

PORTS SECTOR REVIEW

A five-year regulatory review of the South African port system developed by the Ports Regulator of South Africa

2020/21

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1. Executive Summary

The purpose of the Ports Sector Review is to gain a holistic view of the ports system within the South African context. The intention is to obtain a better understanding of the characteristics and operations of each port; the operational performance of each port, as well as the handling capability and structural impediments within the overall port system. Factors such as port hinterland, port infrastructure, port capacity, capacity utilization, number of vessel calls, and a port's overall contribution to the port system will be assessed. Additionally, the review aims to highlight the policy position of the Government, the advancements in regulation, as well as the advancements in the ports sector since the inception of regulation with a focus on the 2015/16 - 2019/20 period.

The Ports Sector Review provides a review of the regulatory system in terms of its background and related policies, an overall analysis of the financial position of the ports, the efficiency of the system, and continues to an analysis of each port and an analysis of the main cargo types handled by the ports.

The port level analysis includes an overall summary of each port within the system, its characteristics, vessel calls, cargo handled, infrastructure, capital expenditure, and financial status. The cargo level of analysis includes the capacity within the ports, the vessel calls and trends, and the volumes handled.

Overall limitations of the study include those resulting from the COVID-19 pandemic. Information utilised in this study and the analysis has been obtained from Port Managers, as well as publicly available information.

2. Introduction

Sea transport is an essential vehicle of international trade¹. Efficient ports are known to be catalysts for increased trade, providing a comparative advantage for international trade. International trade is one of the vital facets of the South African economy, with exports contributing approximately 29,6% to GDP in 2020. Commercial ports therefore play a crucial role in South Africa's transport system and its economic development. The National Ports Act 12 of 2005 ("the Act") was established with the purpose of ensuring affordable, efficient and safe port services based on a transparent and cost-effective nature² that is both economically and environmentally sustainable.

3. Economic Regulation

In its most basic form, regulation is defined as "a set of rules or laws, coupled with punitive measures or incentives, implemented by a government (or delegated entity) to modify the economic behaviour of either a sector or of individuals". Regulation seeks to improve social outcomes by changing individual or organisational behaviour in a manner that generate positive impacts in terms of solving societal and/or economic problems.

Regulation is considered to have a firm economic basis in the theory of 'natural monopoly', one that is characterised by high fixed costs, and room for one / few market players. The need for economic regulation usually arises when a naturally monopolistic network is coupled with an essential service characteristic, typically sectors like energy, the ports, water, and communication.

The decision to regulate an industry or sector is usually made at a parliamentary level and the due powers (in the form of a legislative framework), duties (a mandate), and resources (both human and financial capital) are allocated to the regulator.

In the SA maritime context; the National Ports Authority ("the Authority/the NPA") is the sole entity which is regulated by the Regulator. Terminal operators and other maritime players are excluded from this mandate. This poses a challenge to regulation as the Authority remains a division of Transnet SOC Ltd, the holding company to other industry players including Transnet Port Terminals ("TPT") which may be classified as the main terminal operator within the ports sector. Although the Authority is required to regulate service providers, the regulation of a sister company is conflicting to the overall interests of the holding company. The unique nature of the entity posed challenges to the implementation of regulation and the treatment of various elements within the regulatory models used in the tariff determination process.

Whilst the Act requires the corporatisation of the Authority, this has not as yet been effected thus limiting the effects of regulation on the sector and hindering the aim of lowering the cost of doing business in South Africa and improving the efficiency of port operations. It may be argued that the introduction of competition in the port operations will increase both efficiency and productivity and in turn, position SA ports as attractive destinations along global shipping routes. Alternatively, it may be argued that the introduction of regulation to other sectors will improve the overall transport sector.

¹ CMF – Le Cluster Maritime François: *The Importance of the Sea.* The Maritime Voice (<u>http://www.cluster-maritime.fr/article.php?lang=Uk&id=2</u>, accessed on 15/02/2013)

² Government Gazette Vol. 446, No. 23715, 8 August 2002: South African White Paper on Commercial Ports

The future of transport and regulation in SA rests on the implementation of the Transport Economic Regulation Bill ("the Bill") currently under review by Parliament. The overall aim of the Bill is to lower the cost of doing business in SA, as well as provide an effective transport service through the establishment of a Transport Regulator governing all nodes of transport in the country.

4. National Ports Authority

The three most common port models utilised around the globe are the 'Municipal/Local Authority Model', the 'Provincial, State or Regional Authority Model' and the 'National Authority Model'. These models are categorised through functionality into 'Landlord Ports', 'Tool Ports', and 'Operating Ports'. South Africa adopted the National Authority Model, with the National Ports Authority ("the Authority / the NPA") serving as the landlord of the eight commercial ports in the country.

The eight commercial ports are operated on a system-wide basis and are not inter-competitive. Rather, they are complementary in nature with each port serving a different purpose to both the immediate hinterland, as well as the economy as a whole.

The Authority was established upon the introduction of the Act in 2006 and, as per Section 11 of the Act, is presented the main function of owning, managing, controlling and administering South Africa's commercial maritime ports to ensure their efficient and economic functioning. Section 3 of the Act sets out the requirements surrounding the establishment of the Authority as well as the corporatisation of the NPA from its holding company, Transnet SOC Ltd.

Port Managers and Harbour Masters are responsible for the running of port operations as well as administrative processes at a port level including the management of leases and operations. Port operations are managed through the Act, as well as Port Rules which were developed by the Authority.

5. Ports Regulator

The Ports Regulator is an independent regulatory body, which was established in 2007 though the promulgation of Section 29 of the National Ports Acts. The main functions of the Regulator, as stipulated in Section 30 (1) of the Act is to:

- (a) "Exercise economic regulation of the ports system in line with Governments strategic objectives;
- (b) Promote equity of access to ports and to facilities and services provided in ports;
- (c) monitor the activities of the Authority to ensure that it performs its functions in accordance with this Act.³"

The Regulator is made up of a Chairperson, Members, and various sub-committees responsible to execute the mandate of the Regulator in accordance to the Act and issue decisions with regards to both the tariff process as well as the tribunal function of the Regulator. The Regulator is comprised of four divisions with the responsibilities of each division highlighted below:

• Economic Regulation: The tariff process including the Tariff Strategy, the Tariff Methodology, the Tariff Application and assessment thereof, as well as various other research projects are managed through Economic Regulation who reports to the Regulatory Committee. The department is

³ National Port Act, 12 of 2005, section 30

responsible for the publication of the annual Global Pricing Comparator Study which is a benchmark of SA port tariffs against a global sample average for four cargo commodities.

- Industry Development: Engagement with industry and the various stakeholders in the maritime sector, representation at the Ports Consultative Committee ("PCC"), port efficiency and capacity utilisation processes are managed by the Industry Development division, also reporting to the Regulatory Committee. The department occupies an observer status at the PCC meetings and forms the point of liaison between the state and the industry.
- **Compliance, Monitoring, & Tribunal**: The tribunal function (including complaints and appeals), monitoring and compliance of the NPA, as well as internal legal requirements are managed by the Legal division. The Act mandates the Regulator to hear complaints against the Authority, investigate said complaints, and hold hearings in respect thereto prior to issuing decisions. Sections 46 to 54 of the Act set out the mandate of the Regulator in this regard. Further, as per the mandate set out in section 30(c) of the Act, the Regulator is required to monitor the activities of the Authority which are set out in Section 11; this is completed in conjunction with the Economic Regulation department. The Company Secretary position falls within the legal sphere as well.
- **Corporate Services:** Corporate governance, risk management, finance, human resource management, supply chain management, IT, and all day-to-day operations of the Regulator are managed by the Corporate Services department who report to both the HR & Rem. Committee as well as the Audit Committee.

6. Legislative Framework

The Regulator is subject to the laws of the Republic of South Africa, with particular attention drawn to the following:

- The Constitution of South Africa, 1996;
- The Public Finance Management Act (of which Transnet Limited is a Schedule 2 entity and the Ports Regulator is a Schedule 3A entity);
- The National Ports Act, 12 of 2005;
- The Regulations to the National Ports Act, 12 of 2005 (as published on 23 November 2007);
- The Directives of the National Ports Act, 12 of 2005 (as published on 06 August 2009);
- Promotion of Access to Information Act, 2 of 2002; and
- Promotion of Administrative Justice Act, 3 of 2002.

National Commercial Ports Policy

In 2002, the National Commercial Ports Policy ("NCPP") was gazetted with the intention to 'ensure affordable, internationally competitive, efficient and safe port services based on the application of commercial rules in a transparent and competitive environment applied consistently across the transport system'⁴. The seven basic principles of the NCPP are as follows:

- National needs, aspirations and requirements shall be of primary consideration;
- Consideration of user and other stakeholder needs and views;
- 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;
- The principle of user pays or cost recovery, benchmarked against international best practise to ensure that the costs are globally competitive will be applied as far as possible, including an appropriate return; and
- Strategic port planning will include the integration of social and biophysical aspects at the earliest stages to ensure sustainable port development.

National Ports Act, 12 of 2005

In 2005, the National Ports Act came into effect and this gave rise to regulation of the ports system in South Africa. The Act is accompanied by regulations and directives which set out requirements for implementation of the various sections contained. The contents of the Act include, but are not limited to, the establishment and functions of the Authority, the establishment and functions of the Regulator, the provision of port services, commercial aspects of the ports system, safety aspects, as well as ministerial directives⁵.

⁴ Ministerial Foreword of the National Commercial Ports Policy

⁵ National Ports Act, 12 of 2005, Contents

Comprehensive Maritime Transport Policy

In July 2017, the National Department of Transport (DoT) launched the Comprehensive Maritime Transport Policy (CMTP), the aim of which was to set out Government's position on all aspects related to the maritime sphere. The five main principles of the CMTP are as follows:

- Promote and introduce financial and non-financial incentives to support the growth of ship ownership, shipping investments, operations and employment by South Africans along the coast of SA and the Continent (Coastal Shipping). As well as in our international trade with key markets (International Shipping);
- Create regulatory instruments and incentive schemes to ensure the growth of our marine manufacturing industries, encouraging the use of innovative green technologies;
- Partner with the private sector in creating instruments for financing the development and growth of the maritime firms, including cooperatives, SMMEs and SA maritime corporations;
- Partner with, capacitate, and capitalise the SA International Maritime Institute (SAIMI) and other institutions to fast track the education, skill development and job programmes initiatives in order to ensure employment of South Africans, in line with both the Maritime Skills Study and the Maritime Human Resources Development Plan; and
- Improve the overall governance of the maritime sector by strengthening the agencies, expediting the adoption and domestication of outstanding international legal and regulatory instruments and providing leadership within the SA and Continental Oceans Economy domain.

7. Regulatory Framework

The Regulatory Framework consists of the instruments developed and implemented by the Regulator since the inception of port regulation in 2007. The various tools include previous decisions, tariff and other methodologies, incentive programmes, and the Tariff Strategy. Whilst the National Ports Act, its Regulations, and Directives form the very basis of regulation, the Regulatory Framework evolves and matures over time responding to the system's challenges and growth.

7.1. Tariff Strategy

The Tariff Strategy (published in 2015 and revised in 2020) intends on defining a path for port tariffs over the long-term (a ten-year period). The Strategy was developed to provide a smooth trajectory for tariffs which will eventually reach a tariff structure reflecting the underlying cost of infrastructure and services provided or used. The Strategy is based on the user-pay principle and allocates port infrastructure assets accordingly. The determination as to who is charged for what portion of the total revenue in the port system is determined based on this allocation.

7.2. Port Tariff Incentive Programme (PTIP)

The Regulator, in consultation with the NPA, the Department of Trade, Industry and Competition (thedtic), the DoT, and various other government departments, has developed and implemented the Port Tariff Incentive Programme (PTIP). The PTIP is in support of beneficiation, industrialisation, and localisation through port tariff regulation and forms part of the Regulator's Tariff Strategy process and serves as a mechanism by which cross-subsidies within the port tariff structure may be implemented, quantified, as well as be fair and in the public interest⁶.

The PTIP is open to all port users, organisations, industry bodies and industry representatives and affords users an opportunity to apply for a discounted tariff as per the official port Tariff Book. The discount will be afforded to the entire industry in the form of an amendment to a line item within the Tariff Book.

The PTIP was officially launched in 2017 and serves as an annexure to the Tariff Strategy.

7.3. Tariff Methodology

The Tariff Methodology sets out the manner in which the NPA's tariff will be assessed and is published by the Regulator at various intervals, usually three-year periods. The Methodology sets out the manner in which revenue may be raised by the NPA. Included in the Methodology is the approach used by the Regulator (revenue requirement), as well as the details thereof.

It is important to note the interrelationship between the Tariff Methodology and the Tariff Strategy. The Tariff Strategy will not result in any significant reduction in total port costs; any future reduction may only come from the impact of the Tariff Methodology.

7.4. Valuation of Assets Methodology (VoA)

In March 2017, the Regulator published the Valuation of Assets Methodology (VoA) which contained a set of guidelines for the determination of the Regulatory Asset Base (RAB). The VoA sets out the manner in which various assets will be treated as well as the rules for asset maintenance, and

⁶ Cross-subsidies are dealt with in detail in Error! Reference source not found. of the Tariff Strategy.

inclusion thereof into the RAB. The VoA adopts the use of a hybrid model, adopting a historical cost approach for assets predating 1990 and a trended original cost approach to post-1990 assets. This was subsequently incorporated into the Tariff Methodology.

7.5. Other

Notwithstanding the core mandate of the Regulator, numerous other research projects and studies are undertaken; these include the Global Pricing Comparator Study (GPCS), the Capacity Utilization Study, various efficiency studies, and other industry impact analysis. The findings of these projects influence the focus of the Regulator as well as the decisions taken.

The GPCS is produced annually and benchmarks SA port tariffs against a global sample average. The results do not influence the setting or trajectory of SA port tariffs but rather serve as a comparison feature.

Various capacity utilisation studies, together with constraints surrounding the implementation of CAPEX, has resulted in a renewed focus on capital prudency. Hence, the Regulator has included a Capital Prudency Assessment of all projects in excess of R 10 million as part of the tariff assessment process.

The various efficiency studies and comparisons completed resulted in the introduction of an efficiency variable in the Tariff Methodology. The Weighted Efficiency Gains from Operations ("WEGO") was introduced as a means to encourage increased efficiency with financial incentives and discentive.

8. Regulatory Oversight

Regulation of the port system has matured quite significantly over the course of the last decade and has reached levels of stability, fairness, and transparency that is evident in the system. The development and implementation of the Tariff Strategy in 2015 has set out a clear trajectory for the future of the ports as well as the long term vision in terms of tariff progression. This assists in more focused investment related decisions in relation to ports and their infrastructure. The review of the Tariff Strategy aimed to understand its reach and progression towards the 10 year vision and an updated Strategy was published in March 2020 and the results thereof is evidence of the effectiveness of regulation.

Since the inception of the current regulatory regime, the Regulator has utilised the Required Revenue approach for determining tariff amendments in response to the NPA's annual tariff applications. The RR Methodology utilises the rate of return as it enables a firm to make a reasonable return on their assets after covering all operating costs depreciation, and taxes. Alternate regulatory approaches include the Price-Cap Methodology. The conditions upon which the Regulator is required to approve the tariffs of the NPA is set out in the Act and based on same, the RR Methodology is most appropriate in satisfying the conditions. Furthermore, this Methodology is well suited for the implementation of the Tariff Strategy.

A key feature of the Strategy was the allocation of assets to various user groups and the introduction of 'base rates' within the tariff system. The old tariff structure was based on ad-valorem charges which resulted in high and differential cargo dues and imbalance of revenue generated from various streams which resulted in high levels of subsidisation within the system. The purpose of allocating different asset groups to the various user categories in the ports system is to provide investment signals based on the flow of revenue to both the Authority and its service providers⁷. This is a shift from the old system in an effort to increase transparency, fairness in the system as well as to minimise and remove subsidisation.

The aim of the base rates is the use of a single cargo tariff based on the use of the related infrastructure. These rates are published on an annual basis with the long term intention of simplification of the tariff book (cargo dues tariffs) to a single charge for each commodity. This tariff is based on asset allocation and is revised annually based on the regulatory model and tariff assessment.

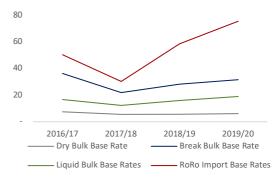


Figure 1: Tariff Strategy Base Rate Progression

⁷ Tariff Strategy as published by the Ports Regulator in March 2020

However, it must be noted that too steep a trajectory towards the implementation of these base rates may have unintended consequences and therefore a more gradual approach has been adopted. The effects of regulation are more easily identifiable when analysing the progression of individual

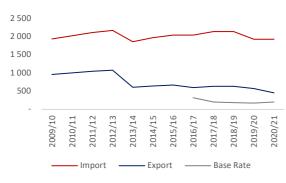
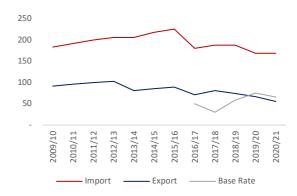


Figure 2: Tariff Progression - Containers 6m/20' decrease in the container export tariff.

The significant shift of the ro-ro base rate is as a result of a change in the manner of how the base rates are calculated. Figure 3: Tariff Progression - RoRo depicts the downward trend of ro-ro export rates which, in 2016/17 was 44% higher than the



Figure 2: Tariff Progression - Containers 6m/20' depicts the progression of container import and export tariffs over the period of regulation, as well as the Tariff Strategy base rate. Whilst container tariffs have not reached the base rate, there has been a significant



base rate at the time and in 2020/21, only 1% higher. The export tariffs for ro-ro has decreased 33%over the last five tariff periods.Figure 3: Tariff Progression - RoRo

The various tariff progressions and analysis are dealt with in more detail in this Review.

The commencement of regulation was shrouded with high levels of regulatory uncertainty coupled with large information gaps and the tariff methodology was initially applied for a single tariff period. Over the course of regulation, this process has matured and in March 2020, the Regulator published the third iteration of the Multi-Year Tariff Methodology. The Methodology provides guidance to the Authority for their annual tariff application and is applicable for a period of 3 financial years.

Aspects of the Methodology which have been refined over the years include the treatment of taxation, the systematic risk factor (beta), the cost of debt of the entity, as well as the treatment of depreciation and maintenance. The development of the valuation of assets methodology, which has since been incorporated, played a key role in determining the treatment of the regulatory asset base of the Authority. The methodology is geared towards treating the NPA as a stand-alone entity and encouraging corporatisation as per the requirements of the National Ports Act.

In an effort to address the operational inefficiencies within the ports system, the WEGO was introduced and has since proved to be somewhat effective in increasing efficiency within the constraints of the regulatory mandate.

The maturity of the process and the guidance provided by the various regulatory instruments has resulted in lower levels of uncertainty from port users as well as the Authority. It has also resulted in increased levels of fairness and transparency within the system.

9. Financial and Pricing

Revenue generated from the eight commercial South African ports has increased by 27% over the 10year period from 2011/12 - 2019/20. In 2011, the ports generated a total of R8.6 billion in revenue which grew to R11.9 billion in 2020. The Port of Ngqura, with its average revenue contribution of 5%, experienced the largest revenue growth of 68% over the 10-year period. This is followed by the Port of Saldanha Bay, with its 8% average contribution and 42% revenue growth over the period.

The Port of Durban is still the largest contributor to the revenue for the NPA with its 52% portion, followed by the Port of Cape Town at 14% and the Port of Richards Bay at 13%. The main contributor to generated revenue is cargo dues which makes up approximately 60%, whilst real estate and marine services make up the rest.

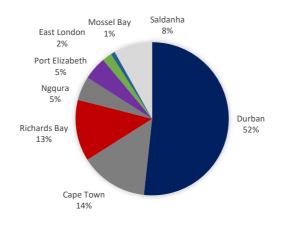


Figure 4: Average Revenue Contribution (2011 – 2020)

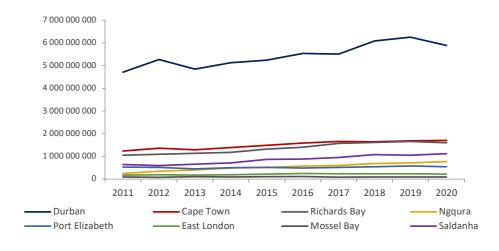


Figure 5: Port Revenue Trends

The Authority, in its status as a regulated port landlord, applies to the Regulator on an annual basis for a tariff increase based on the Revenue Required Methodology; the guidelines for application are incorporated into the tariff methodology which is published by the Regulator at regular intervals and are applicable for multi-year tariff periods. The process of regulation has brought about greater levels

Veer	Average Tariff Increase		Revenue		
Year	Applied	ROD	Tariff Application	ROD	
2015/16	9,47%	4,80%	11 208	11 109	
2016/17	5,90%	0,0%	11 895	11 064	
2017/18	8,02%	5,97%	12 110	12 185	
2018/19	8,45%	2,50%	12 662	12 419	

-6,3%

of certainty and transparency to the tariff setting process and the differences between the applied for revenue and the actual revenue are mainly due to inflationary forecasts.

Table 1: Summary - PRSA Record of Decision

13 681

12 567

10. Capital And Operational Expenditure

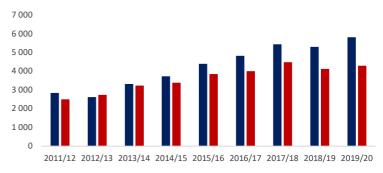
4,21%

2019/20

The figures below indicate the overall expenditure over a 10-year period. As noted in Figure 6, the variances between the applied capital expenditure ("CAPEX") spent relative to the actual CAPEX spent over the review period is highlighted; with the actual CAPEX being significantly less than the forecasted CAPEX, further, the decline in CAPEX over the period is highlighted as well. Operational expenditure ("CAPEX") has remained stable over the review period, with 39% of all OPEX being incurred at the Port of Durban. Depreciation, amortization and personnel costs accounted for the majority of all OPEX within the system whilst electricity expenditure has increased most significantly over the 10-year period.



Figure 6: CAPEX - Applied vs. Actual



Applied Actual

Figure 7: OPEX - Applied vs. Actual

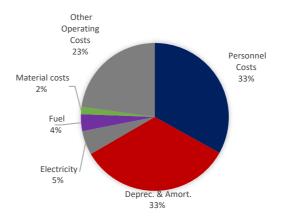
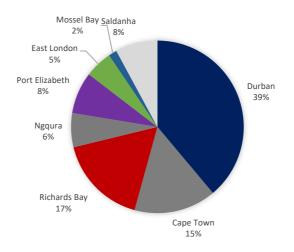
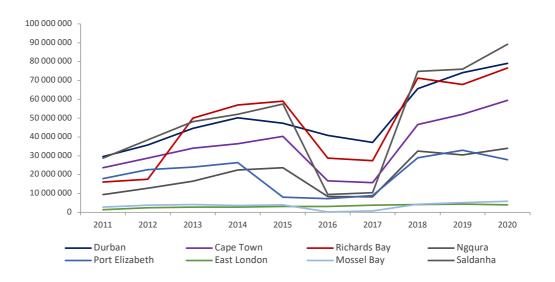


Figure 8: Overall Average OPEX Summary (2011 - 2020)









11. Port Efficiency

According to Babounia and Imran, 2018, "Port efficiency is not only an important contributor to international competitiveness but plays a crucial role in the country's economy and development by providing international trade links". As such the growth and success of the various industries is highly dependent on the efficiency of our ports. Globally, countries have continued to invest in port infrastructure to increase capacity and enhance operational efficiency within the port system.

The Benchmark and Competitive Analysis of Port Performance Model in 2018, a study measuring port efficiency against the Port of Tanger Med, the Port of Algeciras Bay, Port of Rotterdam and the Port of New York-New Jersey; found that various factors affect port efficiency namely capital investments, operational services (towing, piloting, moorings), customs clearing time, financial and other vessels operations (average turnaround time, average vessel calls) (Babounia & Imian, 2018). The study found that an increase in the number berths and quays, together with the reduction in the average turnaround time and the reduction in the average ship waiting time contributed to increased overall port efficiency; i.e. the shorter the average time and average ship waiting time the more efficient a port is considered. As the number of vessels calls increased, the efficiency of the port declined. Other factors such as port governance, and berth and quay length had an impact on the efficiency of the ports i.e. the higher the number of berths and quays and the longer the berth length, the more efficient the port. Figure 11 below provides a hypothetical model for port efficiency according to Babounia and Imian.

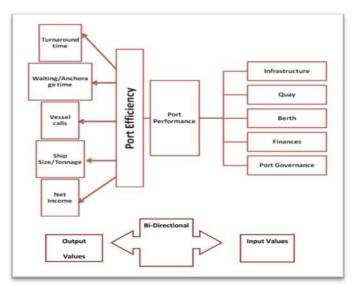


Figure 11: Hypothesis for Port Efficiency (Source: Benchmark and Competitive Analysis of Port Performance Model: Algeciras Bay, Rotterdam, New York-New Jersey, Tangier Med (Babounia & Imian, 2018))

In its study of Port Development in Sub-Saharan Africa in 2018, Price Waterhouse Coopers cites that "port logistics trends in Africa are constrained by lower volumes of cargo relative to other parts of the world, port performance and hinterland dominance focused on certain ports. Other measures affecting port efficiency include improved intermodal facilities, changed back of port logistics and closer linkage networks that are also less developed than in parts of the world". In its analysis of port performance across 19 African ports; PWC notes that "operational inefficiencies and physical factors including water depth, mooring places, land and port infrastructure can reduce port throughput, while technological factors impact the streamlining of import and export value chain" (PWC, 2018). Figure 12 below highlights the challenges faced by African ports as proposed by PWC.



Figure 12: Shortcomings of African Ports as proposed by PWC (Source: PWC, 2018)

When comparing South African Ports against other major African ports, PWC found the following:

- When comparing throughput with the theoretical design capacity, SA ports operated at 60% of their design capacity, with planned investments at the Port of Durban to increase port capacity;
- When comparing the container staking capacity in conjunction with container volumes handled and container dwell time, Western African ports TEU ground slot capacity is reportedly high as a consequence of the need for terminal operators to keep containers for extended period of time;
- Shipping line connectivity in Africa falls short of international benchmarks, with only South Africa achieving a score of 20 in the UNCTAF's liner shipping connectivity index. According to PWC, SA compares well with other emerging economies such as Brazil and Mexico with scores around 30.
 PWC attributes poor connectivity in Sub-Saharan African (SSA) ports to low freight volumes, the

inability the SSA to accommodate vessels above certain size due to channel draught, and equipment limitations and inefficiencies at the ports which in-turn makes calling at a port costly.

- When measuring operational performance of SSA ports in terms of container handling efficiency, in terms of TEUs per ship, Durban ranked the best performing SSA handling approximately 30 containers per hour less than Rotterdam;
- When comparing the quality of port infrastructure, the World Economic Forum survey ranked Southern African Ports above their African counterparts, with a ranking of 4.4. The quality of port infrastructure is rated on a seven-point scale where 1 is extremely underdeveloped and 7 is well developed and efficient by global standards;

When comparing logistics efficiency using the Work Bank Logistics Performance Index (LPI). South Africa ranked 25th in the world outperforming its African counterparts by a considerable margin. The LPI assesses a country's logistics efficiency based on its customs clearance processes, quality of tradeand transport-related infrastructure, easy of arranging competitively priced shipments, quality of logistics services, ability to track and trace consignments, and frequency with which shipments reach the consignee with the scheduled time.

Whilst the benchmark study found the SA ports outperformed against other ports in terms of port performance and port infrastructure, additional initiatives are required to improve overall port performance of domestic ports in order improve international competitiveness and improve trade flows. The OECD, in its study on the competitiveness of the Port of Durban relative to ports in emerging markets, found that despite the dominant position of the Port of Durban in Africa, its performance ranked far below the main ports in the world. It attributes the port's inefficiency to urban congestion, the minimal use of rail infrastructure, constraints on land for container stacking, above average anchoring times for containers, congestions at the port entrances and terminal inefficiencies which increase waiting time (OECD, 2014). These findings are supported by the GPCS of 2015/2016 which found that when comparing SA Ports with other global ports, SA ranked below the global average in the majority of the performance indicators despite improvements in certain areas.

The Regulator concluded that, "On operational efficiency measures, South African terminals have made significant strides in reducing cargo dwell time and to a lesser extent ship turnaround times. It is imperative that more be done to ensure that as larger vessels are cascading into South Africa's trading route, the ports and terminals are able to address the resultant challenges e.g. bottlenecks in the road and rail interface, even when performance on these improves. Targets set to measure port performance must gradually reflect both what the infrastructure is capable of as designed but they must be consistent and improved on, rather than reflect previous performance" (Ports Regulator, 2016).

PWC suggests that investment in good road and rail connections to ports, investment in automation technology and other port infrastructure, the improvement of landside access to ports and improvement in custom clearing services will ultimately result in improved efficiencies at out ports (PWC, 2018).

The following sections assesses the characteristics and performance of each port and the performance per cargo type.

12. The Ports

Of the nine ports managed by the Authority, eight are considered commercial ports and are located between the eastern region, the western region, and the central region of SA. Each port plays a different role within the greater logistics system and either serves the hinterland of the area or the greater industrial, national economy. Port Nolloth is the ninth port and is not part of the commercial ports system.

This section provides an overview of each port in terms of its characteristics, its cargo facilities, infrastructure, capacity constraints, throughput, and financial constraints.

The content is based on information received from the individual Port Managers of the Authority, the National Development Plan for the Ports, and other publicly available sources.

12.1. Port of Richards Bay

Situated on the eastern coast of South Africa, the Port of Richards Bay was developed in 1976 primarily for the export of coal. The port is linked via rail to the Mpumalanga province and the Gauteng province, designed to service the coal export industry, and is considered as SA's premier dry bulk port, having exported approximately 76 million tons of coal through the Richards Bay Coal Terminal in 2017/18.



Figure 13: Port of Richards Bay (Source: National Ports Authority)

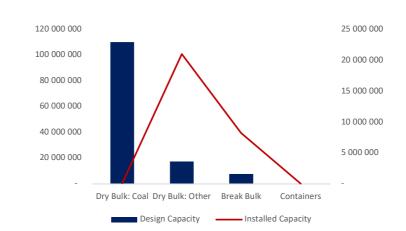
This deep water port occupies an area of approximately 3 773ha and is equipped with specialised infrastructure for larger vessels. The entrance channel is dredged to a depth of 19,5m and the port is operated through the use of 5 tug boats, 1 pilot boat, 1 workboat, and 2 helicopters. Separated into 3 precincts, the Newark Precinct is utilised for waterfront activities, the Bayview Precinct for the handling of general cargo, and the South Dunes precinct for the handling of bulk cargo. A major constraint on future development are environmental concerns and requirements.

Capacity & Throughput

Terminal	No. of Berths	Berth Draft	Vessel Size
Containers / Break Bulk	6	14,5m	65 000 DWT
Dry Bulk: Coal	6	19m	150 000 DWT
Dry Bulk: Other	7	14,5m - 19m	65 000 DWT - 150 000 DWT
Liquid Bulk	2	14m	50 000 DWT - 80 000 DWT

Table 2: Port of Richards Bay: Infrastructure Summary

With a total of 21 berths, the Port of RCB handles coal, other dry bulk (woodchips / petroleum / coke / alumina / sulphur), containers, break bulk, and liquid bulk in the form of chemicals. The port has been identified as a possible LNG facility for future years and the viability thereof is being explored. Of the 21 berths, 6 are dedicated coal facilities operated by the Richards Bay Coal Terminal (with a berth draft of 19m accommodating vessels up to 150 000DWT), 7 are 'other' dry bulk facilities, 2 are liquid facilities, and containers and break bulk are handled at the remaining 6.



Although ship repair is not a primary function of the port, a repair quay able to accommodate vessels up to 50 000DWT is available with an average of 33 vessel calls per annum.

Figure 14: Port of Richards Bay: Design vs. Installed Capacity

The installed capacity in the port has not changed over the last five years with dry bulk capacity at 112 million tons and break bulk capacity at 8,2 million tons. Of the total dry bulk capacity, coal constitutes 91 000 tons and 'other' constitutes 21 000 000 tons; which is insufficient according to the Authority's volume forecasts. The addition of two berths and conversion of one berth will increase this capacity to 40,4 million tons in the near future⁸. Containers are handled at the break bulk terminal (multi-purpose terminal) with an installed capacity of 50 000 TEUs. According to the National Ports Plan of 2019, either 5 or 6 vessels may be accommodated at the break bulk berths due to the growth in vessel sizes. Installed capacity is determined taking into account constraints in terms of equipment, storage facilities etc. all of which prevent the complete utilisation of the design (theoretical) capacity.

The total berth length available for the Multi-Purpose Terminal which handles both break bulk and containers at the Port of Richards Bay is 624m, the berth length available at the RBCT is 814m, the available berth length for other dry bulk is 1100m, and the liquid bulk terminal has 550m of total berth length.

Figure 15 depicts the throughput of the various terminals of the Port. Whilst the throughput for dry bulk (both coal and iron ore) has remained relatively stable, the throughput for containers and break bulk have been on a declining trend. This may be attributed to the declining volumes handled by the port over the period. Liquid Bulk has experienced a slight upwards trajectory over the 5-year period.

⁸ National Ports Plan 2019

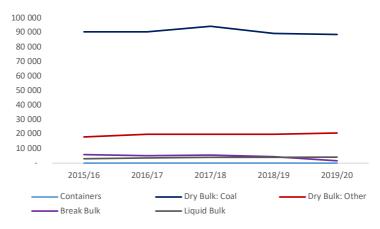


Figure 15: Port of Richards Bay - Throughput

Vessel Calls

The Port of Richards Bay receives an average of 275 vessel calls per annum, with the majority of calls from the dry bulk carriers. In 2019/20, the port received 815 vessel calls for coal and 315 calls for other dry bulk. The increase in vessel sizes will result in a declining number of vessel calls per year whilst having little or no impact on volumes. Container calls remain at a minimum, with less than 20 calls per annum. Over the 5-year review period, the Port received 29% of the total vessel calls in the South African port system and 48% of total dry bulk vessel calls. Further, over the same period, a decrease of 24% of vessel calls was recorded.

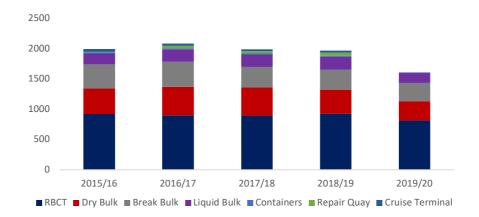


Figure 16: Port of Richards Bay - Vessel Calls

Capital Expenditure (CAPEX)

An average of R208 million per annum has been spent on CAPEX at the Port of Richards Bay. From the graph below, it is noted that capital expenditure has declined substantially from the 2015/2016 period. Additional investment programmes include the addition of two additional berths and conversion of the existing dry bulk berth to increase the capacity

In 2019, the Port of Richards Bay was earmarked as the viable facility for liquefied natural gas (LNG) by Transnet; however the feasibility of the project is currently been explored.. Further, the viability of oil and gas exploration is being analysed.



Figure 17: Port of Richards Bay - Capital Expenditure

Financial Overview

- The Port has recorded a 34% growth in revenue over a 10-year period;
- An average revenue contribution of 21% to the port system has been recorded over the same period;
- 13% of the total port system revenue has been contributed by the Port in the 2020 financial period;
- On average, contributes 10% to the NPA's profit on an annual basis;
- Average annual OPEX is R562 million with depreciation forming the largest contributor (36%);
- On average, the Port's OPEX accounts for 17% of the total system OPEX since 2010/11,
- Overall, the Port has experienced a 79% increase in electricity costs over the 10-year period
- Labour increased by 14% over a five year period. In 2019/20, the Port employed a total of 451 employees;
- The maintenance spend in the Port is on average R138 million per annum over the 5-year period and as is evident in the Figure, experienced a significant decrease in 2018/19.

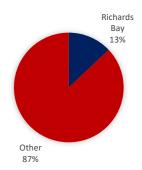
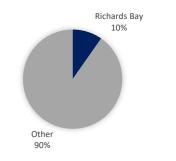


Figure 18: Port of Richards Bay - Average Revenue Contribution (2011 - 2020)





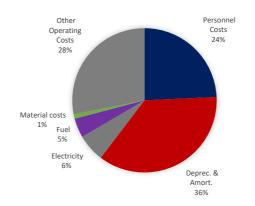


Figure 20: Port of Richards Bay – Expense Summary (2011 - 2020)



Figure 21: Port of Richards Bay - Maintenance Expenditure

12.2. Port of Durban

The Port of Durban was developed from a natural bay and has been considered operational since 1940. The Port is protected by a natural sand dune (bluff) and spans a length of 21km whilst occupying an area of 1 850ha. Serving the hinterland of Kwa-Zulu Natal, Gauteng, and the general South African area the Port of Durban is the third busiest ports on the African continent, and is the largest and busiest port in South Africa (as well as the sub-Saharan region).

Boasting an asset base worth R249 billion, the Port is made up of 5 precincts and 50 berths. These precincts are Maydon Wharf, Point and Leisure, Bayhead and Ship-Repair, Island View, and the Container precinct.

Serving as a general cargo port with facilities including the handling of automotives, containers, dry bulk, break bulk, liquid bulk, and all other general cargo. Ship-repair facilities as well as passenger vessels are received at the Port.



Figure 22: Port of Durban (National Ports Authority)

Capacity

Cargo Type	No. of Berths	Total Berth Length	Berth Draft
Containers	9	2 108m	8,2m - 12,3m
Dry Bulk	9	1 610m	8,6m - 10,8m
Break Bulk	18	3 248m	5,1m - 13,7m
Liquid Bulk	9	1 965m	8,7m - 12,5m
Ro-Ro	5	1 381m	10,1m - 10,6m

Table 3: Port of Durban - Infrastructure

A total of 50 berths exist within the Port of Durban and are separated into the different precincts. The container terminal is equipped with 9 berths and can accommodate vessels up to 4 500 DWT TEUs. The terminal has an installed capacity of 2.9 million TEUs and will soon reach its maximum capacity due to the volumes of container cargo being handled, a total of 2.8 million TEUs in 2019/20. The terminal is leased to Transnet Port Terminals through an indefinite lease for 1.6 million hectares. The berths vary in depth ranging from 8.2m – 12.3m and record a throughput of 1 274 TEUs per metre of berth.

Dry bulk cargo is handled at 9 berths situated between the Bluff, Maydon Wharf, and the Island View Precinct. Maydon wharf accommodates vessels up to 35 000 DWT, and the Bluff and Island View accommodates vessels up to 55 000 DWT. The total installed dry bulk capacity in the Port of Durban is 16 million TEUs, of which 4.9 million is considered latent.

With an installed capacity of 3.8 million TEUs, break bulk at the Port of Durban is handled across 18 berths situated between Maydon Wharf, the Point, T-Jetty, and Island View. The largest vessel that can be accommodated within this infrastructure is 55 000 DWT.

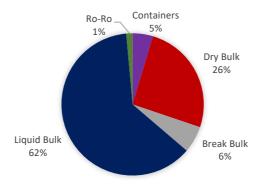
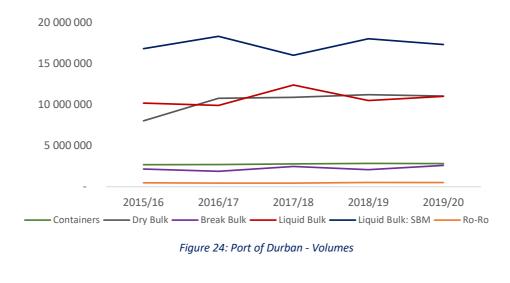


Figure 23: Port of Durban - Installed Capacity



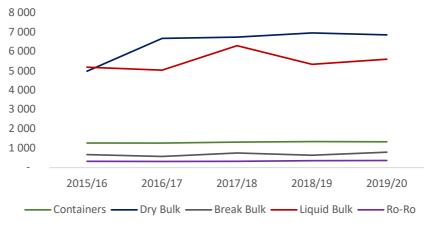


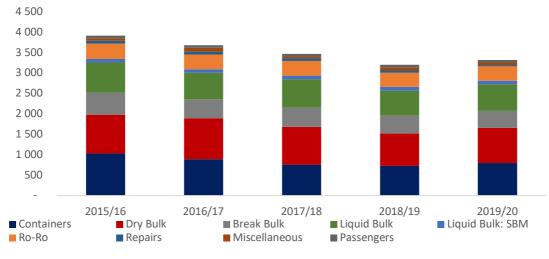
Figure 25: Port of Durban - Throughput

Vessel Calls

The Port of Durban received an average of 3 515 vessel calls per annum over the 5-year review period. However the port has experience an 18% decline in the number of vessel calls over the 5 year period. This may be due to changes in vessel sizes, as well as overall decreasing volumes. The inefficiencies at the Port of Durban is possibly a large contributing factor to this trend.

39% of the total vessels calling at South African ports call at the Port of Durban. The port is the main container hub in the country with 37% of the total SA container calls being received. The Port of Durban also receives the most break bulk vessel calls on a system wide basis with 31% of the total vessels received by the Port. Additionally the port receives 59% of the total Ro-Ro vessel calls for the country; 31% of the total system-wide break bulk vessels and 52% of South Africa's liquid bulk vessels visit the Port.

The majority of these calls were for dry bulk which forms 26% of the total vessel calls, followed by containers at 24% and liquid bulk (including SBM) at 21%. Break bulk makes up 13% of the vessel calls and passenger vessels 2%.





Capital Expenditure

With 32% of the total CAPEX spend invested in the Port of Durban, the Port is allocated the highest investment of all the ports with the average capital expenditure amounting to R476 million per annum. However, the inability of the NPA to execute planned projects has resulted in the significant decline in capital expenditure since 2015/2016, with expenditure declining by 141% in the five year period.

Current CAPEX projects include the construction of a new dedicated cruise terminal at AB berth and the reconstruction of the `Maydon Wharf berths. The process if widening and deepening the channel is underway. The medium and long term CAPEX plans include the lengthening and deepening of Pier Two, the reconstruction of Island View, the refurbishment of the Millennium Tower Cowl Structure, and the construction of a new tug jetty. Various other projects include upgrading the Island View seawalls, the Dry Dock Pump House, and the Dry Dock fire system.



On average, over the period 2015/16 - 2019/20, the Port of Durban spent R86 million per annum on maintenance of port assets.

Figure 28: Port of Durban - CAPEX

Figure 27: Port of Durban - Maintenance

Financial Overview

- A total of R5.8 million of revenue was contributed by the Port of Durban in the 2019/20 financial period;
- The Port contributed 66% of total system revenue and 63% of total port profits over a 10 year period;
- Revenue has grown by 20% over the 10-year period with operating profits increasing by 11% over the same period;
- OPEX accounts for 39% of the total system OPEX with personal costs accounting for 33% of the Port's total expenditure.

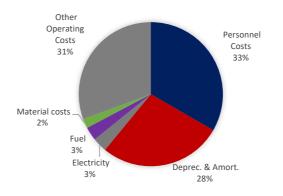


Figure 29: Port of Durban - Average Expense Summary (2011 - 2020)

12.3. Port of East London



Figure 30: Port of East London (Source: National Ports Authority)

The Port of East London is SA's only river port situated at the mouth of the Buffalo River servicing the Eastern Cape Region. However, owing to limited economic activity in the region, the port is limited in terms of volume throughput. Further, the lack of suitable depth, with a maximum draft of 10,4m, results in the inability to handle new age, larger vessels. The port is equipped with 2 tugboats and 1 workboat.

Development plans for the port are limited to reconfiguration of existing infrastructure. Unless regional growth generates new cargo volumes, the Port of East London will continue to play an important, but limited role in the SA port system. The challenges that face the port are mainly the requirements to adapt existing infrastructure and port waterside capacity to meet new and larger vessel types, a challenge which commonly affects older ports. The Port of East London is an example of a port that is not easily adaptable due to the very restrictive river basin site.

As a common user port, it boasts the largest grain elevator in SA handling both exports and imports. The Port has a vehicle terminal on the west bank (directly linked to the Mercedes Benz factory), as well as infrastructure for the handling of both dry and liquid bulk cargo. The multi-purpose terminal on the East Bank handles both containers and break bulk cargoes.

Terminal	Berths	Berth Draft
Containers	K, L, L/M	10,4m
Dry Bulk	Т	10,4m
Break bulk	F, G, K/L, L/M	10,4 - 8,2m
Liquid bulk	Т	10,4m
Ro-Ro	N <i>,</i> R	10,2 - 8,5m
Ship Repair	Drydock and Repair Quay	8,0m + 7,5m

Table 4: Port of East London: Infrastructure Summary

Capacity, Throughput, & Volumes

The multi-purpose terminal, managed by Transnet Port Terminals (TPT) handles both containers and break bulk, mainly in the form of livestock. Containers are handled on berths K, L, or a combination thereof with a total berth length of 506m, whilst break bulk at berths F, G, K/L, and L/M with a total of 336m total berth length. The port has an installed capacity of 100 000 TEUs for containers and receives an average of 50 container vessels per annum. The break bulk terminal is capacitated with 570 000 TEUs of installed capacity and receives an average of 13 vessels per annum.

With a berth length of 194m – 238m, both dry bulk (in the form of wheat and maize) and liquid bulk (in the form of petroleum products), is handled at berth T. The berth has an installed capacity of 984 000 TEUs for the handling of dry bulk and 3 000 000 TEUs of installed capacity for the handling of liquid bulk cargo. Occupying 35% of port land, the liquid bulk handling is managed by Astron, BPSA, Engen, and Total and receives on average 114 vessel calls per annum.

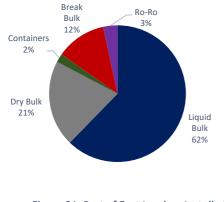


Figure 31: Port of East London: Installed Capacity

The Ro-Ro terminal which occupies 29% of port land is managed by Transnet Port Terminals at berths N and R. With a total berth length of 549m; the installed capacity available is 163 200 and the latent capacity recorded is 48 889. The port receives an average of 117 Ro-Ro vessels calls per annum over the period under review.

Although no dedicated cruise liner facilities are available, those liners who do visit utilise any available berth. The average vessel call is 11 cruise liners per annum.

The Port of East London is equipped with a dry-dock and a repair quay which occupies 6% of port land. Ship repair services are provided both commercially as well as to the Authority's own crafts.

Liquid Bulk boasts the highest throughput of 4004 KI per metre of berth and is steadily rising. The spike in dry bulk in 2016/17 only led to a steep decline in throughput over the remainder of the analysis period. Further, the volumes of dry bulk for the Port decreased by 47% over the 5 year period due to the increase of commodities being containerised.

RoRo has remained the most constant with throughput figures around the 200 unit mark. Although not significant, containers have steadily decreased with 137 TEUs per metre of berth in 2015/16 to 91 in 2019/20. The most volatile of the cargoes is that of break-bulk which has ranged in from 82 tons per metre of berth to 25 tons per metre of berth within the period.

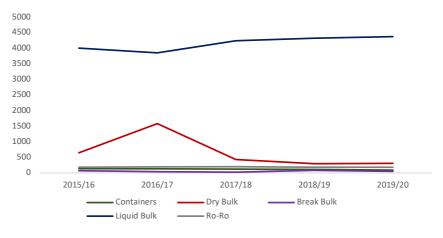


Figure 32: Port of East London: Throughput

The period 2015/16 – 2019/20 has seen declining volumes for the Port of East London for containers, dry bulk, as well as break bulk cargo. Ro-Ro volumes have remained constant over the period and liquid bulk volumes have experienced a slight growth. Dry bulk has declined by 53% over the period and container volumes by 33%.

The Port is not a significant contributor in terms of volumes and its most noticeable contribution is handling an average of 13% of South Africa's Ro-Ro cargo (through the dedicated car terminal and its affiliation with Mercedes Benz). However, in 2019/20 21% of all Ro-Ro cargo went through the Port of East London. Further, the Port handles 4% of liquid bulk cargo with all other volumes less than 1% of the final total.

Vessel Calls

The Port of East London receives an average of 46 vessel calls per annum receiving 4% of the total system vessel calls. The majority of calls for were for liquid bulk, accounting for 8% of the system, and Ro-Ro, accounting for 19% of the system. The vessel calls have remained stable over the period under review, declining by 2% over the period, with the exception of dry bulk calls which has decreased, and break bulk vessel calls which have increased. The ship repair calls reflected in the figure below do not include the Authority's own crafts.

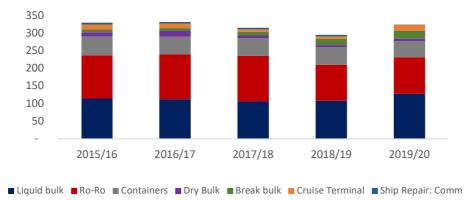


Figure 33: Port of East London: Vessel Calls

Capital Expenditure

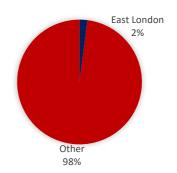
There are no plans to increase port capacity in the short term however various maintenance projects are scheduled. These include the refurbishment of Latimers Landing of which construction is expected to commence in 2021 as well as repairs to Quay No.3 and the refurbishment sandblasting of the Buffalo Bridge. The majority of CAPEX spend for the short term for the Port of East London is the procurement of 2 tug boats which is expected to commence in 2021 with delivery planned for 2026. In the long term, the port plans to extend the southern breakwater.

Figure 34 displays the trend in CAPEX spend over the review period of 5 years. The Port has experienced a steep decline in CAPEX spend over the period and with no major planned infrastructure spend, it is unlikely to increase in the near future.



Financial Overview

- The Port of East London recorded a revenue growth of 18% over the period 2011 – 2020;
- Losses were reported for the period 2017 2020;
- The Port contributed approximately 4% to the total revenue of the ports system per annum;
- An average OPEX spend of 5% of the total system is borne by the Port;
- The largest component of OPEX is personnel costs at 37% of the Port's spend;
- The Port employs a total of 160 permanent employees which is a 6% increase over the course of the review period.
- The Port recorded an average of R14, 7 million on maintenance per annum for the 5 year period under review; and
- 'Other Operating Costs' form 30% of total OPEX, whilst their depreciation expenses form 28% of their total expenses.





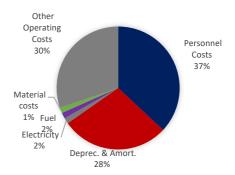


Figure 36: Port of East London - Expenses Summary (2011 - 2020)

12.4. Port of Ngqura



Situated 20km north-east of Port Elizabeth, the Port of commenced Ngqura operations in 2009 with areas such as Nelson Mandela Bay, COEGA Industrial the Development Zone (IDZ), and the general Eastern Cape region serving as its hinterland. In 2019 the port contributed 31% to the provincial GDP, according to the National Ports Plan.

Figure 37: Port of Ngqura (Transnet Infrastructure Plans 2019)

Through its initial design, and

current main focus, the Port is geared towards handling containerised cargo, as well as specialised cargo (including abnormal cargo in 2013 in the form of wind turbines). In the short-to medium term, the Port is gearing for the handling of dry bulk (manganese), and liquid bulk.

The entrance channel is dredged to 18m and the berths are dredged to between 16m & 18m resulting in the Port being attractive to larger vessels. Three precincts exist, namely the Western Precinct (container terminal), the Central Precinct (dry bulk and general cargo), and the Eastern Precinct (liquid bulk and LNG); not all of which are fully developed or operational to date. Container operations are focused in deep-sea trade, trans-shipment, and coastwise movement.

One of the main challenges facing the Port, which results in downtime is that of weather in the form of heavy winds, surge, and fog.

Capacity and Throughput

The Port of Ngqura is equipped with 4 berths for the handling of containers namely D100, D101, D102, and D103, all off 325m each and dredged to a depth of 16m, being able to accommodate vessels up to 400m in length. The container terminal is equipped with a total of 8 cranes and occupies 94% (904 732ha) of port land with the remaining 6% (60 000ha) being reserved for bulk cargo.

With a design capacity of 2million TEUs for containers, the current installed capacity is 1,5million TEUs. The Container Terminal handles an average of 700 000 TEUs per annum and receives an average of 450 vessels calling at the container terminal equating to a throughput of approximately 500 TEUs per metre of berth

Cargo Type	No. of Berths	Berth Length	Berth Draft
Containers	D100, D101, D102, & D103	325m each	16m
Dry Bulk	B100, C100, C101	300m each	16m & 18m
Break Bulk	B100, C100, C101	300m each	16m & 18m
Liquid Bulk	C100, C101	300m each	16m & 18m

Table 5: Port of East London - Infrastructure Summary

The C-Series berth is intended to be developed for dry bulk in the form of manganese, break bulk, and liquid bulk. The Port has an installed capacity of 2 750 000 TEUs with a design capacity of 6 million TEUS of dry bulk but only started handling dry bulk in the 2017/18 period. The dry bulk terminal is operated by Transnet Port Terminals.

In the medium term, it is expected that most of the manganese operations will relocate from the Port of PE to the Port of Ngqura, however this requires additional infrastructure in the form of rail

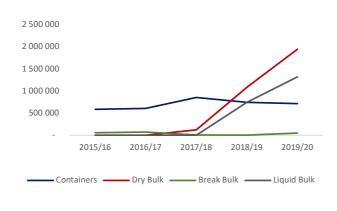


Figure 38: Port of Ngqura - Volumes

lines etc. Manganese is currently being transported to the Port in the form of skip containers from which it is then transferred to the vessel.

The break bulk volumes have been erratic and no one major cargo type is handled. The Port is equipped to handle abnormal loads as well as general cargo and has handled the 'grossly abnormal' components of the wind turbines which were discharged, stored, and removed from the Port⁹.

Although future plans include the handling of liquid bulk cargo, the required infrastructure in the form of pipelines etc. have not yet been completed. Liquid bulk is however handled at the port since 2018/19 as depicted in **Error! Reference source not found.**

Vessel Calls

Over the 5 year period, the Port received an average of 452 vessel calls to the container terminal, a figure that is relatively similar year-on-year. Break Bulk vessel calls have significantly dwindled over time with 36 in 2016/17 to only 11 in 2019/20. This may be expected to rise as new infrastructure becomes available in the medium term development of the Port.

Liquid Bulk is steadily increasing from a mere 28 vessels in 2017/18 to 108 vessel calls in 2019/20.

On average, the Port receives approximately 500 vessels calls per annum. This translates to 6% of total vessel calls received over the 5 year review period. The container vessel calls of Port of Ngqura compromises of 20% of the total vessel calls for the ports system, cementing its position as a container hub.

Over the 5-year review period, the Port recorded a 25% growth in the number of vessels calling with approximately 600 vessel calls in 2019/20.





⁹ <u>https://www.transnetnationalportsauthority.net/OurPorts/Nggura/Pages/Overview.aspx</u>

Capital Expenditure (CAPEX)

The development of the Port prior to its operation commencement in 2009, was funded by the Authority for a figure of approximately R 10 billion. The site was identified as an ideal hub for deepsea trade due to its depth and a container hub. Further, the development of the liquid bulk terminals will result in the Port of Ngqura serving as an LNG facility for the country. This is expected to be completed in the medium term, together with the finalisation of the dry and break bulk facility and the movement of the manganese operations from Port Elizabeth.

In the long run, the Port plans to establish a ship repair facility.

Over the 5-year period, the Port has spent a total of R1.6 billion of CAPEX, with the greatest portion spent in 2019/20. Additionally, an average of R11 million is spent on maintenance per annum over the last five years.

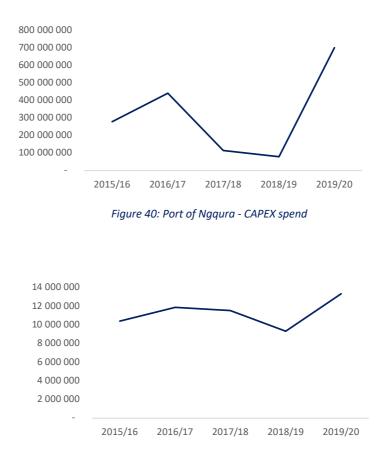


Figure 41: Port of Ngqura - Maintenance

Financial Analysis

- The Port of Ngqura has experienced a 68% increase in revenue since the 2010/11 financial period;
- The Port contributes 3% of ports system revenue which has since increased to 5% in the 2019/20 period;
- Over the 10-year period, the Port is responsible for contributing an average profit of 3% to the overall port system whilst at the same time making up an average of 6% of the overall port expenses;
- Depreciation and amortisation forms the largest components of the Port's expenses at 47%; and
- The second largest expense component is personnel costs at 26% through its employment of approximately 200 employees.

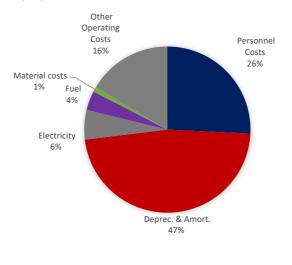


Figure 42: Port of Ngqura - Average OPEX (2011 - 2020)

12.5. Port of Port Elizabeth

Situated in the Eastern Cape, the Port of Port Elizabeth achieved port status in 1825 and in 1933 the Charles Malan Quay was constructed. Serving as a multi-cargo port, its products include dry bulk (in the form of manganese which is railed directly to the Port from the Northern Cape), liquid bulk, break bulk, Ro-Ro, and containers.

The Port plays a large role in the automotive industry and services two OEMs through its dedicated car terminal which is situated on the Charles Malan Quay. Serving the Eastern cape and Western Cape hinterlands, the break bulk volumes of the Port include agricultural and farming products, citrus and deciduous fruit, as well as steel, and fertilizer etc.

The fishing industry utilises the Port of PE and various companies are contracted to utilise port space. Further, there are 3 operators who offer bunker services to visitors of the Port.

With an entrance channel depth of 14,5m, vessels visiting the Port are serviced by 2 tug boats, 1 work boat, and 1 pilot boat. A challenge facing the Port is the restrictive road access to the port entrance. Recreational facilities within the port appeal to residents of the city of Port Elizabeth with various boat clubs, and yachting facilities, as well as a waterfront.

Capacity and Throughput

Equipped with a total of 9 berths that range in depth, the Port can accommodate vessels up to 300m in length at its Container Terminal. Operated by TPT, the PE container Terminal is situated on the Charles Malan Quay and is home to berth 102, and berth 103, which forms 42% of the Port's terminal area. These berths are dredged to a depth of 12.2m and are 635m in length with an installed capacity of 400 000 TEUs.

Cargo Type	No. of Berths	Berth Length	Berth Draft		
Containers	2	635m	12,2m		
Dry Bulk	2	360m	12,2m		
Break Bulk	4	888m	9,6m - 10,8m		
Liquid Bulk	1	242m	9,9m		
Ro-Ro / Cruise Terminal	2	358m	11m		
Ship Repair			3m - 4,5m		

Table 6: Port of PE - Infrastructure Summary

The Charles Malan Quay is also home to berths 100, and 101 servicing the Ro-Ro activity of the Port, as well as all cruise liners. Occupying 21% of port land, the terminal is operated by TPT through an indefinite lease. Dredged to a depth of 11m, the terminal can accommodate vessels up to 240m in length and has an installed capacity of 240 000.

The Dry Bulk Terminal, also operated by TPT, with berths 8, 9, 10, and 11, occupies 18% of the terminal area with the main cargo handled being manganese. With an installed capacity of 6million TEUs, a berth depth of 12.2m, and a berth length of 360m, the terminal can receive vessels up to 230m in length.

Break bulk is handled at the Multi-Purpose Terminal, operated by TPT, through berths 8, 9, 10, and 11. With depths ranging from 9.6m to 10.8m, and a berth length of 888m, the terminal has an installed capacity of 1.6million TEUs.

Berth 15, operated by various energy companies namely, Engen Petroleum Limited, Astron Energy, Shell SA, and Total SA, has an installed capacity of 3million TEUs and makes up 13% of the Port's terminal area. The tanker berth is 9.9m deep and 242m in length.

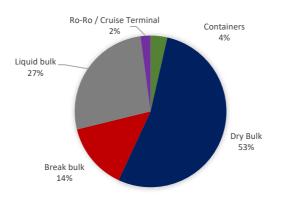


Figure 44: Port of PE: Port Terminal Area

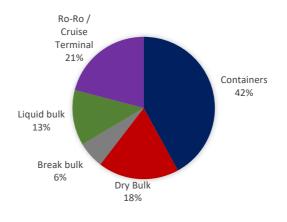


Figure 43: Port of PE: Installed Capacity

Volumes & Throughput

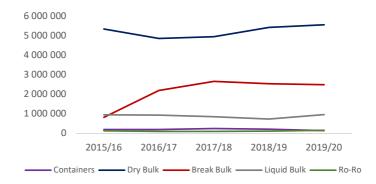
Defined as volumes per metre of berth space, the Port records its highest throughput for dry bulk owing to the high volumes of manganese passed through 360m of berth length. With an average of 5.2 million TEUs of dry bulk going through the Port of PE, the Port handles 3% of the total dry bulk transported through the ports system in South Africa.

Volumes have remained stable over the five year period with the exception of break bulk which experienced a spike in 2016/17.

With an average of 129 446 vehicles moving through the Port per annum, automotive volumes have been constant experiencing a slight increase in 2019/20. Approximately 21% of the total ro-ro activity was moved through the Port of PE. This is a 2% increase from 2015/16.

The neighbouring Port of Ngqura, with its deep draft and specialised container facilities has absorbed a portion of the container volumes from the Port of PE. 3% of the total container volumes in the South African ports system is moved through the Port of PE. This is 1% lower than in 2015/16, and 4% lower than 2010/11 – 2014/15 average of 7%. The average throughput for the container terminal over the 2015/16 – 2019/20 period is 207 680 TEUs per annum.

A similar phenomena was experienced by the liquid bulk sector which experienced a 15% decline in volumes in 2018/19, the same year the Port of Ngqura commenced liquid bulk operations. However, liquid bulk volumes in the Port of PE have since recovered.





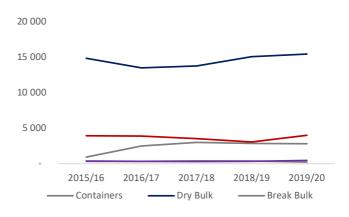


Figure 46: Port of PE - Volumes

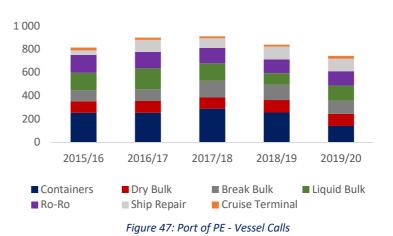
Vessel Calls

Over the 5-year review period, an average of 840 vessels called at the Port of PE per annum. The majority of which are container vessels with an average of 240 per annum ,translating to 10% of the total container vessel calls of the ports system. Overall, between 2015/16 to 2019/20, the Port recorded a 9% decrease in the number of vessels calling.

The Liquid Bulk vessel calls are the second highest cargo call in the Port with an average of 142 per annum, also making up 10% of the system total. However, whilst these vessel calls seem to be decreasing, the volumes being handled remain the same.

Followed by Ro-Ro vessel calls, the Port receives 22% of the total automotive vessel calls for South Africa with its average of 134 vessel calls per annum.

Ship repair vessel calls have seen a considerable increase of 65% over the 5-year period with a total of 107 visits in 2019/20 compared to a mere 37% visits in 2015/16.





The Port of PE has not seen any significant capital expenditure in the past 5 years. The refurbishment and upgrade of the Multi-Purpose terminal for break bulk, cruise liners, and ship repair are in various stages of progress. In the medium term, plans are still in place for the decommissioning and rehabilitation of both the liquid bulk terminal as well as the manganese terminal. Further, the Port plans to deepen the container terminal, as well as expand the automotive terminal (upon relocation of the manganese and liquid bulk terminals). This will further encourage ro-ro activity at the Port of PE increasing its importance in the automotive industry in South Africa.



Figure 48: Port of PE - CAPEX

Financial Analysis

- The Port of PE contributes approximately 5% of total NPA revenue on a per annum basis, however this has decreased by 1% over the period 2011 2020;
- The port contributes an average of 3% of operating profit to the system however, the annual contribution of the Port has decreased over time with a 5% contribution in 2010/11 and a 3% contribution in 2019/20;

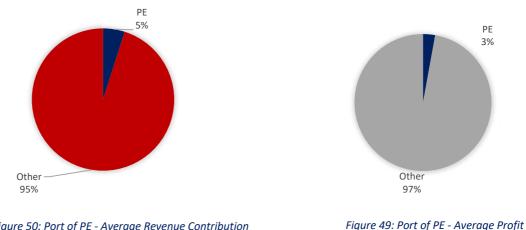


Figure 50: Port of PE - Average Revenue Contribution (2010/11 - 2019/20)

Figure 49: Port of PE - Average Profit Contribution (2010/11 - 2019/20)

- Personnel costs make up 39% of the total OPEX at the Port of PE. Depreciation is the second largest component of the Port's expenses at 34% on average over the period 2011 – 2020;
- A total of 300 people are employed by the Port;
- The OPEX for the Port of PE has increased by 40% over the period 2011 to 2020 and on average makes up 8% of the total operating expenses of the NPA.
- On average, over the 5 year period, the Port spent R33 million per annum on maintenance of port assets.
- Trends in OPEX follow the same pattern as CAPEX and increases in electricity and, material costs display steep spikes during periods of increased CAPEX spend.

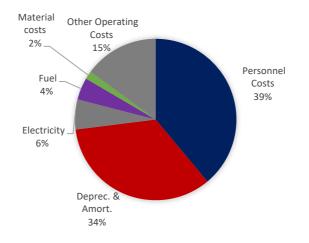


Figure 51: Port of PE - Expenses Summary (2011 – 2020)



Figure 53: Port of PE - OPEX Spend (2015/16 - 2019/20)



Figure 52: Port of PE - Maintenance Spend (2015/16 - 2019/20)

12.6. Port of Mossel Bay

The Port of Mossel Bay, situated between Cape Town and Port Elizabeth is the smallest of the commercial ports in South Africa. The Port has a leased terminal area of 52 517ha and handles liquid bulk in the form of petroleum products and break bulk at its multi-purpose terminal.

Although serving its immediate hinterland, the Port plays an important role in the petroleum, oil & gas industry which occupies 45% of the terminal area and the fishing industry which leases 40% of the port land.



Figure 54: Port of Mossel Bay (Source: National Ports Authority)

Capacity

The entrance channel to the Port is dredged to a depth of 8m and the Port is equipped with 5 berths. With an installed capacity of 8 million TEUs, and only an average of 1.7 million TEUs, the Port is not expected to exceed its capacity limitations in the near future. The port is mainly used for the liquid bulk, with 99% of its operations dedicated to liquid bulk exports.

Volumes

In the 5 year period under review, the Port has experienced decreasing volumes both for its break

bulk cargo and liquid bulk cargo. Liquid bulk volumes have experienced a 58% decrease, whilst break bulk experienced a 222% decrease. 6% of the total liquid bulk volumes for the country are handled through the Port of Mossel Bay.

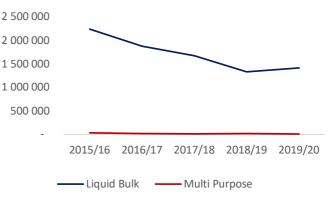


Figure 55: Port of Mossel Bay – Volumes (2015/16 – 2019/20)

Vessel Calls

Vessel calls to the Port of Mossel Bay experienced a steep decrease in 2016/2017, with only 232 vessels calling at the Port in 2019/20.

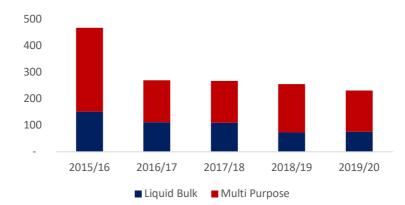


Figure 56: Port of Mossel Bay - Vessel Calls (2015/16 – 2019/20)

Capital Expenditure

A total of R50 million was spent on capital expenditure in the period 2015/16 – 2019/20, with most it being spent in the last year. The port administration building was recently extended to accommodate the Port's employees, and the communications system is currently being upgraded and reconstructed.

The medium term vision includes proposing an extension of port limits as well as the feasibility studies for the development of a waterfront. As the Port intends on placing focus on fishing, tourism, and infrastructure to support the oil and gas industry.

An average of R6.4 million was spent per annum on maintenance at the Port of Mossel Bay over the 5 year review period.

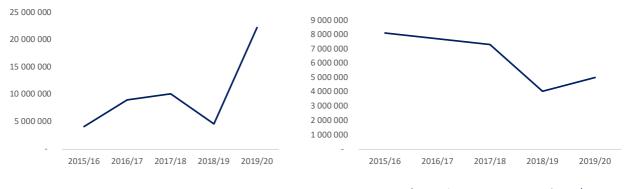


Figure 58: Port of Mossel Bay – CAPEX (2015/16 – 2019/20



Financial Analysis

- The revenue generated from the Port of Mossel Bay has decreased by 4% over the period 2010/11 to 2019/20;
- On average, the Port contributes 1% of the total NPA revenue;

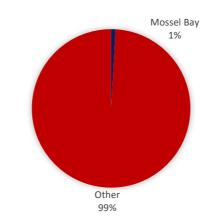


Figure 59: Port of Mossel Bay - Average Revenue Contribution (2010/11 - 2019/20)

- The port has decreased its profit contribution by 200% over the same 10-year period and has generated a loss for the past three financial periods (2016/17 – 2019/20);
- The Port makes up 2% of the average OPEX spend of the NPA;
- Over the 10-year period, the electricity costs for the Port of Mossel Bay increased by 52% whilst its fuel costs actually decreased by 10%. Material costs followed the CAPEX trend with a spiked increase in 2017/18 period, resulting in an overall increase of 74% over the 10-year period.
- The largest portion of the Port's expenses is from depreciation expenses, followed by its personnel cost;

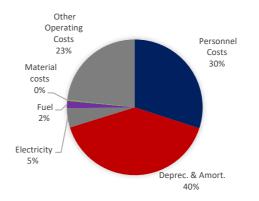


Figure 60: Port of Mossel Bay - OPEX Summary (2011 - 2020)

12.7. Port of Cape Town



Figure 61: Port of Cape Town (Source: National Ports Authority)

Situated in the Western Cape of South Africa, the Port of Cape Town is the third largest in the country surpassed by the Port of Ngqura and the Port of Durban. Established in 1652, the Port has progressed over time and expanded both its infrastructure and the services offered. Playing an important role in the tourism industry, the Port receives many cruise terminals and the Victoria and Alfred (V&A) basin and waterfront plays a complementary role to this sector and to the Port.

The Port of Cape Town plays an important role in the servicing of the region serving mainly the Western Cape province hinterland and the general cargo handled includes wheat, maize, fertilizer, fish, fruit, steel, timber, and petroleum and chemicals. The neighbouring Port of Saldanha Bay handles the dry bulk and liquid bulk cargoes of the region.

Various precincts make up the total port area with the main areas being the Ben Schoeman Dock, the Container Terminal, Duncan Dock, Eastern Mole, South Arm Road, and the Sturrock Dry Dock. The total leased area for the Port totals 1,3 million m² of which Transnet Port Terminals leases 60% through the Container Terminal and Multi-Purpose Terminal (located in Duncan Dock).

Capacity and Throughput

Boasting a total of 18 berths across 5 terminals, the largest vessel which can be accommodated by the Port is 100 000GRT. The depth at the entrance channel is 15,9m when entering the Duncan Dock basin and 14m when entering the Ben Schoeman Dock and the Port utilises 4 tug boats, 3 pilot boats, and 2 launches.

Cargo Type	No. of Berths	Berth Length	Berth Draft		
Containers	4	1 151m	13.7m – 14,5m		
Dry Bulk & Break Bulk	5	1 673m	9.0m - 12.2m		
Liquid Bulk	4	978m	11,8m – 13,4m		
Ship Repair	4	229m	9,2m - 10,1m		
Passengers	1	226m	11,2m		

Table 7: Port of Cape Town - Infrastructure Summary

Spanning an area of 63ha, the Container Terminal, operated by TPT constitutes 4 berths 601 to 604 with a berth draft ranging from 13,7m – 14,5m and a total berth length of 1 151m. The container terminal spans 54% of the port area and has a design capacity of 1,5 million TEUs, an excess of 4million from the current installed capacity. The Terminal can accommodate vessels up to 100 000GRT.

Duncan Dock houses 5 berths (B/C, D, F, G, H, AND J) and handles both dry bulk and break bulk cargo for the Port. Handling a large portion of SA's fruit and fish cargo, break bulk is handled at the MPT terminal which is operated by TPT and occupies 22ha of land. Utilising the same berths, the dry bulk cargo which includes wheat, maize, and fertilizer is handled through 6ha of land with both an installed and design capacity of 1,5million TEUs. The 5 berths can accommodate vessels up to 40 000GRT in size and have a combined berth length of 1 673m.

Spanning 16ha of land and a total of 4 berths, the Eastern Mole 1 & 2, and the Tanker Basin 1 & 2 makes up the liquid bulk facilities of the Port handling petroleum, chemicals, molasses, and vegetable oil. With a total berth length of 978m, the draft ranges from 11,8m to 13,4m and 40 000GRT is the largest vessel which could be accommodated.

The Port of Cape Town offers both dry ship-repair services and wet ship-repair services. Dry repair services are handled at the Robinson Dry Dock, the Sturrock Dry Dock and a Syncrolift facility, and wet repair services are handled at the Ship Repair Quay which can accommodate vessels up to 49 735GRT.

E-berth, located in the V&A Waterfront accommodates cruise vessels which visit the Port. Spanning an area of 2,3ha of terminal area, the berth has a length of 226m and can accommodate vessels up 48 123GRT.

Volumes and Throughput

In 2019/20, a total 881 251 containers were handled by the Port, a 3% decrease to the total handled in 2015/16. Overall, the Port of Cape Town has recorded a 10% decline in volumes over the period in the past five years. However, growth has been recorded for dry bulk volumes of 10%, and for cruise liners of 13%. The biggest decreases were seen in the liquid bulk sector and the break bulk sector of 26% and 23% respectively.

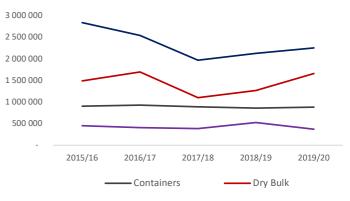
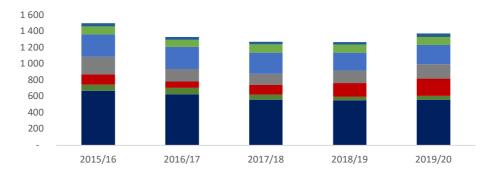


Figure 62: Port of Cape Town - Volumes (2015/16 - 2019/20)

Vessel Calls



Containers 🔳 Dry Bulk 📕 Break Bulk 🔳 Liquid Bulk 🔳 Ship Repair: Dry Repair 📕 Ship Repair: Wet Repair 🔳 Cruise Terminal

Figure 63: Port of Cape Town Vessel Calls - 2015/16 - 2019/20

The Port of Cape Town has recorded an average of 1 352 vessel calls per annum. However it was noted that the port recorded a 9% decline in the number of vessels calls over the 5 year period mainly attributable to the significant decline to break bulk. The majority of calls visit the container terminal which in 2019/20 recorded 41% of the Port's total calls. The tourism industry also recorded a positive growth of 11%.

Over the 5-year period under review, the Port of Cape Town received 11% of the total vessel calls for the ports system in South Africa and the second highest vessel calls for both containers at 26% and cruise vessels at 40%.

Capital Expenditure

The average CAPEX spent for the port amounted to R103 million per annum. However the port has experienced a significant decline in CAPEX since 2015. Although CAPEX has increased in recent years it has not amounted to the expenditure in previous years. However there are numerous projects underway for the Port of Cape Town which includes the replacement of two workboats, the replacement of the Robinson Drydock Floating Caisson, the upgrade of infrastructure at the Sturrock Dry Dock, and the expansion of the Container Terminal.

Future CAPEX plans include the replacement of two tug tugboats, stabilisation of the long quay located at Duncan Dock, refurbishment of the NPA house, acquisition of a pollution control vessel, the acquisition of a new helicopter, and the upgrade of the floating caisson at the Sturrock Dry Dock.



Figure 64: Port of Cape Town - CAPEX (2015/16 - 2019/20)

Financial Analysis

- The Port of Cape Town contributes an average revenue of R1,5 billion to the NPA on a per annum basis, over the period 2011/12 2019/20. This constitutes 14% of the total ports system revenue;
- The Port recorded a growth of 28% in revenue and a decline of 0,4% in operating profits over the 10-year period;.
- The OPEX costs of the Port average R441 million over the 10-year period and average 15% of the total OPEX of the ports system;
- On average, R62 million is spent per annum on maintenance in the Port of Cape Town. This spend on maintenance has increased by 25% over the 5-year period under review;
- Depreciation and Amortization forms 37% of the Port's expenditure with an average spend of R 320 million over the 5-year period;
- Electricity costs have increased by 60% in the 10-year period, however in the last 5 years these have only increased by 32%. A trend similar to other ports is evident in that electricity decreased significantly in 2016 and 2017, only to sharply increase thereafter; and
- Material Costs average which constitute 2% of the Port's expenses follow trends similar to CAPEX spend.

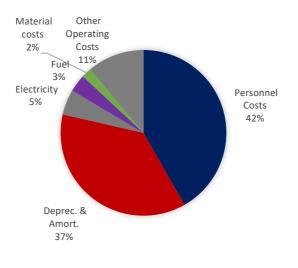


Figure 65: Port of Cape Town - OPEX Spend (2011/12 - 2019/20)

12.8. Port of Saldanha Bay

Situated on the west coast of South Africa, the Port of Saldanha Bay is a natural deep water port . The port services the Northern and Western Cape primarily through the two activities, the export of iron ore and the import of crude oil. The Port handles various break bulk at its multi-purpose terminal including steel, granite, minerals, and sands, etc as well as forms a basis for various aquaculture farmers. Further, the multi-purpose terminal plays a major role in SA manganese export market and in addition to manganese the terminal plays a major support role in iron ore exports¹⁰.

More recently, the Port was identified as a viable port for the handling of liquified gasses which is handled at the multi-buoy mooring (MBM) and is the first dedicated LPG facility in the country. Infrastructure includes both a sub-sea and a land based pipeline which transports the cargo.

The port is split, by a causeway, into two parts; a Big Bay ,on the eastern side, housing the iron ore stockyard, and a Small Bay ,on the western side, where the Mossgas quay is located. The dry bulk terminals and the liquid bulk terminal are located at the end of this causeway.

Capacity and Throughput

The Port of Saldanha Bay is made up of 7 berths and one MBM facility and the installed capacity of the port reflects the purpose of the port and its role within its hinterland. The Port of Saldanha Bay boasts a total of 3,1 million tons per annum solely dedicated to the movement of dry bulk, break bulk and liquid bulk; this is excluding the dedicated MBM facility dedicated to the handling of LPG.

Cargo Type	No. of Berths	Berth Length	Berth Draft		
Dry Bulk	2	630m, 630m	21,5m		
Break Bulk	4	874m	12,5m -13,5m		
Liquid Bulk	1	365m	21,25m		
LPG	MBM	N/A	10,4m		

Table 8: Port of Saldanha Bay: Infrastructure

Two berths are dedicated to the handling of dry bulk (the servicing of iron ore and manganese vessels only) occupying an area of 714 734m² (69%) with the ability to accommodate vessels up to a length of 350m. These are operated by TPT. The entrance channel of the port is dredged to 23,7m and berths 101 and 102. Both dry bulk terminals have a draft of 21,5m with a total design capacity of 60 million tons per annum. The current iron ore volume handled by the port is in line with the capacity of the port and in the short term is considered sufficient.

With four berths (201, 202, 203, and 204), the break bulk facility of the port, operated by TPT, has both a design and an installed capacity of 8 million tons per annum. Totalling 208 000m² of port space (20%), the berths are able to accommodate vessels up to 200m in length and have a draft of 12,5m – 13,5m.

¹⁰ https://www.transnetportterminals.net/Ports/Pages/Saldanha Multi.aspx (accessed 21/09/2020)

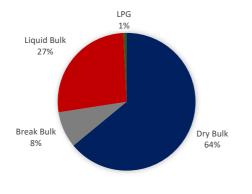


Figure 66: Port of Saldanha Bay: Installed Capacity

The liquid bulk terminal plays a crucial role in the energy requirements of South Africa with its sole activity being the import of crude oil. The 365m long berth has a depth of 21,25m is able to handle vessels up to 350m. The facility has both a design and an installed capacity of 25 million kl per annum and is approximately 27% of the total installed capacity of the Port.

The MBM facility, dedicated solely to the liquid gas industry, occupies 1% of port space and

accommodates vessels up to 180m in length. The facility is connected via both sub-sea and land pipelines to storage facilities which are not located within port limits and is privately operated. The MBM, with a berth draft of 10,4m has both a design and installed capacity of 1720 000 metric tons per annum.

Figure 71 indicates the throughput of the terminal over the past 5 years, a figure which has remained stable over the period.

Volumes

The dry bulk facility of the Port of Saldanha Bay handles approximately of 50 million tons of cargo per annum. 33% of SA's dry bulk cargo is transported through the Port. However, over the period 2015/16 – 2019/20, the port experienced a 4% increase in dry bulk volumes mainly for iror

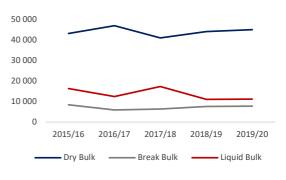


Figure 67: Port of Saldanha Bay: Throughput

a 4% increase in dry bulk volumes, mainly for iron ore.

`The Port's focused cargo commodity which constitutes 84% of its operations. Although constituting only 10% of the port specific volumes, the break bulk facility of the Port handles 52% of the total break bulk cargo going through the SA ports in the form of manganese, sand, steel, and granite mineral.

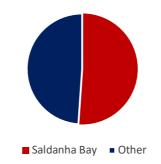


Figure 68: Dry Bulk Volumes - Port of Saldanha Bay vs. Other

Vessel Calls

The Port of Saldanha Bay receives, on average 192 vessel calls per annum of bulk carriers. This is further broken into an average of 343 dry bulk carriers, 194 break bulk vessel calls, and 40 liquid bulk vessel calls.

7% of all vessels calls for South Africa are received by the Port of Saldanha Bay and 13% of all dry bulk vessels, and break bulk vessels call at this port.

The size of vessels which are accommodated must be taken into account as the port is capable of receiving very large crude carriers (VLCCs) and a lower number of calls is by no means an indication of poor performance.

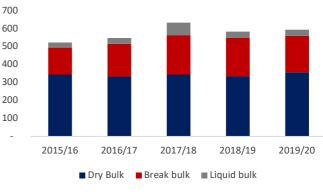


Figure 69: Port of Saldanha Bay: Vessel Calls

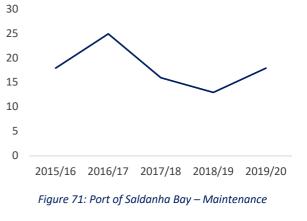
Capital Expenditure (CAPEX)

An average of R 100 million was spent on the Port of Saldanha Bay in terms of capital expenditure per annum over the review period with an increase in the 2018/19 period. CAPEX within the Port has thus far included scour protection on the iron ore jetty, replacements of fenders which form part of the refurbishment of quay and jetty infrastructure, and other security requirements. Further, the Port spends an average of R18 million per annum on maintenance of the assets.





Future CAPEX plans include operationalising the eastern side of the oil jetty and constructing liquid bulk storage area, expanding the commercial logistics area of the Port, as well and converting the general maintenance quay to an offshore-supply case. These projects are included in the long term vision for the Port of Saldanha Bay.



Financial Overview

- The Port of Mossel Bay recorded a 42% growth in annual revenue over the period 2011 2020;
- The Port of Saldanha Bay contributes an average of 8% to the revenue of the NPA;
- The Port of Saldanha Bay's main components are personnel costs, depreciation, other costs, and electricity;
- OPEX spend for material costs, electricity, and fuel may be linked to trends in CAPEX for the period, steep increases in 2014/15 with periods of decreasing costs, which correlate to the CAPEX trends.

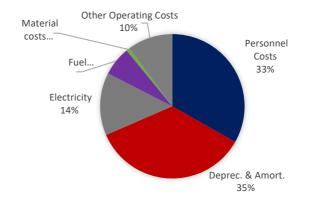


Figure 72: Port of Saldanha Bay - OPEX Summary (2011 - 2020)

13. The Cargo

This section reviews the main cargo handled by the ports system in South Africa and aims to highlight the volumes and trends as well as which ports are more suited to the different cargo types.

13.1. Containers

An average of 4,6 million containers are handled by SA ports per annum, of which 2,8 million are handled by the Port of Durban with an average of . Over the period 2015/16 – 2019/20, container volumes in SA have increased by 3%. The Port of Durban, handling 61% of the total volumes, recorded an increase of 4%, whilst the Port of Ngqura, the container and transhipment hub port, recorded an increase of 18% over the period. The move between PE to Ngqura of container cargo may be the reason the volumes for the Port of PE have decreased by 33% over the period.

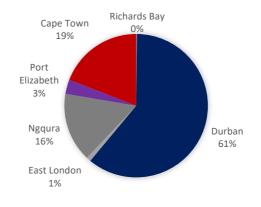


Figure 73: Container Volumes (2019/20)

Vessel Calls

Of the 7 ports equipped to handle container in the SA ports system, the Port of Durban receives 37% of the total vessel call and the Port of Cape Town receives 26%. on a system-wide basis, the number of vessels calling for container purposes have decreased by 26%. The Port of PE recorded the highest decline in vessel calls with 254 vessels calling in 2015/16 and only 143 in 2019/20.

Vessel calls for the Port of Durban decreased by 29% over the 5-year review period with a total of 1028 vessels calling in 2015/16 and only 798 in 2019/20. The Port of Ngqura, receiving 20% of the system's vessels, received an average of 452 vessels per annum over the period with its vessel calls remaining constant.

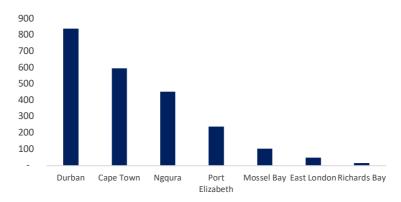
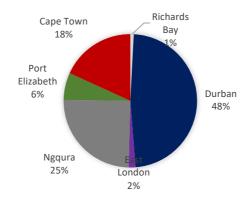


Figure 74: Average Vessel Calls - Containers (2015/16 – 2019/20)

Capacity

The total system-wide design capacity for the container sector in South Africa is 7,2 million TEUs and the installed capacity is currently 6 million TEUs. Based on the resultant latent capacity in conjunction with the volume forecasts of the NPA, additional capacity in the container sector is required in the short term and long term.

The Port of Durban is South Africa's primary container port and is equipped with 48% of the total installed capacity of the system. The Port of Nggura, positioned as a container and trans-shipment port, is equipped with 25% of the total system capacity.





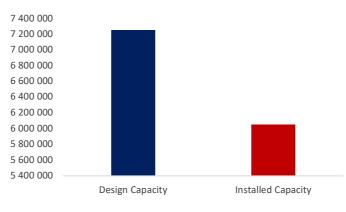


Figure 75: System Capacity - Containers

Tariff Progression

The move towards the cost-reflective tariff for the container sector has been more gradual than other cargo types; containers are considered one of the largest revenue generators for the Authority and therefore even incremental shifts have an impact. Further, the Regulator is aware of the risks of unintended consequences sharp tariff spikes may have on the economy.

In 2016/17, the import tariff for a container recorded at 84% above the cost-reflective tariff; an actual rate of R 2 046,00 vs a base rate of R 322,66. In 2020/21, a difference of 89% was recorded; however, the base rate for a container decreased by 57,7% whilst the actual container tariff decreased by 5,93% over the same period. Although the difference increased, both the cost-reflective rate and the actual tariff decreased as well.

The same phenomena was experienced by the container export sector which recorded a difference of 52% from the actual tariff to the cost-reflective base rate of R 322,66. In 2020/21, although decreasing by 32%, the actual tariff recorded at 60% higher than the base rate, which in itself decreased by 57% over the period.

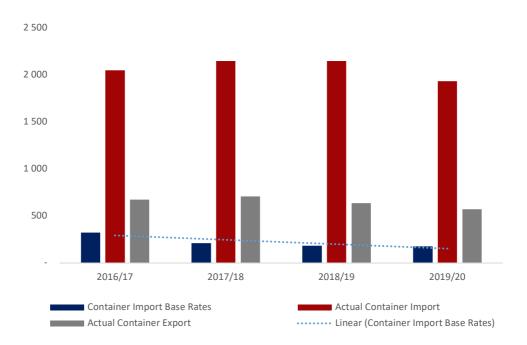


Figure 77: Base Rate Tariff Progression Containers

13.2. Dry Bulk

Dry Bulk cargo is commonly defined as a raw material which is shipped in large, unpackaged parcels and consists mainly of raw, unprocessed materials (Chen, 2019). Dry bulk cargo typically includes coal, iron ore, grain, and metal, all of which are categorised into either major bulk or minor bulk cargo.

South Africa is a major exporter of both coal and iron ore through dedicated facilities located in Richards Bay and Saldanha Bay respectively. Both ports are connected via specialised infrastructure to the raw material sources located inland. (Workman, n.d.) in his study of the highest dollar value worth of coal exported in 2019, found that South Africa ranked as No. 7 on the list with a total export worth of \$4.8 billion, surpassed by Australia, Indonesia, Russia, United States, Columbia, and Canada.

Volumes

A total of 95 million tons of dry bulk cargo passes through the Port of Richards Bay, of which 77% is coal through the RBCT facility. The additional 23% is mainly comprised of woodchips, alumina, sulphur and petroleum coke. Saldanha Bay handles an average of 55 million tons of dry bulk cargo mainly in the form of iron ore.

A total of 172 million tons of dry bulk passed through the SA ports system in 2019. Of this total, Richards Bay handled the majority at 55% of the total and Saldanha Bay handled 33%.

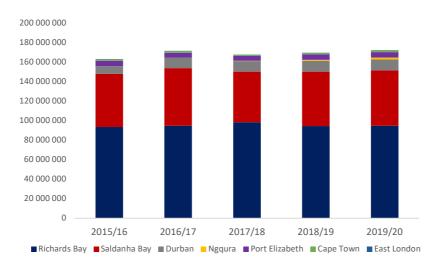


Figure 78: Dry Bulk System-Wide Volumes

Overall, dry bulk volumes have increased by 5% for the ports system, with the largest growth recorded for Durban which handled 27% more dry bulk cargo in 2019/20 than in 2015/16. The sector experienced a decline in the 2016/17 period only to recover in 2018/19.

Cape Town recorded a 10% over the same period (mainly imports of wheat, maize, and fertilizer) whilst the Port of East London recorded a 111% decrease over the five years (cargo handled in the form of wheat and maize).

The Port of Ngqura, in 2017/18 commenced dry bulk handling through its manganese operations and recorded a growth of 94% over the 3-year period.

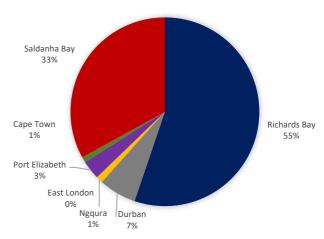


Figure 79: Dry Bulk Volumes (2019/20)

Vessel Calls

With an average of 1 305 vessel calls per annum, the Port of Richards Bay receives the majority of dry bulk vessels within the SA ports system. However, over the 5-year period under review, the Port experienced a decline of 19% of these vessel calls. This may be attributed to changing vessel sizes (increasing vessel size), as well as the 2% growth in volumes over the period.

Receiving 33% of SA's dry bulk vessel calls, the Port of Durban also recorded a decrease of 10% over the 5-year review period. The greatest decreases of dry bulk vessel calls between 2015/16 – 2019/20 are recorded in the Port of East London and the Port of Cape Town with 71% and 52% respectively. Due to the 10% increase in volumes in Cape Town, the decrease in calls may be attributed to the larger vessels calling at the Port.

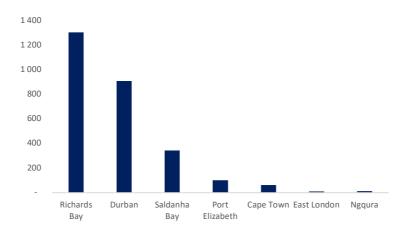
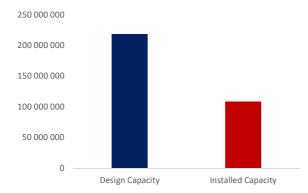


Figure 80: Average Dry Bulk Vessel Calls (2015/16 - 2019/20)

Capacity

The design capacity is also referred to as the theoretical capacity, the total volumes the Port would be able to handle if all other infrastructure was able or dependent on the volumes. The dry bulk capacity across the system is 2018 thousand tons, an excess of 102% of the installed capacity of 108 thousand tons. 55% of the total capacity in South Africa is installed at the Port of Saldanha Bay, with the ports of Richards bay and Durban following with 19% and 15% respectively.



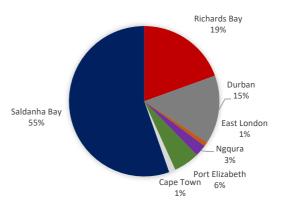


Figure 82: System Capacity - Design vs. Installed - Dry Bulk

Figure 81: Per Port Installed Capacity - Dry Bulk

Tariff Progression

As part of the implementation of the Tariff Strategy, port tariffs have moved towards a cost-reflective rate, aiming to eliminate cross-subsidies within the system and correcting the anomalies of the past. The Tariff Book of the NPA typically reflects import and export rates for various commodities within the dry bulk sector, as well as an 'other' rate for all cargos not listed. The long-term intention is for only the 'other' rate to remain as a direct reflection of the cost of moving dry bulk cargo through the South African ports system. The tariff progression indicates that the Strategy implementation has been largely successful within the dry bulk sector with outlying costs moving swiftly towards the base rate. Extra focus is placed on the coal tariff and iron ore tariff as these are significant outliers and revenue contributors.

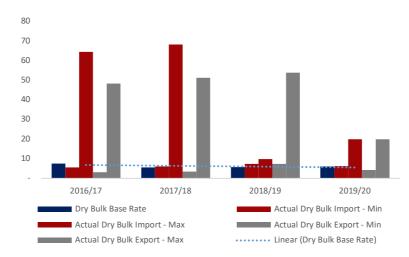


Figure 83: Dry Bulk Tariff Progression

13.3. Break Bulk

Volumes

The figure below depicts the overall volumes handled by SA. Whilst the volumes increased for the period from 2016-2018, breakbulk volumes experienced a decline again in 2019/20.



Figure 84: South African Ports - Break Bulk Volumes

The Port of Saldanha Bay handles 51% of the break bulk cargo transported through the South African port system through its Multi-Purpose terminal however, over the 5-year review period a decrease of 8% in volumes was recorded by the Port. Further, a significant decrease was recorded in 2016/17, only for volumes to gradually increase for the Port thereafter.

Based on the port specific break bulk volumes, in 2015/16 the Port of Richards Bay handled in excess of 3,5 million TEUs whilst the Port of Durban handled 2 million TEUs of breakbulk. Over the 5-year review period, the Port of Durban recorded an increase of 16% of volumes to an excess of 2,5 million TEUs in 2019/20, whilst the Port of Richards Bay recorded a 266% decrease in break bulk volumes. The Port of Durban has positioned itself as the second largest break bulk port in the SA port system handling 19% of all break bulk volumes in the system, whilst the Port of Richards Bay handled only 8% in the 2019/20 period.

Over the same period, the Port of Port Elizabeth recorded an increase of 67% for break bulk volumes handled through its port. Handled at its Multi-Purpose Terminal, break bulk cargo in this Eastern Cape port includes various forms of steel, agri-products, cement, fertilizer, wheat, and a major cargo for the port, manganese.

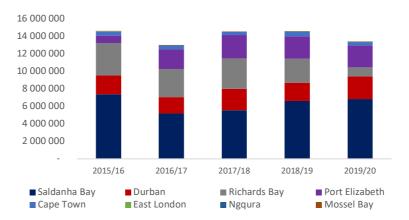


Figure 85: South African Ports - Break Bulk Volumes

Vessel Calls

Receiving 47% of the total, the Port of Durban is the main recipient of vessel calls for break bulk cargo. The Port of Richards Bay occupies second position with 35% of the total. Both the Port of Mossel Bay and the Port of Saldanha Bay receive 19% respectively.

Over the 5-year period under review, the Port of East London has recorded a steady increase of vessels calling for break bulk, although recording only 23 vessel calls in 2019/20 this is a 65% increase since 2015/16.

The Port of Mossel Bay has recorded the most significant decrease in break bulk vessels with a 103% decrease over the 5-year review period. The Port of Durban and the Port of Richards Bay have also recorded decreases of 31%, which may be attributed to increasing vessel sizes.

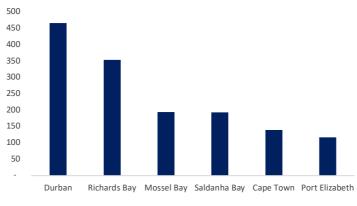
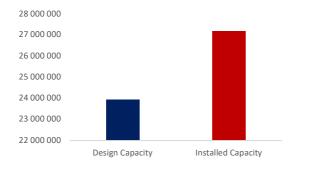


Figure 86: Average Break Bulk Vessel Calls (2015/16 - 2019/20)

Capacity

The Ports of Richards Bay and Saldanha bay are equipped with the majority of break bulk capacity across the system. However, on a system wide basis, the installed capacity for the industry far outweighs the design capacity.



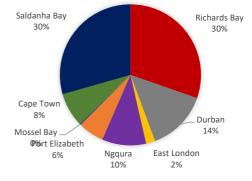




Figure 88: Break Bulk Installed Capacity

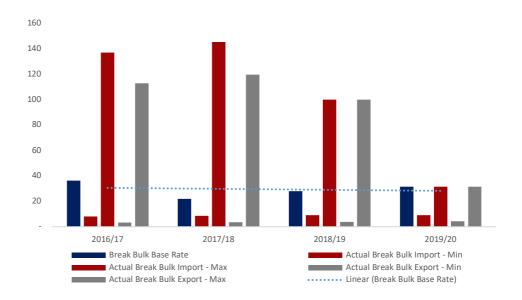
Tariff Progression

Cargo dues for break bulk have perhaps been the most successful in terms of the implementation of the Tariff Strategy and the convergence to the base rate, the cost reflective rate of moving cargo through port infrastructure. Whilst the base rate has remained relatively stable over the period since the introduction of the Strategy, the maximum tariffs for import and export have decreased significantly.

The minimum import charges on break bulk have increased 10,47% over the period ,whilst the maximum charges have decreased by 335% converging to the base rate in 2019/20, which reflects the 'other' charge for all cargo types not mentioned in the Tariff Book. The maximum charge for importing break bulk recorded at R 137,11 in 2016/17 and at R 31,50 in 2020/21.

The minimum import charges for break bulk tariffs have recorded an increase of 21% over the same period, whilst the maximum import charges decreased by 527%, converging to the base rate in 2019/20. The maximum tariff for the export of break bulk in 2016/17 recorded at R112,93 and subsequently recorded at R18,00 in 2020/21.

Based on the Tariff Methodology and the amended cost-reflective rates for 2020/21, both the import and export maximum, and 'other' charge are below the base rate and should therefore increase accordingly over time.



13.4. Liquid Bulk

Volumes

A total of 24 million kilolitres (kl) were handled by SA's ports in 2019/20 over the period. A peak was experienced in 2017/18 and only lasted for that financial period. The Port of Ngqura commenced liquid bulk operations in 2018/19 but has not established itself as a fully-fledged liquid bulk port as yet.

The Port of Durban handles the bulk of all liquid bulk volumes of South Africa ,with 45% of all liquid bulk going through Durban, this excludes Single-Buoy Mooring. Saldanha Bay occupies second position for liquid bulk handling with a total of 17% of the country's cargo going through this western port.

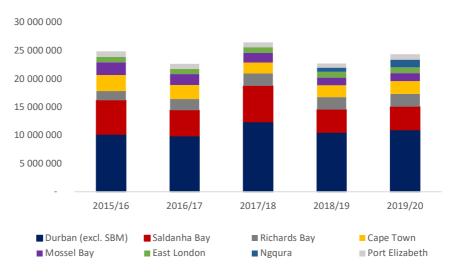


Figure 89: Liquid Bulk Volumes for South African ports

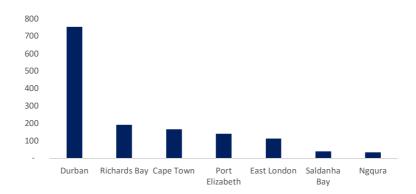
Over the 5-year review period, the total liquid bulk volumes decreased by 2% on a system-wide level however the volumes for the Port of Durban increased by 7%, Richards Bay increased by 27%, and the Port of East London experienced an 8% increase in liquid bulk volumes.

The Port of Mossel Bay recorded the most significant decrease of 58% of liquid bulk volumes whilst the Port of Saldanha Bay recorded a 48% decrease. The port of Cape Town also recorded a decrease, of 26%. Liquid bulk volumes in the western region of South Africa on average, decreased by 40%.

Vessel Calls

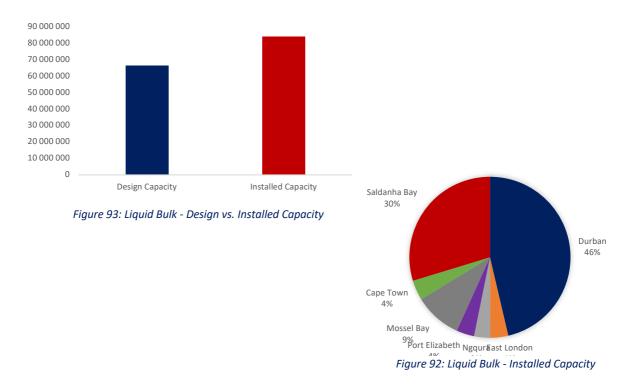
The Port of Durban receives 52% of the liquid bulk vessel calls to SA ports, however the Port's calls have declined by 12% over the period 2015/16 – 2019/20. Increases in vessel calls were recorded at the ports of East London (10%), Saldanha Bay (17), and Ngqura (74% over a 3-year period).

On a system wide level, the number of liquid bulk vessels that have called at the South African ports have decreased by 1% over the 5 year period under review.



Capacity

On a system-wide level, South Africa has an installed capacity of 84 million TEUs for liquid bulk, however there is a design capacity of 66,4 million TEUs. Based on the forecasted demand by the Authority, there is no need to increase capacity for the liquid bulk sector in SA ports.



Tariff Progression

Large anomalies still remain within the liquid bulk sector as evident in the tariff progression summary. Although significant decreases are evident in the maximum import and export rates, the convergence towards the base rate has not been as significant as with the dry bulk sector. In 2019/20, the cost-reflective tariff for moving a killolitre of liquid bulk through the ports system was R23,54, an increase of 30% from the base rate recorded in 2016/17 of R16,59.

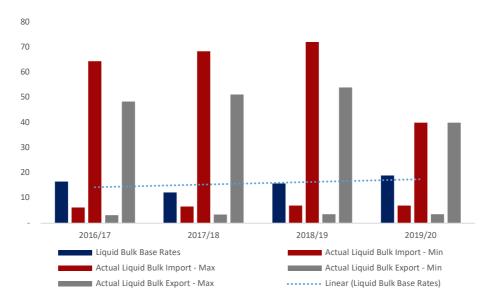


Figure 94: Liquid Bulk - Tariff Progression Summary

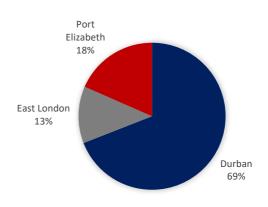
However, the maximum tariff in 2016/17 was R64,53 for the import of liquid bulk cargo, this has been reduced by 74% to R37,00 in 2019/20. Decreases in the system, where required, have been swift whilst increases have for the most oart been incremental in nature. The Regulator takes cognisance of the unintended consequences of drastic tariff measures and regulates in the interest of the economy and the sustainability of the ports system.

13.5. Ro-Ro

According to NAAMSA, 6,8% of South Africa's GDP is the contribution of the motor industry with a total of 387 125 vehicles having been exported in 2019. The major industry players are strategically situated across the country in close proximity to the ports in KZN, and the Eastern Cape. The additional players are situated in the Gauteng region which is considered as the hub of economic activity in the country.

The Port of Durban, which services the greater portion of the automotive industry serves as the gateway for both Toyota, located in KZN, and the OEMs located in the Gauteng region (BMW, Nissan, and Ford).

With an average of 474 067 units per annum, the Port of Durban handles the majority of ro-ro cargo in South Africa. The Port of East London and the Port of Port Elizabeth handle volumes similar to each other with an average of 104 293 units going through East London, and an average of 129 446 units going through PE.



Although vessel calls in the Port of P.E have decreased over the period, the



volumes being handled by the port have steadily increased; the same can be said for the Port of Durban.

The automotive industry is not limited to the sales of manufactured vehicles, or merely the import and export thereof. The export of automotive components, not shipped in ro-ro vessels, but through other containers etc. equate to a large percentage of the country's export trade.

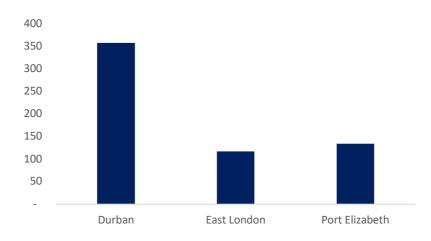


Figure 96: Average Ro-Ro Vessel Calls (2015/16 - 2019/20)

Automotive cargo owners are currently subsidising other aspects of the ports system by paying a tariff higher than the cost reflective tariff which is the base rate. In 2015, ro-ro importers were paying a tariff 78% higher than the base rate whilst exporters were paying a tariff 44% higher than the base rate. In the 2016/17 Record of Decision, the Ports Regulator removed the discount offered to certain OEMs which in turn increased access to port facilities for all industry players, the discount was removed as follows "The Tariff Book will further be adjusted for the equalisation and therefore removal of the Automotive Volume Discount. All Original Equipment Manufacturers (OEM's) and other importers and exporters of vehicles, will receive the value of the maximum existing discount of 60% of total cargo dues irrespective of volumes from 1 April 2016 onwards, and the discount will fall away, being replaced by a single import tariff and a single export tariff"

The Global Pricing Comparator Study is a tariff benchmarking study completed by the Regulator on an annual basis. The study aims to benchmark South African port tariffs against a sample of international ports in terms of cargo dues and marine charges based on a single unitary vessel. The 2019/20 study, which is based on port tariffs on 01 April 2020 places South African automotive tariffs slightly higher than the global sample average in terms of total costs (both cargo dues and marine charges).

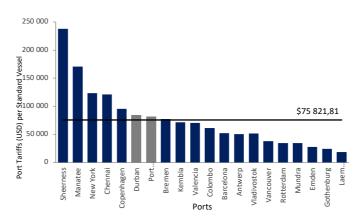


Figure 97: GPCS 2019/20 Automotive Total Cost

Error! Reference source not found. figure below displays the cargo dues component of automotive tariffs as per the GPCS of 2019/20. South African cargo dues for automotives are 124% higher than the global sample average. The long term implementation of the Tariff Strategy should see these rates converge to the base rate however the Regulator is aware of unintended consequences that may arise from a too steep

reduction or 120 000 Port Tariffs (USD) per Standard 100 000 80 000 V 000 000 40 000 20 000 n Durban Chennai Port. Bremen Colombo Copenhagen Durban. **/ladivostok** Kembla Laem. **Janatee** New York

Figure 98: GPCS 2019 Automotive Cargo Dues

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13.6. Other: Trans-shipment

Another trend in Africa is the development of trans-shipment hubs to reduce the perceived requirement to create deep ports in all destinations, but rather to have a number of large hub ports and feeders to smaller ports. According to the SA Maritime Study of 2011, "the reasons for the transhipment of containers at hubs is usually ascribed to the cost savings that the operator of container services derives from the use of larger ships with lower unit costs on long intercontinental voyages, set-off against the costs of additional container handling and the higher unit costs of smaller feeder ships on the short voyages to or from the ports of origin or destination of the container traffic". According to Engineering News, "Africa's ports need to be larger and deeper to accommodate larger vessels to improve their connectivity to global maritime trade." Additionally, there are many ports in Africa that want to partake in the trans-shipment market, but that are not necessarily ideally located or do not offer a large enough captive market to sustain this business. In South Africa the Port of Ngqura, positioned as a container and trans-shipment port, is equipped with 25% of the total system capacity.

In its analysis of the existing infrastructure in South African ports to venture into trans-shipment, the SA Maritime study found that, depth of water at berths and in the channels is probably the most critical limitation on the infrastructural development of ports as transhipment hubs, apart from the availability of space for the stacking of containers. Ships shuttling on intercontinental routes between hub ports will usually have all their slots occupied, but often the nature of the cargo and the number of empty containers when the trade is unbalanced will result in a draught less than the maximum, enabling admittance to ports too shallow to accommodate the ships when fully laden. With the shift in trade to the Far East and the logistics of liner operation now being based on increasingly larger ships, South African ports without sufficient depth to berth ships requiring depths of at least 15 metres will be relegated to feeder ports. Sufficient space for stacking containers is another requirement of hub ports, although it can be argued that the idea behind transhipment is to move the containers quickly between ships and that space should be limited in order to preclude storage. However, plenty of space is needed to provide slots for the sorting and stacking of containers rapidly offloaded from a ship carrying 7 000 to 9 000 containers or accumulated for loading. The simultaneous offloading and loading between ships is a prospect that requires logistical planning not feasible yet in trade with South Africa, although it does occur in the Far East. With the exception of the Port of Ngqura, South Africa's container ports are all located near the Central Business Districts of cities and the lack of space has given rise to the so-called "off-dock" concept for the stacking of containers. As that concept cannot be adopted at transhipment hubs, lack of space imposes a limitation on the development of any of the existing South African container ports as a large transhipment hub, except at the Port of Ngqura. The most obvious advantages and disadvantages are believed to be the following:

ADVANTAGES

i. Transhipment enables more frequent services feedering more ports to and from transhipment hubs while large ships shuttle between the hubs, so achieving high utilisation of capacity throughout the transport chain (i.e. by matching the supply to demand on each link in the chain). The alternative is voyages by single ships calling at several ports at each

end of the route (or multi-porting), so raising or lowering profitable utilisation of capacity at each call especially when trade is unbalanced, which it usually is at lesser ports.

- ii. Transhipment integrated into the logistics of a network of liner services enables their operators to choose or establish transhipment terminals or hubs at ports that have sufficient depth of water to accommodate large ships and that are uncongested with shipping for other purposes, so avoiding berthing delays that often occur at general ports open to all traffic, which is essential if the economies of the large ships are to be realised.
- iii. Direct port-to-port or hub-to-hub shuttling on intercontinental routes enables optimal efficiency in the utilisation of large liners to be achieved through transhipment, provided that it is rapid and seamless, which requires dedicated infrastructure and loading and offloading equipment.
- iv. (iv)Transhipment enables the liner companies with worldwide services to employ logistical strategies that optimise the movement of containers on their networks by matching volumes to capacity, rather than vice versa. By doing so, some of the fixed costs of liner shipping can be rendered variable, which assists in managing fluctuations in trade.

DISADVANTAGES

- i. Liner companies are exposed to greater financial risk from market contraction when their services are logistically locked into shuttle services between transhipment hubs with large ships designed for that purpose This risk was realised by the large liner companies during the recent economic recession in developed countries, while companies operating smaller liners providing direct calls at several ports in a loop were able to maintain the utilisation of their capacity (although they had to accept lower rates that declined throughout the market).
- ii. The use of larger ships relying on the transhipment of containers to and from feeder services for the collection and distribution of cargo requires transhipment terminals and ports to be properly equipped for that purpose and terminal operators will seek guarantees of traffic before undertaking investment dependent on the particular logistics of a liner company. Otherwise liner companies will need to participate in such investment (as has happened in the development of most of the major hub terminals), which locks them into a logistical scheme and impinges on the otherwise "footloose" characteristic of their industry.
- iii. Liner companies operating large ships dependent on transhipment for their utilisation need to be assured of reliable feeder services, which usually necessitate investment in ships for those services and direct or indirect control of their operations. In the highly competitive market for container transport, rival liner companies are unlikely to be willing to depend upon feeder services controlled by their opposition.
- iv. Where liner companies rely on transhipment at gateway ports operated by public authorities or agencies and are so unable to control the entire port-to-port supply chain, flexibility in the use of their ships needs to be retained, as the productivity of the large ships now being employed depends upon the seamless throughput of cargo between origin and destination. Delays at the ports ruin the economies of their scale with far worse financial consequences

than those for smaller ships. There is, however, a cost penalty for ensuring flexibility in ship deployment.

Port		2006		2007		2008		2009		2010	
		Landed	Shipped								
Richards Bay	Full	0	0	0	0	27	37	81	133	197	3004
	Empty	0	0	0	0	0	0	0	15	100	150
Durban	Full	189 083	203 315	197 603	197 398	223 533	225 600	228 563	233 787	215 021	220 321
	Empty	48 897	48 461	52 423	52 695	70 135	71 383	70 596	71 097	38 504	37 052
East London	Full	2	123	16	49	0	0	0	12	1	6
	Empty	0	0	0	0	0	0	0	560	0	10
Ngqura	Full	0	0	0	0	0	0	2 392	2 951	64 804	65 381
	Empty	0	0	0	0	0	0	424	469	36 247	38 390
Port Elizabeth	Full	20 850	23 544	23 439	22 863	20 955	20 900	30 765	31 423	48 896	47 814
	Empty	113	940	4 674	5 879	1 436	3 053	9 300	8 731	14 441	19 052
Mossel Bay	Full	0	0	0	0	0	0	0	0	0	0
	Empty	0	0	0	0	0	0	0	0	0	0
Cape Town	Full	54 190	59 420	35 980	39 131	41 592	42 565	121 099	126 781	32 094	36 745
	Empty	17 429	16 557	20 127	23 079	15 044	13 676	49 995	49 620	10 473	10 589
Saldanha	Full	0	0	0	0	0	0	0	0	0	0
	Empty	0	0	0	0	0	0	0	0	0	0

The table illustrates container transhipments at South African ports, from 2006 to 2010 (TEUs).

Table 9: Container Trans-shipments for SA Ports (2006 - 2010)Transnet National Ports Authority

14. Limitations

The COVID-19 pandemic and resultant State of Disaster announced by President Cyril Ramaphosa in March 2020 has resulted in a lockdown of the country for a few weeks. It is expected that travel will be limited, and social distancing practices will be implemented for a much longer time period, possibly spanning the entire year.

This will result in employees operating from home, meetings conducted via the internet, and scaled down operations of various industries in an effort to flatten the curve and spread off the virus. This may mean that industry consultation will be affected and possible visits to the various production site and engagements with industry players be limited.

It is not expected that the pandemic and resultant measures materially affect the results of the research or the continuation of the project, it should however be noted and taken into account.

The Regulator is committed to flattening the curve and ensuring the safety of its employees and citizens of South Africa and will heed the call of Government

15. Confidentiality

All confidential information of the NPA and of third parties obtained during the course of this project will be sourced and managed in terms of Chapter 4 of the Regulations to the National Ports Act, 12 of 2005. Further, all confidential information of the NPA and of third parties will be managed in terms of Chapter 8 of the Directives to the National Ports Act, 12 of 2005.

Disclaimer:

To the best of our knowledge, the information contained herein is accurate and reliable as of the date of publication. The Regulator welcomes any input to assist in updating or correcting the information contained herein. Any comments and/or suggestions may be forwarded to <u>comments@portsregulator.org</u>