Should state-owned enterprises derive a full rate of return?

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1. Background

For the foreseeable future, state owned enterprises (SOEs) will continue to play a major role in infrastructure development in South Africa. According to the National Development Plan, SOEs are crucial to advancing South Africa's economic interests through the provision of economic and social infrastructure[2]. The urgency of infrastructure investment in the energy and transport sectors (dominated by SOEs) is well documented. The prices charged by some of the services in these sectors are set by economic regulators i.e. NERSA, Ports Regulator of South Africa and the Regulating Committee for Airports and ATNS Companies. The SOEs that that are subject to economic regulation in these sectors are Eskom, Transnet and ACSA.

In recent tariff decisions, NERSA has suggested that Eskom should not derive the same level of returns on its equity as private shareholders. For example, in its MYPD2 decision, NERSA applied a relatively low market risk premium in its weighted average cost of capital (WACC) determination. It argued:

> *Given that Eskom is a state owned entity, the MRP that has been approved is limited to 1.9% as its equity returns accruing to government are not exactly equal to those of the private investors that assumes greater risk.*[3]

In its MYPD3 decision, NERSA applied a cost of capital estimate of between 3.4 percent and 4.7 percent. This range was significantly below the cost of capital calculated using the approved NERSA MYPD Methodology. NERSA argued that the allowable revenues based on the lower cost of capital range would 'enable Eskom to meet its debt obligations'.[4]

In this paper, we explain the risks arising from regulators allowing lower returns to SOEs relative to returns expected by private sector shareholders. Lower returns result in taxpayers subsidising the users of utility services, and adversely affect the debt servicing costs of government. In addition, an under-recovery of capital costs potentially distorts the allocation of resources away from urgently needed infrastructure development.

2. Regulatory precedent

Before articulating the risks of allowing lower returns to SOEs, it is worth reviewing regulatory tariff decisions involving SOEs in other jurisdictions. A UK Office of Fair Trading report on infrastructure ownership states that, in general, most regulators do not take account of utility ownership when setting tariffs:

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[1] The author of this paper is an employee at Genesis Analytics. The views expressed in this paper are those of the author and do not necessarily represent the views of Genesis Analytics.
[2] National Planning Commission. *National Development Plan.* [Online] Available http:ncponline.co.za. [03 December 2012], p.438.
[3] National Regulator of South Africa: Reasons For Decision, [February 2010], page 27.
[4] National Regulator of South Africa: The Decision, [undated], page 12.

Competition policy and economic regulation tend to be 'blind' to ownership […] The working assumption is that market structures and the behaviour of firms should be considered directly, regardless of ultimate ownership or who the investors are […] In regulated markets, regulators emphasized that they do not take account of the ownership type in setting regulated prices.[5]

[Emphasis added]

A research note prepared by Oxera (on behalf of UK's Network Rail) argues that recent decisions for European utilities with unconventional ownership structures show that most regulators do not take account of differences in ownership when estimating the allowed rate of return[6]. Oxera provide the following examples:

a. In its 2009 tariff determination, Ofwat awarded Welsh Water (a company with no shareholders and limited by a guarantee) exactly the same allowed WACC as for all the other water and sewerage companies, in effect disregarding the company's structure.[7]

b. In its 2006 tariff determination, the UK postal regulator Postcomm disregarded the ownership structure of Royal Mail when setting its cost of capital. Postcomm argued that:

[we have] treated Royal Mail as a commercial entity, and [have] not made adjustments for its status as 100% Government-owned. Postcomm considers that this approach best meets the objectives of efficient price signals to the company and the market.[8]

c. Although most energy networks in the Netherlands are government owned, the Dutch energy regulator estimated the cost of capital as if they were privately owned. As a result, the allowed cost of debt was higher than the actual cost paid by some networks whose credit rating benefited from government guarantees.[9]

d. In its cost of debt calculation for NATS En-Route Plc (NERL) in 2010, the UK's Civil Aviation Authority (CAA) estimated the cost of debt assuming a notional debt rating of A3/A-, which was lower than NERL's actual rating, which benefited from government support'.[10]

e. The Irish energy regulator (CER) granted allowed returns to distribution system operators based on the riskiness of the regulated business, and ignored ownership structure. When setting the state owned (95%) electricity utility ESB's allowable revenues for the period 2006 to 2011, CER stated that:

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[5] Office of Fair Trading, 'Infrastructure Ownership and Control Stock-take', Final Report: Main findings, [December 2010] paragraphs 4.2 and 4.29.
[6] Oxera: 'Allowed return for regulated companies with unconventional ownership structures', [February 2012].
[7] Ofwat: 'Future Water and Sewerage Charges 2010 – 2015: Final Determinations' [2009] Section 5.4.2
[8] Postcomm (2005). 'Royal Mail Price and Service Quality Review, Final Proposals for Consultation', December, p. 227.
[9] Oxera: 'Allowed return for regulated companies with unconventional ownership structures', [February 2012, page 3.
[10] Oxera: 'Allowed return for regulated companies with unconventional ownership structures', [February 2012, page 3.

ESB competes for capital on national and international markets as does any other business. Its cost of capital is therefore related to the riskiness of its return relative to businesses with other similar assets, which does not depend on the ownership structure of the company. Therefore, for a company such as ESB, which does not have traded equity, the cost of capital must be determined by assessing the returns to assets that have comparable risk because it competes with such businesses for scarce capital"[11].

f. In a 2007 policy consultation document regarding the price control for Manchester airport (100% owned by the 10 local authorities of the Greater Manchester area), the CAA stated that the cost of capital of this airport should be calculated in a consistent manner as the cost of capital of Heathrow and Gatwick airports (privately owned). More specifically, it stated that:

In terms of the empirical data for estimating the costs of capital for Heathrow and Gatwick, the CAA considers that a substantial part of the evidence base assembled for these airports should be applicable to an estimate of Manchester Airport's cost of capital (for example, the risk free interest rate, the equity risk premium, and the asset betas, gearing and credit qualities of a range of airports which could be viewed as comparators).[12]

g. The UK Office of Rail Regulation (ORR) allowed Network Rail to recover a risk-adjusted cost of capital despite it also being a company with no shareholders and limited by a guarantee. The ORR argued that providing a risk-adjusted cost of capital would allow Network Rail to generate sufficient surpluses after covering its financing costs, and raise unsupported debt.[13]

The above examples illustrate the willingness of regulators in other jurisdictions to set regulated tariffs on the basis of a full risk-adjusted cost of capital and to ignore the ownership structure of the regulated entities. The possible reasons for this approach are detailed below.

3. Debt ratings and cost of debt

A common argument put forward for awarding a lower cost of capital allowance for SOEs is that governments, and therefore SOEs, are low risk borrowers and can borrow at relatively low rates. According to Brealey et al[14], the low risk argument is misguided as the residual risk from SOE investments in risky projects is borne by taxpayers, in the same way as shareholders bear the risk of investments made by a private sector firm.

In South Africa, the support provided by government is evident by the debt guarantees onSOE debt. Table 1 shows the national government's debt guarantees exposure to SOEs over the last two budget years. The level of exposure, particularly for Eskom's debt is not insignificant.

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[11] CER: 'CER Decision Paper on Distribution System Operator Revenues: Responses to Comments Received', [2005], page 7.
[12] CAA: Manchester Airport price control review – policy consultation [2007], paragraph 8.24.
[13] ORR (2008), 'Determination of Network Rail's outputs and funding for 2009-14', October, para 14.32.
[14] Brealey, Cooper and Habib: 'Investment appraisal in the public sector', Oxford Review of Economic Policy Vol. 13 No. 4 [1997], page 22.

For example, for 2012/13, SOE guarantees equated to 40 percent of total net South African sovereign debt. Specifically, taxpayers were exposed to R103.5 billion worth of Eskom debt in 2012/13, and this exposure increased to R122.3 billion in 2013/14.

Table 1: Guarantee exposure to major South African SOEs

Institution	2012/13		2013/14	
R billion	Guarantee	Exposure	Guarantee	Exposure
Total	467,5	180,2	466,2	209,2
of which:				
Eskom	350,0	103,5	350,0	122,3
SANRAL	38,7	19,5	38,7	26,4
Development Bank of Southern Africa	29,6	25,6	29,6	25,6
Trans-Caledon Tunnel Authority	25,5	20,5	25,5	20,5
South African Airways	7,9	2,2	7,9	4,9
Transnet	3,5	3,8	3,5	3,8
Denel	1,9	1,9	1,9	1,9
Land Bank	1,9	0,9	1,6	1,1
Total Government net debt	1181,6		1375,5	
Total guarantee/exposure % net debt	39,6%	15,3%	33,9%	15,2%

Source: National Treasury National Budget Review, Chapter 5, [2014] page 75

Given its magnitude, credit rating agencies are likely to take account of this exposure when forming an opinion of the credit worthiness of South Africa's sovereign debt. A key metric used by rating agencies when assessing the credit worthiness of a country is the debt-to-GDP ratio. In November 2011, Moody's changed its outlook on South Africa's A3 local and foreign-currency government debt ratings to negative from stable, and in its decision, made reference to the exposure arising from debt guarantees for SOEs:

> *In Moody's view, spending beyond the substantial amounts already budgeted in response to such demands could push debt to levels more commensurate with lower-rated sovereigns. South Africa's direct debt <u>and guarantees for state-owned companies' obligations</u> currently approach or exceed 50% of GDP*[15].

[Emphasis added]

The effect of SOE borrowing on the government's credit rating is also reflected in the increased oversight of SOEs by government in recent years. In its 2014 National Budget Review, the National Treasury stated that:

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[15] Moody's Investor Service: "Moody's changes outlook on South Africa's A3 government ratings to negative from stable" [November 2011].

> *To enhance its creditworthiness, government has gradually increased oversight of borrowing by state-owned companies. Steps in this area include monitoring borrowing plans and debt-maturity profiles; compiling a treasury best-practice manual; approving borrowing limits; managing contingent liability exposure; and meeting regularly with the treasuries of these companies.*[16]

A Genesis Analytics study dealing with South African infrastructure requirements argued that credit rating downgrades will continue to constrain government borrowings and the ability of government and SOEs to finance major capital projects[17]. This is because the downgrades increase the government cost of debt and, consequently the expenditure obligations on taxpayers. Under this outcome, some of the economic costs of the services provided by SOEs are met by taxpayers rather than users.

Ideally, economic regulators should adopt a cost of debt assumption that reflects the standalone credit rating of an SOE, rather than the actual cost of debt, which would be lower due to the benefit of the government debt guarantees. The differences in standalone and government supported debt costs are likely to be substantial. For example, South Africa's sovereign debt rating from Moody's as at February 2014 was Baa1 (investment grade), whereas Eskom's standalone debt rating from the same agency was Ba3 (speculative grade) as at March 2013[18], i.e. eight notches lower. Providing for a full standalone cost of debt would help to ensure that SOEs are not adversely undermining the credit-worthiness of the government, as the notional value of the SOE asset (dependent on the level of profits derived) on the government's balance sheet would offset the exposure arising from the debt guarantee.

Importantly, a standalone cost of debt is consistent with tariffs reflecting the full economic costs of the SOEs services provided, and would promote competitive neutrality the markets SOE operate in, as discussed below.

4. Competitive neutrality

SOEs typically operate in commercial markets and some operate in markets that are contestable (i.e. open to competition). For example, SAA and ACSA operate in markets where there is at least one viable competitor[19]. Even Eskom, at the generation level, competes with Independent Power Producers (IPPs).

Competitive neutrality refers to an environment where SOEs are neither advantaged nor disadvantaged by public ownership. In a scenario where a tariff regulator awards an SOE a cost of capital that is lower than the return demanded by private sector investors, the resulting tariff may not reflect the full economic costs of the regulated service. This also extends to scenarios where an SOE benefits from government debt guarantees. This argument was made in an OECD paper on competitive neutrality and SOEs[20], which emphasised the

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[16] National Treasury National Budget Review, Chapter 5, [2014] page 65.
[17] Refer to Genesis report 'A Private Sector Strategy for Engaging with the National Infrastructure Plant', [February 2013], page 27.
[18] Moody's Investor Service: 'Weak rand has limited impact on South Africa's Baa1 rating and negative outlook' [February 2014] and Eskom's Integrated Report [2013], page 98.
[19] For example, there is some degree of competition between OR Tambo and Lanseria airports.
[20] OECD Corporate Governance Working Papers No.1 (Antonio Capobianco and Hans Christiansen): "Competitive Neutrality and State-Owned Enterprises" [2011].

potential anti-competitive effects that could arise from government support. The paper stated that:

Government support of SOEs through government created immunities and privileges allow SOEs to price <u>below marginal cost</u>. This creates a situation where they are free to engage in predatory strategies – essentially lowering [prices] in order to knock out competition.

[Emphasis added]

Section 8(c) of the Competition Act prohibits dominant firms from engaging in 'exclusionary acts'. Exclusionary acts can include pricing in a manner that prevents rivals from entering or expanding in a market, or more specifically, pricing in a predatory manner[21]. The purpose of this section of the Act is to prevent dominant firms from pricing at levels that cannot be replicated by competitors. To establish a case of predation, competition authorities usually compare prices to a measure of unit costs, which is typically average avoidable costs (AAC) or long-run average incremental costs (LRAIC)[22]. LRAIC includes capital costs for assets specific to a product or service. Accordingly, regulatory determinations that do not include a full cost of capital on the relevant assets, or more specifically, do not provide for sufficient coverage of equity and debt costs of an equally efficient rival, would potentially create tariffs that are not compliant with the Competition Act.

Competitive neutrality policies are designed to prevent SOEs from pricing at levels that are exclusionary. An example of these types of policies can be observed in Australia, where the National Competition Council and the Productivity Commission are responsible for implementing the aptly named 'Competitive neutrality policy'. The above-mentioned OECD paper summarises the key principles of this policy[23]; two of which are:

a. Debt neutrality, which requires that SOEs are subject to similar borrowing costs to its competitors

b. Sufficient returns requirement, i.e. SOEs are required to earn a return sufficient to justify the long term use of assets and pay dividends commensurate with those paid by private sector firms.

Given the above principles, competitive neutrality requires SOEs to set prices that not only cover its short-term variable or marginal costs, but to also derive sufficient returns on the assets employed specifically for regulated services. This in turn requires economic regulators to set a cost of capital that includes a full estimate of the equity risk premium and a notional cost of debt that reflects the costs typically incurred by the private sector.

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[21] See Nationwide v South African Airways Case No. 92/IR/Oct00 (page 13), which states that predatory pricing complaint under Section 8(c) '*must establish that the respondent is pricing below cost for a sustained period. This price-cost relationship...should have some support in the literature as an appropriate measure of costs*'.
[22] See Guidance on the European Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings, paragraph 26.
[23] OECD Corporate Governance Working Papers No.1 (Antonio Capobianco and Hans Christiansen): 'Competitive Neutrality and State-Owned Enterprises' [2011], page 16.

In South Africa, the Electricity Pricing Policy (EPP)24 includes requirements that are consistent with competitive neutrality principles described above. For example, the policy requires:

Tariffs, therefore, need to be set at a level which would not only ensure that the utility generates sufficient revenues to cover the full costs (<u>including a reasonable margin or return</u>) but would also allow the utility to obtain reasonably priced funding on a forward looking basis.[25]

[Emphasis added]

Although competition in the South African electricity supply chain is limited, the implementation of the EPP (i.e. allowing Eskom to derive an adequate return on capital) would help IPPs to compete with Eskom on their merits in the generation portion of the supply chain, without the need for prescriptive power purchase agreements. This would also ensure that there are no distortions in the mix of generation capacity, as we explain below.

5. Efficient infrastructure investment

An important concept in economics is allocative efficiency, which refers to the ability of producers to produce goods or services that are most desired or demanded by consumers. Allocative efficiency depends on the existence of clear pricing signals, and that the prices of goods and services are fully cost reflective. This is particularly important for infrastructure development given the magnitude of investments currently undertaken by SOEs in South Africa, such as Eskom and Transnet.

In order to promote allocative efficiency, SOE resources used for the construction of infrastructure need to be allocated to projects that produce goods and services that will be most valued by consumers. The allocative process requires that tariffs set by economic regulators for SOE services are cost reflective, i.e. they cover efficiently incurred operating and capital costs. The EPP emphasises the need for clear pricing signals where its states (in relation to state usage of electricity):

"It is essential that the standard tariffs are charged to ensure that the full cost of providing electricity to the State is known and also to ensure that the <u>appropriate pricing signals are provided to ensure efficient use</u>"[26]

[Emphasis added]

Figure 1 illustrates the potential effect of a regulatory tariff determination that awards an insufficient cost of capital. For a SOE operating as a monopoly under a tariff regulated regime, the market clearing tariff (PMCL) is the intersection of average revenue and LRIC. In other words, the tariff incorporates all efficiently incurred operating and capital costs under existing capacity. However, if there is an insufficient cost of capital allowance, then the regulatory

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[24] Department of Minerals and Energy: Electricity Pricing Policy of the South African Electricity Supply Industry [2008].
[25] Department of Minerals and Energy: Electricity Pricing Policy of the South African Electricity Supply Industry [2008], page 14.
[26] Department of Minerals and Energy: Electricity Pricing Policy of the South African Electricity Supply Industry [2008], page 42.

determined tariff (PRD) would be below market clearing levels, i.e. below economic costs. This would encourage the SOE to reduce output, or capacity to the level where tariffs equalled a lower point on the LRIC curve, and thereby creating a deadweight loss (shaded in blue).

Figure 1: Effects of a regulatory determination that involves an insufficient cost of capital
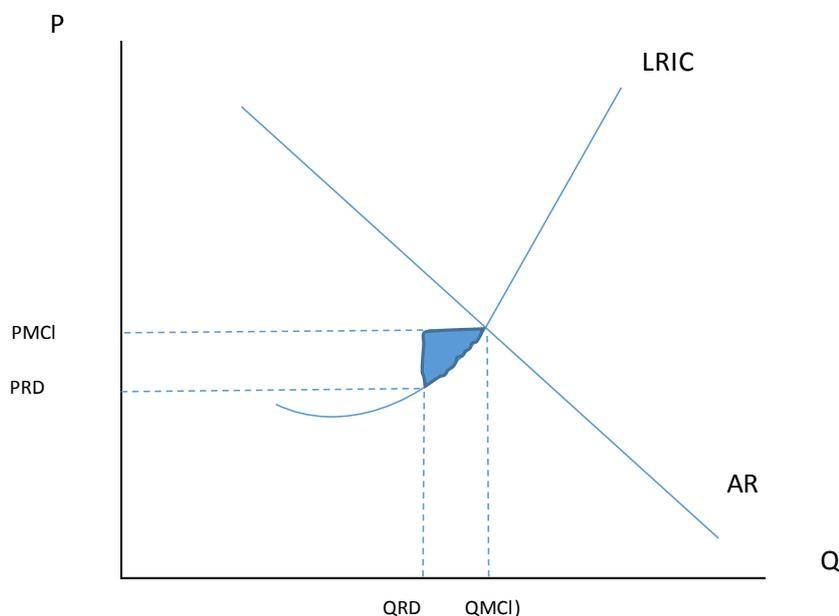
The deadweight loss represents the loss of output, or capacity, arising from tariffs not reflecting the full economic costs of production. This loss also creates an inefficient allocation of resources as investments are not being undertaken in sectors that are most valued by consumers. A stark example of this outcome is the current capacity constraints in the South African electricity sector, which was preceded by an extended period of tariffs that were not cost reflective.

Even within a sector, there could be an inefficient allocation of resources arising from an insufficient cost of capital allowance. For example, the Integrated Resource Plan for Electricity27 (IRP), which was initiated by the Department of Energy in 2010, considered a number of different capacity addition scenarios, each containing a unique mix of generation capacity28. Table 2 below shows the criteria used to assess each of the scenarios, and the scores applied to each criterion. It is evident that 'price' (i.e. cost of supply) was a key component of the total scores of each of the scenarios assessed. For the chosen 'Revised balance' scenario, the score derived from the price criteria made up 26.2 percent of the total score.

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[27] Integrated Resource Plan for Electricity (2010 to 2030), Revision 2 Final Report [2011].
[28] For example, the expansions assumed under the 'Base case' scenario was largely made up of committed (Medupi and Kusile) coal fired power plants. The 'Emissions' scenarios assumed caps on the level of C02 emissions and therefore involved higher level of assumed renewable energy capacity. The 'Revised Balance' scenario (the proposed scenario) incorporated other benefication aspects, such as regional development projects.

Table 2: Score for each IRP scenario under a range of criteria

Scenarios	CO2 emissions	Price	Water	Uncertainty	Local potential	Regional develop.	Total	Price %
Base case	-	21.74	-	2.73	-	6.08	30.55	71.2%
Emission 1.0	12.41	18.61	5.24	16.14	6.47	6.08	64.95	28.7%
Emission 2.0	9.43	20.61	2.53	16.14	6.47	6.08	61.26	33.6%
Emission 3.0	21.74	-	10.87	19.57	6.47	-	58.65	0.0%
Carbon tax 0.0	11.50	18.41	3.50	19.26	6.47	2.77	61.91	29.7%
Regional development	0.67	21.53	0.37	-	-	10.87	33.44	64.4%
Enhanced DSM	1.54	20.85	0.94	3.04	-	6.08	32.45	64.3%
Balanced	10.46	20.24	2.74	16.71	11.02	1.85	63.02	32.1%
Revised balance	**11.01**	**19.33**	**2.92**	**16.32**	**15.22**	**8.85**	**73.65**	**26.2%**

Source: Integrated Resource Plan for Electricity 2010 – 2030, page 26

According to the IRP, the cost of the existing owners of capacity (i.e. Eskom, municipalities and IPPs) was used to derive the scores for the price criteria[29]. This means that the tariffs derived by Eskom (calculated with reference to NERSA's estimate of operating and capital costs) would have influenced the scores allocated to each of the above scenarios, and therefore influenced the generation mix approved under the IRP.

6. Robust regulatory tariff decisions

Robust regulatory tariff determinations require more than just a proper determination of the cost of capital. Economic regulators need to determine all aspects of the revenue allowance calculation with a high degree of robustness. This includes calculating an efficient level of operating costs and an appropriate value for the regulatory asset base. Both these elements require detailed empirical analysis. For example, benchmarking methods are usually employed by energy regulators in evaluating the efficiency of monopoly electricity providers[30]. These methods are data intensive and require specialist resources in quantitative techniques.

Given the challenges of deriving an efficient level of operating costs and a regulatory asset value, economic regulators may be tempted to spend a disproportionate amount of effort on the cost of capital element. This is evident from the extensive cost of capital appendices that are often included in regulatory tariff decisions. As most of the cost of capital variables are generic (and therefore do not require extensive data submissions from regulated entities) it is not surprising that economic regulators attack this revenue allowance element with vigour. However, there is a risk that the cost of capital determination becomes the main vehicle for maintaining tariffs at cost-reflective levels, i.e. the revenue allowance assumes over-inflated operating cost assumptions but an under-recovery of capital costs.

Table 3 shows the extent to which NERSA's MYPD3 tariff determination was driven by adjustments to Eskom's estimate of the return on assets. The largest variance (percentage difference between Eskom's application and NERSA's final determination) was for this element of the revenue allowance. This variance was driven by adjustments to Eskom's estimate of the RAB and the cost of capital. As described above, NERSA applied a WACC

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[29] Integrated Resource Plan for Electricity (2010 to 2030), Revision 2 Final Report [2011], paragraph A.9.2
[30] The benchmarking methods can be broadly classified as index, frontier and engineering methods.

estimate of between 3.4 percent and 4.7 percent when calculating the return on the RAB, which is well below Eskom's long-run real cost of capital[31].

Table 3: NERSA's MYPD3 tariff determination

MYPD3 revenue allowance (R million)	Application	NERSA determination	Variance	Variance %
Return	186 864	137 748	-49 116	-26%
Primary energy	432 668	358 399	-74 269	-17%
Depreciation	185 385	139 886	-45 499	-25%
Operating costs	282 658	270 520	-12 138	-4%
Total revenue allowance	**1 087 575**	**906 553**	**-181 022**	**-17%**

Source: National Regulator of South Africa: The Decision

The largest variance in absolute terms was for primary energy costs, and this was largely driven by NERSA's adoption of lower coal cost inflation assumptions. For operating costs, NERSA applied relatively model adjustments (4 percent) to Eskom's application.

NERSA's decision to apply a low cost of capital may have been motivated by the need to limit the significant tariff increases proposed by Eskom. However, there are regulatory risks from achieving a desired tariff path through a low cost of capital rather than a detailed assessment of operation costs:

a. A low cost of capital could send adverse pricing signals to potential investors in the contestable generation segment of the electricity supply chain. For example, IPPs rely on regulatory determinations on feed-in tariffs and would be deterred from making investments in capacity if the methodology used to calculate returns are not applied consistently over the life of the generation assets.

b. Regulatory uncertainty regarding the cost of capital will also reduce a regulated entity's willingness to embark on significant capacity expansion.

c. Incentives for operating cost efficiency will be undermined if there is a tendency to approve above inflation increases without proper scrutiny. In the absence of robust benchmarking methods, there is a real risk that operating costs will continue to increase in a ratcheted manner.

7. Recommendations

This paper has highlighted the risks associated with setting a low cost of capital for SOEs, particularly for those that operate in contestable markets and are the main contributors to national infrastructure spend. While in certain circumstances it may be appropriate to provide government support to SOEs in the form of debt guarantees, i.e. for SOEs that are in financial distress, it is important that prices/tariffs reflect the full cost of commercial debt and equity.

A move to awarding SOEs a full cost of capital, or a commercial rate of return would be consistent with the regulatory tariff setting practice in the UK and Europe, and would help achieve the follow outcomes:

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[31] Refer to National Regulator of South Africa: The Decision [undated], page 12.

a. Elimination of indirect subsidies from taxpayers in the provision of SOE services

b. Competitive neutrality in the contestable markets that SOEs operate in

c. Allocative efficiency with respect to infrastructure investment

d. A greater focus from economic regulators on assessing SOE operating costs.