TRADE & INDUSTRIAL POLICY STRATEGIES

OPTIONS FOR LONG STEEL: AN EVALUATION

Dr Neva Makgetla

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info@tips.org.za
+27 12 433 9340
www.tips.org.za

Author:
Dr Neva Makgetla
TIPS Senior Economist

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EXECUTIVE SUMMARY[1]

In late 2023, ArcelorMittal South Africa (AMSA) announced it would close down its long steel unit, including its mill at Newcastle, unless government, its workers and its customers increased their support. In early July 2024, it said it would delay the closure depending, again, on greater support from stakeholders. This paper explores the factors behind AMSA's threat to close its long steel production; analyses the costs, benefits and risks for different constituencies; and on that basis indicates critical decision points for government and for stakeholders.

The possible closure of AMSA's long steel unit culminated almost two decades of decline. From 2005 to 2023, its production of long steel fell almost three quarters in volume terms. Capacity utilisation at AMSA's Newcastle longs plant fluctuated around 75% in the late 2010s, but dropped to 40% in the 2020 COVID-19 pandemic downturn and recovered only to around 50% in 2023.[2] In 2022, AMSA argued that it had to sell a million tonnes of long steel a year to maintain the Newcastle mill; in 2023, it produced 925 000 tonnes.

Shrinking production at Newcastle was matched by declining production and profitability across AMSA. Long steel accounts for between a quarter and a third of AMSA's steel output, with the rest comprising flat steel products. In seven of the past 10 years, AMSA reported overall losses. From 2006 to 2023, the value of its equipment and property fell by almost 80% in constant rand terms, and its annual capital investment dropped around two thirds.

The decline at AMSA is rooted in stagnant domestic and export demand over the past two decades; rising competition from local mini mills; increased flat steel imports; and climbing unit costs, pushed especially by higher iron ore, coal and electricity prices plus falling capacity utilisation.

South Africa saw essentially flat domestic demand for steel, including imports, for almost 50 years. On average, steel demand dropped 0.2% a year from 1976 to 2023, although GDP growth averaged 2%. From 2006 to 2023 alone, local steel sales shrank by 2,6% a year. In 2020, AMSA told the Western Cape Parliament that the South African steel industry was "a shadow of its former self".

The long-run stagnation in sales in South Africa reflected a structural shift away from steel use. It resulted from the shrinking share of goods industries relative to services; surging reliance on new plastics and metal alloys in manufacturing and construction; and the downsizing of machinery and appliances. In most regions outside of China and India, steel consumption per person declined over the past 40 years. From 2012 to 2022, per capita steel consumption in Africa outside of South Africa shrank from an already low base.

From 2005, South Africa's steel exports have performed even worse than domestic sales. From 2005 to 2023, they shrank, on average, 4.2% a year in volume terms. In 2005, exports constituted nearly 45% of total domestic steel production; in 2019, the figure was just 28%. During the COVID-19

[1] TIPS is grateful to Charles Debnam and Vernon Harvey for their assistance in conducting interviews and consolidating data, based on their wealth of experience in the steel industry. We are also grateful to representatives of the stakeholders in the steel value chain who provided invaluable information and insights for this project.

[2] AMSA's 2023 annual reports reported capacity at Newcastle at 1.8 million tonnes a year in 2023, down from 1.9 million in 2019. With capacity of 1.8 million tonnes, capacity utilisation was 52%; if capacity had remained at 1.9 million, it would have been 49%.

downturn, exports plummeted to under 15% of South African steel production. By 2023, they had recovered only to 21%.

AMSA's decision to shift away from its traditional markets in Asia and Europe to focus almost exclusively on other African countries was a critical factor behind falling exports. This approach aligned with the strategy of AMSA's parent company, Arcelor Mittal, to regionalise its subsidiaries' sales. From 2005 to 2011, the share of AMSA's total exports going overseas fell from 77% to 32%.

Despite the long-run stagnation in demand for long steel, new sources of supply emerged, resulting in significant over-capacity. As of 2023, according to AMSA's annual report, demand for long steel in South Africa was 1.8 million tonnes a year, equal to Newcastle's production capacity in 2023. Total local capacity, however, stood at 2.7 million tonnes. In 2019, AMSA reported that its market share in long steel had fallen to 58%, down from 87% in 2016. Through the mid-2010s, its main competitors were imports. Thereafter, imports declined, but local mini mills that produced almost exclusively long steel products expanded rapidly. AMSA's response centred on developing higher-grade products for auto and other value chains, which mini mills could not produce unless they invested in substantial upgrades.

From 2019 to 2023, mini mill output almost doubled. Their share in domestic steel production climbed from 40% in the 2015 to 60% in 2023. In part, their expansion resulted from policies designed to strengthen competition in the steel industry. Government supported the mini mills through Industrial Development Corporation (IDC) financing and limits on exports of scrap, with an outright ban from 2022 to 2023. The result was a sharp fall in input costs for the mini mills, which use scrap instead of ore.

Support for the mini mills successfully reduced prices for long steel in South Africa and across the region. In effect, limiting exports of scrap moved the rents (that is, the difference between domestic production costs and international prices) away from the original producers and recyclers to downstream mini-mill manufacturing and ultimately to domestic and foreign customers. These policies, however, intensified competitive pressure on AMSA. AMSA itself estimated that the mini mills could produce basic long steel products for around 10%, or R1800, less than its own unit costs in 2023.

While flat steel imports climbed through the 2010s, long steel imports declined for most of the period. They dropped from a 2016 peak of 228 million tonnes to under 100 million tonnes a year from 2018 to 2023. As a result, they represented a declining share relative to domestic production, despite the sharp fall in AMSA's output. Between 2013 and 2015, imports equalled 13% of AMSA's total production, including exports. From 2022 to 2023, the figure fell to 8%. In contrast, flat steel imports in 2022 and 2023 exceeded half of AMSA's entire flat steel output.

In the first quarter of 2024, long steel imports climbed to 58 million tonnes, twice as much as in the first quarter of 2023. It is too soon to see if that spike was a once-off event. That said, two key factors seemed likely to boost imports of long steel in 2024. First, imports declined in the late 2010s in part because of effective competition from local mini mills, which only produced long steel. The decision to permit greater exports of scrap from late 2023 effectively reduced their competitiveness, returning the rents to scrap producers and exporters. In addition, China faces an oversupply of steel due to a broad economic slowdown and a crisis in home construction.

While domestic competition intensified in the late 2010s, AMSA faced a surge in raw materials, energy and bulk freight costs. Its costs per tonne of steel climbed 55% from 2016 to 2023. These increases affected the mini mills substantially less than AMSA. They relied on scrap instead of ore, and the scrap price was largely delinked from global markets. Moreover, the mini mills were located around metro

areas, which reduced their vulnerability to Transnet's travails. Finally, processing scrap requires less energy than producing steel from ore.

From the mid-2010s, AMSA cut its procurement price for iron ore and coal below global levels by entering into arrangements with relatively low-cost suppliers in South Africa and Zimbabwe. In effect, it captured a portion of the rents on iron ore and coal from upstream producers. This approach effectively reinstated a historic pillar of steel production in South Africa, which was to access rich local ore and coal reserves at prices well below world levels. But the new arrangements only ensured a discount on international prices. When global iron ore and coal prices hit historic highs in 2022, AMSA's raw materials costs climbed faster than steel export prices, effectively keeping up with increases in import prices.

In short, the decline in AMSA longs production reflects fundamental pressures that cannot easily be fixed. The policy question becomes whether to prop up production nonetheless or to promote alternative sources of supply. Analysing possible options points to a complex set of costs and benefits for the various stakeholders in the value chain.

For the national economy, the implications for downstream fabricators are critical. Basic metal products employed over 100 000 people in 2023 and generated almost 1% of the GDP. Machinery and equipment, including auto, maintained another 250 000 formal jobs and 2,3% of the GDP. In contrast, total crude steel production directly employed only 30 000 formal workers and contributed 0.4% of the GDP. AMSA itself employed 6500 permanent workers plus around 3000 on contract in 2023. From 2019 to 2023, it contributed an average of 0.1% of national gross value added.[3]

Closure of the Newcastle mill would have substantial implications for its downstream customers. The main customers for long steel products by volume are in construction, mining, manufacturing and agriculture. In particular, AMSA's speciality long steel products account for around a third of all long steel sales in South Africa. They go mostly to capital goods and auto production. The biggest concerns were raised around the auto value chain. According to the business associations for auto assemblers and components producers, 70 000 tonnes of AMSA's long steel output was certified by branded foreign auto companies (original equipment manufacturers or OEMs) for use in components.

Developing new suppliers would obviously prove disruptive to downstream users, particularly if they need specialty steels. The first question becomes whether the mini mills or, as a second best, imports could replace AMSA at competitive prices at least in the medium term (essentially two to five years). If they could, then the question is what kind of measures would mitigate the costs of the transition. It is, however, difficult to determine whether the expressed concerns of downstream businesses respond to long-run cost problems, or arise more from a natural reluctance to disrupt long-standing supply relationships.

The mini mills have historically focused on lower grade commodity products with substantial demand. Upgrading to produce specialty steels would require additional investment, some reorganisation, and increased use of processed iron ore (directly reduced iron or DRI) as well as improved scrap sorting. The mini mills in South Africa could meet around 75% of domestic demand using their existing capacity, up from their current share of 60%. But they would face difficulties in supplying relatively high-grade steels that require either DRI or more high-grade scrap inputs. Representatives of the more

[3] Calculated from AMSA figures for remuneration and operating profits from its annual reports for relevant years, and Statsticis South Africa data on gross value added.

capacitated mills argued that they could install technology to produce specialty steels, but demand might be too small to justify the new investment. The problem of low demand is aggravated by uncertainty about AMSA's long steel plans.

A further set of impacts relates to the Newcastle economy. The AMSA plant has long been a keystone of local industry, despite a sharp fall in its share in overall gross value added for the municipality from the mid-2010s. In 2023, AMSA directly provided between 3% and 5% of formal employment in the city. The actual impacts on the community will depend on the extent to which government and local interests can develop more sustainable production and employment clusters.

The paper develops three options to respond to the possible close of the Newcastle mill. It then provides a systematic description of the main costs, benefits and risks to key stakeholders of each option. Specifically, it considers the impacts on:

- AMSA itself and its employees,
- Customers for long steel,
- The mini mills,
- The government,
- Infrastructure users,
- Suppliers of coal, iron ore and electricity, and
- The Newcastle community.

The analysis points to very hard trade-offs. Above all, a significant increase in domestic or export demand seems unrealistic, even if economic growth improves somewhat. In effect, then, some long steel capacity will have to close down.

In this context, the main arguments for sustaining the Newcastle plant are that:

- It can produce specialty steels that are beyond the current capacity of the mini mills, and
- It embodies national technological capacity that should not be dissipated.

The main arguments for letting Newcastle close are that:

- Large integrated mills are no longer viable in relatively small economies like South Africa, and
- The mini mills can upgrade to produce most, although not all, of the higher grade products required by downstream customers.

Government has to choose between three possible strategies, with only limited scope for combination.

First, the government could accede to AMSA's demand that it reduce the competitiveness of the mini mills and imports by opening up exports of scrap and raising tariffs on long steel imports. That would, however, effectively increase the cost of long steel for downstream users, making the economy as a whole less competitive. The most affected industries would be agriculture and construction. Users of specialty steel would, however, avoid disruption to their supply chains. The mini mills would lose employment, and some downstream producers might also be constrained. For government, this is the easiest option to implement in the short run, but it is by far the least desirable over time.

Second, the government could focus on growing the capacity of the mini mills while letting the Newcastle plant close down, ideally with a two-year transitional period to enable downstream

producers to adapt their supply chains. In this case, government measures would focus on minimising the short to medium term costs of developing additional domestic production capacity for long steel, especially for higher grade products. In particular, the government would:

- Maintain or even tighten restrictions on scrap exports.
- Assist the mini mills to mobilise the investment and capacity required to develop local production of higher grade long steel.
- Help downstream users manage the transition to mini-mill suppliers, especially for specialty steels, by encouraging or even subsidising Newcastle to stay open for at least two more years; if necessary, identifying alternative suppliers in the short run and financing stockpiles; working with OEMs on certification of the mini mills; and if required revising the Automotive Production and Development Programme (APDP) to avoid unintended disincentives for domestic auto assembly.
- Work with stakeholders in Newcastle to develop new production lines to offset the loss of the AMSA plant.

Finally, the government could de-link domestic prices of iron ore and coal for domestic steel producers from world market prices, and facilitate a transition to off-grid renewable energy for the Newcastle plant. These measures would have to tackle both political-economic and technical obstacles. The ore and coal mines would certainly oppose any effort to move rents from them to AMSA. Ultimately, however, integrated steel production in South Africa can only compete internationally if it benefits from the rents from Southern Africa's rich ore and coal resources. In addition, off-grid energy on the necessary scale would require deep technological expertise and very large initial investments, but only pay for itself in a decade or more.

If Newcastle became more competitive, the national economy would benefit from lower-cost long steel. The municipal economy would also benefit. The challenge of over-production would, however, remain. In the long run, unless new export markets open up, which seem unlikely, either Newcastle or the mini mills will have to write off capacity. From the standpoint of industrialisation, the write-offs should apply to the production lines that seem least likely to prove competitive in the long run.

1 PROBLEM STATEMENT

In late 2023, AMSA announced it would close down its long steel mill at Newcastle unless government, its customers and its workers increased their support. From the state, AMSA required improved rail and electricity services, measures to limit competition from emerging mini-mill steel producers and imports, and assistance in raising R1 billion in working capital. From its customers in the public and private sector, it expected long-term contracts to stabilise its market share. From workers, it wanted reduced labour costs. In July 2024, AMSA announced that it would extend its long steel operations in light of on-going negotiations for additional support from government, customers and employees.

The complex of costs, benefits and risks of changes in the steel value chain go far beyond the direct impacts on AMSA. They have diverse effects on its customers and suppliers; competing producers; and the Newcastle community. Closing the Newcastle plant and smaller long steel units elsewhere would affect over a third of AMSA's steel capacity and at least 1500 jobs.[4] AMSA did not, however,

[4] AMSA said the closing would affect 3500 of its employees, but it is not clear how it arrived at that figure, which is more than twice the permanent employment at its Newcastle plant.

publish detailed data on its long steel operations after 2020. Other stakeholders in the steel value chain would face a broader range of impacts, some positive and some negative.

From the perspective of the national economy, the implications for downstream fabricators are critical. Basic metal products employed over 100 000 people in 2023 and generated almost 1% of the GDP. Machinery and equipment, including auto, provided another 250 000 formal jobs and 2.3% of the GDP. In contrast, total crude steel production directly employed only 30 000 formal workers and contributed 0.4% of the GDP. AMSA itself employed 6500 permanent workers plus around 3000 on contract in 2023. From 2019 to 2023, it contributed an average of 0.1% of national gross value added, down from an average of 0.5% between 2000 and 2008.[5]

To understand the policy choices around long steel, this paper first reviews developments in the long steel value chain. It then summarises the costs, benefits and potential for success of three strategic options around long steel. The options analysed are:

1. Assisting downstream customers to find alternative sources of steel, whether from imports or local suppliers;
2. Assisting domestic mini mills to increase their output and expand into higher-grade products in order to replace AMSA's supply; and
3. Implementing sustainable policies to enable AMSA's long steel unit to stay in business, primarily by reducing import costs.

The assessment starts with an analysis of the challenges facing AMSA, which reflect a structural crisis in the steel industry. Section 3 evaluates the extent to which downstream producers for long steel depend on AMSA, especially for specialised, high-quality products. Section 4 explores the current capabilities and the potential of South African mini mill steel producers, which are AMSA's main competitors in the long steel space. Section 5 outlines outline the implications for the Newcastle municipal economy. A systemic review of the main costs, benefits and risks of the three policy options studied follows. The conclusions highlight key policy choices that arise from the overall analysis.

2 AMSA

This section first reviews factors behind the downturn at AMSA's Newcastle mill. Production at the mill dropped from around 1.5 million tonnes a year in the late 2010s to under a million tonnes in the early 2020s, following the pandemic downturn. The stalled recovery after 2020 culminated a longer and broader decline at AMSA, which in turn arose from a structural crisis in the steel industry. That crisis had three roots. First, the steel intensity of South African economic growth has fallen by two thirds, resulting in stagnant steel demand for the past 30 years. Second, new competitors for AMSA have emerged, starting in the early 2000s with growing imports and from the 2010s, on a larger scale, the emergence of local mini mills. Finally, from the late 2010s, AMSA faced higher prices for iron ore, coal, electricity and freight while its production slumped after the 2020 COVID-19 downturns. Its costs per tonne jumped almost 50% in constant terms from 2018 to 2023.

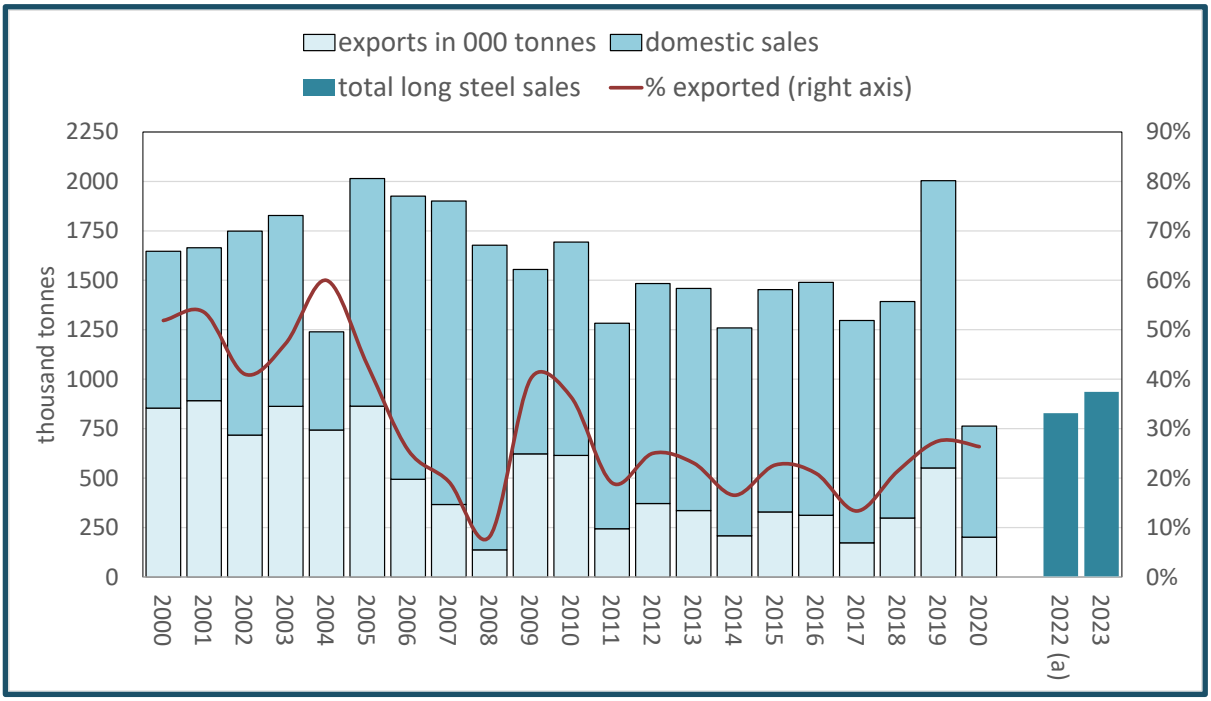
[5] Calculated from AMSA figures for remuneration and operating profits from its annual reports for relevant years, and Statsticis South Africa data on gross value added.

Section 2.2 summarises AMSA's proposals to save its Newcastle operation. Its published claims centre on measures to raise costs for the mini mills and imports, and to stimulate local demand through expanded infrastructure investment and offtake agreements.

2.1 Newcastle and the structural crisis in South African steel

As Graph 1 shows, AMSA's long steel production fell 66% in volume terms from 2005 to 2018, although in 2019 it spiked briefly to 2005 levels. Output then plummeted 60% in the 2020 pandemic downturn, with only very limited recovery through 2023. From 2020, AMSA stopped publishing figures on exports and local sales for long steel. Its long steel production recovered only 23% from 2020 to 2023, reaching 936 000 tonnes. In 2022, AMSA argued that it would have to sell a million tonnes a year to be sustainable. (AMSA 2023:16) In 2023, its longs production was a third lower than its average from 2016 to 2018, and under half its 2019 total. Capacity utilisation at Newcastle fluctuated around 75% in the late 2010s, but dropped to 40% in the 2020 pandemic downturn and recovered only to around 50% in 2023.[6]

Graph 1. AMSA long steel domestic and export sales, and percentage exports, 2000 to 2020, and total production in 2022 and 2023

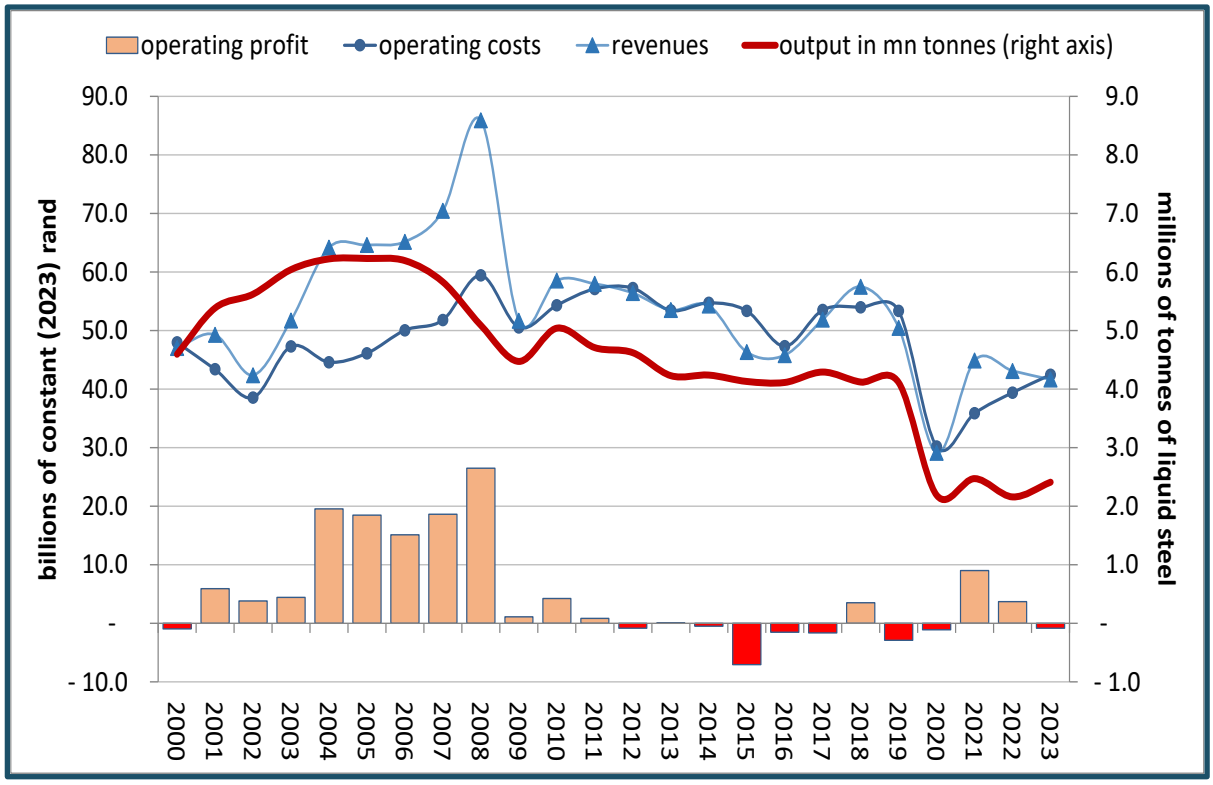


Note: (a) Estimated based on AMSA reports of growth in 2023. AMSA did not publish separate figures for long steel production in 2021 and 2022. *Source:* AMSA Annual Reports for relevant years.

While the pandemic downturn initiated a particularly sharp decline, AMSA's total steel production began to fall from 2006. As the following graph shows, AMSA's production of liquid steel fell from six million tonnes in 2006 to four million in 2019. In the 2020 pandemic downturn, its output plummeted to just over two million tonnes, then levelled out through 2023, rather than recovering. (Graph 2.)

[6] AMSA's 2023 annual reports reported capacity at Newcastle at 1.8 million tonnes a year in 2023, down from 1.9 million in 2019. With capacity of 1.8 million tonnes, capacity utilisation was 52%; if capacity had remained at 1.9 million, it would have been 49%.

Graph 2. AMSA profits, operating costs and revenue in billions of constant (2023) rand (a), and its output in millions of tonnes of steel, 2000 to 2023

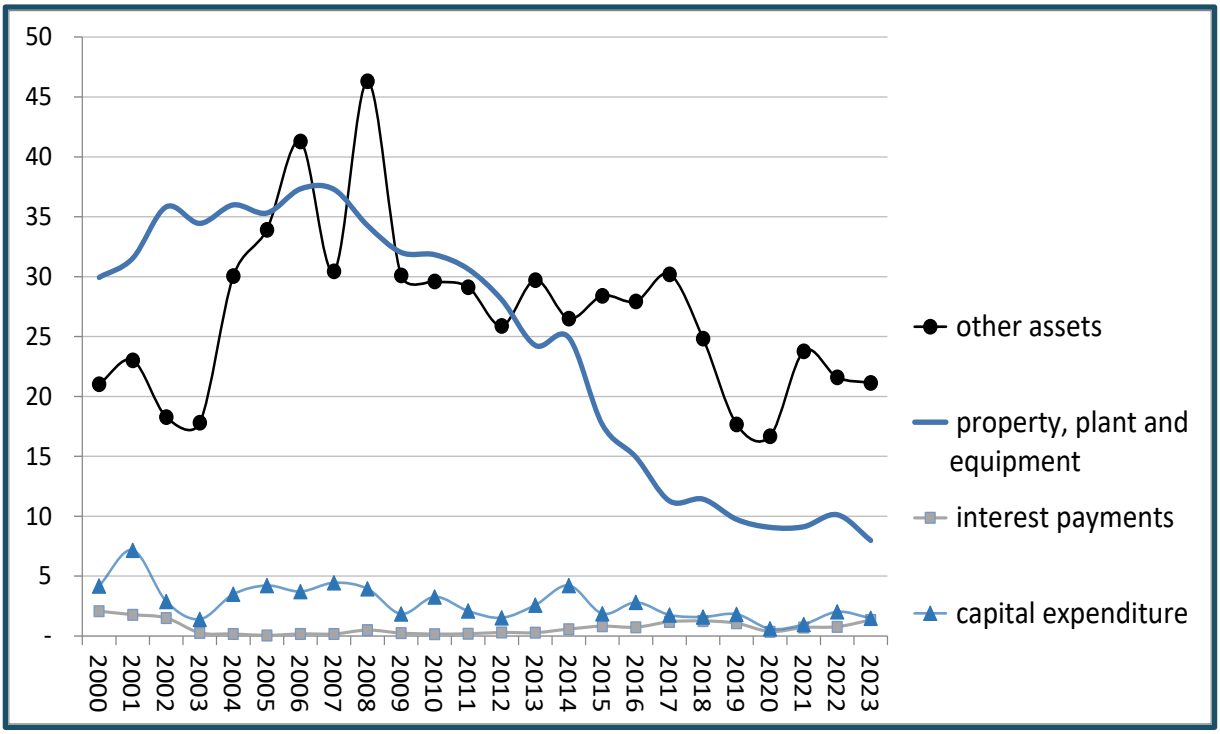


Notes: (a) Reflated with CPI rebased to 2023. *Source:* AMSA annual reports for relevant years.

AMSA made losses in seven of the 10 years to 2023. Its total operating costs generally tracked revenues downward through the 2010s, but they surged in 2021 and only declined moderately thereafter (Graph 2) As discussed in the section on cost drivers, costs per tonne climbed from the mid-2010s, mostly because of increased global prices for coal and iron ore, rising Eskom tariffs and freight costs, and impairments at Newcastle in 2023.

AMSA saw a sharp contraction in the value of its physical assets from 2006, combined with falling capital expenditure, in constant rand. From 2013 to 2020, AMSA mothballed two millions tonnes of capacity, or a third of its total. (AMSA 2020a:7) As Graph 3 shows, in 2023 rand, the value of its property, plant and equipment fell from a high of R37 billion in 2006 to R11 billion in 2017 and R8 billion in 2023. It fell almost 80% from 2006 to 2023.

Graph 3. AMSA assets, capital expenditure and interest payments, in billions of constant (2023) rand (a), 2000 to 2023

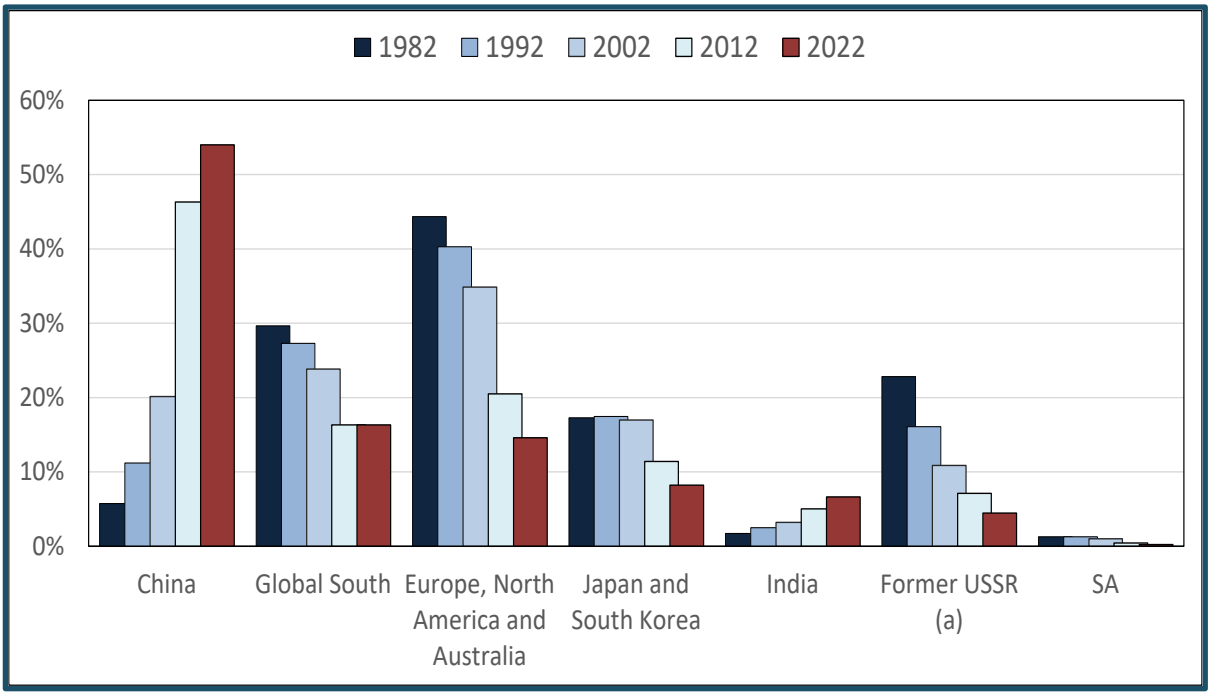


Note: (a) Reflated with CPI rebased to 2023. *Source:* Calculated from AMSA financial statements for relevant years.

As a result of these trends, AMSA's share in national capital stock dropped from 1.8% in the early 2010s to an average of 0.3% from 2018 to 2023. As a share of capital stock in manufacturing, it dropped from almost 9% to 4%. Its capital investment also saw a secular decline. It averaged R4 billion from 2005 to 2007, but only R1.7 billion from 2017 to 2017, and R1.5 billion from 2020 to 2023. Its share in gross fixed capital formation fell from 0.5% in the early 2000s to 0.1% from 2018 to 2023. In the early 2000s, it contributed 3.5% of investment in manufacturing; in the five years to 2023, the figure was just 1.1%.

The decline at AMSA contributed to South Africa being among the worst performers of major steel producers globally in the 2000s. South Africa's share in world steel production excluding China dropped from 1.3% in 2002 to 0.8% in 2012 and 0.5% in 2022. If China is included, which accounted for virtually all growth in steel output from 2000, South Africa's share in 2022 was just 0.2%. Virtually every region outside of China and India experienced a decline in world market share over this period, but in proportional terms the fall was larger in South Africa. (Graph 4)

Graph 4. Share in world crude steel production by region, 1982, 1992, 2002 and 2012, and 2019 to 2023



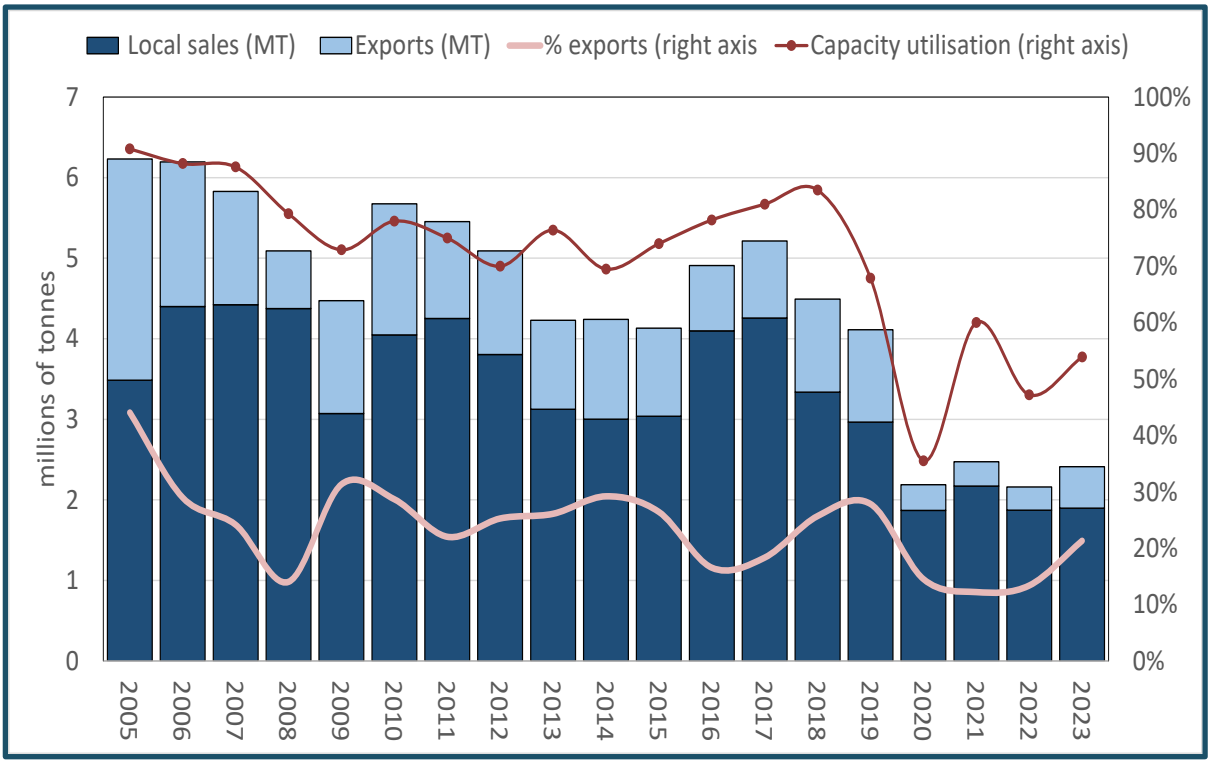
Source: Calculated from World Steel Association. *World Steel in Figures*. Relevant years. (For 2002 and 2012, published by International Iron and Steel Institute.) Tables on production by process. Accessed at https://worldsteel.org/data/world-steel-in-figures/ in May 2024.

AMSA's long-run decline resulted from stagnant demand combined with growing competitive pressures from imports and, from the mid-2010s, other local producers. These long-term pressures were aggravated when, in the late 2010s, its costs surged, particularly for coal and iron ore. The analysis here reviews each of these factors in turn.

2.1.1 Demand for steel

AMSA has experienced a secular decline in total sales over the past two decades, although it does not give detailed figures for long steel after 2020. From 2005 to 2019, its domestic sales dropped 15%. In 2023, they were 36% below 2019 levels, with almost no improvement from the pandemic downturn. Export sales performed even worse, dropping almost 60% from 2005 to 2019 and then falling over 50% from 2019 to 2023, despite some improvement over 2020. (Graph 5)

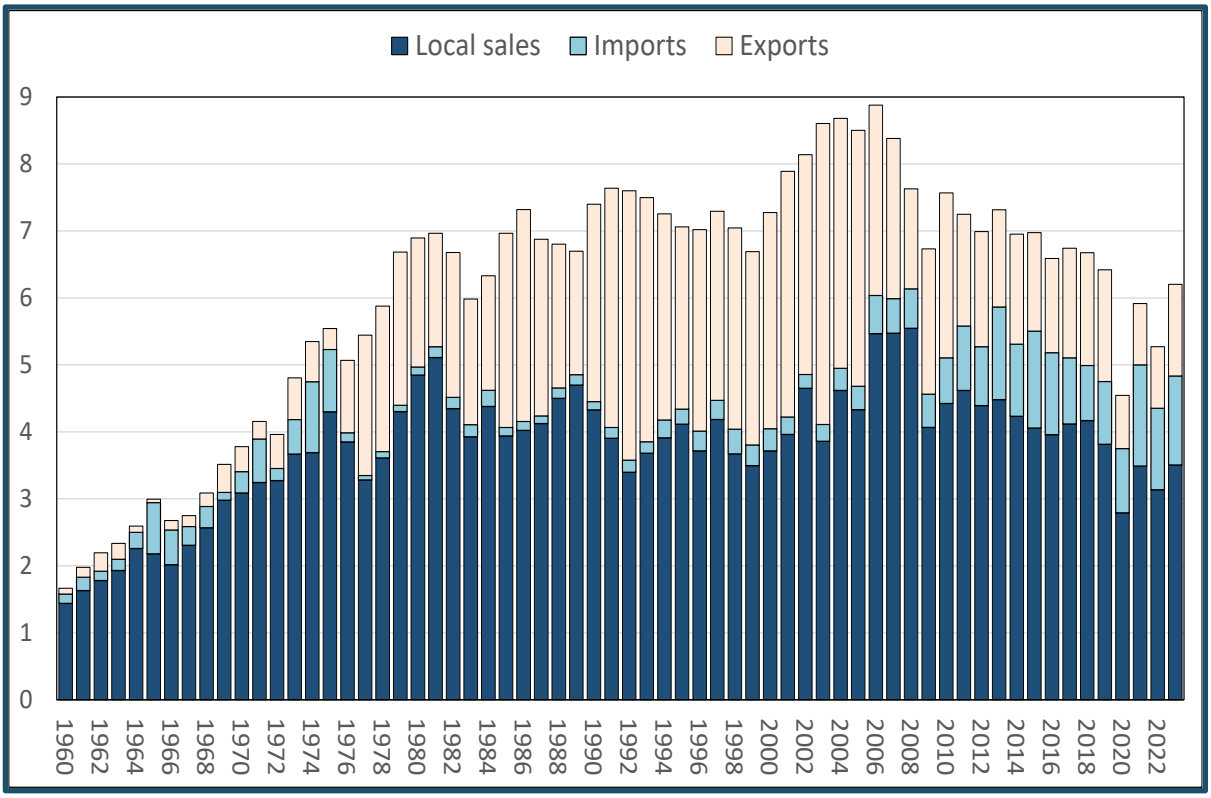
Graph 5. AMSA local and export sales in million tonnes, and percentage exports and capacity utilisation, 2005 to 2023



Source: AMSA Annual Reports for relevant years.

The decline in AMSA sales largely reflects stagnant domestic steel demand since 1980 and shrinking exports from 2006. Graph 6 shows the long term trend in total South African production, exports and imports of crude steel. In volume terms, domestic sales (including imports) fell, on average, 0.2% a year from 1976 to 2023. In the same period, GDP growth averaged 2% annually. Steel demand grew modestly from 1976 to 2006, at 1.6% a year, which was already slower than overall economic growth. Then, from 2006 to 2023, local steel sales shrank by 2.6% a year. In 2020, AMSA told the Western Cape Parliament that the South African steel industry was “a shadow of its former self”. (AMSA 2020a:7)

Graph 6. South African crude steel production for domestic sale and export, and imports, in millions of tonnes, 1976 to 2023

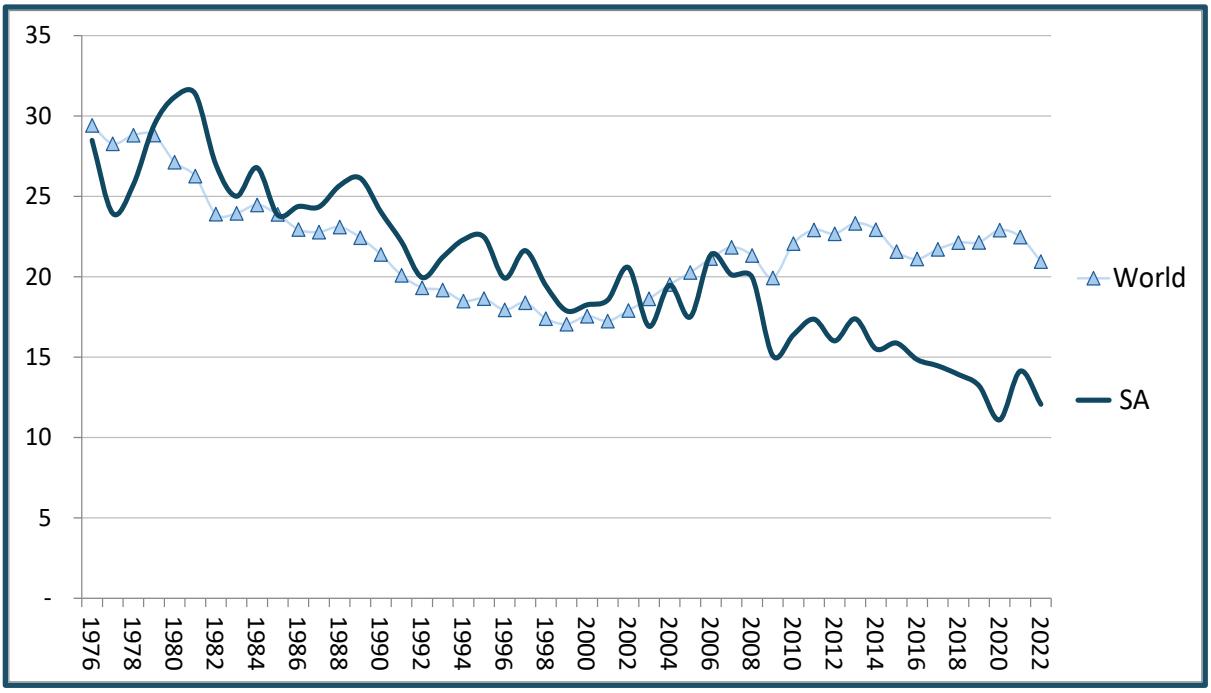


Source: Calculated from South African Iron and Steel Institute. Historical time series. Spreadsheet. Downloaded from https://www.saisi.org/historical-time-series/ in May 2024.

The long-run stagnation in crude steel sales in South Africa reflects a fundamental shift away from steel use. As a result, steel sales have not matched GDP growth and the steel intensity of growth has declined. The amount of steel consumed per trillion US dollars of GDP (in constant 2015 terms) dropped by over two thirds in constant terms from 1976 to 2022. (Graph 7)

In the late 1970s, steel output climbed around 1.7% for each 1% increase in the South African GDP. In the late 2010s, in contrast, although the GDP was growing 1% a year on average, steel sales dropped over 2% a year. From the 2020 pandemic downturn to 2023, the steel intensity of growth became much more variable. Internationally, steel intensity fell from 1976 to 2002, then recovered slightly before flattening out in the 2010s.

Graph 7. Million tonnes of steel produced internationally and used in South Africa per trillion US dollars of GDP, in constant 2015 terms, 1976 to 2022

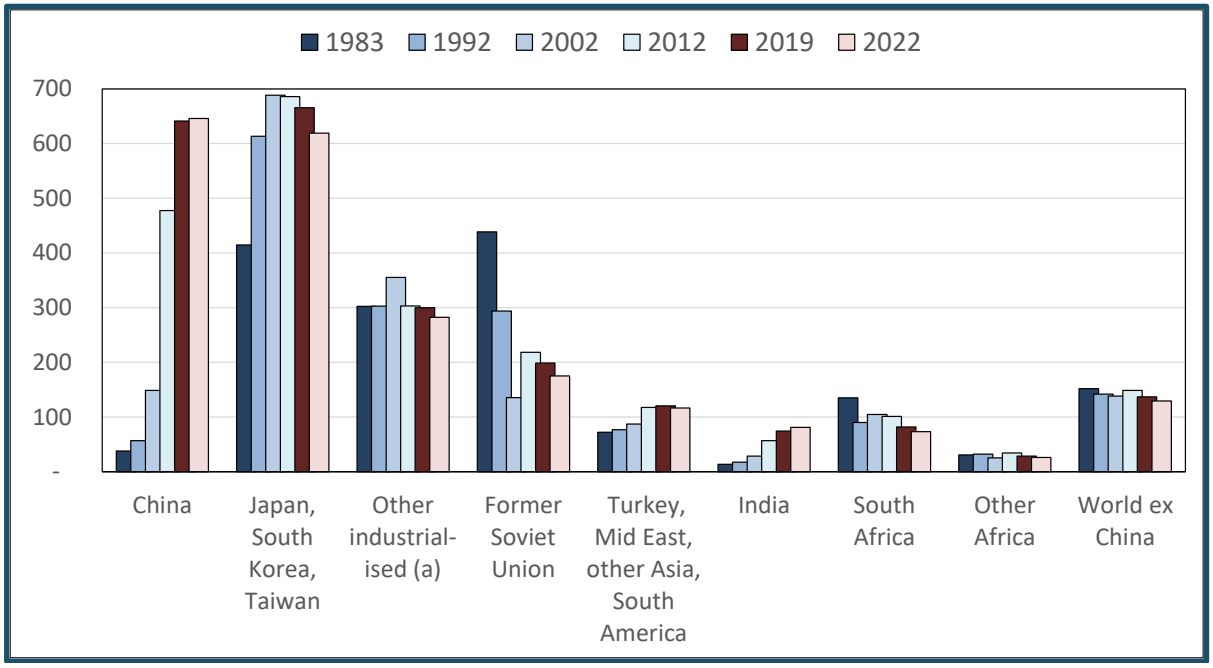


Source: Data on global steel production from World Steel Association. *World Steel in Figures.* Relevant years. Downloaded from https://worldsteel.org/data/world-steel-in-figures/ in May 2024. Data on South African steel apparent domestic consumption (local sales including imports) from South African Iron and Steel Institute. Historical time series. Spreadsheet. Downloaded from https://www.saisi.org/historical-time-series/ in May 2024. GDP data from World Bank. World Development Indicators. GDP in constant 2015 US dollars. Accessed at www.worldbank.org in May 2024.

In South Africa and the Global North, declining steel intensity stemmed principally from the shrinking share of goods industries relative to services, with the relocation of manufacturing especially to Asia; surging reliance on new plastics and metal alloys in manufacturing and construction; and the continual downsizing of machinery and appliances. For the world as a whole, the trend was offset in the 2000s by rapid growth in lower income countries, especially China and more recently India. As the following graph shows, outside of China, India and other parts of Asia and the Middle East, apparent steel consumption[7] per person declined over the past 40 years, despite increases in parts of the global South. Steel consumption in Africa outside of South Africa shrank off of an already low base.

[7] Apparent steel consumption is defined as finished steel production less exports, plus imports. It does not capture more highly manufactured products that are steel intensive, such as cars and machinery.

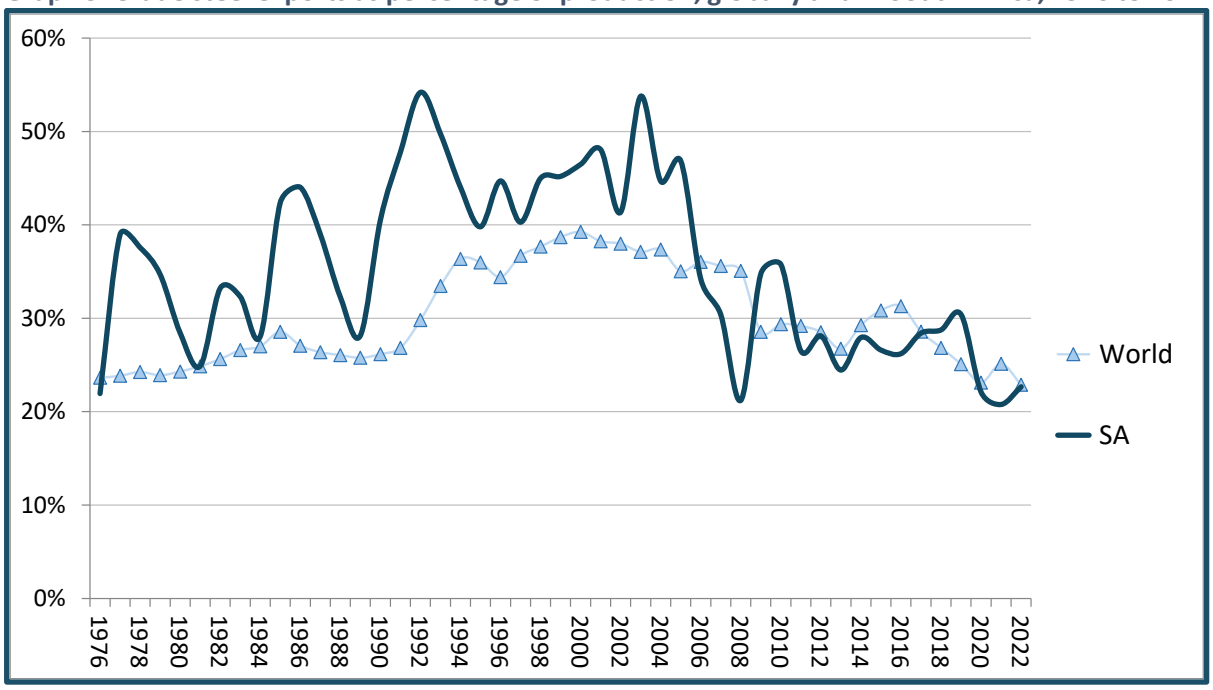
Graph 8. Apparent finished steel consumption per person by region, 1983, 1992, 2002, 2012, 2019 and 2022



Source: Calculated from World Steel Association. *World Steel in Figures*. Relevant years. (For 2002 and 2012, published by International Iron and Steel Institute.) Tables on apparent consumption of finished steel per capita. Accessed at https://worldsteel.org/data/world-steel-in-figures/ in May 2024.

In theory, South Africa could offset stagnant domestic demand by expanding exports. In practice, since 2005 steel exports have fallen faster than domestic sales. From 1976 to 2005, they climbed 3.3% a year in volume terms. They then shrank, on average, 4.2% a year through 2023. In consequence, steel exports in 2023 were back to 1977 levels. In 2005, exports constituted nearly 45% of total domestic steel production; in 2019, the figure was just 28%. During the COVID-19 downturn, exports plummeted to under 15% of South African steel production. They recovered slightly to 21% in 2023. (Graph 9)

Graph 9. Crude steel exports as percentage of production, globally and in South Africa, 1976 to 2022



Source: World data from World Steel Association. *World Steel in Figures.* 2023. Page 24. Downloaded from https://worldsteel.org/data/world-steel-in-figures-2023/ in May 2024, and International Iron and Steel Institute. *World Steel in Figures. 2003 Edition.* Page 13. Downloaded from https://worldsteel.org/wp-content/uploads/2003-World-Steel-in-Figures.pdf in May 2024. Data on South African steel apparent domestic consumption (local sales including imports) from South African Iron and Steel Institute. Historical time series. Spreadsheet. Downloaded from https://www.saisi.org/historical-time-series/ in May 2024. GDP data from World Bank. World Development Indicators. GDP in constant 2015 US dollars. Accessed at www.worldbank.org in May 2024.

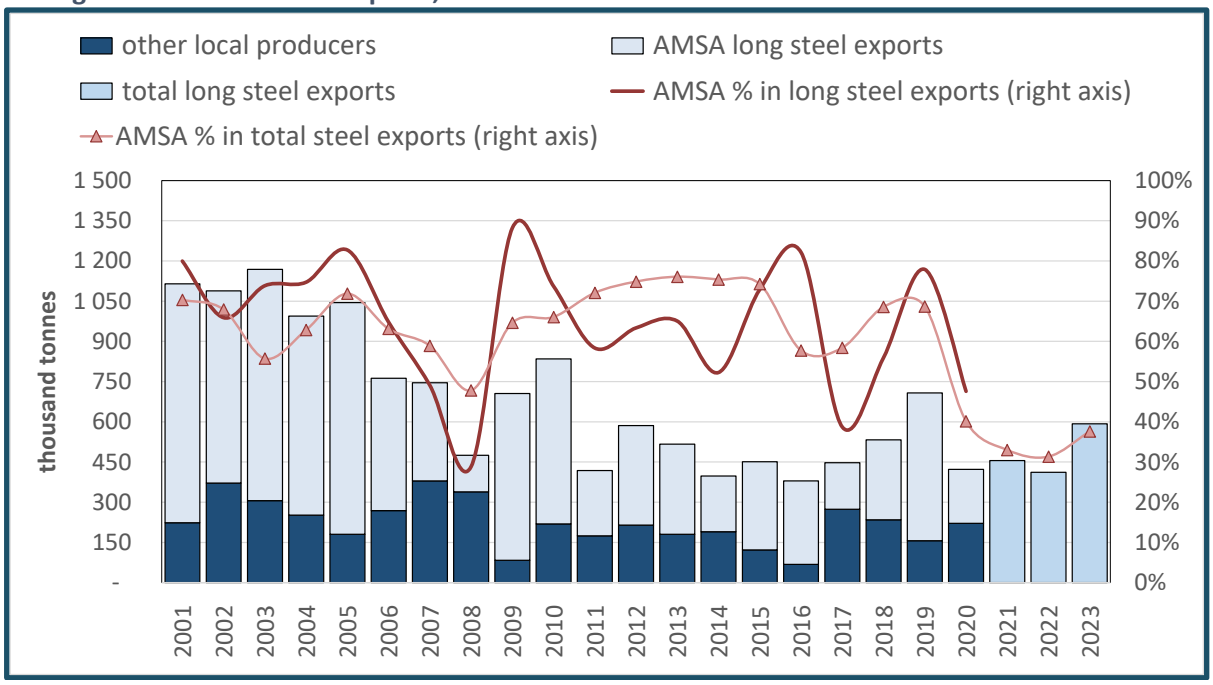
AMSA's long steel exports fell more sharply than flat steel from 2005 to 2020, after which the company stopped publishing figures for them. As Graph 1 shows, exports of long steel in volume terms declined by two thirds from 2005 to 2018. As a result, they dropped from over half of AMSA's long steel output to around a quarter in the late 2010s. In 2019, the trend reversed, as AMSA's long steel exports almost doubled before plunging in the 2020 pandemic downturn. AMSA's total foreign sales, including flat steel, tubes and byproducts, dropped 70% in 2020. In 2023, they were still more than 50% lower than in 2019, and less than AMSA's 2018 long steel exports alone (see Graph 5). AMSA's share in total steel exports, including flat steel, fell from 75% in the early 2010s to under 70% at the end of the decade, then plummeted to around 35% in the early 2020s.

Figures for national long steel exports reflect Newcastle's difficulties after 2020. In volume terms, South Africa's long steel exports shrank 40% in 2020, from 710 000 to 425 000 tonnes; remained essentially flat until 2022; then jumped back to almost 600 000 tonnes in 2023. (Graph 10) Interviews and AMSA's annual reports suggested that mini mills took a growing share in long steel exports in this period. Extrapolating from the limited information in AMSA's 2023 annual report, it increased its long steel exports around 100 000 tonnes in that year.[8] If that estimate is correct, then it accounted

[8] AMSA reported that its total long steel shipments had climbed 13% to 936 000 tonnes, with most of the increase going for exports. That would indicate an increase of 110 000 tonnes in total production.

for just over half of the growth in national long steel exports in 2023. That was lower than its share in national long steel exports from 2016 to 2019, when it contributed around two thirds of the total.

Graph 10. Exports of long steel by AMSA and other local producers, 2000 to 2023, and AMSA share in long steel and total steel exports, 2000 to 2020



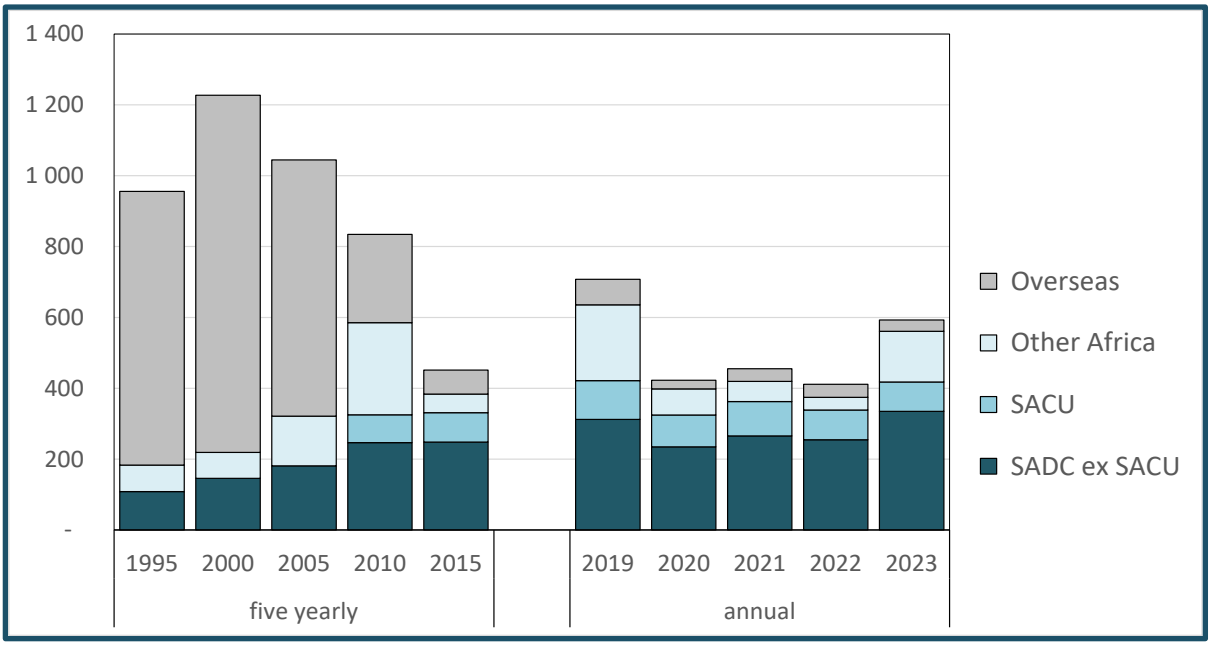
Source: AMSA data from annual reports for relevant years. Long steel export data from Quantec. EasyData. Interactive dataset. International trade series. Accessed at www.quantec.co.za in June 2024. Total steel export data from South African Iron and Steel Institute. Historical time series. Spreadsheet. Downloaded from https://www.saisi.org/historical-time-series/ in May 2024.

From the 2010s, AMSA was reportedly exporting steel at prices far below its domestic prices. In 2023, it said its net realised prices for exported hot rolled coil averaged 40% lower than its domestic sales price. It argued that its export push, which targeted West and East Africa (apparently Ghana and Kenya in particular), was nonetheless important to improve capacity utilisation, increasing its cash flow, and to tap into faster-growing markets. (AMSA 2023:52) As noted, the available evidence suggests that steel demand in Africa is low by global standards and not growing very fast (see Graph 11). Exports priced well below domestic prices effectively reduced AMSA's reported profits and consequently tax payments in South Africa.

The decline in AMSA steel exports, including long steel, from 2005 was associated with a shift away from its traditional markets in Asia and Europe to focus on other African countries. This approach aligned with the strategy of its parent company, Arcelor Mittal, to regionalise sales by its subsidiaries across the globe.

From 2005 to 2011, the share of AMSA's total exports going to other African countries rose from 23% to 68%. AMSA then stopped publishing figures on its exports by continent. Figures for South Africa's total long steel exports, which AMSA dominated through the 2010s, show a sharp shift after 2005 from overseas to African markets (Graph 12). Before 2010, however, sales to South African Customs Union (SACU) countries were not recorded as exports. As a result, until 2010 the data understate the total volume of exports and the share of Africa in particular. In 2010, other SACU countries accounted for 9% of South Africa's total exports of long steel by weight.

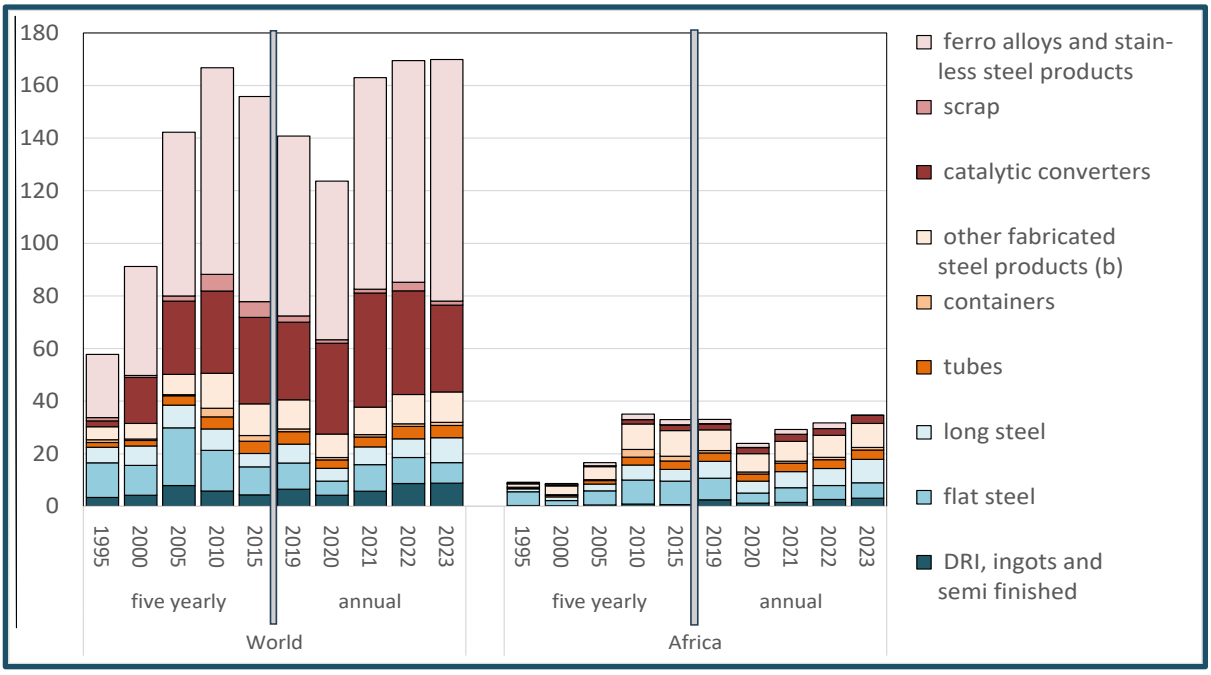
Graph 11. National exports of long steel to Africa (a) and overseas in thousands of tonnes, every five years from 2005 to 2015 (a) and annually from 2019 to 2023



Note: (a) Exports to SACU are only included from 2010. *Source:* Calculated from Quantec. EasyData. HS six series on South African national trade. Accessed at www.quantec.co.za in June 2024.

The decline in South Africa's overseas long steel exports was part of a broader fall in steel exports. The exceptions were ferro alloys, catalytic converters and scrap, which AMSA does not produce and which remain heavily focused on overseas markets. Ferroalloys and catalytic converters have far exceeded the value of other steel exports since the mid-2010s. Under 10% of South African exports of these products go to other African countries.

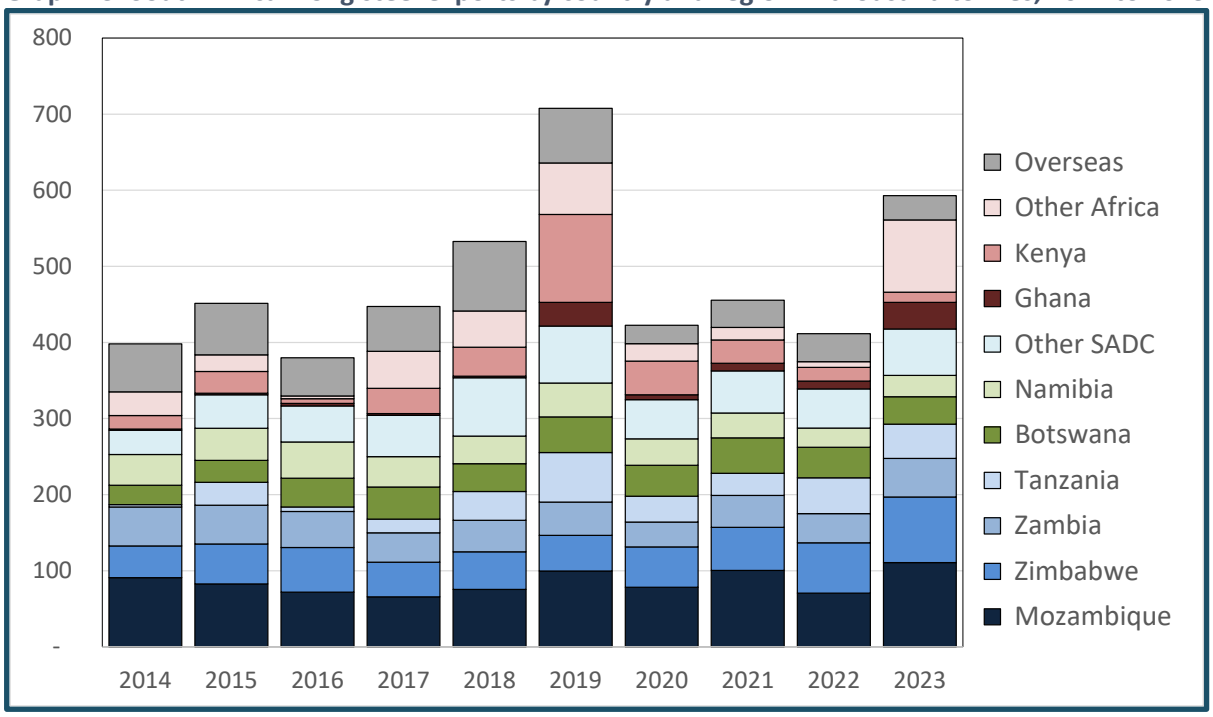
Graph 12. Exports of steel products to other African countries and to the rest of the world, in billions of constant (2023) rand (a), every five years from 2005 to 2015 and annually from 2019 to 2023



Note: (a) Reflated with CPI rebased to 2024. Exports to SACU are only included from 2010. (b) Structural steel, cutlery, hand tools, rail, etc. (c) Directly reduced iron. *Source:* Calculated from Quantec. EasyData. HS six series on South African national trade. Accessed at www.quantec.co.za in June 2024.

Within Africa, South African exports went principally to South African Development Community (SADC) member countries. SADC's share in South African long steel exports averaged 70% from 2015 to 2019, and over 75% from 2020 to 2023. Sales to SADC were fairly stable from the mid-2010s. Spikes in long steel exports in 2019 and 2023 resulted primarily from very large once-off consignments outside of SADC to Kenya in 2019, and to Ghana and, to a lesser degree, Senegal, Burkina Faso and Togo in 2023. Other leading African economies, including Nigeria and Ethiopia, were not major markets. (Graph 13) AMSA accounted for the bulk of long steel exports to Kenya in the late 2010s, but those sales declined sharply from 2020. The East African Community levied a 25% duty on steel imports, which should decline gradually over the coming decade if the African Continental Free Trade Area agreement comes into force as envisaged.

Graph 13. South African long steel exports by country and region in thousand tonnes, 2014 to 2023



Note: (a) Exports to SACU are only included from 2010. (*Source:* Calculated from Quantec. EasyData. HS six series on South African national trade. Accessed at www.quantec.co.za in June 2024.

Despite some improvement in exports in 2023, although at cut prices, the long-term stagnation in steel demand in South Africa and the region remained a critical challenge for AMSA long steel production. Stagnant demand in South Africa reflected a broader shift away from steel use. On the rest of the continent, per capita consumption was very low by international standards. It had nonetheless inched downward over the past years. It seems unlikely that AMSA can return to markets in Europe and Asia, given intensified Chinese competition combined with rising protectionism in the Global North. In these circumstances, to expand its output, it would have to find ways to compete more effectively on domestic and regional markets.

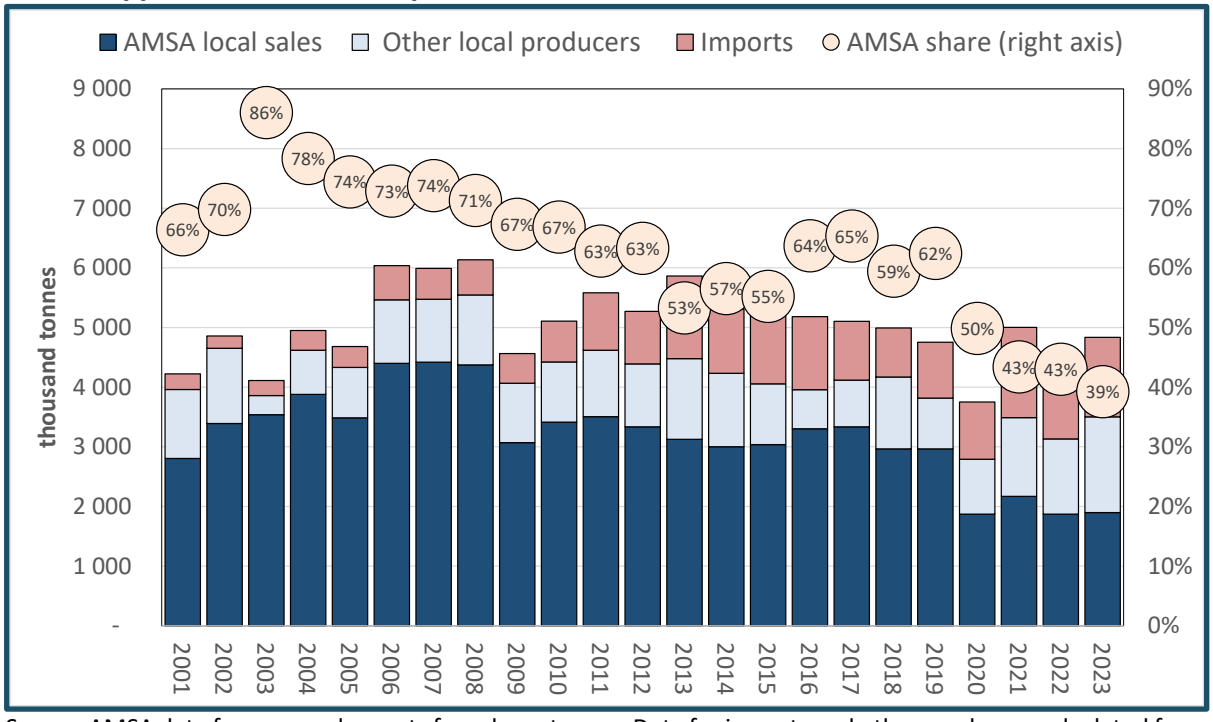
2.1.2 AMSA's market share

From 2017, AMSA's annual reports complained of growing local competition, mostly from local mini mills. In 2023, according to AMSA's annual report, demand for long steel in South Africa was 1,8 million tonnes a year. That was equal to Newcastle's production capacity, and well below total local long steel capacity of 2,7 million tonnes. (AMSA 2023:13) In 2019, AMSA reported that its market share in long steel had fallen to 58%, down from 87% in 2016. It did not publish similar figures thereafter. Its main competitors from the mid-2010s were local mini mills that produced almost exclusively long steel products. In response, AMSA focused increasingly on higher-grade products for auto and other value chains, which mini mills could not produce unless they invested in substantial upgrades. Long steel imports remained relatively small through 2023.

Given essentially flat demand, AMSA's falling market share translated into declining sales and low capacity utilisation – below 55% at Newcastle compared to 60% in Vanderbijlpark. (AMSA 2023:53) AMSA did not publish data on its share in long steel sales in other years. As its total steel output declined through the 2010s, its share in apparent steel consumption for all products (defined as local

production less exports plus imports) dropped from nearly 75% in the mid-2000s to around 60% in the late 2010s and 40% after the 2020 pandemic.[9] (Graph 14)

Graph 14. Local steel sales by AMSA and other local producers and imports, and AMSA share in total apparent steel consumption, 2001 to 2023



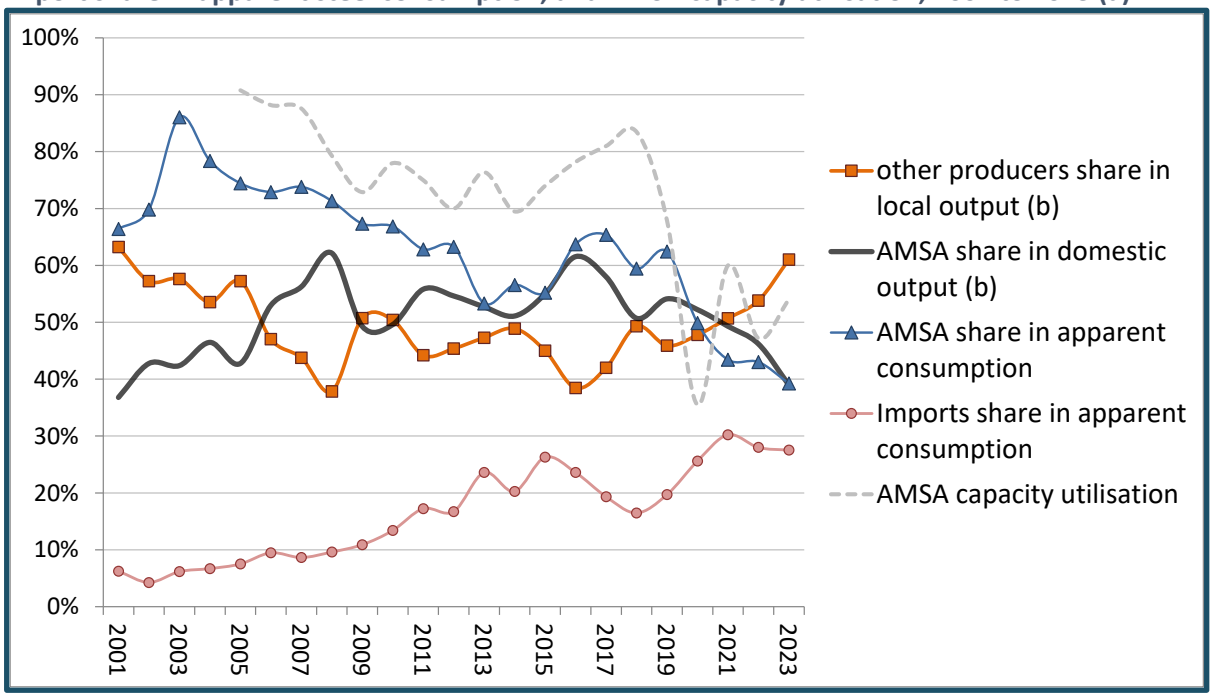
Source: AMSA data from annual reports for relevant years. Data for imports and other producers calculated from AMSA figures and South African Iron and Steel Institute. Historical time series. Spreadsheet. Downloaded from https://www.saisi.org/historical-time-series/ in May 2024.

As Graph 15 shows, based on AMSA annual reports and South African Iron and Steel Institute (SAISI) data, the share of mini mills in South African steel production climbed from under 40% in the mid-2010s, when government began to encourage mini mill production, to 60% in 2023. From 2019 to 2023, mini mill output almost doubled. Government supported these companies from the mid-2010s, in part to limit AMSA's market power. It provided two kinds of assistance. First, the IDC extended financing to the mini mills. Second, the government limited exports of ferrous scrap, and banned it outright from 2022 to 2023. The result was a sharp fall in the cost of scrap to the mini mills, which use it instead of ore.

In effect, government export restrictions pushed the local cost of scrap production toward its production costs plus a normal rate of profit. That was generally far lower than the international price. Conceptually, limiting scrap exports moved rents away from the original producers and recyclers to downstream mini-mill manufacturing and ultimately to their domestic and foreign customers. The result was reduced prices for long steel in South Africa and across the region – but a lower market share for AMSA. AMSA itself estimated that the mini mills could produce basic long steel products for around 10% less than its own unit costs in 2023, or R1800 per tonne. (AMSA 2023:12)

[9] AMSA's annual reports provide figures for market share from the mid-2010s. It made domestic market share a KPI in 2017. Its figures conform to the trend in Graph 14, which are calculated using SAISI data on apparent steel consumption, but are generally a percentage point or two lower than AMSA's own calculations.

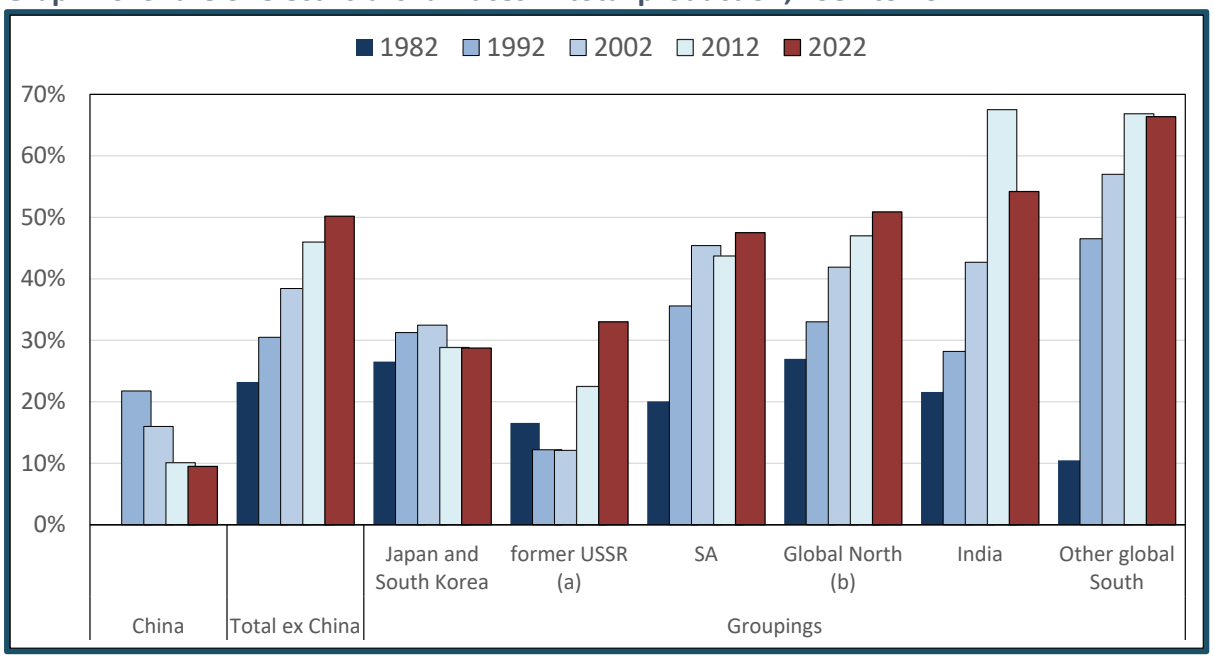
Graph 15. AMSA and other local producers' share in total steel domestic production, AMSA and import share in apparent steel consumption, and AMSA capacity utilisation, 2001 to 2023 (a)



Notes: (a) Apparent consumption equals production less exports, plus imports. AMSA's capacity utilisation is affected by production but also by its on-line capacity, which is affected both by investment in additional capacity and the closure of older or unneeded facilities. AMSA's own figures for market share, which it published from 2017, are slightly higher but follow the same trend. (b) Including production for export. *Source:* AMSA data from annual reports for relevant years. Data for imports and other producers calculated from AMSA figures and South African Iron and Steel Institute. Historical time series. Spreadsheet. Downloaded from https://www.saisi.org/historical-time-series/ in May 2024.

The emergence of mini mills in South Africa reflected the global trend outside of China and India. These mills are relatively small, which means they require limited new investment and are flexible. If they use scrap and renewable energy, they generate comparatively limited greenhouse gases. Excluding China, the share of electric arc furnaces in international steel production climbed from 23% in 1982 to 50% in 2022. In the Global South outside of China, electric arc furnaces accounted for 60% of steel production in 2022. In contrast, in China the huge increase in steel production from 2000 was still driven by huge, often state-owned integrated mills using oxygen-blast furnaces. (Graph 16)

Graph 16. Share of electric-arc furnaces in total production, 1982 to 2022



Source: Calculated from World Steel Association. *World Steel in Figures*. Relevant years. (For 2002 and 2012, published by International Iron and Steel Institute.) Tables on production by process. Accessed at https://worldsteel.org/data/world-steel-in-figures/ in May 2024.

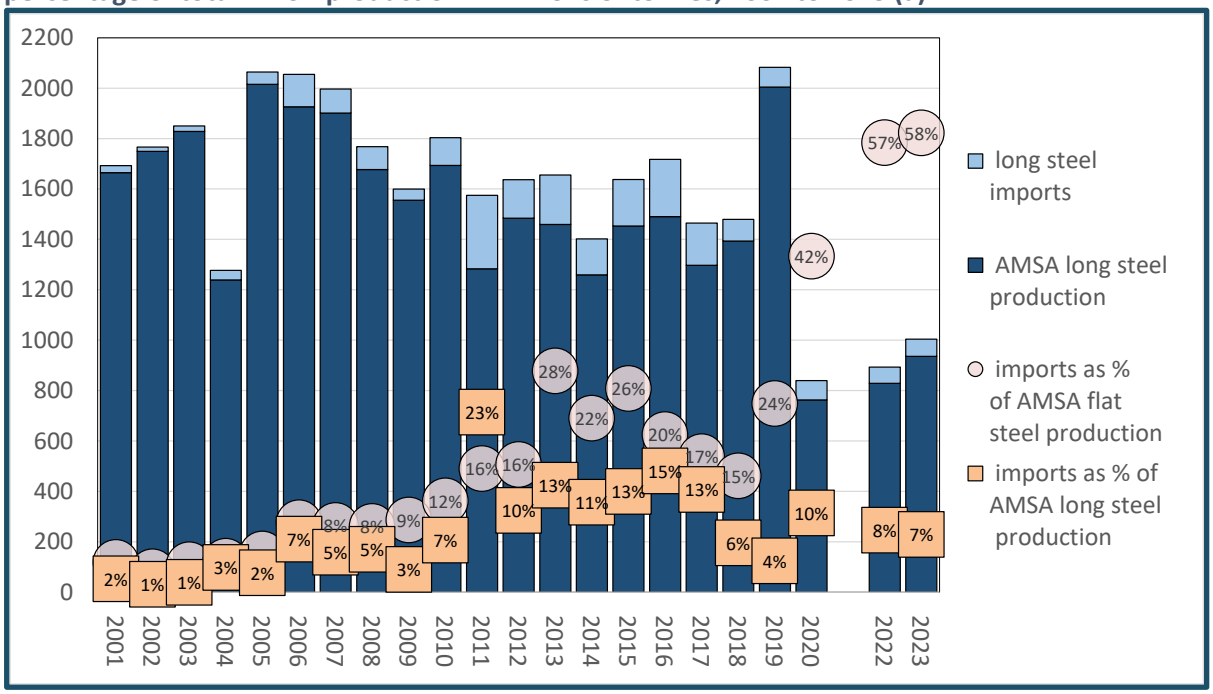
In South Africa, the rising cost of electricity in the 2010s slowed the use of electric furnaces. AMSA in particular shut down some of its electric-arc production. Nationally the trend reversed in the late 2010s, however. In 2022, the share of electric furnaces climbed to over 45%. The uptick mostly resulted from highly competitive production of comparatively low-cost long steel products by mini mills. Given flat demand for long steel, the result was a decline in market share and long steel demand for AMSA.

Highly competitive mini mills production helped hold down the share of imports in long steel sales in South Africa. By volume, long steel imports fell from an average of 184 000 tonnes a year in the mid-2010s to 66 000 tonnes annually in 2022 and 2023. In the first quarter of 2024, long steel imports almost doubled compared to the quarterly average for 2023, to 33 000 tonnes. It was not yet clear if that increase would be sustained.

The trends for long steel through 2023 contrasted with escalating flat steel imports. As a result, the share of long products in total steel imports declined precipitously in the early 2020s. In the 2010s, long steel made up around 30% of steel imports, but the figure dropped to 10% in 2022 and 2023. The decline in imports reflected, in part, the emergence of highly competitive mini mills in long steel production. Domestic flat steel did not experience a similar growth in low-cost output, leaving it comparatively vulnerable to foreign competitors.

The fall in long steel imports through 2023 meant they represented a diminishing threat to AMSA's market share. In 2022 and 2023, long steel imports equalled less than 8% of AMSA's total long steel output, down from 13% from 2013 to 2015. If AMSA's output had remained at 2015 levels, imports would have equalled less than 5% of its sales. In contrast, AMSA faced an on-going squeeze from flat-steel imports. In the early 2020s, imports equalled over half of AMSA's flats production, up from a fifth in the 2010s. (Graph 17)

Graph 17. Long steel imports, including structural steel, and long steel and flat steel imports as percentage of total AMSA production in millions of tonnes, 2001 to 2023 (a)

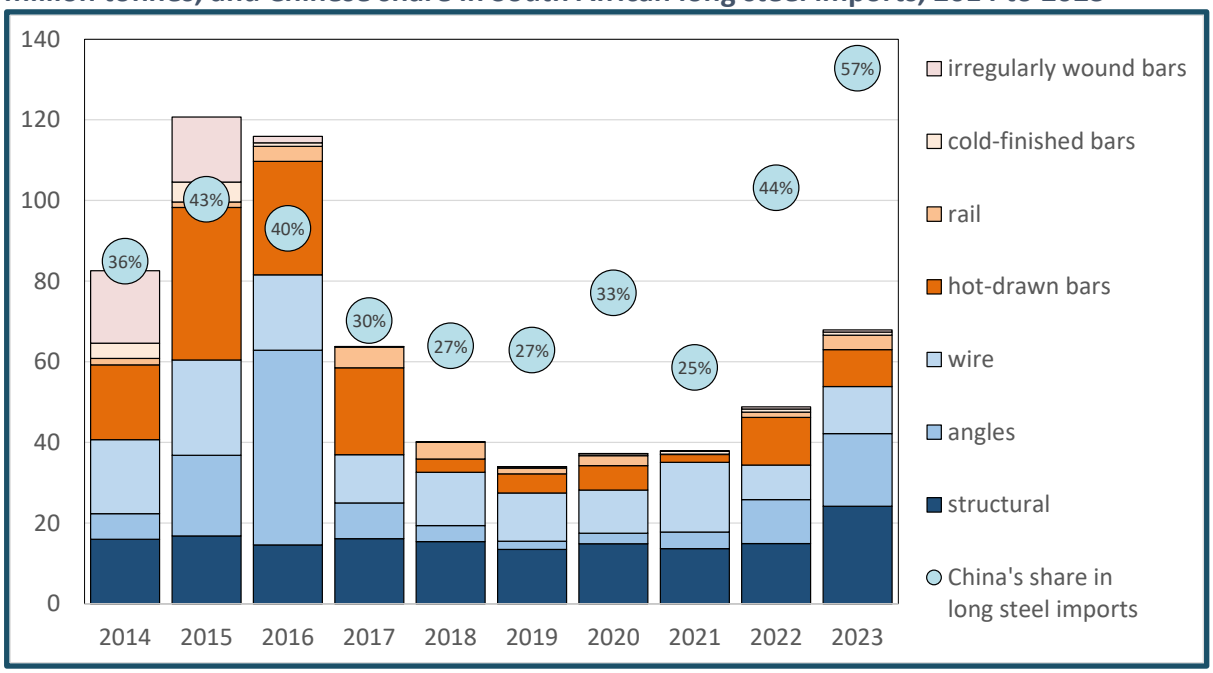


Note: (a) AMSA did not publish data for its long and flat steel output in 2021. Data for 2022 are based on figures for output and growth in 2023. Long steel includes structural steel and rail. AMSA total production includes exports, so imports would equal a somewhat higher share of its domestic sales. *Source:* Calculated from Quantec. EasyData. Interactive dataset. National trade data HS-8. Accessed at www.quantec.co.za in July 2024; and AMSA annual reports for relevant years.

Trends in long steel imports could change as a result of an export push from China, the world's dominant steel producer. Following the 2020 pandemic downturn, China faced a crisis in residential construction amidst a broader economic slowdown. That in turn led to a decline in its domestic demand for long steel.

In the mid-2010s, China accounted for around 25% of South Africa's long steel imports in the mid-2010s, but its share jumped to 45% in 2022 and 2023. (Graph 18) Nonetheless, in constant rand, the average unit price of most long steel imports from China climbed in 2023, although the unit price for angles dropped. Angles accounted for a disproportionate share of the increase in Chinese exports of long steel to South Africa in 2023.

Graph 18. South African imports from China of long steel and downstream products, in million tonnes, and Chinese share in South African long steel imports, 2014 to 2023



Source: Calculated from ITC. TradeMap. Interactive dataset. Accessed at www.trademap.org in May 2024.

In 2022, AMSA planned to maintain its market share by concentrating on higher grade products for selected manufacturers, especially in auto and rail – that is, to "integrate into selected high-added-value product niches". (AMSA 2023:16) In 2023, AMSA said that it sold 450 000 tonnes of specialised steels, equal to around half of its longs outputs by weight. As discussed in Section 4, the mini mills could only compete in these higher quality products if they invested in new finishing technologies, and they might have to shift from scrap to DRI as their main input.

AMSA's inability to compete with the mini mills and imports sets key parameters for an evaluation of policy options. More competitive steel prices would reduce costs for construction and steel-based manufacturing across the economy. But it would also require downstream customers for AMSA's higher grade products to find new suppliers, which would involve some transition costs. If the mini mills could not match AMSA's specialised steel output, the country could end up relying more on imports. These challenges are explored in the sections on downstream customers and the mini mills.

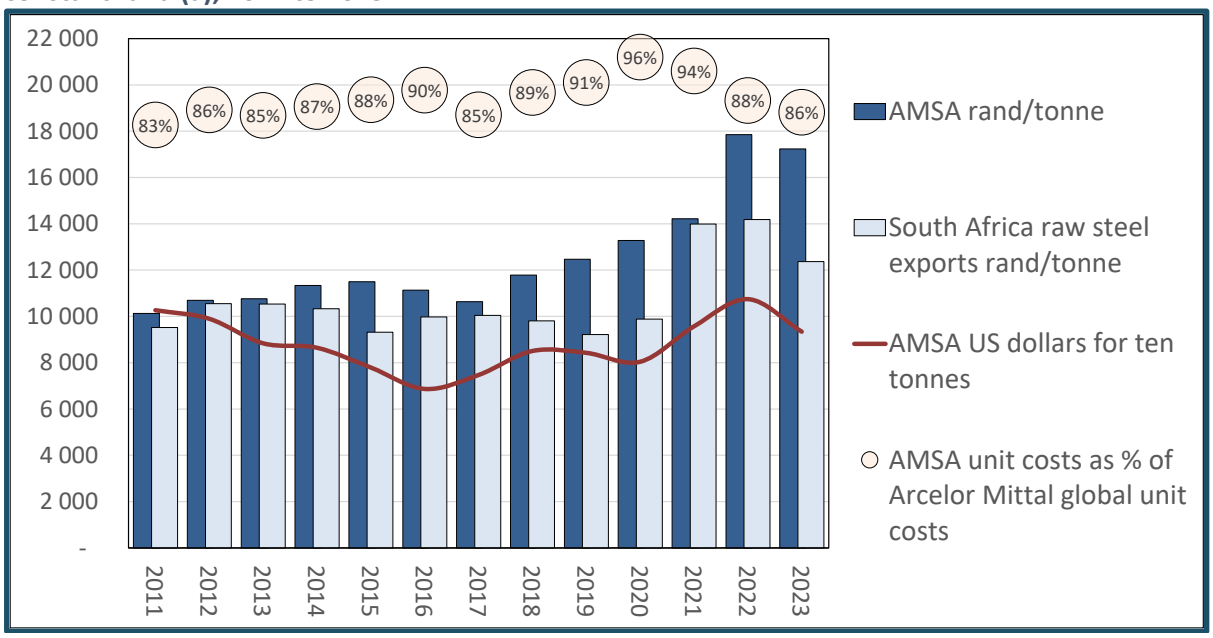
2.1.3 Cost drivers

AMSA faced a surge in raw materials, energy and bulk freight costs from the late 2010s. These increases affected the mini mills substantially less than AMSA. They relied on scrap instead of ore, and the scrap price was largely delinked from global markets. Moreover, the mini mills were located around metro areas, which reduced their vulnerability to Transnet's travails. Finally, processing scrap requires less energy than producing steel from ore.

AMSA unit costs increased from the late 2010s, with a spike in 2022 when the Russian invasion of Ukraine pushed up iron ore and coal prices. For Newcastle, interruptions at Transnet added to raw materials costs. AMSA also faced rising costs for energy, in large part thanks to Eskom's steep tariff hikes and load reductions. In 2023, impairments declared for Newcastle in light of persistently low capacity and losses offset a modest decline in input costs.

AMSA's operating costs per tonne exceeded national export prices for most of the decade, and generally equalled average import prices. AMSA reported that in US dollar terms it was competitive with Arcelor Mittal's global operations. In 2020, its total operating costs declined because of plummeting output, but its unit costs increased until 2023, when they fell slightly.

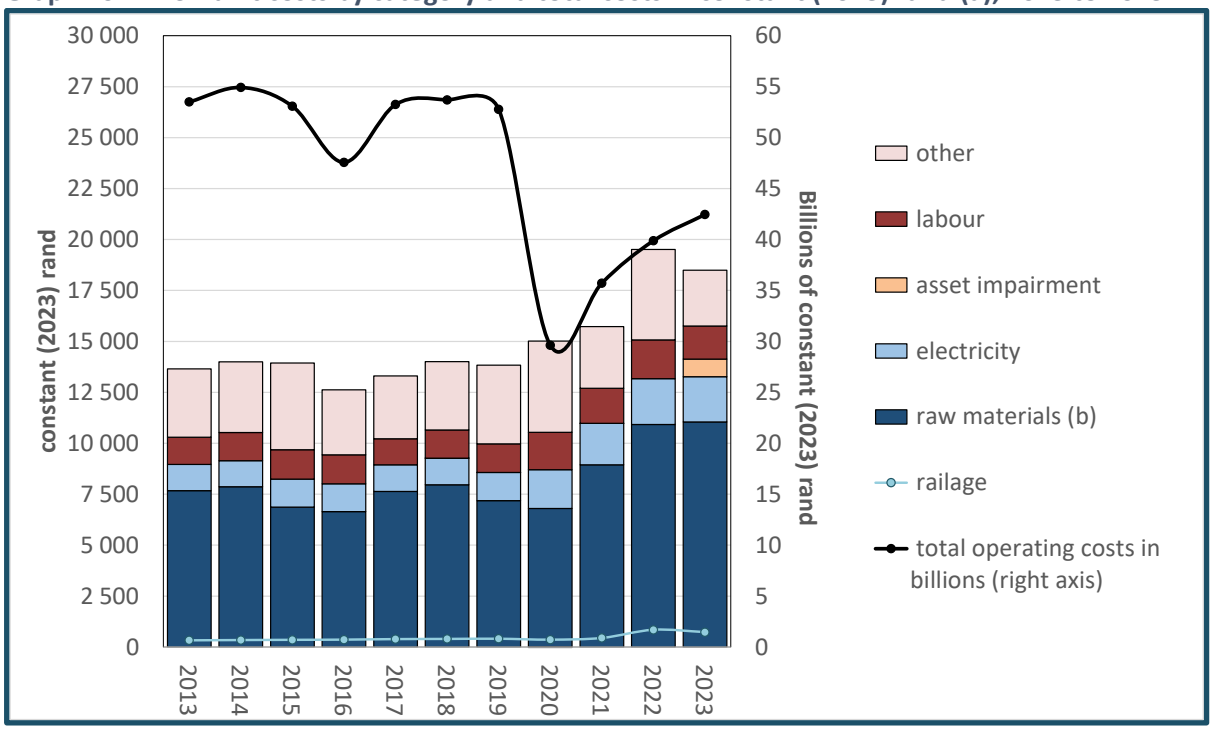
Graph 19. AMSA unit costs per tonne in constant (2022) rand and US dollars and as percentage of Arcelor Mittal global unit costs in US dollars, and South African export unit cost per tonne in constant rand (a), 2011 to 2023



Note: (a) Rand prices reflated with South African CPI rebased to 2023. US dollars prices reflated with US CPI rebased to 2023. AMSA costs in rand calculated using AMSA published figures in US dollars and South African Reserve Bank (SARB) figures for annual mid-term US/rand exchange rate. South African export unit costs include all forms of raw steel except alloys and stainless. *Source:* Figures for AMSA and Arcelor Mittal from annual reports for relevant years. Export unit price calculated from Quantec. EasyData. Interactive dataset. National trade series. Accessed at www.quantec.co.za in June 2024. US/rand exchange rate calculated from SARB. Online Statistical Query. Interactive dataset. Accessed at www.resbank.co.za in June 2024.

The main cost drivers for AMSA were iron ore, coal and electricity. Transport was increasingly important, but in AMSA's reports it was mostly included under raw materials costs. Commodities contributed between half and two thirds of AMSA's unit costs. Iron ore accounted for almost 40% of its total raw materials costs; coking coal for 50%; and the rest was scrap.

Graph 20. AMSA unit costs by category and total costs in constant (2023) rand (a), 2013 to 2023

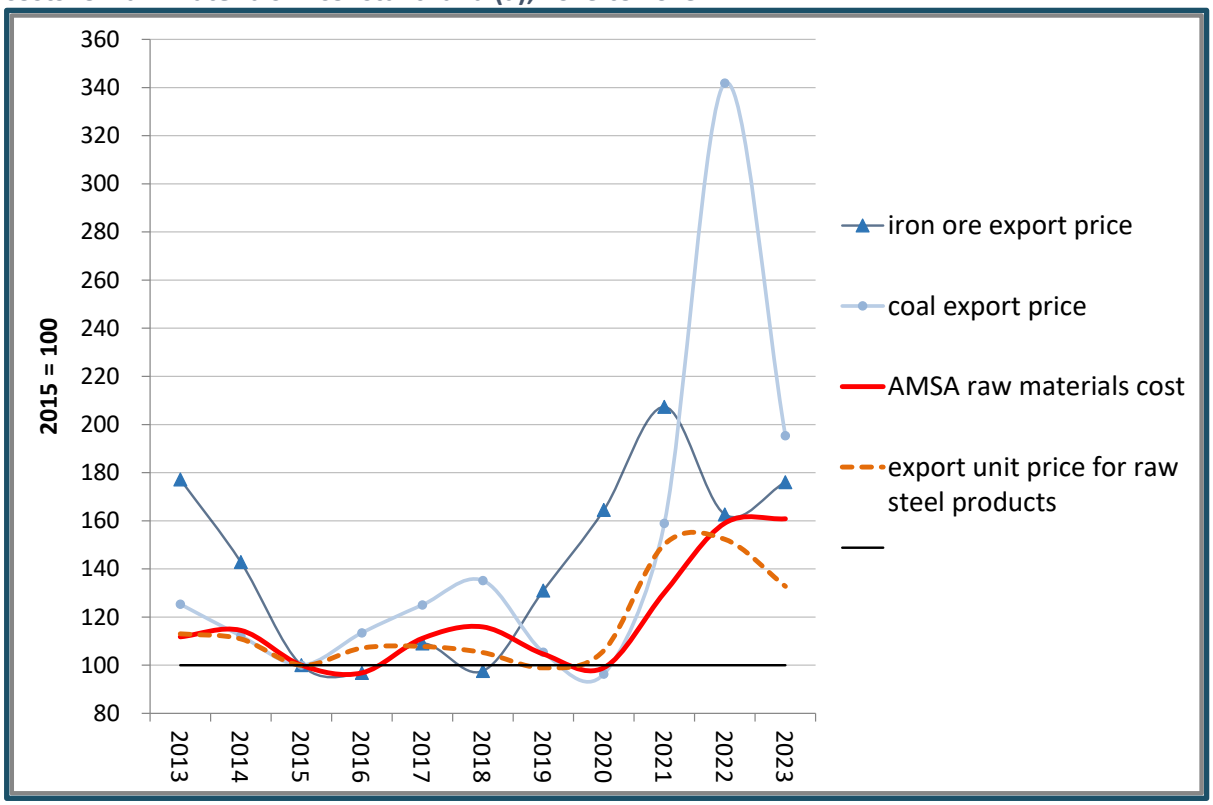


Note: (a) Reflate with CPI rebased to 2023. *Source:* Calculated from total cost and output figures in AMSA annual reports for relevant years.

From the mid-2010s, AMSA entered into arrangements with relatively low-cost ore and coal suppliers in South Africa and Zimbabwe. As a result, it was able to hold its procurement prices well below global prices. In 2023 it estimated that it paid US$83 a tonne for iron ore at Newcastle, compared to the world price of US$120 a tonne. (AMSA 2023:55) In essence, the smaller mines with which it contracted had limited bargaining power. Several lacked affordable rail transport to the coast, so that AMSA did not have to compete with overseas customers. In 2023, however, AMSA reported that quality and production problems with local and regional coal and coke suppliers meant it ended up using mostly high-priced overseas imports.

In effect, AMSA's procurement strategy meant that it captured a portion of the rents on iron ore and coal from upstream producers. This approach effectively reinstated a historic pillar of steel production in South Africa, which was to access rich local ore and coal at prices well below world market levels. But the new arrangements only ensured a discount on international prices. Its payments still tracked international fluctuations, as Graph 21 indicates. As a result, when global iron ore and coal prices hit historic highs in 2022, AMSA's raw materials costs climbed faster than steel export prices. World iron ore and coal markets fell sharply in 2023 and then levelled out in the first half of 2024. In constant rand terms, however, they remained around 80% higher than in the mid-2010s. In US dollars, international coal prices in mid-2024 approximated their levels in the commodity boom of the 2000s.

Graph 21. Indices of South African export unit prices for iron ore, coal and raw steel, and AMSA unit costs for raw materials in constant rand (a), 2013 to 2023



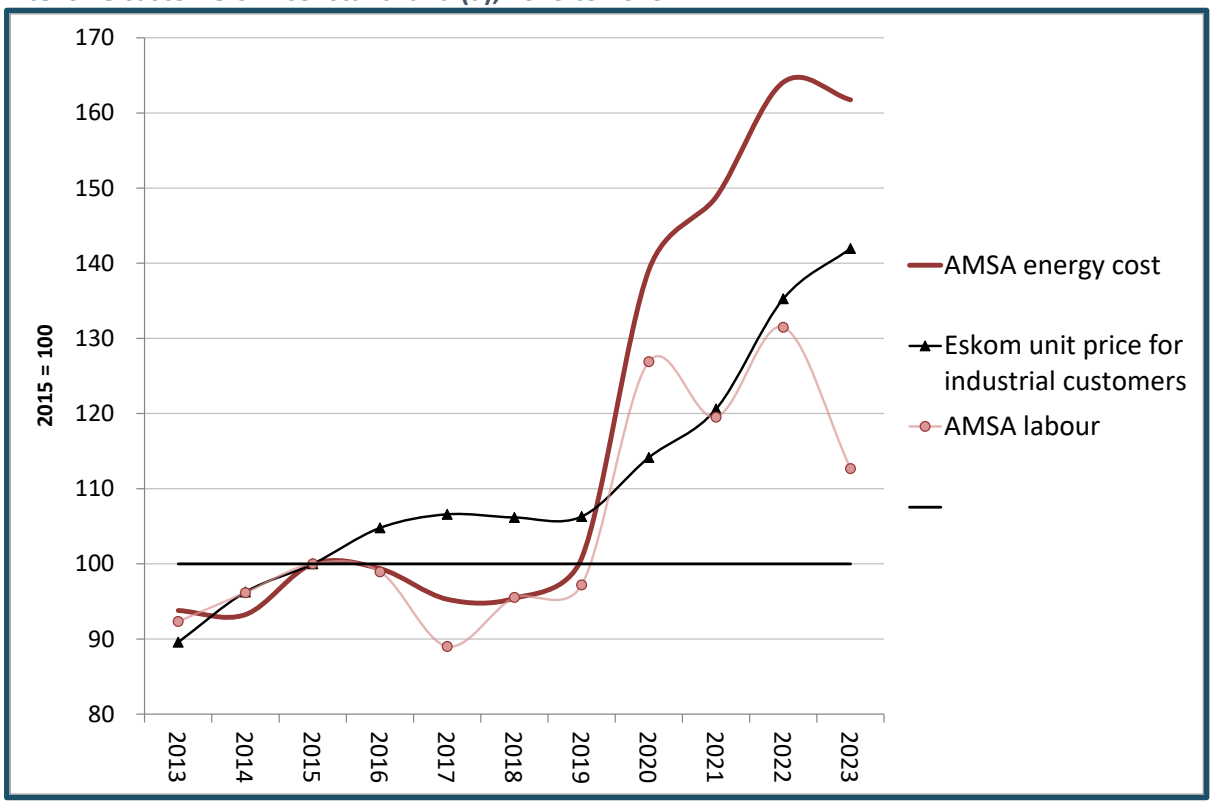
Note: (a) Deflated with CPI. *Source:* Export unit prices calculated from Quantec. EasyData. Interactive data set. National trade series. Accessed at www.quantec.co.za. AMSA raw materials costs from AMSA annual reports for relevant years.

Problems with Transnet rail and port services, especially from 2020, increased AMSA's costs for transporting iron ore and coal to Newcastle. AMSA suffered significant delays in deliveries, which in turn led to shutdowns and a shift to higher cost (and more polluting) road freight. In 2023, around a third of its shipments of bulk inputs were carried by road, substantially more than in 2022. Before 2021, in contrast, it had relied almost exclusively on Transnet for bulk shipments of iron ore, coal and steel. In the third quarter of 2023, the Newcastle blast furnace closed for over a month as a result of Transnet interruptions. AMSA estimated the direct cost of the closure at R116 million.

AMSA placed the total cost of Transnet's shortcomings in 2023 at over R1.4 billion, mostly because of the higher cost of road freight and the need to pay demurrage to shippers when the ports imposed delays. (AMSA 2023:39) That equalled 3.3% of its total operating costs. Railage alone climbed from 3% of AMSA's operating costs in the 2010s to 5% in 2022 before falling back to 4% in 2023. In 2023, it cost a total of R1.8 billion.

Energy costs, including both electricity and gas, were less important for AMSA than raw materials, but climbed sharply in recent years. AMSA's cost per tonne for energy rose 65% from 2019 to 2022 in constant rand terms, then fell slightly. (Graph 22) AMSA does not publish energy intensity separately for Newcastle. (AMSA 2023:6)

Graph 22. Indices of AMSA unit prices for energy and for labour and Eskom tariff for energy-intensive customers in constant rand (a), 2013 to 2023



Note: (a) Deflated with CPI. *Source:* Calculated from AMSA and Eskom annual reports for relevant years.

Higher energy prices resulted in large part from rising tariffs and load reduction imposed by Eskom. From 2019 to 2023, the average electricity tariff to large energy-intensive customers like AMSA, which it supplies directly, climbed 34% above inflation. These customers typically also had to agree to caps on their energy use in order to avoid loadshedding.

In the 2010s, AMSA made substantial efforts to reduce energy use as Eskom's prices rose while its services deteriorated. It cut its electricity use per tonne by around 10% over the decade to 2023. It also used by-products (especially gas) to generate between 5% and 10% of its electricity requirements. That practice meant, however, that its self-generation dropped when its output declined. As a result, AMSA's electricity output shrank from around 250 GWh in the late 2010s to 215 GWh in 2020 and 2021. Technical faults reduced the amount further to 125 GWh in 2023. In 2024, AMSA planned to upgrade its plant to return to over 200 GWh.

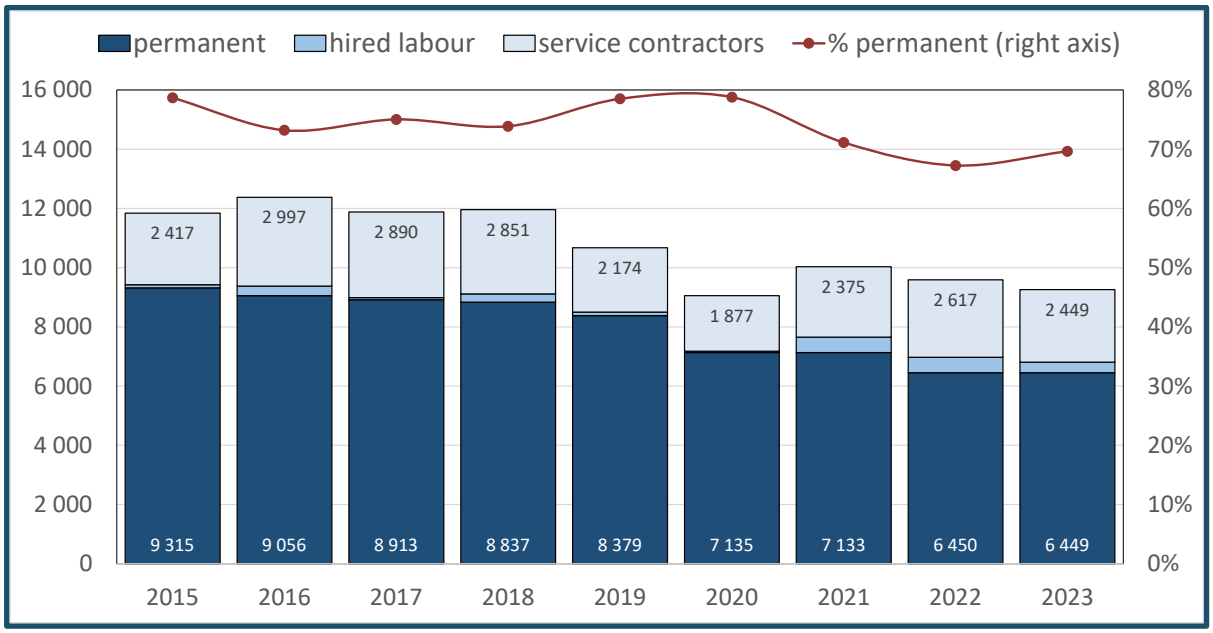
In theory, AMSA could cut its long-term costs by shifting to off-grid renewable electricity. For most consumers, the main obstacle to new plants is the up-front cost for batteries and generation equipment. In the long run, these investments should be paid for by lower generation costs. Given AMSA's poor financial state, however, obtaining private financing would likely be difficult, although it could draw on international carbon offset schemes.

The scale of AMSA's electricity use is a further challenge to going off-grid. In 2023, AMSA purchased 1,6 TWh of electricity, or 0.6% of Eskom's sales. That was down from 3.5 TWh, or almost 3% of Eskom's total sales, a decade earlier. Still, the scale was enormous. It would require a minimum of a gigawatt of solar capacity and storage, more than three times the size of the largest solar farm registered with the National Energy Regulator of South Africa (Nersa) as of mid-2024. (SAPVIA 2024) AMSA completed

a 200 MW solar plant in Vanderbijlpark in 2023, which will also help supply the town. (AMSA 2023:51) A solar farm to supply the Newcastle plant would likely have to be substantially larger.

Unit labour costs jumped in the 2020 downturn (see Graph 22) because, as its output slumped, AMSA did not lay off an equivalent number of employees. It had already cut 1200 permanent positions in 2019, as part of a planned restructuring, and reported an additional 500 permanent and 800 contract jobs lost when it closed down its Saldanha plant that year. (AMSA 2019:52) Since 2020, AMSA has accelerated downsizing as well as shifting away from permanent employment. From 2019 to 2023, it lost 1930 permanent positions, or 23% of the total. At the same time, it increased contracted employment (both hired labour and service contractors) by over 500, or 13%. As a result, the share of permanent workers in its total employment dropped from 79% in 2019 to 70% in 2023. Its total employment, including contract work, was down by 1400 in 2023 compared to 2019, or 13%. (Graph 23) At the same time, AMSA reached agreements that held pay increases to near inflation. From 2018 to 2023, its average cost of employment in constant rand terms shrank by around 10%.[10]

Graph 23. AMSA employment by employment status, and share of permanent workers, 2015 to 2023



Source: AMSA annual reports for relevant years.

In 2023, impairments assessed at Newcastle cost AMSA R2.1 billion, contributing 5% to its total costs. In effect, AMSA wrote down the value of assets at the plant in light of persistent under-capacity use. For comparison, in 2020 AMSA claimed around R700 million (reflated to 2023 rand) for impairments when it mothballed its Saldanha plant, which employed more than a third as many people as Newcastle.

In short, AMSA faced a cost squeeze from the mid-2010s, mostly because of rising prices for iron ore and coal despite the company's effort to shrink the rents going to local and regional mines. The impacts were aggravated by the increasing costs and disruptions at Transnet and Eskom following the pandemic downturn. Because the mini mills had a fundamentally different input structure and were

[10] In 2019, AMSA showed a jump in remuneration costs, presumably due to the cost of packages associated with downsizing in that year.

located closer to key markets, they were much less affected than AMSA by rising world commodity prices as well as freight and electricity costs.

Ultimately, integrated steel production in South Africa can only compete internationally if it benefits from national and regional ore and coal resources. That in turn requires that integrated steel producers like AMSA are able to pay closer to the domestic cost of production, rather than tracking export-parity prices. That strategy has effectively been pursued by Sasol and Columbus Steel, both of which own their own mines.

2.2 AMSA's proposals for Newcastle

In late 2023, AMSA announced it would have to close its operations in Newcastle unless government stepped up support. It has since then delayed a final decision indefinitely while it negotiates for support from government, its customers and workers. In the interim, with IDC support, it set up a working-capital facility of R1 billion. (AMSA 2024)

AMSA argued that it had controlled key costs – iron ore and coke plus labour – as far as it could in recent years. In its view, the challenges to Newcastle therefore arose principally from:

- Government support for mini mills, which enabled them to undercut Newcastle;
- Inadequate infrastructure investment, resulting in weak demand for long steel;
- Competition from imports (although that view is not borne out by the data for long steel as of 2023); and
- Rising costs for electricity and freight as Eskom and Transnet services worsened.

For Newcastle to remain open, AMSA said it would require the following. (See AMSA 2024)

1. Improved Transnet services. In 2024, AMSA said it had made some progress in working with Transnet to achieve these aims.
2. Measures to limit competition from both domestic products and imports. Specific proposals included: ending all restrictions on scrap exports; increasing tariffs on long steel products by up to 25%; and long-term off-take agreements with public and private customers.
3. Increased public investment in steel-intensive projects, in order to increase overall demand for long steel. In effect, that would mean government should shape its infrastructure programme to benefit the steel industry, rather than prioritising social and economic needs.
4. Concessions from suppliers and labour to further reduce its cost structure. In mid-2024, it argued that the unions had not yet made adequate concessions, but did not spell out its demands.

AMSA's proposals notably did not request government intervention to delink the prices for iron ore and coal from global markets. That would shift the rents to downstream users in a manner analogous to the restrictions on scrap exports.

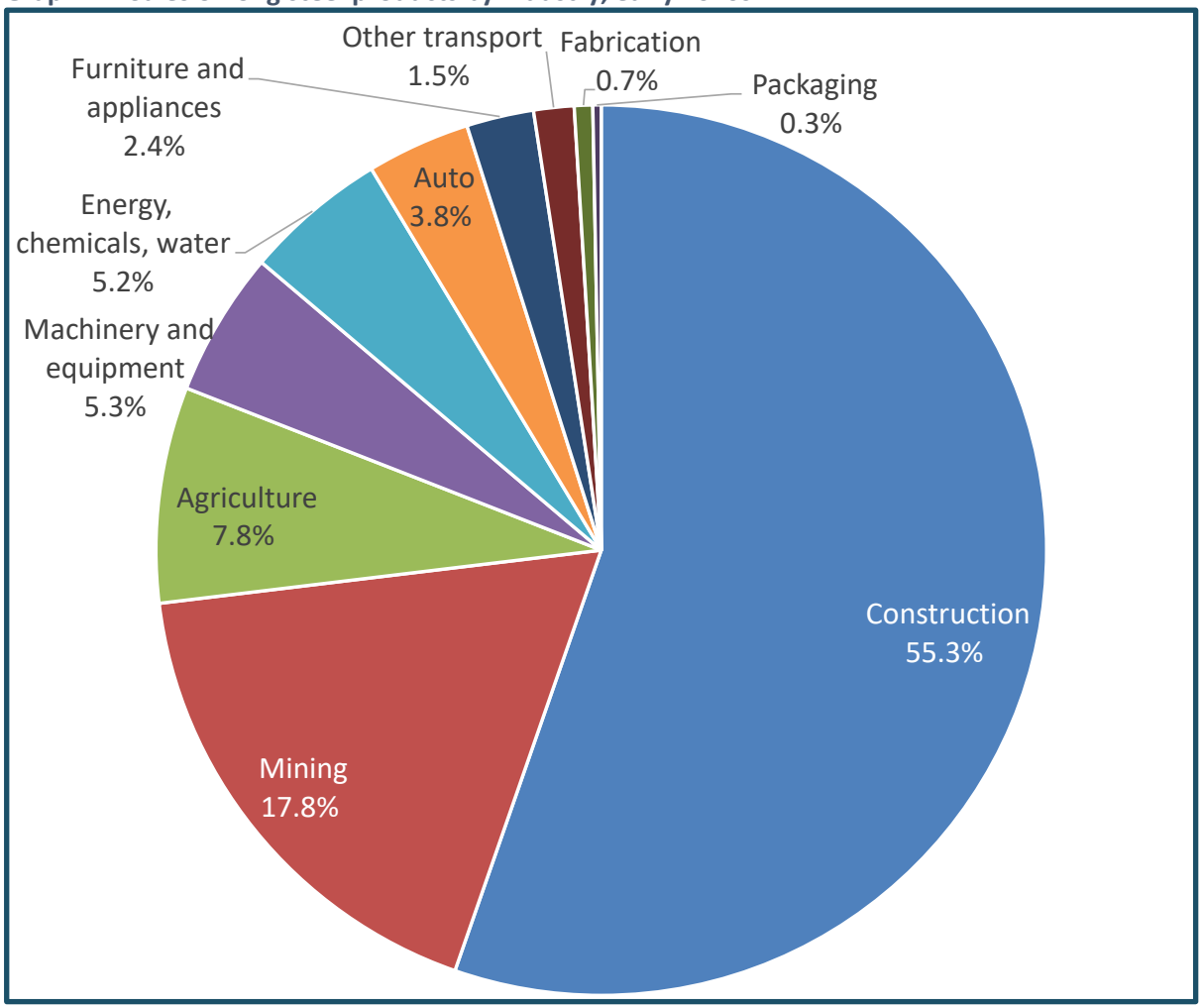
3 THE IMPLICATIONS FOR LONG STEEL CUSTOMERS

The main customers for long steel products by volume are in construction, mining, manufacturing and agriculture. Speciality products mostly go into auto and capital goods production, including for agriculture. These products account for around a third of all long steel sales in South Africa.

In the early 2020s, construction accounted for over half of long steel sales, followed by mining at over a seventh of the total. Auto and capital goods together accounted for almost a tenth. (Graph 24)

According to AMSA, in 2023 450 000 tonnes of its longs output, or just under half, was made up of special steels that the mini mills could not immediately replace.

Graph 24. Sales of long steel products by industry, early 2020s



Source: Information kindly provided by CD Research and Business Strategy Consulting in April 2024.

The biggest concerns were raised around the auto value chain. AMSA has certification from foreign auto companies (original equipment manufacturers or OEMs) for both its Newcastle plant and its mothballed Vereeniging furnace to supply auto component producers. According to the business associations for auto assemblers and components producers, the OEMs certified 70 000 tonnes of AMSA's long steel output. They initially argued that seven local components plants would be unable to produce at all without AMSA inputs, costing almost 3000 jobs. A further 10 components producers as well as the assembly plants could be affected by delays and supply-chain disruptions if they had to rely on imports. In addition, the auto business associations argued that imports could cost up to 35% more than local products. They argued that, as a minimum, AMSA should be assisted to keep its long steel production open until the auto industry could identify alterative suppliers without disrupting production. (NAACAM and NAAMSA 2023:4)

Arcelor Mittal internationally has established special relationships between its subsidiaries and their regional auto producers. It argues that these procurement links reduce the risk of supply chain disruptions and delays, and improve the response to changing needs. By extension, an adequate supply of certified steel gives South African components manufacturers an edge. If Newcastle closed

down, its output of special steels could in theory be replaced by other local producers in the short to medium term. Obviously, any such effort would disrupt existing relations, and could take significant time and new investment.

Two options emerge to ensured continued local production of special steels for the auto industry.

First, AMSA could reopen its Vereeniging electric arc furnace, effectively a scrap-based mini mill. According to interviews, it is already OEM certified. The Vereeniging furnace has capacity of 400 000 tonnes. It has a checkered history, however: mothballed in 2016; reopened in 2020; mothballed again in October 2023. Its capacity for producing special steels is not clear. In the early 2020s, it supplied long steel mostly to Gauteng tube and forge mills as well as to Newcastle when required. In 2020, AMSA argued it could compete on costs with other mini mills in South Africa. (AMSA 2020b:3)

Second, some of the mini mills could upgrade their production to produce most of the special steels now supplied by AMSA. Even if the necessary investments went to plan, it would reportedly take around two years to get OEM certification. Unless AMSA agrees to keep at least some capacity on line for special steels production in the interim, auto components manufacturers would have to rely on imports for this period.

If Vereeniging cannot immediately meet the need for special steels and Newcastle closed down without a transition period, customers would have to use imports or stockpiled supplies until the mini mills get certification. Imports promise a greater range than domestic producers and most foreign steel products can compete on price. Local manufacturers have, however, historically been willing to pay a premium for local suppliers, usually around 10%, because they are more responsive to specific needs; able to provide inputs quickly; and less subject to supply chain disruptions. As a minimum, the current congestion in South African ports would require companies to build up larger inventories.

The oversupply of construction inputs in China could make it easier to source basic inputs in the next few years, if domestic supply initially falls short. Components manufacturers could increase stockpiles to deal with the transition and potential supply-chain delays, which would affect their cash flow and storage costs. The prospects for importing affordable OEM-certified steel is less clear. Chinese car production declined from 2017 to 2020, and only exceeded 2017 levels in 2023. The recovery was largely due to a tenfold increase in exports in US dollar terms. It follows that Chinese producers of OEM-certified steel will face less pressure to export than suppliers of commodity grades.

Construction companies, the main users of long steel by weight, did not require special steels. In interviews in mid-2023, however, they expressed concern that imported replacements would use different standards from South African norms. That would require an adjustment in their planning and practices.

Finding new suppliers for long steel would obviously prove disruptive to downstream users. That is particularly true for manufacturers that require higher grade products. The first question becomes whether the mini mills or, as a second best, imports can ultimately replace AMSA at competitive prices. If they could, then the question is what kind of measures would mitigate the costs of the transition. It is, however, difficult to determine whether the expressed concerns of downstream businesses respond to long-run cost problems, or arise more from a reluctance to disrupt long-standing supply relationships.

4 THE MINI MILLS

The mini mills have historically focused on lower-grade commodity products with substantial demand. Upgrading electric-arc production to produce specialty steels would require additional investment, some reorganisation, and changes in key inputs. It would also necessitate greater collaboration with downstream manufacturers. If these efforts succeeded, South Africa would end up with a more dynamic and competitive long steel sector.

The mini mills in South Africa could meet around 75% of domestic demand using their existing capacity, up from their current share of 60%. But they would face difficulties in supplying around 400 000 tonnes of relatively high-grade steels now produced by AMSA. These steels generally require either DRI or more high-grade scrap inputs, which in turn would require substantial improvements in scrap sorting. In India, the majority of mini mills now use DRI, but in South Africa only Scaw Metals has its own DRI kilns.

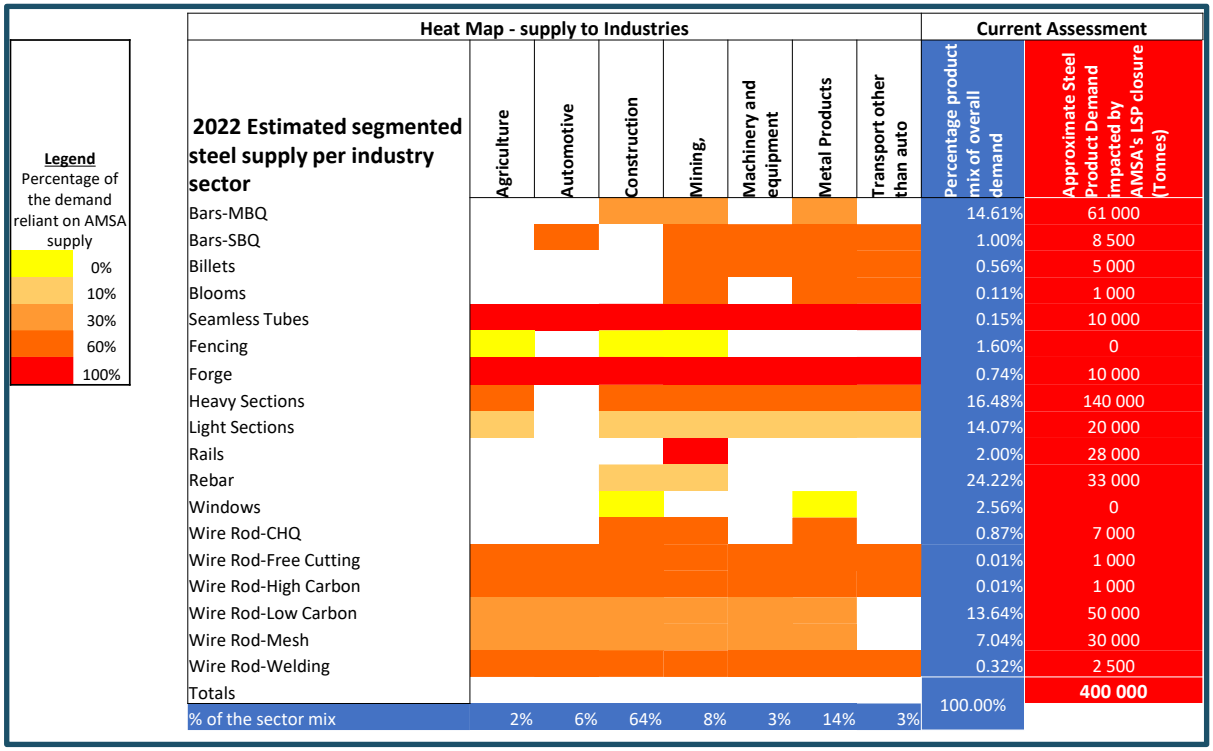
Currently the mini mills manufacture rebar, light sections, low-carbon and mesh wire rod, windows and fencing as well as around half of the low carbon wire rod range. Unless they upgrade their technologies and inputs, however, they will be unable to produce:

- Ultra-low carbon ranges, which typically require either very high-grade scrap or iron inputs (DRI or ore);
- Forge, rail and heavy sections – the bulk of the shortfall by weight;
- Auto needs as currently specified by components manufacturers, estimated by the auto industry associations at 70 000 tonnes; and
- Sophisticated steels for agricultural and other capital equipment.

Some managers at mini mills argue they could supply specialised bar quality for other industries.

Figure 1 provides a heat map showing the current capabilities of the mini mills compared to AMSA.

Figure 1. Heat map showing share of products and industry demand that currently depends on AMSA

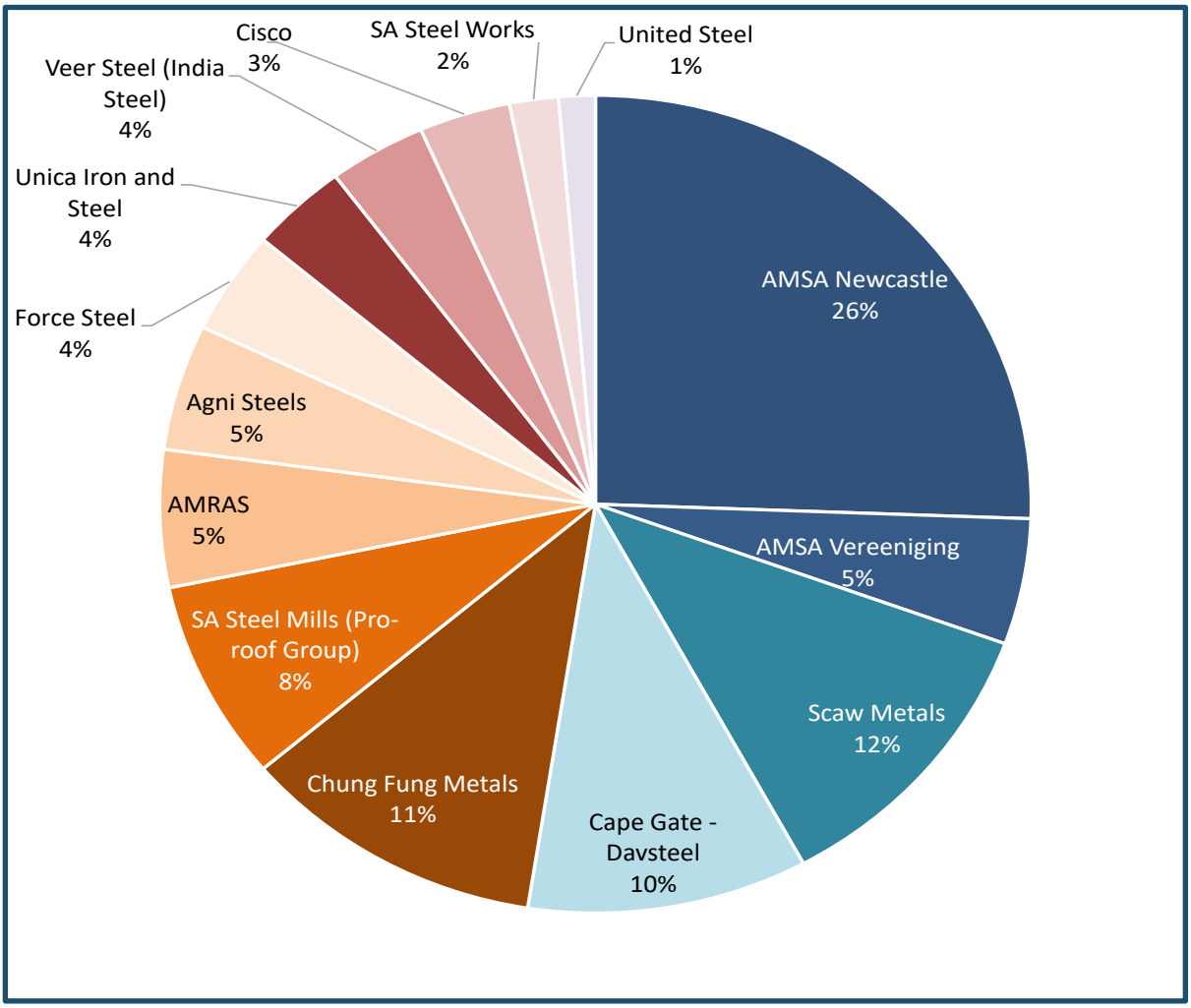


Heat Map - supply to Industries								Current Assessment	
2022 Estimated segmented steel supply per industry sector	Agriculture	Automotive	Construction	Mining,	Machinery and equipment	Metal Products	Transport other than auto	Percentage product mix of overall demand	Approximate Steel Product Demand impacted by AMSA's LSP closure (Tonnes)
Bars-MBQ								14.61%	61 000
Bars-SBQ								1.00%	8 500
Billets								0.56%	5 000
Blooms								0.11%	1 000
Seamless Tubes								0.15%	10 000
Fencing								1.60%	0
Forge								0.74%	10 000
Heavy Sections								16.48%	140 000
Light Sections								14.07%	20 000
Rails								2.00%	28 000
Rebar								24.22%	33 000
Windows								2.56%	0
Wire Rod-CHQ								0.87%	7 000
Wire Rod-Free Cutting								0.01%	1 000
Wire Rod-High Carbon								0.01%	1 000
Wire Rod-Low Carbon								13.64%	50 000
Wire Rod-Mesh								7.04%	30 000
Wire Rod-Welding								0.32%	2 500
Totals								100.00%	**400 000**
% of the sector mix	2%	6%	64%	8%	3%	14%	3%		

Source: Information kindly provided by CD Research and Business Strategy Consulting in April 2024.

South Africa currently has 12 mini mills, which vary substantially in size and capacity. Of these, two – Scaw and Cape Gate – have the potential to produce special steels. Chung Fung Metals is a new plant and there is little published information on its potential. AMSA effectively has electric arc furnaces at Vereeniging that could potentially manufacture some specialised products. (Figure 2) Its proposals for decarbonisation centre on expanding its fleet of electric-arc furnaces. In effect, it apparently aims in future to compete with the mini mills on their own ground.

Figure 2. Share of total long steel capacity by company, early 2020s



Source: Information kindly provided by CD Research and Business Strategy Consulting in April 2024.

The main obstacles to upgrading at the mini mills are:

- The need to invest more in scrap sorting so as to improve the quality of inputs, or to move to DRI, which requires significant technical development.
- The need to develop new finishing lines.
- Obtaining OEM certification for auto and other machinery producers. According to Scaw officials, as of mid-2023 the company had not been able to engage with the auto components manufacturers on this issue.

Representatives of some mills expressed concern that the scale of demand for some specialty steels would not justify the new investment. AMSA's indecision about whether to close down Newcastle also made it difficult to commit to new investment.

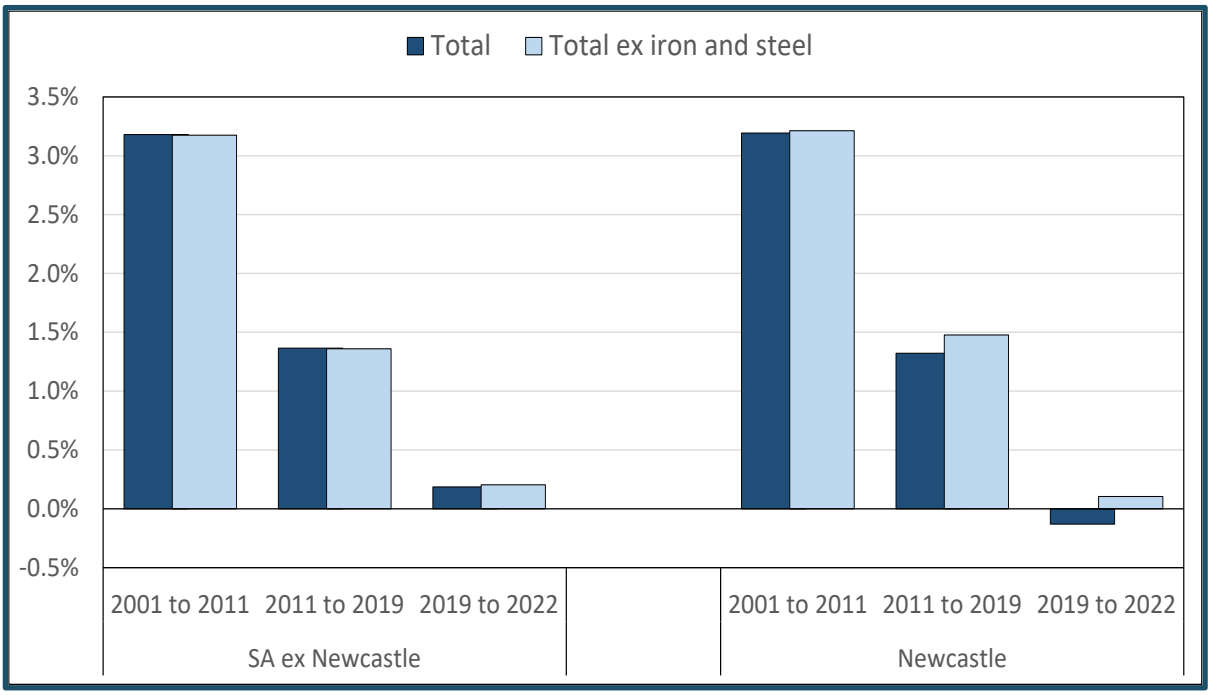
5 THE NEWCASTLE COMMUNITY

The AMSA plant has long been a keystone of the Newcastle economy, despite the sharp decline production over the past 15 years. In 2023, it directly provided between 2.5% and 5% of formal employment in the city. For Newcastle, the challenge will be to find new growth options. In that task, it has substantial advantages, especially relatively large pool of business and technical skills and above-average infrastructure, and its location in a rich agricultural and tourism area.

Except for budget information, data on municipal economies have to rely on estimates. The Census no longer tracks employment or household incomes at local level, and economic data has become increasingly restricted to national aggregates. The latest Census also had an historically low response rate, which may affect its reliability. This analysis relies primarily on Quantec estimates, which should be treated with considerable caution. Notably, the Quantec figures for employment in iron and steel in Newcastle are well below the number reported by AMSA.

In 2022, Newcastle was the 20th largest city in South Africa by population, with just over half a million residents according to the 2022 Census. In 2022, according to Quantec estimates, its gross value added (GVA) per person was R60 000, well below the average for the rest of the country even excluding the major metros, at R80 000. The relatively low figure resulted, not because of slower economic growth, but because the 2022 Census found extraordinarily rapid population growth over the past decade. According to its figures, Newcastle's population had grown at 3% a year from 2011, or twice the national average. In contrast, the city's economic growth rate generally tracked the rest of the country until 2019, despite the negative effects of the decline in steel. Its growth lagged the rest of South Africa from 2019 to 2022, with steel proving particularly negative in this period. (Graph 25)

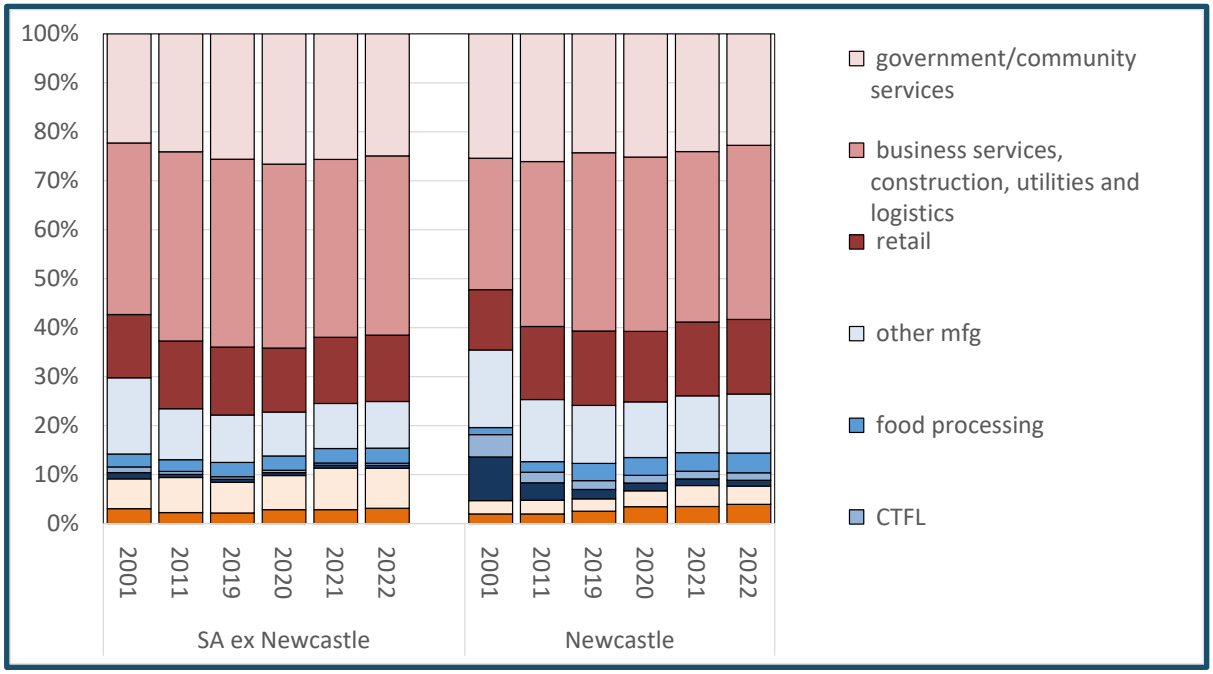
Graph 25. Average annual growth rate in Newcastle compared to the rest of the country, with and without iron and steel, 2000 to 2022



Source: Calculated from Quantec. EasyData. Interactive dataset. Standardised regional series. Accessed at www.quantec.co.za in May 2024.

Newcastle has faced significant headwinds in the past 20 years, not least because of long-term downsizing in iron and steel. According to Quantec estimates, the share of the metals industry in GVA in Newcastle fell from 9% in 2001 to 2% in 2019 and 1% in 2022. In addition, from 1994 Newcastle lost subsidies provided to investors in the so-called "border areas" in an effort to justify apartheid residential patterns. As a result, the city saw substantial disinvestment from the clothing and textiles industry. In contrast, food processing has expanded and the production of capital goods and chemicals has stabilised, according to Quantec estimates. In 2022, manufacturing contributed 19% of the municipal GDP, compared to 14% in the rest of the country. (Graph 26)

Graph 26. Gross value added in Newcastle and the rest of the country by major industry, 2001 to 2022



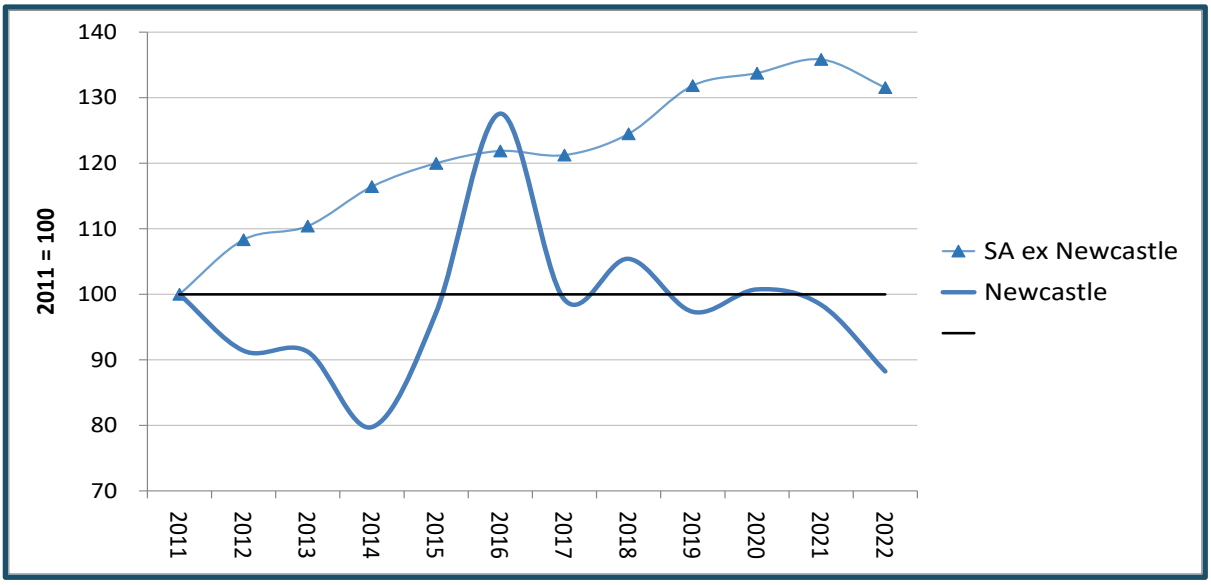
Source: Calculated from Quantec. EasyData. Interactive dataset. Standardised regional series. Accessed at www.quantec.co.za in May 2024.

Although AMSA's Newcastle plant was a tiny employer by national standards, accounting at most for 0.03% of formal employment, it had a big impact on Newcastle. According to Quantec, in 2022 Newcastle had 57 000 formal employees, down from a peak of 61 000 in 2019, before the pandemic downturn. In 2023, AMSA said it had 1500 permanent positions at its Newcastle plant, or under a quarter of its total permanent employment. Even if we assume that the share of contract workers there is twice as high as permanent employees, it would have at most 1400 contract workers. By extension, AMSA's permanent employment alone is equal to 2.4% of total formal employment in Newcastle. Using the proposed (generous) assumptions about contractors, AMSA's direct employment in Newcastle would equal 5% of the formal labour force.

The multiplier from jobs at the Newcastle plant would be significant. AMSA pays its workers considerably above the national average for formal employees. The loss of their income would affect community businesses of all kinds, as well as rates and services payments for the local government.

The impact of a closure of the Newcastle plant would come at a time of stress for the municipality. Its net revenues (that is, rates plus services after bulk payments) have fluctuated substantially, but were essentially flat from 2011 to 2022. In the rest of South Africa, net revenues climbed over 30% in this period. (Graph 27) Revenues per person grew far less rapidly if the 2022 Census findings on Newcastle's population growth are accurate. Still, in 2022 its net revenue per resident was R3175 a year, 5% higher than in the rest of the country excluding the metros.

Graph 27. Indices of net municipal revenues in Newcastle and the rest of South Africa, in constant rand (a), 2011 to 202



Note: (a) Net revenues here means total revenues, including rates and service charges, less bulk payments for water, electricity and other services. *Source:* Statistics South Africa. Local Government Income and Expenditure. Accessed via Quantec. EasyData. Macroeconomic service. Accessed at www.quantec.co.za in May 2024.

In sum, as a secondary city, Newcastle has a relatively strong economic base, although – if the Census data are accurate – it has struggled to keep up with rapid population growth. Still, it has already faced substantial deindustrialisation over the past decade. If the AMSA plant closes, the impact on the local economy will depend on the ability of Newcastle and other government agencies to promote alternative production lines and employment opportunities. In effect, it will depend largely on the ability of the government as a whole to coordinate a just transition.

6 EVALUATING THE OPTIONS

6.1 Methodology

The options for responding to the potential closure of AMSA steel are evaluated in this section using the socio-economic impact assessment system (SEIAS) approach. The SEIAS methodology aims to enable improvements in policy responses by improving understanding of likely impacts on different groups rather than trying to come up with a one-dimensional quantification. Specifically, it involves:

- Separate evaluation of the anticipated costs, benefits and risks for affected groups, based on the recognition that the impacts vary between constituencies.
- Where the evidence does not permit meaningful quantification, providing a description of impacts rather than assigning shadow prices. This situation typically obtains where information is not available or where costs and benefits are externalities. The SEIAS approach aims to avoid treating assumptions as actual data. In this study, where quantification is not currently viable – notably around the cost of upgrading the mini mills and the various costs of imports – the understanding should be refined through further investigations combined with negotiations around specific measures.

The impacts of the options will be evaluated for the following constituencies.

- AMSA (both management and workers),

- Domestic long steel customers, with a particular focus on auto,
- Mini mills,
- The government,
- Infrastructure users,
- Input suppliers (electricity, iron ore, coal and scrap), and
- The Newcastle economy.

For each option, critical issues include the following.

- The likelihood of success for the option.
- The number of workers affected, and the implications for their communities.
- For downstream manufacturers and infrastructure customers, the impact on the price, quality and reliability of supply.
- For suppliers, the impact on revenue, especially for Eskom, iron ore, coal and scrap producers.
- The potential of transitional arrangements to mitigate costs and risks.

6.2 The options

The options presented are informed by, but do not replicate, proposals from AMSA and other stakeholders. In particular, the option for supporting Newcastle looks to measures that would address the plant's underlying cost drivers. In particular it includes measures to link the prices of iron ore and coal for the plan to domestic production costs rather than world prices. That would effectively replicate the measures already adopted with scrap. Around 10% of domestic iron ore production was used locally over the past 15 years. It also entails reducing reliance on Eskom electricity. These measure are inherently difficult to implement, but would provide a more sustainable solution than the package proposed by AMSA itself, which do not address the mill's main cost drivers.

The following table summarises the options evaluated.

Table 1. Options for evaluation

	FOCUS ON DOWNSTREAM	SUPPORT MINI MILLS	KEEP NEWCASTLE OPEN
Tariffs	No new tariffs	No new tariffs	Reinstate tariffs on long steel products that Newcastle produces, at least temporarily
Supply disruption	Assist downstream producers to build up inventories and/or work with AMSA to keep Newcastle open to enable manufacturers to find new sources	Assist downstream producers to build up inventories and/or work with AMSA to keep Newcastle open until mini mills can fill the gap (assume two years)	n.a.
Auto	Review APDP to reduce impact on incentives of shift to imported steel, at least temporarily	Work with Newcastle to stay open or shift to imports until mini mills can meet their needs; review APDP for transition period (assume two years)	n.a.

	FOCUS ON DOWNSTREAM	SUPPORT MINI MILLS	KEEP NEWCASTLE OPEN
Measures on inputs	Reinstate ban on scrap exports	Reinstate ban on scrap exports and continue IDC support for mini mills Promote better scrap sorting	Introduce measures to delink iron ore and coal from global prices (export taxes or restrictions; use of Minerals and Petroleum Development Act provisions on developmental pricing) Develop renewable off-grid energy for Newcastle No changes on scrap
Support for steel producers	Continue IDC support for mini mills	IDC and the Department of Trade, Industry and competition (the) dtic to assist mini mills (including Vereeniging if possible) to upgrade production and get OEM certification	IDC to assist AMSA in mobilising R1 billion in working capital
Newcastle region	Work with Newcastle to minimise effects of AMSA closure (identify alternative opportunities, manage budget impacts, etc.)	Work with Newcastle to minimise effects of AMSA closure (identify alternative opportunities, manage budget impacts, etc.)	n.a.

While this analysis evaluates the options separately, in practice some measures could be combined or modified to change the allocation of costs and benefits. In addition, supportive measures to deal with transitional costs would substantially affect the costs and benefits for some constituencies. Specifically:

- If Newcastle stays open for a defined transitional period, downstream customers would have more time to develop alternative sources.
- If government supports the development of new production and employment opportunities in the Newcastle region, it could improve the outcome for the local economy.

None of the options assume an increase in exports, although that would help alleviate overcapacity in long steel. In practice, the slow growth in steel demand and long steel exports to the rest of the continent makes it is unrealistic to count on a substantial expansion in exports. Re-establishing overseas sales, even if Arcelor Mittal were willing, would be difficult in light of intensified competition, especially from China. In these circumstances, assuming exports can resolve the issues in the South African steel industry risks diverting attention from more realistic options. Obviously, if an export drive succeeded, the third option, which aims to keep Newcastle open, would become more viable.

The options also do not expect a boost in demand from higher government or private sector investment in steel-intensive projects. Under the 2024 medium-term expenditure framework, government plans to expand its capital expenditure by 5% a year above inflation from 2024 to 2027. That would return general government spending on machinery and construction to levels last seen in the mid-2010s, which is inadequate to relieve the overcapacity in long steel. Moreover, the plans to boost public investment depend on substantial cuts in spending in real terms on government services, which in practice will be difficult to implement. In particular, the medium-term expenditure

framework foresees below-inflation increases in pay and social grants. Experience shows that this kind of trade-off is often projected for future years, but rarely actually implemented in annual budgets.

AMSA argues that the country as a whole would pay a cost if it no longer beneficiates iron ore and coal locally. It estimates its value add for long steel on these inputs comes to R4.2 billion a year. If it cannot sell the resulting products without losses, however, the cost of beneficiation cannot be counted in full as value added. Moreover, the gain in AMSA value added would have to be offset by losses at the mini mills. For this reason, the benefits of maintaining production at Newcastle are assessed in terms of less quantifiable dimensions, especially the value of AMSA assets, the impact on long steel prices for domestic consumers, and the implications for employment.

The remainder of this section reviews the likely costs, benefits and risks of each option for the identified constituencies in turn. The following section summarises the policy implications of the analysis.

6.3 AMSA

6.3.1 Option 1: Focus on downstream

Costs:

For AMSA and its workers, the first option would require closing the Newcastle mill. That would mean writing off significant assets, although AMSA has not published figures. Currently Newcastle accounts for around 38% of AMSA's total capacity and output by volume. That percentage of AMSA's physical assets would equal R3 billion in 2023. For AMSA's total assets, the figure would be R11 billion. Obviously, as long as Newcastle is making losses, the figures for its asset are effectively overstated.

Closing down Newcastle would also mean the loss of 1500 permanent positions at the plant, unless the workers can be redeployed elsewhere in the company. AMSA argues that it would lose another 2000 jobs, mostly contract workers. That would equate to 70% of its contract workforce company wide. AMSA has not published details on how it arrived at its estimate.

Benefits:

AMSA would stop making losses on its Newcastle operation.

AMSA could free up financial and institutional resources to improve production in flat steel and byproducts, where it faces less domestic competition.

AMSA could take the opportunity to reopen its Vereeniging electric arc furnaces to produce specialised steel for auto and other downstream customers.

AMSA could take the opportunity to set up new internal mini mills using electric arc furnaces and scrap, which could compete with existing mini mills.

Risks:

AMSA would have less diversified output, reducing its ability to respond to new threats, for instance a surge in imports or a fall in demand for flat steel.

AMSA might argue that even with Newcastle closed, inadequate demand and high input prices rule out reopening its long steel capacity in Vereeniging.

If AMSA moves into more competitive production technologies in long steel, it would still have to compete with existing mini mills in a situation of overcapacity. That risk would be particularly high given that AMSA's weak financial positions means it would have to rely on borrowed financing.

6.3.2 Option 2: Shift to mini mills

For AMSA, the costs and benefits of promoting mini mill expansion and upgrades would be the same as in the first option, except that it might get greater government support for reopening Vereeniging and/or shifting to electric-arc mills itself. The risks would also be the same as in the first option, with the additional challenge that any new AMSA capacity would face greater domestic competition.

6.3.3 Option 3: Keep Newcastle open

Costs:

To make Newcastle sustainable in the longer run, AMSA would have:

- To carry continued losses until new support measures take effect, which might take a year or two;
- To engage more forcefully with its coal and iron ore suppliers, either by supporting government restrictions on exports, or by hardening its stance in negotiations; and
- To mobilise financing for off-grid energy in Newcastle, and over time repay it.

In order to maintain government support over the longer run, AMSA would likely have to improve its Broad-Based Black Economic Empowerment BBBEE rating, which in the year to April 2024 was Level 6.

Benefits:

AMSA would benefit from reduced competition from imports and mini mills, effectively increasing its share in total sales and, less tangibly, its market power.

In the medium term, Newcastle should begin to turn a profit as it accesses lower cost iron ore, coal and electricity.

If AMSA could extend lower input prices to its other operations, it would see a significant increase in returns in flat steel as well.

Risks:

Given continued over-capacity in long steel, either the mini mills or AMSA will have to write off some assets in the longer run. In this context, AMSA might be unable to out-compete the mini mills even if it can cut its input prices and they no longer get IDC support.

If AMSA succeeds in making the mini mills less competitive, their output might be replaced by higher imports, in line with the experience in flat steel. In particular, the Chinese export drive might not be deterred by tariffs if economic growth and housing construction there remains slow.

Government may be unable to secure cost-plus prices for iron ore and coal for AMSA, especially if world prices remain high. In the past decade, there has been considerable debate within government on measures that would move rents from mines to downstream manufacturing. Implementation has occurred in relatively few instances outside of scrap.

If world coal and/or iron ore prices drop below domestic production costs, AMSA could end up with higher input prices that its competitors. While this outcome seems unlikely in the coming decade, fluctuations in world commodity prices have been unusually extreme in the past five years.

AMSA may be unable to obtain affordable financing to invest in off-grid renewable energy on the necessary scale.

6.4 Domestic long steel customers

6.4.1 Option 1: Focus on downstream

Costs:

Domestic customers would have to identify new suppliers, which could prove difficult for specialty steels and would in any case involve identifying new sources and forging new relationships. It might prove particularly difficult to identify suppliers of OEM-certified steel.

As long as they rely on imported products, domestic customers would also have to manage supply chain disruptions and delays, among others, by building up inventories.

In some cases, customers would have to adjust to different specifications on imports.

The auto industry would have to review the APDP to ensure that increased reliance on steel imports does not have a significant impact on incentives for local assembly.

Benefits:

Domestic customers might be able to access products at a lower price, at least for basic quality steels, from either imports or local mini mills.

Even for higher grade products, the need to review procurement lines and access a wider range of suppliers could ultimately result in an improved range and lower prices.

Tariffs on long steel imports would be off the table for the foreseeable future.

Risks:

Alternative suppliers could prove more expensive; imports could be unreliable, unresponsive or slow; and OEMs could delay certification of imports and/or local product. AMSA has argued that this outcome is inevitable, and that it would lead to the loss of 30 000 jobs in the auto value chain. That would equal a quarter of all positions in the industry, which seems high. As noted, the auto business associations anticipate job losses of 3000 if components manufacturers cannot find alternative sources to AMSA, as well as some stoppages due to supply chain disruptions.

If Newcastle closes abruptly rather than providing for a transition, it would increase the difficulty of adaptation.

6.4.2 Option 2: Shift to mini mills

Costs:

There would be a transition period before the mini mills can gear up production, especially for special steels. The length of the transition period would vary depending on the product, whether AMSA reopens its Vereeniging plant or sets up new long steel capacity, and the time required for other mini mills to get OEM certification. Unless the Newcastle plant stays open for this transitional period, downstream customers would face the same costs as in Option 1 until the mini mills can meet their needs.

The mini mills will likely not be able to produce all of the special steels supplied by AMSA, which would mean long-term reliance on imports for some customers, with the associated supply-chain burdens.

Components manufacturers and government would have to put in capacity to facilitate OEM certification for local producers.

Benefits:

The price of local products should fall over time, given the relatively low costs at the mini mills. Moreover, a more competitive long steel market could supply a greater range of goods and more responsive production, even for higher grade products.

Risks:

Government may be unwilling to strengthen restrictions on scrap exports, leading to higher prices over time. Absent similar restrictions to hold down the price of iron ore for domestic beneficiation, a shift to DRI inputs would leave producers and their customers vulnerable to price spikes when global iron ore prices increase.

The mini mills might be unable to provide the full range of higher grade products or expand production of lower grade goods in the foreseeable future. That means customers would remain dependent on imports for a significant period.

The mini mills may be unable to get OEM certification quickly or at all. The risks to employment are discussed under Option 1.

The scrap supply may run out, leading to an increase in prices and/or imports in the longer run.

Newcastle closes abruptly rather than providing for a transition, increasing the difficulty of adaptation.

6.4.3 Option 3: Keep Newcastle open

Costs:

Measures to raise mini mill and import costs would lead to higher prices and worse service, at least for lower grade long steel. In the long run, that would hamper growth in downstream industries, notably construction, auto and capital goods production.

Benefits:

Businesses would retain a known local supplier.

If measures to cut input costs succeed, prices to long steel customers could become more competitive.

Risks:

Even if input costs for Newcastle are reduced, AMSA may use its revived market power to charge import-parity prices.

Newcastle closes down anyways in a few years due to depressed demand and stronger import competition, but the mini mills have lost capacity to meet demand or upgrade. The result would ultimately be a greater dependence on imports.

6.5 Mini mills

6.5.1 Option 1: Focus on downstream

Costs:

The mini mills would have no protection against imports.

Benefits:

The mini mills have proven that they can compete with overseas producers on both domestic and export markets as long as restrictions on scrap exports remain in place. They should therefore be able to expand their market share if Newcastle closed.

Some mini mills would be able to upgrade their production, increasing their revenues and profit margins.

The mini mills could expand DRI production, which could ultimately meet export demand as well as laying the basis for production of specialty steels.

Risks:

Government support to expand production and move to higher grade products would remain at current levels, which might not be adequate to meet the gap in supply.

The mini mills are reluctant to commit to new investments until they have certainty that Newcastle will close, in order to avoid worsening excess capacity in the industry. They may also be concerned that even if Newcastle closes, demand will not justify the investment.

The OEMs might refuse to certify the mini mills products or delay the process, making it impossible for them to compete with imports.

If iron ore prices remain linked to international markets, DRI-based production might become unaffordable if international prices spike again for any reason.

6.5.2 Option 2: Shift to mini mills

Costs:

The mini mills would have to negotiate and pay for financing for new and upgraded capacity.

The mills would have to use capacity to develop relationships with auto and other former AMSA customers, and get OEM certification. They would also need capacity to engage with the state around initiatives to expand output and increase investment in higher quality steel production.

If AMSA opens the Vereeniging plant or sets up new electric-arc mills, it would add to competition in the long steel space.

Benefits:

The mini mills would be able to increase their market share, including for special steels.

The price of scrap should fall as restrictions on scrap exports are strengthened again.

Increased financing would be available from the IDC.

The mini mills would have the opportunity to expand DRI production and exports.

Risks:

The risks around excess capacity, imports, OEM certification and DRI would be the same as in Option 1.

A further risk is that the mini mills would prove unable to expand as anticipated due to inadequate financing and expertise.

6.5.3 Option 3: Keep Newcastle open

Costs:

Measures to cut costs for Newcastle mean the mini mills would face stronger competition even for basic products.

The cost of scrap would remain higher than during the ban, but lower than export parity.

Support from the IDC would decline in line with AMSA demands.

Benefits:

Some measures to reduce the cost of scrap would remain in place.

Risks:

Given stagnant steel demand, either the mini mills or AMSA would have to lose capacity.

6.6 Government

6.6.1 Option 1: Focus on downstream

Costs:

The government would have to allocate resources and capacity to assist long steel customers in building up inventories and other measures to reduce supply chain disruptions.

The government would have to provide resources and capacity to mitigate the impact of the plant closures on the Newcastle economy.

The dtic would have to encourage the auto value chain to revise the APDP to ensure that no undesirable impacts result if components manufacturers use more imported steel.

AMSA argues that if Newcastle closes, the government would forego R2.2 billion in tax revenues. It is not clear how it arrives at this figure. AMSA has claimed net R1,7 billion in tax credits in the past 10 years and therefore paid essentially no company income tax. Government would lose VAT and personal income tax as well as rates payments on AMSA's Newcastle operations.

Benefits:

In the medium term, access to lower-cost long steel would support job creation in downstream manufacturing and construction, as well as boosting exports of steel-based manufactures. That would bolster tax revenues and reduce demand on social security systems.

The option is easier to implement that the other two, which require direct support for steel producers (either Newcastle or mini mills).

Risks:

Government lacks the technical capacity or funding to assist downstream customers with the transition to new suppliers.

It proves impossible to develop new opportunities in Newcastle, leading to higher costs for social grants and basic services.

The auto industry and government are unable to agree on revisions in the APDP, leading to disinvestment by the OEMs.

6.6.2 Option 2: Shift to mini mills

Costs:

The government would have to strengthen restrictions on scrap exports and ensure adequate financing for the mini mills to develop new capacity (presumably mostly through the IDC).

It would have to facilitate OEM certification for the mini mills. It that proves impossible, or if the transition is prolonged, it would have to work with stakeholders to revise the APDP.

It would have to support downstream customers while the mini mills expand capacity, which might include support for the Newcastle mill to remain open for a transition period.

As in the first option, the government would have to provide resources and capacity to mitigate the impact of the plant closures in Newcastle.

Benefits:

A more competitive, decentralised long steel industry would support broader economic growth, especially in construction, capital goods and agriculture, accelerating job creation. It would reduce the cost of infrastructure provision. It would also lead to increased exports of steel and possibly DRI. These developments would increase government revenues and reduce demand on social security systems.

Risks:

Stronger restrictions on scrap exports could face legal challenges.

Government might be unable to mobilise adequate financing for the mini mills.

The mini mills could be unable to meet demand at least for special steels, resulting in long-term dependence on imports.

The Newcastle mill might close abruptly, increasing the transition costs while the mini mills gear up.

6.6.3 Option 3: Keep Newcastle open

Costs:

Government would have to engage on extensive negotiations both internally and with other stakeholders to facilitate cost-plus agreements between Newcastle and its suppliers, which would likely also require some restrictions on iron ore and coal exports.

Government would have to facilitate financing for off-grid electricity for the Newcastle plant.

Government would have to increase tariffs on long steel imports, which would lead to higher prices and slow growth in downstream industries until Newcastle returns to productivity.

The mini mills would stagnate or shrink, which would be a drag on growth and likely lead to higher imports at least until Newcastle becomes more competitive.

Benefits:

AMSA and its clients would pull back from their media and lobbying campaign around measures to support the Newcastle mill.

In the long run, measures to reduce costs for integrated steel production should promote growth across the economy.

Shifting to off-grid electricity at Newcastle would reduce pressure on Eskom.

Risks:

Government could be unable to implement measures to cut costs at Newcastle. Since the option requires restrictions on other long steel sources (imports and mini mill production), the result would be higher prices in the long run. That in turn would lead to slower growth in downstream industries and consequently across the economy, in terms of both value added and employment.

Newcastle could ultimately be unable to compete despite government support, given stagnant domestic and export demand.

6.7 Infrastructure users

6.7.1 Option 1: Focus on downstream

Costs:

Supply chain disruptions and delays could raise the cost of maintaining and expanding infrastructure.

Infrastructure providers might have to adjust to different steel standards, raising their costs and delaying projects.

Benefits:

Infrastructure providers could use the cheapest available alternative, reducing the cost of new investment and maintenance, which would ultimately benefit users through expanded services and/or lower tariffs.

Risks:

The cost of disruptions to the supply chain for steel outweigh the benefits of access to cheaper suppliers.

Newcastle closes abruptly rather than providing for a transition, increasing the difficulty of adaptation.

6.7.2 Option 2: Shift to mini mills

Costs:

Supply chain disruptions as in Option 1. The need to adapt to new standards would be only temporary, however, as the mini mills would ultimately replace imports.

Benefits:

In the long run, infrastructure providers would have access to more competitive domestic steel supplies, reducing their costs, ultimately benefiting their customers.

Risks:

The mini mills are unable to meet supply, resulting in long-run dependence on imports with the associated risks around supply chains and delays.

Infrastructure providers do not pass on the benefits of cheaper steel to their customers.

Newcastle closes abruptly rather than providing for a transition, increasing the difficulty of adaptation.

6.7.3 Option 3: Keep Newcastle open

Costs:

Until Newcastle becomes more competitive, higher prices for basic long steel products would increase the cost of infrastructure provision.

Benefits:

Success in improving the competitiveness of Newcastle, and possibly AMSA as a whole, would both restrain the cost of steel inputs in the long run and increase government revenues, which in turn could make it easier to maintain and expand infrastructure.

Risks:

Long prices remain high as Newcastle never becomes competitive but other suppliers are shut restricted, which in the long run would lead to worse infrastructure outcomes.

6.8 Input suppliers (electricity, iron ore, coal and scrap)

6.8.1 Option 1: Focus on downstream

Costs:

Eskom and Transnet would lose a significant, stable revenue source, which would not be replaced by either increased imports or mini mill production.

- Transnet: In 2023, AMSA paid a total of R733 million for railage, down from R845 million in 2022. That means it provided 4% of Transnet freight rail's total revenue in 2023. For Newcastle, the share would presumably be between a quarter and half of the total, or between 1% and 2% of Transnet revenue. AMSA itself argues that Transnet would lose R9 billion in revenue if Newcastle closed down, but it does not explain how it arrived at that figure.
- Eskom: As noted, AMSA as a whole uses around 0.6% of Eskom electricity. It does not say how much it actually pays, but 0.6% of Eskom revenues comes to around R1.6 billion a year.

The iron ore mines that supply AMSA would see a significant fall in demand. Although domestic iron ore demand is currently only 10% of total ore production, these mines do not have easy access to export markets. They may gain access in the medium term, however, through upgrades in Transnet's Oryx line. Coal suppliers would be less affected, since in 2023 AMSA ended up importing most of its coal due to quality concerns around the local supplier.

Transnet and Eskom, as well as most mines, require substantial construction and consequently long steel inputs. They would face the same transitional costs as other downstream customers.

Benefits:

Transnet and Eskom would not have to invest to improve services for Newcastle.

Transnet and Eskom, as well as most mines, require substantial construction and consequently long steel inputs. They would benefit from access to lower-cost suppliers.

The state-owned companies and mines would get the same benefits from this option as other long steel customers, primarily the possibility of obtaining lower priced steel.

In the short run, reduced demand from AMSA would make it easier for Eskom to supply its other customers.

Risks:

In the long run, Eskom faces risks from falling demand for its electricity, even though a short run decline in demand helps it deal with immediate difficulties.

6.8.2 Option 2: Shift to mini mills

Costs:

Same as in Option 1.

Benefits:

Same as in Option 1.

Risks:

None.

6.8.3 Option 3: Keep Newcastle open

Costs:

Iron ore and coal suppliers would get a stable rate of profit but would lose the rents that result from spikes in global prices.

Transnet would have to continue engagements with Newcastle to upgrade its services.

As AMSA moves its Newcastle plant off-grid, Eskom would see lower sales.

Benefits:

Newcastle would continue to be a source of revenue for Transnet and the mines, although possibly at a lower rate of return.

If measures to reduce Newcastle's input costs succeed, the state-owned companies and mines would ultimately retain access to an established long steel supplier at more competitive prices.

The pressure on the electricity grid would decline.

Risks:

Newcastle ultimately closes despite the support efforts, which means any Transnet investment to improve services for the plant would be devalued.

Newcastle maintains relatively high prices for its output even if its input prices fall, which would raise input costs for the state-owned companies and mines.

6.9 The Newcastle community

6.9.1 Option 1: Focus on downstream

Costs:

Data on value added and employment at municipal level are unreliable. According to Quantec estimates, in 2022 iron and steel contributed 1% of Newcastle's GDP and, based on estimates of AMSA's employment there, between 3% and 5% of formal employment. By extension, closure of the plant would have severe implications for the local economy. In addition to the loss of worker incomes, the relatively strong machinery industry reported by Quantec likely gets a significant share of its business from the AMSA plant.

Benefits:

According to Quantec, Newcastle has a relatively strong machinery industry, which could benefit from more competitive steel inputs.

Risks:

If the national and provincial governments do not promote a just transition away from steel in Newcastle, it could see a prolonged downturn.

6.9.2 Option 2: Shift to mini mills

Costs:

As in Option 1.

Benefits:

None, unless Newcastle can attract mini mill investment, which seems unlikely given that the mini mills have generally clustered around metros and ports.

Risks:

As above.

6.9.3 Option 3: Keep Newcastle open

Costs:

Continued pollution from the plant.

Benefits:

Maintain a significant employer and source of revenue.

Risks:

Measures fail to save Newcastle plant in the long run.

7 CONCLUSIONS

Long steel in South Africa faces a structural crisis. It has long experienced essentially stagnant domestic demand as a result of falling steel intensity. Meanwhile, the dominant producer, AMSA, has been unable to expand its exports. AMSA has also proven unable to compete with emerging lower-cost mini mills and overseas manufacturers. Its challenges have been aggravated by the shift of rents from steel to iron ore and coal mines since 2005. As a result, despite efforts to source cheaper inputs, AMSA faced a surge in input prices when international iron ore and coal markets spiked in 2022 and 2023. World prices remain at historically high levels despite some moderation from mid-2023. In contrast, the mini mills rely on scrap, which has faced export restrictions since the mid-2010s.

The structural crisis in the long steel industry appears above all in over-capacity. For Newcastle to return to profitability would require a decline in mini mills or imports. The contrary also holds true: if the mini mills continue to grow at the rate of the past five years, the Newcastle plant cannot be sustained. As discussed, the only win-win solutions would require a significant increase in domestic or export demand, which seems impossible to achieve in the medium term.

In this context, the main arguments for sustaining the Newcastle plant are that:

- It can produce specialty steels that are beyond the current capacity of the mini mills, and
- It embodies national technological capacity that should not be dissipated.

The main argument for letting Newcastle close is that

- Large integrated mills are no longer viable in relatively small economies like South Africa, and
- The mini mills can upgrade to produce most, although not all, of the higher grade products required by downstream customers.

From this standpoint, the closure of Newcastle is an inevitable outcome of economic and technological change – a case of creative destruction, to use Schumpeter's concept.

In this situation, the government faces hard trade-offs. A significant increase in domestic or export demand seems unrealistic. In effect, then, some capacity will have to close down. The government can therefore choose between three strategies, with only limited scope for combination.

First, the government could accede to AMSA's demand that it reduce the competitiveness of the mini mills and imports by opening up exports of scrap and imposing import tariffs on long steel. That would, however, effectively increase the cost of long steel for downstream users, making the economy as a whole less competitive. The most affected industries would be auto, capital goods, agriculture and construction. The mini mills would lose employment, and some downstream producers might also be constrained. For government, this is the easiest option to implement in the short run, but it is by far the least desirable over time.

Second, the government could focus on growing the capacity of the mini mills while letting the Newcastle plant close down, ideally with a two-year transitional period to enable downstream producers to adapt. In this case, government measures would focus on minimising the short to medium-term costs of developing additional domestic production capacity for long steel, especially for high-grade products. In particular, the government would:

- Help downstream uses manage the transition to the mini-mills, especially for specialty steels, by encouraging or even subsidising Newcastle to stay open for at least two more years; identifying alternative suppliers and if necessary financing stockpiles; working with OEMs on certification of the mini mills; and if necessary revising the APDP.
- Assist the mini mills to mobilise the investment and capacity required to develop local production of higher grade long steel.
- Work with stakeholders in Newcastle to expand other industries so as to offset the loss of the AMSA plant.

Finally, the government could delink domestic prices of iron ore and coal for steel producers from world market prices, and facilitate a transition to off-grid renewable energy for the Newcastle plant. These measures are not easy to implement. The ore and coal mines would certainly oppose any effort to move rents from them to downstream producers. Although industrialisation in South Africa before democracy relied heavily on reallocating rents to promote beneficiation, these measures have been phased out since 1994. Moreover, off-grid energy on the necessary scale would require deep technological expertise and very large initial investments, but only pay for itself in a decade or more.

If Newcastle became more competitive, the national economy would benefit from lower-cost long steel. The municipal economy would also benefit. The challenge of over-production would, however, remain. In the long run, unless new export markets open up, which seem unlikely, either Newcastle or the mini mills would have to write off some capacity.

REFERENCES

AMSA. 2019. Integrated Report 2019. Accessed https://arcelormittalsa.com/Portals/0/Integrated AnnualReport2019.pdf in July 2024.

AMSA. 2020a. Presentation by ArcelorMittal South Africa to the Western Cape Provincial Standing Committee on Finance, Economic Opportunity and Tourism. 27 May. Accessed at https://static.pmg.org.za/200527AMSA_-_W_Cape_Legislature_Update_edit.pdf in June 2024.

AMSA. 2020b. Integrated Report 2020. Accessed at https://arcelormittalsa.com/Portals /0/ArcelorMittal%20IR%202020_HR.pdf in May 2024.

AMSA. 2023. Integrated Report 2023. Accessed at https://arcelormittalsa.com/Portals /0/ArcelorMittal%20South%20Africa%202023%20IR%20Final_1.pdf in May 2024.

AMSA. 2024. Business update, update on the deferral of the wind down of the longs business, and trading statement for the six months ended 30 June 2024. 2 July. Accessed at https://arcelormittalsa.com/Portals/0/Business%20Update%20and%20Trading%20Statement_0207 2024.pdf in July 2024.

NAACAM and NAAMSA. 2023. Re: AMSA Long Steel Production Closures: Automotive Manufacturing Joint Sector Position. Open letter to AMSA. 23 January. Provided by NAACAM in May 2024.

SAPVIA. 2024. Nersa Registered Projects Dashboard. Webpage. Accessed at https://sapvia.co.za/nersa-registered-projects-dashboard/ in June 2024.