



**Tariff Strategy for the South African Ports System  
2015/16**

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## 1. Introduction

### 1.1. Mandate of the Ports Regulator with regard to Tariff Approval

In terms of Section 72(1)(a) of the National Ports Act (Act No. 12 of 2005) ("the Act"), the National Ports Authority ("NPA") is required, with the approval of the Ports Regulator ("the Regulator"), to determine tariffs for services and facilities offered by the NPA and to annually publish a tariff book containing those tariffs. In addition, the Regulator, in terms of section 30(1)(a) is required to "*exercise economic regulation of the ports system in line with governments objectives*". The Directives in terms of Section 30(3) of the Act, which were approved on the 13th July 2009 (gazetted on the 6<sup>th</sup> of August, 2009) and amended on the 29<sup>th</sup> of January, 2010, require that the Regulator, when considering the proposed tariffs for NPA, must ensure that such tariffs allow the NPA to:

- Recover its investment in owning, managing, controlling and administering ports and its investment in port services and facilities;
- Recover its costs in maintaining, operating, managing, controlling and administering ports and its costs in providing port services and facilities; and
- Make a profit commensurate with the risk of owning, managing, controlling and administering ports and of providing port services and facilities<sup>1</sup>.

In line with the functions of NPA, defined in Section 11 of the Act, the revenue generated from NPA's services is utilised *inter alia* to:

- Provide and arrange for road and rail access within ports;
- Regulate and control port access (navigation within port limits; enhancement of safety and security);
- Provide and arrange for tugs, pilot boats, and other services and facilities for the navigation and berthing of vessels in the ports; and
- Provide, control and maintain vessel traffic services.

The NPA's Tariff Book sets out the various tariffs that are charged by the NPA to maintain and develop the South African port system. The current approach to the setting of tariffs requires, as a starting point, a determination of the total amount of revenue required to fulfil the functions listed above, including the provision of future infrastructure, followed by a determination of how the total revenue gets apportioned to the individual tariffs for specific services and facilities. Determination of the total revenue is based on the tariff methodology which has been approved and fixed until 2017/18. This strategy deals with how the total revenue gets apportioned to the individual tariffs.

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<sup>1</sup> Directive 23(2)

## 1.2 Tariff Methodology vs. Tariff Strategy

It is important to note the interrelationship between the tariff methodology and the tariff strategy. The annual calculation of NPA revenue and the resultant average tariff change is done in line with the multi-year tariff methodology (set to be reviewed for the 2018/19 tariff year) that sets out the application of the Required Revenue and Return on Assets methodology in the South African port system. The methodology determines the total amount of revenue the NPA may raise through port tariffs, whilst the tariff strategy only determines who is charged for what portion of the total revenue in the port system. The Regulator is aware that if all charges are passed on fully, the cargo owner (the consumer) will indirectly pay for all port related costs. Despite this, the benefit of having a more accurate cost allocation is through the resultant more accurate investment decisions (based on correct revenue flows) and the efficiency gains there from.

The tariff strategy will not result in any significant reduction in total port costs (except for the possibility of foreign shipping lines absorbing some of the costs). Any future reduction in total port costs may only come from the impact of the tariff methodology.

## 1.3 Government Objectives

The Tariff Strategy is aligned to government objectives with regard to economic growth and employment creation. The Tariff Strategy aims to create a fair, transparent and cost-reflective port pricing structure which will allow for port infrastructure investment to take place, creating employment and boosting trade. In line with the **Industrial Policy Action Plan 2014/15 – 2016/17** that states, *"Both government and business have recognised the role of appropriate infrastructure as a driver of economic growth in South Africa, and called for the cost of doing business to be reduced in order to enhance the competitiveness of the country's goods and services. In this regard, government has identified the crucial role that SOCs play in achieving the strategic objectives of job creation, reducing the cost of doing business, poverty alleviation and positioning SA as the investment destination of choice in Africa."* the Tariff Strategy includes mechanisms for subsidies required for the public interest.

In addition, **The State of the Nation Address (2015)** spoke of a "nine point plan". Points 3 (Advancing beneficiation), 5 (Encouraging private sector participation) and 9 (Operation Phakisa and growing the ocean economy and other sectors) are of particular relevance to this Strategy. These and other government objectives, some of which are listed below, have been considered in the drafting of the Strategy.

### 1.3.1. The National Development Plan:

The National Development Plan (NDP) aims to achieve the following major goals by 2030:

- Eliminate income poverty – Reduce the proportion of households with a monthly income below R419 per person (in 2009 prices) from 39 percent to zero;
- Reduce inequality – The Gini coefficient should fall from 0.69 to 0.6.

The enabling milestones which are relevant for the Tariff Strategy are:

- Increase employment from 13 million in 2010 to 24 million in 2030;
- Raise per capita income from R50 000 in 2010 to R120 000 by 2030;
- Establish a competitive base of infrastructure, human resources and regulatory frameworks;
- Gross Domestic Product (GDP) should increase by 2.7 times in real terms, requiring average annual GDP growth of 5.4 percent over the period. GDP per capita should increase from about R50 000 per person in 2010 to R110 000 per person in 2030 in constant prices;
- Broaden ownership of assets to historically disadvantaged groups;
- Exports (as measured in volume terms) should grow by 6 percent a year to 2030 with non-traditional exports growing by 10 percent a year;
- The level of gross fixed capital formation should rise from 17 percent to 30 percent, with public sector fixed investment rising to 10 percent of GDP by 2030;
- Durban port capacity should increase from 3 million containers a year to 20 million by 2040.

### ***1.3.2. The Medium-Term Strategic Framework:***

The MTSF defines the strategy up to 2019 for the implementation of the National Development Plan. The following objectives are taken from Outcome 6: Infrastructure:

- Where state-owned enterprises are unable to meet demand for freight services, the State should vigorously encourage private-sector involvement. The Act, which facilitates concession agreements and licensing in Sections 56 and 57 respectively, needs to be used to enable more private sector involvement, with pro-active management of tariff implications;
- Optimal utilisation of assets — Port of Ngqura's modern deep-water facilities make it attractive for container transshipment traffic;
- Enhance the performance of sea-ports and inland terminals, including initiatives in the National Infrastructure Plan; and
- Public investment as a percentage of GDP is 10% by 2019.

### ***1.3.3. National Commercial Ports Policy:***

The basic principles of the National Ports Policy are as follows:

- National needs, aspirations and requirements shall be of primary consideration;
- Consideration of user and other stakeholder needs and views need to be embedded in all processes;
- Port system development, management and enhancement will primarily remain a national function;
- Regulation should be kept to a minimum, without compromising national aspirations, safety, health, security, efficiency and environmental sustainability;
- Participants in the market should be treated equally and fairly; and
- The principle of user pays or cost recovery, benchmarked against international best practice to ensure that the costs are globally competitive, will be applied as far as possible, including an appropriate return for infrastructure providers.

## 1.4 Situational Analysis

The situational analysis describes the current state of port pricing in South Africa.

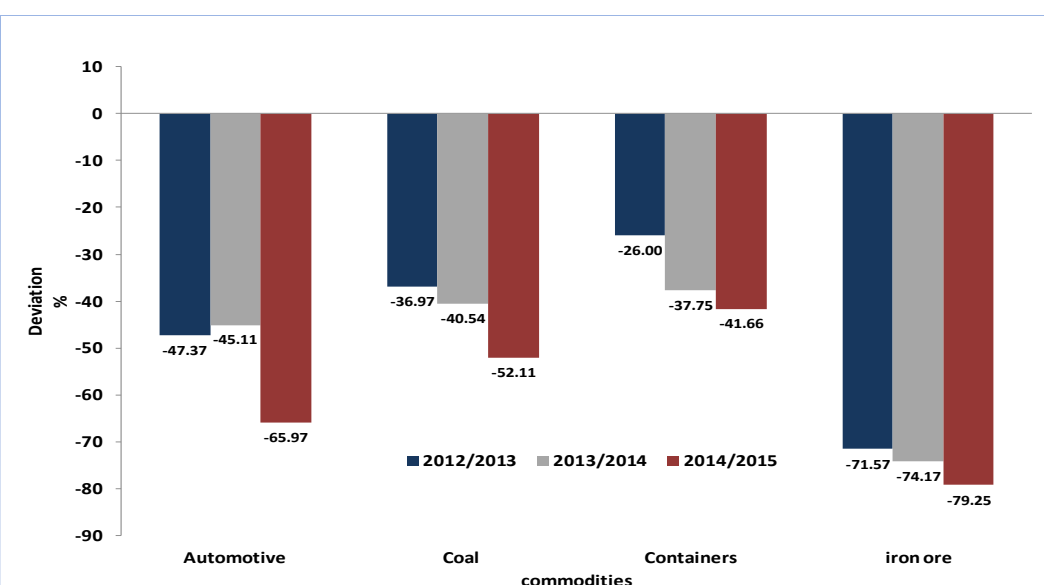
### 1.4.1 Overview of Problems within the Current Tariff Book

Determination of the individual tariffs has been based on historically differentiated tariff lines, which is problematic in several ways as identified by the NPA:

- Lack of a clear set of principles and rules to be applied in determining the individual tariffs for the various services and facilities, especially where deviating from a baseline tariff;
- Lack of clarity and transparency regarding all operating costs, expenses and revenues incurred or generated from a specific service, facility or land, as well as the value of the capital stock related to such services, facilities or land;
- Lack of explanation for differential tariffs for different commodities using the same handling classification;
- Lack of information detail with respect to services or facilities pricing and cost relationships, making it impossible to determine where and in which direction subsidisation takes place or if it does not; and
- Lack of information on how the tariff structure promotes access to ports and efficient and effective management and operation of ports.

For the previous three years, the Ports Regulator has conducted a Global Port Pricing Comparator Study (GPPCS) which seeks to benchmark South African port prices against its global peers. The results are indicative of the situation described above. The results show that the overall structure of the South African port pricing system has changed somewhat on a relative level; however, despite large decreases in container cargo dues and export automobiles announced in the 2013/14 Record of Decision as well as relative changes in marine services and dry bulk commodities in the following year, the imbalances remain.

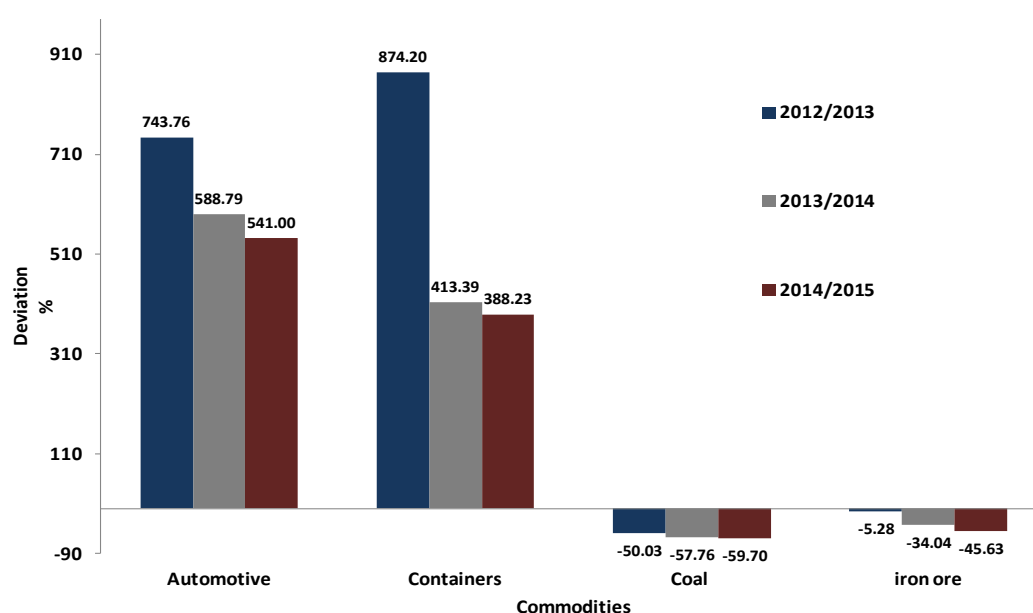
**Figure 1 South African Port Vessel Costs as compared to a Global Sample**



Source: Ports Regulator (2015). The full report is available at: [www.portsregulator.org](http://www.portsregulator.org)

As evident in figures 1 and 2, the results show that significant implied cross-subsidisation from cargo owners towards primary exporters and vessel owners persist. Although this has improved over the period the study has been conducted, cargo owners still face a 388% premium in 2014/15, although down from a premium of 874% to the global sample average in 2012/13. While vessel owners face costs below the global sample average (-26% in 2012/13, -32% in 2013/14 and -42% in 2014/15), the total NPA costs to users in container ports comes at a still high premium of 125% above the global sample average (similar results for the automotive sector applies) whilst the report shows that bulk commodities are charged much lower total port costs than the global sample averages. This further implies that beneficiated exports from South Africa are facing much higher costs than their global peers as compared to exporters of un-beneficiated bulk commodities, whose tariffs are below the global sample used in the study.

**Figure 2 South African Port Cargo Owner Costs as compared to Global Sample**



*Source: Ports Regulator (2015). The full report is available at: [www.portsregulator.org](http://www.portsregulator.org)*

It should be noted that the GPPCS is not an input into the Tariff Strategy but provides a monitoring tool for the strategy. It is useful to know that the Tariff Strategy results are very well aligned to international norms.

#### 1.4.2 Observation on Tariff Imbalances

As a result of these issues, the current tariff structure presents several imbalances in the determination of the various tariffs, including:

- Very high tariff levels for cargo dues resulting from the migration from the old wharfage charge, which was calculated on an ad-valorem basis depending on the value of the cargo;
- Very high differentials in the levels of cargo dues for different cargo types and commodities with no clear motivation for the differences;
- Relatively low tariff levels for maritime services, which are based on an activity-based costing exercise conducted during the tariff reform of 2002 and that has since not been updated, resulting in the subsidisation of most services (clearly evident in Figure 1);



- Relatively low and unevenly distributed levels of revenue from the real estate business based on the asset value and benefits derived from being in the port system.

This strategy attempts to address these imbalances by moving away from value-based assessment towards an infrastructure-based charge, resulting in more efficient pricing which is in the public interest. Through the asset and cost allocation process and the resulting tariff structure, a quantitative assessment of the cross-subsidies is possible and existing cross-subsidies and their magnitude can be calculated. The table below examines potential cross-subsidies from decades of historical pricing levels and indicates the approach that the strategy takes to attempt to address these.

**Table 1 How Potential Cross-subsidies are addressed within the Tariff Strategy**

Potential Cross-subsidies arising from historical pricing	Tariff strategy approach
Cargo owners are subsidising other user groups such as vessel owners, and tenants.	A new asset allocation that results in an infrastructure cost reflective tariff proportional to the benefit each user group derives from the infrastructure or service provision. See sections 2 and 3.
Container and automotive cargo owners pay more than dry bulk cargo owners on a global comparator basis	Similarly, infrastructure is costed according to benefit derived from each cargo handling type – this is calculated by weighting total revenue required from cargo owners using the the number of vessel calls by cargo type divided by total volume to get a per unit cost. See section 4.1.
It is still to be determined whether lessees are being subsidised (i.e. paying less than market value for their land) and whether some lessees are subsidising others (i.e. paying unequal or unfair tariffs).	The Regulator will actively monitor rental prices to ensure that rental properties with similar characteristics are not charged radically different rentals. Furthermore, the Regulator will endeavour to determine the market value of port land as part of its asset valuation exercise. See section 4.3.
Port users of a particular port subsidising users in other ports, through a system wide tariff book approach.	System-wide pricing will remain in order to reduce the risk placed on any single port user; however, the tariff book is to be rebalanced and direct user charges in certain instances may be introduced. See section 2.3.
Port users subsidise fledgling port-related industries and other national policy initiatives/government objectives.	Discounting certain infrastructure for identified port users in order to achieve national objectives of economic growth and inclusion will remain. See section 5.
Use of port revenue/profits for non port purposes.	This is outside the scope of the tariff strategy
Port users of the same category or user group paying lower tariffs than similar users through differentiated tariffs or discount structures.	All discount structures are to be removed from the tariff book. Tariff rationalisation will result in a gradual move towards consolidated tariffs that will include the removal of any discount structure currently in place. Certain built-in incentives and discounts will remain, mainly related to coastwise shipping and transshipment etc. See section 5.2 for further information.

The above are generalised statements; exceptions may persist. However, the Regulator is committed to understanding and unravelling any other cross-subsidies which prevent efficient pricing in the port system and welcomes the views of port stakeholders in this regard.

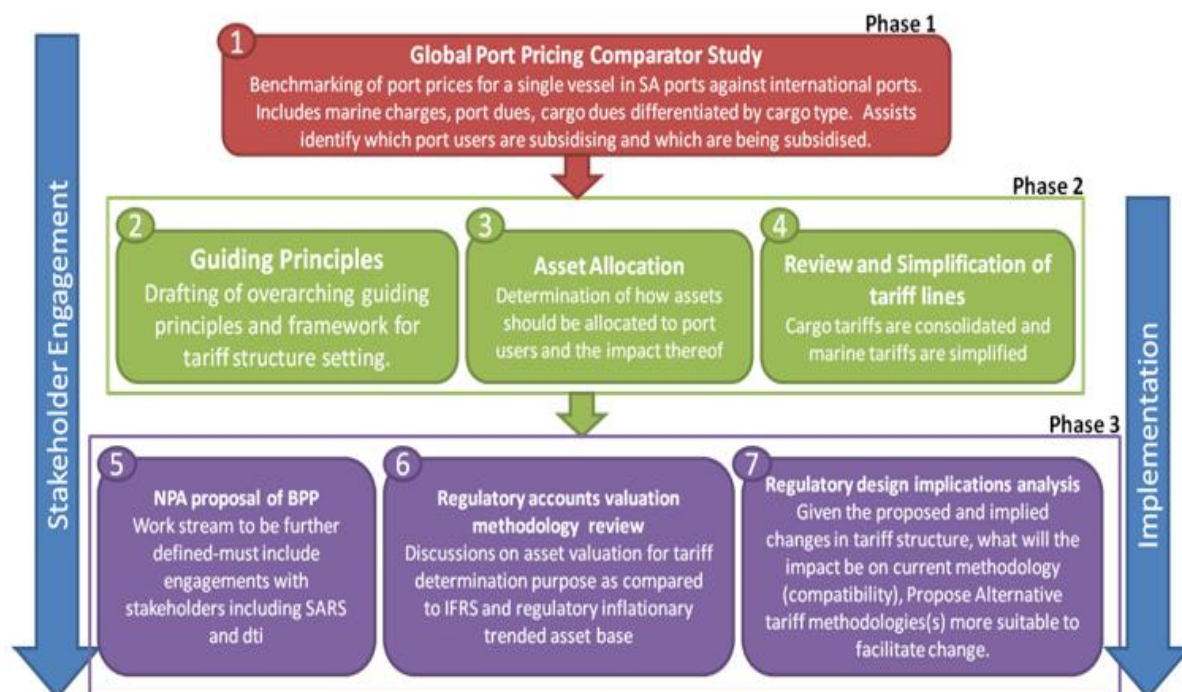
## 1.5 Approach

The NPA submitted a Pricing Strategy to the Regulator in 2012 which was aimed at addressing imbalances arising from an inefficient pricing system. This Pricing Strategy included a Beneficiation Promotion Programme (BPP) for export of beneficiated goods in an effort to support government key objectives of industrialisation and job creation. This document responds to the Pricing Strategy submitted in 2012 and enhances and underpins it through a public engagement process.

In this regard, the Regulator adopts a phased approach in the development the tariff strategy. The phased approach can be outlined as follows:

- Phase 1: GPPCS assists to determine a benchmark for marine charges and cargo dues, differentiated by cargo type.
- Phase 2 (Projects 2-4): The development and publication of the principles and characteristics of the tariff book that sets out the policy foundation that any tariff change in future must adhere to, including the Asset Allocation, tariff structure reviews, a consolidation of tariff lines on tariff and port level as well, as review of marine service pricing methodology.
- Phase 3 (Projects 5-7): Regulatory accounts and valuation methodology, regulatory design implications and the development of the beneficiation and promotion strategy.
- Concurrent: Stakeholder engagement is present after each phase. Determining and finalising a phased implementation approach/plan will occur during phases 2 and 3.

Figure 3 Tariff strategy process overview



Phase 1 has been completed for 2012, 2013 and 2014. The Global Port Pricing Comparator Study (GPPCS) is published on the Regulator's website and has previously been presented at a series of road shows. In the absence of a Pricing Strategy, the GPPCS placed South Africa in a global context and supported the view that port price reforms were necessary and also pointed towards the broad

direction of change for port user categories in the Tariff Book. This was further supported by NPA's own port pricing sample presented in the proposed tariff strategy, which showed significantly higher cargo dues in South Africa. In future years, the purpose of the report will be to act as a monitoring tool to measure the progress and impact of the tariff reform process.

The GPPCS was not, however, an input into the Tariff Strategy. The Tariff Strategy costed infrastructure according to an asset allocation that was completely independent of the GPPCS trends. The fact that the resultant direction of change required by the Tariff Strategy matched the direction of change suggested by the GPPCS only serves to prove that South Africa is moving towards international best practice with regard to infrastructure pricing.

This document represents phase 2 of the tariff strategy process. Phase 3 will be completed in the 2015/16 year after comment and consensus is obtained through consultation with port stakeholders over this document. Accordingly, this document was published for public comment for a period of 2 months with comments due on the 31<sup>st</sup> of May 2015.

## 1.6 Consultation

NPA submitted a proposal for a new tariff structure in 2012/13 and this was presented in a series of roadshows hosted by the Regulator in March 2013. Further, there was a comment period for both the Strategy and the Methodology. These comments and questions from the roadshows were taken into consideration when drafting the Regulator's response and can be found on the Regulator's website. In June 2013, the Regulator held a focus group and received comprehensive submissions from South African and international port pricing experts. The process was put on hold for a year while the multi-year Tariff Methodology was finalised and was renewed again in 2014 when, armed with all submissions, the Regulator drafted a response to NPA's proposal. The draft was published on the 31<sup>st</sup> of March 2015 and a comment period of two months was allowed. During this time the Regulator had several meetings by request from various associations such as the Fruit Growers Association and the South African Freight Forwarders Association. The Regulator, furthermore, held two focus groups, one with government officials and one with port experts, which were well attended. Nine written submissions were received from government departments and a well represented pool of port user associations. In June 2015, the Regulator hosted its second roadshow on the Tariff Strategy and extended the period for written comments by an extra month. Questions and answers from the Roadshows have been documented and further submissions were received from port users.

**Table 2 Consultation undertaken by the Regulator**

Date	Consultation
<b>March 2013</b>	NPA's proposed Tariff Strategy presented at Roadshows.
<b>June 2013</b>	Focus group and submissions received from local and international port pricing experts.
<b>April/May 2015</b>	Draft Tariff Strategy published 31 March 2015 <ul style="list-style-type: none"> <li>• Written comment period of two months;</li> <li>• Focus group held with government officials;</li> <li>• Focus group held with academic experts; and</li> <li>• Meetings on request with various port user associations.</li> </ul>
<b>June 2015</b>	<ul style="list-style-type: none"> <li>• Comment period extended by a further month; and</li> <li>• Roadshows held in Durban, Johannesburg, Port Elizabeth and Cape Town.</li> </ul>

This final version of the Tariff Strategy takes into account all written submissions from government departments and port users, documented comments from roadshows, submissions from port experts and discussions held. While this strategy is final, the implementation thereof will be consulted together with the proposed tariff application each year.

## **1.7 Report Structure**

The report structure follows the process that was undertaken in order to complete phase 2 and is as follows:

- Section 1: Introduction;
- Section 2: Guiding principles – outlines the methodology underpinning the tariff structure;
- Section 3: Asset allocation – based on the methodology, assets are allocated to port users;
- Section 4: Individual tariff lines for marine and cargo dues are reviewed;
- Section 5: Rules for deviating from the guiding principles are given;
- Section 6: Conclusion and Implementation.

## 2. Guiding Principles for setting the base tariff

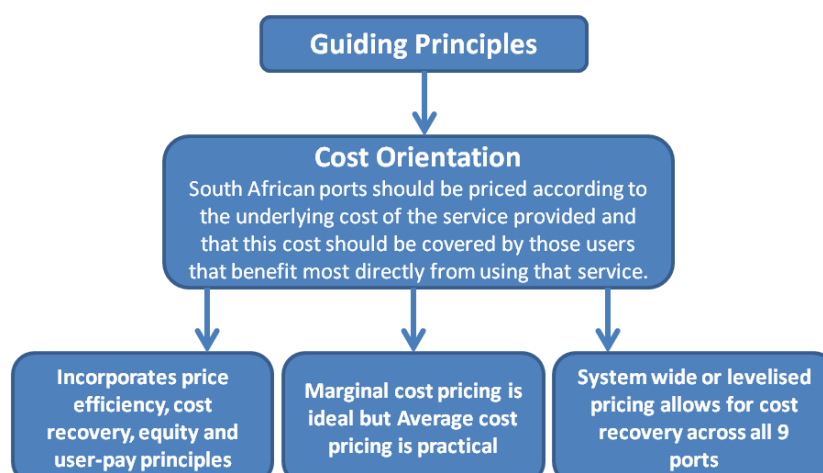
In developing the guiding principles for setting the base tariff, the Regulator considered the following requirements:

- **Cost causation** – The purpose of this factor would be to provide port users with the correct pricing signals when utilising port facilities. This ensures that port users will only demand services or utilisation of port facilities when value placed on them is as large as the resources availing/providing them. On the other hand the pricing signals must also reflect the correct capital structure and influence the correct behavioural changes, promoting efficiency and productivity in the port system.
- **Cost minimisation** – The use of a cost recovery revenue model, where operational costs have a direct impact on average tariff levels, requires strong incentives to minimise costs.
- **Distribution of benefits** – Costs are recovered from the direct user since it is equitable and reasonable that costs be recovered from the beneficiary of that service. The complex nature of port activities requires some tradeoffs in the way pricing is conducted. E.g. using Gross Tonnage (gt) as a pricing variable sends a different signal to liners than using vessel calls. The discussion on port dues and marine services will expand on this topic.
- **Practicality** – The Tariff Strategy should be practical and relatively easy to implement but this should not steer away appropriate cost recovery.

Based on the above requirements, guiding principles for setting the base tariff are outlined in the diagram and sections that follow. These guiding principles aim to introduce a more flexible approach of facilitating pricing in the ports sector to what has been proposed earlier in order to establish an appropriate level of tariffs that better reflects the underlying costs. These principles are aimed at enforcing transparency and certainty.

The principles are meant to bring real benefits to customers through charging cost reflective tariffs. On that basis, those customer categories currently over-charged would see tariffs reduced, whereas those categories that are currently subsidized (under charged) would see their tariffs rebased to a fair level. These principles must be taken into consideration during the gradual adjustment of the tariff book over the period up to and beyond 2026/27.

**Figure 4 Summary of Guiding Principles**



## 2.1 Cost Orientation

The principle of cost orientation is a hybrid of price efficiency, cost recovery, equity and user-pay principles. It refers to the fact that South African ports should be priced according to the underlying cost of the service provided and that this cost should be covered by those users that benefit most directly from using that service. The principle of cost orientation is important as it prevents unfair pricing and protects consumers' interests.

In the port sector, the unbalanced pricing structure is inefficient as the 'higher than cost' pricing depresses economic activity of some port users whilst subsidizing those of others. This can further be expanded into the principle of setting tariffs in accordance with the costs incurred, whilst deriving a reasonable return from setting those rates in order to ensure the long-term development and upgrade of existing infrastructure. Port prices should at all times seek to promote efficient outcomes in port, port-ancillary and broader transport markets where a general and quite powerful presumption supports the proposition that efficient prices are those that are related to the underlying costs of providing and continuing to provide the relevant port functions/services.

In line with the approach adopted by the National Development Plan the full cost of providing services should be recovered from users as far as possible and services provided to an identifiable group or user must be recouped from that user or group, where cross-subsidies are in the public interest. The main rationale for the user pay principle is not to raise revenue, but rather to establish more efficient allocation of resources in the port system.

## 2.2 Average Cost Pricing

If charges are well designed, users will be willing to pay for a service in line with the marginal cost of providing that service. However, determining the marginal cost is not a simple exercise in the port industry. As a result, where cost recovery principles are enforced, average costing is commonly used. Though the Authority may not be participating in a competitive environment, it is still expected to render competitive services and prices. From a theoretical point of view, efficiency requires marginal cost pricing. Intra-annual price changes or customer differentiation to reflect differences in marginal costs can enhance efficiency. A marginal cost pricing mechanism may signal the value that consumers attribute to further capacity expansions as the port system approaches its capacity limit and marginal cost rises. Therefore, as a basic rule, an ideal tariff structure must see marginal costing incorporated wherever possible as a price baseline, and prices must be based on some notion of cost as opposed to an approach that includes sentiments of "what the market will bear".

It is, however, a very difficult exercise to estimate and distribute medium and long term marginal costs, especially early on in a tariff strategy review process. The Regulator is aware that marginal costing works best under an assumption of competition and if volumes are short, other sources of income are required. Furthermore, pure marginal cost pricing may not be feasible while respecting a revenue requirement model because marginal costs may be higher or lower than average costs. In addition, marginal costing will generally, in cases where fixed costs are significantly large<sup>2</sup>, result in price levels far below average cost pricing and as such will require outside funding for capital expansion.

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<sup>2</sup> See Roy, 2002, Schuler 2009 and others



As such, utilising marginal cost pricing may not be feasible over the short to medium term and might be difficult to reconcile with a revenue requirement methodology. For this reason, average cost pricing will be used. Due to the difficulty in allocation of common costs, the pricing (and the full allocation to different users) thereof must, in principle, be at least equal to the average total cost of the service determined through the current use of the required revenue approach. In terms of the allocations to specific users and tariff lines, it means direct costs plus an appropriate proportion of common and overhead costs. However, in determining the correct asset allocation and attributing costs to different user categories and cargo types, the unit throughput by user (cargo type, tenant, or vessel) will then result in an average cost approximation. This is similar to the current calculation, but will change with a different asset (cost) allocation, effectively resulting in a more accurate costing of the service based on asset allocations. Operational costs will be allocated as per user group (effectively by cost centre in the case of marine services) and asset allocation (weighted to user groups by asset value when not directly attributable).

The disadvantage of using average cost pricing is that it does not take efficiency into account which is particularly important in the pricing of port infrastructure. The most common ways of combining efficiency and revenue requirements are through the use of two-part tariffs, adjusting the fixed charge to meet the revenue requirement, or through second-best pricing like Ramsey pricing.<sup>3</sup> However, through the inclusion of the Terminal Operator Performance Standards (TOPS) and MOPS Marine Operator Performance Standards (MOPS) process in the tariff methodology, the concerns around efficiencies and the incentives for higher efficiencies throughout the ports system can be addressed. This is being addressed currently as part of a separate process being conducted by the Regulator and will be included in the methodology when the required level of confidence is reached.

### 2.3. System-wide Pricing

Average costing will be applied across the ports system in order to reduce the burden placed on any single port user and to ensure equality in benefit. Whilst pricing should ideally be determined on a facility level, to ensure equality in benefit across the geographical distribution of the South African port system as well as to ensure the spreading of funding risk, average cost pricing will be implemented across the system. This will apply to the different user groups and result in system-wide pricing within the different cargo handling types. This type of system-wide pricing is common in the pricing environment where homogenous services are required (e.g. the provision of electricity and fixed-line telecommunications) and has been adopted here. The impact of this principle will result in, for example, equal cargo dues for a ton of dry bulk irrespective of the port being used. Similarly, each unique marine service will be priced equally, although differentiation due to variables such as time or distance might apply in the calculation of the final fee.

System wide pricing in the context of a developing country is also useful in that it allows the sharing of the costs of development of a new port or terminal/facility between all users rather than only the users of that particular port or terminal/facility i.e. a single tariff book approach to system wide pricing. However, the existence of significantly different levels of service in a system might require differentiation between “project internalised user charges” and system wide user charges. As such, the Regulator reserves the right to apply direct user charges where it deems necessary, especially in instances where significantly different levels of service or cost base exist.

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<sup>3</sup> It is not evident whether the best scheme is a two-part tariff or some other pricing mechanism. The role of block rate pricing, increasingly more frequent in actual pricing practices, is yet to be fully investigated.

### 3. Asset allocation between users

The purpose of allocating different asset groups to user groups in the port system is to provide a set of investment signals both to the NPA and service providers based on the flow of revenue. It is important that the investment signals reflect the underlying asset structure to facilitate the correct flow of investment allocation, clearly in the public interest. The allocation or attribution of the cost of port assets takes into consideration which user classes depend more on a particular asset type and the extent to which they would be affected if the infrastructure did not exist. Therefore, in considering where the burden of this asset class allocation should be, the Regulator also looked at the activities of the different users and the benefit they derive there from. The lack of a methodology to allocate benefit or use in a more precise manner necessarily results in an approximation or general allocation. Any proposal or development of a more precise methodology will be taken into consideration going forward as cost reflectivity is the ultimate objective of the Tariff Strategy.

The facilities and services provided by the port can be divided into the following:

- Seaward side – light house service infrastructure, port control and safety, entrance channel, breakwaters, turning basins, aids to navigation, vessel traffic services, maintenance dredging;
- Landward side – quay walls, roads, rail lines, buildings, fencing, port security, lighting, bulk services; and
- Sea-land interface – at the point where land and sea meet, quay and berth facilities are provided for both ships and cargo.

The Regulator has categorised port users as follows:

- Shipping Lines;
- Cargo Owners;
- Terminal operators (and all cargo working lessees); and
- All other lessees in the port system.

The general underlying logic is that the seaward side benefits mostly shipping lines and cargo owners, while the interface benefits mostly shipping lines and tenants, and the landward side benefits mostly tenants.

Table 2 that follows identifies the key port assets and allocates these assets to user groups in order to determine a more equitable share of infrastructure and cost sharing between the broad groups.



**Table 3 Asset allocation**

Port User Asset Class	Lessees	Terminal Operator	Cargo Owners	Shipping Lines
Breakwaters	33% shared on a NBV basis		33%	33%
Channels, Fairways, basins			50%	50%
Quay walls, berths and jetties		50%		50%
All ship working vessels and aids to navigation				100%
Vessel repair infrastructure	40%	15%	15%	30%
All movable NPA assets, buildings and structures (not part of lease agreements) and unused land	50% shared on a NBV basis		25%	25%
Terminal land and staging areas		100%		
Non-Terminal Land including recreational and yachting	100%			
All common access infrastructure	66% Shared on a NBV basis		33%	
Overheads	50% shared on a NBV basis		25%	25%

*\*NBV: Net Base Value*

### **Breakwaters**

Breakwaters are defined as structures that are built into the sea to protect the port. Breakwaters by definition protect the port system as a whole and make the establishment of a port facility feasible by removing the effect of waves and protecting the port and its main function as a cargo working facility from bad weather. Furthermore, it is more difficult to determine relative use of the asset between port users than it is for channels (shipping line) or land (lessee), for example. As such, the Regulator determined that all cargo working users, i.e. Liners, Cargo owners themselves, and cargo working lessees should carry the costs of building and maintaining the breakwaters in equal shares. It is important to note that the shared component for tenants is based on the NBV of the land.

For the purpose of recovering the cost of the breakwaters through marine services gross tonnage will be used. The use of vessel size as a pricing variable provides a more accurate approximation of asset use.

### **Channels, Fairways, basins**

All navigable channels in the ports are used by liners to facilitate the transfer of cargo from the open seas to terminals. An equal distribution of the cost and maintenance of the assets must be shared by cargo owners and shipping lines equally as this represents a more equitable attribution of costs in terms of both benefit and use. For the purpose of recovering the cost of the channels, fairways and basins through marine service costs gross tonnage will be used as vessel size is a more efficient approximation of asset use than, say, an average cost based on vessel calls. Cargo will be levied on an average unit basis through cargo dues.

### ***Quay walls, berths and jetties***

Quay walls, berths and jetties are the connecting points between the land and watersides of the port. It makes the transfer of cargo possible and facilitates both the functions of the terminal operator as well as the shipping lines. These assets are attributed on equal terms to shipping lines and terminal operators. The cost recovery that forms part of the shipping line costs will be levied through marine service costs and recovered on a gross tonnage basis; the use of infrastructure is more efficiently priced based on the size of the vessel. Larger vessels make more use of available draft, weight of equipment on quays and possible damage to infrastructure. Cost to terminal operators will be on an NBV basis.

### ***All ship working vessels and aids to navigation***

All ship working vessels and aids to navigation (including light houses) are allocated to shipping lines who directly benefit from these services to safely navigate the port system. These tariffs will be recovered through Port dues, Vessel Traffic Services (VTS) charges, and existing light dues and based on Gross Registered Tonnage (GRT).

### ***Vessel repair infrastructure***

According to benefit, the direct charge or cost of current infrastructure should be recovered on a 50% basis from the users of the facility, i.e. the tenant as well as the shipping lines. However, the Regulator proposes to spread the cost between all users across the port system in line with Government initiatives, especially Operation Phakisa as the Regulator agrees that currently the provision of infrastructure of this nature is rarely financially viable; it also represents a critical service required in a world class port system and, as such, should be carried across the port system by all users. Lessees of existing infrastructure, combined with shipping lines, should contribute the bulk of the infrastructure, with other port users, namely non-cargo working lessees, and cargo owners contribute to a lesser extent. This will be reviewed in light of operation Phakisa and future funding models that may impact the financial viability of these projects and may see projects funded by the private sector, funded in total by the lessees.

### ***All movable NPA assets, buildings and structures (not part of lease agreements) and unused land***

All movable assets and unused land costs are shared equally between user groups. The Regulator, as part of the tariff methodology and the tariff determination process, will determine the extent of inclusion in the Regulatory Asset Base of unused land.

### ***All cargo working land and related assets (Terminals) and their staging areas***

All cargo working land (commercial leases) and related assets must be recovered from the lease holders of these facilities.

### ***All non-cargo working land and related assets (Non-Terminals) including recreational and yachting***

Similarly, all non-cargo working land and related assets must be recovered from the lease holders of these facilities.

### **All common access infrastructure**

As with wet common infrastructure, where the allocation is to the users of the infrastructure and cargo owners as the beneficiary thereof, similarly, dry common access infrastructure (including Port Engineering) is allocated to the users of these assets (lessees) as well as the beneficiaries thereof, namely cargo owners.

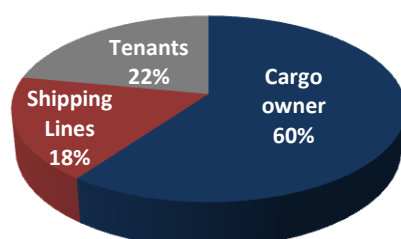
### **Overheads – Including Opex and other costs in line with the regulatory framework**

All overhead costs are shared equally between user groups.

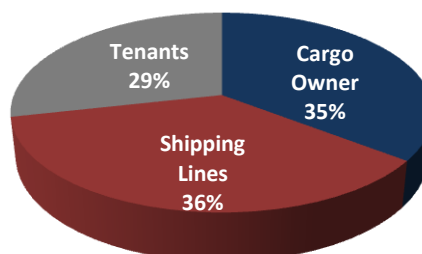
The pie charts below reflect a summation of the proposed asset allocation to user groups.

**Figure 5 Current cost allocation vs. proposed long term cost allocation end state**

#### **Current Cost Allocation**



#### **Proposed long term end state**

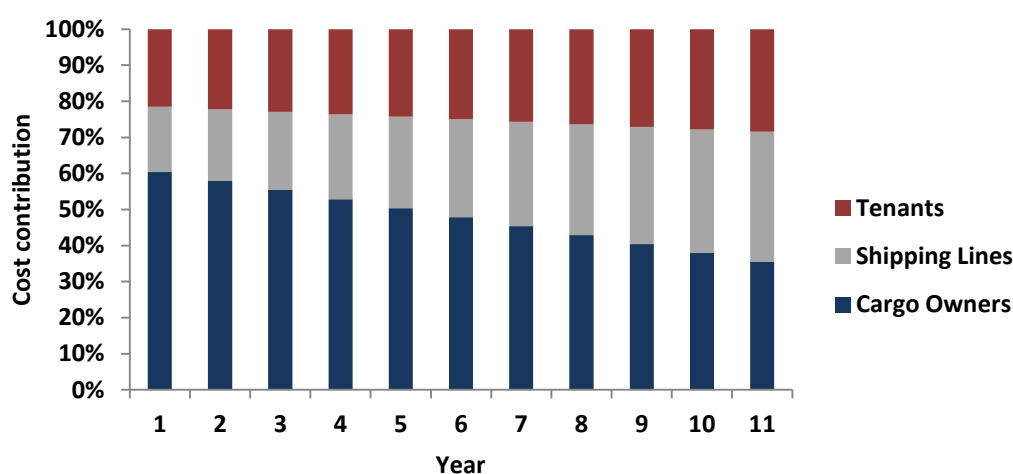


The revised allocation results in a provisional redistribution of costs between user groups as follows:

- Cargo owners decrease in cost share from 61% to 35%;
- Shipping lines increase in cost share from 17% to 36%; and
- Terminal operators' and other tenants' leases increase from 22% to 29%;

On a broad level, the gradual shift from the current allocation to a more equitable shift in cost allocation will be spread over a proposed period of ten years or more.

**Figure 6 A Gradual shift in cost allocation**



The implementation of a revised cost reflective pricing structure will be executed over a period of at least ten years for a number of reasons, which are stated below:

1. The reallocation of costs is, in essence, a “zero-sum game”. To decrease the contribution from one user group necessitates the increase in revenue from another. The contractual agreements binding leases prevents the Regulator from changing tariffs too quickly.
2. Large shifts in tariffs may lead to unintended consequences and as such, a more gradual approach is favoured.
3. The cost structure of the port system, by its very nature, changes and evolves over time. This may be as a result of a change in consumer behaviour (domestically or internationally); the addition of cargo specific capacity resulting in a change in the cargo mix or even shifts in other cost elements. This will in any case require an annual review of the pricing structure and, in effect, change the “end state”. The end goal remains to have a pricing structure as close to full infrastructure cost reflectivity as possible, that can then be maintained.

The figure above shows in broad terms the gradual shift in cost allocation. The adjustment of the contribution of user groups to required revenue is certain, given the current asset allocation. However, the yearly annual increases in tariffs for each user group are far more uncertain due to the nature of the tariff methodology. The *indicative* annual price change implications over the period of ten years or more and based on the current cost allocation and pricing structure are estimated based on current forecasts, as follows:

- Cargo owners as a group could experience a **real decrease in prices on an annual basis of approximately -5.2%**;
- Shipping lines could have to price in a **real increase on an annual basis of approximately 7.2%**; and
- Lease revenue in total could be required to **increase in real terms over the ten years by approximately 2.8% annually**.

These are indicative numbers only (on a *ceteris paribus* basis) and will change each year as the value of the asset base changes due to new capital and revaluation of assets, as well as changes in revenue (for the purposes of this indicative example, a 5% increase in revenue and inflation is assumed on an annual basis). The review of this allocation will be published annually and reflected in the tariff determination. Successive tariff determinations by the Regulator will be differentiated annually between user groups and between cargo handling types at reasonable levels in order to reach the proposed, more rational end-state in the long term. **Due cognisance will be given by the Regulator in circumstances that present, in any one year, to ensure that large tariff spikes to any particular user group is avoided. As such the increases/decreases implied above will not be strictly applied in each year as a stipulation.**

## 4. Tariff rationalisation

This section reviews and illustrates the possible effects of the proposed asset allocation on cargo and marine service tariff lines. The review aims to reduce the number of tariff lines, simplifying port tariffs, and provides an improved rationale for the definition of tariffs.

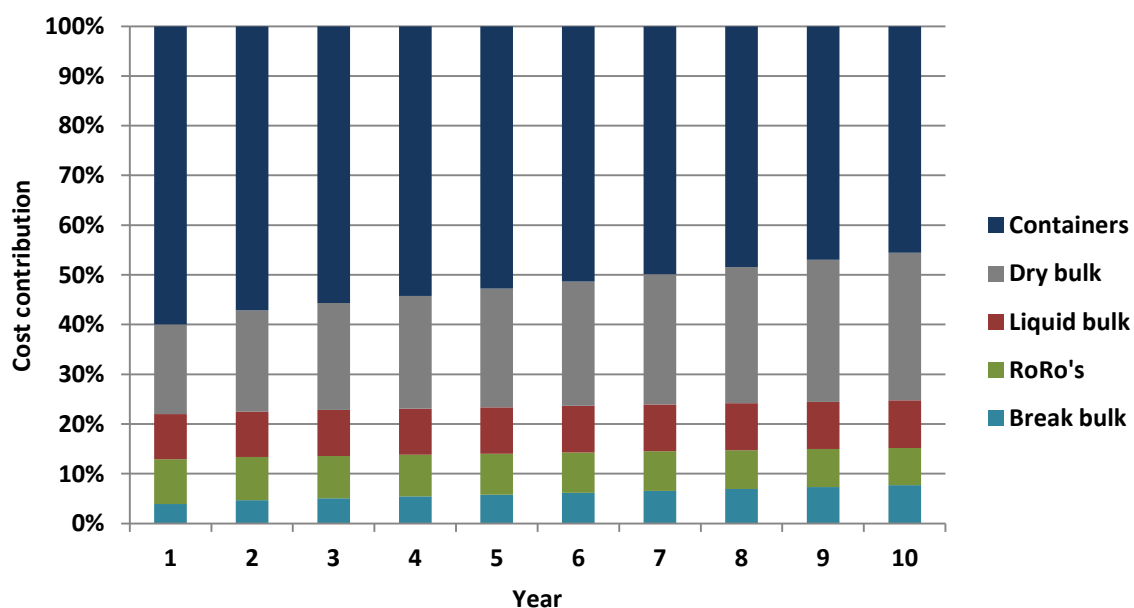
### 4.1 Review of tariff lines for Cargo Dues

Cargo owners are required to contribute partially to breakwaters, channels, fairways and basins, vessel repair infrastructure, NPA assets not earning lease revenue and common access infrastructure. The calculated portion of the revenue requirement is therefore 35% and will be adjusted on an annual basis. The Regulator has decided to adopt a process of tariff line simplification based on cargo handling type (Dry Bulk, Break Bulk, Containers, Liquid Bulk and RoRo's). The share of the different cargo handling types' contribution to the required revenue is based on vessel calls. The use of vessel calls is considered to be the most rational approach to distribute the required revenue given the significant portion of the revenue required allocation attributed to wet infrastructure. The vessel call split has been ascertained using SAP data and will be updated annually.

Cargo dues will be adjusted, together with the other revenue streams over the proposed ten year period or more. Whilst the current distribution of vessel calls is used to calculate the distribution between cargo types, it is important to realise that any change in the mix will result in a change in the calculated cost allocation and the resulted distribution. This will be reviewed annually and the updated "target" cargo mix will be published as part of the tariff determinations and incorporated in the tariff methodology going forward.

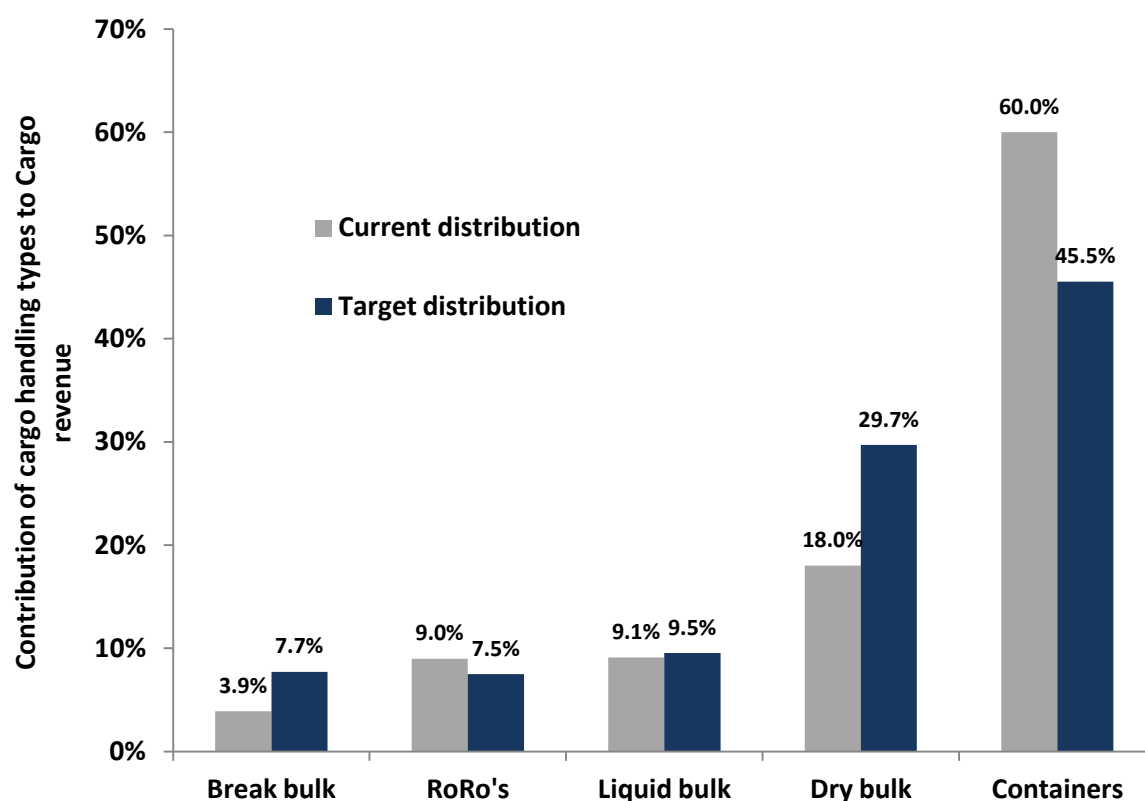
The indicative changes to each cargo handling type based on the current distribution of vessel calls are:

**Figure 7 Provisional cargo dues changes**



The proposed cargo dues structure will reflect an overall decreasing cost recovery from cargo with real decreases for containers and Ro-Ro's. Some tariffs in the other categories see an increasing cost share; these will however be limited as the overall decrease in cargo dues contribution is significant.

**Figure 8 Cargo dues annual changes required**



The implementation of this will have different impacts on different commodities. The underlying assumptions guiding the base level cargo dues tariffs include:

1. The strategy proposes that a “per unit” charge and a base rate be calculated per cargo handling unit (container, ton etc.). All tariffs will over time be adjusted to converge towards the base rate that will be adjusted every year;
2. Cargo handling type: Tariffs are calculated by Cargo type and not specific tariff. Initially, specific tariffs will still remain part of the tariff book, but as convergence occurs these tariffs will disappear and the base level will apply (except where deviations from the principles apply, see section 5);
3. In the absence of a finalised beneficiation promotion strategy for the South African port system, export tariffs for container and RoRo's are to be maintained at a 50% discount to import tariffs so as to align as far as possible with government's current strategic objectives as regards beneficiation and export competitiveness; however, it is clear that Transnet Port Terminal (TPT) handling charges may negate the impact thereof. State designed incentives through the NPA pricing structure should not be neutralised or eroded by price increases by another government entity. Whilst this retains the status quo, more work is required in consultation with the DoT, Dti and other stakeholders with regards to South Africa's industrial policy objectives and the finalisation of the beneficiation strategy may result in a change in this regard;

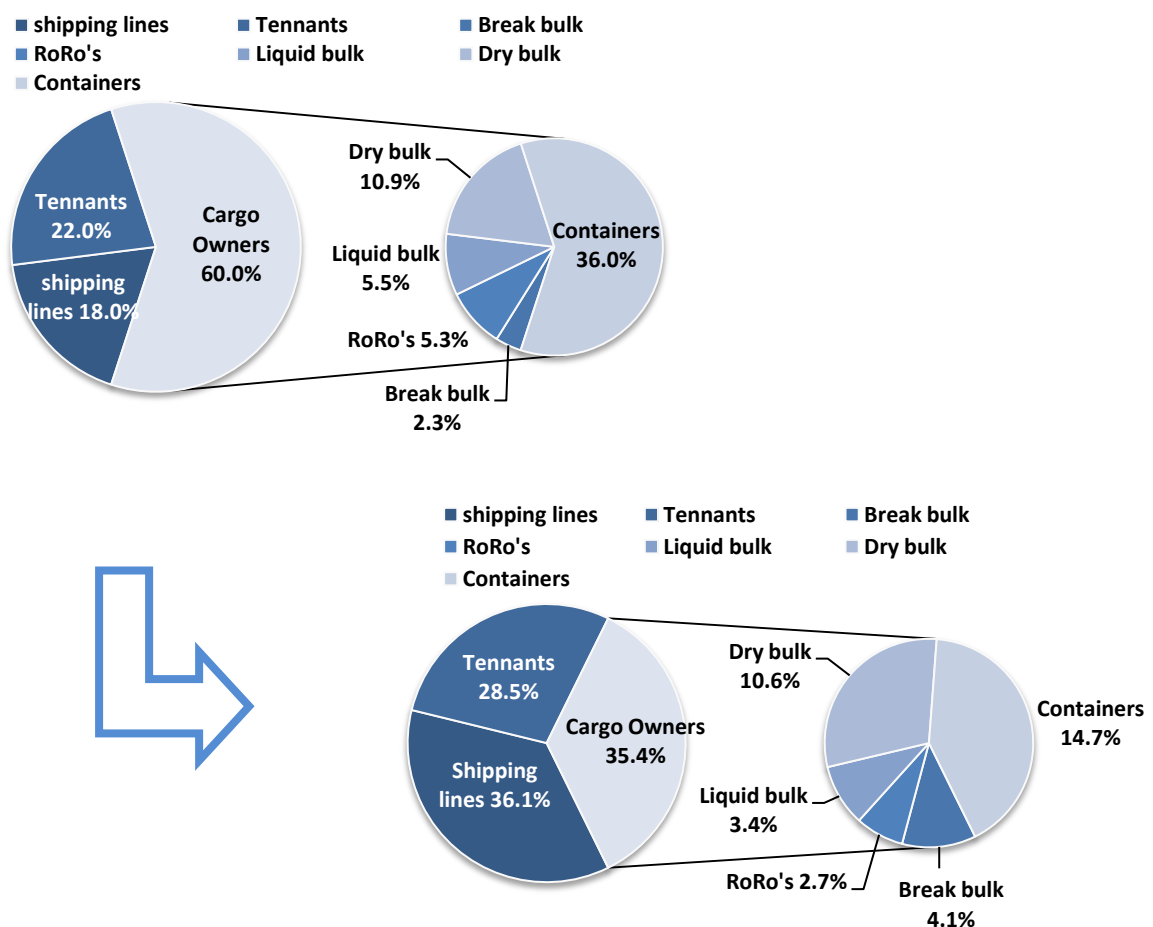
4. All volume discount structures, which are subsidised by other port users who are not benefiting from the discount, are to be phased out and will be dealt with if required in terms of section 5 of the strategy. As such, the Automotive Industry Volume Discount will be removed over a maximum of 10 years but targeted over 5 years, depending on the impact of volumes and relative revenue growth in other parts of the tariff structure. We will also consider the impact on each OEM affected by the phasing out of the volume discount programme.

**National policy aligned tariff incentives are currently retained to be further developed to better align with national industrial and transport policy objectives:**

5. Empty container cargo dues will remain as such until otherwise determined;
6. Transshipment cargo dues are to remain at the current levels;
7. Coastwise cargo dues are to be retained; and
8. Further discounts for the beneficiation of specific products not included at this stage, will be considered by the Regulator together with government for specific inclusion in future tariff determinations.

Ultimately, the total impact of the revised asset allocation, combined with the assumptions detailed above, will see significant changes in the total contribution of different cargo handling types to total NPA revenue. These are illustrated below:

**Figure 9 Breakdown of Cargo owners' contribution to total revenue (current and future target)**



The resultant indicative base tariffs are given below:

**Table 4 Indicative Cargo Dues Base Tariffs**

<b>Base tariffs (R) in the proposed end state (based on 2013/14 data)</b>		
<b>Dry bulk</b>	(tons)	6.53
<b>Break bulk</b>	(tons)	31.03
<b>Liquid bulk</b>	(tons)	15.21
<b>RoRo</b>	Import (Tons equivalent)*	51.30
	Export (Tons equivalent)*	25.65
<b>Container (full)</b>	Import (TEU)	651.53
	Export (TEU)	325.77

\*Vehicles will be charged per unit per size category, in line with TPT's vehicle category classifications.

Further, the establishment of a base tariff for the different cargo types will result in some tariffs requiring change at much slower rates than others. As the tariff effect will differ for the different tariffs, the specific magnitude depends on the current tariff level differential with the base level as calculated. Changes in the asset structure, volume growth and resultant revenues will affect different impacts on different tariff lines. These will be adjusted on an annual basis as convergence with the updated base rates are progressively reflected in the Tariff Book. As such every year the tariff book approved by the Regulator will contain an updated list of the base rates. This will allow all cargo owners to monitor the convergence of their applicable tariffs with these base rates.

## 4.2 Review of tariff lines for Marine Services

Vessel owners are required to contribute partially to breakwaters, channels, fairways, basins, quay walls, berths, jetties, all ship working vessels, aids to navigation, vessel repair infrastructure, NPA assets not earning lease revenue and overheads. The calculated share of the revenue requirement is therefore 36% and will be adjusted on an annual basis. The Regulator has decided to adopt the tariff simplifications proposed by the NPA in their proposal.

Maritime services as a whole are currently not recovering operating costs, depreciation/capital and other allocated costs. This impacts the ability of maritime services to be self-sufficient for purposes of capital additions (such as new tugs) without cross-subsidisation from other services and port users. In addition, cross-subsidisation currently exists between individual maritime services as a result of some services over-recovering costs, whilst others are under-recovering costs

The proposed maritime services tariff structure works on the basis that the Required Revenue should be calculated individually for each service, applying the cost recovery and user pay principles. Each maritime service has a different cost base that is dependent on the operating and depreciation/ capital costs specific to providing that service. In addition, the assets are specifically allocated to each service (for example, tug vessels will be allocated to tug services and tariffs) to calculate the required returns for each service. Different tariffs will then be calculated for each service to meet Required Revenue on a system wide approach and ensure cost recovery at the disaggregated level.



In calculating Required Revenue, as detailed above, and setting tariffs to meet Required Revenue for each individual maritime service, shipping lines will pay the correct amounts for the specific services that they use, thereby satisfying the user pays principle. Furthermore, the basis for the charges can be clearly explained.

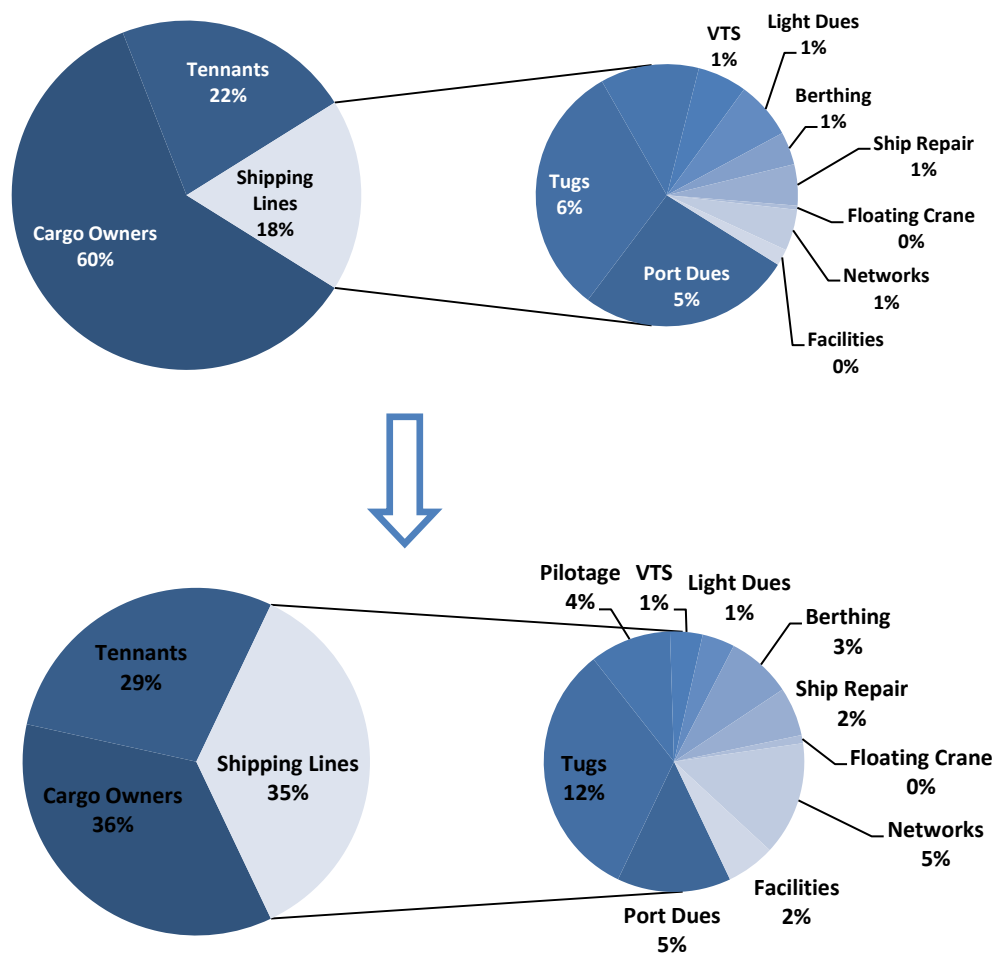
The proposed new tariff structure suggests the discontinuation of berth dues – mainly due to three reasons: First, the initial purpose of berth dues when they were introduced was to impose a financial penalty to ensure vessels continuously work cargo while berthed. However, the tariff levels seem too low to support this objective effectively. Second, typically berth dues are charged for the provision of quay wall. Since in the proposed tariff structure quay walls are allocated to tenants, there is no longer a basis to charge berth dues to shipping lines altogether. Lastly, berth dues are a minor revenue contributor. Taking all this into account and in the spirit of simplifying the tariff book, this charge is no longer foreseen.

The table below highlights the marine service component of each asset type and the methodology used to calculate the applicable tariff. The strategy differentiates between the use of either gross tonnage as an approximation for vessel size as a measure of volume, and efficient use of infrastructure where a direct cost allocation is not feasible.

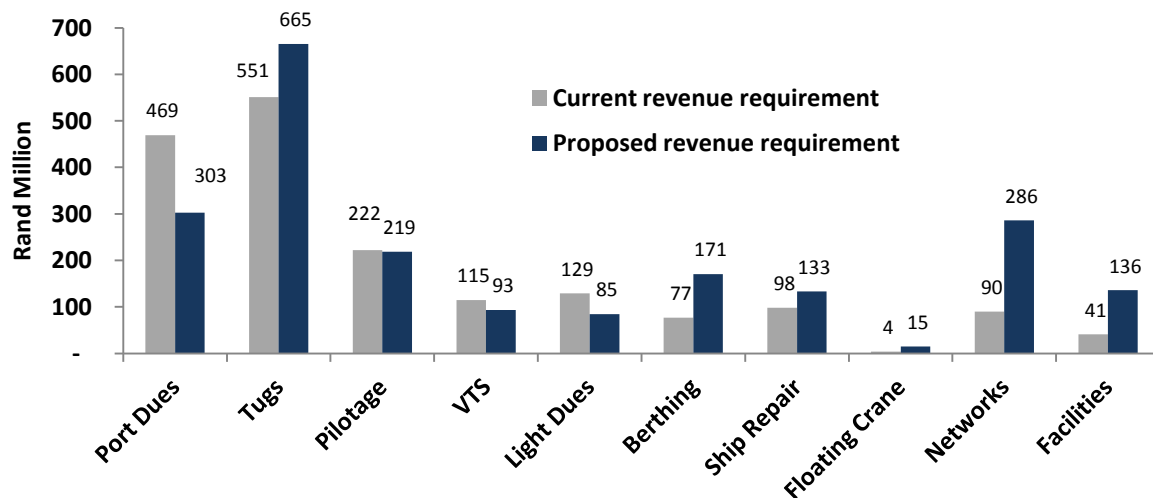
The revised required revenue allocation results in a significant increase in marine services' contribution over the period. This correction not only reflects a better cost allocation, but also addresses the concern regarding the global average tariffs vessel owners face. The Regulator is mindful of the impact that delays, due to port inefficiency, can have on vessel owners with regard to cost and has embarked on a process by which these inefficiencies should be addressed using TOPS and MOPS.

The recalculation of port dues, and the methodology changes proposed by the NPA and accepted by the Regulator, will see port dues increase over the period.

**Figure 10 Marine service (Shipping lines) component cost allocation (contribution to total revenue: current vs. targeted)**



**Figure 11 Marine service cost changes**



The inclusion of NPA overheads and associated assets and costs results in significant increases in network (electricity and water) related costs, as well as facilities (water supplied to ships, fire services, galley waste, small craft and port licences, permits and registrations) costs. Port dues however decreases significantly whilst the increases and decreases reflects a more accurate cost allocation in the pricing of marine services.

**Table 5 Marine services tariff rationale**

Tariff	Tariff Base/Design Methodology	Charge Frequency	Rationale
Port Dues	GRT per port/ per hour periods/linear fee per GRT	Per visit	Incentive for quicker turnaround times
Berthing and Running of lines	Consolidated tariff/Linear fee per GRT	Per visit	Simplification
Tugs	Flat fee per Tug, irrespective of Tug size/number of tugs determined by Harbour master	Per visit as determined by Harbour master	Incentive for latest technology vessels by moving away from fixed vessel size/tug ratio
Pilotage	Flat fee per service differentiated by port	Compulsory at every port/per visit	Simplification
VTS	GRT per port/linear fee differentiated by port	Every port where available	As per current tariff book and International practice
Light Dues	GRT per port/linear fee differentiated by port	First port of call	As per current tariff book and International practice

The proposed tariff structure consolidates berth dues into the current ports dues tariff. Berth dues are currently charged on an exception basis, when vessels are not engaged in cargo handling activity, and are an insignificant revenue source for the NPA. The consolidation of the tariffs will therefore simplify the tariff structure to the benefit of users. Port Dues are charged on a linear GRT basis per port per 6 hour periods. GRT, as the measure of the total enclosed volume of the ship, is considered to be the best approximation of draught, length and width, i.e. the size of the vessel and is therefore the best reflection of use of assets such as channels and berths.

The running of vessel lines is a fairly infrequent activity during the berthing process, therefore the proposed berthing tariff design is to consolidate berthing and the running of vessel lines as a single tariff for simplification of the tariff book. The consolidated tariff will apply the same tariff design as the current berthing tariff.

Future tug charges will be driven by the actual number of tugs used and Harbour Master discretion with regards to the number of tugs needed to provide the service. The proposed tariff design for tugs will address key issues raised by customers:

- The current tariff design does not account for resources actually used, while in the future the tug charge will be driven by the exact number of tugs used per service which is more fair and easy to explain;

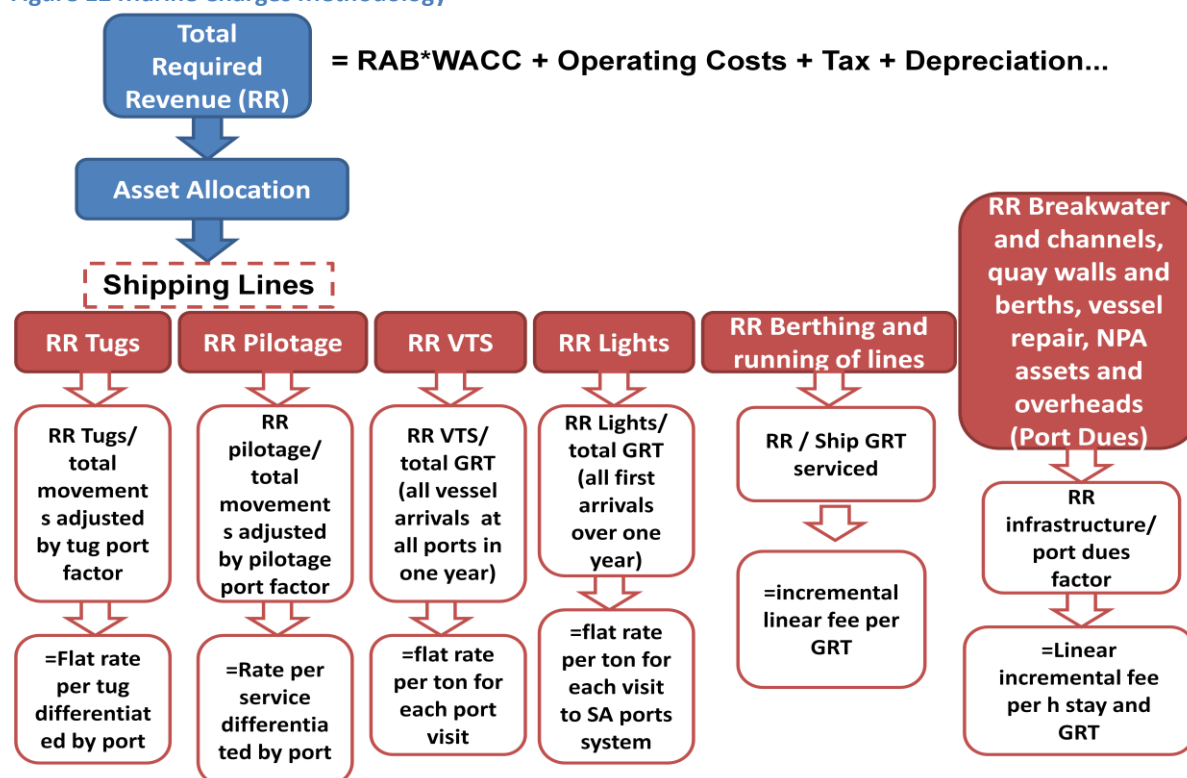
- The surcharges in the current tariff design are perceived as unfair, hence the future tariff structure will specifically charge for any additional tug used instead of a flat 50% surcharge on total tug levy; and
- Fixed GRT rate is unfair for vessels that have better manoeuvrability (e.g. car carrier vessels), hence the number of tugs used will not be based on GRT but will be at the Harbour Master's discretion based on operational and safety considerations.

The charge calculation for the proposed tariff design for pilotage will be a linear tariff that is dependent on a vessel's gross registered tonnage (GRT), rather than the current tariff that incorporates a base rate in addition to a linear rate per a vessel's GRT. This will simplify the tariff to the benefit of port users.

Applying the principle of cost recovery, in the case of tugs and pilotage, will be implemented on a system level thus the recovery of costs for tugs and pilotage will be on a system level and not necessarily for each individual port. To achieve this, all required revenues for tugs (or pilotage) from all ports will be pooled for all ports on a system level to determine a system-wide average rate per hour for one hour of tug-operation (or pilotage). This average hourly rate will be differentiated between ports in its application due to the difference in time it takes to perform the service. In other words, the applied costing factor per tug per operating hour will be the same across ports; however, since tugs will be charged per service and the time needed to provide the service differs across ports, the actual tariff will vary by port.

The current tariff design for VTS is fair and in line with international norms and will therefore remain the same as it adequately reflects the relative risk posed to the port system. The figure below captures the methodology used for each marine services tariff line.

**Figure 12 Marine Charges Methodology**



### 4.3 Review of Rentals

Tenants are separated into cargo working tenants (including terminal operators) and non-cargo working tenants. Cargo working tenants are responsible for contributing partially towards the required revenue from breakwaters, quay walls, berths, jetties, vessel repair infrastructure, movable NPA assets and buildings (not leased), terminal land, staging areas, all common access infrastructure and overheads. Non-cargo working tenants are responsible for contributing partially towards the required revenue from the same assets excluding those dedicated to working cargo - quay walls, berths, jetties, terminal land and staging areas. This asset allocation results in the increase of required revenue for rentals from 22% to 29%.

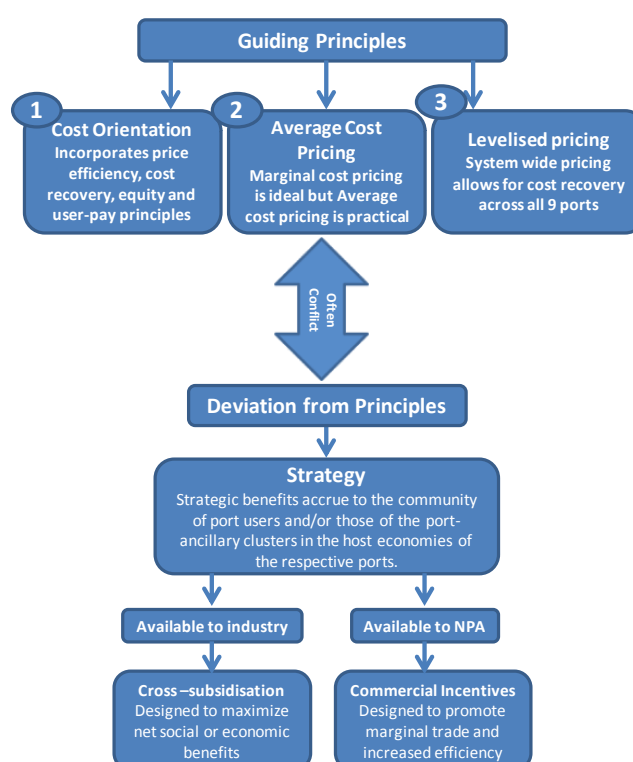
The situational analysis of NPA's rental agreements cannot be conducted at this stage due to lack of information. Therefore, the revenue to be recovered from cargo working and non-cargo working tenants cannot be distinguished. Furthermore, the indicative average annual growth in rental is difficult to establish because it is not known when leases are due for renewal and therefore when prices can be adjusted, although currently NPA administers a 9% increase annually which could be enough to achieve the increase in required revenue over the proposed period. Perhaps, most importantly, tenants should be charged equitably for the land they occupy. The Regulator will seek more transparency in this area from the NPA with the view to ensuring all tenants are paying equitably for the benefit they receive, as are cargo owners and vessel owners.

Further in response to the NPA's proposal in this regard that proposes a value based rental strategy, the Regulator will further engage with the NPA as a value based strategy does not encourage marginal cargo, contradicting the principles contained in the strategy.

## 5. Rules for Deviation from the proposed end state Base Tariff applicable to the NPA and industry

It is necessary to consider the cases where tariffs might deviate from those identified above for reasons of strategy. Overarching considerations of strategy, which may at times conflict with cost orientation concerns, are equally as important as cost orientation considerations. The Directives, in terms of section 30(3) of the National Ports Act, promotes ‘*The avoidance of cross subsidisation save where cross subsidisation is in the public interest*’ (DoT, 2009)<sup>4</sup>. A port or port system’s pricing policies should be in line with its overall strategic goals, which would include the strategic benefits that would accrue to the community of port users and/or those of the port-ancillary clusters in the host economies of the respective ports. Ports are not just a conduit for trade between sea and land; they are a vital part of a country’s logistics supply chain and are, therefore, catalytic pieces of infrastructure with regard to employment creation and investment attraction<sup>5</sup>.

Figure 13 Summary: Deviation from tariff principles



Under-recovery of cost is sometimes necessary for strategic considerations but has consequences for the port system which, in South Africa, is operating within a zero-sum context. This means that if an investment or facility under-recovers, it needs to be subsidised by a different, more financially successful investment or facility, thus deviating from the main pricing principle of a cost reflective tariff. Another way of deviating from cost oriented tariffs is through discounting, which may not lead to under-recovery or cross-subsidisation, but is none-the-less a deviation from the tariff line.

<sup>4</sup> Directive 23(1)(f).

<sup>5</sup> Section 11(1)(f) and Section 12 (i) of the Act.

Discounts and cross-subsidies are described in more detail below. Rules are given for when discounts and cross-subsidies may apply.

## 5.1 Cross-subsidisation

Pricing should preferably avoid cross-subsidisation between commodities or types of cargo and ports; and ultimately the tariff structure should reflect the cost structure of the port system. However, the Regulatory Tariff Methodology currently utilises the Required Revenue methodology that utilises a system wide pricing methodology. As such, equalisation of tariffs and a certain level of cross-subsidisation does exist and will continue to form part of the tariff structure. The use of specific cross-subsidies may also pose a net benefit on the port system in particular, and the economy as a whole, and, as such, must be considered by the Regulator.

A cross-subsidy (also termed as internal cross-subsidy) is a regulatory scheme basically designed to maximize net social or economic benefits. Though its practical applicability and effectiveness have demonstrated a potential for being a useful policy as well as regulatory instrument, its theoretical underpinning has remained somewhat controversial. Various kinds of definitions and concepts have been put forward as attempts to make it theoretically consistent and practically effective.

Okano (1985) has described cross-subsidy on the basis of an *un-remunerative service*. He considered cross-subsidy as the case where an un-remunerative service is dually compensated by the profit of other services. An un-remunerative service is defined as "a service, or part of a service, the resulting revenues from which are known (or definitely expected) to be insufficient to cover those costs which, but for its provision, would not have been incurred, either directly or indirectly, in the short or long run" (Ponsonby 1963). **To put it simply, un-remunerative (or under remunerated) services are not (fully) paid for but are useful services for some users.**

There have been many transportation infrastructure facilities built and/or operated under cross-subsidy schemes. Cross-subsidy is often depicted as a source of economic inefficiency on one hand, and a corrective-measure to deliver a useful service (which would otherwise have not been provided through market mechanism due to the lack of financial resources of the government and/or market failure) on the other hand. In effect, the cross-subsidy mechanism transfers a part of cost burden between projects (or assets), different elements of the same project (or assets) or between users. As a result, it has a direct impact on a project's profit level or/and user's welfare. As the implementation criteria of cross-subsidy schemes involve a considerable degree of subjective judgement, it invites an endless debate on fairness and efficiency of the scheme. It is important, therefore, to develop criteria for the South African ports system that attempts to remove the subjectivity from implementing a cross-subsidy.

### 5.1.1 Cross-subsidisation criteria

The Act sets out the functions of the Regulator in Section 30. The first listed function of the Regulator is to '*exercise economic regulation of the ports system in line with government's strategic objectives*'. Cross-subsidies will first and foremost be considered when considered as part of government's national policy, or strategic objective.

Any other proposal or approval of a cross-subsidy or allowance of existing cross-subsidisation must satisfy one or several of the following criteria. The onus will be on the Authority or user group

applying for the subsidy to prove that the subsidy will fall under one or more of the criteria. The PRSA recommends that a cost benefit analysis, or similar, should be conducted in order for the cross-subsidy to be considered.

**Table 6 Cross-subsidisation Criteria**

Criteria	Description
<b>The cross-subsidy will meet economic growth and developmental objectives</b>	This applies to the funding of new infrastructure and the discounting of current infrastructure/services to achieve economic growth. Economic benefit needs to be weighed against expected future financial benefit. Applicable to infrastructure capacity expansion that is not “bankable” but does provide economic benefit.
<b>The cross-subsidy aligns national policy objectives with port pricing</b>	The need for cross-subsidisation could arise from aligning to national policy objectives such as the Beneficiation Promotion Programme and the Automotive Industry Development Programme of the DTI.
<b>The cross-subsidy is necessary for equality in benefit</b>	System wide pricing is an example where tariff levelling provides equality of benefit. Cargo dues, for example, are similar in all ports, providing an equal benefit of port assets to all users of port infrastructure, irrespective of their geographic location. This supports a complimentary ports system.
<b>The cross-subsidy will minimise finance and volume risk</b>	The risks associated with the dependency on a specific user of cargo type with associated volumes advocates for a levelling of prices on at least a system wide level to minimise risk to the landlord and project.
<b>The cross-subsidy will promote efficient use of port facilities</b>	The promotion of efficient use of port facilities may in some cases be influenced through strategic pricing signals such as a subsidy of marine services or even cargo dues in some ports to support the use of excess capacity. This will also assist with marginal costing as the marginal cost of one unit in a port at full capacity is higher than a port with excess capacity.
<b>The cross-subsidy will reduce congestion</b>	Reducing congestion is a crucial part of running a successful port system and reducing logistics costs for port users. A reduction in port congestion could be considered worthy of subsidisation.
<b>The cross-subsidy will promote the inclusion of previously disadvantaged persons</b>	Promoting equitable access to infrastructure may require subsidisation. Marginalized groups may under recover on the cost of infrastructure or services initially but ultimately should be viable.
<b>The cross-subsidy is aimed at reducing carbon emissions</b>	Several global ports have started to introduce incentives or ‘rewards’ for vessels that are low sulphur and efficient. South African ports are more of a receiver of vessel classes than a definer of them but nonetheless sound environmental practices in all aspects of the port could warrant subsidisation.
<b>The cost to the economy if the cross-subsidy is not granted will be drastic</b>	Special consideration will be given where the economic risk associated with not providing the subsidy is high. This could also be called the <b>opportunity cost</b> . For example if the subsidy is not allowed then: <ul style="list-style-type: none"> <li>• necessary capacity investment in the port will not take place resulting in an inability to meet demand;</li> <li>• a niche industry will fail resulting in trade and job loss;</li> <li>• a commodity will be priced out of the international market;</li> <li>• port users will no longer use a South African port.</li> </ul>



If industry has an argument for deviating from the cost reflective tariff that falls within these criteria then they will be required to submit an application. The process for submitting an application for deviating from the base tariff will be developed and finalised during the 2016/17 tariff year. If a cross-subsidy is granted, it will be paid for evenly throughout the port system, i.e. by all port users.

## 5.2 NPA commercial incentives (discounts)

Incentives in its simplest form can be seen as a special case of discounts that serves some commercial purpose. These discounts are therefore available to the NPA in order to gain some commercial goal, without requiring any cross-subsidy from other users i.e. the discount is self-funded from retained earnings and is tariff burden neutral.

In the broadest sense, port tariffs must be trade facilitating rather than trade neutral or trade destroying. This applies to the utilisation of tariff incentives to increase cargo volumes and the number of vessel calls.

With regard to cargo volumes, this would be consistent with a situation where the tariff structure encourages marginal cargoes and attracts additional lucrative business, such as transshipment business or other transit business. In practical terms, it would therefore be an advantage if the tariff could induce vessels to work more cargo per port call. Some introduction of volume-related dimensions to certain tariff items may therefore be appealing, albeit only if applied transparently and to incentivise port users and potential port users. An example of this could be that if a certain volume of traded cargo is reached in a single vessel call or a year then the marginal cost per movement above that volume would be on a sliding scale downwards. Importantly, this is distinct from cross-subsidies because this discount does not have to be recovered either because the base number of units moved would already cover costs or because the discount would result in increased cargo which would recover the costs of the discount.

With regard to vessel calls, tariffs must attract additional vessel callers, but not at the expense of extra cargoes (through congestion etc). Most ports (in the widest sense of port communities) generate greater employment and revenue from cargo-related as opposed to vessel-related activities especially through the covering of maintenance and operation of maritime infrastructures, land transport and logistics activities, including rail and road as well as cargo services (e.g. freight forwarding and customs broking) etc. The value chain and therefore the economic multiplier effect is generally longest for imports and exports (freight vessel calls), followed by non-freight vessel calls and is shortest for transshipments. As a result, incentives should encourage increased transhipped cargo but not at the expense of increased non-freight vessel calls, which in turn should not be at the expense of freight related vessel calls. Ideally, transhipped and marginal cargo should be encouraged only when vessels are offloading or loading larger volumes of traded cargo so that the marginal cost of the transhipped cargo is minimised.

Within this same context, **tariffs should try to attract the most efficient and the least-cost vessels** to our ports, since the efficiencies that they embody will be incorporated in lower transport costs and will benefit the wider community. The most efficient vessels:

- Are modern vessels: Move and turn quickly in the port, utilise state of the art electronic communications and state of the art safety and monitoring technology;

- Have technology that allows for the efficient offloading of cargo and efficient transfer to connecting transport services;
- Are larger and carry larger volumes (with a TEU ceiling unique to each port).

A commercial incentive will result in some level of cross-subsidisation if a volume increase does not compensate for the loss in revenue from a lower price. This cannot be allowed to happen. The argument can be made that if a deviation from the set tariff results in an increase in volumes and revenue, the set tariff (before the discount) is sub-optimal. As such, the current tariff methodology will consider any discount aimed at an increase in volumes and the related risk to be carried by the NPA and not be subsidised across the system.

The Regulator will carefully consider all submissions related to discounts to determine whether said discount, aimed at an increase in volumes and the related risk, should be carried by the NPA and not subsidised across the system. The revenue risk will immediately be carried by the NPA, however, the Regulator may consider allowing some short term under or over recoveries as the situation requires but the net revenue effect should always be zero. Whilst this may not be an exact science, care must be taken to enable the NPA to use the tariff system in order to efficiently respond to market changes through price incentives, whilst ensuring the sustainability of the port system. However, discounts /incentives should be a small exception to a mainstream cost reflective pricing approach, rather than the rule.

## 6. Conclusion and Way Forward

### 6.1 Conclusion

In its proposal to the Regulator, the NPA acknowledges that the current port tariff structure is sub-optimal and presents several issues in terms of transparency, compliance, fairness and overall acceptability by port users. The new proposed tariff structure, outlined in this document, represents a clear but cautious departure from the current practice and is based on the consistent application of sound design principles, a more balanced distribution of charges to the different port user groups, as well as being more strongly aligned with international norms and standards and South African national policy objectives. Whilst the Regulator has taken a number of elements from the proposal, the overall trajectory of the tariff strategy is a more decisive adjustment towards a truly cost reflective pricing system that will greatly benefit all users, as well as the broader South African economy, in the medium to long term. The approach in developing the tariff strategy was to determine a cost-reflective asset allocation, rationalise tariff lines in accordance with the asset allocation, then criteria for deviating from those tariffs was established in special public interest cases.

#### ***Asset Allocation:***

The Regulator and NPA considered principles of cost-causation, cost-minimisation, distribution of benefits, and practicality when developing the tariff strategy. Average cost pricing and system-wide pricing was seen as most practical. Assets were allocated according to which port users benefit most from the use of port infrastructure. The general underlying logic was that the seaward side benefits mostly shipping lines and cargo owners, while the connecting point benefits mostly shipping lines and tenants, and the landward side benefits mostly tenants. The resulting changes in required revenue were therefore as follows: Cargo owners decrease in cost share from 61% to 35%, shipping lines increase in cost share from 17% to 36% and Terminal operator's and other tenant's leases increase from 22% to 29%.

These changes will be implemented over a period of ten years or more. Prices will be differentiated annually between user groups and between cargo handling types at reasonable levels in order to reach the proposed, more rational end-state in the long term.

#### ***Tariff Rationalisation:***

The Tariff Book currently charges cargo dues per commodity; this strategy proposes over a ten year period a rationalisation of the number of tariff book line items. The share of the different cargo handling types' contribution to the required revenue is based on vessel calls. The use of vessel calls is considered to be the most rational approach to distribute the required revenue given the significant portion of the revenue required allocation attributed to wet infrastructure. This results in:

- Containers cost contribution to reduce from 60% currently to 45.5% in real terms over the period;
- RoRo cargo cost contribution to reduce from 9% currently to 7.5% in real terms over the period;

- Break Bulk cost contribution to increase from 3.9% currently to 7.7% in real terms over the period;
- Liquid Bulk cost contribution to increase from 9.1% currently to 9.5% in real terms over the period; and
- Dry Bulk cost contribution to increase from 18% currently to 29.7% in real terms over the period.

Pending the finalisation of a beneficiation promotion component of this strategy for the South African port system, export tariffs for Containers and RoRo's will be maintained at a 50% discount to import tariffs so as to align with government objectives on beneficiated products.

The proposed marine services tariff structure works on the basis that the Required Revenue should be calculated individually for each service, applying the cost recovery and user pays principles. Each maritime service has a different cost base that is dependent on the operating and depreciation/capital costs specific to providing that service. In addition, the assets are specifically allocated to each service (for example, tug vessels will be allocated to tug services and tariffs) to calculate the required returns for each service. Different tariffs will then be calculated for each service to meet Required Revenue and ensure cost recovery at the disaggregated level.

***Deviation from the base tariff:***

Cross-subsidisation between user groups will be avoided as far as possible but will be allowed when it is in the public interest in accordance with the Directives to the Act<sup>6</sup>. Criteria have been identified under which subsidies will be granted. These are that the cross-subsidy will:

- Meet economic growth and developmental objectives;
- Align to national policy objectives with port pricing;
- Be necessary for equality in benefit;
- Minimise finance and volume risk;
- Promote efficient use of port facilities;
- Reduce congestion;
- Promote the inclusion of previously disadvantaged persons;
- Aimed at reducing carbon emissions;
- If not granted, imply a drastic cost to the economy.

Industry will have an opportunity to apply to the NPA to receive a cross-subsidy.

Similarly, volume discounts and other incentives will, as far as possible, be phased out of the tariff book with the Automotive Industry Volume Discount being removed over a maximum of 10 years but targeted over 5 years depending on the impact of volumes and relative revenue growth in other parts of the tariff structure. The Regulator will consider the impact on each OEM affected by the phasing out of the volume discount programme. However, the NPA can, at their discretion and with approval from the Regulator, provide incentives as long as they are self-funding (from NPA allowed returns) i.e. do not require a cross-subsidy.

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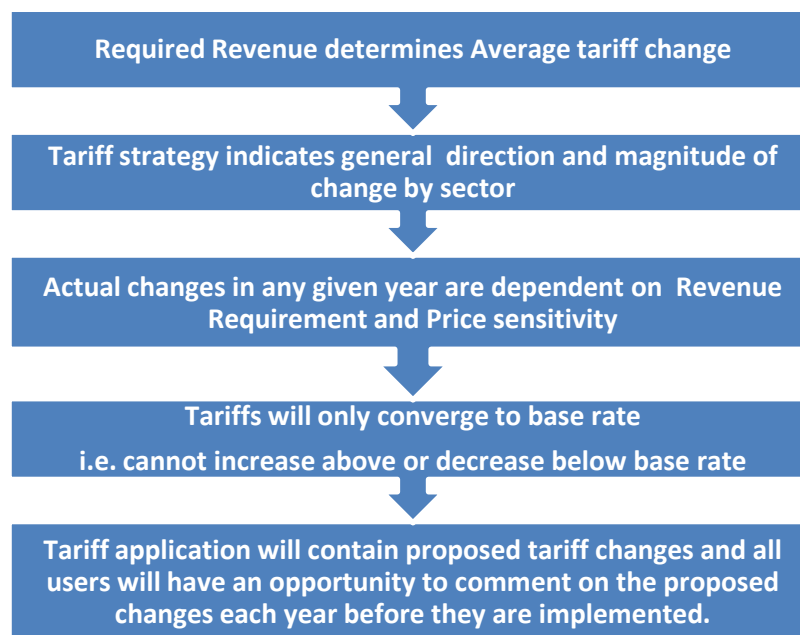
<sup>6</sup> Directive 23 (1)(f).

## 6.2 Implementation

The ten year (or more) implementation period with annual reviews of the variables in the tariff structure model will ensure that unintended consequences are speedily and effectively addressed and that the pricing regime stays responsive to the needs of both the landlord of the South African port system as well as its users.

The implementation of the tariff strategy cannot be cast in stone as the space available to the Regulator to implement any tariff changes depends on the application of the tariff methodology in any particular tariff year within which the Strategy takes effect. A number of considerations are part of the process and are outlined below:

**Figure 14 Steps taken each year to implement tariff strategy changes**



Marine charges and cargo dues will be simulated during 2016/17 and implemented in 2017/18 in order to ensure the integrity of the system. As part of this process, the NPA will run a parallel invoicing system to allow the monitoring of the implementation of the revised marine service and cargo dues methodologies. Each year, cargo dues changes will be indicated in the tariff decision similarly to how they have been for the previous 3 years. Convergence with annually published base rates may be accelerated beyond 2016/17, based on ongoing sensitivity analysis. The cargo dues base rate will be reflected as “General Dry Bulk rate” (in the case of dry-bulk) in the tariff book, and convergence of a specific rate will see the tariff line removed and the applicable commodity will fall under the “General Dry Bulk rate” tariff line. As such, obsolete tariff lines will be removed from the tariff book on an ongoing basis. As such, every year the tariff book approved by the Regulator will contain an updated list of the base rates. This will allow all cargo owners to monitor the convergence of their applicable tariffs with these base rates.

The Regulator is mindful of the following ‘unknowns’ in the strategy and dependent processes and will work to clarify them over the implementation period:

**Rentals:** Overall lease revenue annual increases sufficient for implementation of the strategy; however, more work *within* lease revenue is required to deal with the lack of transparency and

information with regard to rental tariffs. The Regulator is increasing its focus in this area through its compliance monitoring programme which includes an analysis of rental agreements.

**Vessel Calls and Sizes:** The impact of vessel sizes on the calculation of cargo dues will be monitored and reviewed as required over the period. The number of vessel calls as determined through the SAP System will need to become more accurate and will be monitored closely for changes annually. Furthermore, the linear charges per GRT for marine services will be monitored to ensure that it does not discourage large vessels, leaving infrastructure under-utilised.

**Pass-on of increases:** Reduction in cargo dues might not be felt by cargo owners as vessel owners could pass on charges. Transnet Port Terminals (TPT) and other terminal operators are not regulated; therefore, they could increase their tariffs or negate the effect of the import export differential. However, more stringent monitoring of terminal handling charges and freight rates will be conducted by the Regulator and the impact on the users assessed. It should be noted that reducing the tariff burden on cargo owners is not the objective of the tariff strategy – this is more directly dealt with by the tariff methodology.

**Tribunal:** There are tribunal decisions pending that could influence tariff lines in the tariff book – these take precedence over the tariff strategy and will be incorporated when they are published.

**Operation Phakisa and divergent future funding models:** The opening up of Private Sector opportunities resulting in a bigger role with regard to the funding of port infrastructure was mentioned in the State of the Nation Address (SONA) and new pricing models could emerge due to this, especially as part of Operation Phakisa. Ship repair asset allocation will be reviewed based on changing commercial viability of existing infrastructure. The tariff strategy will incorporate these emerging models for new infrastructure as they occur.

**Beneficiation:** A beneficiation strategy was submitted as part of the NPA's proposal but has been excluded in this strategy as it requires further research and careful consideration. This research has already started, including engagement with the dti and DOT, and the Regulator hopes to have a view on this in the near future.

**PCCs:** The Strategy ensures that all users understand which infrastructure they are paying for and that the price they are paying is reflective of the cost of that infrastructure. This link has never been as transparent before and requires active participation of users in NPA's capital planning, through the Port Consultative Committees, in order to ensure that they have a say in the infrastructure they ultimately will be paying for. The Ports Regulator depends on these engagements when approving the infrastructure that is included in the Regulatory Asset Base.

**TOPS/MOPS:** Furthermore, the Regulator relies on PCCs to assess the credibility of TOPS and MOPS. Further research will be conducted by the Regulator to assess the credibility of TOPS and MOPS, as the cost of infrastructure must include a performance element to be truly cost reflective.

**Cross-subsidy application process:** The application process for any cross-subsidy or incentive will be finalised during the 2016/17 tariff year in consultation with the National Ports Authority.

The Regulator will, throughout this process, engage with port users and the NPA alike to ensure the most equitable, fair and efficient outcome for all.

South African Port Tariff Strategy 2015/16 as approved by the Ports Regulator of South Africa on the 22<sup>nd</sup> of July 2015.



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Ms Gloria Serobe

Chairman of the Ports regulator of South Africa

31/07/2015

Date