



TECHNICAL ASSISTANCE REPORT

SOUTH AFRICA

Report on the Compilation of Energy and Air
Emissions Accounts Mission
(June 10–14, 2024)

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Acronyms and Abbreviations

BUR	Biennial Update Report
DFFE	Department of Forestry, Fisheries, and Environment
DGI	Data Gaps Initiative
DMRE	Department of Mineral Resources and Energy
ESCOM	Electricity Supply Commission
GHG	Greenhouse Gas
IEA	International Energy Agency
IMF	International Monetary Fund
I-O	Input-Output (tables)
IPPU	Industrial Processes and Product Use
ISIC	International Standard Industrial Classification of all economic activities
NERSA	National Electricity Regulator of South Africa
NIR	National Inventory Reports
OECD	Organization for Economic Co-operation and Development
SAGERS	South African Greenhouse Gas Emissions Reporting System
SECO	Swiss State Secretariat for Economic Affairs
SEEA	System of Environmental Economic Accounting
SANBI	South African National Biodiversity Institute
SARB	South Africa Reserve Bank
SARS	South Africa Revenue Service
Stats SA	Statistics South Africa
SUT	Supply and Use Table
TJ	Terajoules (energy measuring unit)
TWG	Technical Working Group
UNFCCC	United Nations Framework Convention on Climate Change

Summary of Mission Outcomes and Priority Recommendations

- 1. SEEA-based energy and air emissions accounts support the integration of environmental and economic data.** This enables evaluation of energy use, greenhouse gas emissions, and their economic impacts, and for supporting policies for energy efficiency and emission reduction.
- 2. A technical assistance mission was delivered to Statistics South Africa from June 10–14, 2024, to support the ongoing compilation of energy accounts and to initiate the compilation of air emission accounts.** Stakeholders from various Departments of the Government, including the Department of Forestry, Fisheries and the Environment (DFFE), the Department of Mineral Resources and Energy (DMRE), National Treasury (NT), the South African Reserve Bank (SARB), and the power company, Electricity Supply Commission (ESCOM), deliberated on the compilation of energy and air emissions accounts to develop a detailed workplan for the compilation of energy and air emissions accounts. The list of officials met during the mission is given in Annex.
- 3. To support progress in the above work areas, the mission recommended the following priority recommendations for the compilation of energy and air emissions accounts.**

TABLE 1. Priority Recommendations

Target Date	Priority Recommendation
August 2024	A Technical Working Group (TWG) chaired by Stats SA is constituted for the compilation of energy and air emissions accounts encompassing staff from Stats SA, DFFE and DMRE and other stakeholders in order to cultivate synergies, enhance collaborative efforts, maximize the use of available information across agencies and foster a thorough understanding of diverse data sets.
September 2024	Energy balances compiled by DMRE are compared with those disseminated by the International Energy Agency (IEA) to help identify discrepancies and integrate global best practices into supply and use of energy, for better alignment with the international standards.
November 2024	A clear and practical publication trajectory for the energy accounts to be established and shared with the members of the TWG, so that all the agencies come to an agreement on the intended temporal coverage of the accounts for the first phase of the compilation, and commit to continuous improvement and expansion over a longer time frame.
December 2024–February 2025	Final draft experimental energy accounts for the agreed temporal coverage are compiled and a discussion document presenting the experimental energy accounts is prepared.

Target Date	Priority Recommendation
December 2024–February 2025	First draft experimental set of air emissions accounts for one year of reference is compiled, and a first draft of the discussion document presenting the experimental air emissions accounts is prepared.
Ongoing	Stats SA to accord a high priority to the activity of developing energy and air emission accounts, ensuring that sufficient resources are made available for the work and timely release of the energy and air emissions accounts.

4. Further details on the priority recommendations, the related actions/milestones and the workplan of activities can be found under the following section on **Detailed Technical Assessment and Recommendations**.

Detailed Technical Assessment and Recommendations

TABLE 2. Detailed Recommendations

Priority	Action/Milestone	Target Completion Date
H	A Technical Working Group (TWG) chaired by Stats SA is constituted encompassing staff from Stats SA, DFFE and DMRE and other stakeholders in order to cultivate synergies, enhance collaborative efforts, maximize the use of available information across agencies and foster a thorough understanding of diverse data sets needed for the compilation of energy and air emissions accounts.	Aug-24
H	Energy balances compiled by DMRE are compared with those disseminated by IEA to help identify discrepancies and integrate global best practices into the supply and use of energy, for better alignment with the international standards	Sep-24
H	A clear and practical publication trajectory is established and shared with the members of the TWG, so that all the agencies come to an agreement on the intended temporal coverage of the accounts for the first phase of compilation, and commit to continuous improvement and expansion over a longer time frame.	Nov-24
H	Final draft experimental energy accounts for the agreed temporal coverage are compiled and a discussion document presenting the experimental energy accounts is prepared.	December 2024– February 2025
H	First draft experimental set of air emissions accounts for one year of reference is compiled, and a first draft of the discussion document presenting the experimental air emissions accounts is prepared.	December 2024– February 2025
H/M	Stats SA undertakes a comprehensive review of methodologies, data presentations, and formats utilized in prior energy accounts and builds on them in this project.	Sep-25
H/M	Members of the TWG strive for detailed and accurate breakdowns in energy and air emissions accounts, utilizing data from the DMRE, DFFE and Stats SA to offer a nuanced view of energy consumption and production, as well as emission intensities.	Sep-25
M	The detailed energy consumption data and activity profile from the large sample surveys compiled and released by Stats SA are used to improve the information in the energy balances and in the estimates of national greenhouse gas (GHG) inventory, especially in the Industrial Processes and Product Use (IPPU) sector and transportation within the Energy sector.	Oct-25
M	Stats SA considers allocating resources to update and resume the production of input-output (I-O) tables to enhance environmental analysis, including carbon footprint assessments.	Dec-25

Priority	Action/Milestone	Target Completion Date
H/M	Stats SA implements the adjustments for residence principle in the energy and air emissions accounts, based on the best available information.	Dec-25
M	The data precision and comprehensiveness of the energy balance, as compiled by the DMRE, is enhanced by reviewing the 'non-specified' items and allocating them to appropriate categories.	Mar-26
M	To ensure that energy data presented in various publications, is interpreted correctly differences in concept and terminology should be explained during dissemination. (for instance regarding the differences between inflows and outflows presented by the monthly energy statistics and the international trade flows presented by energy accounts).	Mar-26
M/L	Stats SA engages with the members of the TWG and other stakeholders to strategize the dissemination of in-depth analyses, briefing papers, and thorough documentation, to enhance the comprehension and uptake of the newly developed energy and air emissions accounts.	Mar-26
L	The existing data sources are strengthened using alternative methods, like remote sensing, to improve accuracy in estimating energy production especially from the non-grid sources.	Mar-27
L	Stats SA/DMRE explore the possibility of actively seeking information from enterprises that generate their own electricity to provide a fuller picture of the electricity sector.	Mar-27
H	Stats SA accords a high priority for ensuring that sufficient resources are made available for the work on the energy and air emissions accounts.	Ongoing

Priorities - L: Longer-term priority; M: Medium-term priority; H: High Priority

A. BACKGROUND

5. **South Africa is a member of Group of 20 (or G20), an intergovernmental forum for economic cooperation of the world's leading developed and emerging economies.** As a member of this forum, South Africa is participating in the Data Gaps Initiative Phase 3 (DGI-3),¹ which aims to address data gaps in economic decision making. The workplan for of this initiative, focuses on four main statistical and data priorities: (i) climate change, (ii) household distributional information, (iii) fintech and financial inclusion, and (iv) access to private sources of data and administrative data, and data sharing. The DGI-3 includes 14 recommendations, 7 of which related to climate change, are policy-oriented and flexible to accommodate different statistical capacities and infrastructures.

¹ [G20 Data Gaps Initiative \(imf.org\)](https://www.imf.org/).

6. Energy and air emissions data play a pivotal role in climate mitigation policies by providing a solid baseline to set reduction targets and tailor specific interventions. Recognizing this, recommendations 1 and 2 of DGI-3 are intended to support the development of air emissions and energy accounts in the G20 countries. The workplan for DGI-3² emphasizes that accurate and transparent reporting of these accounts is essential for ensuring that policy decisions are both evidence-based and geared towards achieving substantial reductions in greenhouse gas emissions.

7. Meanwhile, the Statistics Department of the International Monetary Fund (IMF) launched a two-year “Environmental and Climate Change Statistics Capacity Development Program.” The program is aimed at assisting countries in establishing or strengthening programs in countries for developing timely and internationally comparable environment and climate change statistics that can help in formulating climate-relevant policies. The program supported by the Switzerland State Secretariat for Economic Affairs (SECO), was launched in March 2023, with a diagnostic mission to South Africa, one of the program countries, delivered in July 2023.³

8. With a view to support the implementation of Recommendations 1 and 2 of DGI-3 by South Africa, a technical assistance mission was conducted during June 10–14, 2024, in Pretoria, South Africa to support the compilation of energy and air emission accounts. The mission team held detailed discussions with the relevant data producer and user agencies during the mission to gain insights on the institutional set-up and available data. The list of officials met during the mission is given in Annex.

9. During the mission, the IMF team met with the government agencies responsible for the production of related datasets including Statistics South Africa (Stats SA), Department of Mineral Resources and Energy (DMRE), and Department of Forestry, Fisheries and the Environment (DFFE). These agencies presented their existing data on energy and air emission statistics as an input in the work on the compilation of energy and air emission accounts by Stats SA. Several recommendations emerged for the development of energy and air emissions accounts during these discussions. In the following sections, an overview of the available official statistics and the related recommendations for next steps are presented.

B. ENERGY STATISTICS, BALANCES AND EMISSIONS: DMRE

10. Under the National Energy Act of 1998, DMRE annually publishes energy balances, spanning from 1992 to 2021.⁴ Utilizing the IEA Energy Balance Builder, these balances are meticulously compiled from a wide array of sources, including monthly surveys from energy producers and data from the National Electricity Regulator of South Africa (NERSA), independent power producers, municipalities, and ESCOM. This process ensures a comprehensive representation of the nation's energy production and consumption.

11. The data gathered by DMRE are organized within the Central Energy Information Database (CEIDB). The energy balances compiled using the database provide detailed insights into energy

² <https://www.imf.org/-/media/Files/News/Seminars/DGI/Home/g20-dgi-3-workplan-welcomed-by-the-finance-ministers-and-central-bank-governors-october-2022.ashx>.

³ [South Africa: Technical Assistance Report-Report on Macro-relevant Climate Change Statistics Diagnostic Mission \(July 17–21, 2023\) \(imf.org\)](https://www.imf.org/-/media/Files/News/Seminars/DGI/Home/g20-dgi-3-workplan-welcomed-by-the-finance-ministers-and-central-bank-governors-october-2022.ashx).

⁴ https://www.energy.gov.za/files/energyStats_frame.html.

consumption and production across various industries and transport modes. This granularity supports the implementation of energy accounts and policy planning. Energy balances contain a category of “non-specified” items which needs to be further examined and allocated to the relevant economic activities in order to refine the energy balances.

12. Despite the thorough data collection, challenges persist in accurately capturing energy contributions from independent power producers and non-grid sources like solar panels.

Considering the increase of non-grid electricity generation, innovative methods for data collection, such as remote sensing to assess the installed capacity of solar panels, should be integrated with surveys to estimate energy consumption, as part of the ongoing effort to enhance the precision of energy balances.

13. The energy balance is reported by DMRE to the International Energy Agency (IEA), highlighting a commitment to both national and international data transparency.

IEA presents the time series of energy balances on its website⁵ after incorporating further information from other sources. Although there are differences in granularity and coverage between the DMRE and IEA energy balances, e.g., in the case of stock changes and international transport (bunkers), efforts are underway by DMRE to explore these discrepancies, including through consultation with Stats SA on the South Africa Revenue Service (SARS) database on imports and exports.

14. DMRE, in its published energy balances for the years 2007–2020, has also compiled and released estimates of CO2 emissions associated with energy consumption, based on the widely recognized emission factors provided by the Intergovernmental Panel on Climate Change (IPCC).

These estimates, available on DMRE’s website, offer a comprehensive view of the emissions in respect of the diverse energy carriers represented in the energy balance, and can be useful for the compilation and validation of both the national GHG inventories and the air emissions accounts. Although emissions estimations for the year 2021 have not yet been published, it is anticipated that DMRE will resume this activity soon.

15. Collaboration between the DMRE and Stats SA to facilitate sharing of data and metadata is vital for enhancing the quality and utility of energy data.

The proposed establishment of a technical working group on energy and air emission accounts (discussed later in the report) is a step towards strengthening this cooperation, with the goal of improving South Africa's energy data landscape for informed decision-making and sustainable energy policies.

Recommendations:

- The data precision and comprehensiveness of the energy balance to be enhanced over time by DMRE through a review of the 'non-specified' items in consultation with Stats SA and DFFE and their allocation to appropriate categories.
- Energy balances compiled by DMRE to be compared with those disseminated by IEA to help identify discrepancies and integrate global best practices into the supply and use of energy, for better alignment with the international statistical standards.
- For making optimal use of resources across the different data-producing agencies of the government, a coordination mechanism, such as the technical working group, needs to be put in place to ensure closer cooperation between the DMRE and Stats SA.

⁵ [Energy Statistics Data Browser – Data Tools - IEA](#).

- As a longer-term strategy, the existing data sources need to be strengthened using alternative methods, like remote sensing, to improve accuracy in estimating energy production in particular from non-grid sources.

C. MONTHLY STATISTICS ON ELECTRICITY

16. Stats SA releases a monthly report⁶ on the electricity sector that provides data on electricity generation, inflows, consumption within power stations, outflows, and distribution throughout South Africa. Historical data on the series⁷ are accessible on the Stats SA website, offering both unadjusted and seasonally adjusted figures to aid in compiling quarterly national accounts. Based primarily on monthly reports from ESCOM, imputations are made for any delayed reporting for capturing all electricity-related flows. However, the coverage is limited for enterprises generating their own electricity.

17. The report includes information on inflows and outflows that are not equivalent to imports and exports as per customs/ Balance of Payments definitions. These flows refer to the electricity flowing into/out of South Africa as measured by the metering systems at the South African borders. DMRE also collects monthly information on the electricity sector from ESCOM. There is a likelihood that the different terminologies used across the reports being compiled by DMRE and Stats SA create confusion for the users. To ensure data coherence, a mechanism of coordination would need to be put in place between Stats SA and DMRE for this and similar periodic reports. This can help to streamline data collection, reduce the effort required from ESCOM and enhance the quality of electricity data across agencies.

Recommendations:

- Stats SA/DMRE to explore the possibility of actively seeking information from enterprises that generate their own electricity to provide a fuller picture of the electricity sector.
- To avoid confusion and to ensure that data is interpreted correctly, especially regarding inflows and outflows versus international trade, the terms adopted to be defined and accompanied with a clear indication/ illustration of the differences and overlaps during dissemination.

D. LARGE SAMPLE SURVEYS: STATS SA

18. Stats SA conducts pivotal surveys every 3–4 years, covering the key sectors of the economy by rotation, including electricity, gas, and water supply sector. The latest survey on the electricity, gas and water supply industry conducted in 2021,⁸ leverages on the Stats SA's extensive business register to capture data from enterprises that represent 99.5 percent of the sector's turnover, offering a comprehensive view of the industry, including detailed insights into electricity generation, consumption patterns, and the types of energy sources used, such as coal, diesel, nuclear, and renewables.

⁶ Electricity generated and available for distribution, Stats SA, https://www.statssa.gov.za/?page_id=1866&PPN=P4141&SCH=73643.

⁷ [Time series data – Excel and ASCII format | Statistics South Africa \(statssa.gov.za\)](#).

⁸ [Report-41-01-022021.pdf \(statssa.gov.za\)](#).

19. The data collected in these surveys serves crucial roles, feeding into national accounts and the supply-use tables for a nuanced understanding of economic activity. The survey data holds untapped potential for enhancing the accuracy of greenhouse gas (GHG) inventories, particularly within the Industrial Processes and Product Use (IPPU) sector and transportation within the Energy sector. By leveraging on detailed breakdowns of economic activities, and their energy use including on transportation, these surveys offer a foundational base for allocating energy consumption and estimating GHG emissions accurately across sectors. This can be achieved through direct measurement of physical use or estimation methodologies based on purchase and price data, especially when homogeneous basic prices are indicative of actual use.

20. The large sample surveys by Stats SA can significantly contribute to advancing environmental monitoring and policymaking, underscoring the importance of integrating such rich datasets into broader analytical frameworks to drive environmental and economic sustainability.

Recommendation:

- The detailed energy consumption data and activity profile from the large sample surveys by Stats SA to be used to improve the information in the energy balances and in the estimates of national GHG inventory, especially in the Industrial Processes and Product Use (IPPU) sector and transportation within the Energy sector.

E. THE NATIONAL ACCOUNTS' SUPPLY AND USE AND INPUT-OUTPUT TABLES

21. Stats SA produces annual monetary supply and use tables (SUTs), with the latest release⁹ being for the years 2018 (final) and 2019 (preliminary). Publishing these tables takes over two years for preliminary versions and three to four years for final versions. Although they are compiled at a more detailed level, the published SUTs are aggregated and published to distinguish between 108 products and services across 124 industries. However, input-output (I-O) tables, essential for analyzing environmental impacts like carbon footprints, have not been updated since 2014. It is essential for Stats SA to allocate resources to update these I-O tables, so that the workstream on development of energy and air emissions accounts can be further extended to produce carbon footprints.

Recommendation:

- Stats SA to consider allocating resources to update and resume the production of input-output (I-O) tables to enhance environmental analysis, including carbon footprint assessments.

F. COMPILATION OF ENERGY ACCOUNTS BY STATS SA

22. Stats SA has earlier released the following energy accounts:

- a. For 1995–2002 in 2005;
- b. For 2002–2009¹⁰ in 2012; and
- c. For 2002–2013 in 2017.

⁹ [Report-04-04-032019.pdf \(statssa.gov.za\)](#).

¹⁰ <https://www.statssa.gov.za/publications/D040511/D0405112009.pdf>.

23. The first two accounts were released as a discussion document, that also included the methodology used in the compilation. These accounts were based on the energy balances from DMRE, and follow the System of Environmental Economic Accounting (SEEA), with few deviations made due to lack of adequate information and to account for the South African circumstances. One significant deviation from the SEEA principles is that these accounts are based on the territory principle instead of the residence principle.

24. Stats SA, with the present initiative, is developing a new set of accounts, which will be compiled as per the SEEA framework and will be incorporated in the regular program of work. It may be helpful for Stats SA to revisit the work done on the past energy accounts. By thoroughly analyzing the methodologies, data presentations, and formats used in earlier publications, Stats SA can identify best practices and valuable insights that can be reused or adapted for the ongoing initiative. This will not only ensure continuity and consistency but also helps in refining the processes based on past experiences.

G. AIR EMISSIONS INVENTORIES

25. In South Africa, the Department of Forestry, Fisheries and the Environment (DFFE) oversees the management and reporting of National Greenhouse Gas (GHG) Inventories to the United Nations Framework Convention on Climate Change (UNFCCC). The inventories are compiled based on the data collected from 425 data providers and 1,000 facilities through the South African Greenhouse Gas Emissions Reporting System (SAGERS). This process facilitates the production of detailed National Inventory Reports (NIR) and Biennial Update Reports (BUR), with the last NIR¹¹ for 2000-2020 published in December 2022, and the fifth BUR submitted in November 2023. Comments of the public have been sought on the draft of the next NIR¹² and this is likely to be submitted to the UNFCCC by the end of 2024.

26. Since the Energy Sector is the largest component of the discussions on air emissions, Stats SA may consider constituting a single Technical Working Group (TWG) for deliberating on the sources and methods for the compilation of both energy and air emissions accounts. Constituting a single TWG with members from DMRE, DFFE, Stats SA, and other key stakeholders, will facilitate comparing energy-related activity data with energy balances, contrasting with business registers for completeness and utilizing industrial surveys for analyzing and allocating the energy use across the different economic activities, thus enhancing the GHG inventories and air emissions accounts for better climate change policymaking and mitigation strategies.

H. TRAINING

27. The sources and methods of compilation and uses of energy and air emissions accounts were discussed with the staff of Stats SA, DMRE and DFFE. The discussion was based on presentations and examples of dissemination and uses from other countries to reinforce the theory. The mission team also had in-depth discussion with the groups across Stats SA on the use of other datasets

¹¹ [SA NIR 2020 Final Report for Publication - UPDATED 18 December 2023.pdf \(unfccc.int\)](#).

¹² [unfccc_greenhousegasinventoryreport9_g50607gon4772.pdf \(dffe.gov.za\)](#).

being produced by Stats SA, like the supply-use tables and large sample surveys that will be of use for the compilation of these accounts.

I. STRATEGY FOR ESTABLISHING ENERGY AND AIR EMISSIONS ACCOUNTS

28. On the compilation of air emissions accounts, Stats SA is adopting an inventory-first approach, but would also be incorporating all the datasets linked to the energy sector. By adopting a dual approach, Stats SA aims to ensure the accounts accurately reflect emissions, particularly those linked to energy consumption.

29. To facilitate the initial stages of this project, Stats SA plans to utilize the tool developed by IMF, which helps in aligning the inventory data with International Standard Industrial Classification (ISIC) codes. Recognizing the limitations of relying solely on external tools, Stats SA is also committed to developing an in-house system. This would increase flexibility in managing the accounts and serve as an investment in enhancing the technical skills and understanding of the staff involved. By fostering internal expertise, Stats SA ensures the sustainability and adaptability of the workstream on air emissions accounts.

30. Stats SA can significantly enhance the development, publication, and utilization of energy and air emissions accounts by addressing the concerns regarding the earlier disseminated energy accounts. The lack of adequate details in the earlier set of energy accounts hints at enhancing the detail to provide a more accurate and granular view of energy consumption and production patterns. Stats SA is expected to face a similar demand from the air emissions accounts. This level of detail is vital for informed policymaking and for stakeholders seeking to understand the intricacies of South Africa's energy landscape and emission intensity of the various economic activities.

31. The present compilation of energy and air emissions accounts should make the maximum use of the comprehensive data available with DMRE, DFFE, Stats SA and other relevant data sources, to provide detailed breakdowns to the extent possible. For example, data on fuel use from large sample survey, the supply and use tables, and the detailed estimates of emissions in CO₂eq units, compiled and disseminated by DMRE alongside the energy balances, can be utilized as a supplementary data source for creating comprehensive air emissions accounts and for enhancing the data accuracy. However, adequate care may need to be given to the differences in the underlying concepts, classifications and definitions, before combining the datasets.

32. Establishing a Technical Working Group (TWG) that has participation of DMRE, DFFE, Stats SA, and other stakeholders like ESCOM, can improve cooperation. This integrated team can enhance the mutual understanding of different data sets and foster synergies across the two workstreams, contributing to a more holistic environmental and economic analysis framework. In addition to the TWG, formal agreements, such as Memorandums of Understanding (MOUs), could be established to improve data completeness and address any underreporting issues in a collaborative manner.

33. Setting clear milestones is crucial for the project's success. Stats SA is aiming to publish this new vintage of energy and air emissions accounts, starting from 2014 to the latest reference year of the Energy Balances (2021), in the first phase. Even though the information available with DMRE, DFFE and Stats SA spans a longer series, it is important that Stats SA adopts a pragmatic approach for the compilation of air emission accounts by starting with a limited time series as necessary for the DGI-3 recommendations at the outset, and allowing for future expansion as resources and time permit. This

cautious strategy can help create a robust foundation for the accounts, and a practical roadmap for gradual improvement and expansion in the subsequent phases.

34. The documentation of methods and the underlying data associated with the energy and air emissions accounts should be extensive enough to help the users understand the linkages and the differences of energy accounts with energy balances, and that of air emissions accounts with national GHG inventories. To address this, it is imperative that the formats and content for dissemination are prioritized in the workplan. The basic accounts' publication should be followed by more detailed and elaborated outputs, including detailed documentation of sources and the methodologies, descriptive results, analysis and eve, data stories. Providing comprehensive background information will ensure that users can effectively understand and utilize the accounts in environmental planning and policymaking.

Recommendations:

- Stats SA to undertake a comprehensive review of methodologies, data presentations, and formats utilized in prior energy accounts to identify effective practices for adaptation in the ongoing project.
- A Technical Working Group (TWG) to be constituted encompassing both energy and air emissions accounts to cultivate synergies, enhance collaborative efforts, maximize the use of available information across agencies and foster a thorough understanding of diverse data sets.
- Members of the TWG to strive for detailed and accurate breakdowns in energy and air emissions accounts, utilizing comprehensive data from the DMRE, DFFE and Stats SA to offer a nuanced view of energy consumption and production, as well as emission intensities.
- A clear and practical publication trajectory to be established and shared with the members of the TWG, so that all the agencies come to an agreement on the intended temporal coverage of the accounts for the first phase of compilation, and commit to continuous improvement and expansion over a longer time frame.
- Stats SA to engage with the members of the TWG and other stakeholders to strategize the dissemination of in-depth analyses, briefing papers, and thorough documentation, to enhance the comprehension and uptake of the newly developed energy and air emissions accounts.

J. INTERNATIONAL TRANSPORT

35. Accurate estimation of the emissions from international transport activities, delineated by resident and non-resident transport companies, can strengthen policy analysis and environmental accounting. This process, known as the residence adjustment, differentiates between the territorial-based measurements traditionally used in energy balances and GHG inventories, and the activities of these transport entities irrespective of their geographical operations. The distinction is particularly relevant for air and maritime transport sectors characterized by their international nature and significant fuel consumption.

36. The need for such adjustments is underscored in OECD Statistics Working Papers, specifically “CO2 Emissions from air transport: A near-real-time global database for policy

analysis¹³” and “CO2 Emissions from global shipping: A new experimental database.¹⁴” For Stats SA to effectively implement this residence adjustment, it can collaborate with DMRE and DFFE to understand how fuel purchases by international transport companies and non-residents are recorded by the South African Revenue Service (SARS) and the South African Reserve Bank (SARB) and how these are reflected in the energy balances and the national GHG inventories.

37. It is recommended that adjustments for the residence principle be incorporated into South Africa's energy and air emissions accounts. However, pending the availability of sufficient information to support the official estimation of these components for South Africa, the database on international air¹⁵ and maritime transport¹⁶ emissions published by OECD can serve as a valuable tool since it includes data specific to South Africa. The OECD databases while supporting the Stats SA in implementing the residence adjustment, can help ensure that South Africa's energy and air emissions accounts align with global standards and practices.

Recommendation:

- Stats SA to implement the adjustments for residence principle in the energy and air emissions accounts, based on the best available information.

K. WORKPLAN FOR ESTABLISHING ENERGY AND AIR EMISSIONS ACCOUNTS

38. The ongoing support under this program involves a structured approach to assist South Africa in the compilation and integration of energy and air emission accounts data. This support includes monthly virtual meetings between the staff involved in the compilation across Statistics South Africa, DFFE and DMRE, and the mission team for clarifying data compilation procedures and addressing queries, alongside continuous email consultations for any emergent issues.

39. A detailed workplan of activities was developed in consultation with the official agencies to facilitate the discussion during the monthly check-ins.

40. Workplan of activities till March 2025

Timeframe	Activities
July–September 2024	Mechanism for coordination and collaboration, like TWG and MOU, put in place for Energy and Air Emissions Accounts. Data sources and probable auxiliary variables analysed and selected for the compilation of these accounts.
August–October 2024	Activity data used for reporting on energy use and emissions in international transport examined, to assess usability for compilation of energy and air emissions accounts.
September–November 2024	Reconciliation and setting up of bridge tables to facilitate understanding of the overlaps and differences between (1) energy

¹³ <https://www.oecd.org/greengrowth/co2-emissions-from-air-transport-ecc9f16b-en.htm>.

¹⁴ https://www.oecd-ilibrary.org/environment/co2-emissions-from-global-shipping_bc2f7599-en.

¹⁵ [OECD Data Explorer • Air transport CO2 emissions \(experimental\)](#).

¹⁶ [OECD Data Explorer • Maritime transport CO2 emissions \(experimental\)](#).

Timeframe	Activities
	balances and energy accounts and (2) national GHG inventories and air emissions accounts
October–December 2024	Dissemination and outreach plan for the energy accounts
December 2024–February 2025	Final draft experimental set of energy accounts and a first draft air emissions accounts for one year of reference, and a final draft of the discussion document for the energy accounts and a first draft of the discussion document for the air emission accounts.

41. It was indicated to Stats SA that a mission could be planned around the time of dissemination, on or before March 2025, to review the accounts and the discussion documents and to help plan the outreach for seeking broader feedback.

L. RISKS

42. **The current allocation of only two staff members in the Environmental Economic Accounts (EEA) Directorate in Stats SA for the crucial task of developing and maintaining energy and air emissions accounts at Stats SA poses a significant challenge.** A robust and comprehensive approach to energy and air emissions accounting is essential for informing policy, and meeting international reporting obligations. The complexity and importance of this work necessitate a well-resourced team with adequate expertise and capacity. The current staffing level may jeopardize the timeliness and accuracy of the accounts and limit the ability to incorporate advancements and adapt to evolving methodologies and standards.

43. **Addressing this resource constraint is imperative to ensure the continued production of high-quality, reliable energy and air emissions accounts.** Expanding the team and investing in staff training and development can enhance the capabilities of Stats SA in this critical area, supporting the organization's mission to provide valuable insights into South Africa's environmental impact and progress towards sustainability goals.

Recommendation:

- Stats SA to accord a high priority for ensuring that sufficient resources are made available for the work on the energy and air emissions accounts.

M. LIST OF OFFICIALS MET DURING THE MISSION

Name & Institution
Anna Mampye, DFFE
Farryn Sherman, DFFE
Maluta Mbedzi, DFFE
Nelvia Phala, DFFE
Peter Lukey, DFFE

Name & Institution
Sindisiwe Mashele, DFFE
Ramaano Nembahe, DMRE
Robert Kwindu, DMRE
Phendukani Hlatshwayo, DPME
State Secretariat for Economic Affairs (SECO), Embassy of Switzerland to South Africa
Gina Downes, ESCOM
Takalani Rambau, ESCOM
Max Alier, IMF Resident Representative, South Africa
Gcobisa Magazi, NT
Barend De Beer, SARB
Karabo Setshedi, SARB
Stella Van der Walt, SARB
Lynne Breet, SASOL
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Jacky Shai, Stats SA
Joe De Beer, Stats SA
Mahlomola Lefupana, Stats SA
Membrey Mogapi, Stats SA
Nicolai Claasen, Stats SA
Nwabisa Maya, Stats SA
Riaan Grobler, Stats SA
Robert Parry, Stats SA
Tshepo Pekane, Stats SA
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