



SUITE 10, 6 LAKESIDE, DERBY DOWNS, UNIVERSITY RD, WESTVILLE, 3629
P.O. BOX 1635, DURBAN, 4000

TEL: +27 31 2661384 | FAX : +27 31 2661447
EMAIL: SECRETARY@ SAASOA.COM | WWW.SAASOA.COM

The Ports Regulator
The Marine
Suite 1101
22 Dorothy Nyembe Street
Durban
4001

28 September 2016

Att: Mr. Mahesh Fakir
Cc: Mr Chris Lotter

Dear Sir

SUBMISSIONS ON THE REVIEW OF THE PORTS REGULATORS' REGULATORY MANUAL

INTRODUCTION

1. SAASOA notes the Regulator's request for the submission of proposals and comments in review of the Regulator's existing tariff methodology, the regulatory manual for the tariff year 2015/16-2017/18.
2. For a number of years, we have made submissions concerning the tariff methodology utilised by the Port Authority in support of its tariff applications. In addition, last year we made submissions on the Regulator's regulatory manual.
3. In this submission we repeat the submissions we made last year, which concerned the same regulatory manual, but amplify these submissions by proposing a change in the philosophy underlying the Regulator's regulation of the Ports Authority.

THE REGULATOR'S CORE METHODOLOGY

4. The Regulator's core methodology is based on the Revenue Requirement (RR) approach.
5. In our view, the primary objective in regulating a monopoly is not to prevent - at least in the short run - the monopoly from earning an economic (or supernormal) profit.
6. The objective in regulating a monopoly should be to ensure that consumer surplus (that is, the difference between aggregate willingness to pay in respect of the quantity of services supplied, and the actual revenue earned in respect of the said quantity) is maximised to the extent that is possible. Our members are, arguably, the primary consumers of the Port Authority's services. Other things being equal, consumer surplus is increased when price levels drop and the quantity of a particular good or service supplied increases.
7. In essence, the revenue requirement approach, as implemented by the regulator, is in the nature of Rate of Return regulation (this is acknowledged by the Regulator). Rate of return regulation aims at ensuring that a monopoly is able to earn sufficient revenue to cover its economic costs, but no more.¹ The goal is to ensure that the monopoly does not earn an economic or supernormal profit.
8. The alternative approach to rate of return regulation, is the so-called price capping method. Under the price capping method, the monopoly's prices are limited to a specific rate of increase, typically entailing a specific percentage reduction in real terms. Under the price capping approach, the monopoly is limited in the use of its pricing power. However, subject to the price constraints imposed by the price cap, the monopoly is free to make an economic

¹ Sometimes the approach is relaxed to create incentives for the monopoly to reduce costs.

profit. This can be done by increasing the quantity of services delivered at lower real prices as well as by reducing costs. At the same time, the monopoly is not guaranteed the recovery of its costs (including the cost of capital). That is to say, the monopoly may make an economic loss.

9. The approach adopted by the Regulator, at least superficially, has elements of the price capping approach, notwithstanding that it is self-described in the manual as a rate-of-return approach.
10. Having determined the Revenue Requirement, the Regulator uses that as a “building block” in determining a specific price increase applicable to various categories of tariff in the Port Authority’s tariff book.
11. To the Regulator’s credit, the price increase caps imposed by the Regulator have in the past two years resulted in a reduction in real average tariffs. This is crucial, because as the Regulator’s comparisons of the Authority’s tariffs with overseas ports’ tariffs have demonstrated, the tariffs charged to users of South African ports tend to be significantly higher than the global average measured in US dollars (based on the sample measured by the Regulator).²
12. However, in our view, the manner in which the Regulator has implemented the combination of the Revenue Requirement approach and the setting of a specific price increase for tariffs loses out on the benefits of the conventional price capping approach. These benefits are that the monopoly being regulated under such an approach, subject to the price constraints, nonetheless has an opportunity and thus a strong incentive to earn a supernormal profit by (1)

² Global Pricing Comparator Study (GPCS), Tariff sample date: 1 April 2015, p27

optimising the cost of producing the services it provides (an incentive towards increased efficiency on the supply-side), and (2) having improved supply-side efficiency, by considering further price reductions with a view to increasing the demand for (and consequent supply of) services which are price elastic (an incentive to increase consumer surplus).

13. The problem with the approach implemented by the Regulator lies in the application of the clawback. The clawback is aimed, in part, at ensuring that the Ports Authority cannot earn (or at least retain) an economic profit by earning more than the revenue requirement. However, if a forecast of the volume of usage of service is based on a particular assumption as to the tariff for a service, it follows that a reduction in that tariff could lead to a significantly higher demand for that service and the earning of additional revenue if demand for the service is relatively price-elastic. This is a good outcome for users of the service (consumer surplus increases), notwithstanding that it will permit economic profit to be earned (an over-recovery).
14. The application of a clawback means that notwithstanding that the Regulator's decision is expressed in the form of a price cap, the regulatory method is best described as a rate of return approach.
15. We appreciate that there are good reasons for the Regulator to follow a rate of return approach. The Port Authority performs a strategic function. It is also forms part of a problematic parastatal with a number of loss-making divisions. It is therefore highly desirable for the Regulator to ensure that the Ports Authority always recovers its economic costs. However, as the Regulator has acknowledged in the present regulatory manual, it has become increasingly important for it to ensure, in applying the Revenue Requirement approach, that these costs are not overstated, and are closely monitored.

16. We cannot but speculate that the present approach of determining the actual tariffs could be modified with a view to accelerating the increase in consumer surplus.
17. In our view, the incentives created by the present regulatory system for the Port Authority to (1) increase the volume of services provided, (2) to increase its cost efficiencies, and (3) to lower its prices at a faster rate than has been the case, are relatively weak.
18. In particular, we are of the view that the Regulator should permit the Port Authority stronger incentives to reduce prices and increase output of services than are in place under the present system. We acknowledge that there may considerable difficulty in implementing such incentives, because of the Regulator's lack of perfect information concerning both the structure of demand for the Port Authority's services, as well as of the Port Authority's cost structure.
19. However, we propose the adoption of or at least the consideration of an approach similar to that embodied in the following simple rule aimed at ensuring that consumer surplus is progressively increased, and which does not rely on the Regulator having perfect knowledge of the port authorities demand and cost structures. Our proposal is along the lines of Vogelsang and Finsinger (1979).³
20. The rule is as follows:

The set of prices charged by a monopoly for its services (or goods) in period t must be such that when these prices are applied to the quantity of services or goods sold in period $t-1$, the aggregate revenue must be no greater than (i.e. less than or equal to) the observed cost of producing the quantity of services (or goods) produced in period $t-1$, or mathematically:

³ Vogelsang and Finsinger (1979) A Regulatory Adjustment Process for Optimal Pricing by Multi-Product Monopoly Firms, Bell Journal of Economics, 10:157-171.

$$\sum p_{it} \cdot q_{it-1} \leq C(q_{1t-1}, \dots, q_{it-1}, \dots, q_{nt-1}),$$

Where p_{it} is the price of good or service i in period t , q_{it-1} is the quantity of good or service i sold in period $t-1$ and $C(\cdot)$ is the cost function of producing quantities of the various goods and services. The cost function is assumed to be fixed.

21. The operation of the rule can be illustrated with a simple example. Suppose a monopoly manufactures and sells widgets, for which demand is relatively price elastic. The monopoly's cost function is linear and as follows: it has fixed costs of R250 000 and variable costs of R25 per widget manufactured (i.e. $C(q) = 250000 + 25q$).
22. In period 1, the monopoly is unregulated and sells 10000 widgets at a profit-maximising price of R100 each. It therefore has revenue of R1m. Its costs for period 1 comprise R250 000 in variable costs and R250 000 in fixed costs (which include the cost of capital), with the result that it earns an economic profit of R500 000.
23. On imposition of the rule by a regulator in period 2, the monopoly must choose a price p_2 such that $p_2 \times q_1 \leq C(q_1)$, or in this case, $p_2 \times 10000 < 500000$. In other words, the monopoly is forced to drop its price to R50 per widget or less. If the monopoly decides to sell only 10000 widgets, it cannot make an economic, because its revenues will be less than or equal to the cost of producing 10000 widgets. The monopoly, assuming it is rational and profit-maximising, will therefore elect to produce more widgets at the lower price.
24. In period 2, therefore, the monopoly produces 20000 widgets at a price of R50. Its revenue is once again R1m. Its costs are R750 000 ($R250000 + 20000 \times R25$) and its economic profit is R250000.

25. The monopoly has still made an economic profit (though the effect of regulation has been to reduce this). However, the price of widgets has been halved and the quantity sold doubled. Consumers of widgets have benefited immensely from regulation.⁴
26. By contrast, if the monopoly were subject to a rule which deprived it of any economic profit (through the application of a claw back mechanism), it would have no incentive to do anything other than produce 10000 widgets at R50 per widget. Although consumers would benefit from a significant reduction in price, consumer surplus would not increase as much, due to the small quantity of good sold. This demonstrates that the earning of an economic profit by a monopoly is not necessarily a bad thing, at least in the short-run, provided that the effect of regulation is to promote significant increases in consumer surplus.
27. In period 3, the rule is imposed again. Now the monopoly is subject to the following constraint:
- $$p_3 \times 20000 \leq R750000$$
28. This means that $p_3 \leq R37.50$.
29. Suppose the monopoly can sell 30000 widgets at a price of R37.50. It will earn revenue of R1 125 000 and have costs of R1 000 000 ($R250000 + 30000 \times R25$).
30. The monopoly therefore once again earns an economic profit. However, this is much reduced at R125 000 (down from the pre-regulation R500000). Consumer surplus is increased because consumers can now purchase 30000 units at the lower price of R37.50.

⁴ For instance, the consumers who were prepared to pay R 1000000 for 10000 widgets can now acquire the same quantity for R500000. Other consumers can now purchase widgets at prices they are willing to pay.

31. As the process is repeated, the monopolist reduces prices and produces more until there is no further incentive to do so (it can no longer earn an economic profit by doing so). At this point: (1) the monopolist earns zero economic profit; (2) no further gains in consumer surplus can be obtained.
32. The rule embodies a dynamic price capping approach aimed (1) at maximising possible consumer surplus while (2) in the long-run, ensuring that the monopolist does not earn an economic profit. Moreover, it does not require the regulator concerned to have knowledge of the structure of demand, nor of the monopolist's cost structure. The monopolist, acting in accordance with the rule, takes decisions that increase consumer surplus so long as it is able to earn an economic profit thereby.
33. How can this rule be related to the Revenue Requirement methodology? The Revenue Requirement is simply a method of calculating the economic cost of forecast production (because revenue must equal economic cost). It follows that the same methodology can be used to measure the economic cost of delivering the quantity of services provided in the previous period of observation.
34. Thus, one way in which the Regulator could impose a price cap would to specify that:

$$\sum p_{it} \cdot q_{it-1} \leq RR_{t-1}$$

35. Or, if it is apparent that there is change in the parameters that determine economic cost:

$$\sum p_{it} \cdot q_{it-1} \leq RR_t(q_{1t-1}, \dots, q_{it-1}, \dots, q_{nt-1})$$

Where RR_t is a cost function used to determine the cost of producing the q_{it-1} in period t .

36. We do not necessarily say that this precise rule should be adopted. However, we have raised the possibility of using such a rule in order to show that that the operation of the clawback rule and strict enforcement of zero economic profit is removing incentives for the Ports Authority to take actions that increase consumer surplus.
37. We have also raised the possibility of using such a rule to demonstrate that there are, in our view, potentially superior alternatives to the present approach of capping tariff increases in order to enforce a cap on revenue.
38. We also point out that the adoption of such a rule would, to some extent, encourage the Port Authority to increase cost efficiencies, because this too would allow it to temporarily earn an economic profit. This incentive is weakened somewhat by the fact that lowering costs would render the constraint imposed in the subsequent period more onerous (an example of the so-called “ratchet” effect).
39. A simpler version of the rule would be simply for the Regulator (using the Revenue Requirement calculation as a guide or by calculating a target Revenue Requirement for a forecast level of services) to specify a reduction in the Port Authority’s tariffs by a specified percentage in real terms.
40. This is an example of the RPI-X price capping methodology, where RPI refers to Retail Price Index (the South African equivalent is CPI) and X refers to an offset, with X typically greater than RPI (or CPI).
41. Within the constraint imposed by this rule, it would be possible for the Port Authority to explore possibilities for increasing economic profit by lowering prices and increasing the quantity of

services with price-elastic demand as well as reducing costs. In lowering prices and increasing the quantity of services provided, the Port Authority would increase consumer surplus.

42. The Regulator's present approach of stipulating a general percentage would be consistent with use of an RPI-X rule if there were no clawback, that is, if the Regulator did not seek to enforce the Revenue Requirement as a constraint. In our view, the Revenue Requirement should be a tool used by the Regulator (a "building block", to use its own language) in imposing a price cap; it should not be a constraint in its own right.
43. Although there may be moral objections to the Port Authority being able to earn economic profits in the short run, and to be able to retain that economic profit, the simple fact is that, as far as the users are concerned, provided that the quantity of services supplied increases, and the tariffs charged for those services decreases, then consumer surplus increases and we benefit.
44. Subject to the views expressed above, we now comment on specific aspects of the existing methodology. In so doing, we simply repeat the submissions we made last year in respect of the following:

COMMENTS ON THE APPLICATION OF THE REQUIRED REVENUE (RR) APPROACH

45. In SAASOA's submission in respect of the Port Authority's 2014/15 tariff proposal, we criticized the use of the RR approach because it simply adds operating expenditure as part of the Revenue Requirement, with the result that operating efficiencies are not encouraged.

46. We note that the Regulator records its intention of introducing an efficiency component to the tariff determination, once it is satisfied that a credible efficiency monitoring system has been established. This indicates the Regulator is alive to the fact that the RR approach does not penalise operating inefficiency. We trust that the proposed efficiency measure will expressly from part of any revised regulatory manual.
47. The shipping industry has been forced to engage in significant cost cutting. It is imperative that the Regulator ensure that the Ports Authority similarly be obliged to reduce its operating expenditure.

THE REGULATORY ASSET BASE (RAB)

48. With the utmost respect, it is submitted that the present regulatory manual is too vague concerning the determination of the RAB. This leaves the definition of this measure open to abuse by the Ports Authority.
49. No clear indication is provided as to what assets are included and excluded from the RAB (with the exception of the DIA site).
50. If the RAB includes assets which should, on proper consideration, be excluded, it will lead to an excessive tariff by virtue of the RR approach.
51. For instance, although the Authority has historically been allowed to include property that it lets (i.e. which forms part of a real estate business) in the RAB. Although the Authority's income from its real estate business can and should be deducted from the RR when determining revenue from marine operations for the purposes of the tariff, this offers no comfort if any of

these properties is not let out at market related rentals. A RAB which includes property used in the Authority's real estate business effectively allows the Authority to earn revenue from such assets (in the form of the tariff) without the need to in fact let them.

52. The better approach, in SAASOA's view, is for the RAB to be strictly confined to assets used in the generation of marine revenue.

THE USE OF THE CAPM MODEL TO DETERMINE THE COST OF EQUITY

53. The present manual determines the cost of equity using the Capital Asset Pricing Model (CAPM).
54. We have previously suggested that due to difficulties in determining the CAPM beta, an alternative method such as the ICAPM model or the Arbitrage Pricing Theory (APT) multi-factor pricing model should be used. This would better facilitate the pricing of the Authority's risk with reference to international comparators.
55. Notwithstanding the above, we accept that the use of an asset (unlevered) beta estimate represents an acceptable compromise between use of a standard, relatively well understood asset pricing model and more complex models.
56. However, we submit that if the Regulator intends to continue implementing the CAPM model using an assumed asset beta, its decision to use an asset beta estimate of 0.5 needs to be revisited. It is submitted that this beta estimate overstates the true asset beta of an enterprise that is largely insulated from market risk by virtue of its monopoly pricing power, not to mention

further revenue smoothing mechanisms such as the clawback and ETIMC included in the tariff methodology.

57. Accordingly, in our view, the asset beta estimate should be closer to zero (0) than to 0.5. We acknowledge, however, that there would be more justification for an asset beta of 0.5 (or higher) if the clawback mechanism were removed and the Authority could either earn an economic profit or sustain an economic loss.

THE MARKET RISK PREMIUM

58. SAASOA supports that the Regulator's present approach that the MRP must be calculated as a geometric mean.

THE COST OF DEBT

59. The present manual retains the previous manual's method of estimating the cost of debt, namely to use the average embedded Transnet group cost of debt.
60. This method is unsatisfactory, because whereas the Ports Authority is a regulated monopoly, other parts of the Transnet group operate in [more] competitive environments and face greater financial risk. Furthermore, in addition to the protected environment in which the Ports Authority operates, the Regulator's decision to use the clawback and ETIMC mechanisms will tend to further reduce the variability of the Port Authority's cash flows, significantly reducing the risk applicable to the Authority's debt.

61. The Regulator should attempt to estimate the cost of the Authority's debt by determining an appropriate premium over the risk-free rate rather than accepting Transnet's group cost of debt merely because it is readily observable. This is precisely the approach followed by the Regulator in determining the Authority's unlevered cost of equity. Put another way, the Regulator should require the Authority to propose and justify a debt beta, which could then be used to determine the cost of debt. We point out that the form of Hamada model used by the Regulator to determine the Authority's levered cost of equity implicitly assumes a debt beta of zero.

TAXATION

62. In SAASOA's submission on the tariff proposal for 2014/15, it was pointed out that "the TNPA's taxation calculation ... ignores the tax implications of the clawback and the ETIMC. Both of these mechanism have the potential to either increase or decrease the TNPA's allowed revenue for the financial year. Accordingly, their application leads either to increased taxation or tax savings, as the case may be."
63. We note with approval that in the present manual, the Regulator has addressed this concern by adding the following requirement to the method for calculating the Tax expense: "The calculation of the tax allowance must also reflect the flow of funds related to any claw-back calculated as well as ETIMC allowances to ensure adequate tax cover for the NPA."

EXCESSIVE TARIFF INCREASE MARGIN CREDIT (ETIMC)

64. The Regulator has found it necessary to formally define, in the present manual, terms of reference for its use of the ETIMC:

“The Regulator may authorise the release of part or the whole of the value of the ETIMC facility to influence tariff levels whenever it deems necessary including, but not limited to spikes in tariffs (defined as an average tariff increase in excess of the inflation forecast) due to a sharp increase in capital expenditure, volume volatility, or any market-related factor. The Regulator may also consider national objectives in any decision to add to, or to utilise the ETIMC facility to adjust tariffs.”

65. The primary concern that SAASOA has regarding the ETIMC is that decisions concerning its use appear to be solely at the discretion of the Regulator, without any clear guidelines as to how such discretion will be exercised.
66. We welcome the addition of the formal definition of the ETIMC included in the present manual as an initial step on the path to defining more clearly the scope of the Regulator’s discretion. However, we urge the Regulator to provide greater specificity – for instance, what would constitute a sharp increase in capital expenditure or volume volatility, and what national objectives might be considered.
67. Moreover, we must also express concern about the potential of the ETIMC to weaken the Authority’s incentive to manage costs. The ETIMC allows the Authority to earn revenues in the current period in order to cover future costs (whether operating or capex).

CONCLUSION

68. In this submission, we have called on the Regulator to adopt a genuine price-capping approach, rather than the present approach of determining a revenue limit and capping prices in conjunction with a clawback mechanism to enforce that limit.

69. We believe a genuine price-capping approach would be more likely to encourage the Authority to lower prices and costs and increase consumer surplus, because it would have an incentive to do so in order to earn an economic profit.
70. To the extent that the Regulator resolves to persist with the present methodology, we have also expressed a number of ongoing concerns in relation to application of that methodology, though for the most part, we approve of the manner in which the Revenue Requirement is calculated.
71. It would not be able to do so if the Regulator fixed operating costs E as a particular fraction of $ROC + D$.
72. For instance, if the Regulator were to fix $s = 0.9$ in the 2017/18 year, i.e. to force the Authority towards a greater level of operating efficiency, given that which it suggests it is capable of in 2019/20 (and granting some allowance for economies of scale), then allowed operating costs for the 2017/18 financial year would fall from R5 961m to R5 365m. This would entail some cost cutting on the Authority's part, but it should not be exempted from a process that its customers are regularly obliged to undertake, particularly in times of economic difficulty as is the case at present.

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Kind regards



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Peter Besnard
(CEO of SAASOA)

E-Mail: peter@saaso.com Website: www.saaso.org.za

TEL: +27 31 266 1384 FAX: + 27 31 266 1447

Suite 10, Lakeside Office Park, 6 Derby Downs, University Road, Westville, 3629

P O Box 1635, Durban, 4000