



Ministério dos Recursos Minerais e Energia

## 2021 Results Report

CB MIREME: Capacity Development of the Ministry of Mineral Resources and Energy (MIREME) and Autoridade Reguladora de Energia (ARENE) MOZ1403011, Mozambique



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## 1 Abbreviations

ARENE	: Autoridade Reguladora de Energia
CB	Capacity Building
CNELEC	Conselho Nacional de Electricidade
DIPREME	Provincial Directorate of Mineral Resources and Energy
DNE	Direcção Nacional de Energia (MIREME)
DPC	Direcção de Planificação e Cooperação (MIREME)
DRH	Direcção Recursos Humanos (MIREME)
EDF	European Development Fund
EDM	Electricidade de Moçambique
ESWG	Energy Sector Working Group
EU	European Union
FUNAE	Fundo de Energia
GDP	Gross domestic product
GIS	Geographic Information System
GIZ	German Development Agency
GO	General Objective
GoM	Government of Mozambique
HCB	Hidroeléctrica de Cahora Bassa
HDI	Human Development Index
HPP	Hydro Power Project / Plant
HR	Human Resources
ICP	Indicative Cooperation Programme
INE	National Institute of Statistics (Instituto Nacional de Estatística)
IPEME	Instituto para Promoção das Pequenas e Médias Empresas, the institute of SMEs,
IPP	Independent Power Producer
IVA	Imposto sobre o valor acrescentado (VAT)
KfW	Kreditanstalt für Wiederaufbau
KPI	Key Performance Indicator
kV	kilo Volt

kW kilo Watt

LPG Liquefied Petroleum Gas

LV Low voltage

M&E Monitoring and Evaluation

MDGs Millennium Development Goals

MEF Ministry of Economy and Finance

MINEC Ministério dos Negócios Estrangeiros e Cooperação

MIREME Ministry of Mineral Resources and Energy

MOU Memorandum of Understanding

MW Mega Watt

NGO Non-governmental organization

O&M Operations & Maintenance

PARPA Plano de Acção Para a Redução da Pobreza Absoluta

PMU Project Management Unit

PV Photovoltaic

REFIT Renewable Energy Feed in Tariff

RERA Regional Electricity Regulators Association of Southern Africa

SADC Southern African Development Community

SAPP Southern African Power Pool

SC Steering Committee

SCA Specific Cooperation Agreement

SE4ALL Sustainable Energy for All

Sida Swedish International Development Agency

SME Small and medium size enterprise

SO Specific Objective

SWG Sector Working Group

SWOT Strengths, Weaknesses, Opportunities and Threats

TA Technical Assistant

TFF Technical and Financial File

ToR Terms of Reference

WB World Bank

## 2 Summary of the intervention

### 2.1 Intervention form

<b>Title of the intervention</b>	CB MIREME/ARENE : Capacity Development of the Ministry of Mineral Resources and Energy (MIREME) and Autoridade Reguladora de Energia (ARENE))
<b>Code of the intervention</b>	MOZ1403011
<b>Location</b>	Mozambique
<b>Total budget</b>	4,000,000.00
<b>Partner institution</b>	Ministry of Mineral Resources and Energy MIREME and Autoridade Reguladora de Energia (ARENE)
<b>Start date of the Specific Agreement</b>	19 April 2017
<b>Start date of the intervention/ Opening steering committee</b>	1 July 2017
<b>Expected end date of execution</b>	31 December 2022
<b>End date of the Specific Agreement</b>	19 April 2023
<b>Target groups</b>	Partners institutions involved in energy sector policies (MIREME and ARENE)
<b>Impact<sup>1</sup></b>	The development of the energy sector is enhanced in order to power the socioeconomic development of the country and to contribute to the welfare of its people
<b>Outcome</b>	The performance of MIREME and CNELEC (now ARENE) in advancing access to renewable electricity in rural areas is enhanced
<b>Outputs</b>	<p>R1: MIREME's capacities at the central level are strengthened to improve planning and policy-making in the energy sector</p> <p>R2: DIPREME's (now SPI) capacities are strengthened in order to improve the planning, coordination and M&amp;E of the energy sector in the selected provinces (Zambezia, Sofala, Manica and Tete)</p> <p>R3: Capacities of ARENE are strengthened to become a strong and independent regulator able to regulate new and renewable off-grid electricity</p>
<b>Year covered by the report</b>	2021

<sup>1</sup> Impact regards the general objective; outcomes regard the specific objective; output regards the expected result  
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## 2.2 Self-evaluation of performance

### 2.2.1 Relevance

	Performance
Relevance	A

In Mozambique, official figures report a rise in access to electrical power of less than 35 percent of the population in 2019 to 41 percent in 2021. However, this is predominantly in urban areas. As much as 95 percent of the households use firewood or charcoal daily for cooking. It is estimated that only 10 per cent of households have access to solar energy in the form of solar pico- or home systems. The Mozambican government has endorsed the Sustainable Energy for All (SEforALL) targets of Universal Energy Access by 2030, which intersects with the United Nations Sustainable Development Goals (e.g., SDG7) and the 2015 Paris Agreement on Climate Change. Projections show however that only 50 percent of the population can have access to the electricity grid by that year. There remains therefore a huge challenge and opportunity in connecting the remaining half through off-grid and renewable energy. The project's aims to strengthen the capacities in MIREME and ARENE to plan, manage, implement and monitor all activities for the energy sector, with a specific focus on renewable off-grid electricity, remain therefore very relevant. The Mid Term Review of end 2021 confirms that CB MIREME/ARENE is a highly relevant and ambitious capacity building and strengthening intervention. Its effectiveness, efficiency, sustainability and impact are considered satisfactory. However, the monitoring of effectiveness and sustainability of results require specific attention in the next years, being at risk to become problematic.

### 2.2.2 Effectiveness

	Performance
Effectiveness	B

The Mid Term Review of end 2021 confirms that CB MIREME/ARENE's effectiveness thus far is quite satisfactory. Despite the challenges of the Covid19 pandemic, the project was able to proceed. Due to the investment of the project in increased internet connectivity among the partners and a generalized shift in meeting culture, more meetings and international exchanges take place online. The project's organizational setup within MIREME and ARENE has known a significant change in focal points. The former focal point in MIREME DPC moved to ARENE as a co-focal point, and is replaced by 2 core focal points in MIREME DPC. In addition, the different Directorates in MIREME involved in the project have dedicated focal points with the ambition to improve the implementation pace of the project as well as the integration of the various support interventions. This remains however a challenge, as demonstrated by for instance the difficulty in identifying an integrated annual training planning request for the project, rather than individual requests from the Directorates.

The recommendations of consultancies (e.g., gender, PME manual, IT platform...) are increasingly presented to the wider leadership of MIREME and ARENE at the Conselho Técnico. This is deemed necessary to assure a better dissemination of information across the various Directorates supported, and should in principle lead to a better traction of the recommendations within the organisations.

Due to the stop on recruitment in the public sector and the rate of attrition among the present staff in search of greener pastures, the financing of temporary human resources such as the energy data management assistants in DPC, has resulted in the preparation of an improved energy balance for the country, MIREME now having become a Delegated Organ of INE (National Institute of Statistics), as well as the preparation of a long outstanding sector review for the period 2011-2019, which will be published soon. The prepared energy balance and enhanced statistics can also form the basis for developing the 2015 Paris Agreement's Nationally Determined Contributions (NDCs) goals linked to energy production and use. In addition, improved energy data will help policy planning and establishing the NDC goals. These efforts have taken place with additional support from the International Renewable Energy Agency (IRENA), an intergovernmental organization mandated to facilitate cooperation, advance knowledge, and promote the adoption and sustainable use of renewable energy, and the African Energy Commission (AFREC), a specialized agency of the African Union, under the Commission for Infrastructure and Energy, in charge of coordinating, harmonizing, protecting, conserving, developing, rational exploitation, commercializing and integrating energy resources on the African continent.

Emanating from consultancies, and especially given the delays experienced due to Covid19, various forms of short-term (e.g., energy data analysis, coordination, renewable energy technology, gender, English, ...) and long-term training (e.g., Master in Renewable Energy in DNE, Master in Communication for Development in DPC) have been identified and are being supported. However, a more systematic approach for a better planning and monitoring of training and human resource development is urgently needed. Therefore, the piloting of the e-SNGRH system in DRH MIREME, for which the equipment was bought by the project last year, was considered to be a possible useful tool. However, DRH cannot itself enter data into the system. Therefore, the information of training followed within the framework of the project, is sent to the Department of Human Resources to be entered into their system of M&E. A Junior Expert started to provide inputs into the identification, design and roll-out of train-the-trainer (ToT) programmes in MIREME and ARENE. These training programmes will focus on gender mainstreaming, energy data management and sector planning, and the technology of renewable energy on the one hand (inreach), and if possible, on improved knowledge of adapted technology production and maintenance by local SMEs and institutions on the other (outreach). In both cases, the emphasis lies on sustainable access to energy for the rural areas of Mozambique. The speed with which the development of the ToT modules can take place is slowed down by the necessary involvement of various Directorates and key resource people. This year, however, two modules have been in preparation with consultants to quite an advanced degree; these cover ToT in gender and renewable energy, and one on energy data management and analysis.

Gender mainstreaming in the energy sector as a point of entry to promote renewable energy has received quite some training attention this year. Based on a gender mainstreaming consultancy report in Q2, recommendations were formulated. Part of which refer to capacity building among the gender focal points in MIREME, FUNAE, EDM and ARENE. This has led to the priority given in the work of the junior expert to gender ToT module preparation through internal working sessions, the development of a draft manual, and a training workshop at the end of 2021 to introduce the concept and manual of ToT to the gender focal points from across the provinces and central level. In addition, two staff members of ARENE were trained in planning and budgeting from a gender perspective at UEM.

The consultancy for the elaboration of a Planning, Monitoring and Evaluation (PME) manual started in Q1 2021. The analysis presented in the Diagnostic Report makes it clear that MIREME still needs several relevant developments and improvements to be able to



lead and develop a comprehensive Energy Planning Exercise in Mozambique. Identified improvements to be promoted are the institutional framework, data management, data collection, and the elaboration of demand projections.

VITO has been supporting MIREME statistical staff on-line in two areas: energy modelling and pilot Multi-Tier Framework Surveys in Tete and Zambezia. The task of energy modelling has been the main focus until now of the activities presented to MIREME and ARENE. The energy access surveys task, the second task, has been introduced to the team of statistical staff at central level, as well as summarily to the provincial staff at a workshop on general energy data management. The idea of piloting a survey led by the provincial officers of MIREME in Tete and Zambezia has been well received. This pilot survey will prepare the country for future national surveys following this MTF framework which is very likely to be introduced by the World Bank in the future.

Meanwhile, the development of the website has started in 2021, as well as the design of a DPC database on donor interventions to be used for increased coordination capacity within MIREME. Both support initiatives will assist MIREME in an improved outreach, coordination, and M&E of the various interventions in the energy sector.

The ARENE consultancy financed by Enabel on priorities for regulatory development of off-grid renewable energy have strengthened the capacity of ARENE to provide inputs into the process of the adoption by government in 2021 of the new General Regulation for renewable off-grid electricity and a revision of the Electricity Law, which emphasizes the role of renewable and off-grid electricity. ARENE has received further support in the deployment of two additional temporary technical staff in the area of renewable energy. The project has also provided the financial support for ARENE to become a full-paid member of the Energy Regulators Regional Association (ERRA), which will improve its networking and training opportunities.

Proposed clean energy initiatives through bio briquette manufacturing will be supported by the project through a consumer knowledge and preference study in the Central Region, and will interface with other initiatives in the Study and Consultancy Fund. The tender has been granted and will start early 2022.

In response to the MTR, which suggests a limitation and reworking of the outcome indicators, a proposal for limitation is proposed by dropping a number of indicators, linked to the slow evolution in the policy environment and management delays. New indicators that have a more direct link to the funded activities are also proposed. These will be proposed to the next Steering Committee. This will be accompanied by a reminder that the present overbudgeting due to the non-reclamation of IVA, needs to be resolved for all activities to be able to take place.

Finally, this year a financial audit was successfully performed without major remarks.

### 2.2.3 Efficiency

	Performance
Efficiency	B

Not only the pandemic has this year contributed to further delays in implementation. Some of the policy context factors have also continued to contribute to a slower implementation rate. For example, the important enabling legislation for the renewable energy sector has taken a year longer than initially predicted; it is only towards the end of 2021 that a new general regulation for renewable off-grid electricity and a revision of the Electricity Law, which emphasizes the role of renewable and off-grid electricity, have been adopted.

In addition, a general hierarchical and formalistic government setup, and an understaffing of key technical functions in MIREME, result in more time for decisions to be taken and consultancies to be able to access key resource staff. Increasingly, successful attempts are made by the partners to avoid such delays by means of informal working groups, internal meetings and consultation and communication with various other stakeholders. However, to obtain formal approval of for instance budgetary and activity planning, requires more time. In the case of the Enabel project team, the ambitious project intervention has also contributed to a very high work load this year in terms of public procurement, partner assistance, M&E and reporting. The availability of junior experts, and the increased usage of MIREME staff for administration, preparation and implementation of activities do however aid in this respect.

It is also because of the impact of Covid19 on travel and some interventions, that the Mid-Term Review has been postponed to early 2021. The MTR did however in turn incur substantial delays, and was only available by the end of 2021.

The MTR points out that despite the positive contributions and pro-active adaptation to the fluctuating policy and staff context and delays in implementation, the ambitious project's outcome will not be fully achieved by 2022. The MTR does propose to tune down the ambitions of the project and limit the indicators to the three result areas, without however providing further guidance. The limitation is indeed required as a number of outcomes are drastically delayed.

In brief, while budgetary efficiency is fairly well pursued, the MTR concurs with the self-evaluation that a more efficient support to provincial outreach, to development of the regulatory environment, and to M&E of the project itself, require continuous attention.

### 2.2.4 Potential sustainability

	Performance
Potential sustainability	B

This capacity strengthening project aims to create enabling conditions for MIREME and ARENE to better plan, manage, implement and monitor all energy sector activities. Specific attention goes out to strengthening the capacity of both partners to integrate and promote the use of renewable off-grid electricity in achieving sustainable access to energy for all by 2030 (Sustainable Energy for All (SEforALL) targets).

It is clear however that in the short term, the potential sustainability of this particular CB MIREME/ARENE project intervention is located especially at the institutional, organizational and staff levels, and not as much at the financial level. In the short term, the project aims to improve the institutional and staff capacity to better plan, manage, implement and monitor all electricity sector activities, with a specific focus on renewable off-grid electricity. This is intended to contribute in the medium term to increased income from connections and tariffs, and an improved donor commitment to the Electrification Account of Mozambique's National Electrification Strategy to secure energy access for all by 2030. However, this depends on an improvement of the macro-economic situation of the country (e.g., solution to hidden debts), the involvement of private sector operators, the affordability and/or subsidization of electricity, and especially the actual effective and coordinated planning, supervision and regulation by MIREME and ARENE.


With the increasing interest from both international aid agencies as well as international energy companies, such institutional, organizational and staff capacities become very critical in assuring sustainability. An important concern remains however the lack of incentives in the public sector both at central or provincial level to retain staff and for staff to go the extra mile in vision and implementation. Where the project finances the temporary addition of human resource capacity, the question remains how such needed capacity will be sustainably incorporated within MIREME. In the case of ARENE, this has already proven to be possible with the uptake of three of the five Enabel-financed technical assistants as of Q4 2021.

### **2.2.5 Conclusions**

- The Mozambican government has committed itself to the Sustainable Energy for All (SEforALL) targets of Universal Energy Access by 2030, which intersects with the United Nations Sustainable Development Goals (e.g., SDG7) and the 2015 Paris Agreement on Climate Change. Projections show however that only 50 percent of the population can have access to the electricity grid by that year. There remains therefore a huge challenge and opportunity in connecting the remaining half through off-grid and renewable energy. The project's aims to strengthen the capacities in MIREME and ARENE to plan, manage, implement and monitor all activities for the energy sector, with a specific focus on renewable off-grid electricity, remain therefore very relevant.
- The Mid Term Review of end 2021, although not very satisfactory in terms of concrete guidance, confirms that CB MIREME/ARENE is a highly relevant and ambitious capacity building and strengthening intervention. Its effectiveness, efficiency, sustainability and impact are considered satisfactory. However, the monitoring of effectiveness and sustainability of results require specific attention in the next years, being at risk to become problematic.
- The project has this year especially focused on the management and analysis of energy data, the promotion of renewable energy, organizational strategy and management issues, training, and human resources. Despite the challenges of the Covid19 pandemic, the project was able to proceed at a moderate pace.
- The deployment of Junior Experts on data management, GIS and Train-the Trainers has been very effective and satisfactory in terms of introducing concepts, methodologies and interaction with partners and the energy data management assistants in DPC.
- The financing of energy data management assistants in DPC has resulted in the preparation of an improved energy balance for the country, MIREME now having

become a Delegated Organ of INE (National Institute of Statistics), as well as the draft of a long outstanding official sector review for the period 2011-2019.

- Despite the difficulty to maintain the availability of a provincial technical focal point, the coverage of the central provinces of Zambezia, Manica, Tete and Sofala provinces consisted this year predominantly of training activities, while other project activities are also geared towards the central provinces.
- The installation of a grid-tied PV infrastructure in SPI Quelimane has improved local working conditions by enhancing the access to electricity for computer and air conditioning use.
- The ARENE consultancy financed by Enabel on priorities for regulatory development of off-grid renewable energy have strengthened the capacity of ARENE to provide inputs into the development of and eventual approval of the General Regulatory Framework for the off-grid sector by Cabinet in June 2021, and by Parliament in the last quarter of 2021. In the same vein, inputs were given to the Revised Electricity Law, which emphasizes the role of renewable energy in the country's energy mix. The law was accepted by Cabinet in September 2021, and by Parliament in the last quarter of 2021.
- Three of the ARENE assistants hired in 2020, have been taken over on the payroll of ARENE after their first year.
- The project has also provided the support for ARENE to become a full-paid member of the Energy Regulators Regional Association (ERRA).
- The MTR confirms the self-assessment of the positive contributions and pro-active adaptation to the fluctuating policy and staff context and delays in implementation of the project. Because of the ambitious formulation of the project, the MTR suggests a limitation and reworking of the outcome indicators. This has already been elaborated in a proposal to remove indicators that have been overtaken by events, have no direct enough link with the agreed range of support activities, or for which the information is not as readily available as initially thought. New indicators and changes in values have already been added in Pilot, while awaiting approval from the Steering Committee.
- Finally, this year a financial audit was successfully performed without major remarks.

National execution officer	Intervention Manager Enabel
	 Evert WAETERLOOS

## 3 Monitoring of results<sup>2</sup>

### 3.1 Evolution of the context

#### 3.1.1 General and institutional context

About two-thirds of Mozambique's population of more than 29 million (2018) live and work in rural areas. It is endowed with ample arable land, water, energy, as well as mineral resources and newly discovered natural gas offshore; three, deep seaports; and a relatively large potential pool of labor. It is also strategically located; four of the six countries it borders are landlocked, and hence dependent on Mozambique as a conduit to global markets. Mozambique's strong ties to the region's economic engine, South Africa, underscore the importance of its economic, political, and social development to the stability and growth of Southern Africa as a whole<sup>3</sup>.

The Front for the Liberation of Mozambique (Frelimo) and the Mozambican National Resistance (Renamo) remain the country's main political forces, and ever since the end of the civil war, the country has registered flare-ups of armed confrontations and violence. Meanwhile, the government is grappling with another so-called 'Islamic' insurgency in parts of the gas-rich province of Cabo-Delgado, which has stalled the development of such energy mega-projects. Initially circumscribed to one locality, the indiscriminate killing of civilians perpetrated by the insurgents has now spread to other districts and towns in the province itself and to the neighbouring province of Niassa. The risk that violence can spread to other areas of the country should not be underestimated.

Two large waves of Covid infections in the first and third quarters of 2021 prompted strict confinement measures, lowered incomes, and resulted in the loss of schooling for an already vulnerable population. The COVID-19 (coronavirus) pandemic has continued to rock Mozambique's economic frail recovery in 2021 after two major shocks: the ongoing hidden debt crisis and the devastating effects of cyclones Idai and Kenneth in 2019. Mozambique is indeed the latest country to fall victim to the so-called 'presource curse' – when a country's economy is derailed not by resource exports, but the mere prospect of them. It took out more than \$2 billion in secret loans in 2013 and 2014 on the assumption they would be easy to repay once gas revenues from its giant projects started flowing. Not only do these evolutions impact on the degree of cooperation between GoM and the donors. It also has direct knock-on effects on the economic resilience of the country and its populace. Government's scrapping of subsidies on fuel and wheat for instance increases living costs for the poorest people still further, especially in the food and energy sector. It has also affected the public sector where a freeze on recruitment, wages and travel still prevails. The International Monetary Fund (IMF) has however praised Mozambique's prudent economic management, pointing out that after real GDP contracted in 2020 – the first contraction in 30 years – growth resumed in early 2021 and is expected to reach 2.2 per cent for the year. Robust growth in agriculture and mining was complemented by a modest recovery in services as COVID-related restrictions were eased. Seasonal factors, supply-chain constraints, and international food and fuel price increases led inflation to rise to 6.8 per cent year on year in November, remaining within the Bank of Mozambique's target of less than ten per cent.

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<sup>2</sup> 'Results' means 'development results'; Impact regards the general objective; outcomes regard the specific objective; output regards the expected result; intermediate outcomes regard changes resulting from the achievement of the outputs allowing progress towards the outcome of the intervention, at a higher level.

<sup>3</sup> <https://www.worldbank.org/en/country/mozambique/overview> accessed 20 January 2021  
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The government's tight monetary stance has helped keep inflation in check and preserve macro-economic stability, but limits credit growth and scope for the exchange rate to facilitate economic adjustment. According to the IMF, reducing fiscal financing needs through a moderate adjustment that does not impair recovery, will help put debt on a firm downward trajectory. Looking to the future, the IMF notes that the longer-term outlook is shaped by LNG (Liquefied Natural Gas) production, with downside risks. Non-LNG growth in the longer term, is projected at 4 per cent. Growth will rise sharply as LNG projects begin production, currently expected as from 2023 and 2026. However, new waves of Covid infection could prompt confinement measures, and affect economic recovery negatively.

The country's main economic development challenges remain maintaining the macroeconomic stability considering exposure to security risks for the megaprojects in the North, and commodity price fluctuations, as well as reestablishing confidence through improved economic governance and increased transparency. Moreover, structural reforms are needed in support of the currently struggling private sector. Another major challenge is diversifying the economy by moving away from the current focus on capital-intensive projects and low-productivity subsistence agriculture, while strengthening the key drivers of inclusion, such as improved quality education and health service delivery, which could in turn improve social indicators.

In the energy sector, the Government of Mozambique has committed itself to providing all Mozambicans with high-quality, affordable and sustainable electricity by 2030, and, for this purpose, launched the Energy for All Programme, coordinated by MIREME. At the end of 2021, the grid connected electrification rate was 41%, according to the official sources. The Energy for All Programme will enable the Government to ensure that, by 2024, more than 10 million Mozambicans will have access to electricity for the first time. The great challenge will be to achieve the ambitious goal of universal access by 2030 and to implement the considerable additional effort anticipated between 2025 and 2030, including the contribution of off-grid systems.

Mozambique has, indeed, significant potential for renewable energy. The Mozambique Renewable Energy Atlas, published by FUNAE in 2014, states a total renewable potential of 23,026 GW which corresponds to 7,537 MW of priority projects, including 599 MW of solar power, 5,645 MW of hydro power and 1,146 MW of wind power. The hydro potential is the most used and corresponds to 79% of the current total of 2,780 MW of installed capacity in Mozambique. It should be noted that, of this total, only 38% are in fact available for national consumption since part of it is destined for export or own consumption (see the case of HCB, in which, of the 2,075 MW installed, only 500 MW are available for EDM). The potential of new renewables has only recently begun to be explored on a large scale. The capacity of on-grid renewables, currently only 41 MW solar, will increase in 10 years to 306 MW, both for solar and wind energy. Independent Power Producers (IPP) currently represent 17% of installed capacity but 35% of production, and their contribution is expected to continue to increase substantially over the next decade. The financial grid access rate will however have to increase in the coming years. Most consumption is still domestic, followed by industrial and then commercial consumption. Agricultural consumption is still marginal.

The production of electricity from renewable sources in Mozambique is regulated by the Electricity Law (Law No. 21/91). The evolution of the national context required a revision of that law, taking into account aspects such as the technological development of renewable energy; increasing private sector participation; the redefinition of the role of state institutions that operate in the sector; the establishment of tariff mechanisms compatible with the cost structure of the projects; and the need for simplified mechanisms for small projects. The review process started in 2017, and was completed in the last quarter of 2021. Similarly, the General Regulatory Framework for the off-grid sector,

approved by Cabinet in June 2021, was also approved by Parliament in the last quarter of 2021.

The National Electrification Strategy of 2018, set the goal of universal access by 2030. Within the SEA - Self Expansion Areas (within a radius <100m of an existing low voltage line) EDM is required to connect everyone requesting the service. The construction of off-grid systems is the responsibility of FUNAE, and the sale, operation and maintenance are done by EDM, private operators or the communities involved. Both the FUNAE projects and EDM grid extension outside the SEA are subsidized by a new instrument, the Electrification Account, a revolving fund to be created by the Government with public resources, the Electrification Fee and the revenues from the concessions for power generation. The new approach of the strategy also provides for uniform and sustainable tariffs, which allow cost recovery, and which are periodically adjusted. In broader terms, the energy market is covered by the Energy Strategy approved in 2009, followed by the Strategy for the Development of New and Renewable Energy (2011). They also have to be adapted to the new context, and the Energy Strategy review process has already started.

Meanwhile, the need arose to create a more robust regulatory framework to accelerate private investment in renewable energy projects. In this regard, at the end of September 2020, the Government of Mozambique launched the first Renewable Energy Auctions Programme, PROLER. This unprecedented initiative proposes to make the renewable energy sector more attractive for private investment, by increasing the contribution of renewable sources, so as to ensure the diversification of the energy mix and ensure universal access. In addition to PROLER, which will result in an additional 160 MW by 2025, other support programmes are under development. There are currently 275 MW of solar or wind energy projects with pre-feasibility studies. Along with the Electricity Law, the Public-Private Partnerships law, and regulations such as the electricity grid code, including provisions for renewable energy projects, are being reviewed. These revisions will also clarify the requirements for renewable energy projects.

The solar home systems (SHS) market in Mozambique started off with the distribution of systems by FUNAE and the sale of some equipment in the informal market, of variable quality and without guarantees or assured installation. Since 2017, private operators have started selling SHS in a PAYGO scheme, having sold more than 70,000 systems. This figure is a far cry from the estimated market potential of 824 thousand homes with the capacity to acquire them, which could double if a fiscal policy were adopted that prioritised this type of systems.

In addition to the use of renewable resources for electricity production its use for clean cooking should also be considered, through the production of sustainable fuels and the use of improved cooking stoves (ICS). This market has enormous development potential, in a country where most households (> 95%) use wood or charcoal for cooking, with significant impacts in terms of deforestation and respiratory diseases. To date already 710,000 Mozambicans benefited from support in this area through the development of production points, design and testing of new cook stove designs, production standardisation, creation of the first small-scale ICS manufacturing plant in Mozambique, and support for industrial producers to enter the Mozambican market. Meanwhile, new support programmes have been added.

The capacity in MIREME to coordinate international collaboration and development cooperation funds requires more technical know-how and staff. Enabel's support to the production of improved energy data bases (energy balance, statistical review...), development of a new website and a digitalized database system, try to address this constraint. Similarly, the evolution in the harmo-context has suffered from a dominance by big players such as World Bank, Norway, UK and EU in the Energy Sector Working Group (ESWG). This does not stand in the way, however, of Enabel participating in the

ESWG when required, to link with other donors e.g., GIZ, DFID, SNV, EU, GGGI, as well as in internal Enabel coordination (e.g., RERD2+, Country Action Plan...) and reflection as an ongoing activity of networking and strategic orientation of the project.

### **3.1.2 Increasingly manifest climate change vulnerability**

Cyclone Idai and the subsequent cyclone Kenneth of 2019 have shown that Mozambique and the Southern Africa region are not prepared for the consequences of climate change. In times where the consequences of climate change will become more prominent, alternative ways of electrification should be considered, particularly decentralised renewable energy systems. First of all, without this approach it is financially and logistically not feasible to secure access to energy for all Mozambicans by 2030. This is even more the case with the unexpected costs of rebuilding and making the infrastructure more climate-resilient in the affected areas. Secondly, decentralised systems will be easier restored and will create less of a domino effect than on-grid systems when disaster occurs. Lastly, for the recovery of electricity the private sector and Mozambican population can be involved more easily: decentralised systems are often smaller and function more autonomously, which can have an empowering impact on the population to participate in disaster relief efforts and pick up their lives again much faster. This in combination with using renewable energy to power the off-grid systems will only benefit a fast and cost-effective recovery in a climate-friendly way.

The UN and Mozambican initiatives on sustainable access to energy focus on modern, clean, renewable and efficient energy. In the context of climate change action, more emphasis needs to go out to the combination of these dimensions in building the public sector's capacity to promote policies which expand, diversify and green the country's energy mix, especially for the rural areas.

### **3.1.3 Management context**

#### **3.1.3.1 Partnership modalities**

In principle, the modality of Regie proves to allow for a fairly fast and transparent identification of interventions, launching of tenders and flow of resources. The downside is lack of familiarity of Mozambican public and private actors with Belgian legislation pertaining to tenders. While in the beginning of the project, a more distant attitude of MIREME and ARENE was displayed, they are now more fully engaged in the process of drafting Terms of Reference, evaluation of bids, and follow-up of consultancies. This is because some of the requests are very technical (e.g., centralized IT platform for data storage and reporting MIREME; website MIREME or national Energy Cadaster ARENE) or close to the management operations of the partner (e.g., database for cooperation MIREME, PME manual). However, this often leads to delays in the actual launching, granting or finalization of consultancies; similarly increased needs of technical control from HQ lead to delays in granting tenders. Partners' more active involvement in tender evaluation, monitoring and follow-up is a reassuring move towards mutual accountability and ownership, as well as part of capacity strengthening of middle-management staff.

A general hierarchical and formalistic government setup also requires more time for official decisions to be taken or to be monitored than originally assumed in the project's logic. However, increasingly successful attempts have been made by the partners to avoid such delays by means of informal working groups, internal meetings and consultation and communication with various other stakeholders involved at central and provincial level. For that purpose, the project's organizational setup within MIREME and ARENE has known a significant change in focal points. The former focal point in MIREME DPC moved to ARENE as a co-focal point, and is replaced by 2 core focal points in MIREME DPC. In



addition, the different Directorates in MIREME involved in the project have dedicated focal points with the ambition to improve the implementation pace of the project as well as the integration of the various support interventions. This remains however a challenge, as demonstrated by for instance the difficulty in identifying an integrated annual training planning request for the project, rather than individual requests from the Directorates.

The recommendations of consultancies (e.g., gender, PME manual, IT platform...) are increasingly presented to the wider leadership of MIREME and ARENE at the Conselho Técnico. This is deemed necessary to assure a better dissemination of information across the various Directorates supported, and should in principle lead to a better traction of the recommendations within the organisations. However, this has not always been the case in the past when priority areas of further support by the project were to be identified (e.g., human resources development plan and retention strategy).

### 3.1.3.2 Operational modalities

Despite the challenges of the Covid19 pandemic, the project was able to proceed at a (albeit still too) moderate pace in 2021. The project has this year especially focused on the management and analysis of energy data, the promotion of renewable energy, organizational strategy and management issues, training, and human resources. Due to the investment of the project in increased internet connectivity among the partners and a generalized shift in meeting culture, more meetings and international exchanges take place online. This has however necessitated to include the requirement of the presence of a strong Mozambican antenna in tenders for international expertise or consulting services.

The coverage of the central provinces of Zambezia, Manica, Tete and Sofala provinces has suffered from the difficulty to find a good (inter)national technical assistant to act as provincial focal point and from the Covid 19 restrictions on travels and meetings. Therefore, coverage consisted this year predominantly of training activities: on-line introduction to GIS, energy data management, and gender mainstreaming. In fact, for both the energy data management and gender training, other provincial key staff of MIREME is also included to assure consistency across the 10 provinces in terms of performance in integrated country-wide data collection and renewable energy promotion campaigns. In addition, other project activities such as statistical data collection by MIREME; consultancies on the design of IT platform; the planning, monitoring and evaluation manual and the planned pilot of a provincial Multi-Tier Framework survey with support from VITO; production and dissemination of specific, simplified information on renewable energy for consumers, producers and investors in rural areas; and a consumer and market survey on eco-briquettes, are all also geared towards the central provinces.

Two communications have been published on Open Enabel this year pertaining to the introductory work on GIS by the Junior Expert as well as the support to the energy data management assistants as a possible step towards a local junior programme.

Given the many uncertainties in the policy context and the fact that many of the identified outputs refer to a better integration or systematization of existing or new practices (e.g., manuals or additional human resources), a regular updating of the project's intervention logic was previously pointed out as necessary. Meanwhile, the quarterly and annual reports reflect updated target and actual values where possible. In addition, with the required adaptation of the implementation to the Covid19 pandemic, a review of the target indicator values - at outcome and output level - was deemed urgent in 2021. This reworking of the outcome indicators was eventually linked to the consultancy of a manual for planning, M&E, as well as the Mid-Term Review (MTR), which have however in turn both incurred significant delays in 2021.

The MTR points out that despite the positive contributions and pro-active adaptation to the fluctuating policy and staff context and delays in implementation, the ambitious project's outcome will not be fully achieved by 2022. A limitation and reworking of the outcome indicators is suggested, to better capture the already perceptible changes and contributions of CB MIREME/ARENE. However, the recommendations how to do this, remain very general (e.g., in a participatory manner and by focusing the indicators on the 3 specific objectives of the intervention), and appear in their proposal for a more qualitative approach to change through the use of the CAP-scan methodology, to refer rather to an evaluation exercise. Further details on official energy sector data and targets were only made available in Q3, and have been incorporated in the project's M&E framework. Meanwhile, given the delays in policies and regulations, a range of other support activities have been approved (e.g., gender mainstreaming and training, database and website design, strategic plan review...), which all contribute eventually (but sometimes more indirectly) to a strengthened capacity of both MIREME and ARENE. These additional planned outputs may in principle also still find their translation in indicators through a participatory exercise, according to the MTR. The MTR proposes in general to tune down the ambitions of the project and limit the indicators to the three result areas. A limitation is indeed required and proposed here by dropping a number of indicators, as some outcomes are drastically delayed due to the slow evolution in the policy environment, which only matured towards the latter half of this year. Other delays are more linked to management issues as explained in the paragraph above.

In brief, the actual adaptive project management to the complex context and ambitious setup needs to translate formally in a more focused and limited framework of action. It is proposed to remove indicators that have been overtaken by events (e.g. delay in policy development, reduction of intended support outcomes as in the case of the PME manual or HR development plans), have no direct link with the agreed range of support activities, or for which the information is not as readily available as initially thought, and would require additional resources to research and produce such information, which is out of the scope of the project's present M&E capacity. These indicators are Activity implementation MIREME+ARENE; M&E Pilot regulatory instruments renewable off-grid electricity; at the Outcome level. Connections under national electrification programme and Connections renewable off-grid electricity under national electrification programme at the Outcome level are also deemed to be influenced indirectly by the project, and will therefore be limited to the same indicators used for the impact: Population's access to electricity (%) and Population's access to renewable off-grid electricity (%). For the latter, information is still very erratically available. At the Output Level 1, indicators to be removed relate to Annual realization rate of planned activities; Approved off-grid regulatory instruments; Priority off-grid regulatory instruments developed; Staff Retention; Methodology Chapter; and quality quarterly reports. The quality annual plans indicator is proposed to be replaced by 'Expanded and improved country energy balance' as well as 'Review of energy sector 2011-2020'. Output 2 indicators to be removed are HR Development Plan Implementation DIPREME and HR M&E System DIPREME; Quality Plans DIPREME-MIREME; Quality Quarterly Reports DIPREME-MIREME; and Realization Rate Annual Plan DIPREME. The DIPREME Staff Retention indicator is proposed to be replaced with indicator "Improved HR working conditions". Output 3 indicators which need to be dropped only refer to the formal approval of the HR Framework, to which Enabel contributed through a first general preparatory consultancy. Awaiting the specification of a refined target value or sufficient information over the course of the years, some indicator values have been entered to reflect actual observable scores rather than the envisaged ambitious indicator values which require much more detail and information (e.g., actual number of trainings or estimated percentage of training volume instead of actual percentage of staff having been trained).

It has been agreed that the project needs to be fully authorised to reclaim VAT – presently estimated around Euro 97,000. To that effect, the request for the process of an Exchange of Letters to add the Ministry of Economy and Finance to the Specific Agreement, has been channelled to MIREME.

Finally, this year a financial audit was successfully performed without major remarks.

### 3.2 Performance of outcome



#### 3.2.1 Progress of indicators<sup>4</sup>

In response to the MTR, it is proposed to remove indicators that have been overtaken by events, have no direct link with the agreed range of support activities, or for which the information is not as readily available as initially thought. In what follows, these indicators are shaded, pending final approval by the Steering Committee.

<b>Outcome<sup>5</sup>: The performance of MIREME and ARENE in advancing access to renewable electricity in rural areas is enhanced</b>					
<b>Progress indicators/ markers<sup>6</sup> : MOZ1403011</b>	<b>Base value</b>	<b>Value precedin g year</b>	<b>Value reporting year</b>	<b>Target reporting year</b>	<b>Final target</b>
1 -Activity implementation Mireme+Arene	TBC	TBC	TBC	TBC	<=70%
2.- Connections under national electrification programme (access of population to electricity)	26%	35%	38%	39.1%	51%
3 Connections renewable offgrid electricity under national electrification programme (Population's access to renewable off- grid electricity (%))			5		
4. Priority regulatory instruments for renewable	0	0	2	2	7

<sup>4</sup> You may use the table given or replace it with your own monitoring matrix format. Add/delete columns in function of the context (certain interventions will have to add columns for preceding years while – new – interventions will not have values for the preceding year).

<sup>5</sup> Use the formulation of the outcome as mentioned in the logical framework (TFF).

<sup>6</sup> Use the indicators given in the logical framework (of the TFF or of the last version of the logical framework).

off-grid electricity published					
5. M&E Pilot regulatory instruments renewable off-grid electricity	0	0	0	0	70%
6. Dissemination information on renewable energy to rural areas (estimated % of available information)	0	10%	25%	100%	100%
7. Energy Cadaster developed (NEW)					1

### 3.2.2 Analysis of progress made

Only at the end of 2021, outcome indicators were further specified, as the consultancy on the elaboration of a planning, monitoring and evaluation manual for MIREME focuses thus far especially on the general lacunae and possible solutions to energy sector planning. In addition, because the Mid-term Review (MTR), although started in Q1 of 2021, was only finalized in Q4 2021. The MTR did only provide general recommendations, i.e., to limit the outcome indicators and make them more tied to the three specific result areas.

Connections under national electrification programme and Connections renewable off-grid electricity under national electrification programme at the Outcome level are deemed to be influenced indirectly by the project, and will therefore be limited to the same indicators used for the impact: Population's access to electricity (%) and Population's access to renewable off-grid electricity (%). For the latter, information is still very erratically available. Although not specifically linked to project activities, it is noteworthy that under the national electrification programme, a steady increase in access of the population to electric power is reported, although at a slightly slower rate than projected.

More specifically linked to project activities are the development of priority regulatory instruments for renewable off-grid electricity, of which the General Regulation was approved (in narrow conjunction with the revision of the electricity law) in Q4. The production and dissemination of information on renewable energy to rural areas, has incurred further delays, but a range of proposed posters, brochures and videos have been submitted to MIREME for approval.

It becomes clear, in the light of the above, that due to the project formulation being too ambitious, the further specification of baseline indicators needs to be limited to a range of indicators that map the outcomes to which the project has directly contributed. This is also directly linked to the annual governmental energy planning exercise, which may provide only more specific details on an annual basis. Where initially, the definition and agreement of actual values on for instance renewable energy in the overall energy mix or rate of planned activities achieved, were thought to form part of the P,M&E manual, the manual seems to necessarily aim to work at a more general level of abstraction.

It is for this reason that it is proposed to remove indicators that have been overtaken by events (e.g., delay in policy development), have no direct link with the agreed range of support activities, or for which the information is not as readily available as initially thought and requires additional resources to research and produce such information, which is out of the scope of the project's present M&E capacity. These indicators are Activity implementation Mireme+Arene and M&E Pilot regulatory instruments

renewable off-grid electricity. The development of a national Energy Cadaster for both on- and off-grid electricity information management as support to ARENE (see Result Area 3), is proposed to also feature as an Outcome indicator.

### 3.3 Performance of output 1<sup>7</sup>



In line with the recommendations of the MTR, it is proposed to remove indicators that have been overtaken by events (e.g., delay in policy development), have no direct link with the agreed range of support activities, or for which the information is not as readily available as initially thought and requires additional resources to research and produce such information, which is out of the scope of the project's present M&E capacity. These indicators are: Activity implementation rate of MIREME; Staff Retention; Work Conditions; Methodology Chapter; and Quality Quarterly Reports. The indicator Quality annual plans is proposed to be replaced by 'Expanded and improved country energy balance' as well as 'Review of energy sector 2011-2019'. Two additional new indicators 'Improved website MIREME' and 'Database international cooperation initiatives', directly linked to the project's support, are proposed. The indicator Number and types of training delivered is proposed to be changed to number of trainings delivered, and refers to the number of staff trained. The indicator NRE information dissemination's value is proposed to be changed from a survey-based assessment to a self-estimated percentage of available information.

<i>MIREME's capacities at the central level are strengthened to improve planning and policy-making in the energy sector</i>	<i>Indicator Baseline Value</i>	<i>2020</i>	<i>2021</i>		<i>2022</i>
		<i>Indicator Actual Value</i>	<i>Indicator Target Value</i>	<i>Indicator Actual Value</i>	<i>Indicator Target Value</i>
<i>MOZ1403011 Annual realization rate of planned activities</i>	0	TBC	TBC	TBC	90
<i>MOZ1403011 Approved off-grid regulatory instruments</i>	0	0	2	2	7
<i>Data Management Platform</i>	0	0	1	1	1
<i>HR Development Plan</i>	0	1	1	1	1
<i>HR M&amp;E System</i>	0	0	1	1	1
<i>Number of trainings delivered</i>	0	35	45	59	TBC
<i>Priority off-grid regulatory instruments developed</i>	0	0	2	2	7

<sup>7</sup> The template provides for up to 3 outputs (chapters 2.2, 2.3 and 2.4). In case the intervention has more outputs, simply copy paste. In case the intervention has fewer than 3 outputs, simply delete the superfluous chapter(s).

For the outcome level you may also replace this table by the intervention's own format (e.g. your operational monitoring tool).

<b>MOZ1403011 Staff Retention</b>	20	TBC	TBC	TBC	5
Manual of Planning, Monitoring and Evaluation	0	0	1	0,3	1
<b>MOZ1403011 Methodology Chapter</b>	0	0	1	0	1
NRE information dissemination (estimated % of available information)	0	10	25	35	80
<b>MOZ1403011 Quality annual plans</b>	0	1	0	0	3
<b>MOZ1403011 Quality Quarterly Reports</b>	0	1	1	0	7
<b>MOZ1403011 WORK CONDITIONS MIREME</b>					60%
Expanded and improved country energy balance (NEW)	0	0	1	1	1
Review of energy sector 2011-2020 (NEW)	0	0	1	0	1
Improved website MIREME (NEW)	0	0	1	0,15	1
Database international cooperation initiatives (NEW)	0	0	0	0	1

### 3.3.1 State of progress of the main activities

State of progress of the <u>main</u> activities <sup>8</sup>	State of progress The activities are:			
	Ahead of time	Within deadline	Delayed <sup>9</sup>	Seriously delayed <sup>10</sup>
1 Contracting of max.5 statistical technicians (central and provincial)		X		
2 Training of personnel of the Statistical Plan in planning methodologies and M&E		X		
3 Compilation of a Planning and M&E Manual			X	
4 Develop and establish Fit-for-purpose IT platform for centralised reporting and information management			X	
5. Pilots in better information collection and MTF access to energy surveys in Zambezia, Sofala, Manica or Tete			X	

<sup>9</sup> The activities are delayed; corrective measures must be taken.

<sup>10</sup> The activities are more than 6 months behind schedule. Major corrective measures are required.  
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5. Survey on specific information needs on renewable energy for consumers, producers and investors in rural areas		X		
6. Production and dissemination of specific information on renewable energy for consumers, producers and investors in rural areas.			X	
7 Database international cooperation;			X	
8 Website development			X	
9 Elaborate improved HR Development Plan - including digitalised system for M&E		X		
10 Coordinated supply of training within MIREME and with donors		X		
11 Field trips to the region to exchange experience with other energy ministries, regulators and off-grid energy actors				X (cancel led)

### 3.3.2 Analysis of progress made

The most important progress of 2021 in this Result Area was made in the following areas and activities:

Due to the stop on recruitment in the public sector and the rate of attrition among the present staff in search of greener pastures, it is agreed to deploy two additional support staff to help DPC with its digitization project (see database), and two with the IT department. The two energy data management assistants in Departamento de Planificação e Estatística-DPE of DPC who have left early this year, have also been replaced. The availability of these energy data management assistants in DPC has resulted in the preparation of an expanded and improved energy balance for the country, MIREME now having become a Delegated Organ of INE (National Institute of Statistics), as well as the preparation of a long outstanding sector review for the period 2011-2020, which will be published soon. The prepared energy balance and enhanced statistics can also form the basis for developing the 2015 Paris Agreement's Nationally Determined Contributions (NDCs) goals linked to energy production and use. In addition, improved energy data will help policy planning and establishing the NDC goals. These efforts have taken place with additional support from the International Renewable Energy Agency (IRENA), an intergovernmental organization mandated to facilitate cooperation, advance knowledge, and promote the adoption and sustainable use of renewable energy, and the African Energy Commission (AFREC), a specialized agency of the African Union, under the Commission for Infrastructure and Energy, in charge of coordinating, harmonizing, protecting, conserving, developing, rational exploitation, commercializing and integrating energy resources on the African continent.

Emanating from consultancies, and especially given the delays experienced due to Covid19, various forms of short-term (e.g., energy data analysis, coordination, renewable energy technology, gender, English, ...) and long-term training (e.g., Master in Renewable Energy in DNE, Master in Communication for Development in DPC) have been identified and are being supported. However, a more systematic approach for a better planning and monitoring of training and human resource development is urgently needed. Therefore, the piloting of the e-SNGRH system in DRH MIREME, for which the equipment was



bought by the project last year, was considered to be a possible useful tool. However, DRH cannot itself enter data into the system. Therefore, the information of training followed within the framework of the project, is sent to the Department of Human Resources to be entered into their system of M&E.

Training in energy data management and analysis is being provided this year to key MIREME and Arene staff in various forms: support to the 5 young energy data management assistants to participate in field visits for data collection; a client-oriented, general online training support by Vito in the area of energy and climate modelling as well as the slow preparations of a provincial Multi-Tier Energy Framework pilot survey (see further); online GIS training; a workshop for provincial (central and southern region) and central staff from various Directorates of MIREME, FUNAE, INE and ARENE focusing on energy sector planning and different relevant models, including MOZLEAP developed specifically for Mozambique. There are clearly still further training sessions needed at both central and provincial level to come to an improved skills level for energy data collection, management and analysis.

Training in data management and gender have also included other stakeholders than the MIREME staff. Staff from INE, FUNAE, EDM, ... have participated in various training events organised by the project.

A Junior Expert started to that effect in Q1 2021 to provide inputs into the identification, design and roll-out of train-the-trainer (ToT) programmes in MIREME and ARENE. These training programmes will focus on gender mainstreaming, energy data management and sector planning, and the of renewable energy on the one hand (inreach), and if possible, on improved knowledge of adapted technology production and maintenance by local SMEs and institutions on the other (outreach). In both cases, the emphasis lies on sustainable access to energy for the rural areas of Mozambique. The speed with which the development of the ToT modules can take place is slowed down by the necessary involvement of various Directorates and key resource people. This year, however, two modules have been in preparation with consultants to quite an advanced degree; these cover ToT in gender and renewable energy, and one on energy data management and analysis.

Survey on specific information needs on renewable energy for consumers, producers and investors in rural areas: gender mainstreaming as a point of entry to promote renewable energy has received quite some attention this year. Based on the gender mainstreaming consultancy report in Q2, recommendations were formulated. Part of which refer to capacity building among the gender focal points in MIREME, FUNAE, EDM and Arene. This has led to the priority given in the work of the junior expert to gender ToT module preparation through internal working sessions, the development of a draft manual, and a training workshop at the end of 2021 to introduce the concept and manual of ToT to the gender focal points from across the provinces and central level.

The consultancy for the elaboration of a Planning, Monitoring and Evaluation (PME) manual started in Q1 2021. The analysis presented in the Diagnostic Report makes it clear that MIREME still needs several relevant developments and improvements to be able to lead and develop a comprehensive Energy Planning Exercise in Mozambique. Identified lacunae are :

- Lack of a Structured Planning Process: Absence of a formal Energy Planning process; Lack of a coherent strategy for identifying energy projects; Need for improved linkage between policy objectives and the energy planning process.
- Shortcomings in the institutional design employed in planning: Need to strengthen the leadership role of MIREME; Need to review/reinforce the

roles and responsibilities of the various stakeholders in the process;  
Need to formally include non-energy sector stakeholders in the process.

- Absence or scarcity of tools and technical capacity: MIREME does not use any specific tool for energy planning; Lack of experience in developing integrated Energy Plans; Need to develop a technical capacity analysis of MIREME.
- Limitations on data and information required for Energy Planning

In that sense, the Solutions Report, which forms the second report of the project, proposes a roadmap to support MIREME in the proper establishment of an Energy Planning Unit and an Energy Planning process, laying the foundation to acquire the capacities to do so. A series of improvements focusing on four points must be addressed: the institutional framework, data management, data collection and the elaboration of demand projections. In the proposed road map various steps are presented that MIREME should implement in order to ensure the development of an Energy Planning exercise, either through an in-house solution or supported by the expertise of an external consultant. The draft and final manual are still outstanding, to be delivered by March 2022.

The Fit-for-purpose IT platform has been established and delivered, but is not fully operational due to final updates and training still required. Formal presentation in MIREME as well as formal acceptance of Instruction manual, training and handover memorandum is still to be done in Q1 2022.

VITO, a Flemish research institute, has been supporting MIREME statistical staff on-line in two areas: energy modelling and pilot Multi-Tier Framework Surveys in Tete and Zambezia. The task of energy modelling has been the main focus until now of the activities presented to MIREME and ARENE. VITO presented a general overview of energy and climate models to set the scene and clarify the needs and current understanding on the topic. VITO has also presented on the importance of building up reliable energy databases and energy balances as main input on which to build energy and climate models. The underlying objective of presenting the importance of the link between energy data/statistics and energy modelling is to show that collecting data is not only a goal in itself but a key phase for producing other analysis (in this case future projections/scenarios) that will help them formulate science-based policies. This support aligns to other initiatives supporting the Government of Mozambique. IRENA has performed a series of online trainings on Energy Balances. Furthermore, AFREC (the African Union Commission on Energy) is also providing online training on how to fill in their 'energy questionnaires' that each African country is expected to report to AFREC on an annual basis with all their energy data to build their Energy Balances. These data will be part of the AEIS (African Energy Information System). When it comes to energy and climate modelling expertise, there has also been previous training or at least knowledge on LEAP and MESSAGE. The CPE in Eduardo Mondlane University, is most familiar with LEAP. Professor PhD Gilberto Mahuname is a top Mozambican expert on LEAP and energy/climate modelling, at least within Mozambique. Going forward, the following sessions will continue increasing the theoretical knowledge on energy models while ensuring that the specific needs of MIREME and ARENE in terms of modelling are assessed in order to create a training portfolio on the specific model that fits their needs. The energy access surveys task, the second task, has been introduced to the team of statistical staff at central level, as well as summarily to the provincial staff at a workshop on general energy data management. There is a clear mandate of the government to provide electricity access to the whole population by 2030, and government officials appreciate the importance of energy access surveys like the Multitier Framework developed by the World Bank/ESMAP to evaluate and monitor universal energy access.

The idea of piloting a survey led by the provincial officers of MIREME in Tete and Zambezia has been well received. This pilot survey will prepare the country for future national surveys following this MTF framework which is very likely to be introduced by the World Bank in the future. Besides, MIREME is now officially recognized by INE (National Statistics Institute) to perform validated surveys. They could use this pilot exercise as a test for this new role of MIREME as it seems that there is certain unclarity of what this entails. There is a similar initiative on energy access surveys supported by the Norwegian cooperation, which will be taken into account.

The HR Dept of MIREME has, with the received IT equipment, started the piloting of the central e-SNGRH system for M&E of career trajectories.

Production and dissemination of specific information on renewable energy for consumers, producers and investors in rural areas: Review report with recommendations on priority information and vulgarization needs for rural population has been delivered. Given this delay, it is expected that the prototypes will be produced by March 2022. Funds have also been foreseen for the dissemination across the provinces.

Meanwhile, the development of the website has started in 2021 with a report of a review of the requirements delivered late 2021, and the prototype being designed. The DPC database on international cooperation initiatives to be used for increased coordination capacity within MIREME, was finally launched in 2021, and will start in 2022. Both support initiatives will assist MIREME in an improved outreach, coordination, and M&E of the various interventions in the energy sector. Both tenders have however incurred substantial delays due to the difficulty of timely availability of key resource people to provide inputs (website) and procedural requirements (tender for database).

Field trips to the region to exchange experience with other energy ministries, regulators and off-grid energy actors have been cancelled due to the Covid19 pandemic.

Elaboration of a Human Resources Development Plan and Retention Strategy: consultancy has proposed a range of recommendations, but which require a strategic uptake by MIREME's leadership

Preparation of climate related project proposals from a water-food-energy nexus perspective were finalized in 2021: one on greening the charcoal value chain in the lower Zambezi River Basin (Study and Expertise Fund), and one consumer study of bio briquettes (see Result Area 2).

To secure, at present, further financial and administrative support staff during this last year, and while awaiting the resolution of the present overbudgeting due to the non-reclamation of IVA, it is proposed to suspend the tender of periodical support (estimated at least at a total of Euro130,000). This tender is a very innovative way of providing recurrent assistance, but would require an intense follow-up from the project management team. The delay in the compilation of an evaluation team from the partners' side is a case in point. Procedurally, as the ToR indicate a 12 month period, this would already pose likely contractual problems given that the project expires end of 2022. Taking further into account the present workload faced and over-budgeting in case the IVA is not recuperated, the decision is made to suspend this consultancy.

### 3.4 Performance of output 2<sup>11</sup>



#### 3.4.1 Progress of indicators

In line with the recommendations of the MTR, it is proposed to remove indicators that have been overtaken by events (e.g. delay in policy development), have no direct link with the agreed range of support activities, or for which the information is not as readily available as initially thought and requires additional resources to research and produce such information, which is out of the scope of the project’s present M&E capacity. Especially since the technical assistance at provincial level has not been able to establish a solid presence and M&E routine. These indicators are: DIPREME staff retention; HR Development Plan Implementation DIPREME; HR M&E System DIPREME; Quality Plans DIPREME-MIREME; Quality Quarterly Reports DIPREME-MIREME; and Realization Rate Annual Plan DIPREME. The indicator ‘Training delivered’ refers only to the number of staff trained, not to the type of training. As part of the training, a specific pilot research on the World Bank’s Multi-Tier Framework of access to energy is proposed as a new indicator. For the working conditions indicator, a new value is proposed, referring to the installation of a PV installation in DIPREME/SPIs to enable better access to electricity for office use.

<i>DIPREME's capacities are strengthened in order to improve the planning, coordination and M&amp;E of the energy sector in the selected provinces (Zambezia, Sofala, Manica and Tete)</i>	<b>Indicator Baseline Value</b>	<b>2020</b>	<b>2021</b>		<b>2022</b>
		<b>Indicator Actual Value</b>	<b>Indicator Target Value</b>	<b>Indicator Actual Value</b>	<b>Indicator Target Value</b>
<i>MOZ1403011 DIPREME Staff Retention</i>	0	TBC	TBC	TBC	5
<i>MOZ1403011 HR Development Plan Implementation DIPREME</i>	0	0	0	0	TBC
<i>MOZ1403011 HR M&amp;E System DIPREME</i>		0	1	0	1
<i>NRE Information Dissemination</i>		20	25	35	80

<sup>11</sup> The template provides for up to 3 outputs (chapters 2.2, 2.3 and 2.4). In case the intervention has more outputs, simply copy paste. In case the intervention has fewer than 3 outputs, simply delete the superfluous chapter(s). For the outcome level you may also replace this table by the intervention’s own format (e.g. your operational monitoring tool).  
Results Report CB MIREME/ARENE 2021

<i>(estimated % of available information)</i>					
<i>MOZ1403011 Quality Plans DIPREME-MIREME</i>	0	0	0	0	70
<i>MOZ1403011 Quality Quarterly Reports DIPREME-MIREME</i>	0	10	40	20	80
<i>MOZ1403011 Realization Rate Annual Plan DIPREME</i>	1	TBC	TBC	TBC	90
<i>Training Delivered DIPREME</i>		20	25	28	TBC
<i>Improved HR working conditions</i>		1 PV installation Zambezia	2 PV installations (Zambezia and Manica)		2 SPI PV installations
<i>Pilots in MTF access to energy surveys in Zambezia and Tete (NEW)</i>		0%	80%	15%	100%

### 3.4.2 State of progress of the main activities

State of progress of the <u>main</u> activities <sup>12</sup>	State of progress The activities are:			
	Ahead of time	Within deadline	Delayed <sup>13</sup>	Seriously delayed <sup>14</sup>
1 Training of provincial personnel of the Statistical Plan in planning methodologies and M&E			X	
2 Dissemination of specific information on renewable energy to rural areas for consumers, producers and investors.				X
3 . Pilots in better information collection and MTF access to energy surveys in Zambezia, Sofala, Manica or Tete			X	

<sup>13</sup> The activities are delayed; corrective measures must be taken.

<sup>14</sup> The activities are more than 6 months behind schedule. Major corrective measures are required.  
Results Report CB MIREME/ARENE 2021

4 Improved HR working conditions in energy sector units of DIPREME, including demonstration PV systems for office use			X	
5. Coordinated training supply		X		

### 3.4.3 Analysis of progress made

Despite the difficulty to find a well-performing focal point (two were not performing well, one is no longer available), the coverage of the central provinces of Zambezia, Manica, Tete and Sofala provinces consisted this year predominantly of training activities. These include on-line introduction to GIS, energy data management, and gender mainstreaming. In fact, for both the energy data management and gender training, other provincial key staff of MIREME is also included to assure consistency across the 10 provinces in terms of performance in integrated country-wide data collection and renewable energy promotion campaigns. In addition, other project activities such as statistical data collection by MIREME; consultancies on the design of IT platform; the planning, monitoring and evaluation manual and the planned pilot of a provincial Multi-Tier Framework survey with support from VITO; production and dissemination of specific, simplified information on renewable energy for consumers, producers and investors in rural areas; and a consumer and market survey on eco-briquettes are also geared towards the central provinces.

A consultant is drafting the ToR for a tender for PV installations to supplement the grid electricity for use of computers and air-conditioning in SPI Manica, similar to the one installed, and fully handed over, in SPI Zambezia (however without carport). Delays were however incurred in 2021 to obtain the detailed specifications from the SPI, required for a full elaboration of the ToR.

## 3.5 Performance of output 3<sup>15</sup>



### 3.5.1 Progress of indicators

The indicator ‘Training delivered’ refers only to the number of staff trained, not to the type of training. For the indicators PRIORITY REGULATORY INSTRUMENTS OFF-GRID NRE DEVELOPED and PRIORITY REGULATORY INSTRUMENTS OFF-GRID NRE APPROVED, due to the context of new policy developments in 2021, only now an indicative number of instruments that need to be developed has been formulated. These two indicators are proposed to be recorded in absolute terms rather than percentages. It

<sup>15</sup> The template provides for up to 3 outputs (chapters 2.2, 2.3 and 2.4). In case the intervention has more outputs, simply copy paste. In case the intervention has fewer than 3 outputs, simply delete the superfluous chapter(s). For the outcome level you may also replace this table by the intervention’s own format (e.g. your operational monitoring tool).  
Results Report CB MIREME/ARENE 2021

is for this reason that PILOT REGULATIONS M&E needs to be dropped, as the piloting of off-grid regulations is out of the time frame of this project intervention.

A new indicator is proposed that is more directly linked to the project's actual support to human resources, rather than the indirect measurement of the completion of staff contingent and functions. This indicator is TEMPORARY HR SUPPORT (number technicians). The reason being that, while the HR Framework has been adopted internally by the Administrative Council of ARENE, the Professional Qualifiers of Careers and Functions still need to be approved, and the entire proposed framework still needs to be submitted for approval to the Ministry of State Administration and Civil Service. It is given this delay therefore proposed to drop the indicators HR FRAMEWORK APPLIED NUMBERS and HR FRAMEWORK APPLIED FUNCTIONS, to which the project does not directly contributes. Two new additional indicators are proposed: Development of a strategic plan for the next 3 years (until 2025), and Development of a Cadastro Electrico in 2022, which will allow to manage all information pertaining to energy producers and providers, both on- and off-grid.

<i>Capacities of ARENE are strengthened to become a strong and independent regulator able to regulate new and renewable off-grid electricity</i>	<b>Indicator Baseline Value</b>	<b>2020</b>	<b>2021</b>		<b>2022</b>
		<b>Indicator Actual Value</b>	<b>Indicator Target Value</b>	<b>Indicator Actual Value</b>	<b>Indicator Target Value</b>
<i>HR FRAMEWORK DEVELOPED</i>	0	0.5	1	0.9	1
<i>HR FRAMEWORK APPROVED</i>	0	0.5	1	0.75	1
<i>MOZ1403011 HR FRAMEWORK APPLIED NUMBERS</i>	0	TBC	TBC	TBC	50%
<i>MOZ1403011 HR FRAMEWORK APPLIED FUNCTIONS</i>	0	TBC	TBC	TBC	50%
<i>TEMPORARY HR SUPPORT ( number technicians) (NEW)</i>	0	3	5	5	2
<i>HR FRAMEWORK TRAINING IMPLEMENTATION (staff members)</i>	0	9	4	4	TBC

<i>PRIORITY REGULATORY INSTRUMENTS OFF-GRID NRE DEVELOPED</i>	0	0	2	2	7
<i>PRIORITY REGULATORY INSTRUMENTS OFF-GRID NRE APPROVED</i>	0		2	2	7
<i>MOZ1403011 PILOT REGULATIONS M&amp;E</i>	0		TBC	TBC	60%
<i>Energy Cadaster developed (NEW)</i>					1
<i>Strategic Plan ARENE until 2025 (NEW)</i>			1	0	1

### 3.5.2 State of progress of the main activities

State of progress of the <u>main</u> activities <sup>16</sup>	State of progress			
	The activities are:			
	Ahead of time	Within deadline	Delayed <sup>17</sup>	Seriously delayed <sup>18</sup>
1 Field trips to the region to exchange experience with other regulatory authorities and off-grid electricity actors				X (cancel led)
2 Consultants elaborate regulatory instruments		X		
3. Supply and installation of IT equipment		X		
4 Coordinated supply of training within ARENE and with donors		X		
5. Consultancy on follow up of recommendations of the Road Map ARENE			X	
6. Temporary Technical Assistants ARENE		X		

<sup>17</sup> The activities are delayed; corrective measures must be taken.

<sup>18</sup> The activities are more than 6 months behind schedule. Major corrective measures are required.



### 3.5.3 Analysis of progress made

Based on the study financed by Enabel in 2018 on the conditions and requirements of a human resources framework for ARENE, the HR framework and Staff Chart was internally approved by ARENE on 02 November 2020 and by the responsible ministry MIREME on 5 February 2021. The instrument is currently awaiting approval by the Ministry of State Administration and Civil Service, and should be preceded by the approval of ARENE's Professional Qualifiers of Careers and Functions.

The ARENE consultancy financed by Enabel on priorities for regulatory development of off-grid renewable energy have strengthened the capacity of ARENE to provide inputs into the process of the adoption by government in 2021 of a new general regulation for renewable off-grid electricity and a revision of the Electricity Law, which emphasizes the role of renewable and off-grid electricity. The consultants divided the national energy sector into four pillars, namely. (i) access to modern energy services; (ii) energy efficiency; (iii) renewable energy and (iv) cross-cutting issues. In each of the first three pillars, performance indicators were defined, within which existing and missing regulatory instruments were analysed. It was found that there are regulatory instruments developed in each of the mentioned pillars, with the exception of the energy efficiency pillar where nothing is done yet. Many regulatory instruments are also missing in the other three pillars. The study then centred on eight priority areas for ARENE: tariffs; Import duties and value added tax-VAT; Public-private partnerships; Licensing, concessions and power purchase agreements; Environmental and social impact assessment; Energy efficiency; Off-grid technical regulation; Connection criteria to the national electricity grid. The study advises to speed up with the new legislative framework and instruments. To that effect, preliminary studies, including piloting the results found before transforming them into regulations, and the integration of legal instruments are recommended.

This has contributed to the approval of the General Regulatory Framework for the off-grid sector by Cabinet in June 2021, and by Parliament in the last quarter of 2021. In addition, the Revised Electricity Law, which emphasizes the role of renewable energy in the country's energy mix, was accepted by Cabinet in September 2021, and by Parliament in the last quarter of 2021.

ARENE has received further support in the deployment of two additional temporary technical staff in the area of renewable energy. One will work in the Divisão de Eficiência Energética e Tecnologias, and the other in de Divisão de Regulação Técnica. These assistants were contracted in Q3 2021. Three of the assistants hired in 2020, have been taken over on the payroll of Arene after their first year.

ARENE will be further supported with IT upgrades, development of a strategic plan for the next 3 years, and the development of a Cadastro Electrico foreseen in the off-grid policy.

With the help of these assistants and other donors, the following 7 instruments are being prepared for approval in 2022: Regulation of concessions and energy services; tariff regulation; interconnection regulation; regulation of technical norms and security standards; regulation of service quality norms and commercial relations; instrument relative to environmental aspects; and instrument relative to fiscal incentives.

The project has also provided the financial support for ARENE to become a full-paid member of the Energy Regulators Regional Association (ERRA), which will improve its networking and training opportunities.

## 4 Budget monitoring

	Budget	Expenditures			Balance	Disbursement rate at the end 2021
		Previous years	Year covered by report (n)	Total		
		2017 > 2020	31/12/2021			
Output 1	1,505,000.00	600,083.77	400,030.70	1,000,114.47	504,885.53	66.45%
Output 2	955,000.00	639,751.58	34,900.35	674,651.93	280,348.07	70.64%
Output 3	230,000.00	177,014.64	100,074.91	277,089.55	- 47,089.55	120.47%
IVA	-	78,891.02	30,657.97	109,548.99	- 109,548.99	
Reserve	90,000.00	-	-	-	90,000.00	
General Means	1,220,000.00	598,835.50	210,552.56	809,388.06	410,611.94	66.34%
<b>TOTAL</b>	<b>4,000,000.00</b>	<b>2,094,576.51</b>	<b>776,216.49</b>	<b>2,870,793.00</b>	<b>1,129,207.00</b>	<b>71.77%</b>

For more details see annex 10.5: Budget versus Actuals (y – m)' Report

## 5 Risks and Issues

- A major risk still applicable in 2021 are the delays caused by the restrictions on travel, meetings and even workplace access due to the continued Covid pandemic. This has especially affected training and provincial outreach activities.
- These delays have affected a range of activities, for which the deadline of implementation is proposed to be shifted to 31 December 2022.
- Ambitious project design, changing policy environment, and slow implementation hamper M&E and timely outcome performance, as pointed out by the MTR in November 2021. The MTR does propose to tune down the ambitions of the project and limit the indicators to the three result areas, without however providing further guidance. The limitation is indeed required as a number of outcomes are drastically delayed due to the slow evolution in the policy environment, which only matured towards the latter half of this year. Proposals for such limitations and updating to more project-linked outcomes are included here and will be submitted to the Steering Committee for final approval.

## 6 Synergies and complementarities

### 6.1 With other interventions of the Portfolio

- The coordination with RERD2+ has this year, due to a high workload, been on a need-basis, and has especially centred around shared human and operational resources, a shared junior GIS expert, and the preparation and follow-up of RERD2+'s solar irrigation component.
- Other important synergies with Rerd2+ relate to the participation of SPI Zambezia staff in the RERD2 field missions, and information exchange on GIS and training opportunities.
- The Steering Committee meetings are a joint event with RERD2+, but have been affected in their frequency by the Covid-19 pandemic, resulting in only one single Steering Committee this year (March 2021).
- There is a need to pilot the regulations on renewable off-grid electricity, as approved in the revised Electricity Law and the General Off-grid Regulation of 2021. Results from local piloting initiatives such as RERD2+, Brilho, and other donor-funded interventions with MIREME and ARENE may feed into this.
- The support to vulgarization, strengthening of gender focal points and trainer of trainers-skills may also inform and benefit RERD2+ and other projects (e.g., Clismadev) in the next year.
- Participation in ESWG and regular exchange with other donors e.g., GIZ, DFID, SNV, EU, GGGI as well as internal Enabel coordination (e.g., RERD2+, Country Action plan, Advisory Note, ...) and reflection is an ongoing activity of networking and strategic orientation of the project
- The need to address one of the poverty related climate change challenges in Mozambique - the extensive use of biomass and charcoal which is associated with considerable environmental costs - has been taken up in 2021 by the project, as well as through the Study and Expertise Fund. Two related consultancies on the Lower

Zambezi River Basin will require further coordination within Enabel and with government departments in 2022.

## **6.2 With third-party assignments**

- Involvement in the GGGI feasibility studies on solar irrigation in Mozambique through Study and Expertise Fund
- Framework Contract with VITO for expert online support and training to MIREME and ARENE
- Involvement of INE in training activities on statistical data management and consultation on provincial access to energy surveys in MIREME as piloted with VITO
- Brokering contact between Universidade Eduardo Mondlane (UEM) and VITO, which has led to a VITO proposal to finance a PhD student from UEM and a general cooperation proposal with MIREME that extends VITO support to a regional NDC Climate Expertise Centre.

## **6.3 Other synergies and complementarities**

- Communication on the complexities of development work and sustainable development goals through blogs on Open. Enabel, LinkedIn as well as Diplomatic Bureau of Maputo's Facebook site
- Inclusion of EDM and FUNAE gender focal points in gender mainstreaming training.
- Inclusion of all provincial SPIs countrywide in training in statistical data management and gender mainstreaming.

# **7 Transversal themes**

## **7.1 Environment and climate change**

Environment is not considered as a cross-cutting theme but rather as a strategic orientation of the intervention, given the strong focus on new and renewable energies. As much as 95 percent of Mozambique's households use firewood or charcoal daily for cooking. The greenhouse gas emissions associated with the production and consumption of charcoal are high and projected to grow further. The main sources of non-electric light on the other hand are torches, firewood and kerosene. The promotion of renewable energy for decentralised off-grid electricity production in this project contributes to climate change mitigation and adaptation as co-benefits in this development intervention. As the attention in MIREME is also shifting more towards greening the energy mix through cleaner cooking initiatives, the financed studies on technologies and economics of eco-briquette making also becomes part of the support to the implementation of the Sustainable Access to Energy for All-strategy, as this may have an immediate bearing on the reduction of poverty, pollution and deforestation.

## 7.2 Gender

Mozambique has a population of about 29.5 million people, of which 51% are women, 72.2% of whom live in rural areas and 24.1% are household heads. It ranks 180th worldwide out of a total of 189 on the Human Development Index and 142nd out of a total of 189 according to the UNDP Gender Inequality Index (2018). It is estimated that only 30% of the population have access to electricity from the national electricity grid, most of which reside in urban areas. Official figures report a rise in access to electrical power of less than 35 percent of the population in 2019 to 41 percent in 2021. However, this is predominantly in urban areas. As much as 95 percent of the households use firewood or charcoal daily for cooking. This energy poverty is experienced more severely by women than men, as women are most often and to a large extent responsible for household and community energy provision. Thus, without access to modern energy services, women and girls spend most of their day performing basic subsistence tasks, including time-consuming and physically draining tasks of collecting biomass fuels. This constrains them from accessing decent wage employment, educational opportunities and other livelihood options, and limits their options for social and political interaction outside the household. At the same time, cooking from biomass is particularly detrimental to the health of women and children. Focusing on rural electrification and improved wood stoves will benefit women and contribute to the removal of gender inequality, reducing the use of wood for cooking which requires longer journeys of women, who are left with less time to be able to perform other activities. The link between gender equity and energy transpires clearly in these domestic uses of energy.

Challenges in gender mainstreaming persist throughout this capacity building project such as:

- Emphasis on developing infrastructure without sufficient attention to community applications, users' needs and potential productive uses: energy as an end in itself.
- Implementation requires appropriate capacity at lower levels in national, provincial, district and local offices.
- Women are under-represented in the energy sector, especially in technical areas and at decision making levels.
- Few data and specific strategies are available on gendered energy use,
- Access to formal finance institutions is often biased against women with lower education levels and asset accumulation.

This year, a consultancy by GreenLight Mozambique elaborated well-documented and well-argued recommendations on the most relevant and immediate areas and entry points to mainstream gender in the commitment to achieve SEAforAll in Mozambique. One of the immediate areas for gender mainstreaming refer to the reinforcement of the Gender Focal Points from the central government and provinces, through the creation of a Training-of-Trainers module on gender mainstreaming. It is in this context that the Junior Expert, Esra Nurja, has started to develop and review the ToT module on gender mainstreaming.

### 7.3 Digitisation

- Human Resources Development Plan and Retention Strategy: the national e-SNGRH digitalized system of M&E of staff has been installed and piloted this year on IT infrastructure financed by the project
- Additional temporary human resources (statisticians) for data management and analysis in MIREME
- Training in GIS
- IT platform for centralised and digitalised reporting
- Design of a digital database on international cooperation
- Update and improvement of website of MIREME
- Elaboration of Terms of Reference for the design of a national Energy Cadaster for ARENE.
- Improved and expanded national energy balance MIREME
- Remote monitoring of photovoltaic installation in SPI Quelimane during the entire year by the installing company Logos.

### 7.4 Decent work

- Improvements of the working conditions in MIREME central are supported by financing the rental of a fibre cable access to internet, telephone credit for the focal points, financing of temporary human resources, support to IT supplies, installation of a grid-tied PV infrastructure for SPI Quelimane, and long-term (Masters) and short-term training both in MIREME, SPIs and ARENE.
- See also the gender paragraph above.

## 8 Lessons learned

### 8.1 The successes

1. Despite the challenges of the Covid19 pandemic, the project has this year been able to focus especially on the management and analysis of energy data, the promotion of renewable energy, organizational strategy and management issues, training, and human resources.
2. Due to the investment of the project in increased internet connectivity among the partners and a generalized shift in meeting culture, more meetings and international exchanges take place online.
3. The availability of energy data management assistants in DPC has resulted in the preparation of an improved energy balance for the country, MIREME now having become a Delegated Organ of INE (National Institute of Statistics), as well as the draft of a long outstanding official sector review for the period 2011-2019.
4. The recommendations of consultancies are increasingly presented to the wider leadership of MIREME and ARENE at the Conselho Tecnico.

5. The coverage of the central provinces of Zambezia, Manica, Tete and Sofala provinces consisted this year predominantly of training activities: on-line introduction to GIS, energy data management, and gender mainstreaming. In fact, for both the energy data management and gender training in the last quarter of this year, other provincial key staff of MIREME are also included to assure consistency across the 10 provinces in terms of performance in integrated country-wide data collection and renewable energy promotion campaigns. In addition, other project activities such as statistical data collection by MIREME; consultancies on the design of IT platform; the planning, monitoring and evaluation manual and the planned pilot of a provincial Multi-Tier Framework survey with support from VITO; production and dissemination of specific, simplified information on renewable energy for consumers, producers and investors in rural areas; and an in 2021 granted tender for a consumer and market survey on eco-briquettes, are also geared towards the central provinces.
6. The installation of a grid-tied PV infrastructure in SPI Quelimane has improved local working conditions by enhancing the access to electricity for computer and air conditioning use.
7. Various forms of short-term (e.g., energy data analysis, coordination, renewable energy technology, gender, English, ...) and long-term training (e.g., Master in Renewable Energy in DNE, Master in Communication for Development in DPC) have been supported.
8. Some training sessions (data management, gender...) have also included stakeholders from INE, FUNAE, EDM, ...
9. The new Junior Expert has already been able to prepare ToT modules in gender and renewable energy, and in energy data management and analysis to quite an advanced degree. The ToT gender is being prepared for publication in early 2022.
10. The coaching of Junior Expert on data management and GIS has been very effective and satisfactory in terms of introducing concepts of GIS within MIREME. This has resulted in a project manual for a general introduction to GIS.
11. The ARENE consultancy financed by Enabel on priorities for regulatory development of off-grid renewable energy have strengthened the capacity of ARENE to provide inputs into the development of and eventual approval of the General Regulatory Framework for the off-grid sector by Cabinet in June 2021, and by Parliament in the last quarter of 2021. In the same vein, inputs were given to the Revised Electricity Law, which emphasizes the role of renewable energy in the country's energy mix. The law was accepted by Cabinet in September 2021, and by Parliament in the last quarter of 2021.
12. Three of the ARENE assistants hired in 2020, have been taken over on the payroll of ARENE after their first year.
13. The project has also provided the support for ARENE to become a full-paid member of the Energy Regulators Regional Association (ERRA).
14. The MTR confirms the self-assessment of the positive contributions and pro-active adaptation to the fluctuating policy and staff context and delays in implementation of the project. Because of the ambitious formulation of the project, the MTR suggests

a limitation and reworking of the outcome indicators. This has already been elaborated in a proposal to remove indicators that have been overtaken by events, have no direct enough link with the agreed range of support activities, or for which the information is not as readily available as initially thought. New indicators and changes in values have already been added in Pilot, while awaiting approval from the Steering Committee.

15. Finally, this year a financial audit was successfully performed without major remarks.

## 8.2 The Challenges

1. Providing additional human resources to temporarily relieve workload pressure in the area of data management (MIREME) or technical assistance (ARENE), requires a solid accompaniment. It was deemed that the partners would benefit from additional national and international institutions of research and higher learning to provide periodical hands-on support. A tender for periodical support was launched in 2021, It represents a very innovative way of providing recurrent assistance, but would require an intense follow-up from the project management team. The delay in the compilation of an evaluation team from the partners' side is a case in point. Procedurally, as the ToR indicate a 12 month period, this would already pose likely contractual problems given that the project expires end of 2022. Taking into account the present workload faced and over-budgeting in case the IVA is not recuperated, the decision was made to suspend this consultancy.
2. The compilation of a Planning and M&E Manual for MIREME started in 2021, but has proven to be a slow exercise which implies a more strategic internal understanding and acknowledgement of needs and possibilities in MIREME and among other stakeholders. The consultancy presented its Diagnostic Report, which makes it clear that MIREME still needs several developments and improvements to be able to lead and develop a comprehensive Energy Planning Exercise in Mozambique. Identified lacunae are absence of a formal Energy Planning process; shortcomings in the institutional design and leadership in planning; absence or scarcity of tools and technical capacity; and limitations on data and information required for Energy Planning. A series of improvements focusing on four points must be addressed: the institutional framework, data management, data collection and the elaboration of demand projections. The draft and final manual are still outstanding, to be delivered by March 2022.
3. The piloting of the e-SNGRH system in DRH MIREME, for which the equipment was bought by the project, was considered to be a possible useful tool. However, DRH cannot itself enter data into the system. Therefore, the information of training followed within the framework of the project, is sent to the Department of Human Resources to be entered into their system of M&E.
4. An important concern remains the lack of incentives in the public sector both at central or provincial level to go the extra mile in vision and implementation.
5. The provincial outreach setup has encountered problems with finding a dedicated, experienced provincial (inter)national expert.



6. The project's organizational setup within MIREME and ARENE has known a significant change in focal points. The former focal point in MIREME DPC moved to ARENE as a co-focal point, and is replaced by 2 core focal points in MIREME DPC. In addition, the different Directorates in MIREME involved in the project have dedicated focal points with the ambition to improve the implementation pace of the project as well as the integration of the various support interventions. This remains however a challenge, as demonstrated by for instance the difficulty in identifying an integrated annual training planning request for the project, rather than individual requests from the Directorates.
7. IT platform and Simplification of priority information and needs for rural populations: delays are incurred due to illness of key staff, miscommunication, and changes in expectations, which first needed to be ironed out. Similarly, delays were incurred in hiring a consultant to draft the ToR for a tender for PV installations to supplement the grid electricity in SPI Manica. It took quite a few months to obtain the detailed specifications from the SPI, required for a full elaboration of the ToR.
8. In turn, the Mid-Term Review (MTR), incurred significant delays in 2021. This was caused by poor planning, poor analysis and the need to beef up the initial draft report to at least obtain some useable recommendations. The MTR points out that despite the positive contributions and pro-active adaptation to the fluctuating policy and staff context and delays in implementation, the ambitious project's outcome will not be fully achieved by 2022. A limitation and reworking of the outcome indicators is suggested, to better capture the already perceptible changes and contributions of CB MIREME/ARENE. The recommendations how to do this, remain very general (e.g., in a participatory manner and by focusing the indicators on the 3 specific objectives of the intervention), and appear in their proposal to use the CAP-scan methodology, to refer rather to an evaluation exercise.
9. In brief, the actual adaptive project management to the complex context and ambitious setup needs to translate in a more focused and limited framework of action. A proposal has been elaborated. There remains, however, a difficulty in formulating detailed and SMART outcome targets at policy level, as little formally confirmed information is circulated and within the government machinery no other indicators can be agreed upon. Part of the project's contribution through for instance reporting system and a manual for planning, M&E aims exactly to promote the process of clarifying and agreeing on such targets. Therefore, the concept of quantitative results-based project management M&E applies difficultly to this particular intervention.
10. It has been agreed with MIREME that the project needs to be fully authorised to reclaim VAT – presently estimated around Euro 97,000. To that effect, the request for the process of an Exchange of Letters to add the Ministry of Economy and Finance to the Specific Agreement, has been channelled to MIREME. However, the administrative process is taking a lot of time, partly due to the lack of experience among the partners to the processes required. Given the present budget projections, recuperating IVA is a prerequisite to finance agreed activities.
11. Capacity strengthening requires, in brief, time, transparency and a flexible but systematic approach of cooperation between partners.

12. Finally, this year's financial audit team was not well aware of some of the basic modalities and procedures Enabel works under.

### 8.3 Strategic learning questions

1. Given the many uncertainties in the policy context and the fact that many of the identified outputs refer to the integrated design or systematization of existing or new practices (e.g., regulatory frameworks, manuals, additional human resources...), a regular updating of the project's intervention logic is advisable. However, this requires more human resources as it also involves compiling novel types of M&E information. It is therefore proposed to remove indicators that have been overtaken by events (e.g., delay in policy development, adaptation of intended support outcomes as in the case of the PME manual), have no direct enough link with the agreed range of support activities, or for which the information is not as readily available as initially thought. The latter is out of the scope of the project's present M&E capacity.
2. ARENE's task are huge, but so is its potential to receive additional support over the mid-term. A proper sequencing of support needs to be coordinated with various donors.
3. The channels of simplification, strengthening of gender focal points and trainer of trainers-skills may address some of the identified inefficiencies in disseminating appropriate information on renewable energy for productive use among government actors and rural dwellers. Further investment in methodology and product development is appropriate.
4. The availability of a Junior Expert has proven crucial to that effect, especially in terms of introducing or adapting methodologies and interacting with the junior specialists temporarily supported by the project.
5. The present shift in interaction with provinces from physical to online communication due to Covid19, climate and security risks, justifies a gradual easy expansion of the focus of digitalization, training and vulgarization to Tete, the last remaining province of the Central Region.
6. Longer-term support is needed to assure the deployment of additional specialised human statistical resources who have contributed to MIREME becoming a delegated member of the national statistical network of INE.
7. In brief, capacity strengthening requires time, transparency, flexibility and an adaptive management approach of cooperation between partners.

## 8.4 Summary of lessons learned

Lessons learned	Target group
<ul style="list-style-type: none"> <li>The channels of simplification, strengthening of gender focal points and trainer of trainers-skills may address some of the identified inefficiencies in disseminating appropriate information on renewable energy for productive use among government actors and rural dwellers. Further investment in methodology, product development and dissemination is appropriate.</li> </ul>	<ul style="list-style-type: none"> <li>Enabel, MIREME and ARENE</li> </ul>
<ul style="list-style-type: none"> <li>Provincial outreach needs to cover both physical as well as digital dimensions, given the Covid19 pandemic, weather extremes, and terrorist attacks</li> </ul>	<ul style="list-style-type: none"> <li>MIREME and SPIs</li> </ul>
<ul style="list-style-type: none"> <li>Longer-term support is needed to assure the deployment of additional specialised human statistical resources who have contributed to MIREME becoming a delegated member of the national statistical network of INE.</li> </ul>	<ul style="list-style-type: none"> <li>MIREME</li> </ul>
<ul style="list-style-type: none"> <li>Coordination between MIREME and ESWG as well as within ESWG requires more time and information resources, as the sector is characterized by many players and interests</li> </ul>	<ul style="list-style-type: none"> <li>ESWG, Enabel, MIREME, ARENE</li> </ul>
<ul style="list-style-type: none"> <li>Junior Experts can provide a substantial contribution in terms of methodologies as well as interactions with young specialists in the partner organisations.</li> </ul>	<ul style="list-style-type: none"> <li>Enabel, MIREME and ARENE</li> </ul>
<ul style="list-style-type: none"> <li>Capacity strengthening requires an adaptive management approach of cooperation between partners. Especially given the many uncertainties in the policy context and the fact that many of the identified outputs refer to the integrated design or systematization of existing or new practices.</li> </ul>	<ul style="list-style-type: none"> <li>Enabel, MIREME, ARENE</li> </ul>

## 9 Steering

### 9.1 Changes made to the intervention

The actually applied adaptive project management to the complex context and ambitious setup needs to translate in a more focused and limited framework of action. It is proposed

to remove indicators that have been overtaken by events (e.g., delay in policy development, adaptation of intended support outcomes as in the case of the PME manual), have no direct enough link with the agreed range of support activities, or for which the information is not as readily available as initially thought, and would require additional resources to research and produce such information. New indicators and changes in values have already been added in Pilot, while the proposed reworked M&E framework and budget (see Annex 10.2 and 10.5 respectively) await final approval from the Steering Committee.

## 9.2 Decisions taken by the Steering and monitoring committee

Decision to take		
Increase of overall Euro budget allocation for Arene (maximum duplication)	07/12/2020	Steering Committee

Decision to take		
Approval of planned activities and budget of 2021	08/03/2021	Steering Committee

## 9.3 Considered strategic reorientations

- Expansion of provincial coverage to the entire Central Region
- Extension of implementation of some activities to end of 2022

## 9.4 Recommendations

Recommendations	Actor	Deadline
Provincial outreach and training need to include and emphasize digital dimensions, as Covid19, climate and security impact is unpredictable, as well as given the difficulty to find a (inter)national technical coordinator at provincial level.	MIREME/Enabel	Q2 2021

Substantial effort in communication and training on what renewable energy can mean for rural development, on gender equity, and on improved energy data management is required.	MIREME/ARENE/Enabel	Q4 2022
Longer-term support is needed to assure the deployment of additional specialised human statistical resources who have contributed to MIREME becoming a delegated member of the national statistical network of INE.	MIREME/ Enabel	Q4 2022
It has been agreed with MIREME that the project needs to be fully authorised to reclaim VAT. Given the present budget projections, recuperating IVA is a prerequisite to finance agreed activities.	MIREME/ Enabel	Q3 2022
Include relevant lessons from the project on sustainable access to modern and clean energy for the further programming of Belgian development support to Mozambique	Enabel	Q4 2022

## 10 Annexes

### 10.1 Quality criteria

<b>1. RELEVANCE: The extent to which the intervention is in line with local and national policies and priorities as well as with the expectations of the beneficiaries.</b>				
<i>Do as follows to calculate the total score for this quality criterion: At least one 'A', no 'C' or 'D' = A; two 'B's = B; at least one 'C, no 'D' = C; at least one 'D' = D</i>				
Appraisal of RELEVANCE: Total score	A	B	C	D
	X			
<b>1.1 1.1. What is the current degree of relevance of the intervention?</b>				
X	A	Clearly still anchored in national policies and the Belgian strategy, meets the commitments on aid effectiveness, extremely relevant for the needs of the target group.		
...	B	Still embedded in national policies and the Belgian strategy (even though not always explicitly so), relatively compatible with the commitments on aid effectiveness, relevant for the needs of the target group.		
...	C	A few questions on consistency with national policies and the Belgian strategy, aid effectiveness or relevance.		
...	D	Contradictions with national policies and the Belgian strategy, the commitments on aid effectiveness; doubts arise as to the relevance vis-à-vis the needs. Major changes are required.		
<b>1.2 Is the intervention logic as currently designed still the good one?</b>				
	A	Clear and well-structured intervention logic; vertical logic of objectives is achievable and coherent; appropriate indicators; risks and hypotheses clearly identified and managed; intervention exit strategy in place (if applicable).		
X	B	Appropriate intervention logic even though it could need certain improvement in terms of hierarchy of objectives, indicators, risks and hypotheses.		
	C	Problems pertaining to the intervention logic could affect performance of an intervention and its capacity to control and evaluate progress; improvements required.		
	D	The intervention logic is faulty and requires an in-depth review for the intervention to possibly come to a good end.		

<b>2. EFFICIENCY OF IMPLEMENTATION TO DATE: A measure of how economically resources of the intervention (funds, expertise, time, etc.) are converted in results.</b>				
<i>Do as follows to calculate the total score for this quality criterion: At least two 'A's, no 'C' or 'D' = A; two 'B's = B, no 'C' or 'D' = B; at least one 'C, no 'D' = C; at least one 'D' = D</i>				
	A	B	C	D

<b>Appraisal of the EFFICIENCY: Total score</b>			<b>X</b>		
<b>2.1 To what extent have the inputs (finances, HR, goods &amp; equipment) been managed correctly?</b>					
	<b>A</b>	All inputs are available in time and within budget limits.			
X	<b>B</b>	Most inputs are available within reasonable time and do not require considerable budgetary adjustments. Yet, there is still a certain margin for improvement possible.			
	<b>C</b>	The availability and use of inputs pose problems that must be resolved, otherwise the results could be at risk.			
	<b>D</b>	The availability and management of the inputs is seriously lacking and threaten the achievement of the results. Considerable changes are required.			
<b>2.2 To what extent has the implementation of activities been managed correctly?</b>					
	<b>A</b>	Activities are implemented within timeframe.			
X	<b>B</b>	Most activities are on schedule. Certain activities are delayed, but this has no impact on the delivery of outputs.			
	<b>C</b>	The activities are delayed. Corrective measures are required to allow delivery with not too much delay.			
	<b>D</b>	The activities are seriously behind schedule. Outputs can only be delivered if major changes are made to planning.			
<b>2.3 To what extent are the outputs correctly achieved?</b>					
	<b>A</b>	All outputs have been and will most likely be delivered on time and in good quality, which will contribute to the planned outcomes.			
X	<b>B</b>	The outputs are and will most likely be delivered on time, but a certain margin for improvement is possible in terms of quality, coverage and timing.			
	<b>C</b>	Certain outputs will not be delivered on time or in good quality. Adjustments are required.			
	<b>D</b>	The quality and delivery of the outputs most likely include and will include serious shortcomings. Considerable adjustments are required to guarantee at least that the key outputs are delivered on time.			

<b>3. EFFECTIVENESS TO DATE: Extent to which the outcome (specific objective) is achieved as planned at the end of year N</b>				
<i>Do as follows to calculate the total score for this quality criterion: At least one 'A', no 'C' or 'D' = A; two 'B's = B; at least one 'C, no 'D' = C; at least one 'D' = D</i>				
	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>

<b>Appraisal of EFFECTIVENESS:</b>			<b>X</b>		
<b>Total score</b>					
<b>3.1 At the current stage of implementation, how likely is the outcome to be realised?</b>					
	<b>A</b>	It is very likely that the outcome will be fully achieved in terms of quality and coverage. Negative results (if any) have been mitigated.			
X	<b>B</b>	The outcome will be achieved with a few minor restrictions; the negative effects (if any) have not had much of an impact.			
	<b>C</b>	The outcome will be achieved only partially, among other things due to the negative effects to which the management was not able to fully adapt. Corrective measures should be taken to improve the likelihood of achieving the outcome.			
	<b>D</b>	The intervention will not achieve its outcome, unless significant fundamental measures are taken.			
<b>3.2 Are the activities and outputs adapted (where applicable) in view of achieving the outcome?</b>					
	<b>A</b>	The intervention succeeds to adapt its strategies/activities and outputs in function of the evolving external circumstances in view of achieving the outcome. Risks and hypotheses are managed proactively.			
X	<b>B</b>	The intervention succeeds rather well to adapt its strategies in function of the evolving external circumstances in view of achieving the outcome. Risk management is rather passive.			
	<b>C</b>	The project has not fully succeeded to adapt its strategies in function of the evolving external circumstances in an appropriate way or on time. Risk management is rather static. A major change to the strategies seems necessary to guarantee the intervention can achieve its outcome.			
	<b>D</b>	The intervention has not succeeded to react to the evolving external circumstances; risk management was not up to par. Considerable changes are required to achieve the outcome.			

<b>4. POTENTIAL SUSTAINABILITY: The degree of likelihood to maintain and reproduce the benefits of an intervention in the long run (beyond the implementation period of the intervention).</b>					
<i>Do as follows to calculate the total score for this quality criterion: At least three 'A's, no 'C' or 'D' = A; maximum two 'C's, no 'D' = B; at least three 'C's, no 'D' = C; at least one 'D' = D</i>					
<b>Appraisal of POTENTIAL SUSTAINABILITY: Total score</b>		<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
			<b>X</b>		
<b>4.1 Financial/economic sustainability?</b>					
	<b>A</b>	Financial/economic sustainability is potentially very good: Costs related to services and maintenance are covered or reasonable; external factors will have no incidence whatsoever on it.			
	<b>B</b>	Financial/economic sustainability will most likely be good, but problems may arise in particular due to the evolution of external economic factors.			
X	<b>C</b>	The problems must be dealt with concerning financial sustainability either in terms of institutional costs or in relation to the target groups, or else in terms of the evolution of the economic context.			



	<b>D</b>	Financial/economic sustainability is very questionable, unless major changes are made.
<b>4.2 What is the degree of ownership of the intervention by the target groups and will it prevail after the external assistance ends?</b>		
	<b>A</b>	The Steering Committee and other relevant local instances are strongly involved at all stages of execution and they are committed to continue to produce and use the results.
	<b>B</b>	Implementation is strongly based on the Steering Committee and other relevant local instances, which are also, to a certain extent, involved in the decision-making process. The likelihood that sustainability is achieved is good, but a certain margin for improvement is possible.
X	<b>C</b>	The intervention mainly relies on punctual arrangements and on the Steering Committee and other relevant local instances to guarantee sustainability. The continuity of results is not guaranteed. Corrective measures are required.
	<b>D</b>	The intervention fully depends on punctual instances that offer no perspective whatsoever for sustainability. Fundamental changes are required to guarantee sustainability.
<b>4.3 What is the level of policy support delivered and the degree of interaction between the intervention and the policy level?</b>		
	<b>A</b>	The intervention receives full policy and institutional support and this support will continue.
X	<b>B</b>	The intervention has, in general, received policy and institutional support for implementation, or at least has not been hindered in the matter and this support is most likely to be continued.
	<b>C</b>	The sustainability of the intervention is limited due to the absence of policy support. Corrective measures are required.
	<b>D</b>	Policies have been and will most likely be in contradiction with the intervention. Fundamental changes seem required to guarantee sustainability of the intervention.
<b>4.4 To what degree does the intervention contribute to institutional and management capacity?</b>		
	<b>A</b>	The intervention is integrated in the institutions and has contributed to improved institutional and management capacity (even though it is not an explicit objective).
X	<b>B</b>	The management of the intervention is well integrated in the institutions and has contributed in a certain way to capacity development. Additional expertise may seem to be required. Improvement is possible in view of guaranteeing sustainability.
	<b>C</b>	The intervention relies too much on punctual instances rather than on institutions; capacity development has failed to fully guarantee sustainability. Corrective measures are required.
	<b>D</b>	The intervention relies on punctual instances and a transfer of competencies to existing institutions, which is to guarantee sustainability, is not likely unless fundamental changes are made.

## 10.2 Updated Logical framework and/or Theory of Change<sup>19</sup>

Indicators Monitoring Matrix									
MOZ1403011 - Capacity Development of the Ministry of Mineral Resources and Energy (MIREME) and Energy Regulatory Authority (ARENE)									
	Indicator Baseline Value	2019		2020		2021		2022	
		Indicator Target Value	Indicator Actual Value	Indicator Target Value	Indicator Actual Value	Indicator Target Value	Indicator Actual Value	Indicator Target Value	Indicator Actual Value
G.O.: The development of the energy sector is enhanced in order to power the socioeconomic development of the country and to contribute to the welfare of its people.									
MOZ1403011 Population's access to electricity (%)	26	30.9	35	39.1	38	44.8	41	51.0	
MOZ1403011 Population's access to renewable off-grid electricity (%)		0.01	0.04				5	9	
S.O.: The performance of MIREME and ARENE in advancing access to renewable electricity in rural areas is enhanced									
1 MOZ1403011ACTIVITY IMPLEMENTATION MIREME+ARENE	TBC							<=70%	

<sup>19</sup> Shaded indicators proposed to be removed; new indicators indicated with 'NEW'.  
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2. MOZ1403011 CONNECTIONS UNDER NATIONAL ELECTRIFICATION PROGRAMME (Population's access to electricity (%))	26	30.9	35	39.1	38	44.8	41	51.0	
3 MOZ1403011 CONNECTIONS RENEWABLE OFFGRID ELECTRICITY UNDER NATIONAL ELECTRIFICATION PROGRAMME (Population's access to renewable off-grid electricity (%))		0.01	0.04				5	9	
4. MOZ1403011 PRIORITY REGULATORY INSTRUMENTS FOR RENEWABLE OFF-GRID ELECTRICITY PUBLISHED	0					2	2	7	
5. MOZ1403011 M&E PILOT REGULATORY INSTRUMENTS RENEWABLE OFF-GRID ELECTRICITY	0			70				70%	
6. MOZ1403011 DISSEMINATION INFORMATION ON RENEWABLE ENERGY TO RURAL AREAS (estimated % of available information)	0		2		10	100	25	100	
7. ENERGY CADASTER DEVELOPED (NEW)								1	
R.A. 1: MIREME's capacities at the central level are strengthened to improve planning and policy-making in the energy sector									
1.2.1 MOZ1403011 Manual of Planning, Monitoring and Evaluation	0	1	0	1	0	1	0.33	1	

1.2.2 MOZ1403011Quality annual plans	0			1		1		1	
1.2.3. MOZ1403011 Annual realization rate of planned activities	0							90	
1.3.1 MOZ1403011 Data Management Platform	0	1	0	1	0	1	1	1	1
1.3.2 MOZ1403011MethodologyChapter	0	1							
1.3.3 MOZ1403011Quality Quarterly Reports	0			1		4		2	
1.3.4 MOZ1403011NRE information dissemination (estimated % of available information)	0		2		10	100	25	100	
1.4.1 MOZ1403011 HR Development Plan	0	1	0	1	1	1	1	1	1
1.4.2 MOZ1403011 HR M&E System	0			1	0	1	1	1	1
1.4.3 MOZ1403011 Number of trainings delivered		25	25	40	35	45 (of which 3 MSc)	59 (of which 3 MSc)	TBC (of which 3 MSc)	
1.4.4 MOZ1403011 WORK CONDITIONS MIREME	TBC							60%	

1.4.5 MOZ1403011 Staff Retention	20							5	
1.5.1 MOZ1403011 Priority off-grid regulatory instruments developed	0					2	2	7	
1.5.2 MOZ1403011 Approved off-grid regulatory instruments	0					2	2	7	
MOZ1403011 Expanded and improved country energy balance (NEW)	0			1	0	1	1	1	1
MOZ1403011 Improved website MIREME (NEW)						1	0.15	1	
MOZ140301 Database international cooperation initiatives (NEW)						0	0	1	
MOZ1403011 Review of energy sector 2011-2020 (NEW)	0					1	0	1	
R.A. 2: DIPREME's/SPI's capacities are strengthened in order to improve the planning, coordination and M&E of the energy sector in the selected provinces (Zambezia, Sofala, Manica and Tete)									
2.2.1 MOZ1403011 Quality Plans DIPREME-MIREME	0			1		1		1	
2.2.2 MOZ1403011 REALIZATION RATE ANNUAL PLAN DIPREME						90			
2.3.1 MOZ1403011 QUALITY QUARTERLY REPORTS DIPREME-MIREME	0			1		4		2	

2.3.2 MOZ1403011 NRE INFORMATION DISSEMINATION DIPREME (estimated % of available information)		0	25	25	10	25	35	80	
2.4.1 MOZ1403011 HR M&E SYSTEM DIPREME				1					
2.4.2 MOZ1403011 HR DEVELOPMENT PLAN IMPLEMENTATION DIPREME	0	30		30		40		40	
2.4.3 MOZ1403011 TRAINING DELIVERED DIPREME (staff members)			25	20	20	25	28	TBC	
2.4.4 MOZ1403011 DIPREME STAFF RETENTION	TBC	TBC				5			
2.4.4 MOZ1403011WORK CONDITIONS DIPREMES (PV installations)	0			1	1	1	0	2	
R.A. 3: Capacities of ARENE are strengthened to become a strong and independent regulator able to regulate new and renewable off-grid electricity									
3.2.1 MOZ1403011 PRIORITY REGULATORY INSTRUMENTS OFF-GRID NRE DEVELOPED	0					2	2	7	
3.2.2 MOZ1403011 PRIORITY REGULATORY INSTRUMENTS OFF-GRID NRE APPROVED	0					2	2	7	
3.3.1 MOZ1403011 HR FRAMEWORK DEVELOPED	0			1	0.5	1	0.9	1	

3.3.2 MOZ1403011 HR FRAMEWORK APPROVED	0			1	0.5	1	0.75	1	
3.4.1 MOZ1403011 HR FRAMEWORK APPLIED NUMBERS	0			TBC		TBC		TBC	
3.4.2 MOZ1403011 HR FRAMEWORK APPLIED FUNCTIONS	0			TBC		TBC		TBC	
3.4.3 MOZ1403011 HR FRAMEWORK TRAINING IMPLEMENTATION				9	9	4	4	TBC	
3.5.1 MOZ1403011 PILOT REGULATIONS M&E	0			TBC		TBC		TBC	
TEMPORARY HR SUPPORT (number technicians) (NEW)				3	3	5	5	2	
ENERGY CADASTER DEVELOPED (NEW)								1	
Strategic Plan ARENE until 2025 (NEW)						1	0	1	

### 10.3 Monitoring of change management processes forms (optional)

Monitoring forms to be used for ongoing reflection or for an explicit research-action approach used by the intervention (See Content management guide).

Title Output 1	
What is the assumption (1 phrase) leading to the intermediate outcome?	
<p>Is the Theory of Change (model, principles, values) underlying the assumption developed in an explicit manner?</p> <p><input type="radio"/> No</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> Major changes made to the ToC during the year?</p> <p>If so, which ones? (Adapted ToC may be attached.)</p>	
<p>Which are the major decisions taken in the year to realise the change on the basis of the assumption and which is their justification?</p> <p><input type="radio"/> Decision 1 : .....      <input type="radio"/> Justification Decision 1: .....</p> <p><input type="radio"/> Decision 2: .....      <input type="radio"/> Justification Decision 2: .....</p>	
Were there any opportunities in the context (specifically related to the result) that have facilitated the change process and the achievement of the intermediate outcome?	
Were there any major constraints in the context (specifically related to the result) that have negatively influenced the change process and the achievement of the intermediate outcome?	
<p>Has the (research-action) change process been documented?</p> <p><input type="radio"/> No.</p> <p><input type="radio"/> Yes</p> <p>If yes, under which form?</p>	
<p>Has the documented change process been communicated in any way?</p> <p><input type="radio"/> No</p> <p><input type="radio"/> Yes</p> <p>If yes, under which form?</p>	

### 10.4 Summary of MoRe Results

Results or indicators of the logical framework changed during the last 12 months?	YES
Report of the Baseline registered in PIT?	YES
MTR Planning (registered report)	Q4 2021
ETR Planning (registered report)	11/2022 (estimate)
Backstopping missions since 01/01/2019	1



## 10.5 'Budget versus Actuals (y – m)' Report

Budget Execution/Activities	Expenses				% expenses	Balance budget
	Budget	Total 31/12/2020	2021	Total 31/12/2021		
<b>MOZ1403011</b>						
<b>The performance of MIREME and CNELEC in advancing access to renewable electricity in rural areas is enhanced</b>	<b>2,690,000.00</b>	<b>1,495,741.01</b>	<b>565,663.93</b>	<b>2,061,404.94</b>	<b>76.63%</b>	<b>628,595.06</b>
The capacities of the MIREME at central level are strengthened in order to improve the energy sector planning and policy-making	1,505,000.00	600,083.77	400,030.70	1,000,114.47	66.45%	504,885.53
Long Term technical Assistance	720,000.00	309,583.87	88,027.89	397,611.76	55.22%	322,388.24
Sector Planning within MIREME	140,000.00	63,108.38	106,496.72	169,605.10	121.15%	-29,605.10
Quality data and information within MIREME	145,000.00	123,551.03	153,900.07	277,451.10	191.35%	-132,451.10
Human Resources Management	120,000.00	96,209.78	51,606.02	147,815.80	123.18%	-27,815.80
Support the development of technical, economical and Health & Safety regulations	20,000.00	7,630.71	-	7,630.71	38.15%	12,369.29
Medium Term Consultancies	360,000.00	-	-	-	0.00%	360,000.00
The capacities of the DIPREME are strengthened in order to improve energy sector planning, monitoring and supervision in selected provinces	955,000.00	639,751.58	34,900.35	674,651.93	70.64%	280,348.07
Long Term technical Assistance	450,000.00	231,893.86	-	231,893.86	51.53%	218,106.14
Sector Planning within selected DIPREME	70,000.00	27,324.13	14,321.32	41,645.45	59.49%	28,354.55
Quality data and information between MIREME at central level and DIPREME	190,000.00	229,237.36	985.89	230,223.25	121.17%	-40,223.25
Human Resources Management at provincial level	65,000.00	151,296.23	19,593.14	170,889.37	262.91%	-105,889.37
Medium Term Consultancies	180,000.00	-	-	-	0.00%	180,000.00
Build ARENE into an independent and capable regulator for the new and renewable electricity sub-sector are supported	230,000.00	177,014.64	100,074.91	277,089.55	120.47%	-47,089.55
Long Term technical Assistance	180,000.00	68,340.54	25,238.86	93,579.40	51.99%	86,420.60

Support the development of technical, economic and health & safety regulations	50,000.00	61,130.61	11,218.25	72,348.86	144.70%	-22,348.86
Human resources framework of ARENE is elaborated and approved		644.67	-	644.67		-644.67
Human resources framework of ARENE is operational in pilot priority tasks in the domain of new and renewable off-grid energies		38,469.86	8,973.17	47,443.03		-47,443.03
Pilot priority technical, economic and health & safety regulations for new and renewable off-grid energies		8,428.96	54,644.63	63,073.59		-63,073.59
<b>IVA</b>	-	78,891.02	30,657.97	109,548.99		-109,548.99
IVA		78,891.02	30,657.97	109,548.99		-109,548.99
<b>Reserve</b>	90,000.00	-	-	-	0.00%	90,000.00
Reserve	90,000.00	-	-	-	0.00%	90,000.00
Direct Management reserve	90,000.00	-	-	-	0.00%	90,000.00
<b>General Means</b>	1,220,000.00	598,835.50	210,552.56	809,388.06	66.34%	410,611.94
<b>Wages and salaries</b>	810,000.00	511,691.27	133,055.91	644,747.18	79.60%	165,252.82
Project management	450,000.00	418,137.85	103,954.16	522,092.01	116.02%	-72,092.01
Administrative and financial staff	300,000.00	93,553.42	29,101.75	122,655.17	40.89%	177,344.83
Other support staff	60,000.00	-	-	-	0.00%	60,000.00
<b>Investments</b>	50,000.00	14,451.61	1,196.91	15,648.52	31.30%	34,351.48
IT and office equipment	20,000.00	14,332.79	1,196.91	15,529.70	77.65%	4,470.30
Vehicles	30,000.00	118.82	-	118.82	0.40%	29,881.18
<b>Operating costs</b>	225,000.00	61,554.87	33,247.97	94,802.84	42.13%	130,197.16
Office premises / rental	24,000.00	32,684.32	14,196.28	46,880.60	195.34%	-22,880.60
Fuel and maintenance	30,000.00	16,640.86	2,351.66	18,992.52	63.31%	11,007.48
Internet & Communication	12,000.00	1,506.61	2,426.81	3,933.42	32.78%	8,066.58
Telecommunication costs	60,000.00	2,163.09	436.44	2,599.53	4.33%	57,400.47
Office consumables	17,500.00	1,645.36	82.33	1,727.69	9.87%	15,772.31
Missions costs	81,000.00	9,343.18	4,212.70	13,555.88	16.74%	67,444.12

Other operating costs	500.00	- 2,428.55	9,541.75	7,113.20	1422.64%	-6,613.20
Audit, Monitoring and Backstopping	135,000.00	7,694.23	44,092.90	51,787.13	38.36%	83,212.87
M&E (incl baseline, MTR and FE and capitalization exercise)	80,000.00	7,694.23	36,771.90	44,466.13	55.58%	35,533.87
Technical backstopping	20,000.00	-	-	-	0.00%	20,000.00
Audits	35,000.00	-	7,321.00	7,321.00	20.92%	27,679.00
Conversion rate adjustment	-	3,443.52	- 1,041.13	2,402.39		-2,402.39
Conversion rate adjustment	-	3,443.52	- 1,041.13	2,402.39		-2,402.39
	4,000,000.00	2,094,576.51	776,216.49	2,870,793.00	71.77%	1,129,207.00

## 10.6 Resources in terms of communication

Waeterloos, E. (2021) Mozambique: How to get to the gist of Geographical Information Systems for energy sector information management? [Open.Enabel - Belgian Development Agency / Mozambique: How to get to the gist of Geographical Information Systems for energy sector information management?](#)  
April

Nurja, E. and E.Waeterloos (2021) Towards National Junior Experts for the collection and analysis of data on the energy sector in Mozambique? [Open.Enabel - Belgian Development Agency / Towards National Junior Experts for the collection and analysis of data on the energy sector in Mozambique?](#) , July

Enabel (2021) Sistema de Informação Geoespacial (GIS): Uma Introdução teórica e prática, 57 p.