed definition was then forwarded to the FRIDGE CPG members for input. In this case, after some debate, it was decided to utilise the original definition of an administered price provided in the Terms of Reference (see Chapter 3) to guide the review of existing studies. Using this definition, in the third stage, relevant prices that are currently administered in each of the energy, telecommunications, transport and water sectors were identified.

Fourth, a comprehensive review of each of the existing studies located in the first stage was conducted. This review was undertaken in order to achieve the following:

- Identify guiding principles, processes and frameworks currently underpinning the determination of administered prices in the energy, telecommunications, transport and water sectors.
- Identify evidence of shortcomings and benefits in the process of determining administered prices in each of these sectors.
- Identify recommendations from previous studies to improve the process of determining administered prices in the respective sectors.
- Describe alternative approaches for determining administered prices in the respective sectors.
- Outline the impacts of administered prices in the respective sectors on key social and economic variables.

The final stage of the desktop research process involved an identification of gaps in the existing studies. This was undertaken with a view to recommending areas where additional information is required in terms of the drivers of administered prices in the respective sectors.

## **2.1 Scope and limitations**

The study is focused exclusively on reviewing the existing studies identified through the initial research process on the sectors in which prices are set within a regulatory framework. In essence, this means that the findings reported here stem exclusively from what is contained in these existing studies. One important implication of this restriction is that in some cases the studies are somewhat dated and do not necessarily reflect the current regulatory process for determining administered prices in the relevant sector. As a result, readers should be mindful of the following:

- In certain cases, the studies reviewed in this report have focused on regulatory frameworks and processes for determining administered prices that have since **evolved or been replaced by alternative systems and processes**.
- The discussions on the benefits and shortcomings of specific approaches to price administration presented in these studies **may not be relevant to the current reality** in the sector in question.
- The proposals and recommendations made in the studies reviewed in the report in terms of alternative approaches to the processes of determining administered prices may, in certain instances, **already have been adopted, or be no longer relevant** based on what has taken place in the sector in the intervening years.

With these limitations in mind, readers must take caution before interpreting findings as relevant to the current circumstances in each of the sectors under review.

**CHAPTER 3:  
Defining Administered Prices in the South  
African Context**



The Terms of Reference for this study defines administered prices as follows:

*“Administered prices are prices set via a regulated framework where the market alone would not have ensured an efficient outcome.”*

Throughout this report, the definition outlined above will be used to guide the review of existing studies related to the drivers of administered prices on the sectors in which prices are set within a regulatory framework in South Africa. In particular, this definition will form the basis for the identification of relevant prices that are administered within the energy, telecommunications, transport and water sectors in South Africa.

It is important to note, however, that based on a thorough review of the definitions of administered prices provided across the range of existing studies reviewed during the course of the research process, Mthente did develop the following alternative definition that is more wide-ranging in scope in comparison to the definition provided in the Terms of Reference:

*“An administered price is a fixed price for a good or service that is determined either directly or indirectly by government or government agencies through an administered decision without reference to market forces. An administered price does not vary in the short-run in response to changes in supply and demand conditions and is introduced in order to steer the price towards an efficient level when market failures prevent effective competition in a particular industry or sector.”*

This alternative definition was circulated to all FRIDGE CPG members for feedback and comment. In response, representatives of the business constituency proposed the following definition that was preferred by that constituency over the alternative definition developed by Mthente:

*“An administered price is a fixed price for a good or service that is determined either directly or indirectly by government or government agencies through an administered decision.”*

It was argued by the business constituency that the definition above was preferred in order “to ensure that it does not preclude investigation into things such as fuel prices and even electricity prices, where incorrect pricing had nothing to do with market failure.”

Ultimately, however, it was decided that the definition agreed upon by the TIC task team who requested this study (as outlined in the Terms of Reference) should remain as the reference point for the study. In turn, Mthente was requested to simply explore the different aspects of this definition and its implications as part of the study.

## **CHAPTER 4: Administered Prices in the Energy Sector**

For the purposes of an analysis of regulation in the energy sector, the sector can be divided into three distinct sub-sectors: electricity, petroleum and piped gas. The entire energy sector is overseen by the Department of Energy, while the Department of Public Enterprises (DPE) plays a role in the sector through its shareholder compacts with Eskom and Transnet.<sup>13</sup> The latter are implemented in instances when the state is the majority shareholder (as is the case of Eskom in the electricity sector), and are designed to encourage efficiency by setting specific targets for state-owned enterprises (SOEs).<sup>14</sup>

Economic regulation in each of these sub-sectors falls within the auspices of the National Energy Regulator of South Africa (NERSA), which was previously known as the National Electricity Regulator (NER). Established in 2005, NERSA performs the role of implementing a comprehensive regulatory regime across the electricity, piped gas and petroleum sectors.<sup>15</sup>

The existing structure of the energy sector means that price regulation across all three sub-sectors is important in order to constrain the market power of the incumbents. However, despite the presence of a common regulator, the nature of the processes and regulatory frameworks governing the regulation of prices in each of these sub-sectors are unique.

To date, the literature covering administered prices in the energy sector in South Africa has focused on the electricity and petroleum industries. Indeed, the studies identified for review in this research study focus, almost exclusively, on these two sub-sectors; each of which is discussed separately below.

## 4.1 Electricity

In broad terms, the South African electricity industry is comprised of three main components: generation, transmission and distribution. The industry is punctuated by the dominance of Eskom, a SOE under the jurisdiction of the DPE. According to Hodge *et al.* (2008) Eskom generates as much as 96 percent of the country's electricity, with the balance generated by municipalities, Independent Power Producers (IPPs) and private companies.<sup>16</sup> Eskom is also the monopoly supplier of electricity transmission services; while distributing approximately 60 percent of the country's electricity output to end-users. Municipalities undertake the balance of electricity distribution in South Africa, although "these distribution areas are generally carved out as geographic monopolies".<sup>17</sup>

In the past decade, extensive efforts have been made to restructure the electricity industry in the country. For instance, in 2001 the national government took the decision to separate electricity distribution from Eskom and municipalities and to merge this function into six regional electricity distributors (REDs) that would be wholly owned by municipalities.<sup>18</sup> In practice, however, the process of establishing the six REDs has been fraught with difficulties and has taken significantly longer than initially anticipated. At the same time, plans to unbundle generation, transmission and distribution and introduce private ownership of all new electricity generation capacity have been aborted.<sup>19</sup>

Writing in 2005, Mayer and Onyango (2005) argued that the restructuring of the industry has posed "formidable challenges" for regulation.<sup>20</sup> At the same time, the need for effective economic regulation in the industry has remained. In the view of Hodge *et al.* (2008) several characteristics of the electricity industry mean that it requires comprehensive economic regulation in order "to ensure efficient market operation across all components of the supply chain."<sup>21</sup> First, Eskom's market power "at every stage of the electricity supply chain" means that price regulation is necessary in order to ensure allocative efficiency.<sup>22</sup> Second, Hodge *et al.* (2008) argue that "price regulation is appropriate for municipalities involved in electricity distribution, who have in essence monopolised a given geographical supply area."<sup>23</sup> Third, in the context of the public ownership of Eskom, it is argued that a degree of price regulation (and entry regulation) is necessary in order to ensure that private sector competitors are treated fairly and that the necessary level of private investment is secured.<sup>24</sup>

NERSA plays an important role in the process of economic regulation of the electricity industry. With respect to market entry and licensing, NERSA issues licenses for the generation, transmission and distribution of electricity, the import and export of electricity, and for traders in electricity.<sup>25</sup> In turn, NERSA is empowered to regulate prices and tariffs in the industry. In addition, NERSA has mediation and adjudicatory powers within the electricity industry.

#### **4.1.1 Historical context of electricity pricing in South Africa**

Historically, low electricity prices have been a feature of the energy sector in South Africa. According to Steyn (2003) much of this has stemmed from the utility model underpinning Eskom's financial structure, which has shifted a significant share of the financial risk onto its customer base; as well as the reality that Eskom has benefited from substantial financial subsidies.<sup>26</sup> This has meant that "Eskom's financial cost of capital has always been lower than the full economic opportunity cost"; and this, coupled with the capital-intensive nature of the electricity supply industry, has enabled Eskom to charge lower prices than would otherwise have been possible.<sup>27</sup>

In recent decades, the low cost of electricity in South Africa has been a source of competitive strength for the economy.<sup>28</sup> This had, however, followed a period of high electricity prices that was largely a consequence of Eskom's over-investment in infrastructure in the 1980s. Indeed, Eskom's extensive investment programme during that period had significant implications for pricing structures in the industry, with Eskom establishing high price levels – which were maintained throughout the 1980s – in order to service the debt incurred through its investment programme. In effect, as a result of this over-investment, electricity prices were determined at the time "on the basis of an amortised asset base."<sup>29</sup>

By the late 1980s and early 1990s, Eskom came under severe political pressure to reduce electricity prices. In response to this pressure, Eskom set about reducing its debt levels and managed to drive down the electricity price through a pricing compact which was designed to allow average prices to gradually decline in real terms alongside a decline in its real debt levels.

Within this context, prior to the establishment of NERSA in 2005, the role of its predecessor (the NER) in pricing in the electricity sector had been largely "uncontroversial", owing to the fact that "Eskom's average

price levels were declining in real terms.”<sup>30</sup> This meant that the NER’s review of Eskom’s annual price adjustment application was largely a “formality”.<sup>31</sup>

At the same time, the role of the NER in the regulation of municipal prices over that period was also seen as limited.<sup>32</sup> Indeed, according to Mayer and Onyango (2005), the NER’s role in regulating municipal electricity prices was “confined to rationalizing tariff structures and reducing the disparities in price levels across local authorities.”<sup>33</sup> In their view, the limited role played by the NER was primarily a consequence of the twin effects of limited resources at their disposal and the large number of local authorities at the time.<sup>34</sup>

#### **4.1.2 Identifying administered prices in the electricity industry**

Based on the definition of an administered price as one which is set via a regulated framework where the market alone would not have ensured an efficient outcome, the following electricity prices are considered to be administered for the purposes of this study:

- Municipal tariffs.
- Wholesale electricity prices.
- Retail prices for end-users.

#### **4.1.3 Factors driving administered prices in the electricity industry**

Electricity pricing structures in South Africa are influenced by a complex mix of financial, economic, institutional and political factors. Writing in 2003, Steyn (2003) highlighted a number of general factors that underpin the administration of electricity prices in the country. According to Steyn (2003), Eskom’s past investment behaviour has a significant impact on the trajectory of electricity prices in that Eskom’s investments have an impact on its debt levels (gearing) and, in turn, prices need to be set at levels that enable Eskom to service and amortise this debt.<sup>35</sup> In this respect, Eskom’s over-investment in generation capacity (introduced above) has, in the past, placed upward pressure on electricity prices “as the cost of its total capacity has to be carried by the electricity sales from the capacity that is actually used.” Similarly, Eskom’s past pricing practices and financial policies have a bearing on electricity prices inasmuch as they influence Eskom’s financial position at the time in which prices are to be determined. According to Steyn (2003), these factors have a bearing on the electricity price that is set during the annual ten-month long price review cycle (see the section on guiding principles, processes and frameworks underpinning the

determination of administered prices in the electricity industry for further details on the price review cycle itself).

The broader environment in which electricity prices are determined in South Africa is also punctuated by a number of institutional and political pricing influences. For instance, according to Steyn (2003), the Minister of Public Enterprises, who is the designated state representative on Eskom's shareholding, has in the past had "an important direct influence on Eskom's pricing decisions."<sup>36</sup>

More broadly, social objectives have a significant influence on administered prices in the electricity industry. Foremost among these is the need to ensure access to electrification for the South African population.<sup>37</sup> In the case of Eskom, these social objectives "affect prices to the extent that such services have to be subsidised from internal cash flows."<sup>38</sup>

Lastly, electricity prices may be indirectly influenced by consumer groups that "lobby or exert political pressure" on key role players in the determination of electricity prices.<sup>39</sup> The most prominent of these consumer groups are organised local government – represented both by the South African Local Government Association (SALGA) and the Association of Municipal Electricity Undertakings (AMEU) – and large industrial users of electricity.

#### **4.1.4 Guiding principles, processes and frameworks underpinning the determination of administered prices in the electricity industry**

The regulatory framework for electricity prices in South Africa is "well established" and includes an independent regulator with "appropriate powers" in the form of NERSA.<sup>40</sup> In terms of electricity pricing, NERSA's mandate extends to the determination of tariff guidelines and structures, the determination of tariff methodologies, and the evaluation and approval of electricity tariffs in line with the established guidelines and methodology.<sup>41</sup>

The methodological framework underpinning the determination of electricity prices has evolved in the last decade. This saw NERSA move from a Rate of Return (ROR) methodology to a Multi-Year Price Determination Process (MYPD) in 2006. According to Hodge *et al.* (2008), NERSA's current methodology



is a focused on a “cost-based rate of return approach” to the determination of electricity tariffs.<sup>42</sup> Each of the approaches is discussed in turn below.

### **The framework, process and principles underpinning the determination of electricity tariffs up until 2005**

Writing in 2003, both Steyn (2003) and Storer and Teljeur (2003) outline the guiding principles, framework and processes underpinning the determination of electricity prices at that point in time. At that stage, the determination of electricity prices centred on a five-step process. First, Eskom would review its costs of generation and distribution as well as its profitability in terms of its return on capital employed. This review formed the basis from which Eskom would develop a price application. Eskom would then submit this price application to the NER (the regulator that preceded NERSA) for review in July of each year. Upon receipt of the application, the NER would employ a ROR methodology in order to determine whether or not Eskom’s price application was fair, based on Eskom’s costs of generation and distribution and its profitability. This process would focus on assessing whether the price proposed by Eskom represented a prudent reflection of the costs incurred in the production of electricity; and whether or not the proposed price generated a fair rate of return on the capital employed in the electricity production process.

The introduction of the ROR methodology was borne out of the NER’s recognition that there was a need for an established methodology to frame the regulation of Eskom’s price levels. The ROR methodology set prices at a level which would enable Eskom “to recover all the expenditure that has been prudently incurred with the production and supply of electricity, plus a fair rate of return on its productive electricity supply assets.”<sup>43</sup> More specifically, the ROR methodology calculated Eskom’s required revenue on the basis of a complex calculation that included the nominal value of property, plant and equipment, accumulated depreciation, the net book value of assets, working capital, the rate of return and operating expenses.

Based on the results of the application of the ROR methodology, Eskom and the NER would then negotiate salient issues concerning the proposed price structure until a pricing agreement could be reached. Once the new price level was approved by the NER board, it would become effective on the 1<sup>st</sup> of January each year.

Steyn (2003) explains that tariff adjustments form an important element of the price determination process. Once Eskom has factored its costs and returns into account, it sets an Announced Price. This differs from the Effective Price, which takes into account fixed and variable cost components. According to Steyn (2003), because tariffs have fixed and variable components, “variations in overall sales volumes from the levels assumed, or relative volume changes between customer groups, could result in an effective price increase outcome that differs from the announced level.”<sup>44</sup> Consequently, the process of tariff adjustment as part of the price review cycle has an influence on the effective price, with the NER and Eskom taking into account indices such as the Consumer Price Index (CPI) and Producer Price Index (PPI) when comparing price levels.

In the process of tariff adjustment, Steyn (2003) explains that the NER did not just approve average price levels (which are essential for cost recovery), but also tariff structures for customer groups. The distinction between tariff and price structures represents a critical aspect of electricity pricing and determines the balance between the cost reflectivity of prices (efficiency signals), the affordability of prices to the poor and rural consumers (including commercial farming), and transfers from higher consuming households, commerce and industry in the form of subsidies.

Indeed, the issue of cross-subsidisation is an important guiding principle in Eskom’s pricing policy. Steyn (2003) explains that different forms of cross-subsidisation occur at different levels in the pricing process. First, inter-tariff cross-subsidisation occurs when one tariff class subsidises another – such as industrial consumers subsidising rural, electrification and domestic consumers.<sup>45</sup> In contrast, intra-tariff subsidisation takes place when certain customers within a particular class subsidise other customers within that same class as a result of “pricing *structures* that do not affect the underlying cost structures.”<sup>46</sup> In turn, geographic cross-subsidies occur when supply costs are incorrectly allocated to customers in different geographical locations in the country. In this case, Steyn (2003) explains that cross-subsidisation occurs from low cost areas, which are typically located close to electricity generation resources, to high cost areas.<sup>47</sup>

Cross-subsidies and pricing efficiency represents a critical element of the effective functioning of the electricity pricing system in South Africa. However, in Steyn’s (2003) view, while cross-subsidisation is important in ensuring equity, “it has to be weighed up against the extra costs imposed on the system as a result of the inefficiencies resulting from incorrect price signals.”<sup>48</sup>

## **The framework, process and principles underpinning the determination of electricity tariffs from 2006 onwards**

By 2006, the ROR methodology (outlined above) was no longer used as the basis for the determination of annual electricity prices in South Africa. Instead, it was decided that Eskom's annual price adjustment would be determined through the MYPD, with this process to be led by NERSA. According to NERSA, the move to the MYPD methodology was due to the presence of a lack of incentives to improve efficiency and the potential for excess returns through underestimates of demand growth.

NERSA introduced the first MYPD methodology for determining Eskom's tariffs in February 2006. According to NERSA, the MYPD approach was introduced with a view to ensuring that the electricity industry in South Africa was regulated in a way that met the government's objectives of having the lowest prices consistent with Eskom being able to finance its business. This essentially meant that the MYPD methodology was designed to ensure that each of Eskom's businesses would be given "efficient expenditure, compensated for the cost of providing services to the customers".<sup>49</sup> More specifically, the objectives of the MYPD included:<sup>50</sup>

- To ensure Eskom's sustainability as a business and limit the risk of excess or inadequate returns, while providing incentives for new investment, especially in generation.
- To ensure reasonable tariff stability and smoothed changes over time consistent with the socio-economic objectives of the government.
- To appropriately allocate commercial risk between Eskom and its customers.
- To provide efficiency incentives without leading to unintended consequences of regulation on performance.
- To provide a systematic basis for revenue/tariff setting.
- To ensure consistency between price control periods.

According to NERSA, the process underpinning the MYPD framework requires that Eskom determine its tariffs with a view to meeting the levels of allowed revenue and percentage price increases with or without electricity distribution industry restructuring costs over the designated period of three years. The MYPD methodology involves a series of formulae for calculating the allowed revenue in each of Eskom's three business units: generation, transmission and distribution. The value of Eskom's allowable revenue is

calculated based on a number of elements. These include the cost of sales, operating expenditure and appreciation, return on the regulatory asset base, service incentives, ex-post risk management adjustments, and a correction factor to claw-back or return over or under recovery of revenue.

More broadly, according to NERSA, the MYPD incorporates some aspects of the ROR methodology together with incentive-based principles that involve the introduction of transmission and distribution service incentive schemes (using service quality indices) and energy efficiency demand side management (EEDSM) schemes.<sup>51</sup> In this respect, the country's Electricity Pricing Policy (EPP) stipulates that the tariffs are supposed to provide for, or prescribe, incentives for continued improvement of the technical and economic efficiency with which services are to be provided.

In contrast to the ROR methodology, however, the MYPD is applied over a three-year control period whereby a certain price takes effect over that period and previously approved tariff increases can be implemented in the control period. Opportunity is provided within the process to renegotiate tariffs. Specifically, the process of determining tariffs can be re-opened if certain control parameters – such as the balance in the regulatory clearing account (RCA) or target earnings – are exceeded.<sup>52</sup>

In practice, the MYPD process was first used to determine Eskom's electricity prices for the period between 1 April 2006 and 31 March 2009 (and known as MYPD 1). However, in 2007 Eskom requested changes to the rules underpinning the MYPD price determination process in order to reduce their revenue risk exposure. Eskom cited variances between the forecast costs in the MYPD plans and the actual costs as the motivation for requesting these changes. In practical terms, Eskom's request for changes was focused on the primary energy cost variances, the variances on capital expenditure and the rules on a trigger for re-opening the price determination process.<sup>53</sup> At the time, Eskom requested that the price increase be changed from 14.2 percent to 60 percent.<sup>54</sup>

The price increase awarded to Eskom did not match the requested increase of 60 percent. Instead, Eskom was awarded two price increases amounting to a 27.5 percent for 2008/2009 (reflecting a price increase of 13.3 percent in addition to the already approved 14.2 percent). According to NERSA, the 27.5 percent average became the average year-on-year increase for MYPD 1.<sup>55</sup>

The second MYPD (MYPD 2) covers the period 2010/2011-2012/2013. Several rule changes related to the MYPD 2 methodology were requested by Eskom and approved by NERSA in January 2009 following stakeholder consultations and a public hearing. In this respect, specific rules for MYPD 2 include the following:<sup>56</sup>

- Pass through of certain variances are included in the risk adjustment mechanism.
- Pass through of primary energy cost will be allowed subject to certain rules.
- All risk management variances will be recorded in the RCA, including the correction factor.
- RCA balances below 2 percent of allowed revenue are carried over to the following year. In cases between 2 percent and 10 percent it is allowed as a pass-through in the next financial year. Withdrawals from balances greater than 10 percent will be decided by the Regulator following consultation.
- Prudently incurred over or under expenditure on capital projects will be recorded in a capital expenditure carry over (CECA) account and a pass through allowed in the third year if the amount is material. At the end of the control period the RAB is adjusted upward or downward for variances.
- The “RCA will serve as a control mechanism to trigger a review or re-opening of the determination to allow the Regulator to review the impact of large adjustments to allowed revenues on tariffs.” Moreover, the determination will be re-opened when actual earnings exceed a band of weighted average cost of capital (WACC) of approximately 1 percent.

In September 2009, Eskom sent NERSA a Revenue Application requesting an average annual price increase of 45 percent per annum over the MYPD 2 control period. This was later revised to 35 percent following comments from the National Treasury and SALGA.<sup>57</sup>

#### **4.1.5 Deviations from guiding principles in the process of setting administered prices in the electricity industry**

While the NER was in operation it did not use the same ROR costing methodology for municipal distributors. Writing in 2003, Steyn (2003) argued that a major concern for municipal distributors was the fact that Eskom’s wholesale prices charged to municipal distributors were “generally substantially higher than Eskom’s tariffs to its own regional distributors.”<sup>58</sup> This essentially amounted to a lack of consistency in the application of tariffs, which could, ultimately, have affected either the cost of distribution or the end-user electricity prices. According to Steyn (2003), the NER responded to these concerns by developing a

Wholesale Electricity Pricing System (WEPS) “to equalize the playing field with respect to wholesale tariffs”.<sup>59</sup> However, Steyn (2003) reported in 2003 that, following a trial period 18 months prior to that, the process had stalled and the NER had been unable to proceed with the implementation of the WEPS. The stumbling block appeared to revolve around the fact that the WEPS would reflect costs more closely and it was feared that some electricity consumers could end up paying more for electricity while others could potentially pay less.<sup>60</sup>

#### **4.1.6 Benefits and shortcomings in the process used to determine administered prices in the electricity industry**

One acknowledged benefit of the cross-subsidisation principle that underpins the electricity pricing process is that it promotes equality. Indeed, the cross-subsidisation from intensive electricity users to subsidise low energy users promotes some measure of equality in the price structure and affords the poor a measure of price protection. In this way, the process contributes towards the stated objective of ensuring access to electrification for the South African population.

Despite this, the literature on administered prices in the electricity industry has focused primarily on highlighting shortcomings in the processes used to determine electricity prices. For instance, in the past, the lack of capacity of the NER (the predecessor to NERSA) to investigate the basis for price increases proposed by Eskom has been highlighted as a shortcoming of the administered pricing process.<sup>61</sup> In providing evidence of this lack of capacity, Storer and Teljeur (2003) wrote in 2003 that, up to that point, the NER had “not conducted an independent review of Eskom’s cost items or of the asset valuation used to determine these indicators.”<sup>62</sup> In this respect, the lack of capacity within the NER related primarily to the presence of significant human resource constraints, which meant that the NER was unable to produce indicators independently. As a result, the indicators used to determine the electricity price had been derived from untested data supplied by Eskom.<sup>63</sup> This served to hinder the NER’s assessment of Eskom’s price increase application, a process that relied on the approach of assessing the impact of Eskom’s historic cost rate-or-return on nominal price levels relative to inflation.<sup>64</sup> At the same time, the limited resources and lack of capacity within the NER influenced its approach to the regulation of municipal distributors.

More broadly, Mayer and Onyango (2005) note that the electricity pricing process was complicated by the fact that the policy context within which the NER operated underwent significant change since it was

established. In this respect, the authors explain that at least three policy initiatives had a direct bearing on the NER's role and operation: the rationalisation of the electricity distribution industry; the changing framework governing the entry of the private sector into the electricity supply industry; and the decision not to unbundle electricity supply and transmission.<sup>65</sup>

The scope for political interference in price determination has also previously been identified as a shortcoming of the process. In this respect, the role of the Minister of Public Enterprises in electricity price regulation has been a source of concern. According to Steyn (2003), the Minister of Public Enterprises, who is the representative of the state's shareholding in Eskom, has in the past had an "important direct influence on Eskom's pricing decisions."<sup>66</sup> In the past, this has manifested in public pronouncements by the Minister concerning Eskom's price levels. For instance, in 2004, the Minister of Public Enterprises stated that Eskom would, in effect, not be permitted to increase electricity price levels above inflation. According to Storer and Teljeur (2003), such cases of direct political interference in the domain of price regulation create "significant political uncertainty about the government's respect for the role of independent regulatory processes".<sup>67</sup> Within this context, Steyn (2003) noted that:

"It is clear from the discrepancy between the formal regulatory framework and the practical pricing influences that Government has not found a definite solution to its multiple roles as shareholder, and industrial and social policy maker; and reconcile this with the state's decisions to allocate economic regulatory functions to an independent regulator. Current role confusion potentially limits the effectiveness of this governance system."

Despite these concerns in the past, Hodge *et al.* (2008) indicate that there is currently no scope within the regulatory framework for the Minister of Public Enterprises to impact on NERSA's decisions with respect to the regulation of electricity tariffs.<sup>68</sup> The authors contend that this is also the case with respect to NERSA's decisions on licensing as well as the regulatory body's mediation and adjudicatory powers.

In the past, the system of administered prices in the electricity industry has, itself, received criticism. Writing in 2003, Steyn criticised the absence of a robust system of administered prices, noting that up until that point the NER had not yet implemented a robust approach to the regulation of Eskom's electricity prices.<sup>69</sup> Given these concerns, Steyn (2003) was of the opinion that, at the time, it was unlikely that the regulatory framework was "consistently and forcefully driving electricity prices towards efficient levels."<sup>70</sup>

The absence of strong efficiency incentives has also been highlighted as a shortcoming of the previous ROR methodology. Indeed, Steyn (2003) acknowledges that “it is widely recognized in the regulatory economic literature that rate-of-return (or cost plus) methodologies create weak efficiency incentives and thus often result in large-scale resource wastage.”<sup>71</sup>

More recently, the Human Sciences Research Council (HSRC) has raised concerns over high electricity prices. Writing in 2009, Altman *et al.* (2009) raised concerns that the price of electricity would rise by 250 percent in rand denomination over four years if the real term price increased in excess of 25 percent per annum.<sup>72</sup> Furthermore, the authors found issue with the fact that future electricity cost projections and forecasts – such as the price curve signal or the LRMC – were not publicised.<sup>73</sup>

Institutional arrangements in the MYPD 2 process have also come under fire. In this respect, industry stakeholders have bemoaned a perceived lack of participation by IPPs and a lack of clarity on their role in the MYPD 2 process.<sup>74</sup>

#### **4.1.7 Economic impacts and trade-offs resulting from administered pricing decisions in the electricity industry**

According to Steyn (2003), in the past, the presence of sub-economic electricity price levels has had “a major impact on South Africa’s industrial development by encouraging energy intensive (and highly capital intensive) natural resource extraction and beneficiation based investments (beyond the level that would have been justified by South Africa’s natural resource endowments).”<sup>75</sup> In this way, sub-economic electricity prices benefit energy and capital intensive growth while, at the same time, disadvantaging labour and skill intensive development paths.<sup>76</sup>

In turn, the dependence of the mining and minerals beneficiation sectors on these sub-economic electricity prices, coupled with the importance of these sectors to the South African economy, engendered a “strong path dependent inertia” in the electricity system; a reality that, according to Steyn (2003), made it “difficult to move to full cost reflective prices in the medium-term.”<sup>77</sup>



In the recent past, concerns have also been raised about the impact of administered electricity prices on inflation and economic growth in the South African economy. For instance, in 2003, it was announced that the increase in the administered electricity price would exceed the expected inflation rate as well as the national government's inflation target. At the time, this sparked considerable attention and debate; and undoubtedly influenced the Minister of Public Enterprises' subsequent public pronouncement that Eskom would not be permitted to raise electricity price levels above inflation in 2004.

More recently, in a similar vein, industry stakeholders have expressed concern at the impact of the MYPD on the South African economy. Certain stakeholders have felt that the tariff increase of 35 percent in the MYPD 2 was "too high and leading to a devastating impact on the economy".<sup>78</sup> More specifically, stakeholders have expressed concern that the rapid and steep electricity tariff increases could have a negative effect on the economy and job creation by posing a challenge to economic growth, eroding the viability and global competitiveness of the manufacturing industry and destroying small business.<sup>79</sup>

Additional concerns related to MYPD 2 have also been raised by industry stakeholders. For instance, it has been suggested that the magnitude of the price increases would affect the sustainability of the electricity supply industry and the affordability of electricity. More specifically, the following impacts have been noted:<sup>80</sup>

- The increases are not affordable to the general public, especially the poor.
- The impact on low income customers will necessitate a broader social welfare intervention even outside the electricity industry.
- High prices lead to a knock-on effect on other municipal costs such as water services, street lighting and also a bigger problem of non-payment of bills.
- The price increases will have a severe impact on smaller municipalities, where income is derived primarily from residential and low income customers.

#### **4.1.8 Proposed alternative approaches and recommendations to improve the way administered prices are determined in the electricity industry**

Writing in 2003, Steyn (2003) highlighted a number of possible reforms to the administered pricing framework and process that was in place in the electricity industry at the time. First, within the historical

context of sub-economic pricing in South Africa's electricity industry, Steyn (2003) indicated that it was necessary to move away from prices set at below long-run marginal costs and towards the proper economic pricing of electricity.<sup>81</sup> It was argued that this move towards cost reflective prices for both Eskom and municipal tariff structures would save real costs in the economy in the following ways:<sup>82</sup>

- By encouraging efficient use of energy and capacity (including demand side investments) which, if electricity service is priced correctly, will be cheaper in real resource terms, than new supply capacity.
- By supporting the establishment of a market and new entry in generation which should lead to more efficient generation investment decisions than could reasonably be expected to occur under the existing arrangements.

With reference to the aforementioned problems with political interference in Eskom's pricing decisions and concerns about the government's respect for the independent regulatory processes in place to determine administered electricity prices, Steyn (2003) suggested a more appropriate role for the state. Specifically, it was suggested that the state, as a shareholder in Eskom, should rather be tasked with setting Eskom's dividend policy.<sup>83</sup>

More broadly, Steyn (2003) pointed to the need for further institutional reforms in order to encourage greater cost efficiency and more cost-reflective pricing decisions in the electricity industry. For instance, Steyn highlighted the importance of restructuring the electricity distribution industry in South Africa, arguing that avoiding "perverse investment incentive problems and exposing financiers and investors at an appropriate level to the risk and uncertainty associated with investments provides the best chance of appropriate investment outcomes and low cost power in future."<sup>84</sup>

At the same time, Steyn (2003) recommended an acceleration of institutional reforms aimed at increasing cost efficiency and service delivery levels. According to Steyn (2003), such institutional reforms were necessary in order to "limit inflationary pressures from the electricity supply industry."<sup>85</sup>

More recently, Altman *et al.* (2009) have noted that further research is required in order to provide an official public perspective on electricity pricing projections into the future.<sup>86</sup> Furthermore, according to

NERSA, a number of recommendations have been made in relation to the MYPD 2, including the following:<sup>87</sup>

- Municipalities should not be allowed to add a mark-up on top of already high electricity costs.<sup>i</sup>
- The further deviation of municipal tariffs from Eskom's tariffs is a process which should be managed appropriately.
- Eskom must address electricity theft, as part of making operational savings and cutting inefficiencies.
- The cost of electricity should be apportioned more to large users rather than domestic consumers.
- Consideration should be given to block rates tariffs and billing should be done on a sliding scale.
- The Free Basic Electricity (FBE) rates should be increased from 50kWh to 70 kWh, 100kWh or 200kWh.
- The FBE rate should not be recovered from electricity tariffs, but should be recovered from other programmes available in government.

In addition, the following recommendations were made in relation to pricing decisions within the context of Eskom's build programme and required return on assets:<sup>88</sup>

- Eskom's cost of capital should be set at a level of risk free return plus 4 or 5 percent.
- Eskom should not be awarded a commercial type return on its equity, it should be allowed a risk free return.
- Eskom should optimise all its assets to ensure security of supply and increase price utilisation through improved maintenance practices rather than building new capacity.
- Tariffs must be set at cost-reflective levels to ensure sustainability of the electricity supply industry, as IPPs require a cost reflective regime.

---

<sup>i</sup> At present, NERSA calculates an appropriate annual percentage electricity price increase for municipal electricity distributors (based on the approved Eskom price), which is sent through to municipal distributors as a guideline for the determination of their annual electricity tariffs. These distributors are then legally obligated to apply to the Regulator for tariff increases prior to implementation. Most recently, a 20.38 percent tariff increase was prescribed to local authorities by NERSA for implementation in the financial year beginning in July 2011. However, many municipalities in the country have requested tariff increases above this level.

More generally, it has been suggested that the following should be considered with respect to funding within the context of the MYPD 2:<sup>89</sup>

- Other sources of funding, such as a once-off tax, should be considered to fund Eskom's expansion programme.
- Eskom should mitigate price increases through efficiencies and savings.
- Upon completion of the expansion programme, prices must be allowed to decrease.
- There is still uncertainty over the approved and published integrated resource plan (IRP). This plan includes non-Eskom generation and it is urgently required.
- As part of funding Eskom's build programme, government guarantees must be brought forward to align with the build programme in each of the three years of the MYPD.
- There is potential for private sector participation through Private Public Partnerships (PPPs) to alleviate cash flow pressure on Eskom and the fiscus.

## 4.2 Petroleum

Historically, South African policies for the petroleum industry have been “strategically directed at attaining self-sufficiency”, a stance born primarily out of the economic sanctions imposed on the country during the apartheid era (centering on a mandatory crude oil embargo enforced by the United Nations in 1977).<sup>90</sup> Within this context, government support and intervention has played an important role in the development of the crude oil refining industry and the manufacture of synthetic fuels in the country.

The South African government has been active in the regulation of the liquid fuels industry since the 1950s. Regulation and price administration in the petroleum industry in South Africa was initiated against the backdrop of apartheid rule and the country’s increasing isolation from the international community through embargoes and sanctions. This prompted the national government to take steps to refine indigenous synthetic fuels in order to minimise the country’s reliance on international markets to supply petroleum. At the same time, the national government was anxious to ensure that effective incentives for investment were in place so that the petroleum industry would remain profitable despite its effective disconnection from international markets during the apartheid era.<sup>91</sup>

The value chain of liquid fuels in South Africa is “technically complex”; and this complexity has been exacerbated by the historical application of the regulatory system in the petroleum industry.<sup>92</sup> According to Crompton *et al.* (2006), in the period prior to 1977 “the style of regulation was one that appears to have relied less upon legislation and more upon Government initiated agreements intended to resolve market problems.”<sup>93</sup> For instance, in the 1950s, the South African government introduced the Retail Rationalisation Plan (RATPLAN) in order to address ‘cut-throat’ competition that was seen to be undermining the commercial viability of the country’s fuel retail sector. The RATPLAN represented a “voluntary self-regulating agreement” between fuel retailers, oil companies and the national government and was designed to ensure that fuel was available throughout South Africa, while at the same time protecting the profitability of existing retail outlets.

The system of regulatory mechanisms introduced into the synthetic fuels industry in South Africa were introduced with a view to encouraging petroleum companies to remain in the country and invest in local

manufacturing facilities.<sup>94</sup> The introduction of this regulation effectively ensured that synthetic fuels manufactured locally were absorbed by the market before any product could be imported.<sup>95</sup>

It has been argued that pricing within the liquid fuels industry has been shrouded in secrecy in the past. However, according to Crompton *et al.* (2006) this secrecy gradually receded during the 1990s. Much of this was due to the implementation of transparency of pricing by the Liquid Fuels Industry Task Force in 1993, together with the introduction of daily reporting of fuel prices in the media.<sup>96</sup> The authors contend that there are currently “little if any aspects of the regulation that are kept secret.”<sup>97</sup>

#### **4.2.1 Identifying administered prices in the petroleum industry**

Since the 1950s, regulation of prices in the petroleum industry has been focused on retail price regulation. Based on the definition of an administered price provided in Chapter 3, the following prices are considered to be administered in the petroleum industry:

- The fuel price.
- Tariffs for petroleum pipelines, storage and loading facilities.

#### **4.2.2 Factors driving administered prices in the petroleum industry**

The government’s past efforts to minimise the country’s reliance on international markets for petroleum and ensure the profitability of the domestic petroleum industry during the apartheid era have had a significant influence on retail prices in the industry. Within this context, the government has sought to administer the price of fuel in order to ensure that it kept demand levels intact while maintaining buoyant supply side prices that were in parity with international fuel industry production prices. In this respect, the state pursued a strategy of price control which passed some of the supply side risk elements to the consumer while maintaining prices at a level that would not deter consumers.<sup>98</sup>

More broadly, at the global level, fluctuations in global oil supplies and price spikes arising from events internationally continue to have an important influence on administered prices in the petroleum industry. In the past, these factors have played a strong role in strengthening the government’s commitment to promote greater self-sufficiency in the petroleum industry.

### **4.2.3 Guiding principles, processes and frameworks underpinning the determination of administered prices in the petroleum industry**

A desire to ensure price equalisation represented a key guiding principle in the introduction of price regulation in the petroleum industry in South Africa. Specifically, the introduction of retail price maintenance was intended to “equalise prices between urban and rural markets” in South Africa.<sup>99</sup>

According to Crompton *et al.* (2006), since the introduction of price regulation in the petroleum industry in the 1950s, fuel prices have been set using an import parity pricing principle as a base (with the components of the retail pricing mechanisms introduced in the 1950s remaining similar to those in practice today). In essence, this has meant that the fuel price administration has been based on the cost of importing fuel “with ‘generous’ price build up for storage and distribution”.<sup>100</sup> This price regulation process ensured that prices “were held relatively steady and over-and under-recovery of prices was kept on a slate [account] for periodic price adjustment.”<sup>101</sup>

Based on this approach, the framework for determining the administered price of fuel is grounded in the cost of importing petroleum products from specific markets, together with all the costs associated with delivering the fuel product to a particular location in South Africa. Within this framework, a number of costs are taken into consideration when calculating a basic fuel price (BFP). The BFP formula was born out of an agreement signed in 2003 between the Department of Minerals and Energy and the members of the South African Petroleum Industry Association (SAPIA).<sup>102</sup> The BFP replaced the In Bond Landed Cost (IBLC) as the basis for calculating the import parity price. One reason for this was that the IBLC formula was considered to no longer reflect reality in the sense that prices in the formula were based on posted prices. Its replacement, the BFP formula, is based on spot prices. According to Crompton *et al.* (2006), the generous level of the import parity price that prevailed during the apartheid era “ensured the profitability of the oil companies and provided an incentive to the multinationals initially, to invest in refining assets, and subsequently, to remain in South Africa despite pressures to disinvest.”<sup>103</sup>

The BFP essentially reflects the sum of international market prices for petroleum products and is intended to be a realistic estimate of the cost of importing the fuel product to South Africa.<sup>ii</sup> The latter represents the sum of the following costs:

- International petroleum market spot prices – represents the largest component of the basic fuel price and reflects the price that “one would be paying on international markets” for the fuel product.
- Freight costs to bring fuel to South African ports.
- Insurance costs.
- Ocean loss allowance.
- Cargo dues.
- Coastal storage.
- Stock financing cost.

The BFP is one component (international component) of the fuel price structure. The domestic fuel price is calculated by factoring in, amongst others, the following:

- Transportation.
- Delivery costs.
- Wholesale (marketing margin).
- Retail margin.
- Equalisation Fund levy.
- Fuel tax.
- Customs and excise levy.
- Road Accident Fund.
- Slate levy.

The inclusion of the transportation element explains why the price of fuel differs across the country. According to the BFP Working Rules, the fuel price in specific parts of the country is determined by “using the most economical mode of transport” – be it rail (A zones), road (B zones) or pipelines (C zones) – from the nearest coastal harbour to the inland depot serving the area or zone.

---

<sup>ii</sup> See the BFP Working Rules on the Department of Energy website for further details.



In terms of the delivery cost element, marketers are compensated for storage and handling (actual depot-related costs) and distribution costs incurred from the depot to the end user at fuel service stations. In turn, the wholesale (or marketing) margin is paid to oil companies to compensate them for their marketing activities. Similarly, the retail margin is the margin that service station owners and operators are permitted to add to the petrol price.

The Equalisation Fund levy is a statutory fixed monetary levy regulated by Ministerial directives issued by the Minister of Minerals and Energy Affairs together with the Minister of Finance. The Equalisation Fund was instituted under the Central Energy Fund Act No. 38 of 1977. The fund was established as a financial vehicle that was used to perform a number of functions intended to maintain the price of fuel at a sustainable level for both consumers and producers. The fund itself was generated through levies paid by motorists.<sup>104</sup>

The Equalisation Fund was established to perform two core functions in terms of price administration. First, it was to serve as a retail price smoothing mechanism. In this respect levies are collected on petroleum products in times of low prices. In instances where the import parity price rises, placing upward pressure on retail prices for fuel, the funds collected through the Equalisation Fund are utilised to subsidise the oil industry for the shortfall until prices fall again, or the funds in the Equalisation Fund are exhausted.<sup>105</sup> Notably, this levy has been zero for a number of years. Second, the Equalisation Fund is designed to provide tariff protection to synthetic fuels producers.<sup>106</sup>

The fuel tax component is levied by the national government on an annual basis. Adjustments to the fuel tax are announced by the Minister of Finance in the annual budget speech. The fuel tax then becomes effective from April of each year. In addition to the fuel tax, a customs and excise levy is collected in terms of the Customs Union agreement, and a slate levy can be imposed if necessary in order to recover money 'owed' to fuel companies as a result of the time delay in the adjustment of the price at the petrol pump. From the start of 2009, this levy has been zero. Finally, a fixed monetary value is allocated to the Road Accident Fund levy in order to be used to compensate third party victims involved in motor vehicle accidents.

The national government maintains overall responsibility for administering the petrol price. In practical terms, the government is responsible for changing the price of petrol on the first Wednesday of each month. A three-working day optimisation mechanism is allowed to implement the price change. The price change is based on the average daily international price movements and exchange rate fluctuations in the previous month.

In the 2005/2006 financial year, the manner of regulation of the petroleum industry was formally modified with the establishment of NERSA. Under this modification, NERSA is mandated to license construction, operation and conversion of petroleum pipelines, storage and loading facilities. In terms of the petroleum pipelines industry – which comprises three major components: loading, petroleum pipelines and storage – NERSA is mandated to set tariffs for petroleum pipelines and also approve tariffs for storage and loading facilities.<sup>107</sup> In turn, the Petroleum Controller, which falls within the Department of Energy, is tasked with licensing manufacturing, wholesaling and retailing activities.

#### **4.2.4 Benefits and shortcomings in the process used to determine administered prices in the petroleum industry**

Writing from an historical perspective, Crompton *et al.* (2006) contend that aside from the fact that sanctions and fuel embargoes essentially inspired the development of a number of the government's key regulations and pricing interventions in the petroleum industry, price regulation in the industry has contributed to a number of beneficial outcomes, including:<sup>108</sup>

- Security of supply.
- Reduced dependence on imported oil.
- Stability in domestic fuel production.
- A minimisation of the impact of fuel imports on the balance of payments.
- Wider availability of fuel to consumers and industry (and the military).
- Direct taxation on fuels products in South Africa that is much lower than in many developed countries. It could be argued that the option of earning income from direct taxation – which could have been distributed widely to socio-developmental causes – was sacrificed in favour of the narrower option of building a state-owned synthetic fuels business and, to a lesser extent, promoting refining investments.

More broadly, it has been argued that the government's regulation of the petroleum industry has facilitated:

- The development of refining infrastructure in South Africa.
- The attraction of refining investments by multinationals.
- The geographic distribution of refining facilities, thereby improving security of supply.
- The development of industrial growth centres such as Sasolburg, Secunda and Mossel Bay.
- The addition of value to low quality coal resources (beneficiation).
- The development of leading world technology and expertise.

Despite these benefits, Crompton *et al.* (2006) identify several shortcomings in the process of determining administered prices in the petroleum sector. For instance, concerns have been raised that “the present dispensation benefits the synthetic fuel producers and their shareholders disproportionately, at the expense of the consumer and the taxpayer.”<sup>109</sup> More broadly, the principles of protection of local production that governed the pricing regime for a significant period of time resulted in the development of a petroleum industry that was expected to remain profitable at any cost.

Practical issues surrounding the application of the Equalisation Fund have also received criticism. More specifically, it has been argued in previous applications of the Fund that the mechanisms did not function when oil prices fell between US\$23/bbl and US\$28.7/bbl. Furthermore, Crompton *et al.* (2006) note the following:

“When prices rose above \$28.7/bbl Sasol was required to refund the Equalisation Fund 25% of its revenue until the slate of cumulative benefit of protection received since 1979 was wiped clean. The slate was never wiped clean.”

It is important to note, however, that five years have now passed since the Crompton *et al.* (2006) report, and this issue is no longer considered to be problematic in the current setting. Indeed, as noted previously, the Equalisation Fund has remained at zero for the past few years.

#### **4.2.5 Economic impacts and trade-offs resulting from administered pricing decisions in the petroleum industry**

Historically, the administered pricing regime has placed a significant burden on consumers in supporting local production. For instance, South African taxpayers and motorists have historically supported the

synthetic fuels industry through sizeable subsidies when the administered fuel price has been too low to recover the costs of production. This has had the effect of protecting the local synthetic fuel producers from the adverse impact of below-cost prices, with the associated benefit to the country's balance of payments of greater stability in domestic fuel production.<sup>110</sup>

It has also been argued that taxpayers have historically borne the brunt of over-investment in the petroleum pipelines industry. Indeed, Crompton *et al.* (2006) note that the over-investment in petroleum pipeline infrastructure in the 1960s and 1970s was borne by taxpayers.<sup>iii</sup> Writing in 2006, the authors noted that even at the time, when pipeline capacity was at a premium, it was doubtful whether some pipelines had recovered their costs.<sup>111</sup>

#### **4.2.6 Proposed alternative approaches and recommendations to improve the way administered prices are determined in the petroleum industry**

Notably, the studies reviewed in this report provide little by way of alternative approaches or recommendations that could be considered to improve the determination of administered prices in the petroleum industry. The exception is the Crompton *et al.* (2006) study, which provides a series of recommendations specifically related to the synthetic fuels component of the petroleum industry. In this regard, Crompton *et al.* (2006) set out several possible changes to the frameworks and approaches currently underpinning price regulation in the synthetic fuels industry in South Africa. Each of these are summarised below.

According to Crompton *et al.* (2006), consideration should be given to reinstating a price support and reimbursement arrangement. The authors suggest that this “might take the form, for example, of a floor price below which synthetic fuel producers would receive a subsidy, or pay a reduced fuel levy, and a ceiling above which a supplementary tax or revenue-sharing levy would be payable.”<sup>112</sup>

---

<sup>iii</sup> It is important to note that at present, the Durban-Johannesburg Pipeline has run out of capacity and is in the process of being replaced by a new multi-product pipeline. This suggests that, in contrast to the historical context, new investment is now required in terms of pipeline infrastructure in the industry.

Crompton *et al.* (2006) suggest further that: “Analogous to the price regime applicable to the refining industry, synthetic fuel producers could be reimbursed for their output on the basis of a cost-plus price structure. This would mean, in practice, a separate price for the synthetic product and an excess profit tax (or subsidy in the event of a negative differential) levied on any difference between the costs of synthetic fuel production in comparison to standard refinery costs.”<sup>113</sup>

Alternatively, Crompton *et al.* (2006) suggest that synthetic fuel production could be subject to a formula-based progressive profit tax. The authors argue that such an approach could be similar to the South African gold mining tax formula. According to the authors, this approach “has some advantages over a price or cost-based arrangement in that it avoids sharp tax thresholds and is linked directly to profitability. It can also provide for relief during periods of low commodity prices and low profitability.”<sup>114</sup>

Finally, Crompton *et al.* (2006) recommend that an incentive-based targeted tax regime could be introduced to take into account investment by synthetic fuel producers in expanded or improved production capacity.<sup>115</sup> The authors caution, however, that such an approach would need to give careful attention to economic and environmental considerations.

### **4.3 Conclusion**

The discussion presented in this Chapter concerning administered prices in the energy sector is indicative of its diversity, and includes a discussion of both the electricity and petroleum industries. The Chapter has shown that the nature of the processes and regulatory frameworks governing the regulation of prices in each of these sub-sectors are unique.

In the electricity industry, which remains punctuated by the dominance of Eskom, the price determination process and the methodological framework that underpins it have undergone significant changes in the last decade. During the course of this evolution, extensive efforts to restructure the electricity industry have complicated the pricing process. The current MYPD process that is used to determine tariffs in the industry is still in its infancy and has, itself, undergone significant changes since its introduction in 2006.

Taken together, these changes must be taken into account when considering the benefits, shortcomings and economic impacts of price determination in South Africa's electricity industry. The majority of the studies reviewed in this report in relation to administered prices in the electricity industry are dated and correspond with the previous regulatory framework and price determination processes that were in place prior to 2006. It is important to note, therefore, that it is likely that several issues raised in this Chapter may no longer be relevant. Nevertheless, it is also clear that certain issues remain pertinent. For instance, concerns over a lack of capacity of NERSA, the regulator in the industry, continue to surface. Furthermore, question marks continue to be raised about the efficiency of pricing in the industry amid concerns that the price determination process remains underpinned by the presence of weak efficiency incentives.

The recent past has seen a move away from historically low electricity prices towards rapidly rising tariffs and price increases. This represents one of the most pertinent issues currently facing the industry, and the broader economy. Indeed, several concerns have been raised about the likely economic impact of high electricity prices in South Africa. These range from worries about the implications of these prices for inflation in the country, to concerns that high electricity prices will adversely affect much needed economic growth, erode competitiveness in the manufacturing sector and have a disproportionate impact on small businesses, which are seen as vital contributors to job creation in the country.

In the petroleum industry, historical efforts to attain self-sufficiency amid sanctions imposed during the apartheid era have had an important influence on the process of price determination in the industry in South Africa. One implication is that efforts to protect local production have resulted in the development of a local petroleum industry that has been expected to remain profitable at any cost. This raises legitimate concerns about the efficiency and sustainability of the industry. At the same time, the pricing regime in South Africa's petroleum industry has historically placed a significant burden on South African consumers.

Taken together, these issues suggest that future research work related to the efficacy and impact of the process of determining prices in the country's petroleum industry should include a strong focus on the impact of these processes from the perspective of the efficiency and efficacy of the regulatory processes themselves, as well as the possible impacts of regulatory mechanisms on both regulated entities and South African consumers. In this respect, future research work on the impact of regulation in the petroleum industry should avoid any bias towards a particular constituency. Instead, future research should, for

example, give attention to issues such as the impact of regulatory mechanisms on investment in the industry.

**CHAPTER 5:  
Administered Prices in the  
Telecommunications Sector**



The broad communications sector in South Africa encompasses a number of elements, including telecommunications, broadcasting and postal services.<sup>116</sup> The sector itself is overseen by the Department of Communications (DOC) and is comprised of two core components: infrastructure networks and services. The presence of these two components means that operators in the sector can be network operators or service providers; however, as Hodge *et al.* (2008) note, “network operators all provide services as well.”<sup>117</sup> Services within the telecommunications sector are provided over fixed line, wireless and mobile infrastructure networks.<sup>118</sup>

According to Mayer and Onyango (2005), the presence of inefficiencies in the telecommunications sector in the post-1994 period has presented a strong case for economic regulation of the sector.<sup>119</sup> In this respect, writing in 2005 Mayer and Onyango (2005) argued that the monopolistic nature of the fixed-line network, coupled with the oligopolistic structure of the mobile cellular industry, had generated inefficiencies in the sector, with telecommunications prices “significantly higher than comparable middle income developing economies.”<sup>120</sup> In turn, the authors stress that this posed a considerable constraint to economy-wide competitiveness and economic development.

Indeed, in the past the presence of “relatively high retail prices, super profits, job losses, licensing delays and deadlocks and minimal new foreign investment” have been described as features of the telecommunications industry in South Africa.<sup>121</sup> Historically, high prices, in particular, have been a source of contention. For instance, writing in 2005, Mayer and Onyango (2005) pointed out that “local call prices have nearly doubled since the privatisation of Telkom, despite significant efficiency gains.”<sup>122</sup> This, in turn, has had an impact on the cost of internet services in South Africa.<sup>123</sup>

Much of this has had to do with the historical market structure of the telecommunications sector, which has had a negative effect on pricing within the sector. In particular, the historical dominance of Telkom gave rise to a situation in which other networks had to interconnect in order for their customers to access the “historically larger number of subscribers on Telkom’s network.”<sup>124</sup> More specifically, it has been argued that the market – which was “structured around a vertically integrated national company” (Telkom) who’s downstream competitors were statutorily required to acquire its facilities – created anti-competitive incentives for Telkom to either deny or delay rival firms access to its network and to adopt pricing strategies that exploited “its monopoly power in the market to the disadvantage of its wholesale and retail

customers.”<sup>125</sup> In the view of Mayer and Onyango (2005) this was a primary cause of high tariffs in the telecommunications sector.<sup>126</sup> More broadly, the prevailing market structure in the sector, which gave rise to Telkom’s market dominance, was said to have resulted in a contamination of monopoly pricing across the entire information and communications technology (ICT) sector in South Africa, right down “from mobile telephony to value-added network services.”<sup>127</sup> In turn, this was cited as the source of “a plethora of anti-competitive complaints against Telkom”.<sup>128</sup>

Similarly, the presence of weak competitive pressures in the mobile cellular industry has been touted in the past as a key motivating factor in favour of price regulation in that industry. For instance, writing in 2003, Hodge (2003) suggested that price regulation should remain an important constraining factor on price setting if efficient prices are to be established within the mobile cellular industry.<sup>129</sup>

With respect to interconnection price setting, Hodge (2003) has stressed that monopoly over access to each mobile network operator and the absence of alternatives for accessing local exchange customers has, in the past, meant that competition is not a strong force in constraining interconnection prices.<sup>130</sup> Moreover, writing in 2003, Hodge highlighted the presence of incentives to collude in the setting of interconnection rates “so that each operator is able to enjoy monopoly profits on its own network whilst apparently competing fiercely at the retail level”.<sup>131</sup>

Against this backdrop, a number of reforms to the telecommunications sector were introduced in February 2005. Perhaps most significant among these reforms was the decision to abolish Telkom’s monopoly on fixed-line services, value added networks and public phones.<sup>132</sup> In addition to this, the reforms also included the removal of prohibitions on the use of voice over internet. At the same time, the reforms sanctioned trade in telecommunications facilities used for value added network services and permitted private operators to sell, cede or sublet their spare capacity and services.<sup>133</sup>

Presently, Telkom and Neotel are the two incumbent operators providing fixed-line networks in South Africa. The former is partially owned by the South African government, which maintains a 38.9 percent shareholding, and was the original fixed-line network operator in the country.<sup>134</sup> After receiving a license in 2005, Neotel has joined the ranks as a second fixed-line network operator, and is “partially and indirectly owned by the South African government” through Eskom – which holds a 15 percent shareholding in

Neotel.<sup>135</sup> For its part, Neotel is the country's first converged telecommunications network operator, offering voice, data and internet services over a single connection.

Up until recently, mobile networks in South Africa were provided by three operators: Vodacom, MTN and Cell C. These three operators have since been joined by 8ta, which was launched by Telkom in October 2010 to become the country's fourth mobile operator. Furthermore, Infracore and Sentech are present as additional network operators over and above the fixed-line and mobile operators. The latter, for example, provides broadcasting infrastructure as well as international satellite communication.<sup>136</sup>

In terms of telecommunications services, the network operators in South Africa that provide these services to end consumers are vertically integrated.<sup>137</sup> In comparison to the situation with respect to infrastructure networks, the scope for scale economies at the service level is significantly more limited, meaning that a number of competitors provide telecommunications services to end consumers. As a result, a variety of additional mobile services are also provided in the country by virtual mobile network operators, service providers that resell airtime contracts, value-added network service providers and wireless application service providers (WASP).<sup>138</sup>

Despite the reforms introduced in the sector in 2005 and the fact that only certain areas of the country's telecommunications network now pose limited scope for competition, the structure of the sector means that the need for comprehensive economic regulation of the telecommunications sector in South Africa remains in order to ensure efficient market operations."<sup>139</sup> In this regard, Hodge *et al.* (2008) argue that:<sup>140</sup>

"A number of large network operators are dominant in the provision of telecommunications network services. These services are used by other service providers and the network operators themselves to provide retail services to end users. The involvement of network operators at both the wholesale and retail levels implies that there might be some potential for network operators to leverage their market power to the detriment of other service providers."

Furthermore, Hodge *et al.* (2008) have stressed that comprehensive economic regulation in the telecommunications sector can play a part in ensuring that there is "interconnection between the networks of all operators."<sup>141</sup>

The Independent Communications Authority of South Africa (ICASA) holds the mandate to regulate the telecommunications sector. This mandate is derived from four separate statutes: the ICASA Act of 2000; The Independent Broadcasting Act of 1993; The Broadcasting Act of 1999; and the Telecommunications Act No. 103 of 1996. The latter facilitated a significant overhaul of the previous regulatory regime in the sector, which had seen Telkom and the Minister of Communications hold “traditional regulatory powers” in the sector.

As the regulator in the telecommunications sector, ICASA enjoys organisational autonomy as a separate juristic person.<sup>142</sup> Its core functions within the sector include devising regulations and policies to govern broadcasting and telecommunications in South Africa; issuing licenses to telecommunications service providers and broadcasters; enforcing compliance with rules, regulations and policies; Hearing and resolving disputes and complaints made by industry players or the public against licensees; planning controlling and managing the frequency spectrum; and protecting consumers from unfair business practices, poor quality services and inferior products.<sup>143</sup>

In terms of price regulation, ICASA is currently mandated with “full powers” to regulate a variety of wholesale and retail prices imposed by operators in the telecommunications sector.<sup>144</sup> This includes the regulation of prices related to access, interconnection, facilities leasing and network services.<sup>145</sup>

## **5.1 Identifying administered prices in the telecommunications sector**

Based on the definition of an administered price provided in Chapter 3 of this report, the following prices can be regarded as administered prices within the context of the telecommunications sector:

- Fixed-line retail prices.
- Mobile cellular retail prices.
- Wholesale service prices, including interconnection prices and prices for facilities leasing.

## **5.2 Factors driving administered prices in the telecommunications sector**

From a socio-economic development perspective, a key government goal, and an important factor underpinning pricing in the telecommunications sector, has been to achieve universal service in the telecommunications sector. In essence, this has focused on the broad issues of access and equity within the context of the need to ensure access for the poor to telecommunications services.

This has been addressed through efforts to capitalise and modernise the fixed-line network together with the introduction of the Universal Service Fund, which was established initially “from a levy on operators’ turnover to subsidise the extension of networks in uneconomic areas and usage by ‘needy people’”.<sup>146</sup> This fund is managed by the Universal Services and Access Agency of South Africa, which was established in terms of section 58 of the Telecommunications Act (1996) to promote universal service and access to communications technologies and services for all South Africans. In addition, the need to protect consumers against rate rebalancing has also influenced the thinking around price administration in the telecommunications sector in South Africa.

The determination of administered prices within the telecommunications sector has also been influenced by the need to enhance backbone infrastructure in the sector. This relates to the fact that the quality of telecommunications services represents an important determinant of both South Africa’s economy-wide competitiveness and the country’s capacity to trade.

In addition to these broad factors, Storer and Teljeur (2003) have identified a number of factors that influence the price setting processes related to fixed-line retail services, mobile cellular and interconnection prices. According to Storer and Teljeur (2003), competition, countervailing consumer power and price regulation all have a weak influence on the process of setting prices for fixed-line retail services. In turn, Storer and Teljeur (2003) argued in 2003 that both ICASA and consumers had a weak influence on price regulation, while the influence of the Minister of Communications and Telkom on price regulation was strong.<sup>147</sup>

With respect to the price setting process in the mobile cellular industry, Storer and Teljeur (2003) argue that both competition and countervailing consumer power had a ‘medium’ level of influence on price

determination in the industry, while price regulation had a weak influence on the price setting process. In turn, Storer and Teljeur (2003) assert that the influence of mobile operators on price regulation was strong, while the equivalent influence of the Minister of Communications, ICASA and consumers on price regulation was weak.<sup>148</sup>

Finally, with respect to interconnection prices, Storer and Teljeur (2003) argue that competitive forces, countervailing consumer power and price regulation all had a weak influence on the interconnection price setting process. In turn, the authors argue that the influence of the operators on price regulation was strong, while the equivalent influence of the Minister of Communications, ICASA and consumers was considered to be weak.<sup>149</sup>

### **5.3 Guiding principles, processes and frameworks underpinning the determination of administered prices in the telecommunications sector**

It is important to reiterate at this point that the studies reviewed in this report on administered prices in the telecommunications sector are dated and, hence, the discussion presented below may not entirely reflect the current reality in certain instances. Nevertheless, the historical perspective discussed in the subsequent sections provides some important insights into the principles, processes and frameworks underpinning the determination of administered prices in the telecommunications sector.

The guiding processes, frameworks and processes underpinning the determination of fixed-line retail prices, mobile cellular retail prices and wholesale prices are discussed in turn below.

#### **5.3.1 Fixed-line retail prices**

Fixed-line retail prices in the telecommunications sector are administered by ICASA through the use of price cap regulation.<sup>150</sup> The 1996 Telecommunications Act legislated the introduction of an initial rate regime to drive the regulation of tariffs for fixed-line retail prices in South Africa. Initially, the Act empowered the Minister of Communications to determine the first rate regime, which was to remain valid until May 2000.<sup>151</sup> Thereafter, ICASA would propose new rate regimes, with the Minister of Communications providing final approval.<sup>152</sup>

The initial rate regime made use of a classic price cap mechanism. The decision to utilise the price cap approach was informed by accepted best practice and was also believed to be the most appropriate mechanism to use in the absence of both detailed information and the necessary expertise on the part of the regulator “to carry out effective cost of service (rate of return) regulation.”<sup>153</sup>

Writing in 2003, Hodge (2003) explained that the price cap formula in operation at the time differed from the initial formula in place between 1997 and 2002 in certain respects. Specifically, the previous price cap formula did not permit a carry-over, enabled a 20 percent real movement in the price of any single service and did not have a residential sub-cap.<sup>154</sup> The price cap formula in operation in 2003 involved a complex calculation that included the following elements:<sup>155</sup>

- Reported revenue for the relevant service in the preceding year.
- The average percentage change in the unit tariff of the service from the preceding year.
- The average percentage change in the consumer price index over the past year (defined as September to September).
- A productivity factor.
- The percentage of the unused part (if any) of the allowed revenue increase in the preceding year carried over to the year in question.

The framework in place in 2003 stipulated that no price within the basket of regulated services was permitted to increase in real terms by more than 5 percent per annum.<sup>156</sup> In 2003, the basket of Public Switched Telecommunications Network (PSTN) services included a variety of installation services, rental services (related to the provision and maintenance of exchange lines) and call services (from customer premises equipment or a payphone).<sup>157</sup> In turn, excluded services comprised interconnection services, value-added network services, mobile cellular telecommunication services, emergency numbers and customer premises equipment.<sup>158</sup>

In practical terms, a critical element of the price cap approach was the determination of a productivity factor. Writing in 2003, Storer and Teljeur (2003) noted that “given the lack of hard information on which to base a judgement about the appropriate productivity factor to include within the price cap formulation, it appears that it was established primarily through a process of negotiation between the Ministry and the

operators.”<sup>159</sup> Initially, the productivity factor was set at 1.5 percent for Telkom, with provision made for a maximum movement of 20 percent in real terms for any individual price.<sup>160</sup> This essentially allowed for a maximum single price movement in the basket of tariffs – which covered all retail services offered by Telkom under conditions of limited or no competition – of 20 percent in real terms.<sup>161</sup> The prices for wholesale services (interconnection) and services in which Telkom faced competition (such as value added network services) were excluded from the price cap.<sup>162</sup>

A review of the rate regime was undertaken by ICASA and commenced in December 2000. ICASA’s review covered all aspects of the rate regime, including the use of a price cap, and provided an opportunity for public submissions that enabled different interest groups to offer their perspectives on each aspect of the price cap. Within this context, a key result of the review process was that the overall price cap approach should be maintained. The review, however, did raise concern related to the vulnerability of residential customers to rate rebalancing as well as a feeling that the initial productivity factor was set too low.<sup>163</sup> In order to address the concerns related to the vulnerability of residential customers to rate rebalancing, a residential sub-cap was introduced to provide a degree of additional protection.<sup>164</sup> Furthermore, it was agreed that the maximum real price increase for any single service should continue to be limited.<sup>165</sup>

An important element of the review process involved a discussion of the value of the productivity factor to be included in the price cap. Telkom had argued that the productivity factor should be set at zero percent, and motivated their position by suggesting that “it had already achieved virtually all efficiency improvements possible” and that it had experienced a fall in profitability as a result of the costs associated with roll out targets stipulated in its licence.<sup>166</sup> Moreover, Telkom argued that “rebalancing limits should reflect the ratio of local to long-distance prices in South Africa as compared with the equivalent ratio in liberalised markets.”<sup>167</sup>

In contrast, ICASA felt that it was necessary to implement a more stringent productivity factor. In the absence of detailed regulatory accounting data, ICASA based its recommendations on a new productivity factor solely on the productivity factors in place at the time in equivalent regulatory regimes in the United Kingdom (UK) and Canada – which stood at 5 percent and 5.5 percent, respectively.<sup>168</sup> Consequently, ICASA initially recommended a productivity factor of 5 percent.



The ensuing consultation process that followed ICASA's recommendation led to a delay in the determination of the price cap. ICASA initially relented with a more moderate stance on the size of the productivity factor on the back of the consultation process, proposing a productivity factor of 3 percent. In response, however, the Minister of Communications disagreed and suggested that the productivity factor should be set at 1.5 percent.<sup>169</sup>

### **5.3.2 Mobile Cellular Retail Prices**

According to Hodge (2003), due to the fact that licensing took place before the appropriate legislation came into effect, the initial rate regime for mobile cellular operators was stipulated in the operator licenses.<sup>170</sup> The initial rate regime involved a price cap formulation and was first set at CPI-0 percent.<sup>171</sup> As is the case with the price regulation process for fixed-line operators, ICASA is responsible for undertaking all rate reviews, with final approval provided by the Minister of Communications in the case of any recommended changes.

Writing in 2003, Hodge (2003) explained that mobile cellular operators were required to lodge each tariff plan with ICASA as well as any changes thereto.<sup>172</sup> Once new tariff plans or increases in existing plans had been lodged, ICASA would then examine the tariffs and held the authority to reject them within seven days. In this respect, the initial rate regime differed from that in place for fixed-line operators in the sense that it applied to each tariff plan lodged by mobile cellular operators and, hence, was equivalent to a sub-cap for each service. Another difference was that the mobile operators were only required to notify the regulator when they made tariff changes to their tariff plan, whereas the fixed-line network operators were required to do so on an annual basis.

### **5.3.3 Wholesale prices**

In terms of the rate regime for wholesale prices in the telecommunications sector, interconnection guidelines were initially established for Telkom by the Minister of Communications, with these coming into force in May 2000.<sup>173</sup> Subsequently, this was to be taken over by ICASA, who was mandated to determine interconnection fees and charges.<sup>174</sup> Initially, the Ministerial determination stated that "Telkom's interconnection charges shall as soon as practiceable be based on its long-run incremental costs (LRIC)".<sup>175</sup>

A number of interconnection guidelines were drafted by ICASA in 1999, and subsequently approved by the Minister of Communications in March 2000. This provided the following guiding principles for the determination of interconnection pricing:<sup>176</sup>

- Non-discriminatory treatment for all interconnection seekers.
- Separately priced fixed once-off charges, periodic rental charges and variable charges for services from the interconnection provider.
- Maximum charges that must not exceed retail charges for the provision of equivalent services.
- The provision of essential interconnection services from major operators to public operators at LRIC, at the “best retail price less avoidable costs and no less than LRIC for service providers, and at no more than the retail charge for the provision of equivalent service for private operators.”

Thereafter, supplementary interconnection guidelines were issued in December 2002. These guidelines stipulated “an alternative approach to cost-based charges for major operators of essential facilities to apply in the transition to LRIC.”<sup>177</sup> They also set a requirement for “major operators to provide ICASA with a cost study and supporting documentation” in order to enable the regulator to determine whether the rates applied did not exceed cost.<sup>178</sup> In turn, ICASA was provided with the authority to set alternative interconnection rates if it was not satisfied with the case presented by the operator.<sup>179</sup>

#### **5.4 Deviations from guiding principles in the process of setting administered prices in the telecommunications sector**

At the time of the first rate review for fixed-line services, the aforementioned impasse between the Minister of Communications and ICASA over the size of the productivity factor led to a delay in the determination of the price cap. This provided Telkom with the opportunity “to file new tariffs in the absence of any regulatory control.”<sup>180</sup> Specifically, Telkom used the impasse to file its tariffs for 2002 early and, as such, in a regulatory vacuum – even though the Act stipulated that the original rate regime was to be replaced by one determined by ICASA after three years – Telkom put through a tariff increase of CPI-0 percent.<sup>181</sup> As a result, instead of a nominal increase of 2.9 percent, Telkom submitted an increase of 5.5 percent, which was 2.6 percent higher than if the regulations had been passed on time.<sup>182</sup> This resulted in an increase in tariffs tantamount to 1.1 percent in real terms.<sup>183</sup> In elaborating on the final outcome, Storer and Teljeur (2003) explain that:<sup>184</sup>

Despite eventual Ministerial approval of a price cap incorporating a 1.5% p.a. productivity factor (28 November 2001) Telkom persisted with its new tariffs, contending that the new regulations were invalid. In the subsequent out of court settlement in June 2002 Telkom was required to 'repay' consumers R320m over the following two years, an outcome that appears to be relatively favourable to the operator and to the overall disbenefit of consumers.”

Turning to the mobile cellular industry, Storer and Teljeur (2003) noted in 2003 that, up to that point, no formal rate review of the industry had been undertaken. The reasons for the absence of a formal rate review were articulated by ICASA and included the view that the presence of competition in the sector limited the potential for operators to raise prices and, in actual fact, prices had fallen in real terms since operations had commenced nine years earlier in the mobile cellular industry in the country.<sup>185</sup> At the time, ICASA also argued that the decision not to undertake a formal rate review was motivated out of concern that moves to tighten controls on mobile cellular prices could harm the business prospects of Cell C, the most recent entrant into the mobile cellular sector.<sup>186</sup> Moreover, the decision was taken out of a need to prioritise the use of scarce resources within ICASA.<sup>187</sup>

With respect to interconnection prices, Hodge (2003) noted in 2003 that there were sizeable increases in the mobile interconnection fees between MTN and Vodacom from 1999 onwards. Hodge (2003) explained further that “the inability to assess these charges is particularly problematic because there is a clear incentive for mobile operators to over-price these wholesale services”.<sup>188</sup> Indeed, writing in 2003, Hodge (2003) asserted that although new interconnection regulations were in place at the time, there had been a clear incentive to over-price interconnection and no regulatory constraints to prevent operators from doing so.

## **5.5 Benefits and shortcomings in the process used to determine administered prices in the telecommunications sector**

Notably, the studies on administered prices in the telecommunications sector that are reviewed in this report provide very little mention of the benefits of the administering pricing process in operation in the sector. Nevertheless, in 2003, Storer and Teljeur (2003) argued that the application of the price cap

approach to the determination of prices in the telecommunications sector produced “clearer and stronger incentive effects” in comparison to cost of service (rate of return) approaches.<sup>189</sup>

In comparison, the historical shortcomings of the process highlighted in these studies are plentiful. Indeed, a number of cross-cutting issues have been highlighted in previous studies as shortcomings in the processes involved in administering prices for fixed-line services, as well as mobile cellular retail prices and wholesale prices. These shortcomings are outlined below.

### **Question marks over the independence of ICASA**

In the past, it has been argued that ICASA’s independence has been compromised by the provisions of the 1996 Telecommunications Act.<sup>190</sup> For instance, Storer and Teljeur (2003) have argued that the initial arrangement under the Act, which empowered the Minister of Communications to determine the first rate regime, provided scope for political intervention.<sup>191</sup> Moreover, Storer and Teljeur (2003) bemoaned the reality that a lack of clear regulatory independence had “encouraged some players to focus attention on lobbying the Minister to obtain favourable changes in the rate regime.”<sup>192</sup> This was said to have been exacerbated by the state’s shareholding in Telkom.

Writing in 2003, Storer and Teljeur (2003) noted that the Minister of Communications was likely to “remain the subject of intense lobbying from Telkom and other industry participants.”<sup>193</sup> Similarly, the mandate provided to the Minister of Communications to approve regulations has also been seen to have limited ICASA’s clout in terms of enforcement and undermine the scientific basis underpinning the price administration approach. In this respect, Hodge (2003) noted in 2003 that:

“A lack of enforcement power [on the part of ICASA] has primarily been the result of Ministerial power to approve every regulation passed ... This reduces the importance of the regulator and scientific price administration methods, elevating the importance of ministerial lobbying and legal strategy in shaping regulatory outcomes”.<sup>194</sup>

More recent studies suggest that this problem has persisted. Indeed, Hodge *et al.* (2008) have cautioned that the “continued involvement of the state means that there is scope for unfair competition and discriminatory behaviour in terms of economic regulation.”<sup>195</sup>

### **Staff capacity shortages within ICASA**

Pricing decisions within the telecommunications sector may also have been affected by capacity challenges related to skills shortages within ICASA. Writing in 2005, Mayer and Onyango (2005) noted that ICASA had faced significant challenges related to attracting and retaining sufficiently skilled decision-makers and staff.<sup>196</sup> According to Hodge (2003) the impact of capacity shortages on the price administration process has been clear. Indeed, writing in 2003, Hodge (2003) argued that the “weakness of price regulation is a direct result of an ineffective regulator who has inadequate resources and a lack of enforcement power”.<sup>197</sup>

### **Lack of recognition of South Africa’s inexperience in public interest regulation**

Linked to this, it has been stressed that the framework governing administered pricing in the telecommunications sector did not recognise the “limitations that South Africa faced as a developing country with no experience of autonomous public interest regulation”.<sup>198</sup>

### **Information asymmetries**

Writing in 2003, Storer and Teljeur (2003) noted that Telkom, as the incumbent fixed-line network operator in South Africa, was required to prepare regulatory accounts for ICASA. These regulatory accounts provide detailed cost information that is, in turn, used by ICASA to set both retail and wholesale price controls as well as more broadly to monitor price-setting behaviour.<sup>199</sup>

Despite this, the process has been criticised for yielding information asymmetries that disadvantage ICASA in favour of the incumbent operators. Indeed, these information asymmetries have been a feature of the process of price administration in the telecommunication sector.<sup>200</sup> This has occurred despite the fact that Telkom was required to prepare regulatory accounts that provided detailed cost information to ICASA. Storer and Teljeur (2003) have argued that the legal framework governing the regulation of telecommunications in South Africa has only served to increase the imbalance resulting from information asymmetries between ICASA and Telkom. Writing in 2003, Storer and Teljeur (2003) explained that “the licence conditions provide extensive scope for Telkom to circumvent this requirement [to prepare regulatory accounts] in practice.”<sup>201</sup> To this end, Storer and Teljeur (2003) noted that Telkom has utilised loopholes in the legislation “to avoid the production of information that is crucial for retail price regulation, as well as interconnection and facilities leasing price regulation.”<sup>202</sup>

### **A cost-driven approach to price determination**

A common feature across the various industries within the telecommunications sector is that the price determination process is cost-driven. On this basis, it has been noted that one deficiency of this approach is that it includes only very limited efficiency or outcomes monitoring.<sup>203</sup>

Perhaps as a result, writing in 2003 Storer and Teljeur (2003) concluded that it was “very unlikely” that efficient prices would emerge from the process used to determine administered prices in the telecommunications sector.<sup>204</sup> At the time, this was premised, at least in part, on the belief that Telkom faced weak regulatory pressure from ICASA and the Department of Communications; with the result that it was able to raise prices above efficient levels and closer to monopoly prices.

In addition to these cross-cutting shortcomings, the studies reviewed in this report have identified certain shortcomings that are specific to the processes used to administer fixed-line retail prices, mobile cellular retail prices and wholesale prices, respectively. These shortcomings are discussed in turn below.

### **Shortcomings in the administration of pricing for fixed-line services**

Hodge (2003) noted in 2003 that it was difficult to trace what specific information was used in the calculation of the initial productivity factor. In this regard, Hodge (2003) indicates that it has been assumed that the initial productivity factor was determined as the outcome of negotiations between the DOC and the fixed-line operators.<sup>205</sup>

In the past, the leeway in the licence conditions granted to Telkom related to the provision of regulatory accounts have also been a source of criticism. Specifically, Hodge (2003) has noted that “although Telkom should provide such regulatory accounts according to its licence requirements, the licence conditions provide enormous leeway for Telkom not to produce this information, even though the accounts are crucial for retail price regulation, as well as regulation of interconnection and facilities leasing prices”.<sup>206</sup>

Furthermore, in the absence of detailed regulatory accounting data, ICASA’s approach to using international benchmarks to determine the proposed productivity factor for fixed-line retail prices has been criticised. In this respect, Storer and Teljeur (2003) noted that the “clear drawback with this approach is that it did not take into account specific Telkom data or national circumstances.”<sup>207</sup>

### **Shortcomings in the administration of mobile cellular retail pricing**

One shortcoming identified by several studies on administered pricing within the mobile cellular industry is the perceived ease with which mobile operators have in the past been able to evade the controls of the initial rate regime stipulated in their licenses.<sup>208</sup> According to Storer and Teljeur (2003), the technical details related to the tariff basket specification in the mobile cellular industry have meant that it has been “extremely easy for mobile operators to evade even this relatively mild control.”<sup>209</sup> Writing in 2003, Hodge noted that “there are no minimum or maximum movements imposed on the components of each tariff plan”.<sup>210</sup> In addition, it was also noted at the time that there was no control over the mobile operators’ ‘basket’ of tariff plans, which made it technically feasible for a mobile operator to alter this basket over time.

Hodge (2003) also raised concerns related to the process involved in ICASA’s review of the regulatory accounts which mobile cellular operators are required to produce according to the Charter of Accountants and Cost Allocation Manual (COA/CAM). In this regard, Hodge argued that ICASA was unable to conduct reasonable price regulation of mobile operators because the COA/CAM did not adequately describe the mobile cellular business and was, therefore, of only limited use to the regulator”.<sup>211</sup>

Furthermore, Hodge (2003) has argued that, in the absence of an initial set of prices to use as a reference point for the determination of the price cap in the mobile cellular industry, mobile cellular firms were able to set their initial prices in such a way that would relax the constraint of the price cap from the outset.

Similarly, in terms of the productivity factor applicable in the mobile cellular industry, Hodge (2003) noted that ICASA believed that there was a case for further reductions to be made to the productivity factor for MTN and Vodacom. However, the regulator was wary of imposing more stringent terms on the new entrant at the time, Cell C, which still had to build its network in a difficult competitive market.<sup>212</sup> In response, however, the state’s legal advisors rejected ICASA’s proposed regulations to this effect. As a result, Hodge (2003) was of the opinion that it was possible at the time that “mobile cellular companies may be making monopoly profits on the wholesale market, whilst still pricing at a cost in the retail market”.<sup>213</sup>

### **Shortcomings in the administration of wholesale prices**

Several historical shortcomings related to the administration of wholesale prices in the telecommunications sector have also been identified in the various studies reviewed in this report. Writing in 2003, Hodge (2003) contended that although the original Ministerial determination indicated that Telkom's interconnection charges should be based on the LRIC, it did not prescribe what Telkom should do in the intervening period until LRIC pricing was feasible. Even with the introduction of ICASA's interconnection guidelines, Storer and Teljeur (2003) have indicated that the guidelines offered "no alternative to LRIC pricing in the interval before issuance of the COA/CAM manuals."<sup>214</sup> Moreover, Hodge (2003) noted that a key problem associated with ICASA's interconnection guidelines was that they "still did not close the regulatory loopholes created by the original Ministerial determination".<sup>215</sup>

Writing in 2003, Hodge (2003) noted several other problems related to the process of regulating interconnection prices. For instance, it was noted that ICASA did not have the cost information available from which to base its decision and enforce price regulations. Similarly, Storer and Teljeur (2003) noted in 2004 that, at the time, ICASA had "no power to investigate the cost-reflectiveness of interconnection charges set under intercompany agreements."<sup>216</sup>

Another significant shortcoming was the lack of a clear definition of a "major operator", which compromised the regulator's ability to enforce regulations applicable to major operators. In addition, Hodge (2003) noted in 2003 that, up until that point, ICASA had not carried out any assessment of prices in interconnection agreements. As a result, ICASA accepted the argument put forward by MTN and Vodacom with respect to the increase in their interconnection fee in good faith, despite having no basis for verification.<sup>217</sup>

In light of these shortcomings, Storer and Teljeur (2003) noted in 2003 that "the current arrangements have given operators the incentive to inflate interconnection charges while providing little scope for regulatory intervention."<sup>218</sup> On the basis of this, Storer and Teljeur (2003) concluded that it was likely that interconnection had become "overpriced".<sup>219</sup>



## **5.6 Economic impacts and trade-offs resulting from administered pricing decisions in the telecommunications sector**

Notably, very limited attention is given in the existing studies reviewed in this report to the economic impact of the administered pricing decisions in the telecommunications sector. Despite this, Mayer and Onyango (2005) do contend that, in the past, sluggish efforts to reduce costs, improve quality and ensure universal access to telecommunications services has been cited as contributing to the “limited structural transformation” that has taken place in the South African economy.<sup>220</sup> Furthermore, writing in 2003, Storer and Teljeur (2003) suggest that the processes in place for setting administered prices in the sector at the time were not conducive to efficient pricing.

## **5.7 Proposed alternative approaches and recommendations to improve the way administered prices are determined in the telecommunications sector**

### **5.7.1 Fixed-line retail**

In the case of fixed-line retail prices, the work reviewed in this study on administered prices in the telecommunications sector provided a number of recommendations aimed at improving the way prices are administered in the sector. For instance, writing in 2003, Hodge (2003) suggested at the time that there was a need to strengthen the influence of ICASA as well as the input of consumers through consultation or representation into the price determination process; while, at the same time, reduce the influence of the DOC.<sup>221</sup> In this regard, the following specific recommendations were made:

- Accelerate the delivery of reliable regulatory accounting data from Telkom to reduce its strong information advantage over ICASA. In this regard, Hodge (2003) suggested that it was necessary to ensure a more speedy submission of Telkom’s regulatory accounts. It was argued that withholding information on operations costs not only served to enhance Telkom’s monopoly position, but also placed ICASA in a weaker position. It was noted that the resulting information asymmetry can be so great that ICASA is unable to determine whether the productivity factor should be set at 1 percent or 10 percent.<sup>222</sup>
- Increase the resources available to ICASA.

- Implement technical assistance programmes to build ICASA's capacity.
- Improve ICASA's access to reliable benchmarking data as a guide to establishing appropriate price controls. It was suggested that this could be achieved by developing a mechanism for gathering useful international data that could form the basis for both price comparisons and expected productivity improvements.

With respect to the actual price regulation mechanism used in the administered pricing process, Hodge (2003) recommended a review of the price cap mechanism, arguing that a strong case could be made in favour of "changing the price regulation mechanism to an earnings-sharing formula".<sup>223</sup> It was also argued that the process of administering price increases in the telecommunications sector should include an analysis of the incumbents' financial status as well as productivity improvements made by incumbents in comparison to previous years, together with a consideration of real cost increases for telecommunications equipment.

In response to concerns related to the influence of the DOC on the price administration process, Hodge (2003) stressed in 2003 that the DOC should show greater restraint before interfering in the rate review process. In this respect, it was suggested that the Department should focus its energy on determining whether ICASA has followed a fair and scientific process, rather than dictating a productivity factor to the regulator.

### **5.7.2 Mobile cellular industry**

Writing in 2003, Hodge (2003) suggested that there was a need to undertake an investigation into collusive behaviour within the mobile cellular industry. He argued that such an investigation would help to determine whether there was a need for more stringent price control in the industry.<sup>224</sup> Hodge (2003) noted further that, contingent on the outcome of the proposed investigation, ICASA could consider setting a more stringent price cap in the mobile cellular industry or, alternatively, look at various structural remedies.

Similarly, Storer and Teljeur (2003) called for an assessment of whether the prevailing level of competition in the mobile cellular industry was sufficient to ensure efficient pricing in the industry.<sup>225</sup>

### **5.7.3 Wholesale prices**

In 2003, Hodge (2003) called for legislative changes that would allow ICASA to review existing interconnection agreements.<sup>226</sup> It was felt that this would enable the regulator to bring the interconnection charges in place at the time into line with costs. At the same time, Hodge (2003) emphasised the need to strengthen the capacity of ICASA through the provision of additional resources and skilled individuals to the regulator. In this respect, Hodge (2003) contended that:<sup>227</sup>

“It is evident that an important component of improving interconnection regulation has to be the strengthening of ICASA’s capacity and capability by providing it with additional resources and new team members with appropriate skills. Temporary consultancy assistance would also be necessary while ICASA builds skills internally.”

## **5.8 Conclusion**

In the post-1994 period, South Africa’s telecommunications sector has come under fire for several inefficiencies. Historically high prices, in particular, have been a source of contention, with prices in the sector significantly higher than comparable middle-income developing economies. Much of this can be attributed to the historical market structure of the sector, which has been underpinned by the market dominance of Telkom and a small number of mobile operators. This, in turn, has had implications for the country’s competitiveness and economic development.

In the past, a number of shortcomings have been identified related to the framework and processes in place for the determination of prices in the telecommunications sector in South Africa. These include concerns over the independence of ICASA and a perceived lack of enforcement power on the part of the regulator; capacity shortages within ICASA; the power entrusted to the Minister of Communications to approve regulations and the potential for interest groups to lobby the Minister for changes to the rate regime; information asymmetries that disadvantage the regulator in favour of incumbent operators in the price setting process; and a cost-driven approach to price determination that has only very limited efficiency or outcomes monitoring. Furthermore, in both the fixed-line network and mobile cellular industries, concern has been raised at the perceived ease with which Telkom and mobile operators respectively have been able to evade controls and regulatory requirements.

In the past, the historical dominance of Telkom and a lack of capacity on the part of ICASA has presented a major challenge to efforts to regulate fixed-line retail prices in the South African telecommunications sector. At the same time, these challenges have complicated efforts to provide much needed telecommunications services to the poor. Largely protected by legislation and the regulatory framework, Telkom has been able to withhold imperative information which would have aided ICASA in administering more efficient prices in the sector. This has been exacerbated by a lack of capacity and skills within ICASA to effectively interrogate the data at its disposal and determine appropriate administered prices on the basis of this information.

Similarly, in the mobile cellular industry, despite the domination of a small number of players, historically there has been “little regulation” of the industry.<sup>228</sup> In justifying the relatively low level of regulation in the industry, ICASA has pointed to the potential for tighter regulation to harm competition and deter the entrance of new firms into the industry. Moreover, ICASA has maintained that the “competitive nature” of the mobile cellular industry should limit any abuse of pricing power among incumbents.<sup>229</sup>

In the case of wholesale prices, ICASA has, in the past, been unable to verify and assess proposed price increases, instead having to accept these prices in “good faith”. This situation has been exacerbated in the past by the reality that ICASA is not empowered to force operators to submit their interconnection agreements or any other documents. Instead, ICASA could, in effect, only review pricing if there was a dispute between operators or if a new interconnection agreement was signed.

Taken together, the deficiencies in the regulatory framework and processes underpinning the determination of administered prices in the telecommunications sector, have contributed to the view that it is “very unlikely” that efficient prices would emerge from the processes used to determine administered prices in the telecommunications sector.

Despite this, at least in the mobile cellular industry regulation appears to have intensified in recent years, which may lead to lower prices in the industry in the future. Currently, ICASA regulates fees related to interconnection and termination rates in the mobile cellular industry. In addition, a range of regulations related to interconnection rates were implemented by ICASA in 2010, which “should see these tariffs fall over the next few years.”<sup>230</sup>

## **CHAPTER 6: Administered Prices in the Transport Sector**

South Africa's transport sector comprises several distinct modes, including aviation, ports, rail and road. These various modes differ considerably with respect to the extent of economic regulation and regulatory frameworks that are in place.<sup>231</sup> For instance, there is no independent economic regulation of rail charges in the country, with price determination largely "left in the hands" of Transnet.<sup>232</sup> In contrast, the aviation industry boasts the most advanced and sophisticated regulatory framework (albeit through a part-time regulator) for aviation infrastructure services of all the modes of transport in South Africa.<sup>233</sup>

State ownership is a key feature of the transport sector in South Africa, with the sector characterised by limited private sector participation outside of the road transport sub-sector. In the past, the business units and divisions of the parastatal Transnet span the gamut of transport services in the country. Following the restructuring of Transnet in 2004, however, the parastatal's focus has shifted to core transport infrastructure falling within the domain of the state, namely rail, ports and petrol pipelines.<sup>234</sup>

Despite the extensive level of state ownership in the transport sector, the extent of economic regulation across the sector has been minimal. Indeed, in the past the presence of state-ownership, limited private sector participation and the absence of independent regulators in the sector have been cited as contributing to a situation in which "the influence on prices by government is limited and prices are likely to contain monopolistic rents."<sup>235</sup> It has also been noted in the past that the national Department of Transport "has a surprisingly small mandate in terms of economic regulation".<sup>236</sup> Within this context, Storer and Teljeur (2003) noted in 2003 that South Africa's transport sector "remains largely unregulated in the economic sense."<sup>237</sup> Furthermore, Storer and Teljeur (2003) noted at the time that there was "no coherent framework for price determination", and that monitoring of efficiency in the delivery of transport services was "virtually non-existent."<sup>238</sup> Instead, the authors described the regulatory frameworks in place in the respective transport sub-sectors in terms of a "complex web of overlapping and at times conflicting institutional roles without independent regulators or, even, formalised monitoring."<sup>239</sup>

Teljeur (2003) has suggested that prices in the transport sector are driven by three broad factors that are exogenous to the price setting process. The first factor is the structure of the sector and the way that the market for transport services is designed. In this sense, the degree of vertical or horizontal integration that is present in the sector and the extent to which competition is encouraged in instances in which it is "economically feasible" have an important influence on administered prices in the sector. Second, the

extent to which the government is able to control the behaviour of SOEs in the absence of regulation has implications for the price determination process. Finally, Teljeur (2003) argues that the policy objectives of the government in relation to the sub-sectors that comprise the transport sector, together with the government's broader social imperatives have an important influence on the process of price setting in the sector.

This Chapter focuses on the price determination processes in place in three sub-sectors of the transport sector: aviation, ports and rail. It is important to reiterate that certain information presented in the sub-sections that follow is drawn from studies that are somewhat dated and, hence, may not necessary reflect the current reality in the various sub-sectors discussed in this Chapter.

## 6.1 Aviation

For the purposes of an analysis of administered pricing in the aviation sector in South Africa, the sector can be considered as comprising the broad segments of infrastructure, operations and airport services.<sup>240</sup> The Airports Company of South Africa (ACSA), a SOE with the national Department of Transport as the majority shareholder, is the dominant player in both the infrastructure and operations segments of the sector. ACSA owns all major airports in the country and is responsible for providing airport infrastructure and facilities.<sup>241</sup> ACSA also operates these airports in conjunction with private operators.

Airport services, including air traffic services, are provided by the Air Traffic and Navigation Services Company (ATNS).<sup>242</sup> As in the case of ACSA, the ATNS is a SOE with the national Department of Transport as its sole shareholder.

According to Hodge *et al.* (2008), the dominant positions of ACSA and ATNS within the aviation industry mean that “some form of price regulation is required” in the industry in order to ensure allocative efficiency.<sup>243</sup> In support of this assertion, Hodge *et al.* (2008) explain that ACSA “to a large extent has a monopoly over internationally scheduled flights to and from South Africa.”<sup>244</sup> In turn, the authors emphasise the fact that the “ATNS is the sole provider of air navigation and other services to airlines using South African airports.”<sup>245</sup>

Two stakeholders are responsible for regulation within the aviation sub-sector: the national Department of Transport and the Competition Commission. The responsibility for the determination of infrastructure tariffs and the regulation of the sector falls on a part-time regulator in the form of a Regulating Committee within the Department of Transport. This committee comprises a chairperson appointed by the Minister of Transport and four part-time committee members.

### 6.1.1 Identifying administered prices in the aviation industry

With the definition of an administered price presented in Chapter 3 in mind, the following broad categories of prices can be regarded as administered within South Africa’s aviation sub-sector:

- Infrastructure tariffs.
- Airport and air traffic service charges, including landing fees and passenger fees.



### **6.1.2 Factors driving administered prices in the aviation industry**

In broad terms, according to Teljeur (2003) a desire to attain price efficiency represents an important objective for administering prices in the aviation sector. This is essentially born out of the government's goal of ensuring that the aviation sub-sector is attractive to investors.

In terms of regulation, a number of factors underpin the need for price regulation in the industry. These factors are reflected in the mandate of the Regulating Committee, and include the following:<sup>246</sup>

- Restrain ACSA and ATNS from abusing their monopoly position in such a manner as not to place undue restrictions on the company's commercial activities.
- Promote reasonable interests and needs of users of any navigation infrastructure or air traffic services.
- Promote the safe, efficient, economic and profitable operation of air navigation infrastructure, air traffic services and air navigation services.
- Encourage timely improvement of air navigation infrastructure so as to satisfy anticipated demands by the users of the infrastructure.
- Ensure that the company (ACSA or ATNS), after taking into consideration any compensation paid or to be paid to the company by the State in terms of legal provisions, is able to finance its obligations and have a reasonable prospect of earning a commercial return. In this respect, the legal mandate of the Regulating Committee extends to overseeing the financial viability of ACSA and ATNS.

### **6.1.3 Guiding principles, processes and frameworks underpinning the determination of administered prices in the aviation industry**

The Regulating Committee is empowered to approve the tariffs of both ACSA and the ATNS within the aviation industry.<sup>247</sup> The Committee is also responsible for setting the limits on airport and air traffic services charges. In terms of the pricing process itself, ACSA and the ATNS are required to "apply to the Committee for 'permission' to implement a tariff increase."<sup>248</sup> This involves ACSA and ATNS writing requests and permissions to charge certain prices, such as airport charges in the case of ACSA or air traffic service charges in the case of ATNS. These requests are then submitted to the Regulating Committee,

which is required to make a decision concerning whether or not to grant permission to levy the requested service charge. According to Hodge *et al.* (2008), the pricing applications provided by ACSA and the ATNS should include a business plan approved by the Department of Transport together with any other information.<sup>249</sup>

In this way, price regulation is implemented via “permissions” granted by the Regulating Committee. Both requests and permissions must contain limits on the increases permissible with respect to the companies’ requested service charges. Although the permissions are valid for five years, ACSA and ATNS must re-apply for the permissions in the third financial year of the current permission “so that there is a two year overlap and effectively a triennial review of the companies’ charges”. The reason for the triennial review is that if the conditions over the last two years of the existing permission are not conducive or are “inappropriate”, then the two-year overlap will give the Committee time to amend the ACSA and ATNS applications and submissions accordingly. At the same time, the Regulating Committee is allowed to make changes to the permission conditions subject to Ministerial approval, except during the last two years of the permission.

The Regulating Committee’s decision is influenced by data provided by ACSA and ATNS. In considering the requests made by these two companies, the Committee is also obliged to ensure that ACSA and ATNS are run efficiently so that customers are not forced to pay for “inefficient debt-financing or infrastructure ‘gold-plating’”.<sup>250</sup> During the course of the price determination process, the Regulating Committee consults informally with stakeholders, such as the Airlines Association of South Africa (AASA), Board of Airline Representatives of South Africa (BARSA) and the International Airline Trade Association (IATA).

Once recommendations have been made by the Regulating Committee, they are reviewed by the Minister of Transport before being granted as permissions to ACSA and ATNS. The Minister of Transport is responsible for approving the Regulating Committee’s recommendations; and the Committee can only amend any condition of the ‘permission’ if it has been approved by the Minister.<sup>251</sup>

For its part, the Committee is free to choose the methodology to underpin price regulation in the industry. In this respect, the ACSA and ATNS Act allows the Regulating Committee to determine the tariffs in such a manner as it deems is “best calculated”.<sup>252</sup> In doing so, the Regulating Committee must be mindful of the

need to balance “the company’s commercial activities with [the] prevention of abuse of monopoly power, whilst promoting safety; user interests; timely investments and ensuring a reasonable prospect of the company earning a commercial return”.<sup>253</sup>

According to Teljeur (2003), prior to 2003 the financial model adopted by ACSA and ATNS was used in the price setting process. However, it was found that this model was not appropriate for “rigorous price cap applications” because it did not allow for the relationship between cost and price to be determined and efficiencies could not be estimated using the model.<sup>254</sup> Consequently, in 2003, an activity-based costing model developed by the Regulating Committee was adopted.<sup>255</sup>

The methodology used thereafter in the price administration process centred on the use of a price-cap, and involved “extensive financial modelling.”<sup>256</sup> In the case of ACSA, the price cap is based on a CPI-X methodology. A complex formula is utilised for the CPI-X calculation, which includes the following:

- The sum of the revenue weighted percentage tariff increases in airport charges in year t.
- The forecast percentage increase in the CPI in year t.
- The actual percentage increase in the CPI in year t.
- A subtractive X-factor.
- A correction factor for year t (calculated annually to correct for over or under-collection of tariffs).
- A multiplicative X-factor for year t.

In the case of ACSA, the X-factor represents the percentage by which real prices must decrease or the ‘efficiency discount’.<sup>257</sup> In turn, the level of the X-factor for ATNS is set so as to enable the company to reach a specified rate of return.

The determination of a rate of return is based on two components: a risk premium and a rate base. According to Teljeur (2003), the “risk premium is established at a premium over South Africa’s risk-free rate, the R135 government bond.”<sup>258</sup> In the case of ACSA for example, the selection of a rate of return that is above the risk free rate has been justified by the Regulating Committee on the basis that “as a partially privatised entity, ACSA would not be attractive to investors if the rate was below the risk free rate”.<sup>259</sup>

In addition to the Regulatory Committee's role in the price regulation process described above, it is also able to "receive complaints regarding ACSA or ATNS's non-compliance in relation to charging a tariff not approved by the Committee; not complying with conditions of a 'granted' permission or having a direct or indirect financial interest in the provision of air services."<sup>260</sup> The Committee is further empowered to investigate any complaint of this nature and can direct ACSA or ATNS to comply with the provision within a specified period.<sup>261</sup>

#### **6.1.4 Benefits and shortcomings in the process used to determine administered prices in the aviation industry**

According to Teljeur (2003) the regulation of ACSA and ATNS's prices by the Regulating Committee of the Department of Transport has prevented the abuse of market power arising from their dominance in the market and, thereby, prevented monopolistic rents. In addition, Teljeur (2003) has argued that the basic principles of economic regulation that are enshrined in the acts of Parliament that established ACSA and ATNS have been effective in preventing undue discrimination against, or among, users of navigation infrastructure or air traffic services.<sup>262</sup>

These benefits aside, the work on administered prices reviewed in this report have highlighted several shortcomings previously identified in the process used to determine administered prices in the aviation industry. These shortcomings are summarised below.

##### **Concerns related to the basis for assumptions used in the regulatory methodology**

According to Storer and Teljeur (2003), the regulatory methodology employed in the aviation sector "hinges on critical assumptions" made regarding the rate of return, the rate base and risk assessment, which appear to be based on international prices.<sup>263</sup> At the same time, the risk premiums, in particular, are based on experience in the private sector. Within this context, the authors contend that these assumptions "do not take into account that the entities in question are public-owned entities for which private sector risk premiums may be inappropriate."<sup>264</sup>

In addition, AASA has also previously raised concern regarding the fact that the rate base used in the price cap methodology is such that the price cap is based on the 'return on capital employed' methodology. This

includes assets as well as borrowed or available funds; and provides a broader rate base than if based on assets alone.<sup>265</sup> According to Storer and Teljeur (2003), the problem with this approach is that:

It is a generally accepted accounting convention in regulatory practice that borrowed funds are only included in the rate base once an investment has been made and the loan has been turned into an asset, not before. According to the approach document for the 2004/5-2008/9 permissions, the ROCE [Return on Capital Employed] is defined as the returns available to the providers of finance divided by the average net finance available (i.e. the debt and equity), which includes non-invested borrowed or retained funds.

According to Teljeur (2003), the motivation underpinning the determination of high rates of return for ACSA and ATNS has been “flawed in several ways”. In substantiating this argument, Teljeur (2003) has stressed that given that the government is responsible for indicating the rate of return, a non-listed infrastructure monopoly with limited private sector investments does not need returns in excess of the risk-free rate. Secondly, Teljeur (2003) has argued that it is improper for a regulated infrastructure company to pursue a higher risk portfolio that is financed by revenues from regulated activities and receive higher returns as a reward.

### **Unhappiness with the price caps determined by the Regulating Committee**

Similarly, in the past, AASA and BARSA have expressed unhappiness with the price caps determined by the Regulating Committee in the aviation industry. Indeed, these price caps have been criticised for allowing ACSA and the ATNS “excessive returns”.<sup>266</sup> In addition, the Committee has also been accused in the past of being “too lenient” with ACSA and ATNS.<sup>267</sup>

Furthermore, some stakeholders within the aviation sector have previously expressed a feeling that the small size and part-time nature of the Regulating Committee has resulted in less rigorous price cap determination and insufficient monitoring of efficiency.

### **Concerns with regulatory independence**

More broadly, concerns have been raised about a perceived lack of independence of regulating parties in the aviation industry. In particular, Mayer and Onyango (2005) have previously emphasised the following shortcomings related to the regulatory framework in the industry:<sup>268</sup>

- The Minister of Transport appoints the Regulating Committee and is responsible for approving its decisions, while also acting as the majority shareholder for the entities that the Regulating Committee is required to regulate.
- The requirement for ministerial approval of the decisions of the Regulating Committee means that it is not formally independent.
- The co-jurisdiction with respect to regulation with the competition authorities requires “at least an unambiguous and enforceable cooperation agreement between the two authorities, which does not exist”.

This view is echoed by Teljeur (2003), who is of the opinion that the need for Ministerial approval of recommendations is indicative that regulation in the aviation industry is dependent on the government. Specifically, it has been argued that it is contradictory to strong and effective regulation for the Minister of Transport to promote sustainability and profitability within the context of price regulation, while serving as a majority shareholder of ACSA and ATNS. In the words of Teljeur (2003):<sup>269</sup>

As a shareholder of ACSA and ATNS, the Minister of Transport has the right to demand reasonable returns, whereas the regulator’s main responsibility is to keep those same returns in check and approaching competitive levels. In addition, the concurrency of jurisdiction with the competition authorities, in [the] absence of operational agreements between the two entities, creates scope for ‘forumshopping’, whereby regulated entities or consumers are likely to approach the organ of state most likely to be sympathetic to their views/complaints. This situation could easily lead to contradictory rulings which, in [the] absence of a clear appeal processes, would have to be adjudicated upon by the courts.

Similarly, Teljeur (2003) has argued that the institutional set up in the aviation industry has contributed to the cultivation of a culture where no tension exists in relation to regulation between the airport companies and the Regulating Committee. In addition, the companies have been happy with decisions made and no concerns have been voiced about regulation. Within this context, Teljeur (2003) implies that the regulatory framework has been established to benefit the airport companies rather than the country.<sup>270</sup>

At the same time, Storer and Teljeur (2003) have expressed concern that the mandate of the Regulating Committee creates the potential for conflict. In this respect, the Committee is tasked with balancing the

commercial revenues of the incumbent with consumers' interests, as well as ensuring the financial viability of the regulated entity.<sup>271</sup>

### **Weaknesses in implementation**

It has been argued that although the regulatory framework in the aviation industry is underpinned by scientific principles, several weaknesses in its implementation have served to undermine the effectiveness of regulation in the industry. For instance, it has been suggested previously that the Regulating Committee does not have the skills and resources required to implement a "rigorous price cap regime" and "provide continuous monitoring of efficiency improvements".<sup>272</sup>

### **6.1.5 Proposed alternative approaches and recommendations to improve the way administered prices are determined in the aviation industry**

Notably, very little attention was given in the studies review in this report to possible alternative approaches and recommendations to improve the process of determining administered prices in the aviation industry. Nevertheless, in one proposal, writing in 2003, Teljeur recommended that regulatory and shareholding responsibilities in the aviation industry be kept separate. According to Teljeur (2003), the absence of this separation can create conflicting objectives, "or at least the impression thereof".<sup>273</sup>

## 6.2 Ports

The ports sector in South Africa is comprised of three core components: infrastructure provision, port operations and port and marine related services.<sup>274</sup> The National Ports Authority (NPA), which is a wholly owned subsidiary of Transnet (a SOE under the DPE),<sup>iv</sup> is responsible for planning and providing port infrastructure in South Africa, and owns all of the country's ports.<sup>275</sup> The NPA is also responsible for the provision of marine related services, and has the authority to licence private companies to provide these services. The operation of ports in South Africa is overseen by the South African Port Operations (SAPO), a separate division of Transnet. According to Hodge *et al.* (2008), SAPO operates terminals at South African ports "through concessions or licences from the NPA."<sup>276</sup> SAPO also provides cargo-handling services, together with private operators; with the NPA authorised to licence others to provide these services.<sup>277</sup>

Hodge *et al.* (2008) argue that there is a clear need for oversight and regulation in the ports sector. The authors suggest that given that the "NPA is the only provider of marine-related services, there is potential for it to abuse its monopoly position. Hence, some form of price oversight is necessary to ensure this does not happen."<sup>278</sup> Hodge *et al.* (2008) add that "both the NPA and SAPO are under Transnet which creates the potential for the NPA to favour SAPO against other private operators. Therefore, ex-ante behaviour regulation is required to govern the behaviour of the NPA."<sup>279</sup>

Responsibility for overseeing the ports sector is bestowed upon the national Department of Transport. In addition, the DPE plays a role in the sector through its shareholder compacts with Transnet.<sup>280</sup> The mandate for regulation of the sector is held by the Ports Regulator, initially established through the National Ports Act of 2005.<sup>281</sup> However, Hodge *et al.* (2008) note that the regulatory jurisdiction of the Ports Regulator "is limited to the NPA which regulates other companies in the sector through concessions and licences."<sup>282</sup>

---

<sup>iv</sup> Transnet was established as a holding company to house the unincorporated divisions of ports (Portnet), rail (Spoornet), commuter rail (Metro Rail), pipelines (Petronet) and airways (South African Airways) along with several other enterprises.



### **6.2.1 Identifying administered prices in the ports sub-sector**

Based on the information provided in the existing studies review in this report, together with the definition of an administered price provided in Chapter 3, a variety of prices for broad prices related to port calls and services can be regarded as administered within the ports sub-sector. These include prices for:

- Container handling.
- Berthing.
- Cargo dues.
- Running of ships lines.
- Wharfage charges.

### **6.2.2 Factors driving administered prices in the ports sub-sector**

It has been suggested that Transnet and the DPE may have set about determining prices in the port sector with a profitability objective in mind. In this respect, it has been argued that the desire to establish the NPA as a profit-making entity has, in the past, been, an important factor driving the administration of prices in the sector.

For its part, Teljeur (2003) has argued that the Department of Transport had maintained an interest in price determination give the fact that transport costs and backlogs have a direct impact on consumers, exporters, and small and medium enterprises (SMEs).<sup>283</sup> According to Teljeur (2003), unhappy consumers and users of port services – who were not willing to pay over the odds for prices that are administered – have historically exerted a strong influence in terms of facilitating reforms to the process of price determination in the ports sector. Indeed, the bargaining power of customers presents an influential factor driving the determination of port tariffs.<sup>284</sup> For example, it was noted that some companies had “adopted a company policy to deal directly with Transnet and its divisions only through formal bilateral communication protocols”.<sup>285</sup>

Over and above the influence of profitability and consumer bargaining power, prices in South Africa’s port sector are influenced by several other factors, including:<sup>286</sup>

- The nature of the country’s marine trade. In this respect, the presence of limited scale economies and multiple port calls serve to raise port costs.

- The historical development of ports in South Africa.
- The pricing power of port authorities derived from the “inelastic demand for port services”. This led to “the practice of raising wharfage charges on cargo to fund non-port activities”. This practice is still present in the form of cargo dues. Indeed, it has been noted previously that cargo dues constitute some 70 percent the NPA’s income.

Another important driver of pricing in the ports sub-sector has been inter-modal cross-subsidies across the broader transport sector. The process of cross-subsidisation has seen profits from successful Transnet units such as ports being transferred into the coffers of less successful units. According to Teljeur (2003), this has served to allow “efficient operations to continue without repercussions”.<sup>287</sup>

### **6.2.3 Guiding principles, processes and frameworks underpinning the determination of administered prices in the ports sub-sector**

The institutional structure and regulatory framework underpinning port administration in South Africa has evolved significantly over the past century. From an historical perspective this evolution can be divided into four distinct phases, each of which was accompanied by a unique approach to the administration of pricing within the port sector.<sup>288</sup> Initially, prior to the establishment of the Union of South Africa in 1910, the commercial ports in the Cape and Natal were controlled by their respective colonies. Under this structure, each of the harbours were financially autonomous and administered their own tariffs. In turn, all revenue and expenditure accrued to the respective colony’s harbour administration. During this period, “inter-port competition was strong and promoted competitive tariffs, as each port authority tried to secure as large a traffic base of the primary traffic destined for the reef as it could as well as agricultural exports from its hinterland”.<sup>289</sup>

The second phase of port administration was ushered in by the Union of South Africa in 1910. This facilitated the unification of both the harbour and railway authorities into one body – the South African Railways and Harbours. In line with this merger, a uniform tariff structure was introduced to block conflicts amongst the various colonies and lessen inter-port competition.

Thereafter, the third phase saw the transformation of the harbours and railway administration into a state-owned commercial enterprise – in the form of the South African Transport Services (SATS) – in 1981. Eight years later Transnet was established out of the ‘corporatisation’ of SATS. This facilitated a greater degree of transparency in the pricing of port services; and saw pricing for port services determined on an ad valorem basis. For instance, wharfage was “applied on an ad valorem basis levied at a fixed rate (later the cargo value was capped) on the value of the cargo as declared by the manifest”.<sup>290</sup>

At the time the authorities justified the payment of wharfage by stating that it would be used to finance rail access and general cargo infrastructure. In practical terms, however, it has been said that the ad valorem wharfage reinforced tariff barriers, discouraged imports (particularly of high value cargo), raised the cost of exports and made South African ports expensive links in the logistics chain.<sup>291</sup> Furthermore, according to Teljeur (2003), the ad valorem charge also served as an effective disincentive for higher value-added manufacturing and had no basis on efficiency grounds.<sup>292</sup>

In the 2000/2001 financial year port-related prices were also set using an ad valorem based tariff structure.<sup>293</sup> This structure meant that higher-value cargo, irrespective of size and weight, was more expensive to move through ports in comparison to lower-value cargo. This same year, restructuring of tariff prices was implemented in order to reduce the overall tariff revenue and change the tariff structure. The process of reform involved moving from the ad valorem based system to a unit-based tariff system. The new tariffs were based on a viability model incorporating depreciation of current assets, future investment requirements, and reasonable returns. Later, the NPA consulted with customers informally and concluded “future tariff increases should be kept below or at the inflation rate.”<sup>294</sup>

The following year wharfage was eliminated and a new charge of “cargo dues” was introduced. Specifically, cargo dues “on all commodities, articles, things or containers (full or empty) were levied at all ports belonging to or controlled and managed by Transnet”.<sup>295</sup> It has been argued that the “replacement of ad valorem wharfage with cargo dues resulted in a dramatic hike in the rates paid by the low value cargo that had been advantaged by the previous system”.<sup>296</sup>

After the introduction of new tariffs that were more cost reflective than the ad valorem model, the NPA consulted with customers informally and concluded that “future tariff increases should be kept below or at

the inflation rate “to gradually erode the remaining surplus revenues to more reasonable and sustainable levels”.<sup>297</sup>

Prior to 2005, no formal regulatory body existed within the ports sector. Transnet would set its own prices, which were then approved by the Transnet Board and shareholder, the Minister of Public Enterprises, both of whom evaluated the tariffs in the context of the overall profitability of Transnet.<sup>298</sup> The DPE’s Compact with Transnet enabled it to influence Transnet’s financial targets and, in theory, Transnet’s price-setting processes. In this respect, targets could be set on returns, prices, investment, and other indicators; and could even be benchmarked against international averages.<sup>299</sup> However, in the past capacity constraints within the DPE prevented strong control over Transnet and resulted in the “rubberstamping of business plans” and simple confirmation of compliance with the Public Finance Management Act (PMFA).<sup>300</sup>

Outlining the price setting process in 2003, Teljeur (2003) explained that Transnet would submit recommended prices to the NPA who, in turn, would submit the port tariffs annually to the Transnet Tariff and Marketing Committee. Through this process, the recommended prices would pass through different “layers of pricing decisions”.<sup>301</sup> For instance, certain stages of the pricing process involved the allocation and calculation of cross-subsidies at the divisional level – involving Spoornet or the NPA. According to Teljeur (2003), as a result, the final pricing decisions at group level were indicative of “diluted” pricing signals.<sup>302</sup>

Thereafter, the Ports Regulator of South Africa was established under the provisions of the National Ports Act, 2005. The Act set out the primary functions of the Ports Regulator, which include to:<sup>303</sup>

- Exercise economic regulation of the ports system in line with government’s strategic objectives.
- Promote equity of access to ports and to facilities and services provided in ports.
- Monitor the activities of the National Ports Authority to ensure that it performs its functions in accordance with this Act.
- Hear complaints and appeals under the Ports Act.

According to Hodge *et al.* (2008), the Ports Regulator has the authority to approve tariffs set by the NPA. However, the Regulator “has no power to set prices for services provided by the NPA.”<sup>304</sup> The power of the Ports Regulator is limited further by the authority of the National Port Consultative Committee (NPCC),

which is a consultative committee to the Minister of Transport, and is empowered to “consider substantial alterations to the NPA’s tariffs.”<sup>305</sup> In turn, the authority of the NPA does not extend to the regulation or approval of tariffs charged by concessionaires or licensees.<sup>306</sup>

With the establishment of the Ports Regulator, Hodge *et al.* (2008) have noted that there is “limited scope” for the Minister of Transport to directly impact the decision of the regulator with respect to prices and tariffs in the ports sub-sector. Despite this, the authors note that the NPCC also has the power to consider *substantial* changes to the ports authority’s tariffs.<sup>307</sup> Furthermore, Hodge *et al.* (2008) note that the executive authority of the Ports Regulatory “may be limited under certain scenarios of price regulation”.<sup>308</sup>

#### **6.2.4 Deviations from guiding principles in the process of setting administered prices in the ports sub-sector**

In terms of container terminal handling charges, FRIDGE (2007a) states that SAPO was found to charge lower rates for the handling of containers at multi-purpose terminals.<sup>309</sup> Prices were also found to differ across ports.<sup>310</sup> At the same time, FRIDGE has found that prices charged to different customers in the form of the major lines varied due to different contractual arrangements.<sup>311</sup>

Furthermore, according to FRIDGE (2007a), in principle, “pricing for port calls and services within ports should be proportional to the costs of a ship making the call.”<sup>312</sup> These costs revolve around four principle cost items: time spent in port, general marine and land infrastructure (not attributable to a single user), use of a berth (attributable to a user) and the costs of handling the goods. According to FRIDGE (2007a), within this context price setting should be based on long run marginal costs. However, the FRIDGE (2007a) study claims that “practice in South Africa violates this principle.”<sup>313</sup> Specifically, FRIDGE (2007a) report that pricing practices in South Africa are “strategic with their defining characteristic being the inclusion of non-port financing objectives in the setting of port pricing”.<sup>314</sup>

## **6.2.5 Benefits and shortcomings in the process used to determine administered prices in the ports sub-sector**

### **Benefits**

A handful of historical benefits of the process used to determine administered prices in the ports sub-sector can be identified from the studies reviewed in this report. For instance, according to Teljeur (2003), the departure from the ad valorem based system in the 2001/02 financial year in favour of a unit-based tariff system resulted in new tariffs that were more cost reflective than those derived from the ad valorem model. More recently, FRIDGE (2007a) has noted that the introduction of commodity specific charges has enabled the port authority to:<sup>315</sup>

- Differentially levy charges on commodities in relation to their value and demand elasticity.
- Price cargo dues on the basis of the value of the cargo with a weak link to its 'consumption' of port infrastructure required for its handling.
- Impose an import barrier through charging more on imports than exports, ranging from 20 percent, 33 percent and 100 percent for non-specified break-bulk, bulk and motor vehicles on own wheels respectively.
- Act as an instrument of trade policy by changing the ratio between import and export dues and eliminating the differential on some commodities, such as agricultural products and steel.

With respect to the replacement of ad valorem wharfage, FRIDGE (2007a) notes that this replacement resulted in a reduction in the costs borne by high value cargo.<sup>316</sup> As a result, FRIDGE (2007a) argues that it is reasonable to assume that marine services are now "fairly priced".<sup>317</sup> In addition, in the case of tariffs for berthing and the running of ships lines, tariff increases for both of these services at individual ports meant that these tariffs became more cost reflective and, at the same time, facilitated a reduction in inter-port cross-subsidisation.

### **Shortcomings**

In the past, several shortcomings have been noted in previous studies during the evolution of the price determination process in the ports sub-sector. Writing in 2003, Teljeur (2003) argued that a shortcoming in the approach that enabled Transnet to set its own prices was that the Transnet Board was specifically responsible for "group profitability", but had no mandate to ensure efficient prices or subject its tariff

proposals to an economic regulator.<sup>318</sup> This was exacerbated by the DPE's limited influence on port pricing due to Transnet's complex cost structures and a lack of capacity to monitor Transnet's efficiency.

More broadly, Storer and Teljeur (2003) have noted that the dominance of Transnet within the institutional framework in the port sub-sector was "unsatisfactory from a regulation point of view."<sup>319</sup> Specifically, Storer and Teljeur (2003) argued that Transnet (and the state through its shareholding in Transnet) was "both player and referee" because it controlled both the infrastructure (NPA) and operations (SAPO).<sup>320</sup>

Furthermore, Teljeur (2003) stresses that in the past, the NPA has been the recipient of vociferous complaints by consumers about the tariff structure in the ports sub-sector. According to Teljeur (2003) this stemmed from ports charging too much for infrastructure services and under-charging for handling. In order for consumers and port users to dispute decisions made by the NPA or file a complaint against it, they were referred by the NPA to Transnet. In Teljeur's (2003) view, this process did not instil consumer confidence in the appeal process, particularly since it would seem fair to consumers if Transnet's prices had not been brought before the Competition Commission.

Storer and Teljeur (2003) have also bemoaned the absence of formal regulatory controls in the port sub-sector. The authors argued that this was exacerbated by the limited control of the government, through the DPE, over price setting and investment decisions in the sub-sector (despite the government's shareholding in Transnet).<sup>321</sup> In the view of Storer and Teljeur (2003), at the time the DPE was "constrained both in terms of corporate governance options and by a lack of human capacity to effectively monitor Transnet."<sup>322</sup>

More recently, FRIDGE (2007a) have argued that the absence of an appropriate regulatory framework for the ports sector "has allowed significant value to be stripped out of the sector to fund non-performing entities in other elements of the transport sector."<sup>323</sup> Furthermore, FRIDGE (2007a) contends that "low levels of efficiency and high pricing have resulted from the lack of appropriate institutional arrangements to regulate and manage the system."<sup>324</sup>

FRIDGE (2007a) has noted that as long as prices were set by Transnet, then there would not be any set parameters for pricing or service levels of commercial operations, nor would there be any limit set to the

cross-subsidisation of different modes or the application of revenue from operations to cover group pension liabilities and debt obligations.<sup>325</sup>

FRIDGE has reported that price setting was still the prerogative of the port authority, service providers and government and that these differences set the terrain for conflict. At the same time, the FRIDGE (2007a) argued that the increasing competition between ports in South Africa resulted in a situation in which the different interests of users spilled over into “contending views of the objectives and form of port prices”.<sup>326</sup>

FRIDGE (2007a) have also highlighted shortcomings in price setting mechanisms and pricing conduct within the ports sub-sector. In this regard, disadvantages highlighted by FRIDGE (2007a) included:<sup>327</sup>

- The basis on which tariff adjustments were being made was not substantiated to users. No examples of satisfactory disclosures of investment, rates of return and productivity enhancements to back up port costs for both services and operations could be identified.
- Details of investment plans for expansion or refurbishment against which charges were being raised were not satisfactorily communicated to users in terms of the level of detail provided and credibility. Plans, once announced, had been replaced on several occasions.

FRIDGE (2007a) also note that, in the past, it has been possible for the prices of certain services in the ports sector to be raised aggressively by suppliers in cases when they have held a monopoly in the sector.<sup>328</sup> For example, SAPO increased container prices simply because it held a monopoly on dedicated terminals.

FRIDGE (2007a) are also critical of the system of cross-subsidies in the ports sector. Specifically, it has been argued that these cross-subsidies increase prices for port services above optimal levels and, ultimately result in the supply of fewer ports services. In turn, this has potential to decrease allocative efficiency.

Finally, a lack of clarity in the National Ports Act has been identified as a shortcoming in the current regulatory framework. Specifically, according to Hodge *et al.* (2008), the National Ports Act “is not clear on the conditions upon which the regulator can approve or disapprove of the NPA’s tariffs.”<sup>329</sup>



## **6.2.6 Economic impacts and trade-offs resulting from administered pricing decisions in the ports sub-sector**

In analysing wharfage charges, FRIDGE (2007a) argue that in instances where authorities apply a value-based approach rather than a unit basis in the determination of port pricing, the resultant prices may impact on trade performance and lower efficiency. In terms of the former, FRIDGE (2007a) has argued that high port costs, which stem from both charges and delays, have undermined South Africa's trade competitiveness.<sup>330</sup> Indeed, some port users and industry sources have indicated previously that "exports were being choked by port costs".<sup>331</sup>

It has also been argued that exporters, as well as importers, have been affected by the principle of cross-subsidisation within the ports sector. Specifically, Storer and Teljeur (2003) stressed that Transnet's "cross-subsidisation of other business units that is largely funded by port revenues creates distortions and places undue burden on importers and exporters."<sup>332</sup>

More broadly, Storer and Teljeur (2003) have noted that the absence of appropriate, formal regulatory controls in the port sub-sector has had a negative effect on the South African economy by promulgating inefficient pricing in the ports context. Specifically, the authors argue that:<sup>333</sup>

"...it appears that the SA [South African] economy is burdened with a public-owned, yet unregulated monopoly, whose incentive structure and behaviour is no different from a private monopoly. As a result, the discrepancy between efficient price levels and actual price levels is likely to be high and approaching full-scale monopolistic rents."

## **6.2.7 Proposed alternative approaches and recommendations to improve the way administered prices are determined in the ports sub-sector**

Writing in 2003, Teljeur recommended several reforms to the price determination process in the ports sector. Specifically, Teljeur (2003) called for:

- More transparency in the price determination process, particularly regarding cross-subsidies and government-sanctioned targets.

- The need for caution against having a public-owned company that is unregulated, yet whose “incentive structure and behaviour is no different from a private monopoly”.<sup>334</sup> This could result in a discrepancy between efficient price levels and actual price levels and a case where monopolistic rents exist.
- The elimination of cross-subsidisation between the NPA and other Transnet units. Instead, Teljeur (2003) felt that the NPA should be an independent body. At the same time, Teljeur (2003) suggested that the shortfall in other Transnet units should be covered by a “transparent and monitored fiscal transfer”. This would improve the efficacy of subsidies and allow greater monitoring of loss-making entities.

## 6.3 Rail

Services provided within South Africa's rail sector can be categorised into freight and commuter services. According to Hodge *et al.* (2008), the sector has remained "dominated by public sector ownership, management and operation of infrastructure and provision of services."<sup>335</sup> Transnet plays a dominant role in the sector, and owns the majority of the long distance rail track infrastructure in the country. In turn, the South African Rail Commuter Corporation (SARCC), a SOE under the control of the Department of Transport, "owns the railway stations, surrounding land and infrastructure and rolling stock related to the commuter services it provides."<sup>336</sup> Collectively, Transnet and SARCC are the only providers of freight and commuter rail transport in the country. For its part, the Freight Rail division of Transnet (formerly Spoornet) is the sole supplier of freight transport in South Africa.<sup>337</sup> The Shosholozza Meyi division of Transnet "provides inter-city passenger rail services to and from South African destinations"; while the SARCC's Metrorail division provides passenger rail transport services *within* several of the country's major metropolitan areas.<sup>338</sup>

Metrorail boasts a history of loss making. Within this context, passenger rail services have in the past been explicitly subsidised by the national Department of Transport. In this respect, a principle of cross-subsidisation was introduced as part of efforts to control the operation, profits and losses of the commuter rail system. In addition, a series of concession systems were implemented in the 1990s and early 2000s.

According to Hodge *et al.* (2008), the structure of the country's rail sector "would suggest that some form of price regulation may be required to ensure allocative efficiency."<sup>339</sup> Despite this, the authors note that, as of 2008, there was no economic regulation in the rail sector.

### 6.3.1 Identifying administered prices in the rail sub-sector

Based on the definition of administered prices provided in Chapter 3, the following broad categories of prices have been identified in this report as being administered within the rail sub-sector:

- Prices for commuter rail services.
- Rail freight tariffs.

### **6.3.2 Factors driving administered prices in the rail sub-sector**

In the past a number of factors have been identified in previous studies as exerting an influence in terms of limiting price increases in the rail sub-sector. For instance, Teljeur (2003) has noted that the Minister of Public Enterprises had issued warnings against state-owned price increases that could “act as a ceiling on price increases”.<sup>340</sup> Furthermore, Teljeur (2003) indicated that consumers had the power to exert pressure on Metrorail to limit price increases. More broadly, according to FRIDGE (2008), the motivation behind the need for administered pricing in the rail sector may have sprung from the “potential for [the] abuse of market power in an unregulated rail sector”.<sup>341</sup>

### **6.3.3 Guiding principles, processes and frameworks underpinning the determination of administered prices in the rail sub-sector**

The framework and processes underpinning price setting in the rail sub-sector have evolved considerably in the past two decades. Between 1990 and 1995, Metrorail was ring-fenced and received a cross-subsidy from the National Budget. The subsidy, which was based on a cost-plus formula, “led to an effective subsidy for costs incurred that was decreasing in real terms as costs on average were allowed to increase”.<sup>342</sup> Thereafter, a 1996 White Paper called for “regulated competition” in commuter rail services, with a concession agreement proposed as the vehicle for regulated competition.<sup>343</sup> This was followed between 1999 and 2003 by a period of “exclusive concessioning” that saw Metrorail sign an agreement with SARCC to use a price cap type formula (CPI +2 percent) for setting fares. Teljeur (2003) believes that in practice, however, SARCC approved Metrorail’s tariff proposals without making any major changes to them. The SARCC’s approval of Metrorail’s tariff proposals was limited to confirming that Metrorail’s proposals were in line with agreed increases and entailed reviewing Metrorail’s financial statements.

According to Teljeur (2003), this process of “exclusive concessioning” included the introduction of incentives aimed at encouraging the railway company to reduce costs and increase turnover. However, in Teljeur’s (2003) view, these incentives did not serve to reduce actual income shortfalls faced by Metrorail. Instead, this was facilitated through a reduction in expenditure on quality and maintenance of services.

Teljeur (2003) states that the concession agreement formally stipulated that rail fares (tariffs) were to be approved by the national Department of Transport through the SARCC. The author also notes that in practice Metrorail simply submitted its tariff proposal to the SARCC, which “generally approved them without major changes”.<sup>344</sup>

During the concessioning phases, prices were influenced by the concessioning agreements which, in turn, were strongly influenced by Metrorail and negotiated with the national Department of Transport. The SARCC was involved in the annual fare approval process. Proposed prices were submitted to Transnet’s Tariff and Marketing Committee for approval and the Transnet Board, who then evaluated the tariffs in the context of the overall profitability of Transnet. Transnet was not formally required to submit proposed tariffs to the DPE for evaluation or approval. Indeed, Teljeur (2003) notes that neither the national Department of Transport nor the DPE were involved in the practical fare setting process.

A similar process was in place in the rail freight industry. Rail freight tariff structures were revamped prior to 2003 and a new framework for rail freight tariffs was developed. According to Teljeur (2003), this was achieved through the General Freight Business (GFB) 3 Traffic Categories Programme, a framework for rail freight tariffs.<sup>345</sup> In this framework, tariffs were based on the “cost associated with a specific trajectory and type of service”.<sup>346</sup> The categories concept was aimed at distinguishing between regular ‘rail friendly’ bulk freight services and irregular charter services. The new tariffs came into effect in April 2002.

According to Teljeur (2003), Spoornet held a dual role as commercial entity and monopoly provider of essential services. Spoornet’s social responsibilities were primarily tariffs for Shosholoza Meyl (long distance passenger services). The unit based its tariffs on Spoornet’s regular costing exercises and an affordability test. It is unclear what the affordability test was based on; however, Teljeur (2003) suspects that Shosholoza Meyl tariffs were determined by political pressure, or fear thereof.

At the time, while Transnet determined Spoornet’s absolute revenue, Spoornet was able to determine the rate of return on various services. According to Teljeur (2003), at the time, there were a number of conflicting views regarding which rate of return Spoornet should use in the tariff determination process. At this stage, Spoornet denied that its freight tariffs were ad valorem in nature and claimed that it set prices “according to the cost implications of the cargo, regardless of profitability of the industry or value added of

that cargo”.<sup>347</sup> In contrast, the DPE felt that the system used by Spoornet, which was based on a ‘return on assets under management’ formula, approached ad valorem pricing. Under this system, the rate of return for rail freight would equal the rate of return in the industry served.

Following the concession period, Teljeur (2003) explains that Metrorail and the SARCC operated under an interim arrangement consisting of a concise memorandum of understanding (MOU), while a new agreement was being negotiated. During this transition period (post-2003), prices were largely set by Metrorail, subject to approval by the SARCC. Despite this, Teljeur (2003) contends that the SARCC’s new role, in practice, amounted to rubber stamping. Furthermore, Teljeur (2003) explained at the time that the agreement in place was “technically not a concession but a management agreement” through which fares were “set as in the pre-concessioning period, namely by submission of tariff proposals to the SARCC” subject to the approval of the national Department of Transport, “without strong regulatory controls or powers”.<sup>348</sup>

As of 2008 there was no independent regulator in the rail sub-sector.<sup>349</sup> In the absence of an independent regulator, the determination of rail charges is largely entrusted to Transnet. According to FRIDGE (2008), Transnet has “moved away from a consideration of customer demand characteristics” in favour of centralised price-setting procedures, based more rigorously on cost estimates.<sup>350</sup> This has taken the form of fully distributed cost (FDC) pricing.

This FDC methodology entails assigning fixed costs to given services and sets prices as a mark-up on these costs, regardless of the price sensitivity of consumers.<sup>351</sup> However, Transnet has argued that “the form of pricing used by freight rail is Constrained Market Pricing (CMP), which does take customer demand characteristics into account”.<sup>352</sup> Confronted with these conflicting views, FRIDGE (2008) suggest that “it is highly probable that the implementation of CMP is far from universal.”<sup>353</sup>

#### **6.3.4 Benefits and shortcomings in the process used to determine administered prices in the rail sub-sector**

A number of shortcomings have been noted in the past related to the processes in place to determine administered prices in the rail sub-sector. For instance, writing in 2003, Teljeur (2003) argued that inefficiencies within Metrorail were simply perpetuated in the exclusive concession agreement.

Furthermore, Teljeur (2003) argued that the price setting process during the concessioning period was more input driven than output oriented with fares, for example, “determined based on inadequate cost allocation systems devoid of efficiency incentives”.<sup>354</sup> At the same time, Teljeur (2003) bemoaned the fact that there was no independent economic regulator in place in the sector or effective competition. According to Teljeur (2003), the SARCC was not an economic regulator and did not have sufficient powers to control Metrorail’s prices. At the same time, the failure of the Competition Commission to sign an MOU with SARCC prevented the Commission from playing a role in the commuter rail sector.

Furthermore, the limited and constrained role of the DPE in the process of determining prices in the rail freight industry has been cited as an additional shortcoming in the framework underpinning the price determination process. Specifically, information asymmetries between the DPE and Spoornet meant that the DPE had limited knowledge of the pricing and performance of the rail unit and relied on high level and narrow information related to corporate governance together with information provided in terms of the PFMA.<sup>355</sup> As a result, the DPE was unable to conduct detailed efficiency assessments. Furthermore, it was argued that the DPE had no legal framework to guide the tariff approval process and, in turn, there was no guarantee that Transnet could be pressured into choosing efficient prices. At the same time, Teljeur (2003) charged that the DPE was guilty of not imposing hard financial targets for returns or prices.

More recently, a lack of consideration for differences in consumer demand characteristics has been highlighted as a shortcoming in the FDC methodology used by Transnet in the determination of freight rail pricing. The FDC price treats different customers in the same way; and does not distinguish between customers who are very price sensitive and customers who can afford to pay more. According to FRIDGE (2008), the result of this indiscriminate treatment is that “the *volume* of sales to price-sensitive customers is much lower than it could be, while the *value* of sales to consumers who are not price-sensitive is much lower than it could be.”<sup>356</sup>

FRIDGE (2008) have also provided a number of arguments against the use of cross-subsidies from the ports to the rail industry in South Africa. First, FRIDGE (2008) argues that these cross-subsidies removed the profit motive “as discipline on Spoornet management”.<sup>357</sup> Second, FRIDGE (2008) showed that cross-subsidisation from ports to rail within Transnet was found to decrease technical efficiency incentives.<sup>358</sup>

### **6.3.5 Economic impacts and trade-offs resulting from administered pricing decisions in the rail sub-sector**

According to Storer and Teljeur (2003), the way that the price setting process was structured in the rail sub-sector at the time was unlikely to produce efficient prices. The authors contend that this has stemmed primarily from a lack of regulatory control over consumer prices. Indeed, at the time it was noted that “both the SARCC and the DPE have limited influence on commuter rail fares and no coherent system of benchmarking or efficiency incentives exists.”<sup>359</sup> This produced a situation in which Transnet exerted a “disproportionate” influence on Metrorail’s tariffs in the absence of sufficient influence from the SARCC, national Department of Transport, the DPE or the Competition Commission.<sup>360</sup>

Similarly, a lack of regulatory control over rail freight prices was identified by Storer and Teljeur (2003) as leading to inefficient prices as well as “significant negative externalities throughout the entire economy”.<sup>361</sup> The latter was likely to stem from under-investment in rail infrastructure in the country.

### **6.3.6 Proposed alternative approaches and recommendations to improve the way administered prices are determined in the rail sub-sector**

In the past, Teljeur (2003) and Storer and Teljeur (2003) have called for Metrorail to be subjected to rigorous economic regulation. In particular, Teljeur (2003) recommended that this regulation should encompass fares, service quality, and investment decisions. Similarly, in 2003 Storer and Teljeur (2003) called for “some form of regulatory oversight” to be introduced for the determination of rail tariffs.<sup>362</sup> The authors also suggested that “clear cost accounting mechanisms” should be developed for both Spoornet and Metrorail.<sup>363</sup>

From a purely institutional perspective, Storer and Teljeur (2003) suggested at the time that consideration should be given to “severing” the links between the NPA, Metrorail and Transnet.<sup>364</sup> As a less drastic alternative to this, Storer and Teljeur (2003) felt that the inter-modal cross-subsidy links that existed within Transnet could be discontinued.<sup>365</sup>



More recently, FRIDGE (2008) have recommended that South Africa should involve competition authorities in the restructuring process in the rail sector and “provide competitive safeguards, including price regulation, when introducing competitive forces into price setting”.<sup>366</sup>

FRIDGE (2008) note further that it was highly probable that the implementation of CMP was far from universal. With this concern in mind, FRIDGE (2008) suggest that “additional attention is needed on freight rail prices, in order to ensure that demand-based (Ramsey) pricing techniques are being adequately implemented”.<sup>367</sup> In this respect, the FRIDGE (2008) study argues that the Ramsey pricing methodology is better than the FDC pricing system.<sup>368</sup> According to FRIDGE (2008), the Ramsey methodology is designed to maximise the volume of sales in order for price-sensitive customers to carry less of the burden of overhead costs and for price-insensitive customers to carry more of the costs. The result is that the volume of goods or services sold increases under Ramsey pricing and costs can be spread more widely while, at the same time, the average cost of supplying services decreases.

With respect to cross-subsidies, FRIDGE (2008) proposed that Spoornet’s subsidies should flow directly from the budget of the National Treasury and be open to interrogation by the electorate.<sup>369</sup>

More broadly, Hodge *et al.* (2008) have recommended the introduction of an independent rail regulator in the sector. The authors suggest that the regulator could be tasked with regulating prices and the quality of services, together with the use of infrastructure.<sup>370</sup> In addition, Hodge *et al.* (2008) suggest that the independent rail regulator could be responsible for controlling monopolistic behaviour within the sector.<sup>371</sup>

## 6.4 Conclusion

In the past, it has been suggested that South Africa's transport sector was largely devoid of economic regulation. In turn, the regulatory frameworks that were in place in the various transport sub-sectors were criticised for an absence of independent regulators and the presence, at times, of complex and conflicting institutional roles as well as very limited monitoring of efficiency. As a result, it has been argued that in the first half of the previous decade, prices in the transport sector in South Africa were likely to contain monopolistic rents. Even today, there remain vast differences in the extent of economic regulation across the various sub-sectors that comprise the transport sector.

When considered as a whole, several broad shortcomings have previously been identified in the regulatory frameworks and processes for determining prices across the entire transport sector. For instance, the lack of formal or effective controls over the behaviour of the SOEs in the transport sector in terms of their pricing strategies has been problematic.<sup>372</sup> Aligned to this, it has been said that there is a lack of separation between ownership and regulation in the sector, juxtaposed with a weak institutional structure for regulation.<sup>373</sup>

The issue of inter-modal cross-subsidisation has been particularly contentious. In this respect, it has been argued that these cross-subsidies remove profit motives and reduce technical efficiency incentives. Furthermore, FRIDGE has stressed that these cross-subsidies increase the cost of importing and exporting and impact on the ability of the economy to reach the goals of the Accelerated and Shared Growth Initiative for South Africa (ASGI-SA).

In addition to these cross-cutting shortcomings, concerns have been raised in the past with respect to the regulatory frameworks and processes in place in each of the aviation, ports and rail sub-sectors. In the aviation industry, concerns have been expressed related to the basis for assumptions used in the regulatory methodology. Flaws have also been highlighted in the determination of high rates of return for ACSA and ATNS. Similarly, several industry stakeholders have expressed unhappiness with the price caps determined by the Regulating Committee, which have been said to grant ACSA and the ATNS excessive returns. More broadly, the small size and part-time nature of the Regulating Committee has been identified

as a shortcoming, particularly with respect to its ability to implement a rigorous price cap regime. Concerns have also been raised about a perceived lack of independence of regulating parties in the aviation industry.

In the port sector, shortcomings related to the limited power of the Ports Regulator and, prior to the establishment of the Regulator, an absence of formal regulatory controls and the limited influence of the government on price setting decisions have been highlighted. Similarly, unhappiness has been raised at the fact that Transnet has historically served as both player and referee in the determination of port tariffs. Even more recent studies have bemoaned the absence of an appropriate regulatory framework in the ports sub-sector, which has resulted in low levels of efficiency and high pricing in the sub-sector.

In the rail sub-sector, the regulatory frameworks and process that have underpinned the determination of prices in this sub-sector have not been conducive to efficient pricing. In part, this has been attributed to insufficient regulatory control over consumer prices. In this respect, it has been argued that Transnet has exerted a disproportionate influence on pricing, with insufficient influence from other key stakeholders such as the SARCC, national Department of Transport, the DPE and the Competition Commission.

In its current form, the regulatory framework in place in South Africa's transport sector is distinct from the equivalent frameworks in place in other network industries such as electricity and telecommunications. In this regard, significant focus has been placed on safety and standard regulation, while little attention has been given to price or revenue regulation and other pricing controls.<sup>374</sup> In addition, where regulation does occur within the sector, it is mostly facilitated by Transnet, with limited private sector participation. At the same time, the influence of the South African government on prices in the sector is limited.<sup>375</sup>

Taken together, the findings presented in this Chapter suggest that there is significant room for improvement to the regulatory framework across the transport sector in South Africa. In particular, there would appear to be room for a greater level of economic regulation of pricing across the various modes that comprise the transport sector in the country.

## **CHAPTER 7: Administered Prices in the Water Sector**

Several water supply and sanitation services are provided in South Africa, including regional water schemes, local water schemes, on-site sanitation and the collection and treatment of wastewater.<sup>376</sup> The process of providing these water services to consumers involves a number of stages; and a variety of role players are involved in the provision of these services in the country, including the Department of Water Affairs and Forestry (DWAFF), Catchment Management Agencies (CMAs), Water Services Authorities (WSAs), Water Services Providers (WSPs) and Water Boards (WBs).<sup>377</sup> For their part, the DWAFF and CMAs are responsible for water resource management and development.<sup>378</sup> In contrast, bulk water services are provided either through WSAs, which include metropolitan, district and local municipalities; WSPs, which can be contracted by WSAs to provide these services; and WBs, which are controlled and regulated by the DWAFF and the National Treasury.<sup>379</sup> WSAs and WSPs also provide retail water services in South Africa.

At the same time, there is only limited private sector involvement in the provision of water services, with the sector dominated by state involvement in the form of public ownership and control at both the national and municipal level. Furthermore, despite the plethora of stakeholders within the sector, the “water supply industry in a particular area is usually an effective monopoly and industrial water users have limited and often no choice of supplier”.<sup>380</sup> Within this context, Hodge *et al.* (2008) have argued that “some form of price regulation is required to ensure market efficiency.”<sup>381</sup>

A key feature of the water sector in South Africa is the absence of an independent regulator. Indeed, there is no formal economic regulatory function in any part of the water sector.<sup>382</sup> Instead, the DWAFF oversees the sector and is responsible for policy, while also performing some economic regulatory functions in the sector.<sup>383</sup> Within this context, Storer and Teljeur (2003) have noted that self-regulation is evident in a number of instances within the water sector, with the same institution both setting and regulating specific tariff levels.<sup>384</sup>

## **7.1 Identifying administered prices in the water sector**

Several prices are administered within the water sector in South Africa, including the following:

- Water resource management charges.
- Raw water tariffs (water resource development charges).

- Bulk water and wastewater tariffs.
- Retail water tariffs and sanitation charges.
- Waste discharge charges.

## **7.2 Factors driving administered prices in the water sector**

Water is a valuable resource and requires careful management, both to ensure the availability of sufficient supplies and to protect the resource from the impact of waste water discharges. Within this context, a key factor in determining the price of water is its availability.

In the absence of independent economic regulation in the water sector, the country's Water Pricing Strategy (1999) has served as an important reference point for the setting of water use charges. This Strategy has been underpinned by the need to fund water resource management; fund water resource development and the use of waterworks; and achieve an equitable and efficient allocation of water.

In the past, as a guiding framework, the Water Pricing Strategy (1999) contained "formal commitments to processes of consultation in the setting of annual prices, which include a commitment to sound and transparent financial management and to detailed discussion with users and other stakeholder of the actual expenditures on which prices have been based".<sup>385</sup>

## **7.3 Guiding principles, processes and frameworks underpinning the determination of administered prices in the water sector**

The absence of formal independent economic regulation in the water sector in South Africa does not mean that no processes are in place to regulate prices within the sector. Indeed, according to FRIDGE (2007b):<sup>386</sup>

"It must be emphasised that the absence of an independent regulator in South Africa does not mean that there is no regulatory process in place ... Not only is there a formal process in place for most elements of the water cycle but there is evidence that it has been followed in many cases and that consultative processes did have an impact on tariff decisions".

Tariffs and charges are regulated at many different levels across the water supply chain, with this regulation undertaken by a variety of authorities.<sup>387</sup> Consequently, water service end-users pay a final charge which incorporates a number of different elements that are themselves regulated in different ways and by different entities.<sup>388</sup>

The DWAF is empowered to establish guidelines which local governments are required to follow in setting water tariffs.<sup>389</sup> In addition, the DWAF regulates the tariffs of CMAs and WBs. Furthermore, DWAF exercises self-regulation in cases where it provides services itself.<sup>390</sup> In this sense, the Minister has a significant level of discretion within the tariff determination process. Specifically, the Minister is empowered, in terms of the Water Services Act, to set norms and standards for water service tariffs, in concurrence with the Minister of Finance, and to “establish a pricing strategy for charges for any water use within the framework of existing relevant government policy”.<sup>391</sup> Despite this, it has been argued that the actual level of involvement of the Minister is low because the “DWAF, which reports directly to the Minister, is both the sector policy maker and regulator.”<sup>392</sup>

In turn, WSAs are empowered to regulate the tariffs charged by any WSPs that they have authorised to provide services. As in the case of the DWAF, the WSAs self-regulate in cases when they provide these services themselves.<sup>393</sup>

In terms of specific tariffs, in the case of water supplied to individual users, tariffs are built up from the water resource costs, the bulk water production costs and finally (where applicable) the municipal costs incurred in distributing water.<sup>394</sup> The focus on costs is designed to ensure that tariffs reflect the actual cost of providing the water service. In this respect, in the case of municipalities, the Water Services Act “requires tariffs to be set on the basis of the actual, ring-fenced costs of water service provision”.<sup>395</sup> In turn, tariffs in municipalities are constrained by regulation from the National Treasury and the Department of Local Government, which cap tariff increases.<sup>396</sup>

In practical terms, in the absence of formal regulation of water tariffs throughout the water cost chain, tariff setting and regulation is the institutional responsibility of different water “producers”.<sup>397</sup> Within this context, FRIDGE (2007b) explains that responsibilities for setting and regulating tariffs differ according to the tariff or

charge in question. In the case of the water resource management charge, which is designed to recover the cost of water resource management, the CMAs are responsible for setting these tariffs in accordance with the National Water Act. In the absence of CMAs in a particular area, the DWAF assumes responsibility for setting the tariff; resulting in a form of self-regulation. In turn, the DWAF is responsible for regulating the water resource management charge.

The raw water tariff is designed to recover the infrastructure and operating costs of water schemes. In accordance with the national raw water pricing strategy, the DWAF is responsible for setting the raw water tariff (water resource development charge) in consultation with water users, including local government. However, it has been noted that these raw water tariffs are also implicitly set by WSAs and Water Boards in cases where these organisations manage raw water systems.<sup>398</sup> As in the case of the water resource management charge, the DWAF is responsible for regulating the raw water tariff, subject to oversight from the National Treasury.

The DWAFs overall water pricing policy strategy for water resource prices has looked to move “towards tariffs which recover the full economic costs of providing raw water from the resource, whilst maintaining subsidies for poorer consumers and emerging farmers.”<sup>399</sup> Writing in 2003, Storer and Teljeur (2003) explained that the tariff policy for the water resource development charge set by DWAF required a 4 percent real return on the “depreciated *current* value of assets (to be implemented progressively from a low base).”<sup>400</sup>

In the case of bulk water and wastewater tariffs, where bulk water and wastewater services are provided by WBs, these tariffs are set via a process of negotiation between the WB and the WSA (or its appointed service provider). In contrast, the WSAs are solely responsible for setting bulk water tariffs in instances where they undertake the bulk function themselves. When the bulk water service is provided by an external service provider, the tariff will be set in consultation between the WSA and the external service provider.

In guiding the determination of bulk water charges, the DWAF has suggested that they “should, if at all possible, be consistent with government inflation targets.”<sup>401</sup> The WSAs and DWAF are collectively responsible for the regulation of bulk water and wastewater tariffs, with the latter subject to oversight from the National Treasury.



The DWAF is also responsible for setting national norms and standards for the setting of retail water tariffs. For these tariffs, together with sanitation charges, the WSAs are mandated in terms of the Water Services Act and Municipal Systems Act to set tariffs in accordance with these national norms and standards. In turn, the WSA is responsible for regulating the tariffs, subject to oversight from the DWAF.

The Water Services Act and the Municipal Systems Act outline several high level principles for the setting of water services tariffs, including that:<sup>402</sup>

- Tariffs should be cost based and take into account equity and sustainability considerations as well as principles of proportionality.
- All forms of subsidy should be fully disclosed.

## **7.4 Benefits and shortcomings in the process used to determine administered prices in the water sector**

### **Benefits**

Despite the absence of an independent regulator in the water sector, FRIDGE (2007b) have stressed that there remains a clear understanding in the sector regarding the tariff setting process. Furthermore, it has been argued that the process of formulating tariffs in the sector benefits from being subject to consultation and review through structured processes.<sup>403</sup>

Furthermore, in the presence of systemic regulation in the water sector, FRIDGE (2007b) have noted that South Africa's water prices "compare reasonably well" with those in both developed and developing countries.<sup>404</sup> This suggests that, at least in terms of pricing levels, the existing regulatory arrangement is achieving reasonable outcomes.

### **Shortcomings**

Despite this, several shortcomings have been identified with respect to the process used to determine administered prices in the water sector. For instance, Storer and Teljeur (2003) have argued previously that the regulatory incentives for efficient prices are weak at all levels of the activity chain in the water sector.<sup>405</sup> Similarly, the fact that the DWAF's is "both price setter and regulator" in the case of its own schemes has

created an incentive to raise prices while, at the same time, creating an environment that is devoid of incentives for DWAF to cut costs or improve efficiency in its schemes.<sup>406</sup>

Similarly, Storer and Teljeur (2003) have previously highlighted a number of shortcomings in the process of setting bulk water tariffs. Specifically, the authors have argued that:<sup>407</sup>

- Bulk tariffs were set inconsistently by WBs and with a lack of transparency.
- There were no guidelines to follow for issues such as allowed costs and the rate of return.
- There were no incentives to cut costs or improve efficiency.

In the case of water services tariffs, Storer and Teljeur (2003) have criticised the framework underpinning the determination of these tariffs for providing little guidance on the practical application of the high level principles for setting retail prices.<sup>408</sup> In addition, the authors have argued that pressure from municipalities to ensure that charges are kept below inflation has potentially “resulted in final charges being progressively squeezed to below full cost recovery level”, meaning that there is a risk that these charges have not been at the level necessary to facilitate full infrastructure maintenance.<sup>409</sup>

More broadly, it has been suggested that given that the final tariffs faced by water service end-users incorporate several different elements that are regulated in different ways and by different entities, “it is extremely unlikely that the end charges bear any systemic relationship either to costs or to the achievement of wider social objectives that are of key importance in setting water charges.”<sup>410</sup> In this respect, Mayer and Onyango (2005) argue that there is evidence that water charges vary widely in the country and do not reflect underlying costs.<sup>411</sup>

In addition, FRIDGE (2007b) has highlighted a shortcoming related to the presence of systematic regulation in the water sector. Specifically, it has been argued that this structure provides different actors with the freedom to promote their own interests and address their concerns.<sup>412</sup> Furthermore, despite the presence of the DWAF’s guidelines for setting water tariffs, it has been argued that “there still seems to be a great deal of leeway for municipalities to set their own tariffs, as there is no formal regulation or monitoring of these tariffs.”<sup>413</sup>

In addition, Standard Bank (2011) have identified two broad shortcomings related to the current regulatory framework in the water sector. First, it has been stated that “in numerous instances, it appears that the same institution both sets the water tariff level and regulates it.”<sup>414</sup> Second, despite a desire to ensure that tariffs reflect the actual cost of providing water services, Standard Bank (2011) has argued that the fact that the final charges levied to users comprise a number of different elements means that, ultimately, the relationship between the cost of water and the cost levied to end-users is likely to be “weak”.<sup>415</sup>

## **7.5 Economic impacts and trade-offs resulting from administered pricing decisions in the water sector**

In the past, it has been suggested that water tariffs in the country have been inefficient and have led to “insufficient investment and inadequate maintenance” of water services infrastructure.<sup>416</sup> This has raised concerns about the sustainability of the water sector in South Africa.<sup>417</sup>

More recently, rising water prices in South Africa have eclipsed inflation. For instance, prices for water supplied to industry in South Africa generally rose faster than inflation over the period between the 2001/2002 and 2006/2007 financial years.<sup>418</sup> Specifically, municipal water prices to industry rose by an estimated 62 percent between 2001/2002 and 2005/2006 and the domestic price rose by 60 percent over the same period; in comparison the PPIX and CPIX rose by 30 percent and 32 percent, respectively.<sup>419</sup> In addition, prices for bulk water supplied by DWAF rose by an average of 21 percent over the period between 2002/2003 and 2005/2006 in comparison to an increase in the CPIX of just 16 percent over the same period.<sup>420</sup> More recently, Standard Bank (2011) has noted that water tariffs have continued to rise at above-inflation rates.<sup>421</sup> Indeed, water tariffs increased by 8.4 percent on average in 2009, before rising by 10.6 percent in 2010.<sup>422</sup>

## **7.6 Proposed alternative approaches and recommendations to improve the way administered prices are determined in the water sector**

Despite the evidence that the presence of systemic regulation in the water sector appears to have achieved reasonable outcomes in terms of pricing, it has been suggested that, based on evidence from both South Africa and internationally, systematic regulation would work better if there was greater transparency in the

sector. In turn, it has been suggested that information dissemination and formal benchmarking may be an effective tool to maintain equitable, efficient and sustainable water prices".<sup>423</sup>

In another proposal to ensure efficient regulation and pricing efficiency in the water sector, writing in 2003 Storer and Teljeur (2003) called for "ring-fencing of water operations at local authority level from other local authority activities" in order to facilitate the availability of improved information.<sup>424</sup>

At the same time, Storer and Teljeur (2003) have previously suggested that consideration should be given to the establishment of an independent regulator within the water sector in South Africa. As an alternative to this, the authors suggested that efforts could be made to develop regulatory capacity within the DWAF, before establishing an independent regulator in the future.<sup>425</sup> In any event, the national government appears to have taken note of these suggestions. Indeed, in 2010 the government announced plans to establish an independent water regulator that will be tasked with implementing water price regulation in the country.

## **7.7 Conclusion**

In many respects, the framework and processes in place for setting water tariffs and charges in South Africa reflects the diversity and complexity of the water sector in the country. In the absence of formal, independent regulation in the sector, a system of systematic regulation prevails, which means that prices are set by a variety of different entities and role players. The existing institutional arrangements in the sector do at least allow for some government influence on water tariffs and charges. In this respect, the respective entities involved in the setting of prices are subject to oversight from the DWAF, and in some cases the DWAF assumes the roles of price setting and self-regulation.

There is evidence to suggest that systematic regulation has worked well in the water sectors in many Organisation for Economic Cooperation and Development (OECD) countries; and it appears to have achieved reasonable outcomes within the South African context as well. Despite this, it has been argued that the multitude of links in the water supply chain "that are regulated in different ways and by different entities" has contributed to a reality in which final charges for water services are "unlikely to be cost

reflective.<sup>426</sup> At the same time, weaknesses can be found at all levels of the water activity chain in terms of the regulatory incentives in place to reduce costs and set efficient prices.<sup>427</sup>

These shortcomings suggest that there is room for improvement in the regulatory framework and processes underpinning the determination of prices within the water services sector. The government's plans to introduce an independent regulator in the sector may represent an important step forward in this regard.

## **CHAPTER 8: Conclusion**

Administered prices play an important role in the South African economy. They constitute a significant portion of the country's overall CPI basket; and exert a prominent influence on the country's economic competitiveness due to the fact that they are present in a number of key backbone infrastructure sectors. This report has presented a review of all available studies on administered prices in the energy, telecommunications, transport and water sectors. The regulatory frameworks and processes underpinning the determination of administered prices in these sectors differ markedly. Nevertheless, taken together the findings outlined in this report provide a number of pertinent insights that can be used to shape the future work of the TIC task team with respect to administered prices in South Africa.

However, it is important to be mindful at the outset of the scope and limitations of the report. Most prominently, a number of the studies that have formed the basis for this report are dated and, as a result, do not necessarily reflect the current reality in the respective sectors in which they are focused. In certain instances, the regulatory frameworks and processes for determining administered prices in specific sectors have evolved or been replaced by alternative processes in the intervening period since the studies were compiled. As a result, in some cases, the information presented in these studies related to the drivers, benefits and shortcomings and economic impacts of the price administration process, which have formed the basis of this report, may not reflect the current realities in the respective sectors.

While clearly a limitation, the fact that much of the existing research work on administered prices in the energy, telecommunications, transport and water sectors is now dated provides a clear picture as to what should form the basis of the TIC's work programme going forward. In this respect, it is clear that there is an urgent need to develop a new and comprehensive research agenda on administered prices in South Africa. Specifically, there is a need to focus attention on new research into the current regulatory frameworks and processes underpinning the determination of administered prices, particularly in the energy and transport sectors. Moreover, these research endeavours should be focused on the shortcomings, benefits and economic impacts of the incumbent approaches, as well as on alternative approaches that could be considered going forward. The findings outlined in this report indicate that the gaps in the information available in the existing literature are most stark in these areas.

Nevertheless, the findings outlined in this review of previous work done on administered prices in South Africa do provide a number of important insights into the administration of prices in the energy,

telecommunications, transport and water sectors that remain pertinent in the current context. For instance, it is clear that approaches to the administration of prices vary considerably across the four sectors, particularly with respect to the presence of independent regulation. In some instances regulation is performed by a separate body, such as in the electricity, telecommunications and aviation industries, while in others sectors regulation is performed in a relatively informal and perfunctory way. For example, in the ports and rail sectors, regulation is performed by the department that holds the state's ownership interest in the enterprise being regulated. Understandably, this has raised question marks regarding regulatory independence.

At the same time, the review of studies on administered prices in South Africa has also highlighted concerns related to limitations in the mandates, power and capacity of regulators to exert effective control over prices and promote efficiency. This has related primarily to a lack of in-house technical skills and capacity, insufficient resources and insufficient powers to extract essential cost and performance data. In the telecommunications sector, for example, ICASA has faced difficulty obtaining the necessary cost information and data to effectively administer prices; resulting in information asymmetries that have placed the incumbent companies in favourable positions in comparison to the regulator. In the words of Storer and Teljeur (2003) "this has tended to result in implementation of price controls based on negotiated agreements rather than hard analysis and the calculation of technically appropriate control."<sup>428</sup> Moreover, these information asymmetries have hindered efforts to steer prices towards efficient levels.

Furthermore, in certain cases gaps in the availability of cost data have influenced the pricing methodologies that are applied in the process of administering prices. For instance, in the telecommunications sector and the aviation industry, the price caps employed have been based on international experience rather than a detailed analysis and calculation of regulatory accounts. At the same time, it has been noted that price determination processes appear to be largely driven by costs and focused on inputs, while little attention is paid to efficiency or outcomes monitoring.

Taken together, the presence of these issues has prompted some studies to conclude that administered pricing in South Africa is "not working well". In particular, it has been argued that given the frameworks and processes in place to administer prices in the sectors under investigation in this report, it is unlikely that these prices will be reflective of efficient costs.



## **CHAPTER 9: Recommendations**

The primary objective of the research process that has informed the development of this report has been to assess all research work done on administered prices in the energy, telecommunications, transport and water sector with a view to providing evidence based input to form the basis for the work of the TIC task team. With this objective in mind, this final Chapter outlines a series of recommendations that can be used to guide the TIC task team in the development of a work plan that will enable it to achieve its mandate of identifying the factors driving administered prices in South Africa and understanding the economic implications of administered pricing decisions in the country.

## **9.1 Commission new, up-to-date studies on the regulatory frameworks and processes underpinning the determination of administered prices**

In many instances, the available studies on administered pricing in the sectors reviewed in this report were published several years ago; and may not reflect the current reality in these sectors. Consequently, it is necessary to undertake a whole new range of studies that outline and assess the *current* regulatory frameworks and processes in place to administer prices in each of the energy, telecommunications, transport and water sectors.

## **9.2 Focus greater attention on the economic impacts of administered pricing decisions**

Based on the information drawn from the studies reviewed in this report, it is clear that there is a need for more research assessing the actual economic impacts of administered pricing decisions in the energy, telecommunications, transport and water sectors. The existing information available in this regard is insufficient to compile a detailed picture of the economic implications of administered pricing decisions in these sectors.

In developing a research agenda that is focused on the economic impact of administered prices, consideration should be given initially to undertaking a dedicated study to assess the extent to which administered prices in each of the sectors are approaching efficient levels. Similarly, consideration should be given to assessing the impacts and implications of cross-subsidisation within the context of administered pricing in South Africa.

### **9.3 Assess the effectiveness of administered pricing in terms of its contribution to national objectives**

Research needs to be undertaken to assess the effectiveness of administered pricing in the energy, telecommunications, transport and water sectors in terms of the contributions of this price regulation to the realisation of national social and economic objectives. Linked to this, there is a need to implement a greater level of monitoring and evaluation related to the impact of administered prices.

### **9.4 Improve the capacity and resources of independent regulators**

The TIC task team should give attention to investigating ways to improve the ability and capacity of independent regulators to regulate prices, particularly in the telecommunications and energy sectors. In this regard, there is a need to focus on developing skills within the regulators as well as additional resources. Furthermore, consideration should be given to providing temporary consultancy assistance to regulators during the course of the skills and capacity development process.

### **9.5 Undertake benchmarking analyses**

There is a need to benchmark the performance of both the sectors in which prices are administered as well as the performance of regulators in South Africa. This benchmarking would create the opportunity for future studies to conduct valuable data analysis and perform comparison, both nationally and internationally. In particular, it would allow the government to evaluate performance and monitor improvements against pre-determined benchmarks.

### **9.6 Give greater attention to alternative approaches for administering prices**

The available studies reviewed in this report highlight several possible alternative approaches to the regulatory processes and methodologies in place to determine administered prices in the respective sectors. In some cases, however, these recommendations are dated. Furthermore, in other cases

insufficient attention is given to possible alternative approaches and their relative merits and shortcomings. With this in mind, the TIC should look to undertake extensive research at a sector-specific level into alternative approaches and regulatory frameworks that could be considered in each of the energy, telecommunications, transport and water sectors. Specifically, attention should be given to investigating the possible benefits and shortcomings of alternative approaches in comparison to the existing processes and frameworks in place to determine administered prices in each of the sectors.

## References

- Altman, M., Mather, A., Fleming, D., Harris, H., 2009, 'The Impact of Electricity Price Increases and Rationing on the South African Economy. Potential energy savings: a review by sector. A review of potential incentives for promoting energy efficiency', Human Sciences Research Council (HSRC)
- Crompton, R., Maule, A., Mehlomakulu, B., Rustomjee, Z. and Steyn, G., 2006, 'Possible reforms to fiscal regime applicable to windfall profits in South Africa's liquid fuel energy sector, with particular reference to the synthetic fuel industry', A discussion document for public comment, 14 July 2006
- FRIDGE, 2007a, 'Administered Prices Study on Economic Inputs: Ports Sector'
- FRIDGE, 2007b, 'Administered Prices Study on Economic Inputs: Water Sector',
- FRIDGE, 2008, 'Prices, Investment and Efficiency on the Railways: A Sectoral Review of Efficiencies in Administered Pricing in South Africa'
- Gilward, A., 2004, 'Telecommunications Sector Analysis', Paper prepared for the Presidency project on Growth Drivers
- Hodge, J., 2003, 'Determination of Administered Prices in Telecommunications in South Africa', available from [http://www.commerce.uct.ac.za/Economics/Programmes/postgraduate\\_programmes/masters/Specialisations/TRP/Research/Hodge\\_telcomprices.pdf](http://www.commerce.uct.ac.za/Economics/Programmes/postgraduate_programmes/masters/Specialisations/TRP/Research/Hodge_telcomprices.pdf) [5 July 2011]
- Hodge, J., Van Basten, C., Myburgh, A., Anderson, P. and Sheik, F., 18 April 2008, 'A Regulatory Framework for Economic Regulation of Network Industries in South Africa', Office of the Presidency
- Mayer, J. and Onyango, D., 2005, 'Review of Regulation in South Africa' HSRC, February 2005
- NERSA, 2009a, 'Electricity Pricing', Presentation to the Parliamentary Portfolio Committee on Energy

NERSA, 2007, 'Eskom's Application for Multi-Year Price Determination (MYPD) Rule Changes', NERSA Consultation Paper

NERSA, 'Eskom MYPD 2 Application 2010: Reasons for Decision'

NERSA, 2009b, 'Eskom's Multi Year Price Determination (MYPD) Revised Rules on the Treatment on Primary Energy Cost Variances, Capital Expenditure Cost Variances, Valuation of the Regulatory Asset Base and Triggers for a Re-opener'

NERSA, 'Multi-Year Price Determination (MYPD) Methodology'

Ports Regulator of South Africa, 'Ports Regulator', <http://www.portsregulator.org/> [29 August 2011]

South African Petroleum Industry Association, 'South African Fuel Industry Overview', <http://www.sapia.co.za/industry-overview/economic-regulation.html> [06 July 2011]

Standard Bank, 2011, 'Administered prices – a closer look', Economic Strategy, South Africa: Insight, 20 July 2011

Steyn, G., 2003, 'Administered Prices: Electricity', A Report for National Treasury

Storer, D. and Teljeur, E., 2003, 'Administered Prices: Executive Report', A Report for National Treasury

Teljeur, E., 2003, 'Administered Prices: Transport', A Report for National Treasury

## Endnotes

---

- <sup>1</sup> Mayer, J. and Onyango, D., 2005, p. 5
- <sup>2</sup> *Ibid.*, p. 3
- <sup>3</sup> Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 1
- <sup>4</sup> *Ibid.*, p. 13
- <sup>5</sup> *Ibid.*, p. 12
- <sup>6</sup> Standard Bank, 2011, p. 1
- <sup>7</sup> Standard Bank, 2011, p. 1
- <sup>8</sup> Standard Bank, 2011, p. 1
- <sup>9</sup> Standard Bank, 2011, p. 2
- <sup>10</sup> Storer, D. and Teljeur, E., 2003, p. 36
- <sup>11</sup> *Ibid.*
- <sup>12</sup> *Ibid.*
- <sup>13</sup> Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 102
- <sup>14</sup> Mayer, J. And Onyango, D., 2005, p. 3
- <sup>15</sup> *Ibid.*, p. 103
- <sup>16</sup> Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 100
- <sup>17</sup> *Ibid.*
- <sup>18</sup> Mayer, J. And Onyango, D., 2005, p. 14
- <sup>19</sup> *Ibid.*
- <sup>20</sup> *Ibid.*
- <sup>21</sup> Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 100
- <sup>22</sup> *Ibid.*
- <sup>23</sup> *Ibid.*
- <sup>24</sup> *Ibid.*
- <sup>25</sup> *Ibid.*, p. 103
- <sup>26</sup> Steyn, G., 2003, p. 16
- <sup>27</sup> *Ibid.*
- <sup>28</sup> Mayer, J. And Onyango, D., 2005, p. 13
- <sup>29</sup> *Ibid.*
- <sup>30</sup> *Ibid.*
- <sup>31</sup> Mayer, J. And Onyango, D., 2005, p. 13
- <sup>32</sup> *Ibid.*
- <sup>33</sup> *Ibid.*
- <sup>34</sup> *Ibid.*
- <sup>35</sup> Steyn, G., 2003, p. 16
- <sup>36</sup> *Ibid.*
- <sup>37</sup> Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 104
- <sup>38</sup> Storer, D. And Teljeur, E., 2003, p. 7
- <sup>39</sup> *Ibid.*, p. 8
- <sup>40</sup> *Ibid.*, p. 4
- <sup>41</sup> Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 103
- <sup>42</sup> *Ibid.*, p. 9
- <sup>43</sup> Steyn, G., 2003, p. 18
- <sup>44</sup> *Ibid.*
- <sup>45</sup> *Ibid.*, p. 21
- <sup>46</sup> *Ibid.*
- <sup>47</sup> *Ibid.*
- <sup>48</sup> *Ibid.*, p. 21-22
- <sup>49</sup> NERSA, 2009a
- <sup>50</sup> NERSA (undated)
- <sup>51</sup> NERSA, 2007
- <sup>52</sup> NERSA, 2009a
- <sup>53</sup> NERSA, 2009b

- 
- 54 NERSA, 2009a  
55 *Ibid.*  
56 *Ibid.*  
57 NERSA (undated)  
58 Steyn, G., 2003, p. 22  
59 *Ibid.*  
60 *Ibid.*  
61 Mayer, J. And Onyango, D., 2005, p. 14  
62 Storer, D. and Teljeur, E., 2003, p. 6  
63 Steyn, G., 2003, p. 26  
64 *Ibid.*, p. 12  
65 Mayer, J. And Onyango, D., 2005, p. 14  
66 Steyn, G., 2003, p. 3  
67 Storer, D. and Teljeur, E., 2003, p. 7  
68 Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 27  
69 Steyn, G., 2003, p. 3  
70 *Ibid.*  
71 *Ibid.*, p. 27  
72 Altman, M., Mather, A., Fleming, D., Harris, H., 2009  
73 *Ibid.*  
74 NERSA (undated)  
75 Steyn, G., 2003, p. 16  
76 *Ibid.*, p. 28  
77 *Ibid.*, p. 16-17  
78 NERSA (undated)  
79 *Ibid.*  
80 *Ibid.*  
81 Steyn, G., 2003, p. 28  
82 *Ibid.*, p. 29  
83 *Ibid.*, p. 17  
84 *Ibid.*, p. 29  
85 *Ibid.*, p. 30  
86 Altman, M., Mather, A., Fleming, D. and Harris, H., 2009  
87 NERSA (undated)  
88 NERSA (undated)  
89 NERSA (undated)  
90 Crompton, R., Maule, A., Mehlomakulu, B., Rustomjee, Z. and Steyn, G., 2006, p. 15  
91 *Ibid.*  
92 *Ibid.*, p. 7  
93 *Ibid.*, p. 46  
94 *Ibid.*, p. 41  
95 *Ibid.*  
96 *Ibid.*, p. 47  
97 *Ibid.*  
98 Crompton, R., Maule, A., Mehlomakulu, B., Rustomjee, Z. and Steyn, G., 2006  
99 *Ibid.*, p. 41  
100 *Ibid.*, p. 51  
101 *Ibid.*, p. 41  
102 *Ibid.*, p. 47  
103 *Ibid.*, p. 51  
104 South African Petroleum Industry Association  
105 Crompton, R., Maule, A., Mehlomakulu, B., Rustomjee, Z. and Steyn, G., 2006, p. 52  
106 *Ibid.*  
107 Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 103  
108 Crompton, R., Maule, A., Mehlomakulu, B., Rustomjee, Z. and Steyn, G., 2006



- 
- 109 *Ibid.*, p. 10  
110 *Ibid.*  
111 *Ibid.*, p. 61  
112 *Ibid.*, p. 93  
113 *Ibid.*  
114 *Ibid.*  
115 *Ibid.*  
116 Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 94  
117 *Ibid.*  
118 *Ibid.*, p. 95  
119 Mayer, J. And Onyango, D., 2005, p. 5  
120 *Ibid.*  
121 Gilward, 2004  
122 Mayer, J. And Onyango, D., 2005, p. 5  
123 *Ibid.*, p. 6  
124 Meyer, 2005, p. 6  
125 Mayer, J. And Onyango, D., 2005, p. 6  
126 *Ibid.*  
127 *Ibid.*  
128 *Ibid.*  
129 Hodge, J., 2003, p. 26  
130 *Ibid.*, p. 34  
131 *Ibid.*  
132 Mayer, J. And Onyango, D., 2005, p. 7-8  
133 *Ibid.*  
134 Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 95  
135 *Ibid.*  
136 *Ibid.*, p. 96  
137 *Ibid.*  
138 *Ibid.*  
139 *Ibid.*  
140 *Ibid.*  
141 *Ibid.*  
142 *Ibid.*, p. 39  
143 Mayer, J. And Onyango, D., 2005, p. 6-7  
144 Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 97  
145 *Ibid.*  
146 Mayer, J. And Onyango, D., 2005, p. 9  
147 Storer, D. and Teljeur, E., 2003, p. 15  
148 *Ibid.*  
149 *Ibid.*  
150 Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 9  
151 Storer, D. and Teljeur, E., 2003, p. 10  
152 *Ibid.*  
153 *Ibid.*  
154 Hodge, J., 2003, p. 49  
155 *Ibid.*  
156 *Ibid.*  
157 *Ibid.*  
158 *Ibid.*, p. 50  
159 Storer, D. and Teljeur, E., 2003, p. 10-11  
160 *Ibid.*  
161 Hodge, J., 2003, p. 10  
162 Storer, D. and Teljeur, E., 2003, p. 10  
163 *Ibid.*, p. 11

- 
- 164 *Ibid.*  
165 *Ibid.*  
166 *Ibid.*  
167 *Ibid.*  
168 Hodge, J., 2003, p. 12  
169 Storer, D. and Teljeur, E., 2003, p. 11  
170 Hodge, J., 2003, p. 21  
171 *Ibid.*  
172 *Ibid.*  
173 Storer, D. and Teljeur, E., 2003, p. 12  
174 Hodge, J., 2003, p. 29  
175 Storer, D. and Teljeur, E., 2003, p. 12  
176 *Ibid.*, p. 13  
177 *Ibid.*  
178 *Ibid.*  
179 *Ibid.*  
180 *Ibid.*, p. 11  
181 Hodge, J., 2003, p. 13  
182 *Ibid.*  
183 Storer, D. and Teljeur, E., 2003, p. 11  
184 *Ibid.*  
185 *Ibid.*, p. 12  
186 *Ibid.*  
187 *Ibid.*  
188 Hodge, J., 2003, p. 32  
189 Storer, D. and Teljeur, E., 2003, p. 10  
190 Mayer, J. And Onyango, D., 2005, p. 7  
191 Storer, D. and Teljeur, E., 2003, p. 10  
192 *Ibid.*  
193 *Ibid.*  
194 Hodge, J., 2003, p. 5  
195 Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 97  
196 Mayer, J. And Onyango, D., 2005, p. 7  
197 Hodge, J., 2003, p. 5  
198 Mayer, J. And Onyango, D., 2005, p. 7  
199 Storer, D. and Teljeur, E., 2003, p. 9  
200 Mayer, J. And Onyango, D., 2005, p. 7  
201 Storer, D. and Teljeur, E., 2003, p. 9  
202 *Ibid.*  
203 Meyer, 2005, p. 5  
204 Storer, D. and Teljeur, E., 2003, p. 16  
205 Hodge, J., 2003, p. 11  
206 *Ibid.*  
207 Storer, D. and Teljeur, E., 2003, p. 11  
208 Mayer, J. And Onyango, D., 2005, p. 7  
209 Storer, D. and Teljeur, E., 2003, p. 12  
210 Hodge, J., 2003, p. 21  
211 *Ibid.*, p. 22  
212 *Ibid.*, p. 23  
213 *Ibid.*, p. 25  
214 Storer, D. and Teljeur, E., 2003, p. 13  
215 Hodge, J., 2003, p. 30  
216 Storer, D. and Teljeur, E., 2003, p. 16  
217 Hodge, J., 2003, p. 32  
218 Storer, D. and Teljeur, E., 2003, p. 17

- 
- 219 Storer, D. and Teljeur, E., 2003, p. 17  
220 Mayer, J. And Onyango, D., 2005, p. 9  
221 Hodge, J., 2003, p. 18  
222 *Ibid.*, p. 19  
223 *Ibid.*  
224 *Ibid.*, p. 28  
225 Storer, D. and Teljeur, E., 2003, p. 16  
226 Hodge, J., 2003, p. 36  
227 *Ibid.*  
228 Standard Bank, 2011, p. 7  
229 *Ibid.*  
230 *Ibid.*  
231 Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 105  
232 Standard Bank, 2011, p. 6  
233 Storer, D. and Teljeur, E., 2003, p. 19  
234 Mayer, J. And Onyango, D., 2005, p. 9  
235 Storer, D. and Teljeur, E., 2003, p. 17  
236 *Ibid.*  
237 *Ibid.*  
238 *Ibid.*, p. 18  
239 *Ibid.*  
240 Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 107  
241 *Ibid.*, p. 108  
242 *Ibid.*  
243 *Ibid.*, p. 109  
244 *Ibid.*  
245 *Ibid.*  
246 Teljeur, E., 2003, p. 16  
247 Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 110  
248 *Ibid.*  
249 *Ibid.*  
250 Teljeur, E., 2003, p. 16  
251 Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 110  
252 Teljeur, E., 2003, p. 14  
253 *Ibid.*, p. 16  
254 *Ibid.*  
255 *Ibid.*  
256 *Ibid.*, p. 21  
257 *Ibid.*, p. 14  
258 *Ibid.*, p. 18  
259 *Ibid.*  
260 Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 110  
261 *Ibid.*  
262 Teljeur, E., 2003, p. 13  
263 Storer, D. and Teljeur, E., 2003, p. 19  
264 *Ibid.*  
265 *Ibid.*.p. 18  
266 Teljeur, E., 2003, p. 17  
267 *Ibid.*  
268 Mayer, J. And Onyango, D., 2005, p. 11  
269 Teljeur, E., 2003, p. 13  
270 *Ibid.*  
271 Mayer, J. And Onyango, D., 2005, p. 11  
272 Teljeur, E., 2003, p. 23  
273 *Ibid.*, p. 13

---

274 Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 105  
275 *Ibid.*  
276 *Ibid.*  
277 *Ibid.*  
278 *Ibid.*, p. 106  
279 *Ibid.*  
280 *Ibid.*  
281 *Ibid.*  
282 *Ibid.*  
283 Teljeur, E., 2003, p. 31  
284 FRIDGE, 2007a  
285 FRIDGE, 2007a, p. 45  
286 FRIDGE, 2007a, p. 1-2  
287 Teljeur, E., 2003, p. 28  
288 FRIDGE, 2007a  
289 FRIDGE, 2007a, p. 18  
290 FRIDGE, 2007a, p. 19-20  
291 FRIDGE, 2007a, p. 20  
292 Teljeur, E., 2003, p. 30  
293 *Ibid.*  
294 *Ibid.*, p. 30  
295 FRIDGE, 2007a, p. 22  
296 FRIDGE, 2007a, p. 22  
297 Teljeur, E., 2003, p. 30  
298 *Ibid.*  
299 *Ibid.*  
300 *Ibid.*, p. 26  
301 *Ibid.*, p. 28  
302 *Ibid.*, p. 27  
303 Ports Regulator of South Africa  
304 Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 107  
305 *Ibid.*  
306 *Ibid.*  
307 *Ibid.*, p. 27  
308 *Ibid.*, p. 28  
309 FRIDGE, 2007a, p. 35  
310 *Ibid.*  
311 *Ibid.*  
312 *Ibid.*  
313 *Ibid.*, p. 1  
314 *Ibid.*, p. 1  
315 *Ibid.*, p. 32  
316 *Ibid.*, p. 22  
317 *Ibid.*, p. 27  
318 Teljeur, E., 2003, p. 29  
319 Storer, D. and Teljeur, E., 2003, p. 19  
320 *Ibid.*  
321 *Ibid.*  
322 *Ibid.*  
323 FRIDGE, 2007a  
324 FRIDGE, 2007a  
325 FRIDGE, 2007a, p. 43  
326 FRIDGE, 2007a, p. 9  
327 FRIDGE, 2007a, p. 44  
328 FRIDGE, 2007a

- 
- 329 Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 107  
330 FRIDGE, 2007a, p. 5-6  
331 FRIDGE, 2007a, p. 42  
332 Storer, D. and Teljeur, E., 2003, p. 19  
333 *Ibid.*  
334 Teljeur, E., 2003, p. 32  
335 Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 110  
336 *Ibid.*, p. 111  
337 *Ibid.*  
338 *Ibid.*  
339 *Ibid.*, p. 112  
340 Teljeur, E., 2003, p. 39  
341 FRIDGE, 2008  
342 Teljeur, E., 2003, p. 35  
343 *Ibid.*  
344 *Ibid.*, p. 36-37  
345 *Ibid.*, p. 42  
346 *Ibid.*  
347 *Ibid.*  
348 *Ibid.*, p. 37-38  
349 FRIDGE, 2008  
350 FRIDGE, 2008, p. 11  
351 FRIDGE, 2008, p. 5  
352 FRIDGE, 2008, p. 11  
353 FRIDGE, 2008, p. 11  
354 Teljeur, E., 2003, p. 40  
355 *Ibid.*, p. 43  
356 FRIDGE, 2008, p. 5  
357 *Ibid.*  
358 *Ibid.*  
359 Storer, D. and Teljeur, E., 2003, p. 20  
360 *Ibid.*  
361 *Ibid.*  
362 *Ibid.*  
363 *Ibid.*  
364 *Ibid.*, p. 21  
365 *Ibid.*  
366 FRIDGE, 2008, p. 9  
367 *Ibid.*, p. 11  
368 *Ibid.*  
369 *Ibid.*  
370 Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 112  
371 *Ibid.*  
372 Teljeur, E., 2003  
373 *Ibid.*  
374 Standard Bank, 2011, p. 6  
375 *Ibid.*  
376 Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 114  
377 *Ibid.*  
378 *Ibid.*, p. 115  
379 *Ibid.*  
380 FRIDGE, 2007b, p. 15  
381 Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 116  
382 Mayer, J. And Onyango, D., 2005, p. 15  
383 Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 116

---

384 Storer, D. and Teljeur, E., 2003, p. 22  
385 FRIDGE, 2007b, p. 27  
386 *Ibid.*, p. 67  
387 Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 116  
388 FRIDGE, 2007b, p. 24  
389 Standard Bank, 2011, p. 3  
390 Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 116  
391 FRIDGE, 2007b, p. 25  
392 Storer, D. and Teljeur, E., 2003, p. 22  
393 Hodge, J., van Basten, C., Myburgh, A., Anderson, P. And Sheik, F., 2008, p. 116  
394 FRIDGE, 2007b, p. 24  
395 *Ibid.*, p. 37  
396 *Ibid.*  
397 *Ibid.*, p. 24  
398 *Ibid.*  
399 Storer, D. and Teljeur, E., 2003, p. 23  
400 *Ibid.*  
401 *Ibid.*  
402 *Ibid.*  
403 FRIDGE, 2007b, p. 67  
404 *Ibid.*, p. 66 – 67  
405 Storer, D. and Teljeur, E., 2003, p. 24  
406 *Ibid.*, p. 23  
407 *Ibid.*  
408 *Ibid.*  
409 *Ibid.*  
410 Mayer, J. And Onyango, D., 2005, p. 15  
411 *Ibid.*, p. 16  
412 FRIDGE, 2007b, p. 7 – 8  
413 Standard Bank, 2011, p. 3  
414 *Ibid.*  
415 *Ibid.*  
416 Mayer, J. And Onyango, D., 2005, p. 16  
417 *Ibid.*  
418 FRIDGE, 2007b, p. 6  
419 *Ibid.*  
420 *Ibid.*  
421 Standard Bank, 2011, p. 1  
422 *Ibid.*  
423 FRIDGE, 2007b, p. 8  
424 Storer, D. and Teljeur, E., 2003, p. 25  
425 *Ibid.*, p. 25  
426 *Ibid.*, p. 24  
427 *Ibid.*  
428 *Ibid.*, p. 38