South African Petroleum Industry Association (SAPIA)

The economic contribution of the downstream oil industry to South Africa in 2019

Executive summary presentation

FTI CONSULTING

sapia | South African Petroleum Industry Association

27th September 2021

Overview of downstream oil industry

South Africa has a well developed downstream industry involved in importing, producing and distributing petroleum products for its domestic market and the region.

The industry consists of:

- — Purchase and import of crude oil for refining in local refineries.
- — Production of synthetic fuels from coal and gas.
- — Import of refined products.
- — Distribution and marketing of products to the wholesale or retail sector.
- — Export of products to other countries.
- — Other activities include the production of chemicals, base oils, fuel oil processing and/ or blending, lubricant blending, bitumen and sulphur sales.

- The industry encompasses and wide range of public and private sector companies such as refiners and manufacturers (crude and synthetic), blenders, suppliers, wholesalers, transporters, storage companies, traders, retail marketers and speciality marketing companies.
- A combination of domestic production and global import networks enables the industry to provide South Africa with a secure supply of fuels.

Supply

35 billion litres
Liquid fuels supplied, with 30 billion litres consumed in South Africa and 5 billion litres exported (e.g. Botswana, Namibia, Lesotho)

6 refineries
With a total installed capacity of 718,000 bpd, processing and transforming crude oil, natural gas and coal into petroleum products.

Storage at all coastal cities
Storage facilities for the import, export and storage of fuels. 74% of oil imports (crude oil and finished products) are at Durban port.

3,800 km of pipeline
Transports crude oil and petroleum products around the a country and pipes serving jet fuel to some of South Africa's main airports.

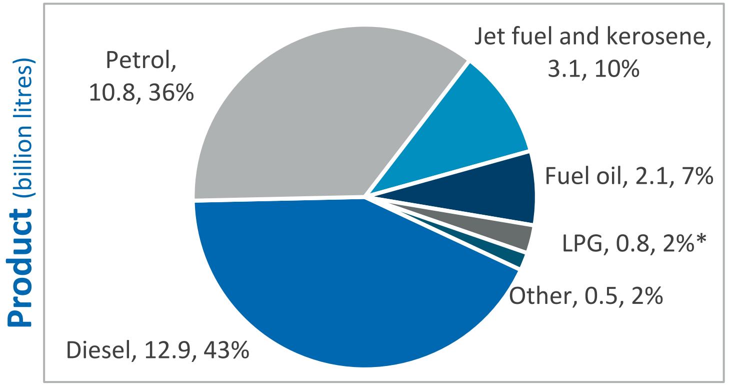
4,027 filling stations
Supplying customers across the country with petrol and diesel, mainly by six brands.

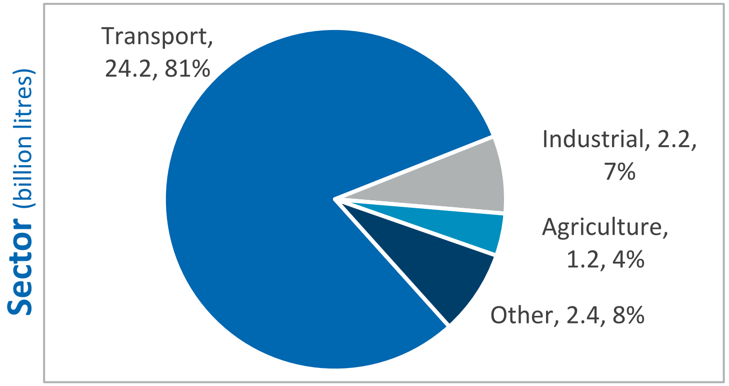
Main product uses

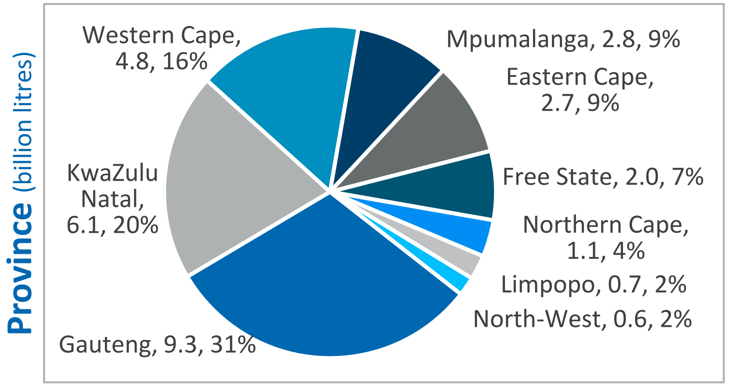
Petroleum can be used as a fuel and as a feedstock for products across many sectors in the economy

- **Petrol** for transportation and equipment
- **Diesel** for transportation and equipment
- **Kerosene jet fuel** for powering jet engines of aircraft
- **Illuminating paraffin** for lights and cooking
- **LPG** for heating, cooking, industrial processes and agriculture
- **Bitumen** for paving, construction and roads
- **Lubricants** for vehicle lubrication and manufacturing machinery
- **Fuel Oil** for powering merchant ships and for industrial steam and hot water boilers

Overview of downstream oil industry







Demand

- **Diesel** is the largest liquid fuel demanded. Demand is spread geographically due to its role in transportation. Domestic demand is greater than domestic production.
- **Petrol** is the second largest liquid fuel. Its is almost exclusively used in transport and has geographical spread. Demand is weighted towards 95 Octane. Domestic demand and supply is well balanced
- **Kerosene**, in the form of aviation fuel, is the main customer. The geographic use is tied to major airport hubs. Domestic demand and supply is well balanced.
- **Fuel Oil** demand has a good demand and supply balance in the country with some South Africa export to other countries and into international marine bunkers.
- **LPG** is mainly for consumer use and is sometimes constrained by supply and import capacity during peak demand periods.
- Fuel demand is influenced by GDP, population density and industrial activity such as mining, power, steel production and other manufacturing activities.

23.7 billion litres of diesel and petrol consumed

79% of demand was from diesel and petrol.

24.2 billion litres consumed by transportation

81% of demand was from the transport sector.

20 billion litres consumed by three provinces

Gauteng, Kwa-Zulu Natal and Western Cape represented 67% of total demand.

Source(s):DMRE, IEA, FTI analysis.

Note: LPG quantity provided in litres above for consistency with other products, but sales are recorded in kg. National LPG sales (based on SAPIA member data) are 411 million kg (806 million litres)

Petroleum product supply and demand

Total demand for petroleum products in South Africa reached ~35bn litres / year in 2019. Of this, ~30bn litres was for domestic demand and ~5bn litres was for export to neighbouring countries. In 2019:

- 57% of feedstock supply for the South African oil industry was from crude oil imports.
- 78% of finished product supply was from domestic refining capacity (crude oil, coal-to-liquids and gas-to-liquids).
- 82% of demand for product was from the South African domestic market. The remainder was from exports.

Feedstock

Total:	***35 bn litres***	**100%**
Crude	*20.1bn litres*	57%
Coal	*5.7bn litres*	21%
Gas	*1.7bn litres*	6%
Finished Products	*7.6bn litres*	22%

Refining and processing

Domestic:	***27 bn litres***	**78%**
SAPREF	*6.9bn litres*	25%
ENREF	*5.1bn litres*	19%
NATREF	*4.1bn litres*	15%
Astron	*3.8bn litres*	14%
Secunda	*5.7bn litres*	21%
PetroSA	*1.7bn litres*	6%
Imports:	***8 bn litres***	**22%**
Finished Products	*7.6bn litres*	100%

End consumption / demand

Product

Product		
Diesel	*12.9bn litres*	43%
Petrol	*10.8bn litres*	36%
Kerosene	*3.1bn litres*	10%
Fuel Oil	*2.1bn litres*	7%
LPG	*0.8bn litres* *411mn kg*	3%
Other	*0.5bn litres*	2%

Sector

Domestic:	***30 bn litres***	**82%**
Transport	*24.2bn litres*	81%
Industrial	*2.2bn litres*	7%
Agriculture	*1.2bn litres*	4%
Other	*2.4bn litres*	8%
Exports:	***5 bn litres***	**18%**
Intl' demand	*5.3bn litres*	100%

Source(s): Department of Mineral Resources and Energy, International Energy Agency, SAPIA, FTI analysis.

Note: Finished products included: diesel, petrol, jet fuel, kerosene, fuel oil, liquified petroleum gas (LPG) and bitumen. Lubricants are not included. LPG volumes are as per SAPIA member data

Oil industry economic impact

R 163 billion (3.2%)
to South Africa GDP

For every R 1 contributed directly to GDP, a further R 1.59 is supported elsewhere in the economy.

247,772
Jobs supported

The industry supported 1.5% of country total employment.

For every 1 job in with industry, a further 1.52 jobs are supported elsewhere in the economy.

R 94 billion
of capital investment

R 94 billion in capital expenditure. R 197 billion in operating expenditure.

For every R 1 million of capital investment, the industry adds another R 1.5 million to GDP.

		GDP	Jobs	CAPEX	OPEX
Direct impact	Economic contribution supported by the oil industry's own activities and their immediate suppliers.	R 139 billion	171,358 jobs	R 55 billion	R 152 billion
Indirect impact	Economic contribution supported by liquid fuels and its supply chain linkages to other industries (i.e., suppliers of suppliers)	R 24 billion	76,415 jobs	R 39 billion	R 45 billion

Further contributions are made when considering the induced impact

		GDP	Jobs	CAPEX	OPEX
Induced	Economic contribution from the spending of workers linked to the industry.	R 38 billion	139,465 jobs	R 72 billion	R 74 billion

Notes: Statements on total contributions include SAPIA members direct and indirect impacts. An estimation of the whole industry contribution is included in the full report. They exclude induced contributions.
Total industry direct GDP = R137.8bn (99.6% SAPIA members); Total industry direct jobs = 171,947 (99.7% SAPIA members); Total industry CAPEX = R78.0 bn (99.7% SAPIA members)
Total South Africa GDP at 2019 market prices = R5,078 bn

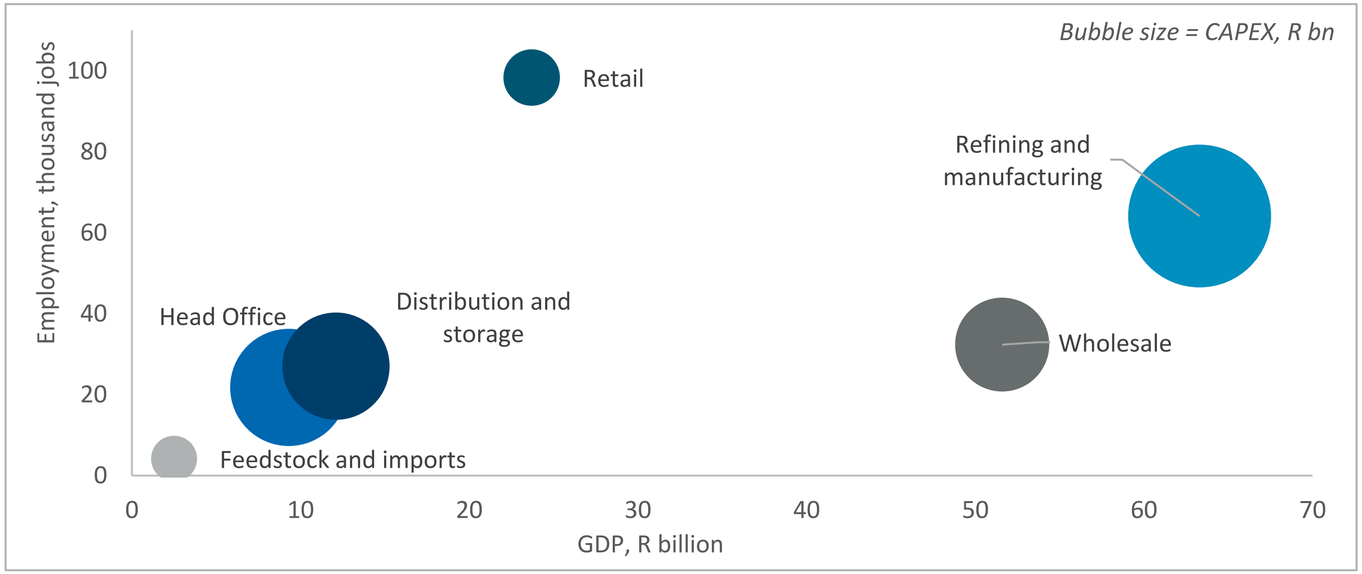
Economic contribution by value chain segment

The oil industry has a connected and complex value chain. Each value chain segment contributes to GDP, employment and capital investment in different ways, reflecting their unique scale and activities in the overall process.

- Over 70% of oil industry GDP is derived from two segments (Refining and Manufacturing, Wholesale) of the value chain. The segments comprise of six refineries and an extensive wholesaler network of operations.
- Over 78% of the oil industry jobs are derived from three segments (Retail, Refining and Manufacturing, Wholesale). A high number of jobs are created by forecourt attendants and convenience stores, operating refineries, and wholesalers moving product from the refinery to the market.
- Over 90% of oil industry capital investment is derived from four segments. (Refining and Manufacturing, Distribution and Storage, Wholesale and Head Office). Capital investment covers a range of activities , including the upgrading and maintenance of infrastructure such as refineries, storage tanks, pipelines, retail sites and refurbishments of offices.

Value chain segment	Head office	Feedstock and imports	Refining and Manufacturing	Distribution and storage	Wholesale	Retail	Total
GDP	R 9.3 bn 5.7%	R 2.5 bn 1.5%	R 63.3 bn 38.9%	R 12.1 bn 7.5%	R 51.6 bn 31.7%	R 23.7 bn 14.6%	R 163 bn 100%
Jobs	21,775 8.8%	4,167 1.7%	64,121 25.9%	27,021 10.9%	32,364 13.1%	98,324 39.7%	247,772 100%
Capital expenditure	R 21.6 bn 23.0%	R 3.3 bn 3.5%	R 32.1 bn 34.2%	R 18.1 bn 19.3%	R 13.9 bn 14.8%	R 5.0 bn 5.3%	R 94 bn 100%

Value chain segment contributions , 2019



Notes: Direct and indirect contribution are included.

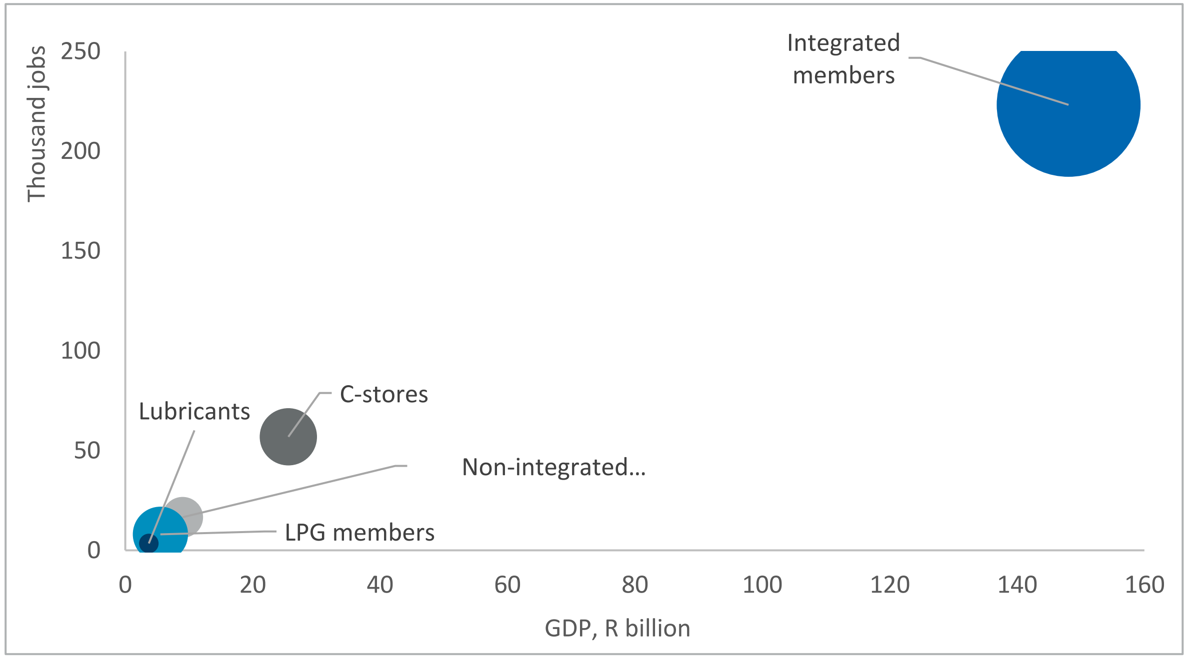
Economic contribution by participant type and specific lines of business

The oil industry encompasses a diverse range of participants operating across the value chain or parts of it.

- **Integrated** companies contribute 91% of GDP, 90% of jobs and 81% of capital investment. These companies operate refining facilities, as well as storage, distribution, wholesale and retail businesses across the country.
- **Non-integrated** companies contribute 6% of GDP, 7% of jobs and 7% of capital investment. These companies purchase finished products from abroad for import, or from domestic refineries. These companies operate storage, distribution, wholesale and retail businesses, depending on individual business models.
- **LPG** companies contribute 3% of GDP, 3% of jobs and 12% of capital investment in the industry. The capital investment is relatively high due to the cylinder and refilling equipment requirements. These companies focus primarily on the supply and marketing of LPG, not other oil products.
- **Lubricants** contribute R 3.7 bn of GDP, 3481 jobs and R 1.5bn of capital investment. Lubricants refers to the lines of businesses companies.
- **C stores** contribute R 25.6 bn of GDP, 56,892 jobs and R 15.5 bn of capital investment. C-stores refers to the lines of businesses within companies and which offer on site goods other than fuel products.

	SAPIA member type			Line of business	
	Integrated	Non-integrated	LPG	Lubricants	C-stores
GDP (R bn)	148.1	9	5.5	3.7	26
Jobs	223,169	16,568	8,036	3,481	56,892
CAPEX (R bn)	84.3	5.9	3.7	1.5	15.5

Participant type contribution, 2019



Notes: Direct and indirect contribution are included.

GDP contribution

Contribution | **Contribution levers of the downstream oil industry**

GDP contribution, 2019
R 163 bn
3.2% of South Africa's total GDP

- Contribution type
  R 163 bn
  - **Direct -** R 139 bn (2.7% of South Africa's GDP)
  - **Indirect -** R 24 bn (0.5% of South Africa's GDP)
  - **Induced -** R 38 bn (0.7% of South Africa's GDP)
- Value chain segment
  R 163 bn
  - **Refining and Manufacturing –** R 63.3 bn (38.9% of oil industry GDP)
  - **Wholesale –** R 51.6 bn (31.7% of oil industry GDP)
  - **Retail –** R 23.7 bn (14.6% of oil industry GDP)
  - **Distribution and Storage –** R 12.1 bn (7.5% of oil industry GDP)
  - **Head Office –** R 9.3 bn (5.7% of oil industry GDP)
  - **Feedstock and Imports –** R 2.5 bn (1.5% of oil industry GDP)
- SAPIA member type
  R 163 bn
  - **Integrated –** R 148.1 bn (91% of oil industry GDP)
  - **Non-integrated –** R 9 bn (5.6% of oil industry GDP)
  - **LPG –** R 5.5 bn (3.4% of oil industry GDP)
- Business lines of interest
  - **C-Stores –** R 25.6 bn
  - **Lubricants –** R 3.7 bn

Notes: Direct and indirect contribution are included.

GDP contribution

R 163 billion contribution to GDP, representing 3.2% of GDP in 2019

R 139 billion direct GDP
R 24 billion indirect GDP

R 139 bn of GDP is directly supported by the industry. (2.7%)

- SAPIA members contributed R 103 billion (2%)
- SAPIA member direct suppliers contributed R 36 billion (0.7%) to GDP. Direct suppliers include:
  - Mining, R 5.4billion
  - Government, R 5 billion
  - Finance and Business, R 2.7 billion
  - Utilities, R 2 billion

R 24 bn of GDP is indirectly supported by the industry. (0.5%)

- The industry is also linked to other industries via second round suppliers, including:
  - Finance and Business, R 4.6 billion
  - Retail trade, R 4.4 billion
  - Transport and communication, R 2.7 billion
  - Manufacturing, R 2.4 billion

High GDP multiplier

The GDP multiplier is 1.59, This is higher than the economy-wide multiplier of 1.13.

GDP contribution larger than the economy of Namibia

The oil industry GDP (R 163 billion) is larger than the GDP of economy of Namibia (R 151 billion).

GDP contribution larger than the Northern Cape

The oil industry GDP (R 163 billion) is higher than the Northern Cape province GDP (R 103 billion).

92% of GDP created is by seven companies

7 Integrated companies drive a significant GDP contribution. Integrated companies operate refineries and store and move product to wholesalers and retailers.

Over 70% is created by two segments in the value chain

The Refining and Manufacturing segment contributed R63 billion and the Wholesaler segment contributed R 24 billion to GDP.

Employment contribution

Contribution

- **Employment contribution, 2019**
  247,772
  1.5% of South Africa's total employment

Contribution levers of the downstream oil industry

- Contribution type 247,772
  - **Direct -** 171,358 (1.1% of jobs in South Africa)
  - **Indirect -** 76,415 (0.4% of jobs in South Africa)
  - **Induced –** 139,645 (0.9% of jobs in South Africa)
- Value chain segment 247,772
  - **Retail -** 98,324 (39.7% of oil industry jobs)
  - **Refining and Manufacturing -** 64,121 (25.9% of oil industry jobs)
  - **Wholesale -** 32,364 (13.1% of oil industry jobs)
  - **Distribution and Storage -** 27,021 (10.9% of oil industry jobs)
  - **Head Office -** 21,775 (8.8% of oil industry jobs)
  - **Feedstock and Import -** 4,167 (1.7% of oil industry jobs)
- SAPIA member type 247,772
  - **Integrated -** 223,169 (90% of oil industry GDP)
  - **Non-integrated -** 16,568 (7% of oil industry GDP)
  - **LPG -** 8,036 (3% of oil industry GDP)
- Business lines of interest
  - **C-Stores -** 56,892
  - **Lubricants -** 3,481

Notes: Direct and indirect contribution are included.

Employment contribution

247,772 jobs supported in 2019

171,358 direct jobs
76,415 indirect jobs

171,358 jobs are directly supported by the industry.

- Direct jobs are 1.1% of South Africa total employment.
- SAPIA members directly employ 10,630 people and support another 160,728 direct jobs at their suppliers :
  - Retail forecourts and convenience stores (typically franchise owned), 88,430 jobs
  - Financial and business services, 20,644 jobs
  - Agriculture, 18,253 jobs
  - Transport, 7,933 jobs
  - Mining, 6,527 jobs

76,415 jobs are indirectly supported.

- The oil industry indirectly supports further jobs in the economy through second round suppliers (supplier's suppliers)
- The Retail (98,324 jobs) and Refining and Manufacturing (64,121 jobs) segments support the most jobs in the industry, accounting for 65.6% of all direct and indirect oil industry employment.
- The Retail jobs are geographically distributed across the country, bringing benefit to a broad base of South Africans.

High job multiplier

For every 1 job in the industry, a further 1.52 jobs are supported, the fourth highest industry in the country (behind Utilities, Manufacturing and Transport)

High skill jobs

The oil industry is the second highest contributor to providing higher skilled jobs in South Africa, after Utilities.

High paid jobs

The oil industry has the second highest average wages per employee in the economy (after Utilities). SAPIA member employees earn on average R55,872 per month.

Jobs supported would fill 3 of South Africa's largest football stadiums to capacity

FNB, Cape Town and Moses Mabhida stadiums.

Employment skill levels, 2019

	Highly skilled & skilled	Semi & unskilled	Informal
Oil industry labour force	59%	24%	17%
South Africa total labour force	20%	57%	24%

Capital investment contribution

Contribution | **Contribution levers of the downstream oil industry**

Capital investment contribution, 2019
R 94 bn
10.3% of South Africa's total capital investment

- Contribution type
  R 94 bn
  - **Direct -** R 55 bn (6% of South Africa's capital)
  - **Indirect -** R 39 bn (4.3% of South Africa's capital)
  - **Induced -** R 72 bn (8.9% of South Africa's capital)
- Value chain segment
  R 94 bn
  - **Refining and Manufacturing –** R 32 bn (34.2% of oil industry capital)
  - **Head Office –** R 21.6 bn (23.0% of oil industry capital)
  - **Distribution and Storage –** R 18.1 bn (19.3% of oil industry capital)
  - **Wholesale –** R 13.9 bn (14.8% of oil industry capital)
  - **Retail –** R 5 bn (5.3% of oil industry capital)
  - **Feedstock and Imports –** R 3.3 bn (3.5% of oil industry capital)
- SAPIA member type
  R 94 bn
  - **Integrated –** R 84.3 bn (89% of oil industry capital)
  - **Non-integrated –** R 5.9 bn (6% of oil industry capital)
  - **LPG –** R 3.7 bn (6% of oil industry capital)
- Business lines of interest
  - **C-Stores –** R 15.5 bn
  - **Lubricants –** R 1.5 bn

Notes: Direct and indirect contribution are included.

Capital investment contribution

R 94 billion of capital investment in 2019

R 54.7 billion of direct capital investment
R 39.6 billion of indirect capital investment

R 54.7 bn of direct capital investment by the industry.

- SAPIA members contributed R 8.7 billion.
- SAPIA member immediate suppliers contributed R 46 billion, 5.1% of South Africa's total capital formation. Capital investment includes:
  - Upgrade and maintenance of import infrastructure, both offshore (e.g., Durban Single Buoy Mooring) and at port berths
  - Refinery turnarounds, upgrades and maintenance to improve efficiency and reliability and reduce environmental impact
  - Storage tank upgrades and maintenance
  - Distribution infrastructure and equipment maintenance and replacement across road, rail and pipelines
  - Refurbishment, repair and expansion of retail sites, including C-stores and fuel storage/pumping equipment
  - Refurbishment, repair and expansion of office facilities
  - Purchase and maintenance of LPG cylinders
  - Purchase and maintenance of LPG cylinder filling equipment

R 39.2 Billion of indirect capital investment

- A further R 39.2 billion of capital investment was spent by indirect suppliers because of oil industry activity.

High investment multiplier

For every R 1 million of capital investment, the industry adds R 1.5 million to South Africa's GDP.

Oil industry investment equivalent to 70% of the South African Investment Conference

At the inaugural South African Investment Conference in 2018, a total of R 134 billion worth of investments were committed to. One year of oil industry capital investment of R 94 billion is equivalent to 70% of this amount.

Over 90% of capital investment made by four segments

Refining and Manufacturing, (R 32.1 billion) Distribution and Storage (R 18.1 billion), Wholesale (R 13.9 billion) and Head Office. (R 21.6 billion).

The oil industry's CAPEX represents 10.3% of South Africa's Gross Fixed Capital Formation (GFCF). Countries with rapid rates of economic growth typically invest in fixed capital assets to facilitate ongoing growth. Investment in future production capacity is a foundation for high and sustainable levels of growth and development.

Economic and societal contribution

R 121.3 bn of national tax generated and collected

More than R 1 billion of social investments

R 121.3 billion of national tax collected and generated

- SAPIA members generated and collected R 121.3 billion in tax income for the government in 2019.
- 9% of total government tax income was from the oil industry for the 2019/20 tax year.
- There are three components of tax generated and collected
  - Fuel Levy (R 75.4 billion) which is paid by consumers at point of purchase and passed to the government.
  - Direct taxes (R 14.8 billion) paid by SAPIA members as company tax paid on income.
  - Indirect taxes (R 31.1 billion), which includes levies during the production process, customs and excise on imported inputs, VAT and other levies included in the fuel price
- Over a 10-year period (2009 -2019), levies collected in indirect taxes for fuel sales has increased by 158% , from R219c to R566c per litre of 95 ULP petrol.

More than R 1 billion of contributions to society

- The oil industry initiate and participate in numerous social and environmental projects across South Africa and in the communities in which they operate.

Transformation

- The oil industry adopted the Liquid Fuels Charter in 2000 and continues to work towards industry transformation .
- Most SAPIA members have achieved at least Level 3 B-BBEE, and many are Level 1 or 2. There is also increasing local ownership in the sector, particularly in LPG.
- All integrated, privately owned SAPIA members have concluded equity ownership deals, most of which are in respect of 25% of the full value chain, including both refining and marketing. Most are also broad-based and include women's groups and the community.

R 121.3 bn tax is equivalent to child grant support for 21.9 million families

R 121.3 bn is equivalent to 2.4 million additional health workers

R 1 billion+ in social contributions

76.5% of SAPIA member employees from previously disadvantaged population groups

The SAPIA member workforce is 64% male and 36% female

Strategic security of supply

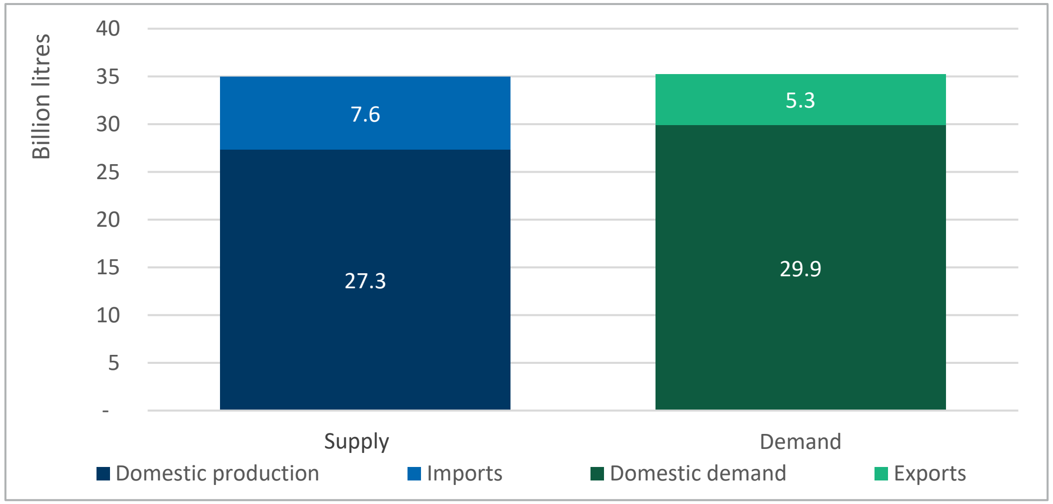
Enabling security of security of supply, resilience and mitigating risk

- The downstream oil industry plays a vital role in providing petroleum products across the country.
- An important role of the downstream oil industry is to ensure the security of supply and bring resilience to the supply chain to protect the economy during times of disruption.

Balancing domestic production and imports

- To provide security of supply, the industry balances domestic production and imports.
- The greater the domestic capability, local product stocks and production, the greater the protection against disruption such as prices swings and shortages in the global industry supply chain.
- In 2019 domestic production accounted for 78% of South Africa's liquid fuel supply.

South Africa product supply and demand, 2019



Feedstock and finished product security of supply.

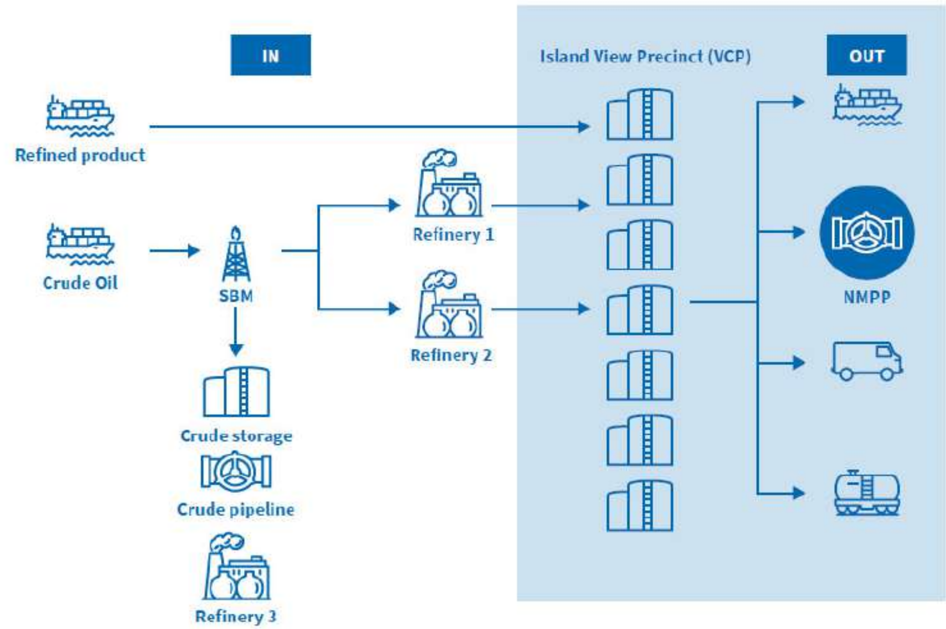
- South Africa relies on coal (70%), crude oil (15%) and other feedstocks (15%) such as natural gas, nuclear, renewables, biofuel and waste for its primary energy supply.
- >99% of crude oil is imported, of which ~50% is from other African countries, and the four crude oil refineries are fully reliant on these oil imports.
- For finished product, 22% is imported and 78% is locally produced. The security of supply varies per product. 39.2% of diesel supply, 11.2% of petrol supply and 27.7% of LPG supply was reliant on importation in 2019.
- Any disruption to product supply, such as availability and pricing, has knock on and inflationary effects across the fuel connected economy.

Source(s): DMRE, SARS, FTI analysis.

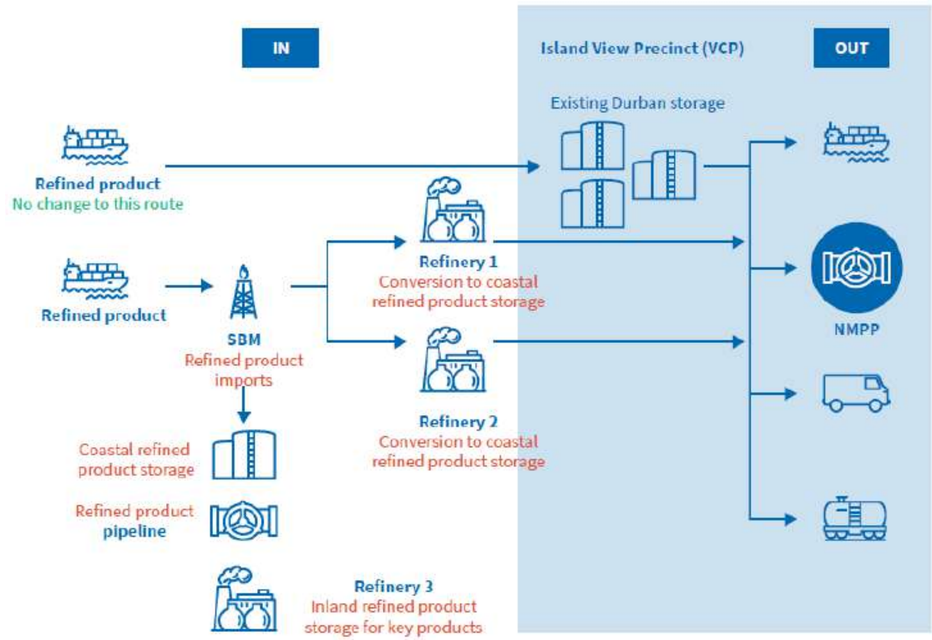
Strategic security of supply – Refinery scenario

A scenario was developed to explore the economic impact of the three Durban linked refineries being converted into storage facilities for imported refined product.

Current infrastructure



Scenario infrastructure – Three refineries converted



Economic impact estimate of closing and converting three Durban linked refineries

Loss of 408,000 bpd refining capacity

Equivalent to the loss of 58% of South Africa total refining capacity

A decline of R 33.5 billion in GDP

A loss of 33,900 jobs

Job losses mostly in Durban, Sasolburg and in the high skilled category

A decline of R 17 billion in capital investment

A decline of R 28.7 billion in Balance of Payments

Source(s): DMRE, SARS, FTI analysis.

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