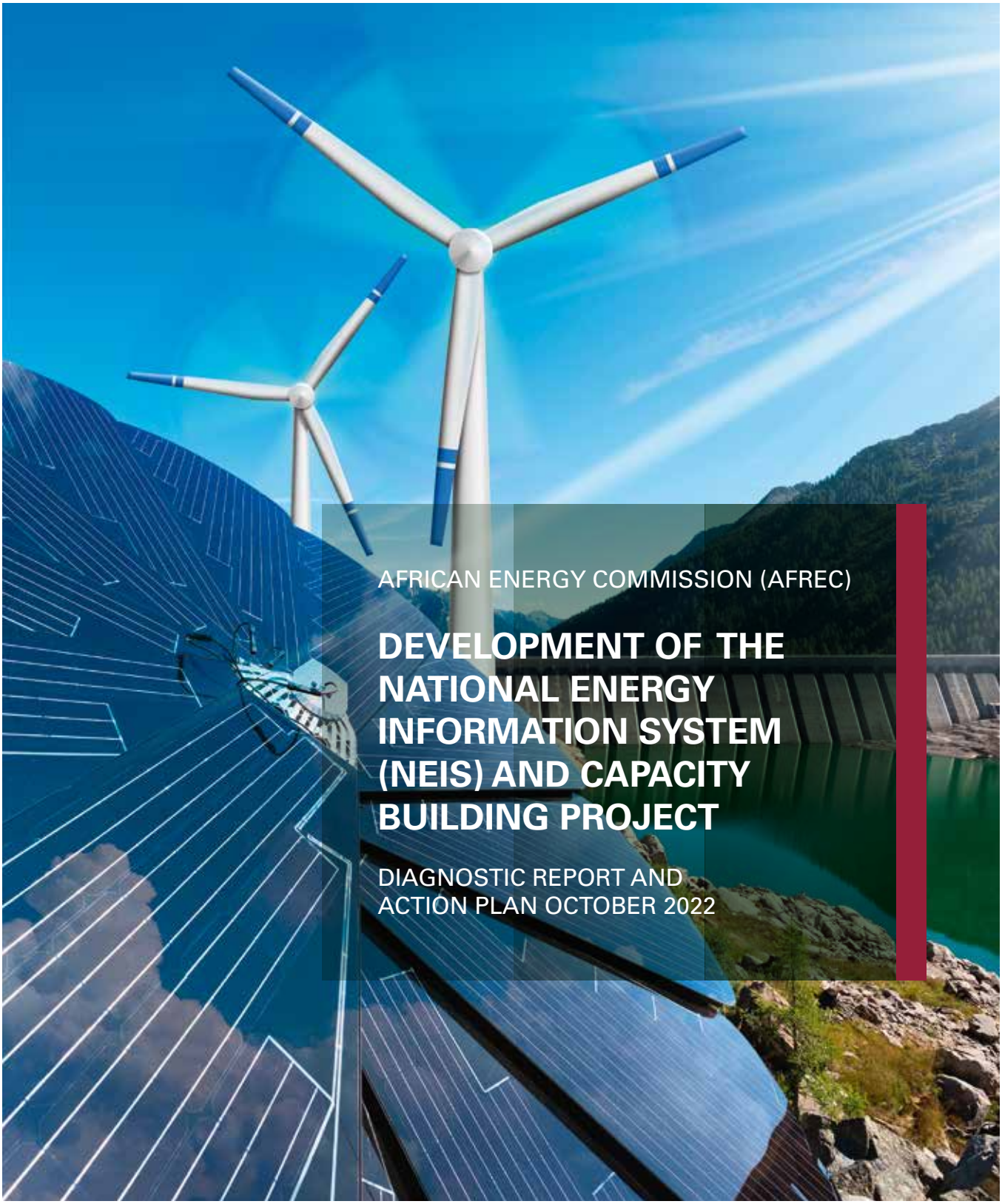
African Energy Commission
Commission Africaine de l'Energie

Ministry of Energy and
Power Development

Zimbabwe



AFRICAN ENERGY COMMISSION (AFREC)

DEVELOPMENT OF THE NATIONAL ENERGY INFORMATION SYSTEM (NEIS) AND CAPACITY BUILDING PROJECT

DIAGNOSTIC REPORT AND
ACTION PLAN OCTOBER 2022

Prepared for the Ministry of Energy and Power Development of Zimbabwe

DEVELOPMENT OF THE NATIONAL ENERGY INFORMATION SYSTEM (NEIS) AND CAPACITY BUILDING PROJECT

DIAGNOSTIC REPORT AND ACTION PLAN
OCTOBER 2022

AFRICAN UNION
AFREC ENERGY
African Energy Commission
Commission Africaine de l'Energie

FOREWARD

I am grateful to the African Energy Commission for the assistance they rendered to my country in developing the Diagnostic Report and Action Plan for the development of the Zimbabwean National Energy Information System (NEIS) and capacity building project. The African Energy Commission (AFREC) conducted a national assessment of the current state of the NEIS for member countries under the project in order to identify specific country needs. The aim was to standardise the current National Energy Information Systems (NEIS) of African Union (AU) Member States. The main objective of the project is to improve the quality of energy data supplied to the African Energy Information System (AEIS), and ensure adherence to international standards for energy data collection and reporting.

The diagnostic report managed to identify several challenges, such as insufficient data for energy balance formulation, low quality data or non-existent data, lack of skilled human resource capacity to process data and lack of adequate technology infrastructure to maintain systems to mention just a few. Hence, this report is profound as it cultivates a route to the establishment of the Zimbabwean National Energy Information System (NEIS).

The Ministry is cognisant of the need to improve the country's energy data collection methods by setting up systems which respond to the country's data needs to include all sectors of the economy and to improve energy data quality and coverage. The development of the country's NEIS is a necessary and critical tool in achieving this goal, which enables improved energy programming, improve government efforts for better energy planning, policy making and making informed decisions related to the country's energy sector transformation.

Correct, consistent, quality and accurate energy data helps guide the Policy makers in decision making thus improving the country's energy supply and security situation. Energy security in turn improves the people's quality of life as Energy is a pillar for all sectors including the Health, Education and Agriculture sector.

Climate change continues to pose significant threats to economic and social development in our country and across the world, high quality reliable energy data is essential in the development of national strategies and Nationally Determined Contributions to help in Climate Change Mitigation and Adaptation. Energy data also assists to identify the share of renewables in the energy mix and the emissions from the energy sector. In turn the country's energy status is clear when energy data is available. If our project designs, policies and strategies are informed by high-quality and reliable energy data we can then provide a realistic diagnosis for human and economic needs.

On behalf of my country, I believe that AFREC's support on the development of the NEIS will help to increase the quality of the energy statistics processes, which are critical for designing good energy strategies for investment. The capacity building programme which forms part of the NEIS development will also provide insights necessary for strengthening capacities at national and local level to manage the system effectively and address national, regional and continental needs.

Hon. Zhemu Soda
Minister Of Energy and Power Development, Zimbabwe

COMISSIONNER'S STATEMENT

Africa through the African Union is intensifying efforts to achieve universal access to affordable reliable electricity and to chart its pathway to cleaner and greener energy as set out in Africa's Agenda 2063 & the UN Sustainable Development Goal-7. This ambition is fulfilled through our commitment by improving Africa's energy data systems and reducing skills deficit in the area of energy statistics to improve energy data quality and accessibility across the continent so that quality and reliable data remains the backbone of Africa's energy sector development and transformation.

As a Commission, we firmly believe that data driven strategies and policies provides a clear understanding of energy uses for our continent, promotes efficiency of energy systems, provides opportunities for better output and use, to address climate change and identify cost effective steps which have the ability to model the future.

Hence, the African Energy Commission (AFREC) together with its African Union (AU) Member States, have been working to harmonise energy data on the continent to ensure Africa have a hosting environment for Africa's energy data. At the continental level, AFREC has developed the continental energy data hub - the African Energy Information System (AEIS), which is comprised of raw data collected form member states and reflects a true representation of the actual energy performance in African Countries. The establishment of the AEIS has led to the decision to establish and/or improve member states national Energy Information Systems (NEIS) to ensure the AEIS and NEIS information is interfaced and that countries are able to access other's data and a full technical capacity building programme is enhanced.

The AEIS and NEIS will provide comprehensive and timely energy statistics which enhances data dissemination and inform debates whilst improving the countries' ability to produce energy statistics, and strengthen capacity through technical support. Africa's Common Position on energy access and just transition also asserts that energy transition cannot simply be about decarbonization alone. But importantly, it must be catalyst to bridge energy access gap and encourage productive uses, thereby creating new competitive industrial clusters.

Thus, this report is a true reflection of our actions going forward, to ensure energy data collection processed at member states level is done in an effective and collaborative manner, to help Africa improve data modeling, develop impactful energy projects, mobilise resources for investment in energy projects as well as monitor how countries are addressing climate change challenges. I do hope that this report will assist African countries to take decisive actions to build the NEIS as advised in this report for the benefit of the sector transformation and economic advancement of our people.

H.E Dr Amani Abou-Zeid
Commissioner for Infrastructure and Energy
African Union Commission.

Summary

AFRICAN UNION

AFREC ENERGY

African Energy Commission
Commission Africaine de l'Energie

INTRODUCTION

The African Energy Commission (AFREC) has launched the programme on **«Improving the National Energy Information System & Capacity Building»** to assess and standardise the current National Energy Information Systems (NEIS) of the African Union (AU) Member States with the objective of improving the quality of content supplied to the African Energy Information System (AEIS), adhere to energy data collection and reporting as per international standards as well as adapt to the data needs of Member States.

In this context, AFREC has signed a consultancy contract with the consultant (Innovation Energie Développement (IED)) on December 13th 2021, to support eleven (11) AU member countries to establish and/or improve the National Energy Information System (NEIS) with main objective is **to increase the quality of data collected** at the national and regional level (notably through the AEIS coordinated by AFREC); **expand the coverage of NEIS** to include more energy indicators; and **improve member states' capacity to manage and use data as a decision-making tool for policy**, investment and strategy in the energy sector.

The specific objectives of the project are threefold:

- **To build capacity and improve the systems** used to collect, compile, validate and disseminate energy statistics;
- **To reinforce the adoption of AFREC's methodology and questionnaires** in line with international best practice and the IRES standards;
- **To harmonize and streamline energy statistics across member states**, to allow for regular update of the AEIS and comparability across the region.

The NEIS & Capacity Building project is currently at the pilot stage, with a targeted rollout to eleven AU Member States. AFREC envisages to extend the project to other countries in order to reinforce statistical capacity across all AU Member States. Thus, a secondary objective of this project is therefore to provide comprehensive feedback regarding the structure and activities of the project in order to contribute to the pilot evaluation and any future adjustments to the program structure. The phase two of this project is already planned by AFREC for 2023 targeting more additional member states.

The selection of the of participating countries in the first phase of the project was based on the expression of interest of those countries to the support offered from AFREC. The participating countries are representing different African regions, energy sector characteristics, mature and advancement of energy statistics and NEIS development. The 10 countries are:

1. Algeria
2. Botswana
3. Burkina Faso
4. Congo
5. Gabon
6. Kenya
7. Nigeria
8. Lesotho
9. Namibia
10. Zimbabwe

Participating countries

Key achievements

The project lasted 12 months, from January 2022 to December 2022. Based on stakeholders' interviews and supported by continual analysis of data and documentation shared by country focal points, the key achievements of the project are the following:

- **Diagnostic Report** for each country, which provides a comprehensive view on the status, systems and resources in place to support energy statistics, as well as key challenges or gaps that must be addressed to improve national energy statistics and align with the International Recommendations for Energy Statistics (IRES) standards. The diagnostic report is delivered together with the action plan for each country.
- **Action Plan** for each country, which defines a strategy and a five-year roadmap to improve or establish a NEIS, and identifies the necessary human, financial and technical resources to support the strategy, with specific, costed solutions.
- **Training sessions** designed to address common themes identified in the diagnostic phase and to fill specific skill gaps for National Focal Points to facilitate the implementation of the strategy and action plan to establish or reinforce a NEIS. The online training courses were held in English and in French and trained in total 32 experts from focused countries. Recordings can be made accessible upon request.
- **Technical validation workshop** held in Addis Ababa, Ethiopia in September 2022, gathering representatives from each participating country, to provide technical validation and peer feedback on the diagnoses and action plans. This workshop also allowed to consolidate a community of practice and networking opportunities.
- **A Ministerial Meeting,** plan for the beginning of 2023, with the aim to discuss the implementation of the action plans and highlight the gaps and short falls which need to be addressed, including financing and to discuss the role of support from AFREC and other international organization to effectively improve the NEIS.

Key findings and perspectives

The diagnostic process revealed several common challenges faced by almost all focused countries with varying degrees:

- Biomass and energy end-uses (in particular for oil products), are the two key areas where focal points struggle to obtain sufficient data for energy balances.
- Energy efficiency statistics are often at a nascent stage or non-existent.
- Financial, material and human resources are often lacking.
- Energy statistics systems are often dependent on the knowledge of one or several core staff members with no or few measures in place to help manage turnover in the team or onboard new hires.
- Stakeholder sensitization and data governance clarification is required to improve data collection and working relationships with partner institutions.
- Sustainability of IT systems/hardware is a key risk for NEIS, given limited internal capacity and resources to maintain IT systems over the long run.
- Limited dissemination of energy statistics mainly due to limited knowledge on data analysis, lack of resources, and lack of clear request for analysis from decisionmakers.

In light of these outcomes, recommendations and action plans for the 10 participating countries were gathered in a "Diagnostic Report and Action Plan". As the full report contains sensitive data, this report, made for public dissemination, summaries each country's diagnostic and action plan to serve as a prospectus for fund-raising or consensus building to reinforce or establish the NEIS.

DIAGNOSTIC REPORT AND ACTION PLAN FOR THE REPUBLIC OF ZIMBABWE

The Republic of Zimbabwe is a Southern African country that covers 390,757 km^2 and is populated by approximately 15.1 million people according to the 2022 Population and Housing Census Preliminary Results. The Republic of Zimbabwe is a member of the African Union since 1980.

Zimbabwe has faced significant economic challenges over the past two decades, but in 2021 and 2022 the economy showed positive signs of stabilizing inflation and positive GDP growth. Minerals, gold and agricultural produce are the main foreign exports of Zimbabwe, although the country is a net importer of food products. Zimbabwe also has important reserves of platinum and diamonds. In PPP terms, GDP per capita currently stands at US$ 3,537.

Zimbabwe has prepared energy balances for 2019 and 2020; however, the most recent energy balance statistics published to the African Energy Information System date from 2018. In 2018, the total primary energy supply was 8.89 Mtoe while final energy consumption is 7.76 Mtoe.

Ministry Of Energy and Power Development, Zimbabwe

Energy production in Zimbabwe is dominated by coal and biomass. Zimbabwe has no oil or gas production and no operational refining capacity. As such, all oil products are imported, mostly by pipeline from the Mozambican port of Beira, with some marginal volumes imported by rail and truck from other destinations. Zimbabwe exports small amounts of coal and electricity. Electricity generation is dominated by coal and hydropower, although there is a small amount of bio-energy generating capacity.

Final energy consumption is dominated by biomass, primarily from the household sector, although there is some industrial use of biomass for thermal processes as well. From a sectoral perspective, households are by far the largest energy consumers, followed by the commercial and public services and transport sectors.

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) and the Ministry of Energy and Power Development of Zimbabwe (MEPD).

This report summaries (1) the diagnostic of energy statistics in Zimbabwe, (2) specific recommendations to improve energy statistics and reinforce or establish a NEIS, (3) top priority short- and long-term actions, and (3) a high-level action plan

1. Results of the diagnostic

Zimbabwe does not currently have a NEIS, but regularly produces energy statistics covering the coal, power and petroleum products sub-sectors, with estimated data for biomass. The recent creation of a Strategic Policy Planning Monitoring & Evaluation team (SPPM&E), with a formal mandate and dedicated resources for energy statistics is expected to improve statistics processes and outputs significantly, but is still being put into place.The table below describes the primary characteristics of Zimbabwe energy statistics program as identified during the diagnostic assessment.

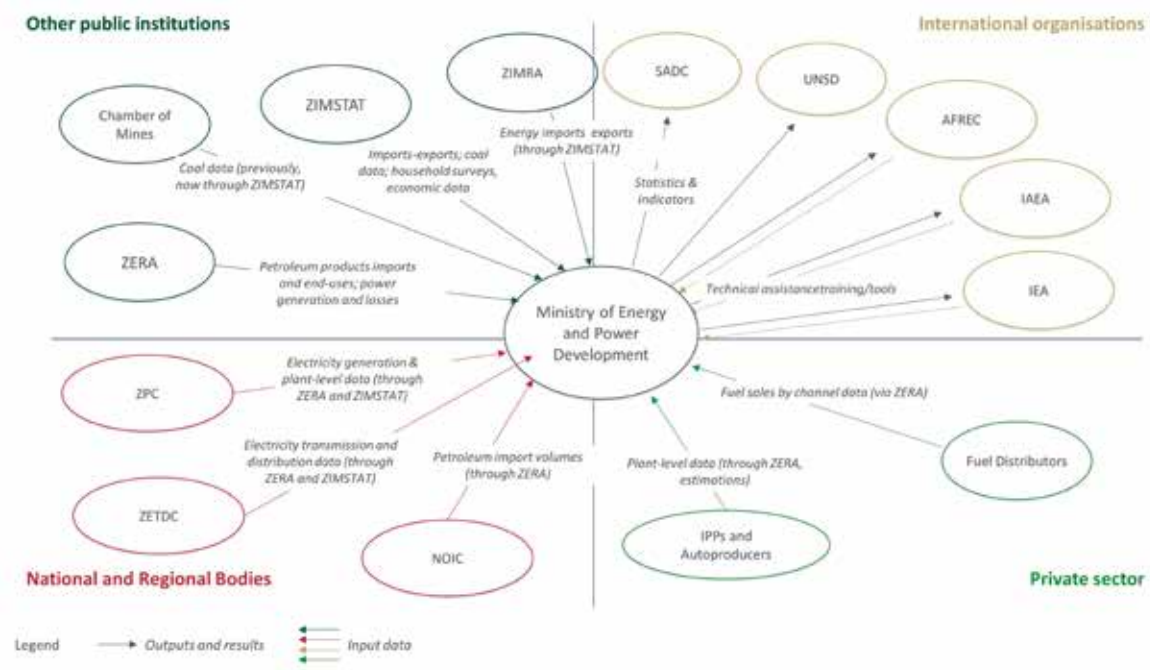
Item	Diagnostic results
Institutions and legal environment	• Since 2022, the recently established MEPD SPP section is mandated to collect and generate energy statistics • Collaboration with Zimbabwe Energy Regulatory Authority (ZERA) and Zimbabwe Bureau of Statistics (ZIMSTAT) is relatively strong, but relies more on established working relationships than on a formal agreement • MEPD has limited direct contact with other national organizations and relies primarily on ZERA and ZIMSTAT to collect and transmit data
Human and material resources	• The current statistics lead in the SPPM&E section is experienced and well trained, and benefits from two recently recruited supporting officers • Supporting officers require substantial training on statistics processes and methodologies to become rapidly operational • All team members require additional training on biomass sub-sectors, data management, and energy economics and analysis • IT resources are a major limitation: the team requires at minimum 3 computers equipped with basic office software and a backup solution to store and share data to function
Data collection	• Data collection is primarily through ZERA and ZIMSTAT with both have strong legitimacy and legal mandates for collection from public and private entities • MEPD and ZIMSTAT successfully collaborated to include three basic energy questions in the National Housing and Population Census 2022 • Biomass data is extremely limited and should be urgently reinforced by surveys • Energy end use and energy efficiency data is limited and should be reinforced by surveys and expanded secondary data collection
Data processing	• Data is processed only using the AFREC Excel-based questionnaire • A data processing tool to store input data, structure intermediary calculations and reinforce checks would help improve data flexibility and quality assurance
Quality assurance and validation	• Internal checks in the data processing infrastructure exist but should be reinforced • Data validation relies primarily on verification in the MEPD hierarchy with no or limited participation from other stakeholders • Additional checks required to monitor compliance with international standards and verify/track the validity of estimated values • Limited reference metadata tracked
Dissemination and analysis	• Statistics team well integrated into MEPD projects and initiatives as a result of its shared responsibility for planning, policy and statistics • No public or internal dissemination of standardized data sets or analytical reports • Need for increased dissemination activity to raise the profile of statistics activities

Summary of the main results of the diagnostic assessment

Strong collaboration between MEPD and other relevant institutions constitutes the major strength in Zimbabwe's statistics program. Collaboration with ZERA and the institution's legal mandate to collect data from regulated entities support the provision of quality data on electricity supply and demand; while cooperation with ZIMSTAT is also relatively strong and has permitted the **inclusion of energy questions in the 2022 National Population and Housing Census, which is expected to significantly improve data on household energy consumption.**

The weaknesses identified in the diagnostic relate primarily to the **lack of human and material resources dedicated to the energy statistics programme prior to the establishment of the SPPM&E section in 2022.** The recent establishment of a statistics team with a formal mandate and dedicated human resources is an important first step in reinforcing the energy statistics programme of Zimbabwe, provided that newly recruited officers are sufficiently trained, IT limitations are addressed, and the team benefits from sufficient resources to support stakeholder sensitization and dissemination activities.

Biomass and energy end use data also constitutes a major issue for energy statistics in Zimbabwe and estimated data risks biasing both the statistics and subsequent policy decisions regarding such key issues as clean cooking strategy and energy efficiency policy, among others. These can be remedied with primary data collection through sample surveys once the statistics team is sufficiently equipped and capacitated to be able to manage the studies and appropriately integrate the data.



Institutional environment

2. Recommendations

The diagnostic assessment concludes with five recommendations to reinforce energy statistics in Zimbabwe to align with international recommendations and establish a NEIS:

1. Formalize and structure the energy statistics function at MEPD

- **Support human resource development within the newly established SPPM&E section** with substantive training on the methodologies and tools used for generating energy statistics, as well as on value chains and key issues related to specific energy sub-sectors such as biomass and energy efficiency.
- **Clarify roles and responsibilities with partner institutions (ZERA and ZIMSTAT)**, workstreams should be clarified and streamlined to avoid duplication of tasks and encourage harmonization of published statistics, reinforced through the establishment of a National Committee on Energy Statistics involving all three organizations to coordinate energy statistics processes.

2. Adapt IT and tools to the requirements of a NEIS

- **Upgrade equipment** so that each member of the MEPD statistics team has access to a functioning computer and a secure space for data back-ups.
- **Develop a tool for storage and manipulation of energy balance input data:** to help systematize the consolidation of the input data and provide a mechanism for recording metadata on sources and estimation methodologies.

3. Improve data quality and coverage

- **Collect primary data on supply and use for biomass and energy end-uses** with the deployment of comprehensive surveys linked with capacity building, technical assistance from ZIMSTAT or another specialized organization to assist in survey design and sampling methodology, as well as financial resources to fund the surveys and raw data processing.
- **Improve secondary data collection from existing sources** with institutional outreach to potential data suppliers (the National Oil Infrastructure Company, the Chamber of Mines), setting up connections with other Ministries and stakeholder trainings and workshops.
- **Establish quality checks and basic metadata tracking** through the re-establishment of a Statistics Working Group to review and validate the statistics on an annual basis.

4. Structure and facilitate data dissemination

- **Publish an annual report and dataset for public dissemination** with the publication of an annual analytical report based on the previously prepared Energy Bulletin and a standard data set for public consumption on the Ministry website.
- **Build capacity on energy economics and data analysis** to expand the analytical output of the team.

5. Consolidate and perpetuate energy statistics processes

- **Ensure continuity in statistics activities** with written processes, user manuals for key tools and processes and training materials for new hires.
- **Review and evaluate** statistics process, outputs, and training needs on a regular basis.

3. Priority actions

The action plan covers a period of five years to achieve the recommendations and establish a fully functional NEIS aligned to the extent possible with international recommendations and best practice. The plan comprises of 33 prioritized actions spread across four implementation phases over the period 2022- 2026.

While many actions can be achieved by the existing team with few additional resources, the implementation of the full action plan is expected to require approximately US$ 327,300 in financial resources to implement. These costs are primarily service costs to make improvements to the statistical infrastructure and tools. The plan also identifies approximately US$ 2500 in annual recurring costs, primarily to cover the cost of holding annual data validation and dissemination/sensitization workshops, as well as printing costs to support dissemination. No additional human resources are expected to be required to support the development of a NEIS in Zimbabwe in the immediate term.

Zimbabwe has identified the following «quick win» items - or actions that will have significant impact with minimal resources - as top priority over the coming 12 months:

- **Train newly hired statistics officers (Action 1A.1):** Access existing training courses from AFREC, IEA or other organizations and generate an "on the job" training plan for new officers to onboard new hires as quickly as possible
- **Upgrade IT equipment (Actions 2A.1 and 2A.2):** Provide one computer for each MEPD statistics officer and a basic data storage and backup solution, at an estimated cost of US$ 2400
- **Launch a National Energy Statistics Committee (Action 1B.2:)** Formalize roles and responsibilities for energy statistics between ZERA, ZIMSTAT and MEPD and establish a joint committee to oversee and coordinate all related processes and initiatives
- **Undertake basic dissemination activities (Actions 4A.1,4A.2, and 4A.3):** Publish an annual Energy Bulletin report and data set to the MEPD website for the next annual statistics cycle, supported by a launch workshop to raise the profile of energy statistics with key stakeholders, at an estimated cost of US$ 1500.

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

- **Improve biomass data through surveys (Action 3A.2):** Conduct a comprehensive biomass study to collect primary data on supply transformation and use in household, commercial/service and other sectors at an estimated cost of US$ 150,000
- **Adopt statistics tools aligned with the requirements of a NEIS (Action 2B.4 and 2B.5):** Specify and develop a basic data processing tool to support the compilation of statistics, in particular to store source data and track metadata and estimation calculations, at an estimated cost of US$80,000

4. Five-year action plan to establish a NEIS

PHASE 1:
Plan finalization & preliminary adaptations (H2 2022)

- Finalization and dissemination of the action plan
- Participation in the AFREC training program
- Implementation of initial «quick win» actions to onboard the team, improve data collection from existing secondary sources for the next statistics cycle
- IT upgrade

PHASE 2:
Consolidation of quick wins and preparation of long-term projects (H1 - H2 2023)

- Formalization of collaboration with ZERA and ZIMSTAT and launch of the National Energy Statistics Committee
- Implementation of expanded quality assurance processes
- Launch of dissemination activities with Energy Bulletin annual report and dataset and national workshop
- Planning and resourcing for the primary data collection surveys and infrastructure design and development

PHASE 3:
Implementation of long-term projects (H1 2024-H2 2025)

- Infrastructure specification and development
- In-depth training on data management and energy economics for team focal points
- Launch of biomass and energy end use surveys, integration of improved data
- Full adoption of improved processes and quality checks

PHASE 4:
Monitoring and update (H1 2026 and beyond)

- Monitoring the effectiveness of adopted processes and tools
- Adaptation and update where required
- Expansion of dissemination activities
- Implementation of remaining opportunistic improvements

Action plan overview with phases and primary activities

NEIS & Capacity Building for 11 Member States
Executive Summary of the Diagnostic Report and Action Plan for Zimbabwe

Funding and Technical Advise:

African Energy Commission (AFREC)
02 Rue Chenoua, BP791, Hydra, 16035, Algiers, Algeria
Tel: +213 23 45 9198
Fax: 213 23 45 9200
Email: Afrec@africa-union.org
Website : www.au-afrec.org
Follow us
African Energy Commission of the African Union
@AU_AFREC
African Energy Commission of the African Union
@AU_AFREC (African Energy Commission of the African Union)

Consultant :

IED - Innovation Energie Développement
2 chemin de la Chauderaie
69340 Francheville, France
Tel: +33 (0)4 72 59 13 20
Fax: +33 (0)4 72 59 13 39
E-mail: ied@ied-sa.fr
Site web: www.ied-sa.fr

AFREC is a specialised energy agency of the African Union mandated to develop the African energy sector by coordinating, harmonising, protecting, conserving, developing and promoting rational exploitation, commercialization and integration of energy resources in Africa. Working with African Union member states with a broad network of experts and partners in all the 55 African countries, we ensure all energy initiatives responds to the future development of the African energy sector, in our pursuit to build 'the Africa We Want'.

Comments on the report are welcome and can be sent to:

AFRICAN ENERGY COMMISSION (AFREC)
02 Rue Chenoua, BP791, Hydra, 16035, Algiers, Algeria
Tel: +213 23 45 9198
Fax: +213 23 45 9200
Email: Afrec@africa-union.org
www.au-afrec.org

AFRICAN UNION

AFREC ENERGY

African Energy Commission
Commission Africaine de l'Energie

Kariba Hydro Power Station, Zimbabwe

Solar Power Station, Zimbabwe

AFRICAN ENERGY COMMISSION (AFREC)
02 Rue de Chenoua, BP791, Hydra,16035, Algiers, Algeria
Tel : +213 23459198
Fax +213 23 45 92 00