



AFREC

African Energy
Commission



DIAGNOSTIC REPORT AND ACTION PLAN

JULY 2025

*Prepared for the Ministry of Mineral
Resources and Energy of the Republic
of Mozambique*



**Support program for African Union
member states (MS) and regional
economic communities (RECs) for
the improvement or establishment
of the national or regional energy
information system (NEIS/REIS)**

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MESSAGE OF ACKNOWLEDGMENT FROM THE EXECUTIVE DIRECTOR OF AFREC —

The initiative of the African Energy Commission (AFREC) to support African Union (AU) Member States in establishing and strengthening National Energy Information Systems represents a strategic milestone for the sustainable development of Africa's energy sector. Reliable, credible, timely, and comprehensive energy data are indispensable for effective policy formulation, sound investment planning, and the successful implementation of national, regional and continental energy strategies.

This five-year diagnostic report and action plan provides a comprehensive overview of the national energy information system and proposes strategic actions for strengthening human resources capital, infrastructure and the financial requirements to modernise energy information systems. By enhancing national energy information systems, AFREC seeks to empower Member States with modern tools that support evidence-based decision-making and improve the monitoring and evaluation of energy policies, programmes, and projects.

Strengthened energy information systems will play a critical role in accelerating progress toward universal access to modern, affordable, and reliable energy services in line with Sustainable Development Goal 7 of the 2030 Agenda for Sustainable Development and African Union agenda 2063. They will also contribute to advancing Africa's broader aspirations for energy security, regional integration, and economic transformation.

On this note, the African Energy Commission expresses its sincere appreciation to the Ministries of Energy from the 16 Member States which include: Chad, Cameroon, Central African Republic, Djibouti, Eswatini, Ethiopia, Equatorial Guinea, The Gambia, Liberia, Mauritania, Mozambique, Senegal, Sierra Leone, Somalia, Togo, and Tunisia. AFREC further extends its appreciation to the national coordinators, institutions, experts, and relevant stakeholders from the participating Member States whose engagement, cooperation, and commitment was invaluable throughout the preparation of this report.

With strong political commitment and sustained collaboration among Member States, regional institutions, and development partners, the coming years present a unique opportunity to modernize and harmonize energy data systems and advance evidence-based energy planning across Africa.

The African Energy Commission (AFREC) is a specialised energy agency of the African Union (AU), mandated to develop the African energy sector through the facilitation, coordination, harmonization, protection, conservation, development, promotion of rational exploitation, commercialization, and integration of energy resources in Africa.

It engages actively with a broad network of experts and partners in the 55 AU member states, ensuring that all energy initiatives align with the future development of the energy sector in Africa and the pursuit of building 'the Africa We Want'.

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ACRONYMS

AFREC	African Energy Commission
DISCO	Distribution Companies
EB	Energy Balance
EBS	Energy Balance Studio
EEC	Energy Efficiency and Conservation
EPRA	Energy and Petroleum Regulatory Authority
FTE	Full-time equivalent
GDC	Geothermal Development Company
GW(h)	GigaWatt(hours)
IAEA	International Atomic Energy Agency
IEA	International Energy Agency
IPP	Independent Power Producer
IRENA	International Renewable Energy Agency
IRES	International Recommendations on Energy Statistics
ISIC	International Standard Industrial Classification
IT	Information Technology
J	Joules
INE	National Institute for Statistics
ODINE	Designated Organs of INE
CSE	Supreme Council of Statistics
INP	National Institute of Petroleum
EDM	Electricity of Mozambique
FUNAE	National Energy Fund
ktoe	Thousand tons of oil equivalent
l	Litres
LPG	Liquified Petroleum Gases
MAED	Model for Analysis of Energy Demand
MIREME	Ministry of Mineral Resources and Energy
MOU	Memorandum of Understanding
MT	Metric tonnes
Mtoe	Million tons of oil equivalent
NEIS	National Energy Information Systems
NSS	National Statistical System
REC	Regional Economic Communities
REREC	Rural Electrification and Renewable Energy Corporation
SADC	South African Development Community
INAMI	National Mining Institute
SIEC	Standard International Energy Classification
SWOT	Strengths, Weaknesses, Opportunities, Threats
TWG	Technical Working Group
UNSD	United Nations Statistics Division

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1 EXECUTIVE SUMMARY



The **National Energy Information System (NEIS) Diagnostic Report and Action Plan** was developed with the support of AFREC and in close collaboration with the AFREC National Focal Points (NFPs) in the Ministry of Mineral Resources and Energy (MIREME).

The objectives of the support are to (1) conduct a diagnostic analysis of energy statistics, (2) recommend specific activities to improve energy statistics and reinforce or establish a NEIS, and (3) generate a high-level action plan that identifies the resources and timelines required for implementation of the recommended actions. The program also provides support at the regional level to encourage the emergence of an efficient cooperation between AFREC and Regional Economic Communities (REC).

1.1 RESULTS OF THE DIAGNOSTIC

Mozambique does not currently have an NEIS and lacks a dedicated data unit—on a full-time basis—and tools in MIREME to produce comprehensive energy statistics and accompanying analytical reports regularly. The table below describes the primary characteristics of Mozambique's energy statistics program as identified during the diagnostic assessment in Section 3 of this document.

Item	Diagnostic results
Institutions and legal environment	• MIREME operates as a Delegated Organ (ODINE) of INE, which is mandated by law in the Presidential Decree No. 9/96 for collection, compilation, analysis, publication, and dissemination of statistical information and the coordination of the National Statistical System, including in the energy sector, which it has delegated to MIREME • Collaboration between INE, MIREME, and other ODINEs is organized through the Supreme Council of Statistics (CSE), which oversees, coordinates, and guides the National Statistical System (NSS) • Data initiatives across INE, MIREME, and ODINEs are not highly coordinated and should be streamlined.
Human and material resources	• MIREME currently has limited capacity and an assigned team for energy statistics working on annual contract; the team should be strengthened and converted to a full-time engagement • Additional training is required to reinforce capacity on biomass and energy efficiency sub-sectors, data management, and energy economics and analysis at MIREME • Material resources are still limited to produce energy statistics
Data collection	• MIREME collects data through its various Directorates and is then centralized by the energy team every quarter for year-end consolidation • The MIREME team uses the data as collected by the Directorates from identified data providers and may collect data directly from stakeholders on an ad hoc basis • Data sources are not obligated by law to transmit data to MIREME, but the organization has strong connections and a developed collection system in place, but it does report delays in data sharing • Limited biomass data is collected or estimated at this stage, constituting a significant weakness in the overall statistics
Data processing	• MIREME's energy statistics team processes data through Excel worksheets. MIREME translates the collected inputs into AFREC format using the AFREC template. • There is no additional statistical infrastructure at MIREME, with current template structures not allowing for the generation of all required indicators
Quality assurance and validation	• Meetings with other Directorates, internal validation meetings presided by the minister, followed by an annual meeting with the INE and the Ministry of Economy and Finance (MEF) • Limited tracking of reference metadata by MIREME
Dissemination and analysis	• Limited knowledge of advanced energy modelling/planning • MIREME and INE both distribute the annual energy statistics report comprised of annual national energy statistics covering the electricity and fuel subsectors to the general public • No analytical outputs or publications from either organization

Table 1: Summary of the main results of the diagnostic assessment

MIREME has an adequate capacity for collecting, compiling, and disseminating energy statistics. With six economist/statistician profiles on its team and a delegated legal mandate for collecting data, it constitutes a core strength on which Mozambique can build. Therefore, improved cooperation between INE and MIREME is encouraged to host the NEIS.

The significant weaknesses relate to the absence of sufficient statistical infrastructure: The Excel template currently used by MIREME does not allow tracking of time series or calculating all relevant indicators for energy sectoral analysis. Other weaknesses highlighted in the diagnostic relate to the quality and availability of biomass data, which threatens the accuracy of the energy balance statistics by presenting a biased vision of the country's energy system. Finally, limited capacity for further data analysis and energy modelling at MIREME limits the organization's potential expansion of its current publication pipeline to provide valuable insights into the national energy sector, crucial sub-sectors, and energy policy developments.

Ultimately, high-level energy statistics on consumption, transformation, and supply at the national, sectoral, or sub-national level should remain the responsibility of MIREME, building on the systems and processes already in place. MIREME should expand and systematize its collaboration with INE to ensure a strong two-way flow of information and inputs between the organizations regarding these statistics' expansion and quality assurance. MIREME should retain responsibility for and develop the capacity to manage, store, use, and disseminate more detailed data required in energy planning and policy assessment processes (infrastructure locations/characteristics, planning data sets on electricity demand, technology costs, etc.) not currently covered or centralized.

To this end, it is strongly suggested that MIREME reconfigure the current time allotment of its assigned Energy Statistics Team to expand its responsibilities to include closer collaboration with INE, CSE, and other stakeholders from substantial sub-sectors (transport, forestry, fishery...etc.), coordinating with outside organizations such as AFREC, collecting and managing planning data, and developing analytical output for Ministerial level and public dissemination.

1.2 RECOMMENDATIONS

Specifically, the diagnostic assessment concludes with five recommendations to reinforce energy statistics in Mozambique to align with international recommendations and establish a NEIS:

1 – Streamline and enhance cooperation between MIREME and INE

→ A. Streamline participation in data activities at MIREME and enhance interinstitutional linkages

by engaging in routine discussions with INE to set the yearly production calendar and assign an FP for institutional collaboration on data issues with both INE and CSEs to maximize synergies between national statistics processes, AFREC activities, and other data initiatives.

2 – Improve and expand data collection through

→ A. Reinforce and expand the Supreme Council of Statistics (CSE) 's role

to ensure effective and sustainable participation from organizations within the energy sector (MIREME and other agencies) and other organizations with mandates on related subjects such as trade, forestry, and transport. Budgetary support may be required to ensure the committee meets regularly and fulfils its role.

→ B. Improve data collection on biomass supply and demand

The diagnostic reveals significant gaps in biomass data: a national survey covering households and enterprises should be conducted as a priority. Improving biomass data will also require training for the MIREME Energy Statistics Team to improve sectoral knowledge, technical coordination with bio-energy experts within MIREME, and continued outreach to new stakeholders to improve secondary data collection on these sub-sectors.

→ C. Improve data collection for energy end uses, in particular for petroleum products

by adding or adapting relevant questions on energy to the INE household or enterprise surveys

3 – Upgrade statistical tools to the requirements of a NEIS

→ A. Develop data management capacity: As data quality and coverage expand

the statistics team at MIREME will need to manage ever larger and more complex data sets. All members of the Energy Statistics Team should receive basic training on best practices and techniques for data management in Excel, and one member of the team should be selected as a focal point for more in-depth training on database management and tools to anticipate potential changes in the statistical infrastructure in the future.

→ B. Elaborate a tool for MIREME to facilitate compiling and tracking statistics

including visualization and analytics. Technical management of the tool should be housed in MIREME. Still, access should be granted to INE and other identified end-users for improved cooperation and transparency with both organizations involved in the tool's specification.

4 – Structure and Facilitate Data Dissemination

→ A. Publish specific energy reports (prepared by MIREME with support from INE) and distribute to public audience

This will raise the visibility of the MIREME team to external stakeholders, facilitate users' access to statistics and information on the energy sector, and help contribute to timely public or technical debates on energy policy issues. Currently MIREME is publishing energy statistics, nevertheless the quality of the statistics can be improved

→ B. Raise the profile of energy statistics by holding an annual national workshop to present the Energy Balance and headline statistics for energy

This workshop should be hosted jointly by MIREME and INE and include the leading public sector stakeholders, private sector, civil society, and press.

→ C. Build capacity on energy economics and data analysis to expand the team's analytical output: The MIREME energy statistics team should

take the statistics and analyse specific subjects beyond data collection, compilation, and analysis. Currently, the MIREME team reports lacking the time and skills to invest in using energy statistics to generate analytical output (sectoral policy analyses, forecasts, etc.) in support of policy-making or public debate.

5 – Sustain, evaluate, and formalize energy statistics processes

→ A. Formalize the energy statistics mandate

MIREME has a delegated institutional mandate to collect and generate energy statistics, and it looks best positioned to host a NEIS in Mozambique. It is, however, essential to formalize and detail the specificities of MIREME's role concerning specific energy data collection, analysis, and dissemination with a legal notice to guide data management. Similarly, a series of Memorandums of Understanding (MOU) could also be signed with relevant institutions within the CSE to clarify the working relationships between institutions and define new areas of collaboration to enhance data quality with focal point reassignment in each partner organization.

→ B. Ensure continuity in statistics activities with written processes and user manuals

Producing an Energy Statistics guidelines booklet is vital to ensure the sustainability and continuity of data collection and statistics compilation processes and concepts. The MIREME team should undertake this initiative to curtail any negative impact from the potential turnover of staff involved in the energy statistics. And with the expected expansion of collaboration with INE on energy data issues, it will be necessary over the longer term to develop a user guide and manual for key tools and processes and training materials for potential new hires to ensure that knowledge and processes are harmonized and perpetuated.

→ C. Review and evaluate the statistics process, outputs, and training needs regularly

This process should aim to identify any bottlenecks or challenges that require action in the statistics process, assess the compliance of statistical outputs with international standards and the requirements of national policy-makers, and identify any training or capacity-building needs in the team that should be addressed. A review should be conducted every 3-5 years.

Section 4 of this document develops a five-year action plan to achieve the recommendations and establish a fully functional NEIS aligned to the extent possible with international recommendations and best practices. The plan comprises 28 prioritized actions spread across four implementation phases from 2025 to 2029.

While the existing team can achieve many actions with few additional resources, implementing the entire action plan will require approximately **US\$361,000** in financial resources. These costs are primarily service costs to improve the statistical infrastructure and tools.

The plan also identifies approximately **US\$1000** in annual recurring costs, primarily to cover the cost of holding annual data validation and dissemination/sensitization workshops and printing costs to support dissemination. Additional human resources are also potentially required to support the development of a NEIS in Mozambique.

The following “quick win” items or actions identified by Mozambique will have a significant impact with minimal resources -as highest priority over the coming 12 months:

- Streamline and enhance cooperation between MIREME and INE, including INE systematically in MIREME project steering committees and other data activities,
- Reinforce the role of the Supreme Council of Statistics (CSE) as the medium for continued meetings and active participation of stakeholders in the National Statistics System

Among others, Mozambique has also identified the following structuring projects, which require more substantial resources and planning than the quick-win actions, as the highest priority in the coming 24-36 months:

- Improve biomass data through a National Survey: At an estimated cost of US\$150,000, conduct a comprehensive biomass study to collect primary data on supply transformation and use in household, commercial/service, and other sectors.
- Select and train 1-2 team members in more advanced statistics, energy economics, and analytical methodologies.

FIVE-YEAR ACTION PLAN TO ESTABLISH A NEIS

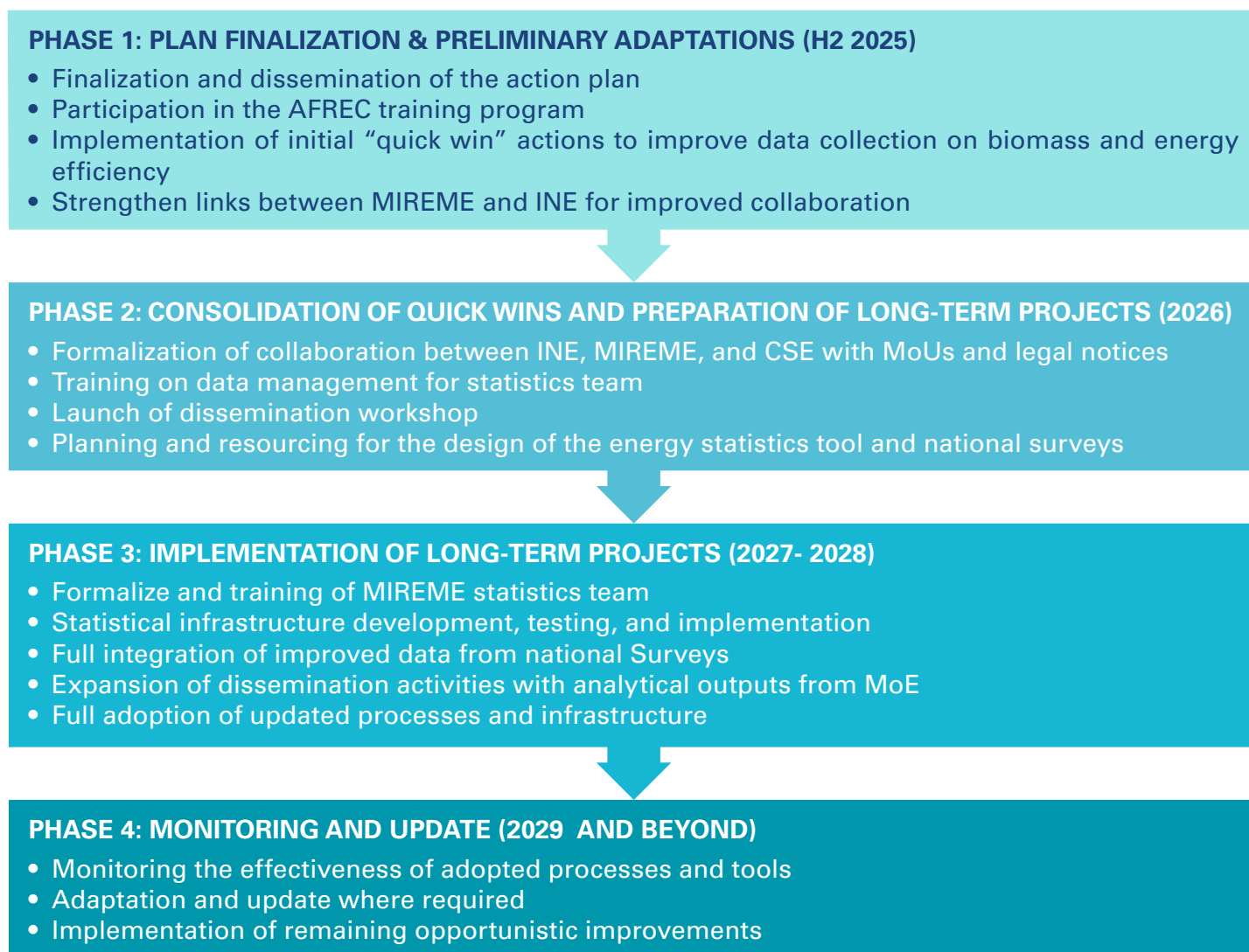


Figure 1 : Action plan overview with phases and primary activities

2 COUNTRY OVERVIEW



Figure 2: Regional Map - Mozambique

2.1 DESCRIPTION

The Republic of Mozambique is a country in southeast Africa with a population of about 33 million in 2024, per the World Bank. Its capital and largest city is Maputo, located in the south on the coast of the Indian Ocean. Mozambique shares borders with Tanzania to the north, Malawi and Zambia to the northwest, Zimbabwe to the west, and South Africa and Eswatini to the southwest. It has an extensive coastline to the east that stretches along the Indian Ocean. Despite having one of the fastest-growing economies in Africa in the last decades, Mozambique remains one of the poorest countries in Africa and is facing many challenges. Its economy remains dominated by the agriculture sector, which is estimated to employ over 70% of the population. The country benefits from a large endowment of natural resources with significant deposits of coal, natural gas, and minerals, as well as growing energy and manufacturing sectors

The following estimates and ratios are taken from the data directly provided to the AFREC AEIS platform for 2022¹. Biofuels and waste still account for the majority of primary energy supply (66%), followed by oil products with a marginally rising share from 10 to over 14.5% between 2010 and 2022.

¹ - This report relies on the most recent published dataset from AFREC's AEIS covering all 15 countries in the NEIS project cohort for ease of comparison and consistency (2022). Individual countries have submitted and/or published more recent data.

Total primary energy supply from 2010 to 2022 by fuel (Mtoe)

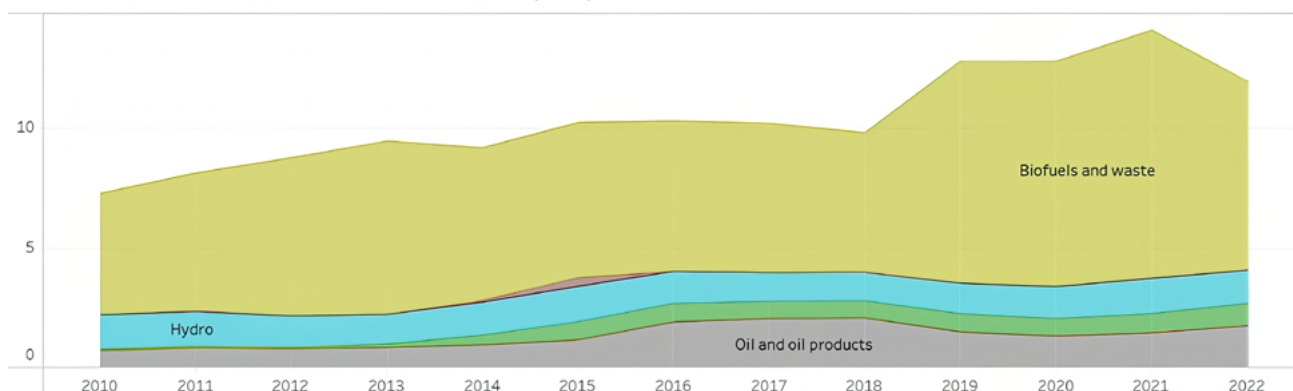
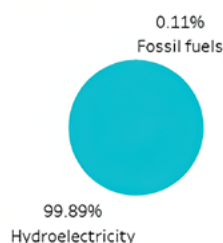


Figure 3 Primary production (Source: AFREC)

Given its large rural population, which accounts for 65% In 2024 of its total population, Mozambique, like many other African economies, relies heavily on biomass energy to meet its energy needs. Given its vast woodland areas, Mozambique's primary biomass sources include firewood and charcoal.

Electricity is mainly generated from hydroelectric sources, accounting for nearly 84% of total electricity generation in 2024, followed by fossil fuels at 16%, a rising share. Mozambique has plans to achieve universal electrification by 2030 and has made notable progress in recent years, with access to electricity rising from 34% in 2021 to 60.1% in 2024. Electricidade de Moçambique (EDM), the country's only utility, is estimated to add over 400,000 new grid connections annually and supports 200,000 off-grid connections. However, the country still faces many challenges, including an underdeveloped transmission network, limited financing, and bureaucratic hurdles. Mozambique exports electricity through the Southern African Power Pool (SAPP), with South Africa as its largest importer. Energy exports are vital to the economy, and they are supported by a new electricity law simplifying permits and encouraging Independent Power Producers (IPPs).

2010 fuel shares of electricity generation



2022 fuel shares of electricity generation

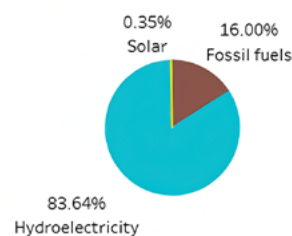


Figure 4 Evolution of fuel shares of electricity generation (Source: AFREC)

Households account for the majority of electricity consumption with a share of 65%, followed by Industry (17%), and transport (16%).

Final consumption by sector from 2010 to 2022 (ktoe)

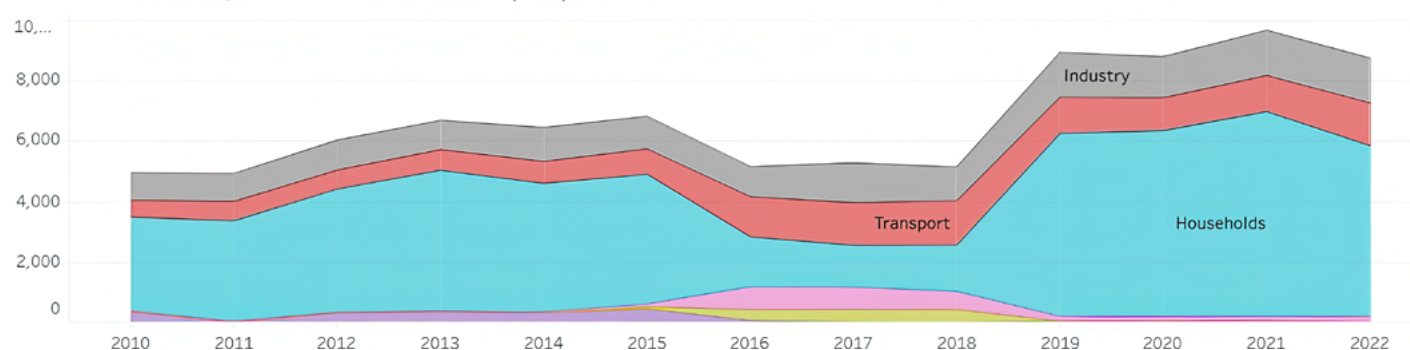


Figure 5: Final consumption by sector (Source: AFREC)

2 - This section of the report relies on the most recently published data set that covers all 15 countries in the NEIS project cohort. Individual countries within the cohort have submitted more recent energy statistics to AFREC or published them through their national processes

In line with its target of universal access to electricity by 2030, the Mozambican government has introduced reforms to its regulatory framework, namely the Electricity Law in 2022, which allowed the simplification of the permitting process for Independent Power Producers (IPPs), promoted increased investment in renewable energy, and introduced a VAT exemption on electrification equipment. However, a true challenge to the financial sustainability of EDM is tariffication, which remains highly subsidized, especially for residential consumers, leading to the continuous operation at a financial loss.

2.2 ENERGY STATISTICS

The Ministry of Mineral Resources and Energy (MIREME) is responsible for energy statistics in Mozambique. It oversees the collection, analysis, and dissemination of energy-related data at the national and local levels. The MIREME also manages the planning and implementation of energy policies, including renewable energy development, rural electrification, and energy efficiency initiatives.

The MIREME supports the transmission of data from other affiliate institutions such as;

- Electricidade de Moçambique (EDM) – state-owned national electricity utility in Mozambique, in charge of the generation, transmission, distribution, and sale of electricity nationwide;
- Fundo de Energia (FUNAE) – a public entity operating under MIREME that promotes rural electrification and renewable energy development. It was established in 1997 to address energy access challenges in rural and remote areas and plays a vital role in the country's efforts to achieve universal electrification by 2030.
- Instituto Nacional De Petróleo (INP) – the national regulatory authority overseeing and managing the country's petroleum resources. Established in 2004, the INP ensures the sustainable development and exploration of hydrocarbons, including natural gas and oil.
- The National Mining Institute (INAMI), created in 2014 under MIREME, is the regulatory authority for mining activities. It regulates public and private sector participation in the exploration, exploitation, processing, export, and import of mining products and their derivatives.
- Instituto Nacional de Estatística (INE) – a legally independent administrative institution, under the Ministry of Economy and Finance, responsible for public statistic operations including demographic and economic censuses, national accounts, demographic and social statistics, etc.
- Matola Gas Company (MGC) – a semi-public company operating in Mozambique's natural gas transportation, distribution, and sale.
- Empresa Nacional de Hidrocarbonetos (ENH) – a state company founded in 1981 to operate across the oil and gas value chain from exploration, prospecting, and production to marketing of petroleum products.
- Imopetro – an independent public entity, under the supervision of the CACL (Liquid Fuels Acquisition Commission), coordinating all fuel imports in Mozambique, comprised of all authorized fuel distributors operating in the country.
- Hidroeléctrica de Cahora Bassa (HCB) – a semi-public company and the largest Independent Power Producer (IPP) in the southern African region, supplying hydroelectric power to Mozambique and the Southern African Development Community (SADC).

The MIREME is primarily comprised of the following sub-bodies;

- DNCH (Direcção Nacional de Hidrocarbonetos e Combustíveis) – Directorate for Hydrocarbons and Fuels
- DNE (Direcção Nacional de Energia) – Directorate of National Energy
- DPC (Direcção de Planeamento e Cooperação) – Directorate of Planning and Cooperation
- DNGM (Direcção Nacional de Geologia e Minas) – National Directorate for Geology and Mining

The data collection is continuous throughout the year, with data provided by relevant institutions quarterly. Since the team assigned to energy statistics in MIREME is spread across different directorates, it utilizes different communication channels to source data directly from certain data providers or indirectly through the relevant directorate within MIREME.

The team members contact the different data providers and directorates to source the data based on their needs for producing the energy balance and other data-related publications. MIREME’s assigned team collects, processes, and prepares an annual energy balance. The method of compiling and producing the Energy Balance between 2011 and 2018 was conducted by MIREME with coordination and technical support from IRENA. However, this collaboration ceased in 2018, and MIREME has been working on EB production independently since. In addition, an annual energy statistics report is typically published on INE’s website based on N-2 data. The publication has, however, been temporarily disrupted, with the latest edition published in 2022 with data for 2020/2021. Similarly, disruptions have also delayed EB production, with the 2023 EB currently in production.

A crucial drawback in the current Energy Balance, or energy statistics production processes more broadly, is that there are currently limited external validation processes to review the EB or statistics once produced. Data providers and other public entities and stakeholders are not involved in feedback or presented with the output once the data has been processed and finalized, which hinders further gains in data quality and robustness.

2.3 PARTICIPATION IN THE AEIS

Mozambique currently provides data to the African Energy Information System (AEIS) on an N-2 basis, as detailed in the table below. The most recently published energy balance data for Mozambique in the AEIS is for 2022.

MIREME does not indicate that energy statistics are disseminated to any other organizations on a systematic basis other than to AFREC or on an ad hoc basis to other relevant organizations like IEA and IRENA.

	Energy Balance	Energy Efficiency	Power Plant Capacity	Prices and Taxes
Supplied to AFREC ?	YES	NO	YES	YES

Table 2: Data provided to AFREC

3 ENERGY STATISTICS DIAGNOSTIC REPORT



This diagnostic was developed closely with the AFREC National Focal Points (NFPs) within the MIREME. The results are based on structured interviews covering the institutions, resources, and statistical processes in place and a detailed review of the data and documentation shared by the AFREC NFPs. The appendices to this document contain a bibliography and further details on the structured interviews.

The diagnostic report is organized into six thematic sections covering the institutional environment, human and material resources, and the significant steps for energy statistics processes (data collection, data processing, quality assurance and validation, and dissemination). Each thematic section describes the current situation and key challenges or gaps that must be addressed to improve energy statistics and align with the International Recommendations for Energy Statistics (IRES) standards. The final section of the diagnostic report takes a transversal view of the challenges faced across each thematic area and proposes recommendations and actions. These prioritized actions are then used to develop an Action Plan for establishing a NEIS in Section 4 of this document.

3.1 INSTITUTIONAL & LEGAL ENVIRONMENT

3.1.1 CURRENT SITUATION

From a regulatory standpoint, Energy data, part of the broader scope of the National Statistics System (SNE—Sistema Nacional de Estatística), has been under the governance of the national statistics institute or Instituto Nacional de Estatística (INE) since its establishment by Presidential Decree No. 9/96 of 28 August 1996. The INE is the central body responsible for managing statistics in Mozambique.

Regulation of law no. 7/96, of July 5th, outlines the set of institutions responsible for activities related to the National Statistical System, including the Supreme Council of Statistics or Conselho Superior de Estatística (CSE), the Coordinating Council of the General Population and Housing Census (CCRGPH), the National Institute of Statistics (INE) and the Bank of Mozambique (BM). The Supreme Council of Statistics (CSE) is the body that oversees, guides, and coordinates the NSS. At the same time, the INE

plays a central role in coordinating and defining methodological outlines as the executive organ of the National Statistical System. The INE has the right to delegate responsibilities, under its technical and methodological guidance, to designated Delegated Organs of INE (ODINE) for collecting, producing, and publishing official statistics in their respective sectors. ODINEs are instated through an Order issued by the INE and approved by the CSE, as technically independent bodies, with autonomous administrative and financial resources. Hence, despite the energy statistics mandate not being separately defined, INE – as the executive body of statistics – has the authority to delegate sector-specific statistical activities to various ministries, including MIREME, coordinated under the CSE.

The National Statistical System gathers stakeholders and data providers across the public, private, and academic sectors. The INE leads and coordinates these efforts through its Strategic Plan of the National Statistical System.⁴, PE SEN – 2020/2024, released in 2022. The plan establishes its operational objective and informs current coordination plans. In its evaluation of the PE SEN – 2020/2024, INE underlines the challenges posed by the current organization, which gives rise to some “grey areas” on the responsibilities and duties of ODINE vis-à-vis INE;

- There is no detailed legal framework that clearly defines how the ODINE interacts with INE, detailing data-related tasks, the scope of reports, dissemination processes, and scheduling per ODINE.

For instance, implementing the action plan set by the strategic plan formulated by INE remains challenging to enforce and monitor across ODINEs.

- • Additionally, the variability of technical and resource capacities across ODINEs and minimal capabilities in statistics result in a reduced quality and coverage of sectoral statistics in the broader National Statistical System (SNE).
- The INE also faces issues identifying the personnel and designated individuals consistently working on statistical activity across all ODINEs.
- Communication gaps and systematic delays in responding to requests from INE and data and report production by some ODINEs.
- The current framework governing the National Statistics System and defining its structure needs to be updated, as it dates back to 1996.

Energy statistics in Mozambique are managed by a dedicated team of six members across different directorates in MIREME. Through MIREME’s delegated responsibilities, the team has the mandate to collect, process, and disseminate all statistics related to the energy sector and functions as a centralized source for energy statistics nationally. The team across the different directorates collects data from public entities, public companies, and, to a more limited extent, the private sector. It distributes statistics and indicators and an annual energy statistics report through the MIREME and INE websites.

The diagram below illustrates the institutional environment in which the team operates.

3 - <https://www.ine.gov.mz/sen#section1>

4 - <https://www.ine.gov.mz/documents/20119/44865/Avalia%C3%A7%C3%A3o%20Meio%20Termo%20do%20Plano%20Estrat%C3%A9gico%20do%20Sistema%20PESEN%202020-2024.pdf/76826394-d637-88fa-f616-081b27057412?version=1.0&t=1716204500042&download=true>

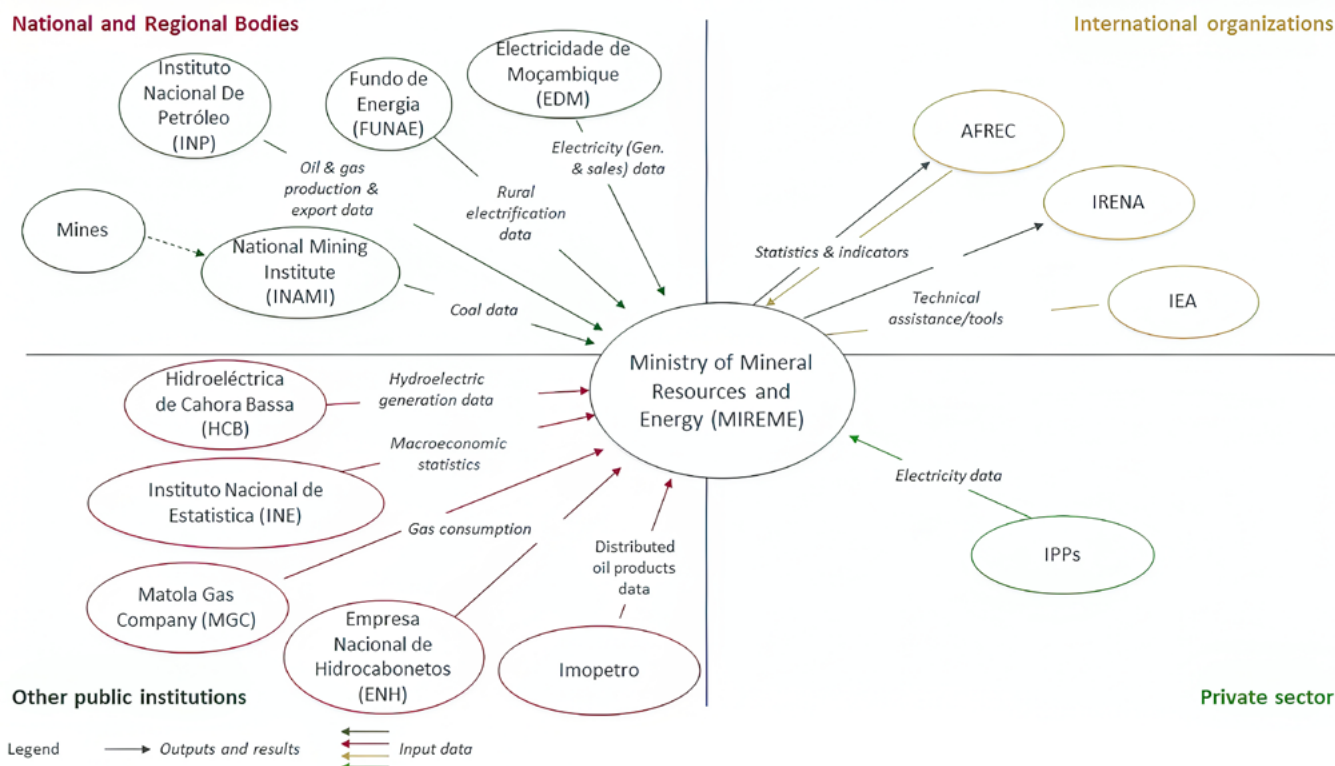


Figure 6 Institutional environment

Given the distinct and well-defined mandates of each MIREME Directorate, energy statistics are being centralized within MIREME by the designated team internally (refer to section 3.2). “Each Directorate is tasked with collecting data within its specific area of expertise, which promotes a structured and efficient approach to energy information management. However, this approach may also result in duplication of efforts, confusion, and delays in data processing due to indirect communication with data providers through the respective directorate.

The team members primarily work within the Directorate of Planning and Cooperation (DPC), which centralizes all energy-related data for EB and energy report production for public dissemination.

The other directorates collect data that falls within their scope as follows;

- Directorate for Hydrocarbons and Fuels (DNHC) – collects data from INP, Imopetro, ENH, and MGC.
- Directorate of National Energy (DNE) – collects data from FUNAE, EDM, HCB, and IPPs.
- National Directorate for Geology and Mining (DNGM) – collects data on mining but does not provide it directly to DPC due to a difference in reporting units.

DPC also communicates and collects data directly from FUNAE, EDM, and INP as needed.

3.1.2 ASSESSMENT AND GAP ANALYSIS

Three main limitations have been observed concerning the institutional & legal environment:

Nº	Key issues/gaps	Description
1.1	MIREME mandate and capacity to centralize and manage data	MIREME’s mandate is implicitly part of INE’s broader mandate on national statistics. For instance, it lacks a clear-cut organizational structure and mandate to undertake data collection projects. Its role is exclusive to data centralization and processing.
1.2	Coordination issues between stakeholders	There is a lack of coordination between the MIREME team and the INE regarding data collection processes, reports production, and scheduling.
1.3	MIREME internal structures may lead to further delays	Although MIREME's structure is conducive to sector-specific data collection, the two-step process can lead to further response delays, as the energy statistics team reported.

Table 3 : Institutional environment gap assessment

3.2 HUMAN & MATERIAL RESOURCES

3.2.1 CURRENT SITUATION

HUMAN RESOURCES

Energy statistics are produced through a collaborative process across different directorates within the MIREME. These directorates are responsible for different aspects of the energy-related statistical data collection and production in Mozambique. Six members contribute to the upkeep of this mission and to the transmission of statistics to AFREC to variant degrees.

THE MINISTRY OF MINERAL RESOURCES AND ENERGY (MIREME)

Name	Job title/position & Institution	Role in the NEIS/EB	Time dedicated to NEIS/EB (%)	Training/ background
Iazalde Jeremias	Head of the Energy Planning Department, National Directorate for Energy, MIREME	AFREC NFP, and Coordinator	Temporary – part-time basis, punctual engagement	BSc
Tina Matandire	Energy data analyst, Directorate for Planning and Cooperation, MIREME	In charge of Energy Statistics	Temporary– part-time basis, punctual engagement (quarterly)	BSc
Xavier Banze	Energy Data Manager, Directorate for Planning and Cooperation, MIREME	In charge of Energy Statistics	Temporary – part-time basis, punctual engagement (quarterly)	BSc
Dalpate Jose	Energy Data Manager, Directorate for Planning and Cooperation, MIREME	In charge of Energy Statistics and data collection	Temporary – part-time basis, punctual engagement (quarterly)	BSc
Rui Monjane	Directorate for Hydrocarbon and Fuels, MIREME	N/A	Temporary – part-time basis, punctual engagement (quarterly)	N/A
Odete Watchespn	National Mining Institute	N/A	Temporary – part-time basis, punctual engagement (quarterly)	BSc

Table 4: Human resources dedicated to energy statistics

The National Directorate for Energy at MIREME also manages energy statistics data collection, compilation, and dissemination (other than to AFREC). The ministry's mandate includes data collection, processing, and dissemination of the Energy Balance and other energy-related indicators.

MATERIAL & IT RESOURCES

The available material resources and IT infrastructure are:

- **Offices:** All six team members working on energy statistics have adequate access to boardroom facilities and individual office spaces.
- **Computers & Software:** The Energy Statistics team at MIREME has sufficient computer resources and access to Excel, the main tool used by the team. No other software packages are used to manage data effectively at MIREME. Desktop and/or laptop computers have access to Excel, but they are generally older models with limited processing capacity or memory.
- **Models or technical tools (e.g., sectoral models, LEAP):** Analytical modelling falls within the remit of MIREME. Team members are not technically trained to operate these technical tools and, therefore, have limited access, as they are generally not centralized or maintained and are rather deployed on a project-by-project basis.
- **Server & IT Infrastructure / Internet:** There is an available server at MIREME as a whole, with no dedicated storage capacity for the team members in particular. There is adequate relevant infrastructure in terms of printer, scanner, and copier connections. Access to the server via ethernet (LAN) and Wi-Fi is available.
- **Budget:** Without a specific budget, NFP activities are included in MIREME's internal budget unless outside support is received on a specific project.

3.2.2 ASSESSMENT AND GAP ANALYSIS

MIREME does have a relatively adequate human resource to fulfil the current workload on energy statistics. Still, they are spread across different directorates, which may hamper effective coordination and lead to unintended delays. MIREME officers have largely statistical and economist backgrounds and participate in energy statistics compilation on a part-time basis for the quarterly data collection. There is a highlighted need for specialized training in energy modelling and data management. The team can benefit from dedicated in-person training to master energy balance notions, particularly regarding biomass and energy efficiency, and relevant software solutions. This is particularly important given the limited resources for sustained data tracking, storage, and analysis.

Although the Energy Statistics team at MIREME collaborates effectively with other MIREME directorates and, to a lesser extent, with INE, its work can be hampered given the multiple communication channels that need to be mobilized for data collection and follow-ups each quarter. This is particularly relevant as the team reported recurrent delays and difficulties reaching interlocutors, mainly during the data collection phase. To facilitate correspondence, there is a need to set up a clear communication structure with assigned FPs in each directorate, at INE, and with the relevant data providers directly solicited for data collection.

There is a clear need for closer coordination between INE, the central body with its legal mandate on all statistics, and MIREME to set a precise data collection and report production calendar and explore further ways and facilities to enhance the energy data quality and collection processes. An assigned individual trained in energy statistics to serve as a liaison with INE would be particularly helpful in effectively managing communications, coordinating planning, and directing any other relevant directives.

From a material perspective, although the IT infrastructure at MIREME is functional for the current processes, it lacks sufficient processing power and storage to undertake any further data processing and modelling in the future. Using the current MIREME infrastructure to host an operational NEIS might not be the most effective way forward.

The following table summarizes the principal issues and gaps that emerge from the diagnostic regarding human and material resources.

N°	Key issues/gaps	Description
2.1	No tailored and specialized energy data management and software training for MIREME	Additional training is required for team members working on energy statistics to gain confidence and ownership over energy-specific analytical methodologies and statistics.
2.2	Need for capacity building on biomass and energy efficiency subsectors	Statistics officers are comfortable with electricity and petroleum subsectors but have less experience with biomass and energy efficiency statistics, which are still nascent. Specific training on sub-sector value chains, statistical calculations, and methodologies for estimating indicators on this subject may be required.
2.3	Need for capacity building on advanced Excel/Data management skills	The energy statistics team utilizes Excel as a central tool for its workflows, with much of their time spent on repetitive tasks that could be streamlined with more efficient data management or advanced Excel skills. Training on these subjects is linked to improvements to the statistical infrastructure (see section 3.5).
2.4	A need for improved IT infrastructure at MIREME to support expanded data activities.	IT resources at MIREME appear insufficient to allow staff to expand its contribution to data management and analysis in line with developing a NEIS.

Table 5: Human and material resources gap assessment

3.3 DATA COLLECTION

3.3.1 CURRENT SITUATION

MIREME, through its different directorates, collects energy data from identified data providers. For each sector, the raw data (Production, Import/Export, Transformation, End Uses) used for generating the Energy Balance and energy statistics is collected as follows:

Sector	Description of data collected and sources	Data Quality and Limitations	Format & Frequency
Oil & gas	The data for oil and gas are collected at MIREME every quarter directly from: • The National Petroleum Institute (INP) – Oil & gas upstream production and exports data • The Matola Gas Company and National Hydrocarbons Enterprise ENH – gas consumption • Imopetro – distributed oil products	– Data provided in physical units (barrels of oil and cubic meters as the unit of measurement) with limited information on fuel characteristics – Data is not disaggregated by end use nor sector	– No standard structure, data tables in Excel and/or PDF

Sector	Description of data collected and sources	Data Quality and Limitations	Format & Frequency
<i>Electricity + Renewable energy - hydropower</i>	The DNE collects data from HCB, IPPs, EDM, and FUNAE for power plants, including: Hydro, solar, thermal, biomass, imports, and exports	– Data is generally comprehensive and covers most requirements – Reporting will be for primary grid, mini-grids, off grid, and prosumers – GWh is the unit of measurement	– Excel and PDF; data is collected quarterly
<i>Biomass</i>	MIREME does not collect data on biomass, with no systematic supply, transformation, and use data readily updated and available	– Need for national surveys for data	– N/A
<i>Energy Efficiency</i>	MIREME doesn't currently produce any statistics on EE: EE requires more stakeholders (appliances info, etc.) and the transport sector, among others.	– N/A	– N/A
<i>Economic and Demographic</i>	MIREME sources its economic and demographic data from the INE. The INE conducts socioeconomic surveys regularly, namely the Household Budget Survey (Inquérito sobre Orçamento Familiar - IOF) (latest edition is 2022/2023), including data points on electricity spending and cooking fuels The most recent population census dates to 2017, with the upcoming census scheduled for 2027	– Data is generally comprehensive and covers most requirements	– N/A

Table 6: Sectoral data collection sources and procedures

3.3.2 ASSESSMENT AND GAP ANALYSIS

MIREME is well positioned to collect energy data with a good base structure, utilizing its existing directorates to source data on a sub-sector basis. With DNHC sourcing data on oil and gas, DNE collects electricity data, and DNGM and, ultimately, INAMI collect mining data. DPC, which accounts for three core members of the energy statistics team, then leads the centralization of all collected data every quarter to produce the EB and energy statistics report on an annual basis. This is then shared with INE for further public dissemination on their website. The structure may be conducive to data collection on a sub-sector basis, alleviating the data collection burden on the energy statistics team, which works part-time. Still, it leads to further response delays as the communication channels multiply in the two-step process. Currently, there are no assigned FPs or representatives for each data provider with clear Instructions on schedule, format, and reporting units, for instance. These types of processes would need to be codified and circulated in the appropriate channels to ensure consistent and more effective data sharing.

The most important limitation in terms of data availability and quality appears to be biomass data which would require a tailored survey. MIREME has been unable to source new data on household biomass use and has been using outdated estimates that have been extrapolated and/or rolled over. There is also room for improvement on end-use data for petroleum products or electricity to achieve alignment with the ISIC classification and provide accurate, detailed breakdowns.

The following table summarizes the principal issues and gaps that emerge from the diagnostic with respect to data collection and potential solutions for addressing each challenge.

Nº	Key issues/gaps	Description
3.1	Lack of data on biomass and energy efficiency	No available data on biomass subsector and for energy efficiency; no consumption surveys or other primary data collection currently scheduled.
3.2	Challenges ensuring timely response from MIREME directorates and partner institutions for data collection	Lack of capacity and lack of commitment in partner institutions in providing the relevant inputs with lack of FPs and other management changes that may difficulties in collecting data; need for closer engagement and assignment of FPs that would receive training on the importance of timely data sharing
3.3	Lack of standardized and codified data collection framework	Lack of guidelines for energy statistics that provide information to team members and outside stakeholders on key definitions, data requirements, formats and compilation procedures.

Table 7: Data collection gap assessment

3.4 DATA PROCESSING

3.4.1 CURRENT SITUATION

TECHNIQUES & TOOLS FOR DATA PROCESSING

MIREME utilizes template on excel format to compile energy statistics, in TJs. All calculations, filtering, aggregation and visualization are done in excel. This is then shared with AFREC upon finalization.

Energy Products	Non-renewable feedstocks				Renewable feedstocks			Power Generation					Electrical energy distribution
	Coal	Crude Oil	Natural Gas	Nuclear	Biomass - Charcoal	Biomass - Wood	Municipal and other waste	Hydro	Geothermal	Solar	Wind	Other	
Identified by National Workshop	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Full CPC Definition	Coal and Peat	Petroleum oils and oils obtained from bituminous minerals, crude	Natural gas, liquefied or in the gaseous state	Fuel elements (cartridges), for or of nuclear reactors	Wood charcoal	Fuel wood, in logs, in billets, in twigs, in faggots or in similar forms	Wastes or scraps	n/a	n/a	n/a	n/a	n/a	

Gas Works	Refinery products											
Gas Works	Liquid fuels											Gas
N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Coal gas, water gas, producer gas and similar gases, other than petroleum gases and other gaseous hydrocarbons	Motor gasoline	Aviation gasoline	Gasoline-type jet fuel	Naphta	Kerosene-type jet fuel	Other kerosene	White spirit and special boiling point industrial spirits	Gas oil	Fuel oils n.e.c.	Lubricants	Other petroleum oils n.e.c.	Petroleum gases and other gaseous hydrocarbons, except natural gas

Figure 7 : UNSD template for energy balance

MIREME highlights the important and urgent need for training using a dedicated tool for energy statistics to track data storage.

METHODOLOGY OF DATA PROCESSING

Data processing is managed through three steps (i) raw data processing followed by (ii) data calculation and adjustments and finally, (iii) data analysis and visualization. The overall process is spread across the year as raw data is collected on a quarterly-basis.

COMPLETION OF AFREC QUESTIONNAIRES AND OTHER ENERGY STATISTICS MODELS

AFREC questionnaires are filled on the basis of finalized data consolidated by MIREME in Excel format.

3.4.2 ASSESSMENT AND GAP ANALYSIS

MIREME currently does not have a NEIS nor does it have a dedicated tool for data processing and intermediate calculations. Data is collected in various thematic Excel workbooks and then consolidated into the required indicators in excel format and is then used to populate the AFREC questionnaires for energy balance statistics. Energy efficiency statistics are currently not being covered or submitted to AFREC.

At the end of the data finalization process, an energy statistics report is prepared and is then published on both MIREME's and INE's websites. The energy indicators do have significant gaps as it relates to biomass and end-use breakdown.

Excel presents some inherent limitations in terms of security, versioning, and the capacity to have multiple active users, which limits the potential for collaboration between MIREME and other relevant regional bodies, for instance, on energy statistics data. However, this barrier could be overcome with sufficient processes for tracking reference versions without necessarily changing platforms.

The following table summarizes the principal issues and gaps that emerge from the diagnostic concerning data processing.

N°	Key issues/gaps	Description
4.1	Lack of a dedicated tool for tracking and compiling energy statistics	The current Excel spreadsheets used at MIREME are not integrated into a structured and automated tool. Data compilation, transformation, and other calculations must be done manually.
4.2	Limited capacity for collaboration with current infrastructure	Excel sheets and lack of codified processes across directorates and other institutions generate risks related to versioning, security, etc., and act as a barrier to enhanced collaboration between MIREME, INE, and other relevant public institutions
4.3	Lack of comprehensive output indicators	The current infrastructure does not generate detailed indicators for the energy sector (e.g., energy by end-use, energy efficiency).

Table 8: Data processing gap assessment

3.5 QUALITY ASSURANCE AND VALIDATION

3.5.1 CURRENT SITUATION

Quality assurance and data validation are currently conducted in multiple phases, starting with internal checks undertaken by the MIREME energy statistics team before results are presented to MIREME's technical council, which comprises Directors and energy technicians. Based on the feedback and commentary, data is then reprocessed if needed. It is then presented to the MIREME Advisory Body, which is comprised only of directors and the Minister. Once validated, data is presented to INE and the Ministry of Economy and Finance (MEF).

At the early stages of data collection, the energy statistics team reviews the data and then resents it to data suppliers with comments if needed.

3.5.2 ASSESSMENT AND GAP ANALYSIS

The lack of broader external validation is a vital drawback and can directly affect data quality and robustness. A data validation that groups not only public stakeholders implicated in energy statistics, like INE and MIREME, but also other stakeholders from other key sectors like transport, Industries, agriculture, and fishing can provide crucial inputs and feedback to ensure coherent and robust energy statistics. This collaborative and interactive process can involve data providers, policy makers, and international partners. Engagement with stakeholders through bilateral or multilateral meetings should be vital in finalizing energy statistics before dissemination, as it generally adds value to the quality assurance process without generating significant delays.

In addition to including appropriate automated internal checks in whatever statistical tool is developed to support the NEIS, expanded top-down checks or historical comparisons are necessary to ensure consistency from year to year. The energy balance data presents some important statistical differences, and a system for reducing or explaining clearly the source of these differences is required.

The following table summarizes the principal issues and gaps that emerge from the diagnostic regarding quality assurance and data validation and potential solutions for addressing each challenge.

N°	Key issues/gaps	Description
5.1	Limited internal checks in Excel infrastructure	Internal checks can be time-consuming for team members, as the lack of a structured tool limits the capacity for automated checks and error identification.
5.2	Limited external validation process	The external validation is limited to presenting the results to directly implicated stakeholders (INE, MEF, and MIREME). Hence, there is a need to implement a process such as an annual workshop or technical committee to ensure the active participation of relevant institutions/agencies in a comprehensive validation process to benefit from various stakeholders' insight to review further and provide technical input and validation. This process can mainly include relevant representatives from MIREME, INE, MEF, the Ministry of Agriculture and Food Security, the Ministry of Sea, Inland Waters and Fisheries, the Ministry of Transport and Communications, the Ministry of Industry and Commerce, etc.
5.3	No information on indicator reliability or checks against international standards	Quality assurance processes may include some basic metadata tracking in Excel, but they do not include a precise classification of indicators by "reliability" to indicate the level of confidence concerning the accuracy of outputs or their compliance with international standards. Therefore, they do not highlight the areas where data should be improved over the long run. This is, therefore, one of the areas needing improvement and/or upskilling.
5.4	Absence of any communication/cooperation with representatives from Agriculture and Forestry	Considering biomass's importance, data validation should be expanded to representatives from the Agriculture and Forestry sectors.

Table 9: Quality assurance and validation gap assessment

3.6.1 CURRENT SITUATION

MIREME publishes the annual energy statistics report on its website, also available through INE's website. However, the report's latest edition is from 2022, and the 2023 edition is still in production. No editable datasets have been published, and no sector-specific or in-depth reports exist. However, the team's full-time capacity within MIREME, working in other areas, addresses various ad hoc requests from multiple stakeholders.

Given the current disruptions to the production schedule, devising a well-thought-out structure of scheduled productions with detailed deadlines and assigned resources would increase visibility and traceability while helping identify resource gaps and bottlenecks. MIREME does not conduct further dissemination activities regarding sectoral workshops or technical committee presentations. Data needed for policy decision is collected on an ad hoc basis for each new initiative, leading to duplication of efforts, inefficiencies, and potential inconsistencies.

3.6.2 ASSESSMENT AND GAP ANALYSIS

There is a need to strengthen links between the energy statistics team and other directorates in MIREME, data providers, and government end users. MIREME does not directly publish the EB or any energy datasets; it produces one sole publication, the energy statistics report, which does not include historical data. It only offers data on electricity production, exports, Imports, access to renewable energy, fuel Imports, and fuel sales without any accompanying analysis or written narrative. Hence, there is a need to expand the scope of current report production and restructure it to include insights on the energy sector and corresponding sub-sectors where data is available.

Furthermore, without a shared statistical tool, dissemination could be further streamlined by establishing a standard dataset for analytical purposes for MIREME to distribute to potential institutional users. This dataset could show detailed indicators for all energy sources with current and historical data. It could be delivered in a protected Excel format to allow users to feed the data directly into their analytical tools, thus avoiding manual re-entry from a PDF report format.

Finally, there is a need to raise the profile of energy statistics internally at MIREME and amongst other public and para-public organizations and to raise awareness of the processes and scheduled energy statistics activities. Among other means, dissemination could be done via a national annual workshop held jointly by MIREME and INE with involvement from all stakeholders, the private sector, civil society, and the press.

Nº	Key issues/gaps	Description
6.1	Lack of data analysis output and sectoral narrative production	Despite having a punctual publication for annual dissemination, it lacks valuable data analysis and written assessment to provide Insights on the sector, relevant developments and policies, and forward outlook. There needs to be effective use of available statistics to produce analytical output or contribute to regular monitoring or decision making.
6.2	Limited internal dissemination of statistics and data across institutions	Limited data sharing across public and para-public institutions to ensure that official statistics can be easily used as inputs for analytical purposes.
6.3	Low public and institutional profile of energy statistics and data collection work	Low visibility of energy statistics processes and outputs limits institutional and public awareness of the importance and use of energy data, hindering its use in decision-making processes, buy-in to support investments in improvements to energy statistics, and awareness and participation of partner institutions.

Table 10: Diagnosis of dissemination and analysis

3.7 ANALYSIS AND RECOMMENDATIONS

The table below assesses the Strengths, Weaknesses, Opportunities, and Threats (SWOT) that emerge from the diagnostic assessment.

MIREME has a mandate delegated from INE and an assigned team working part-time to produce and disseminate energy statistics. It also publishes an energy statistics report on an annual basis, although its production has been delayed for two years. MIREME's role as the custodian of energy statistics in Mozambique is part of a larger structure - the National Statistical System - governed by INE and the Supreme Council of Statistics (CSE), comprised of all other ODINEs. Although the existing national structure gathers the majority of key stakeholders needed for harmonization and coordination meetings, it lacks clear guidelines and executive power to implement action plans effectively at the ODINE-level. The NSS constitutes a core strength that MIREME can build through reinforced data collection, notably for the biomass and energy efficiency sectors, and through improved data storage and compilation tools.

Given the current report production structure, it involves compiling energy statistics for the electricity and fuel sub-sectors but not their interpretation or analysis in the context of more significant sector developments, energy planning, or policy making. There is an urgent need for improved collaboration with INE and other government end-users to reinforce data-sharing mechanisms and ensure adequate access and dissemination of relevant analyses based on energy statistics. This points to a need for a dedicated, stable team for energy data at MIREME with expanded responsibilities and scope of work.

Strengths - Delegated mandate of MIREME to conduct and disseminate energy statistics - Strong willingness within MIREME's assigned team to improve and develop energy statistics - An existing process for data collection that involves other directorates within MIREME and other data providers	Weaknesses - Limited training and expertise on specific energy sub-sectors: energy efficiency, biomass, in addition to data management and energy modelling - Limited resource and time capacity in MIREME to produce and disseminate detailed in-depth analyses on energy statistics - Data collection is weak on biomass and energy efficiency - Lack of external data validation process that involves data providers and relevant stakeholders
Opportunities - Having an assigned team in the MIREME with a strong academic background working on energy statistics - Strong partnership with international stakeholders like AFREC and IRENA - Relationships with data providers are generally positive - Other existing structures (e.g., INE, CSE) that could support the continued development of data collection (biomass, end-uses)	Threats - Limited opportunities for data collection on the biomass subsector - Biased energy balance statistics due to weak data collection on biomass and energy efficiency - Limited primary data collection for all related fields to end-use consumption and requiring field surveys

Figure 8: SWOT Analysis

Based on the diagnostic and gap assessment results, we recommend that energy statistics on consumption, transformation, and supply at the national, sectoral, or sub-national level remain the responsibility of MIREME, building on the systems and processes already in place. MIREME should then expand and systematize its collaboration with INE to ensure a strong two-way flow of information and inputs between the organizations regarding these statistics, and should retain responsibility for and develop capacity to manage, store, use and disseminate more detailed data required in energy planning and policy assessment processes (infrastructure locations/characteristics, planning data sets on electricity demand, technology costs, etc.). To this end, it is strongly suggested that MIREME set up a full-time data unit that would be responsible for coordinating collaboration with INE, CSE, and other stakeholders, including external organizations such as AFREC, collecting and managing planning data, and developing analytical output for Ministerial level and public dissemination.

Five key recommendations for reinforcing Mozambique's energy statistics emerge from the diagnosis and gap assessment. These recommendations are designed to build on the existing strengths of the statistics processes and team, address the primary weaknesses or threats identified in the SWOT analysis above, and align with the IRES recommendations where possible. The recommendations are classified according to their importance, and each bullet point in the list below represents a specific objective for developing energy statistics in Mozambique.

3.7.2 RECOMMENDATIONS

1. Streamline and enhance cooperation between MIREME and INE

→ A. Streamline participation in data activities at MIREME and enhance interinstitutional linkages

MIREME energy statistics team members should be involved routinely in discussions with INE to set the upcoming year's production agenda at the end of the year and should be responsible for institutional collaboration on data issues with both INE and CSE.

2. Improve and expand data collection through INE

→ A. Reinforce and expand the Supreme Council of Statistics (CSE) 's role

to ensure effective and sustainable participation from organizations within the energy sector (MIREME and other agencies) and other organizations with mandates on related subjects such as trade, forestry, and transport. Budgetary support may be required to ensure the committee meets regularly and fulfils its role.

→ B. Improve data collection on biomass supply and demand

The diagnostic reveals significant gaps in biomass data: a national survey covering households and enterprises should be conducted as a priority. Improving biomass data will also require training for the MIREME Energy Statistics Team to improve sectoral knowledge, technical coordination with bio-energy experts within MIREME, and continued outreach to new stakeholders to improve secondary data collection on these sub-sectors.

→ C. Improve data collection for energy end uses, in particular for petroleum products

by adding or adapting relevant questions on energy to the INE household or enterprise surveys .

3. Upgrade statistical tools to the requirements of a NEIS

→ A. Develop capacity on data management

As the quality and coverage of data expands, the statistics team at MIREME will need to manage ever-larger and more complex data sets. All members of the Energy Statistics Team should receive basic training on best practices and techniques for data management in Excel, and one member of the team should be selected as a focal point for more in-depth training on database management and tools to anticipate potential changes in the statistical infrastructure in the future.

→ B. Elaborate a tool for MIREME to facilitate compiling and tracking statistics

including visualization and analytics. Technical management of the tool should be housed in MIREME, but access should be granted to INE and other identified end-users for improved cooperation and transparency with both organizations involved in the tool's specification.

4. Structure and Facilitate Data Dissemination

→ A. Publish specific energy reports (prepared by MIREME with support from INE) and distribute to public audience

This will raise the visibility of the MIREME team to external stakeholders, facilitate users' access to statistics and information on the energy sector, and help contribute to timely public or technical debates on energy policy issues

→ B. Raise the profile of energy statistics by holding an annual national workshop to present the Energy Balance and headline statistics for energy

This workshop should be hosted jointly by MIREME and INE and should include the leading public sector stakeholders, private sector, civil society, and press.

→ C. Build capacity on energy economics and data analysis to expand the team's analytical output

The MIREME energy statistics team should take the statistics and analyse specific subjects beyond data collection, compilation, and analysis. Currently, the MIREME team reports a lack of time and skills to invest in using energy statistics to generate analytical output (sectoral policy analyses, forecasts, etc.) in support of policy making or public debate.

5. Sustain, evaluate, and formalize energy statistics processes

→ A. Formalize the energy statistics mandate

MIREME has a delegated institutional mandate to collect and generate energy statistics, and it looks best positioned to host a NEIS in Mozambique. It is, however, essential to formalize and detail the specificities of MIREME's role concerning specific energy data collection, analysis, and dissemination with a legal notice to guide data management. Similarly, a series of Memorandums of Understanding (MOU) could also be signed with relevant institutions within the CSE to clarify the working relationships between institutions and define new areas of collaboration to enhance data quality with focal point reassignment in each partner organization.

→ B. Ensure continuity in statistics activities with written processes and user manuals

Producing an Energy Statistics guidelines booklet is vital to ensure the sustainability and continuity of data collection and statistics compilation processes and concepts. The MIREME team should undertake this initiative to curtail any negative impact from the potential turnover of staff involved in the energy statistics. And with the expected expansion of collaboration with INE on energy data issues, it will be necessary over the longer term to develop a user guide and manual for key tools and processes and training materials for potential new hires to ensure that knowledge and methods are harmonized and perpetuated.

→ A. Review and evaluate the statistics process, outputs, and training needs on a regular basis

This process should aim to identify any bottlenecks or challenges that require action in the statistics process, assess the compliance of statistical outputs with international standards and the requirements of national policy-makers, and identify any training or capacity-building needs in the team that should be addressed. A review should be conducted every 3-5 years.

4 ACTION PLAN TO ESTABLISH A NEIS



The action plan covers five years and aims to improve energy statistics and establish a fully functional NEIS by the end of the period in accordance with international standards recommendations.

The plan comprises 30 prioritized actions spread across four implementation phases from 2025 to 2029. While many actions can be achieved by the existing team with few additional resources, implementing the entire action plan is expected to require approximately US\$ 361,000 in financial resources. These costs are primarily service costs to develop the statistical infrastructure and tools and a budget for in-depth training for thematic focal points. The plan also identifies approximately US\$ 1000 in annual recurring costs, primarily to cover the cost of holding annual data validation and dissemination/sensitization workshops. Additional human resources are, however, expected to be required to support the development of a NEIS in Mozambique.

4.1 IDENTIFICATION AND PRIORITIZATION OF REQUIRED ACTIONS

The table below identifies the specific actions required to support each recommendation. Action items are prioritized using an analytical matrix that assesses actions based on their expected impact in achieving the main objectives and the required effort or resources. A project is considered high effort if it has a high financial cost, has high human resource requirements, or is highly dependent on an action outside the direct control of the concerned stakeholders. Impact is considered in terms of contribution to achieving the plan's overall objective, establishing a NEIS, and meeting the specific objectives detailed in the second column of the table. Classified this way, the items are prioritized across four categories, as shown in the diagram below. Based on this classification, the action items are grouped into four priority categories, as illustrated in the diagram below.

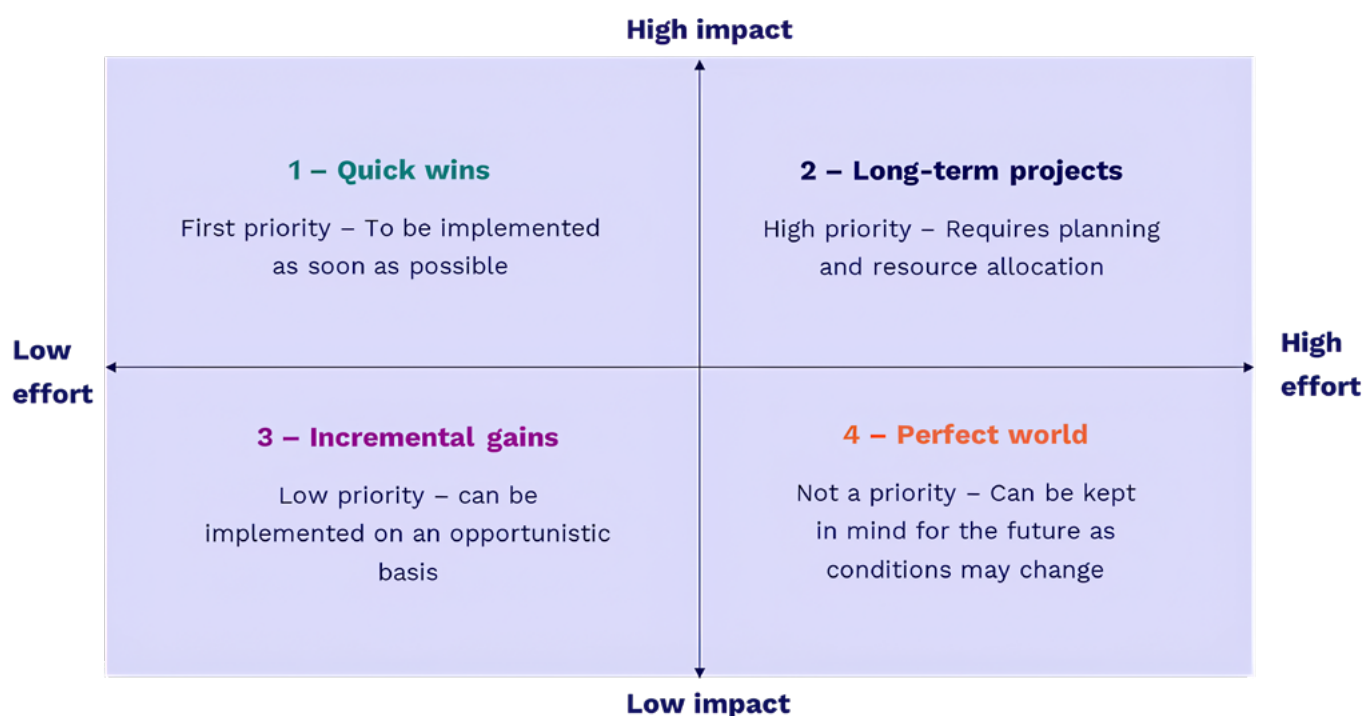


Figure 9: Prioritization matrix

Items classified with “1” are actions that can be undertaken with little planning and few resources but are expected to have a substantial impact. Items classified with “2” are projects expected to contribute to statistics development but require significant planning and resource allocation to bear fruit. Items classified with “3” or “4” are generally considered lower priority and can be addressed opportunistically.

Recommendations	Specific Objectives	N°	Action	Priority
1 Streamline and enhance cooperation between MIREME and INE	A. Streamline participation in data activities at MIREME and enhance interinstitutional linkages	1A.1	<i>Involving Energy Statistics team members in discussions with INE to set the yearly production calendar</i>	1
		1A.2	<i>Assign FPs to engage in institutional collaboration on data issues with both INE and CSEs to maximize synergies between national statistics processes, AFREC activities, and other data initiatives. Focal points should, for the most part, be common across all activities.</i>	1
2 Improve and expand data collection	A. Reinforce and expand the role of the Supreme Council of Statistics (CSE)	2A.1	<i>Capitalize on CSE’s existing role to ensure effective and sustainable participation from MIREME on one end and other organizations with mandates on related subjects such as trade, forestry, and transport.</i>	1
	B. Improve data collection on biomass supply and demand	2B.1	<i>Training for the MIREME statistics team to improve sectoral knowledge and estimation methodologies, increase collaboration with identified technical experts within MIREME and other relevant organizations</i>	1
		2B.2	<i>Conduct a national survey as well as other primary data collection activities.</i>	2
		2B.3	<i>Outreach to new stakeholders to improve secondary data collection on these sub-sectors</i>	2
		2B.4	<i>Develop and document a methodology to estimate biomass supply and demand based on inputs from survey data.</i>	2

2 Improve and expand data collection	C. Improve data collection for energy end-uses	2C.1	<i>Additional surveys or by adding or adapting relevant questions on energy to the household or enterprise surveys (residential use of bioenergy, off-grid or auto-production electricity generation, energy efficiency, etc.); and ultimately, the upcoming Census scheduled for 2027</i>	2
3 Upgrade statistical tools to the requirements of a NEIS	A. Develop capacity on data management	3A.1	<i>Train the MIREME energy statistics team on fundamental data management principles and best practices focusing on Excel (e.g., through AFREC Capacity Building Short Courses).</i>	1
		3A.2	<i>Select and train 1-2 team members as data management focal points, with more in-depth training on databases and data management techniques.</i>	2
		3A.3	<i>Reach out to the MIREME and INE IT departments to include IT experts in reflections on data management, security, potential future evolutions to the statistical infrastructure, and collaboration between the two organizations.</i>	1
	B. Elaborate a tool for MIREME to facilitate compiling and tracking statistics and dematerializing data collection	3B.1	<i>Train the MIREME energy statistics team on options for NEIS structure and design and on essential management of a tool development process (e.g., through AFREC Capacity Building Short Courses).</i>	1
		3B.2	<i>Identify the key requirements for an infrastructure design to develop specific terms of reference for the project and budget appropriate resources.</i>	2
		3B.3	<i>Develop, test, and operationalize statistical infrastructure design.</i>	2
4 Structure and facilitate data dissemination	A. Publish analytical energy reports and accompanying dataset regularly	4A.1	<i>Identify indicators and metadata for inclusion in editable datasets and generate templates and distribution rights.</i>	1
		4A.2	<i>Populate the templates from 4A.1 and publish the dataset regularly on an appropriate platform (INE, MIREME website, limited distribution, etc.).</i>	1
	B. Raise the profile of energy statistics by holding an annual national workshop to present the Energy Balance and headline statistics for energy	4B.1	<i>Hold annual workshops to present the data and report to key stakeholders from government, development partners, the private sector, and civil society to build understanding and cooperation and raise the visibility of statistics activity and analyses.</i>	2

4 Structure and facilitate data dissemination	C. Build capacity to expand the analytical output of the team	4C.1	<i>Train the MIREME team members in fundamental energy data analysis and visualization techniques (e.g., through AFREC Capacity Building Short Courses).</i>	1
		4C.2	<i>Select a data analysis and modelling focal point in the data unit team and train them in more advanced statistics, energy economics, and analytical methodologies.</i>	2
		4C.3	<i>Gradually expand analytical outputs by MIREME energy statistics team to publish 1-2 thematic analyses per year on relevant topics.</i>	2
		4C.4	<i>Include sectoral analysis in the energy statistics report in the next production cycle to reflect identified trends and new developments and contextualize these trends in light of announced and upcoming public policies and projects.</i>	2
5 Sustain, evaluate, and formalize energy statistics processes	A. Formalize the energy statistics mandate with an EIS unit	5A.1	<i>Produce a legal notice to define better MIREME's delegated mandate regarding energy data within INE's larger mandate. This would clarify its role in the production, storage, analysis, and dissemination of statistics and the mechanisms for coordination with the INE.</i>	2
		5A.2	<i>Sign a series of Memorandums of Understanding (MOU) with other ODINEs from CSE to set up transparent working relationships and define new areas of collaboration to enhance data quality with focal point reassignment in each partner organization.</i>	3
	B. Ensure continuity in statistics activities with written processes and user manuals	5B.1	<i>Produce the national energy statistics guidelines and circulate as needed</i>	3
		5B.2	<i>Ensure that any new tool is delivered with appropriate user documentation.</i>	3
		5B.3	<i>Generate a shared data file/repository that centralizes all training materials or relevant documents for the energy statistics team and other key contributors.</i>	1
	C. Review and evaluate statistics process, outputs, and training needs regularly	5C.1	<i>Regular monitoring of statistics processes and outputs is conducted to identify necessary adaptations or improvements.</i>	3
		5C.2	<i>Conduct updated surveys for biomass, end uses of electricity, energy end use, and EE (or other subjects) as necessary to update assumptions and data.</i>	2

The figure below summarizes the essential phases of implementation envisaged for the recommended actions to establish a NEIS in Mozambique.

In **Phase 1**, through December 2025, the focus is on the plan's finalization, raising awareness, and implementing an initial set of "quick win" actions (marked as priority "1") to improve data quality and build capacity.

Starting in 2026, **Phase 2** sees the continued implementation of quick-win actions to improve data quality and launch the public dissemination of an annual report and standard data set. In parallel, long-term actions (marked as priority "2") must be prepared and resourced.

At the same time, **Phase 3** extends over two years in 2027-2028 and sees the implementation of the majority of the significant actions for improving energy statistics, including a statistics infrastructure design and surveys on the biomass and end-use sub-sectors. Given the nature of the actions in Phase 3, most financial resource requirements are concentrated during this period.

Phase 4, starting in 2029, focuses on monitoring and adapting the adopted processes and tools as necessary and on making incremental gains through the opportunistic implementation of actions labelled priority "3". Table 11 includes a detailed implementation plan, estimated resources, indicators, and timelines.

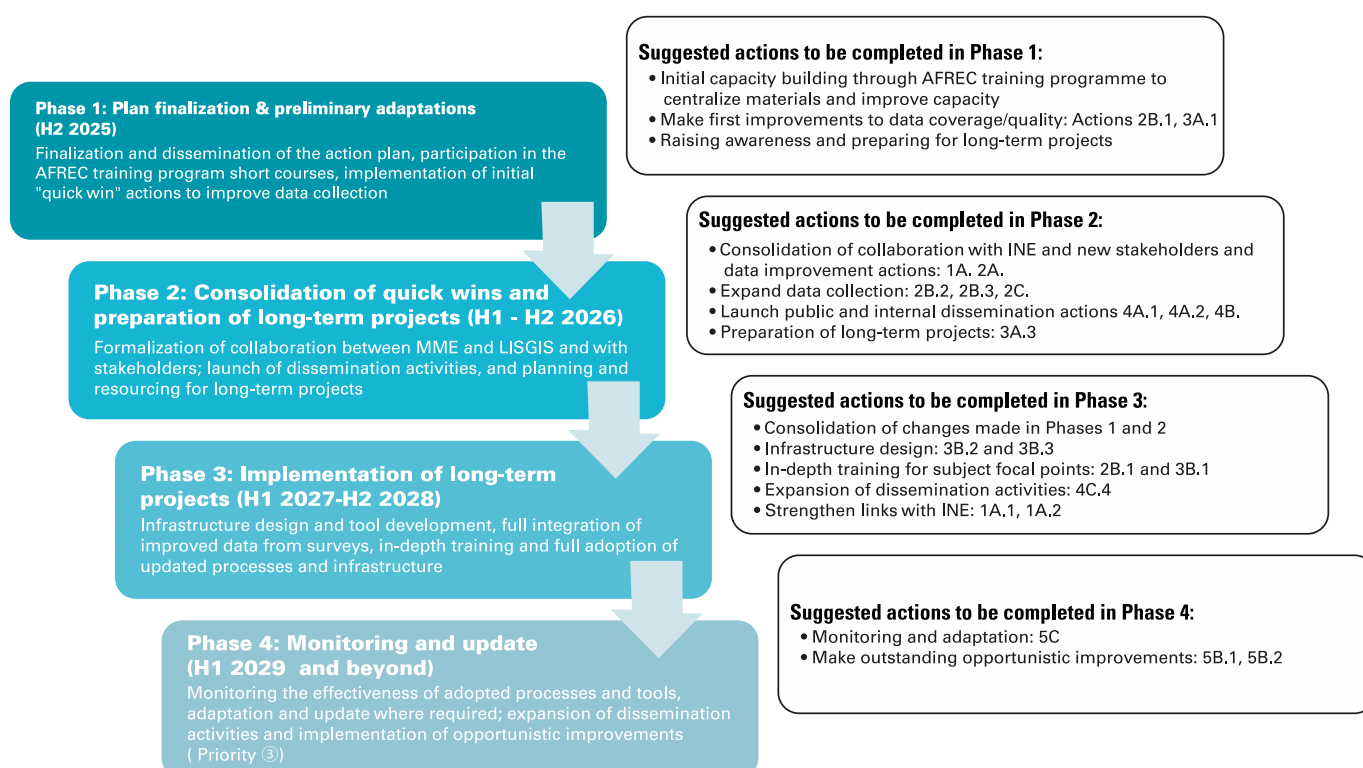


Figure 10 : Indicative implementation phases

Recommendation / General objectives	Specific Objectives /Expected Results	N°	Action	Priority	Resources HR: Human Resources (FTE) ⁵ FR: Financial Resources (US\$)	Indicators/Mean of Verification	Implementation calendar (start date)
1 Streamline and enhance cooperation between MIREME and INE	1A. Streamline participation in data activities at MIREME and enhance interinstitutional linkages	1A.1	<i>Routinely involve the Energy Statistics team members in discussions with INE to set the yearly production calendar.</i>	1	HR: Limited FR: Limited	An introductory meeting is set up to formally introduce the members and assignments, and a supporting document is drafted and circulated to confirm assignments and the production schedule.	H2 2025
		1A.2	<i>Assign FPs for institutional collaboration on data issues with INE and CSEs to maximize synergies between national statistics processes, AFREC activities, and other data initiatives.</i>	1	HR: Limited FR: Limited	A core group of focal points participates in all statistics/ data coordination and activities.	H1 2026
2 Improve data quality and coverage	A. Reinforce data exchanges	2A.1	<i>Support continued meetings and active participation with various sectoral ODINEs (Transport, forestry, etc.).</i>	1	HR: 8 weeks FR: Limited	ODINEs actively and regularly participate in CSE meetings to coordinate and validate statistics.	H2 2026

5 - Full-time equivalent is measured as the sum of the active time spent by each person across all involved members of the personnel. 2 people for 2 weeks = 4 weeks FTE; 1 person for 4 weeks = 4 FTE; 2 people for 1 week and 1 person for 2 weeks= 4 FTE. Does not reflect the total time required to complete the task (for example 4 weeks FTE may be spent over 6 months)

2 Improve data quality and coverage	2B.1	<i>Train the statistics team on biomass</i>	1	HR: < 1 week FR: None	At least 2 team members have attended AFREC training sessions	H2 2027
	2B.2	<i>Conduct a national survey as well as other primary data collection activities.</i>	2	HR: ~20 weeks FR: ~ \$150,000 if outsourced to external consultancy	The survey is complete, and data inputs are integrated into energy statistics outputs The team is aware of how to update the data for subsequent years	H2 2026
	2B.3	<i>Outreach to new stakeholders to improve secondary data collection on these sub-sectors</i>	2	HR: Limited FR: Limited	Relevant stakeholders actively and regularly participate in working group meetings to validate statistics.	H2 2026
	2B.4	<i>Develop and document a methodology to estimate biomass supply and demand based on inputs from survey data.</i>	2	HR: 4 weeks FR: Limited	Develop a suitable methodology to estimate biomass supply and use based on inputs from the survey. The methodology is then prescribed in the National Energy Statistics Guidelines.	H2 2027
	2C.1	<i>Adding or adapting relevant questions on energy to the INE's existing household or enterprise surveys</i>	3	HR: ~6 weeks FR: Limited	The survey is complete, and data inputs are integrated into energy statistics outputs. The team is aware of how to update the data for subsequent years	H2 2027
	2B. Improve data collection on biomass supply transformation and demand					
	2C. Improve data collection for other end uses					

3 Upgrade statistical tools to the requirements of a NEIS	A. Develop data management capacity	3A.1	Train the MIREME team on fundamental data management principles and best practices, focusing on Excel.	1	HR: < 1 week FR: Limited	At least 2 team members have to attend the AFREC short course	H2 2025
		3A.2	Select and train 1-2 MIREME energy statistics team members as data management focal points.	2	HR: 4 weeks FR: Depending on training format (in-person ~\$10,000 for four-person weeks outside of Maputo; online <\$3000)	Focal points have received at least 1 week of intensive training. Additional training opportunities are identified.	H1 2027
		3A.3	Reach out to the MIREME and INE IT departments to include IT experts in reflections on data management and potential future evolutions.	1	HR: Limited FR: Limited	The IT department has held a meeting on data management and statistics.	H1 2026 (linked to preparation of 2B)
	B. Elaborate a tool for MME to facilitate compiling and tracking statistics, including visualization and analytics	3B.1	Train the MIREME team on options for NEIS structure and design	1	HR: <1 week FR: Limited	At least two members of the team have attended the AFREC short course	H2 2027
		3B.2	Identify the key requirements for an infrastructure design and develop specific terms of reference.	2	HR: 8 weeks FR: ~\$40,000 if outsourced to an external consultancy	Detailed terms of reference with the main required features of the re-design process are prepared	H1 2027
		3B.3	Develop, test, and operationalize statistical infrastructure design.	2	HR: ~30 weeks FR: ~\$150,000 if outsourced to an external consultancy	Tool and user documentation is delivered The team is trained to use, update, and modify the tool Historical data is migrated to the tool.	H2 2027

4 Structure and facilitate data dissemination	4A. Publish an annual report and standard dataset regularly	4A.1	Identify indicators and metadata for inclusion in editable analytical dataset and generate templates.	1	HR: ~2 weeks FR: Limited	MIREME generates standard dataset templates, which INE approves for dissemination to public and para-public agencies for analytical purposes.	H1 2026
		4A.2	Populate and publish/distribute datasets regularly on an appropriate platform.	2	HR: 1 week per cycle FR: Web publishing limited (depending on the web platform used) or none if distribution limited	Distribution rights and mechanisms are identified. The dataset is available to institutions promptly.	H2 2026
	4B. Raise the profile of energy statistics by holding an annual national workshop to present the Energy Balance and headline statistics for energy	4B.1	MIREME and INE will hold annual joint workshops to present the data and report it to key stakeholders from the government, development partners, the private sector, civil society, and the media.	2	HR: 3 weeks per workshop FR: ~\$1,000 conference package	1 workshop per year is held to promote statistics activities Media coverage of event and statistics results	H2 2027

4	Structure and facilitate data dissemination	4C.1	Trained the energy statistics team in energy data analysis and data visualization techniques.	1	HR: < 1 week FR: Limited	At least two members of the team have to attend the AFREC short course	H2 2025
		4C.2	Build awareness through basic training on analytical techniques to support energy policymaking (AFREC Short Courses)	1	HR: < 1 week FR: Limited	At least two members of the team to attend the AFREC short course	H2 2025
		4C.3	Select and train 1-2 team members in more advanced statistics, and energy economics, and analytical methodologies.	2	HR: 4 weeks FR: Depending on training format (in-person ~\$10,000 for four-person weeks outside of Maputo; online <\$3000)	At least one member of the team is selected as a focal point. Focal point (s) have received at least 1 week of training in relevant energy economics/ modelling issues. Additional opportunities are identified.	H1 2027
		4C.4	Gradually expand MIREME's energy statistics team's analytical outputs to publish 1-2 thematic analyses annually on relevant topics.	3	HR: Variable (~2-8 weeks per thematic analysis depending on subject) FR: A Limited budget is required potentially for data acquisition	At least one additional report is published each year	H1 2028 or opportunistically
5	Sustain, evaluate, and formalize energy statistics processes	5A.1	Advocate for a legal document to detail the scope of the MIREME sub-mandate for energy statistics, which clarifies the respective roles of INE and MIREME.	2	HR: 8-10 weeks, support from MIREME hierarchy/ legal department FR: Limited if drafted internally	Key elements/ requirements of the sub-mandate are identified Concerned stakeholders are consulted in preparation of draft Draft decree or legal framework prepared, finalized, and adopted	H2 2027

5 Sustain, evaluate, and formalize energy statistics processes	5B. Ensure continuity in statistics activities with written processes and user manuals	5B.1	<i>Finalize the National Energy Statistics Guidelines and expand/update as necessary.</i>	3	HR: 6-8 weeks FR: Limited	Written manual of procedures for data collection and compilation and glossary of key indicators' definitions	Opportunistically
		5B.2	<i>Ensure that any new tool is delivered with appropriate user documentation.</i>	3	HR: Limited FR: Limited	User documentation is shared with all team members (4B.3)	Opportunistically, when tools are adopted
		5B.3	<i>Generate a shared file/dive that centralizes all training materials or relevant documents for the team.</i>	1	HR: < 1 week for compiling and organizing documents; regular maintenance of the file FR: Limited	The energy statistics team and other identified stakeholders have access to the shared drive. The drive contains all relevant documentation and training materials The drive is regularly maintained and well-organized with a fixed annual schedule	H2 2025
	5C. Review and evaluate statistics process, outputs, and training needs regularly	5C.1	<i>Conduct regular monitoring of statistics processes and outputs</i>	3	HR: 2-3 weeks FR: Limited	The updated auto-evaluation report identified required process adaptations, training needs for the team, or areas of improvement.	On a rolling basis every 3-5 years
		5C.2	<i>Conduct updated surveys for biomass, end uses of electricity petroleum, and EE (or other subjects) as necessary to update assumptions and data.</i>	2	Variable according to survey type and size	New primary data is integrated into statistics for the present year Assumptions for estimating additional values are updated	On a rolling basis every 3-5 years

Table 11: Action plan



5.1 SUMMARY RESULTS OF THE DIAGNOSTIC & GAP ANALYSIS

Nº	Key issues/gaps	Description
1.1	MIREME mandate and capacity to centralize and manage data	MIREME's mandate is implicitly part of INE's broader mandate on national statistics. For instance, it lacks a clear-cut organizational structure and mandate to undertake data collection projects. Its role is exclusive to data centralization and processing.
1.2	Coordination issues between stakeholders	There is a lack of coordination between the MIREME team and the INE regarding data collection processes, reports production, and scheduling.
1.3	MIREME internal structures may lead to further delays	The energy statistics team reported that although MIREME's structure is conducive to sector-specific data collection, the two-step process can lead to further delays in response.
2.1	No tailored and specialized energy data management and software training for MIREME	Additional training is required for team members working on energy statistics to gain confidence and ownership over energy-specific analytical methodologies and statistics.
2.2	Need for capacity building on biomass and energy efficiency subsectors	Statistics officers are comfortable with electricity and petroleum subsectors but have less experience with biomass and energy efficiency statistics, which are still nascent. Specific training on sub-sector value chains, statistical calculations, and methodologies for estimating indicators on this subject may be required.

2.3	Need for capacity building on advanced Excel/Data management skills	The energy statistics team utilizes Excel as a central tool for its workflows, with much of their time spent on repetitive tasks that could be streamlined with more efficient data management or advanced Excel skills. Training on these subjects is linked to improvements to the statistical infrastructure (see section 3.5).
2.4	A need for improved IT infrastructure at MIREME to support expanded data activities.	IT resources at MIREME appear insufficient to allow staff to expand its contribution to data management and analysis in line with developing a NEIS.
3.1	Lack of data on biomass and energy efficiency	No available data on the biomass subsector and for energy efficiency; no consumption surveys or other primary data collection are currently scheduled.
3.2	Challenges ensuring timely response from MIREME directorates and partner institutions for data collection	Lack of capacity and lack of commitment in partner institutions in providing the relevant inputs with lack of FPs and other management changes that may difficulties in collecting data; need for closer engagement and assignment of FPs that would receive training on the importance of timely data sharing
3.3	Lack of standardized and codified data collection framework	Lack of guidelines for energy statistics that provide information to team members and outside stakeholders on key definitions, data requirements, formats, and compilation procedures.
4.1	Lack of a dedicated tool for tracking and compiling energy statistics	The current Excel spreadsheets used at MIREME are not integrated into a structured and automated tool. Data compilation, transformation, and other calculations must be done manually.
4.2	Limited capacity for collaboration with current infrastructure	Excel sheets and lack of codified processes across directorates and other institutions generate risks related to versioning, security, etc., and act as a barrier to enhanced collaboration between MIREME, INE, and other relevant public institutions
4.3	Lack of comprehensive output indicators	The current infrastructure does not generate detailed indicators for the energy sector (e.g., energy by end-use, energy efficiency).
5.1	Limited internal checks in Excel infrastructure	Internal checks can be time-consuming for team members, as the lack of a structured tool limits the capacity for automated checks and error identification.
5.2	Limited external validation process	The external validation is limited to presenting the results to directly implicated stakeholders (INE, MEF, and MIREME). Hence, there is a need to implement a method, such as an annual workshop or technical committee, to ensure the active participation of relevant institutions/agencies in a comprehensive validation process to benefit from various stakeholders' insight to review further and provide technical input and validation. This process can mainly include representatives from MIREME, INE, MEF, the Ministry of Agriculture and Food Security, the Ministry of Sea, Inland Waters and Fisheries, the Ministry of Transport and Communications, and the Ministry of Industry and Commerce.
5.3	No information on indicator reliability or checks against international standards	Quality assurance processes may include some basic metadata tracking in Excel. Still, they do not include a precise classification of indicators by "reliability" to indicate the confidence level concerning outputs' accuracy or compliance with international standards. Therefore, they do not highlight the areas where data should be improved over the long run. This is, hence, one of the areas needing improvement and/or upskilling.

5.4	Absence of any communication/ cooperation with representatives from Agriculture and Forestry	Considering biomass's importance, data validation should be expanded to representatives from the Agriculture and Forestry sectors.
6.1	Lack of data analysis output and sectoral narrative production	Despite having a punctual publication for annual dissemination, it lacks valuable data analysis and written assessment to provide Insights on the sector, relevant developments and policies, and forward outlook. There needs to be effective use of available statistics to produce analytical output or contribute to regular monitoring or decision making.
6.2	Limited internal dissemination of statistics and data across institutions	Limited data sharing across public and para-public institutions to ensure that official statistics can be easily used as inputs for analytical purposes.
6.3	Low public and institutional profile of energy statistics and data collection work	Low visibility of energy statistics processes and outputs limits institutional and public awareness of the importance and use of energy data, hindering its use in decision-making processes, buy-in to support investments in improvements to energy statistics, and understanding and participation of partner institutions.

Table 12 Summary results for diagnostic & gap analysis

5.2 COSTING ASSUMPTIONS

ITEM	COMMENTS	ASSUMED UNIT COST (US\$)
CONFERENCE PACKAGE	24 pax x \$25 + \$400 venue fee per day	\$1000
CONSULTING FEES	Price per week FTE	\$5000
TRAINING	In-person training, price per person-week, including travel and accommodation	\$2500

Table 13 : Costing assumptions

5.3 BIBLIOGRAPHY

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5.4 LIST OF INTERVIEWS

The following interviews were held with stakeholders in support of the diagnostic and action plan development:

N°	DATE	ATTENDANCE	SUBJECT
1	Jan 2025	Rajia Alhabouby (IED) Iazalde José (MIREME) Tina Tandire (MIREME) Dalpate José (MIREME)	Resources and institutional environment
2	Jan 2025	Rajia Alhabouby (IED) Corentin Amirault (IED) Iazalde José (MIREME) Tina Tandire (MIREME) Dalpate José (MIREME)	Processes and energy balance data sources

Table 14: List of interviews

5.5 QUESTIONNAIRES

Included as separate files



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African Energy
Commission

African
Union



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