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# Customs Revenue in the Renewable Energy Sector: Evidence from South Africa

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*This report assesses the effects of customs revenues in the renewable energy industry in South Africa. After Eskom (State-owned enterprise) presented the firm's biggest loss of R9.7 (\$0.6) billion in August 2009, several applications for higher tariffs were performed over the years. South Africa has been going through an energy crisis, with more loadshedding expected in 2024, which is predicted to hamper GDP development. Indeed, the country's economy has been adversely disturbed by the COVID-19 pandemic, and its improvement path is at this instant stifled by incessant power cuts. There is no doubt that this energy crisis will continue for a while in the future, and it is unlikely to get better soon. This policy report provides a customs revenue analysis of the market participants or entities in the renewable energy industry. This study adopted a pragmatic research methodology and found that the government could propose to the National Treasury the scrapping of value-added tax (VAT) and Customs Duties on the importation of solar panels and parts in order to help reduce the cost of purchasing for both businesses and households.*

## Disclaimer

The views and contents of this report only reflect the author's opinion and do not represent the point of view of the South Africa Revenue Service (SARS).

## Executive Summary

South Africa is experiencing an energy crisis with more power cuts anticipated in 2024, which is predicted to slow down the development of the GDP. To close the electricity supply gap, the government is promoting alternative sources of energy, mostly renewable energy such as solar electricity, wind, geothermal, hydropower, ocean, and bioenergy (CSIR 2023).

The pragmatic method was used to analyse the customs revenue in the renewable energy sector. Desktop research was performed to collect data from secondary sources. A literature review was performed from various sources of accredited journals for comparison purposes with other countries. Most countries in the world have embraced the use of clean and renewable energy (United Nations 2013). Hydropower is the major renewable energy source that has been embraced by most countries in the world, accounting for more than 40% of the total mix of renewable energy. The top 10 countries in the use of diversified renewable energy worldwide based on capacity are composed of China, USA, Brazil, India, Germany, Japan, Canada, France, Italy, and Russia.

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In this respect, these countries have made significant progress in switching to renewable energy as part of reaching specific objectives and dealing with the issue of air pollution. Though not among the world leaders, South Africa is the leader in renewable energy diverse power in the African continent, followed by Egypt and Ethiopia (IRENA 2023). South Africa is leading mainly in both solar and wind energy and is the third biggest in hydropower following Ethiopia and Angola. In terms of bioenergy, the country is the second largest following Ethiopia. South Africa was the fourteenth biggest producer of carbon dioxide in the world in 2021 mainly due to the country's reliance on coal energy.

The renewable energy industry provides solutions to import dependency by encouraging the government to allocate resources and protect the economy from the volatile price swings of fossil fuels. This will stimulate economic development, job creation, and poverty alleviation (Okazaki 2018). Furthermore, renewable sources of energy can assist countries moderate climate change, foster buoyancy to unstable prices, and reduce the costs of energy (WTO 2017).

The growing interest in new technologies and renewable energy points to a new system of harmonisation in dealing with renewable energy potential (Yaren 2020). All economic agents such as investors, regulators, governments, and consumers need a universal similar structure for both renewable and non-renewable energy resources to measure energy sustainability at all stages (WCO and WTO 2022).

This paper found that the import of solar and wind equipment increased between 2019 and 2023 by recording a massive increase in 2020. The custom value increased from R1.6 (\$0.1) billion in 2019 to R32 (\$2.1) billion in the 2023 financial year. This increase is in chapter 85 (Cellphones, Electrical Equipment, and Machinery) under tariff code 85044000 (Electrical transformers and static converters such as rectifiers and inductors parts) recording R28.3 (\$18.5) billion total custom value in five years followed by tariff code 85076000 (Electric accumulators–Lithium-ion accumulators) with R22.3 (\$1.5) billion.

The South African government should consider the use of tax and customs revenue to improve policy formulation. There is no doubt that the effective use of tax data can increase compliance levels, enhance revenue collection, and assist in the identification of new revenue opportunities.

## 1. Introduction

Currently, there is no doubt that loadshedding is a familiar word to all South Africans, as it affects not only households but also businesses and the entire country. Loadshedding is the interruption of an electricity supply

to avoid excessive load on the generating plant. This loadshedding frustrates the smooth performance of the economy and households by carrying its price effects on production and living costs, and thus negatively impacting the expansion of the economy, which was recovering from the devastating consequences of the COVID-19 pandemic (Ero 2023). The South African Reserve Bank (SARB) Monetary Policy Committee (MPC) pointed out that the GDP growth is predicted at 0.3% for 2023 mainly due to loadshedding. Nonetheless, when taking into consideration the sternness of loadshedding, the Bank estimated that it will push down growth by up to 2 percentage points in 2023, as opposed to the prior forecast of 0.6 percentage points (SARB 2023). In understanding the impact of loadshedding, a previous study conducted by Ero (2023) shows that there is an overall negative impact of loadshedding on the economy, even though the magnitude varies.

The Association of Psychologists puts forward a strong warning that loadshedding is having a negative emotional impact on South Africans. In fact, the continual power cuts trigger anxiety and depression in some individuals and can also be disastrous. Indeed, South Africa has experienced power cuts at exceptional stages that have distressed the normal lives of several South African citizens (CSIR 2023).

South Africa's economy has been challenged with an unprecedented case of loadshedding which has negatively impacted food security, mobile networks, and economic sectors in general. Stats SA (2022) stated that the country's GDP declined by 0.7% in the last quarter of 2022—a lot of this drop was ascribed to rolling power cuts which hobbled economic production. Furthermore, the magnitude of the current blackouts put at risk the GDP improvement from the 0.7% decline undergone in 2022. There is a need for partnership between the government and private sector to finance the use of renewable energy (BER 2022).

ESKOM's continued stage 6 loadshedding has now even instigated considerable harm to the South African economy, with more than R4 (\$0.3) billion lost from the GDP for every single day it carries on. The country's economy could be between 8% and 10% higher if ESKOM did not perform poorly. Nonetheless, despite the harm done to the economy in general, both households and industries are currently condemning the incompetency of ESKOM in managing power cuts (ESKOM 2023).

The challenges of loadshedding were addressed through a comprehensive variety of amendments and policy procedures implemented by the government in March 2023. The most important measure included tax relief stimulating the growth of the renewable energy industry, in which households who install rooftop solar panels should be eligible to claim a rebate of 25% of the cost of the panels, up to a maximum of R15,000 (\$980) from March 2023. As large businesses shift to

some degree towards self-generation of energy, this will have positive spin-offs for the government through expansion in imports. Furthermore, investment in renewable energy by companies and households will contribute to greater rebate claims and tax refunds to taxpayers (SARS 2023).

Against this backdrop, this report evaluates South Africa’s electricity sector, namely, the usage of renewable energy. A desktop method is used to assess the customs revenue generated from the renewable energy sector. Section 2 presents the South African renewable energy policy. Section 3 captures the state of the renewable energy sector in South Africa. Section 4 analyses the effects of renewable energy, and Section 5 puts forward conclusions and recommendations based on the business cases of the renewable energy sector.

## 2. Overview of the Renewable Energy Industry

### 2.1. Global Comparison of the Renewable Energy Industry

Most countries have embraced the use of clean and renewable energy, albeit at various degrees, including, amongst others, solar electricity, wind, geothermal, hydropower, ocean, and bioenergy. Hydropower is the major renewable energy source that has been adopted by most countries in the world, accounting for more than 40% of the total mix of renewable energy. The top 10 countries in the use of mixed renewable energy worldwide based on capacity include China, USA, Brazil, India, Germany, Japan, Canada, France, Italy, and Russia. Consequently, these countries have made significant progress in switching to renewable energy by reaching specific objectives and addressing the issue of air pollution as well (IRENA 2023).

Currently, the war in Ukraine has triggered spiking fossil fuel costs by hampering energy-importing poor countries. Consequently, renewable energy sources can be found in every country, with the exception that their potential should be harnessed accordingly. The International Renewable Energy Agency (IRENA) pointed out that 90% of the world’s electricity could and should emanate from renewable energy by 2050. In fact, renewable energy seems to be an inexpensive power alternative in several countries nowadays. OECD (2022) and IRENA (2023) indicate that prices for renewable energy technologies are declining rapidly. For instance, the cost of electricity from solar power declined by 85% between 2010 and 2020, while the costs of onshore and offshore wind energy declined by 56% and 48% respectively, during the same period.

Though not among the world leaders, South Africa is the leader in renewable energy diverse power in the African continent, followed by Egypt and Ethiopia.

South Africa is leading mainly in both solar and wind energy and is the third biggest in hydropower, following Ethiopia and Angola. In terms of bioenergy, the country is the second largest, following Ethiopia. South Africa was the fourteenth biggest producer of carbon dioxide in the world in 2021, mainly due to the country’s reliance on coal energy.

Though not among the world leaders, South Africa is the leader in renewable energy mix capacity in the African continent, followed by Egypt and Ethiopia. South Africa is leading principally in both solar and wind energy and is the third biggest in hydropower, following Ethiopia and Angola. In terms of bioenergy, the country is the second largest, following Ethiopia. The largest emitters of carbon dioxide in the world accounted for more than 60% of CO2 emissions in 2021. South Africa was the fourteenth biggest producer of carbon dioxide in the world in 2021, mainly due to the country’s reliance on coal energy (WTO 2019).

**Table 1. Renewable energy share of electricity capacity in percentage in 2021.** Source: International Renewable Energy Agency (IRENA 2023).

World	38.3
Asia	37.6
Africa	23.1
Eurasia	29.4
Europe	52.2
North America	32
Oceania	45.3
South America	68.5
Middle East	7.3
Central America and Caribbean	37.7

Regarding the share of renewable energy to the total electricity capacity, **Table 1** indicates that there are variations across the regions, with a world average of 38.3%. South America and Europe have so far achieved higher shares of renewable energy’s share to the total electricity capacity. South Africa’s share of renewable energy is below that of the global and continental average at 17.6% (IRENA 2023).

Most of the countries that have embraced clean energy have invested billions of dollars and put in place incentives to entice both businesses and households to convert to environmentally friendly energy sources like solar power through different policy measures unique to each country’s circumstances (WTO 2017).

### 2.2. South African Renewable Energy Policy

South Africa has been investing in renewable energy for over a decade and has increased the capacity of renewables exponentially from 1,003 Megawatts in

2012 to 10,193 Megawatts in 2021, mainly driven by investments in wind and solar power. The state of South Africa Renewable Energy data for South Africa released by the Department of Mineral and Energy (DME) shows that solar PV, concentrated solar power (CSP), wind and biomass, and renewable energy technologies are available in all South African provinces (Akinbami, Oke, and Bodunrin 2021). The Northern Cape province recorded the highest in all renewable energy (solar PV, CSP, wind and biomass), followed by the Eastern Cape Province and the Western Cape.

The South African government addressed the challenge of power cuts through a series of reforms and policy strategies. Amongst others, this includes the tax proposal designed to stimulate the expansion of the renewable energy industry, in which households who install rooftop solar panels will be eligible to claim a rebate of 25% of the cost of the panels, up to a maximum of R15,000 from March 2023. As large businesses shift to some degree towards self-generation of energy, this will have positive spin-offs for the government through achievable improved imports and investment in renewable energy by companies and households that will expand the rebate claims and tax refunds to taxpayers (SARS 2023).

DME developed the Integrated Resource Plan (IRP) 2018 with the main objective of serving as the primary plan for new-build power generation. The original one was written in 2010 and it was meant to be appraised every two years. The 2018 IRP marked a considerable move towards renewable energy, with the largest part of the new generation emanating from solar power PV, liquefied natural gas (LNG), and wind (DME 2018).

**Table 2** indicates that the 2018 IRP marked a considerable move toward the implementation of the strategic objectives of renewable energy. More new capacities were established for the purpose of reducing the negative impact of the unending power cuts.

The renewable energy sector, like many other established industries, has organised itself with industry bodies and councils being established globally and domestically. The following are some of the key bodies that are regulating and monitoring the renewable energy industry:

- International Renewable Energy Agency
- Global Wind Energy Council
- South African Wind Energy Association
- South African Photovoltaic Industry Association

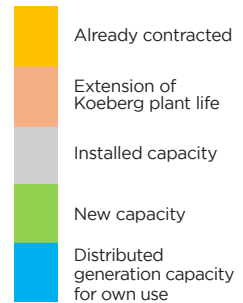
### 3. Renewable Energy Value Chain

South Africa is the biggest consumer of energy in the African continent accounting for 30% of electricity demand. The current energy mix comprises mainly coal which contributed over 80% to the systems demand, 4.6% from nuclear, and about 13.7% from renewable energy (CSIR 2023). A comparison of the energy mix between the years 2020 and 2022 indicates a decreased share of coal-generated electricity and an increasing share from renewable energy sources, as depicted in **Figure 1**.

The increasing share of renewable energy sources is not only a result of increased loadshedding in the country, but the government has also played a critical

**Table 2. Policy adjusted IRP draft 2018.** Source: policy revised setup of the plan (DME 2018)

	Cool	Nuclear	Hydro	Storage	PV	Wind	CSP	Gas/ Diesel	Other (cogen, biomass, landfill)	Distributed generation
Current	37149	1860	2100	2912	1474	1980	300	3830	499	
2019	2155					244	300			allocation to the extent of the short term capacity and energy gap
2020	1433				114	300				
2021	1433				300	818				
2022	711			513	1400	1600				
2023	750				1000	1600			500	
2024		1860				1600	1000		500	
2025					1000	1600			500	
2026						1600			500	
2027	750					1600	2000		500	
2028					1000	1600			500	
2029				1575	1000	1600			500	
2030			2500		1000	1600			500	
<b>Total installed capacity by 2023 (MW)</b>	<b>40381</b>	<b>3720</b>	<b>4600</b>	<b>5000</b>	<b>8288</b>	<b>17742</b>	<b>600</b>	<b>6830</b>	<b>499</b>	<b>4000</b>



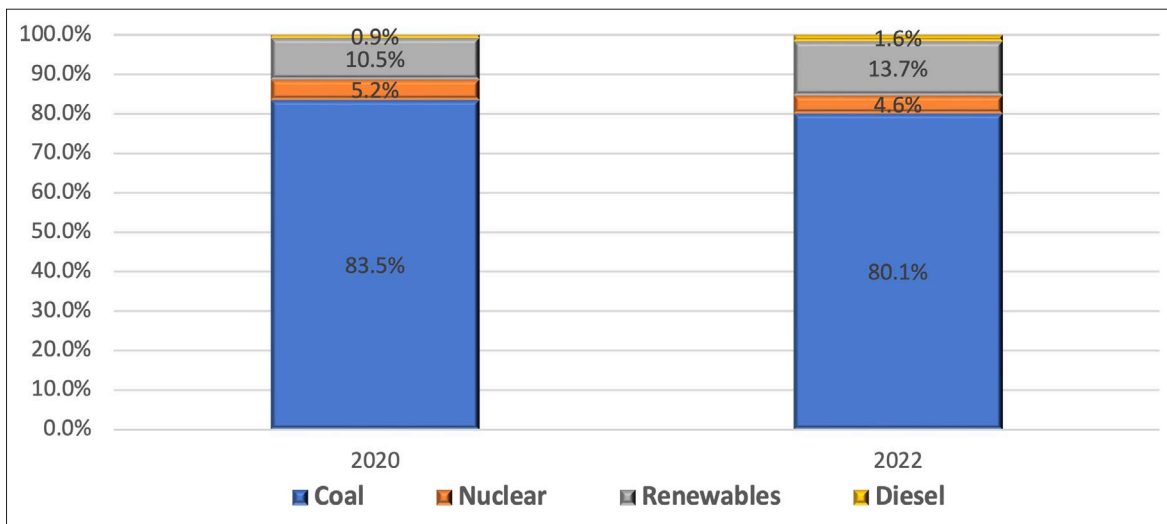


Figure 1. South Africa's Electricity Mix (Installed Capacity) between 2020 and 2022. Source: CSIR 2023.

role in enabling increased investment. In July 2022, the President announced the electricity plan to hasten the supply of new capacity from renewables, gas, and battery storage by relaxing policies for private generators and doubling the size of Bid Window 6 of the Renewable Energy Independent Power Producers Procurement Programme (REI4P). The quantity of new generation capacity supplied through Bid Window 6 for wind and solar power is estimated to double from 2,600 MW to 5,200 MW (GreenCape 2020).

The rising share of renewable energy in the electricity mix also makes notable contributions towards the target of net-zero emissions. The increased government support for investment in renewable energy will in turn lead to a drastic rise in the demand for fabricated components and services within the renewable energy value chain. It thus becomes critical to understand the value chain driving the renewable energy industries in order to develop relevant industrial development support programs that support localisation, employment creation, and economic growth.

### 3.1. Renewable Energy Distribution

In 2022, coal-generated electricity still dominated the energy mix. However, renewable energy is increasingly infiltrating the energy mix with wind energy being the main contributor (50%), followed by solar energy (34%). Hydropower and CSP contribute small shares in the renewable energy industry, as depicted in Figure 2.

### 3.2. Renewable Energy Trends

With South Africa experiencing continual and revolving energy blackouts of up to 10 hours a day, this has facilitated investments in renewable energy sources. The private sector, government, and households have made these investments. With no clear solution to

how the coal-generated electricity supply crisis would be resolved, the opportunities within the renewable energy market in the country reflect a positive outlook (National Treasury 2023).

South Africa's solar PV industry has been growing steadily over the past few years with an increasing number of installations from retail centres, offices, and residential areas, resulting in an increasing share of solar-generated electricity (Akinbami, Oke, and Bodunrin 2021). The push towards solar energy is fuelled by the increasing power shortages from coal-generated electricity in the country. In 2014, 1,000 GWh of electricity was generated through concentrated solar and this increased to 7,000 GWh concentrated solar and 1000 GWh solar photovoltaic by 2020 as depicted in Figure 3.

The country's 2019 IRP indicates that by 2030, a total of 75,744 MW of electricity will be generated. The share of solar PV-generated power is expected to be 10.6% of the energy mix by 2030. Concentrating solar power is expected to have one of the smallest contributions to the energy mix of about 0.9% by 2030 (IRENA 2023).

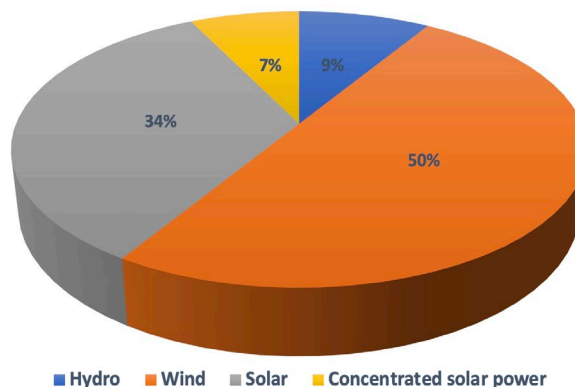
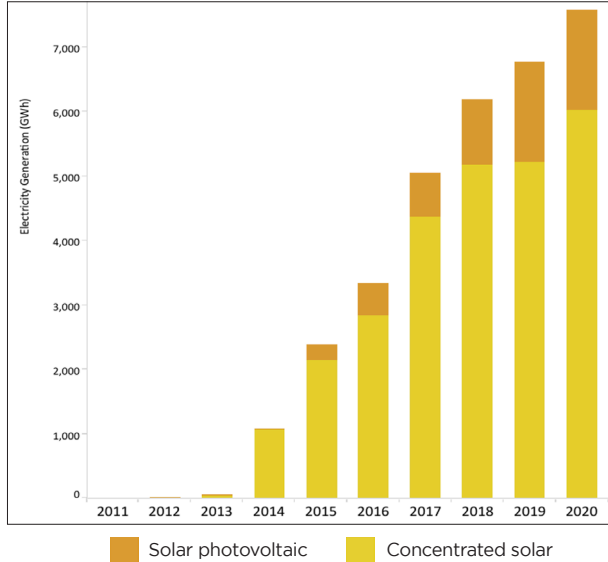


Figure 2. Distribution of Renewable Electricity Generation in South Africa in 2022. Source: CSIR 2023.



**Figure 3. Solar Energy Generation between 2011 and 2020.**  
Source: IRENA 2023.

South Africa has an abundance of solar energy as a resource for electricity generation. The country's solar resources ranked amongst the highest in the world. The annual average global solar radiation is approximately 220 W/m<sup>2</sup> for South Africa, while in certain regions of the United States of America, it is 150 W/m<sup>2</sup> and 100 W/m<sup>2</sup> for Europe and the United Kingdom. This suggests that South Africa should take the opportunity of this energy resource and grow the solar industry (ESKOM 2023).

### 3.3. Set-Up Cost

In South Africa, the cost of installing a complete solar energy/power system in 2023 ranges between the price range of R49,500 (\$3,235) to R360,000 (\$23,529) or more for different homes and offices, and this largely

depends on the capacity to be installed in a home, office space and industrial area. The costs are driven by the supplied inverter, solar PV panels, the roof mounting kit, certification, electrical work, and installation as well as other components (SARS 2023).

## 4. Customs Values of Renewable Energy in South Africa

The increased use of renewable energy in South Africa is evident in the import of Catalytic Converters, Computers, and Mechanical Appliances which are under Chapter 84, and Electrical equipment under Chapter 85 (WCO and WTO 2022), both of which increased substantially between 2019 and 2023. Chapter 84 imports recorded an increase of R546,999 (\$35,752) in Customs Value, R93,575 (\$6,116) in VAT amount, and R0 (\$0) in total duty amount, whilst Chapter 85 recorded a growth of about R30.4 (\$1.9) billion in Customs Value, R4.9 (\$0.3) billion in VAT amount and R45.3 (\$2.9) million in total duty amount with the highest increase reported in 2020 and a slight decline in 2022 for both Chapters. The total duty amount shows a similar trend as the customs value and VAT amount as depicted in **Table 3**.

Table 3 indicates that the import of Solar and Wind equipment increased between 2019 and 2023 by recording a massive increase in 2020. The custom value increased from R1.6 (\$0.1) billion in 2019 to R32.1 (\$2.1) billion in the 2023 financial year. This increase is in chapter 85 (Cellphones, Electrical Equipment, and Machinery) under tariff code 85044000 (Electrical transformers and static converters such as rectifiers and inductors parts) recording R28.3 (\$1.8) billion total custom value in five years followed by tariff code 85076000 (Electric accumulators-Lithium-ion accumulators) with R22.3 (\$1.5) billion as depicted in **Table 4**.

**Table 3. Import of Solar and Wind equipment.** The average exchange rate between Rand and US dollar is 15.3, meaning that 1US\$=R15.3. Source: SARS 2023.

Chapter 84	Quantity	Customs Value	VAT Amount	Total Duty Amount
2019	9	R 13 139.00	R 847.95	R 0.00
2020	82	R 386 527.00	R 62 006.85	R 0.00
2021	105	R 399 737.00	R 65 956.65	R 0.00
2022	7	R 55 381.00	R 9 137.85	R 0.00
2023	206	R 560 138.00	R 92 422.65	R 0.00
<b>Total</b>	<b>409</b>	<b>R 1 414 922.00</b>	<b>R 230 371.95</b>	<b>R 0.00</b>
Chapter 85	Quantity	Customs Value	VAT Amount	Total Duty Amount
2019	8 300 918	R 1 633 029 960.00	R 266 019 536.10	R 14 289 158.80
2020	52 840 895	R 12 299 312 204.00	R 2 004 076 178.04	R 37 059 954.84
2021	33 319 093	R 13 355 000 668.00	R 2 114 694 832.67	R 41 945 496.89
2022	48 621 856	R 11 691 094 803.00	R 1 908 994 581.00	R 29 865 681.81
2023	99 037 201	R 32 117 136 434.00	R 5 261 881 768.03	R 59 590 862.04
<b>Total</b>	<b>242 119 963</b>	<b>R 71 095 574 069.00</b>	<b>R 11 555 666 895.84</b>	<b>R 182 751 154.38</b>



Table 4. Custom Value on Solar and Wind equipment per tariff code. 1US\$=R15.3. Source: SARS 2023.

Tariff Code	Custom Value					
	2019	2020	2021	2022	2023	Total
85044000	R 1 181 364 450.00	R 4 695 679 013.00	R 4 837 825 602.00	R 6 045 212 067.00	R 11 576 539 173.00	R 28 336 620 305.00
85076000	R 293 553 825.00	R 1 534 626 874.00	R 2 874 826 662.00	R 3 601 244 606.00	R 14 026 141 671.00	R 22 330 393 638.00
85023100	R 329 535.00	R 5 356 029 969.00	R 4 851 862 019.00	R 90 768 317.00	R 8 940 001.00	R 10 307 929 841.00
85414300				R 1 414 776 441.00	R 5 570 609 637.00	R 6 985 386 078.00
85021300	R 78 156 872.00	R 319 357 833.00	R 445 496 249.00	R 266 564 964.00	R 505 493 640.00	R 1 615 069 558.00
85021100	R 42 068 615.00	R 203 327 243.00	R 184 336 584.00	R 156 312 891.00	R 236 866 524.00	R 822 911 857.00
85021200	R 37 556 663.00	R 190 291 272.00	R 160 653 552.00	R 116 215 517.00	R 192 545 788.00	R 697 262 792.00
84128010	R 13 139.00	R 386 527.00	R 399 737.00	R 55 381.00	R 560 138.00	R 1 414 922.00
<b>Total</b>	<b>R 1 633 043 099.00</b>	<b>R 12 299 698 731.00</b>	<b>R 13 355 400 405.00</b>	<b>R 11 691 150 184.00</b>	<b>R 32 117 696 572.00</b>	<b>R 71 096 988 991.00</b>

Table 4 illustrates that there is only one tariff code under Chapter 84. The data of customs values are taken from the Table 3. Nonetheless, Tables 5 and 6 indicate that the VAT amount increased from R226 (\$14.8) million in 2019 to R5.2 (\$0.3) billion in the 2023 financial year. Similar to the custom value, chapter 85 tariff codes 85044000 and 85076000 reported the highest VAT amounts for the five financial years. The duty amount increased from R14.2 (\$0.9) million in 2019 to R59.5 (\$3.9) million in the 2023 financial year. There is a slight decline of VAT amount in 2022 as depicted in **Table 5**.

The tariffs that reported the highest values in customs value and VAT amount are showing lower duty amounts. Table 6 indicates that the duty amount increased from R14.2 (\$0.9) million in 2019 to R59.6 (\$3.9) million in the 2023 financial year.

## 5. Revenue Opportunities

The persistent roll-out of loadshedding not only brought economic challenges but is also serving as a catalyst for the growth in the use of renewable sources of energy, which creates great business and investment opportunities for the existing industry players and potential new entrants and thus revenue opportunities for SARS. The implementation of the policy inherent to rebates for solar installation is likely to encourage businesses that have commenced with their projects to generate their own electricity to move with speed and will lead to huge rebate claims from businesses across all sectors.

In the short run, businesses across various industries are struggling as a direct result of loadshedding and

Table 5. VAT amount on Solar and Wind equipment per tariff code. 1US\$=R15.3. Source: SARS 2023.

Tariff Code	VAT Amount					
	2019	2020	2021	2022	2023	Total
85044000	R 193 322 506.50	R 773 246 755.89	R 778 354 842.77	R 995 485 930.20	R 1 907 371 219.94	R 4 647 781 255.30
85076000	R 48 432 170.85	R 251 107 248.30	R 433 857 420.15	R 593 050 321.35	R 2 312 844 781.34	R 3 639 291 941.99
85023100	R 54 373.20	R 883 744 929.00	R 799 971 114.45	R 14 976 769.80	R 1 475 098.20	R 1 700 222 284.65
85414300				R 233 434 978.35	R 917 055 029.55	R 1 150 490 007.90
85021300	R 13 412 476.80	R 39 010 468.80	R 63 699 104.70	R 39 760 035.90	R 76 487 609.10	R 232 369 695.30
85021100	R 5 257 969.20	R 29 435 462.10	R 19 026 738.60	R 17 511 600.90	R 25 696 523.70	R 96 928 294.50
85021200	R 5 540 039.55	R 27 531 313.95	R 19 785 612.00	R 14 774 944.50	R 20 951 506.20	R 88 583 416.20
84128010	R 847.95	R 62 006.85	R 65 956.65	R 9 137.85	R 92 422.65	R 230 371.95
<b>Total</b>	<b>R 266 020 384.05</b>	<b>R 2 004 138 184.89</b>	<b>R 2 114 760 789.32</b>	<b>R 1 909 003 718.85</b>	<b>R 5 261 974 190.68</b>	<b>R 11 555 897 267.79</b>

Table 6. Customs Duty amount on Solar and Wind equipments per tariff code. 1US\$=R15.3. Source: SARS 2023

Tariff Code	Duty Amount					
	2019	2020	2021	2022	2023	Total
85021300	R 8 204 981.40	R 12 018 061.08	R 15 016 214.20	R 6 510 623.14	R 31 309 855.38	R 73 059 735.20
85021100	R 3 628 823.20	R 14 066 404.80	R 13 280 139.80	R 13 416 153.40	R 18 536 735.20	R 62 928 256.40
85021200	R 2 455 354.20	R 10 811 162.11	R 13 572 846.20	R 9 864 165.36	R 9 456 813.76	R 46 160 341.63
85044000	R 0.00	R 153 417.00	R 66 796.69	R 65 739.91	R 248 949.45	R 534 903.05
85076000	R 0.00	R 9 409.85	R 9 500.00	R 9 000.00	R 12 508.25	R 40 418.10
85414300				R 0.00	R 26 000.00	R 26 000.00
85023100	R 0.00	R 1 500.00	R 0.00	R 0.00	R 0.00	R 1 500.00
84128010	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
<b>Total</b>	<b>R 14 289 158.80</b>	<b>R 37 059 954.84</b>	<b>R 41 945 496.89</b>	<b>R 29 865 681.81</b>	<b>R 59 590 862.04</b>	<b>R 182 751 154.38</b>

have resorted to finding quick solutions such as installing generators, which are costly and require fuel/diesel to run as well as maintenance. This has created an opportunity for the suppliers of generators and diesel, which should translate into increased income tax revenue for SARS.

In the medium to long term, there is a likelihood of increased opportunities for businesses operating in renewable energy, from production to installations and maintenance, as the overall drive towards increased electricity generation through renewable energy sources results in a significant increase in demand for components and services for the various renewable energy technologies (solar, wind, hydro, and bioenergy). This is likely to boost the revenues of suppliers and installers across all segments of the alternative or renewable energy sector, especially solar, for both households and businesses. The banking industry is likely to also benefit from introducing financing products aimed at funding solar panels by both households and businesses.

## 6. Conclusion

This report analysed the effects of customs revenue on renewable energy in South Africa. The pragmatic method was used to shed light on the insights drawn from the loadshedding and the possible positive spin-offs from the increased use of renewable energy to complement the ailing coal-fired electricity supply. South Africa has been experiencing an energy crisis, with further power cuts presumed in 2024, which is predicted to hamper GDP expansion. Indeed, the country's economy has been adversely impacted by the COVID-19 pandemic, and performance is currently stifled by continual power cuts. There is no doubt that this energy crisis will continue for a long time in the future, and it is unlikely to get better soon. The persistent and worsening loadshedding is undoubtedly having a negative impact on all sectors of the economy and people, with its impact already evident in the contraction of the GDP, which is projected to be constrained further in 2024. This is likely to adversely impact the economy by:

Contributing to the rise in the cost of living, especially through an increase in food prices, as businesses shift the rising cost of doing business to consumers.

- Unemployment is likely to worsen after showing some marginal improvement in 2022.
- Social unrest is likely to rise as society grows impatient with the quality of public services that it receives and thus erodes investor confidence.
- Revenue collection will come under pressure as businesses experience losses and increased costs of doing business, which will result in assessed losses.

The pragmatic method was used to analyse the effects of customs revenue in the renewable energy sector. The import of solar and wind equipment increased from 2019 to 2023, recording a massive increase in 2020. The customs value increased from R1.6 (\$0.1) billion in 2019 to R32 (\$2.1) billion in the 2023 financial year. This increase is in chapter 85 (Cellphones, Electrical Equipment, and Machinery) under tariff code 85044000 (Electrical transformers and static converters such as rectifiers and inductors parts) recording R28.3 (\$18.5) billion total customs value in five years, followed by tariff code 85076000 (Electric accumulators-Lithium-ion accumulators) with R22.3 (\$1.5) billion.

In summary, the potential growth in renewable energy presents an opportunity for the government to collect more customs revenues. Especially, solar and wind equipment imported into the country is subject to VAT and customs duties upon importation based on their customs value and tariff, as the origin of the goods does have an impact on the customs revenues.

## 7. Implications and Policy Recommendations

Evidence from this study highlights that with the anticipated spike in rooftop solar projects, especially from households, it would be prudent for the Department of Trade, Industry, and Competition to consider the enhancement of an industrial policy plan to support increased localisation of solar industry components (GreenCape 2020). In the same vein, there is a need for development finance institutions to have programs in place to support investment in the solar industry. The functioning of a solar system requires the assembly of the PV module, the mounting structure, the tracker, the inverter, and cabling. For small projects like household rooftops, the assembly process is normally rendered by one particular company that will do the technical assessment, solution design, procurement, and installation of the solar system. Perhaps more policy intervention will be required in the form of zero rating and removing tariffs and customs duties on renewable energy products, as well as increased private-public partnerships in the funding of renewable energy projects for both households and industry. The South African government should consider the following:

- Government could propose to the National Treasury the scrapping of VAT and Customs Duties on the importation of solar panels and parts in order to help reduce the cost of purchasing for both businesses and households.
- SARS should establish relations with and work with the two renewable industry associations, namely the South African Photovoltaic Industry Association and the South African Wind Energy Association, to identify and address the tax compliance challenges the industry is facing. Customs revenues will



depend on the promotion and encouragement of tax compliance while gaining more insight into the functioning of the industry.

- SARS should use the data at its disposal to monitor the trends in the trade of renewable energy products to assess and track the impact of the tax policy proposals on the use of renewable energy.
- Government could also improve compliance engagements with clearing agents that will enhance their work performance and fulfill the customs target of attaining higher customs revenue and compliance.

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